Living with Flood Risk
in a Changing Climate

# FLOWS report WP2A - 1

# Perception of Flood Hazard in Countries of the North Sea Region of Europe

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*It seems to me that we all look at Nature too much*
*And live with her too little.*

*Oscar Wilde*

# PERCEPTION OF FLOOD HAZARD IN COUNTRIES OF THE NORTH SEA REGION OF EUROPE

**By Irina Krasovskaia**

# CONTENTS

# Foreword

This report presents the results of the poll investigation in five countries of the North Sea region of Europe: Germany, the Netherlands, Norway, Sweden and the UK. It is the first one in a series of reports on WP2A of the FLOWS. Hallvard Berg (NVE, Norway) led the task group consisting of the representatives of all partner countries: Alison McErlain and Denys Ngu (Norfolk County Council, UK); Sandra van der Vegt (Flevoland, The Netherlands); Barbro Näslund-Landenmark (SRV, Sweden); Timm Ruben Geissler (Technische Universität Hamburg, Germany); Lars Gottschalk and Irina Krasovskaia (University of Oslo, Norway). The members of the task group coordinated the work in their respective countries and contributed with valuable comments on the results. Many other people from both FLOWS national teams and outside FLOWS-project participated in discussions and preparations of the poll and their contribution is gratefully acknowledged. Special thanks are due to Joanne Reilly, the Environment Agency UK for her valuable help with the preparation of the Master questionnaire and Rune Stubrud for his cheerful illustrations. Denys Ngu's amendments of the language contributed much to the readability of this report and are highly appreciated by the task group.

The report starts with an introductory chapter presenting the objectives and emphasizing distinctive features of this study in the context of FLOWS. The focus is put on perception of risk of flooding by laymen and decision-makers as an important element of flood risk assessment. Chapter II describes investigation tools, sample selection and accuracy aspects of the study. Chapter III presents the views of laymen in five countries of the North Sea region on flooding, trying to identify main similarities and discrepancies in these views. Chapter IV summarises the identified views, both common and different, as a background for discussions with decision-makers during expert panels in search for consensus. Annexes present the Master questionnaire; tabled data and additional information on sample selection (from TNS Gallup's report).

# SUMMARY

Flood risk perception by the general public is essential information in decision making concerning all the steps in flood risk assessment from preparedness and forecasts to spatial planning and retrofitting. The poll study described in this report was carried out with a purpose to study the perception of risk and vulnerability by laymen in five countries of the North Sea region of Europe: Germany, the Netherlands, Norway, Sweden and the UK. Among the focus topics for the poll were: general awareness and concerns about flood hazard; previous experiences from floods/ flood assessment; reasons for living in a flood prone area; knowledge about flood assessment in home region and preferable information channels and willingness to "buy safety"/ adapt to risk (risk-benefit). Polling was carried out by means of telephone interviews and involved on the total 4000 people living in areas at risk of flooding. The study brought forward important information about the way people in flood-prone areas of the North Sea region perceive flood hazard. There are more similarities than differences between the countries in the way people perceive flood hazard. We can note

- Limited interest in flood hazard
- Poor involvement in flood issues
- Sentimental rather than logical reasoning for living in areas at risk of flooding
- Passiveness with respect to raising flood safety of own homes
- Reluctant attitude towards moving
- Leaving responsibility to public authorities in spite of insufficient confidence in their ability to handle the problem
- Acceptance of major changes in environment to raise flood safety
- Newspapers and radio/TV are still the preferred information channels (except in UK), but information is insufficient or inadequate
- Misunderstanding of the nature of floods.

The findings from the poll study will be presented to decision-makers from the partner countries during expert panels to assess discrepancies in the perceptions between these two parties trying to reach a consensus on what risk is tolerable and what protection is possible to provide. Public perception and common sense cannot replace science and policy but they can certainly provide impetus for the decision-making process.The engaged dialog between decision-makers and laymen is considered to be an important element in decision-making in the context of flooding.

# *1. Engaging a dialogue between laymen and decision-makers*

*Plutôt que de s'opposer, doivent se soutenir*[1]
*Et se corriger mutuellement.*

*Claude Magris*

Reports about devastating floods are brought to us by mass media almost every week. Many regions of Europe have faced severe flooding numerous times in recent years. Table I-1 offers some examples of statistics of disastrous floods that occurred in the North Sea region. The values in the table are not directly comparable as the damage costs are calculated and reported differently in different countries.

Table 1-1. Floods in Northern Europe (EM-DAT, 2004)

| Country | Year | Killed | Damage mill.€[2] |
|---|---|---|---|
| Germany | 1994 | 2 | 158 |
| | 1995 | 0 | 819 |
| | 1997 | 0 | 59 |
| | 2002 | 27 | 7500 |
| | 2003 | 7 | 553 |
| Sweden | 2000/2001 | 0 | 25 (Arvika)[3] |
| | 2002 | 0 | 5 (Orust)[4] |
| Norway | 1987 | 0 | 48[5] |
| | 1995 | 1 | 117[6] |
| | 2000 | 0 | 19[7] |
| Netherlands | 1993 | 0 | 43 |
| | 1995 | 0 | 1442 |
| | 1998 | 0 | 16 |
| UK | 1998 | 5 | 204 |
| | 1999 | 0 | 26 |
| | 2000, Jun. | 0 | 15 |
| | 2000, Oct. | 0 | 4781 |
| | 2001, Feb. | 0 | - |
| | 2001, Oct. | 0 | - |
| | 2002, Jul. | 1 | - |
| | 2002, Aug. | 0 | - |

[1] "Instead of opposing, it is better to support each other and adapt."
[2] EM-DAT presents data in US$, which have been converted to €
[3] Johan Mannheimer, personal communication
[4] Johan Mannheimer, personal communication
[5] NOU 1996:16
[6] NOU 1996:16
[7] compiled by Hallvard Berg from different sources

We can see that floods bring enormous economic damage and also kill people. **Is the world becoming a more dangerous place?** Although the frequency of extreme floods shows an increasing tendency over recent decades, they are, by definition, rare events. This explains why such events still come as a surprise to the inhabitants on the floodplain. These people may have been lulled into a false sense of security by the long period passed since the last devastating flood, and by the technical protective measures undertaken (Kundzewicz, 1999). We face a paradox, when despite an outstanding development in science and technology we witness increasing losses caused by floods. Flood risk assessment goes beyond meteorological events, hydrological regimes, flood hazard mapping and technical means (e.g. dams, dikes etc.). It includes perception of risk by the general public and decision makers (Krasovskaia *et al.*, 2001). As noted by Renn (2004), it is not only probability and severity of adverse effects that influence the way people perceive risk but rather the context in which the risk was experienced.

Floods represent, however, a natural phase of river flow regimes and a flood hazard cannot be eliminated. It is the vulnerability of the society that should be assessed instead. In the last two decades "resilience" has become the buzzword (World Disasters Report, 2004). As it is not possible to provide total flood safety using even most advanced technical measures, it is of vital importance to learn how to live with floods by means of:

- better preparedness
- better forecasts
- better spatial planning
- better perception of flood hazard
- retrofitting.

All the above topics are studied in FLOWS and WP2A focuses on perception aspects of the problem with the aim: "*To study the perception of risk and vulnerability by the citizens, decision-makers and experts in partner countries focusing on similarities and differences in a search for a definition of commonly* ***tolerable*** *risk (if possible).*
*To investigate the existing links for communication of the flood hazard and suggest possible improvements*".

*Towards new horizons*

**Why is it important to study perceptions of flood hazard?** Floods represent a threat only with respect to human society, which gives humans a central role: through location and through perception ("anthropogenic" interpretation of a hazard). The protection of the rights of an individual is essential in a democratic society, but protection of the common wellbeing of the whole of society is also important. From this it follows that any flood assessment strategy should be based on the agreed policy between individuals and society with respect to what level of risk is tolerable. Risk is a primary factor in many political matters, often more important to the general public than other considerations and certain facets of the perceived risk are strongly related to the demand for risk mitigation (Sjöberg, 1999). Flood risk perception by the general public is thus essential information in decision making concerning all the steps in flood risk assessment from preparedness and forecasts to spatial planning and retrofitting.

Flood assessment is typically given to bodies with large administrative power and tax basis, while most of the impacts are local (Smith, 2001). It is important to make these two levels meet. The perception of risk by these two parties often proves to be different, as illustrated in Fig.1-1.

**Risk**

**(according to a decision-maker):**

***R=p*l***

***p is probability and l is loss***


**Risk**

**(according to laymen):**

$R=p*l^{x}$

***p is probability and l is loss***

$x>1$

*Fig. 1-1. An example of some common risk definitions by a decision-maker and laymen.*

We note an important difference, **exponent x**, which is always greater than one and is very individual. "Governance" is the new catchword to highlight the importance of the soft components of water resources management. A fundamental difference in all governance is between *perceived* and *assessed* problems: politicians and the general public act from perceived problems while experts work with diagnosis-based assessed problems (Falkenmark, 2004).

More practically-oriented and experience-based local knowledge accumulated in flood-prone areas needs to be reconciled with a general expert knowledge of flood issues. The identification of the commonly acceptable comprehension of the flood hazard is a first

step in a democratic process of formulating a flood-protection policy backed by the general public. In this context, effective ways of communicating the flood hazard message to the public are crucial for the success of the promoted participatory approach. Knowledge of public perception can be used for elaborating trade-off policies in flood assessment. As noted by Renn (2004), such trade-off is dependent on both context and choice of dimension, and information on perception helps to select these latter. It also may indicate beneficial improvements in informational policies.

Many perception studies in connection to floods have been performed during the last decade (e.g. Krasovskaia *et al.*, 1995; Morris-Oswald & Simonovic, 1997; Horven Skellnes (2001); Environment Agency, 2004). Valuable information about how laymen perceive flood hazard and flooding has been assembled analysed and is available for use. Unfortunately, in most cases no attempt has been made to incorporate this information directly into spatial planning practices.

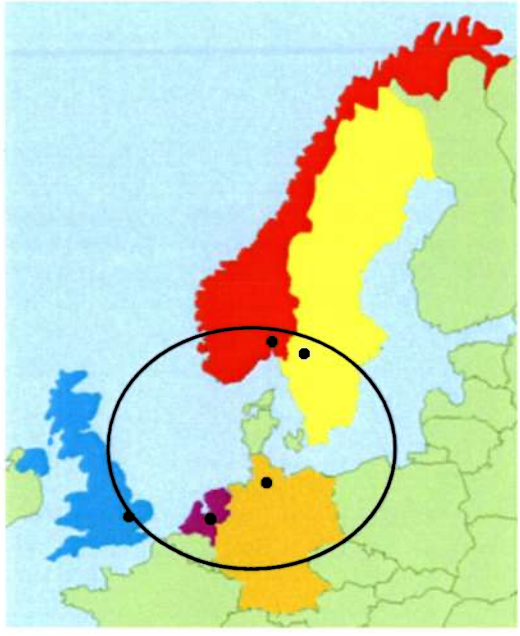
The ambition within WP2A, besides bringing valuable new data on perception in the North Sea region of Europe, is to fill in this missing link. We go a step further letting two different perceptions, i.e. decision-makers and laymen meet, and then engage a dialogue between these two parties trying to reach a consensus on what risk is tolerable and what protection is possible to provide. This dialogue may then continue with a "trialogue" – government, private sector and civil society (Falkenmark, 2004).

A Poll study of flood hazard perception is a first step on the way. The Focus Groups study that followed the Poll allowed deeper investigation of a number of selected topics covered by the Poll (reported separately). The views of decision-makers on flood hazard will be studied by means of expert panel discussions (reported separately). The experts from different countries will then meet at an international panel to present their views on what risk can be tolerable, identify ways to a reach an agreement about this with the general public, suggest approaches to trigger active public participation in issues concerning flooding with a special focus on spatial planning, and also suitable communication links between decision-makers dealing with flooding and laymen living in areas at risk. The acquired knowledge will offer an indispensable background for assessing flood hazard in areas at risk. The aim is to build on an example of using this information in combination with other FLOWS products within spatial planning in a community.

## 2. *Investigation tools, sample selection and accuracy.*

### 2.1. Technical tools used to study public perception

There are a number of approaches to study public perception. All of them have their pros and cons. In this study we used the Expressed Preferences Approach that is we asked laymen and decision-makers directly instead of studying their behavior in a flooding situation. Poll was carried out in all participating countries. We applied polling in areas at risk of flooding (i.e. stratified polls) to study public perception of flood hazard. The study addressed population in vast flood risk areas in the North Sea region and telephone interviews were considered to be the most appropriate tool. It allows collecting the views on flooding from many citizens at relatively low cost and provides a statistically sound sample. This method was found to be most useful in respect to the objectives of the study, namely to get information about how laymen perceive flooding hazard. Focus groups that followed the poll in the UK and Norway allowed analysing why people perceive this hazard in a certain way. A deeper psychological analysis is however beyond the frame of this project.



*Stratified telephone polling*

Polling occurred over February - March 2003 in Norway, the Netherlands and the UK, in October-November 2003 in Sweden and April-May 2004 in Germany (due to later German entrance into the FLOWS project). The poll was carried out by TNS Gallup and its partners in the participating countries. Interviews were conducted as CATI (Computer Assisted Telephone Interviews) in each country and each interview took about 10 minutes.

## 2.2. Sample selection

As already noted, the poll study addressed population in areas at risk of flooding. Table 2-1 presents a list of communities that were involved in the study. Each partner country selected their sample population in collaboration with TNS Gallup and its partners in respective countries. The sampling phase proved to be complicated in Norway and Sweden due to very complex topography. Whereas in the Netherlands and in the UK the flood-prone areas are rather flat and wide, in Norway and Sweden they are narrow and follow strict topographical boundaries. Below the selection procedures are briefly presented country wise (for more details see Annex 3).

Table 2-1. Survey areas.

| UK | Netherlands | Norway | Sweden | Germany |
|---|---|---|---|---|
| 1. Cambridgeshire<br>2. Lincolnshire<br>3. Norfolk | 1. Flevoland<br>2. Friesland<br>3. Groningen | 1. Bærum<br>2. Fet<br>3. Førde<br>4. Grue<br>5. Høyanger<br>6. Karasjok<br>7. Kvinesdal<br>8. Luster<br>9. Lærdal<br>10. Melhus<br>11. Midtre-Gauldal<br>12. Nes<br>13. Nordreisa<br>14. Notodden<br>15. Nøtterøy<br>16. Oslo<br>17. Saltdal<br>18. Skedsmo<br>19. Sokndal<br>20. Sunndal<br>21. Tokke<br>22. Trondheim<br>23. Trysil<br>24. Åsnes | 1 Kristianstad omr 1<br>2 Kristianstad omr 2<br>3 Kristianstad omr 3<br>4 Klarälven<br>5 Karlstad<br>6 Mariestad<br>7 Arvika<br>8 Åmål<br>9 Bollnäs | 1. Aussendeichs: Schleswig-Holstein and Niedersachsen<br>2. Starkegen: City of Hamburg<br>3. Binnendeichs: Niedersachsen |

**Germany**

The German sample consists of three sub-samples with 180 values in sample 1; 310 values in sub-sample 2 and 310 values in sub-sample 3. Sub-sample 1 contains certain streets in some flood-prone townships in the federal states of Schleswig-Holstein and Niedersachsen; sub-sample 2 is represented by certain areas in the outskirts of the city of Hamburg at risk of flooding in cases of intense rain; sub-sample 3 consists of flood-prone townships in the federal state of Niedersachsen (total of 83 townships).

While in sub-samples 1 and 2 all households in the defined areas (streets) were included, sub-sample 3 includes the whole population in the defined areas (townships). For sub-samples 1 and 2 telephone numbers were taken from telephone directories. The number of households was rather limited in these two areas and all available telephone numbers were used. For sub-sample 3 the telephone numbers were generated by applying the

"random last two digits – RL(2)D-method" following the so-called Gabler/Haeder method. In the first step blocks of telephone numbers were built by removing the last two digits of all existing telephone numbers in the defined townships. In the second step the "universe" of all possible telephone numbers for these number blocks was generated by filling each existing number block with all possible digit combinations. From this "universe" a sample was randomly selected in a third step.

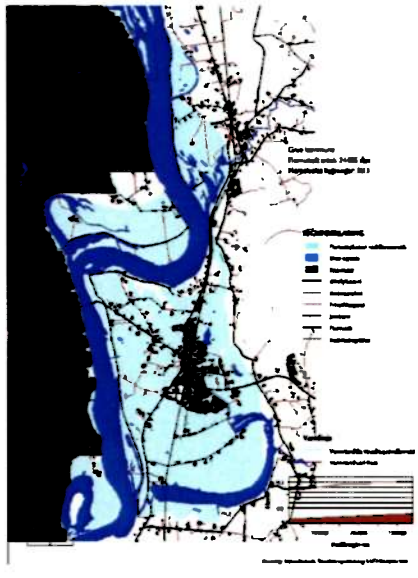
Weighting was applied to the German sample. The weighting factor was based on the total population living in the areas covered in this survey. Since the population represented in sub-samples 1 and 2 formed only a small part of the whole population covered in the overall sample, the cases of sub-sample 1 and 2 were down weighted, while cases in sub-sample 3 were up weighted accordingly.

**Netherlands**

Three of the northern provinces of the Netherlands participated in the survey *viz.* Flevoland, Friesland and Groningen. For Friesland and Flevoland phone numbers of households living in distinct flooding areas (the deepest area's) were bought from Cendris (1120 and 3200 numbers respectively). For Groningen 6000 random phone numbers were generated. These were all situated in areas with a potential risk of flooding. The sample was self-weighting across regions.

**Norway**

In Norway the survey population was initially identified using Flood Hazard maps produced by the Norwegian Water Resources and Energy Directorate (NVE).



*Sample selection in Norway*

Households living in the areas indicated as flood-prone areas on the map were selected for interview.

The sample obtained proved, however, to be too small and an additional area at risk of flooding was added (Lillestrøm), for which no Flood Hazard maps were available. This latter area was subdivided regionally by the smallest geographical location identifier readily available ("Grunnkrets"). In addition the area in Bærum was extended outside the 100 year flood. Thus, half of the sample in Norway was defined by the flood-maps and

the other half was selected from ordinary geographical maps.

The following adjustments were made:

1. Industrial, commercial buildings, annexes, farm buildings etc. were excluded from the survey.
2. An exact matching of household addresses and telephone numbers was impossible in sparsely populated parts of the country. The lack of addresses adds systematic bias in the sample prior to interviewing.
3. Finally, potential bias is introduced by lack of contact and non-response during the interview.

Comparing the survey population at fieldwork start-up to the net sample, it was noted that the geographic composition was basically intact, but due to "fall-outs" the structure of the sample concerning population size showed some significant deviations. Hence the Norwegian sample was weighted to correct for the survey sample bias introduced during the interviews (for more details on weighting see Annex 3).

**Sweden**

To reach the necessary sample size the Swedish sample was assembled from seven geographical areas using slightly differing sampling practices:

- *Arvika, Klarälvdalen and Mariestad*: Households in the areas flooded in 2000, using archives and map information.
- *Åmål*: Areas with previous flooding experience and at risk of flooding
- *Karlstad*: Areas affected by high water levels 1995 and 2000/2001 and areas pinpointed at risk of flooding from flood inundation maps.
- *Kristianstad*: Households in areas located close to a sea dike; areas with a risk of flooding where households had received flood information; households in areas at risk of flooding but without flood experiences
- *Bollnäs:* Households selected from the property archive within the 100-year flood risk zone.

The sample was self-weighting across regions.

**UK**

The sample covered the flood prone areas of the East of England, mainly low-lying plains and including reclaimed land. There were originally 318 postcodes in the sample, of which 270 are represented in completed questionnaires. The sample was self-weighting across regions.

## 2.3. Computational accuracy and confidence limits

Validity of the results of the analyses besides the method used strongly depends on the quality of the data sample. For a stratified poll study this means that a sample should be carefully selected with respect to the aim of the investigation described earlier, and should have a necessary size. The sample sizes in the poll study were chosen to insure a sufficient computational accuracy and provide the results within acceptable confidence limits. Table II-2 offers information about the sample sizes in each respective country. The "Gross sample" is the number of residents randomly chosen for the telephone interviews in the selected area; the "Net sample" is the real number of respondents phoned; the "Complete interviews" is the number of valid responses received.

Table 2-2. Sample sizes in the Poll study (for more details see Annex 2)

| **Summary statistics** | **UK** | **NL** | **N** | **SE** | **D** |
|---|---|---|---|---|---|
| Survey population | 2.6m | 10228 | 3438 | 1583 | ≈ 325.000 |
| Gross sample | 2184 | 10228 | 3438 | 1583 | 9623 |
| Net sample | 1874 | 4727 | 2810 | 1566 | 5275 |
| No contact, total | 745 | 2109 | 848 | 201 | 2630 |
| Refusals, total | 329 | 1822 | 1162 | 565 | 1845 |
| Complete interviews | 800 | 796 | 800 | 800 | 800 |

The results of polls are commonly presented as a proportion (frequency) $p$ in per cent of the total population that belongs to a certain category (e.g. "with flood experiences"). The uncertainty in the results can be shown in terms of the width $\delta$ of a confidence interval $p\pm$ $\delta$ around this frequency $p$ and the confidence level $\varepsilon\%$, i.e. the probability that a true proportion of the whole population in the investigated area belongs to this category. The results are more precise with narrower confidence intervals and higher confidence levels.

Table 2-3 shows the amount of data required to reach a desired confidence level (Gottschalk & Krasovskaia, 1980). The theoretical background for the calculation procedure is found in Cramér (1948, p.515). Using Table 2-3 we can see, for example, that if 30% of the responders answered in a certain way, the sample size should be 1288 values to have an error in the limits of ±5% with a confidence level of 95%. Consulting Table2-3 it is possible to estimate the accuracy of the results with respect to each particular question for each respective country using the data tables in Annex 2.

Table 2-3. Dependence of the sample size on the chosen frequency, confidence level and width of confidence interval.

| Length of confidence interval, δ% | Confidence level ε% | Frequencies, p% | | | | |
|---|---|---|---|---|---|---|
| | | 10(90) | 20(80) | 30(70) | 40(60) | 50 |
| 5 | 67 | 145 | 256 | 335 | 383 | 399 |
| | 75 | 191 | 338 | 443 | 507 | 528 |
| | 90 | 392 | 691 | 907 | 1036 | 1080 |
| | 95 | 556 | 982 | 1288 | 1471 | 1533 |
| 2 | 67 | 901 | 1600 | 2099 | 2399 | 2499 |
| | 75 | 1192 | 2116 | 2778 | 3174 | 3307 |
| | 90 | 2437 | 4328 | 5680 | 6491 | 6791 |
| | 95 | 3460 | 6145 | 8064 | 9216 | 9600 |
| 1 | 67 | 3601 | 6400 | 8399 | 9599 | 9999 |
| | 75 | 4764 | 8464 | 11114 | 12701 | 12231 |
| | 90 | 9743 | 17315 | 22726 | 25972 | 27054 |
| | 95 | 13833 | 24585 | 32266 | 36876 | 38412 |

Table 2-4, provided by TNS Gallup, can be useful when evaluating the validity of the results concerning the difference between the answers given to a certain question. The confidence level of 95% is applied by TNS Gallup.

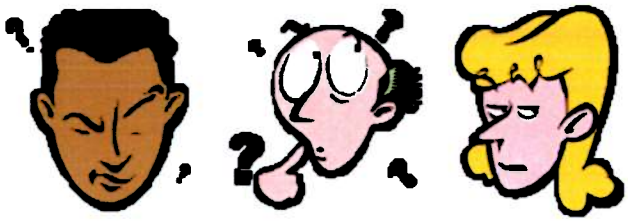
Table 2-4. Dependence of uncertainty margins ( %) on the sample size (TNS Gallup)

| Sample size | 5(95)% | 10(90)% | 20(80)% | 30(70)% | 40(60)% | 50(50)% |
|---|---|---|---|---|---|---|
| 50 | +/- 6 | +/- 8,3 | +/- 11,0 | +/- 12,7 | +/- 13,6 | +/- 13,9 |
| 100 | +/- 4,3 | +/- 5,9 | +/- 7,9 | +/- 9,0 | +/- 9,6 | +/- 9,8 |
| 200 | +/- 3 | +/- 4,2 | +/- 5,5 | +/- 6,4 | +/- 6,8 | +/- 6,9 |
| 400 | +/- 2,2 | +/- 3,0 | +/- 3,9 | +/- 4,5 | +/- 4,8 | +/- 4,9 |
| 500 | +/- 1,9 | +/- 2,6 | +/- 3,5 | +/- 4,0 | +/- 4,3 | +/- 4,4 |
| 600 | +/- 1,7 | +/- 2,4 | +/- 3,2 | +/- 3,7 | +/- 3,9 | +/- 4,0 |
| 1000 | +/- 1,4 | +/- 1,9 | +/- 2,5 | +/- 2,8 | +/- 3,0 | +/- 3,1 |
| 1500 | +/- 1,1 | +/- 1,5 | +/- 2,0 | +/- 2,3 | +/- 2,4 | +/- 2,5 |
| 2500 | +/- 0,9 | +/- 1,2 | +/- 1,6 | +/- 1,8 | +/- 1,9 | +/- 2,0 |

If for example, 40% in a sample of 1000 persons responded in a certain way, the confidence margins are ± 3%, i.e. a possible error in the percentages is ±3%. This means that comparing two frequencies, these must differ by at least 3% to be significant.

*Facts are facts, but perceptions are reality.*
*Slogan from the European Environment Agency*

# 3. WHAT DO PEOPLE THINK ABOUT THE FLOOD HAZARD?



*Worthwhile to think about?*

The poll study focused on the following topics selected by the task group:

- General awareness and concerns about flood hazard
- Previous experiences of floods/ flood assessment
- Reasons for living in a flood prone area
- Knowledge about flood assessment in home region and information channels
- Willingness to "buy safety"/ adapt to risk (risk-benefit)

In addition, information on personal background was collected (gender, age, education level, economic activity, type of area, residence, rented or owned, household size and structure, time at current address).

A questionnaire consisting of 32 questions on the focus topics and 10 questions on personal background (see Annex 1) was devised by the University of Oslo and discussed and adapted within the task group. The formulations were adapted for short telephone interviews lasting about 10 minutes in collaboration with TNS Gallup. The original language was English (Master questionnaire) and the questions were translated to local languages of participating countries. Some slight adaptation of text was allowed to accommodate/suit local conditions.

The poll investigation revealed broad spectra of attitudes, thoughts and plans with respect to flood hazard among the population living in flood risk areas in the North Sea region of Europe. The presentation below follows the focus topics and the diagram numbers refer to the chapter and question number in Annex 1; the question is presented in each diagram. The tabled data are found in Annex 2.

## 3.1. This cannot happen to me!

*The fact is, that public have an insatiable curiosity*
*To know everything, except what is worth knowing.*

*Oscar Wilde*

People's awareness of flood hazard in areas at risk of flooding is an important premise for effective assessment of this hazard. The poll study included a set of questions in order

to test whether people in the areas of study (i.e. areas at risk of flooding) were concerned about floods. Some earlier European studies have shown that the flood hazard was ranked very low by Europeans, third from bottom in a list of 30 different hazards leaving only danger of contracting AIDS and being hit by lightning behind (Sjöberg, 1999). At the same time devastating floods occur in Europe practically every year bringing enormous economic losses and even human fatalities (Cf. Table 1-1).

*"This cannot happen to me!"*

**Do people in the North Sea region living in areas with flood hazard know about it?** Based on the results of the poll the answer is in general, not really. Only less than half knew that they lived in an area at risk of flooding. The differences between the countries were big however. While in both Scandinavian countries six-seven in ten respondents knew about flood hazard in the area, in the UK and the Netherlands five-six in ten were not aware of this. In Germany only one in ten was aware of living in an area at risk of flooding (Fig.3.1-1)[8]. Consequently, only one-two in ten, on average, had some concerns about flooding. Many Dutch respondents (about a half) expressed hardly any concern at all. Of those few (about 4% on average) who really felt concerned about the danger of flooding there were twice as many German respondents compared to the average followed by the English respondents, who were almost twice as many compared to those concerned about flood hazard in the two Scandinavian countries. Only 1% of the Dutch expressed their concerns. (Fig.3.1-2).

The degree of concern about any risk is a function of many factors, like knowledge, previous experiences, possibility of choice, trust in existing flood assessment policies, personal situation. However, the fact that about one half of the population living in areas at risk of flooding demonstrated very little concern about this natural hazard might also stem from inadequate information and low degree of public participation in flood assessment issues due to lack of clear/established practices to do this.

[8] The first numbers refer to the number of the chapter and the following numbers – to those of the questions in the Master-questionnaire, marked "Q1", "Q2" etc. in the figure.

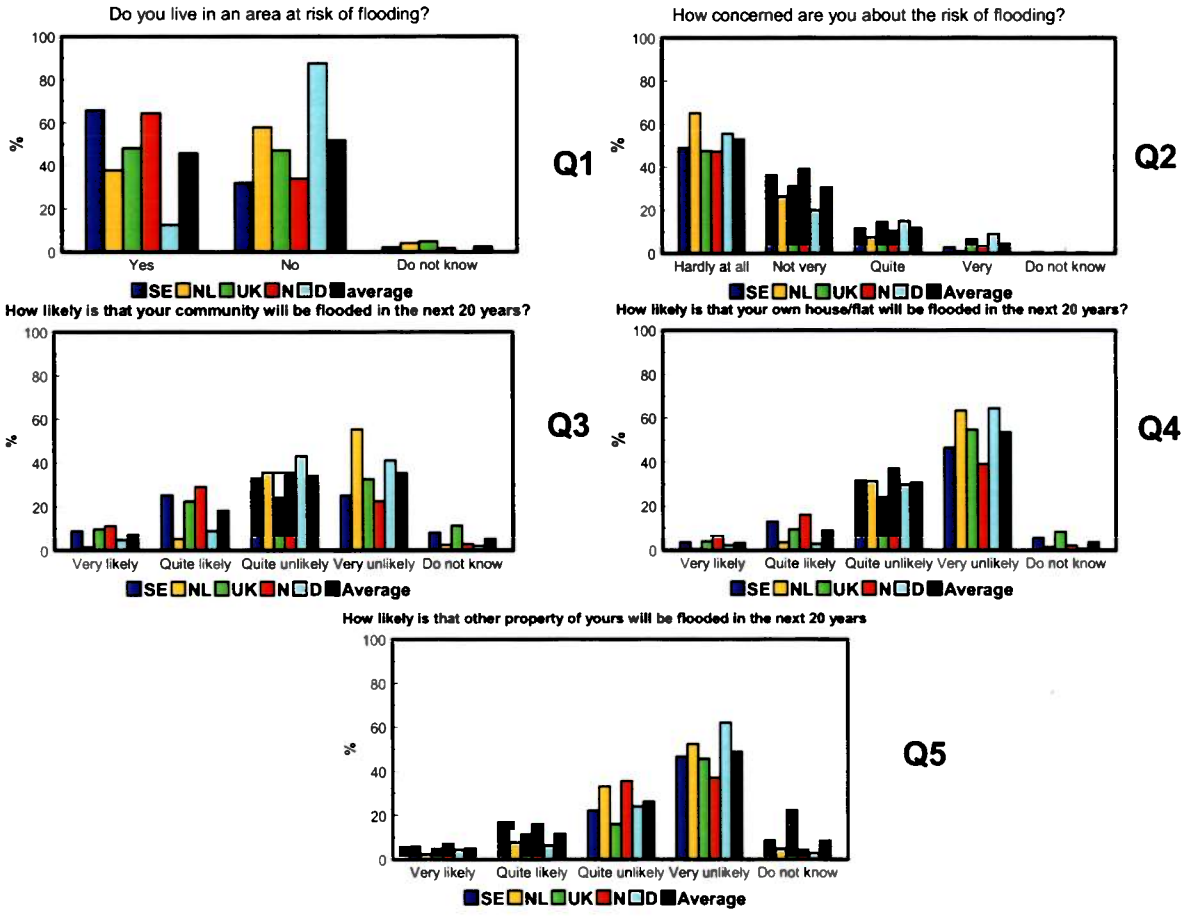



*Figure 3.1. Concerns about flooding.*

A dissonant perception of flood hazard ("This cannot happen to me") is obvious from the way many people answered a question about expectations of a big flood in their area and flooding of their own homes and properties. Seven in ten considered such an event to be quite or very unlikely. Only one in ten in the UK and the Scandinavian countries expected that their community could be flooded and as few as five in hundred in Germany and one in hundred in the Netherlands (Fig.3.1-3).

*"The house of a neighbour floating..."*

On average more than eight in ten respondents considered flooding of their homes to be quite or very unlikely, i.e. people seemed to feel more certain about safety of their homes.

Among the Norwegian respondents about the same number of people considered this event to be quite unlikely as quite likely. Among the German, Dutch and British respondents, however, twice as many people believed the event to be quite unlikely than quite likely. In general, the tendency is to consider the event to be quite or very unlikely (Fig.3.1-4). Answers to the question about possible flooding of property other than house or flat followed a similar pattern to the previous question (i.e. most people considered such an event to be quite or very unlikely). Although somewhat more respondents could conceive of this possibility, the figure is still very low (Fig 3.1-5).

Such an attitude is somewhat unexpected from the group of respondents who admitted living in flood prone areas. Although the location of some houses could be quite flood-safe, this could equally be a reflection a dissonant perception and/or poor information. The fact that about 10% of the Swedish and British respondents had difficulties in deciding whether a big flood might strike their area and homes in the next 20 years might reflect/suggest insufficient or poor information.

A general conclusion that can be drawn from the answers is that flooding issues do not yet seem to have been given due attention by the population in the areas at risk of flooding.

## *3.2. Lessons from the past*

*Experience is the name everyone gives to his mistakes.*

*Oscar Wilde*

Judging from the answers the overwhelming majority of the population (eight in ten) had never experienced flooding with the exception of Norway (Fig.3.2-6). In Norway four in ten respondents had experienced flooding, and more than two in ten had experienced this unfavourable event more than once. In Sweden this amount was only one in ten and in the UK, the Netherlands and Germany - as low as eight, four and one in every hundred households, respectively. Such answers partly explain low concerns about flooding discussed earlier, as well as national differences noted.

Among the minority of respondents who had an unpleasant experience of flooding of their houses, the memories were rather fresh (within the latest 10 years) for eight in ten in Sweden, seven in ten in the UK and six in ten in Germany (Fig. 3.2-6b). On the other hand, only half of the Dutch and Norwegian respondents (with experiences from flooding) had experienced recent flooding of their houses.

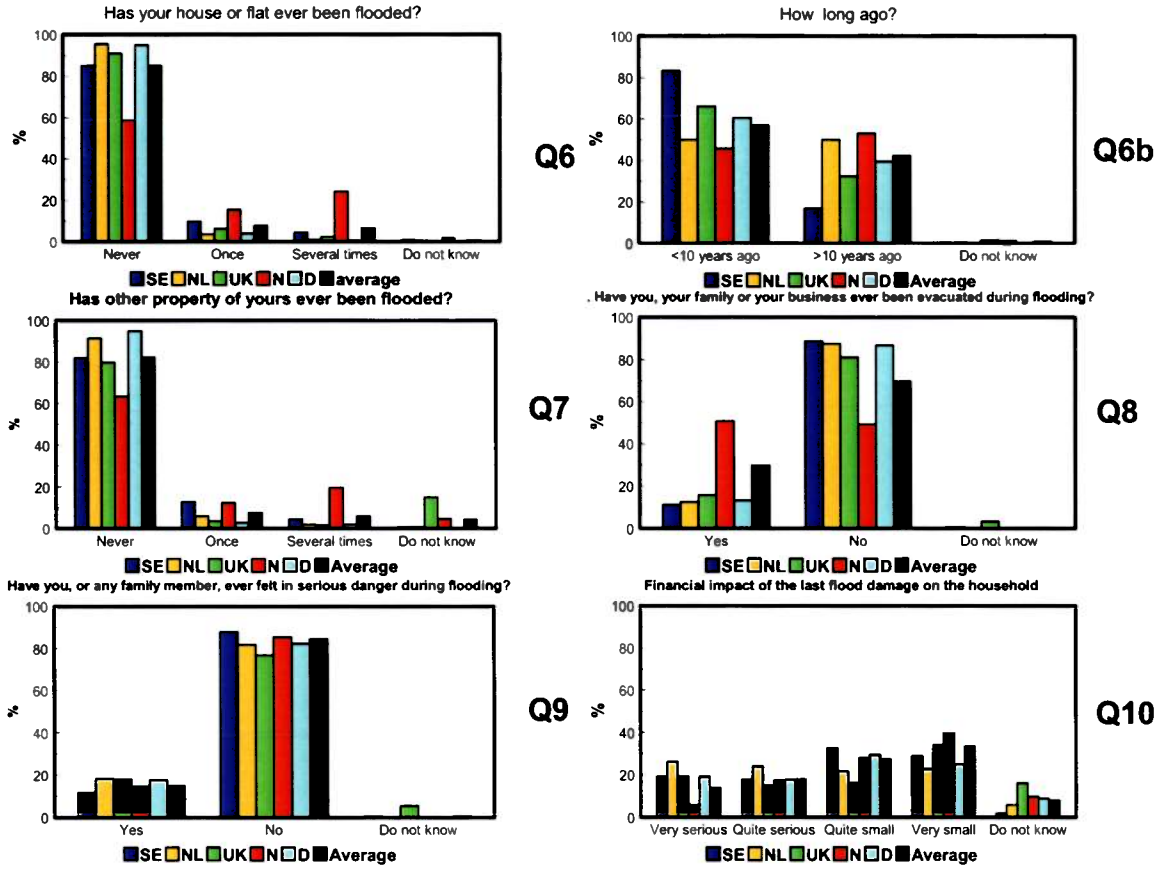



*Figure 3.2. Flood experiences (Q6-Q10).*

Relatively recent flood memories might explain a somewhat higher concern about floods noted from the respondents (still very few!) in the UK, Germany and Sweden. Likewise, on the contrary – the long period elapsed since the latest flooding event could account for low concerns demonstrated by the Dutch. For the Norwegian group the lack of recent experiences from flooding seems to be offset by the fact that many of them had experienced flooding more than once. This latter may be one of the reasons that as many of them as in the UK and Sweden expected flooding in future.

Slightly more people replied that that they had witnessed flooding of their property; however, the patterns of answering were similar to those about flooding of own house or flat. The question seems to have been more difficult to answer for respondents in the UK and Norway (Fig. 3.2-7). More than nine in ten the Dutch and German households had never seen their property flooded, eight in ten British and Swedish households and six in ten Norwegian ones.

The impact of flooding seems to have been more serious in Norway, where half of those who had this experience also had been evacuated during the flood event, while in other countries it was only one-two in ten. A difference in the answers of the Norwegian respondents is in accordance with their answers about more frequent flooding of the house and property (Fig. 3.2-8) discussed earlier. However, more frequent evacuation of the population from areas with a direct danger of flooding might equally reflect different policies in flood mitigation.

**How safe do people feel during flooding situations?** Of those few with flood experience one-two in ten felt to have been in danger during flooding in all the countries,

Swedes feeling somewhat safer than the others (Fig. 3.2-9). Such answers might be evidence of efficient flood mitigation work.

The economic impact of the floods seems to have been rather modest on average for the respondents with flood experience. More than half of them ranked it as very or quite small. Flooding had the least economic consequences for the Norwegian households, where only six in hundred indicated very serious economic impacts, while in Sweden, Germany and the UK - two in ten did so and in the Netherlands three in ten (cf. Fig. 3.2-10). The British respondents did/could not answer much more often than in the other countries. The differences in the appraisals of economic impacts of flooding may indicate differences in the possibilities for economic compensation in different countries and also the degree of preparedness.

*Floods bring only harm!*

On the whole, the British, Swedish and German households appear to have had bad experiences with flooding more often than the others: about four in ten answered that they had been affected very or quite badly. This is in agreement with the fact that they had more recent experiences from flooding and somewhat higher concerns about flooding. In the Netherlands and Norway only one-two in ten had really had bad experiences from flooding. (Fig. 3.2-11).

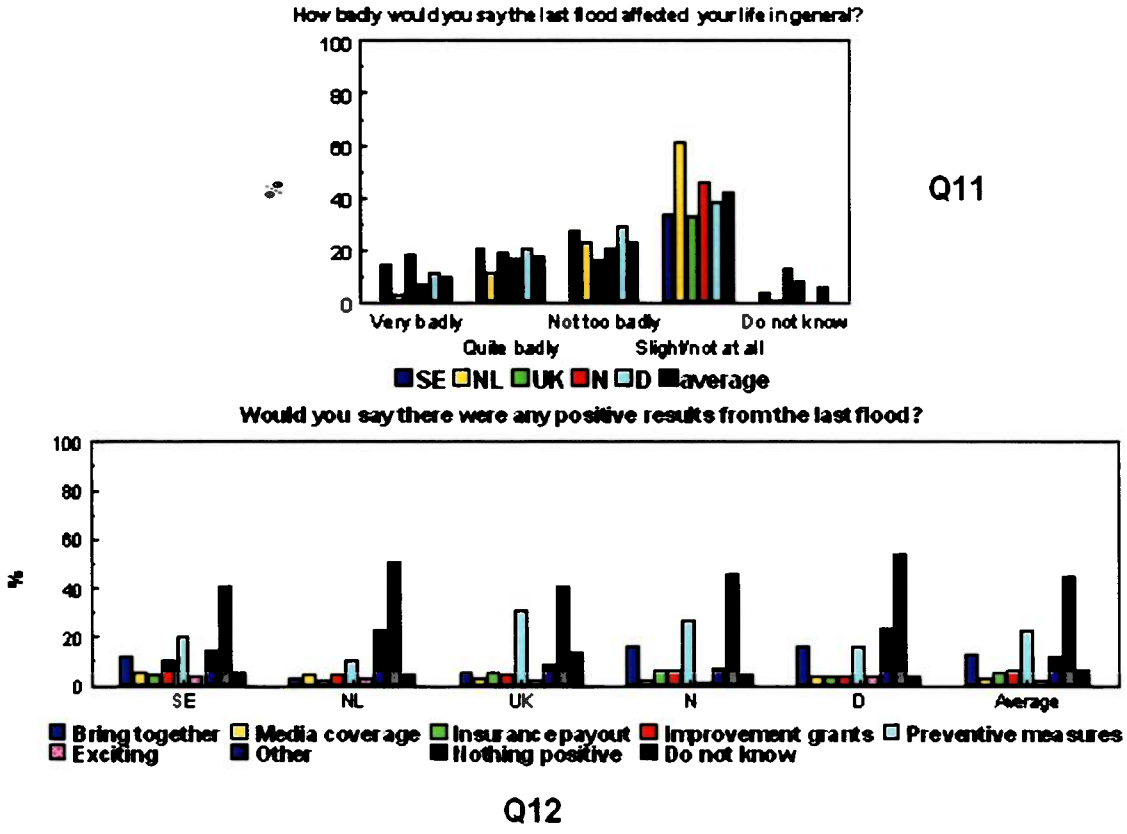



*Figure 3.2 (continued). Flood experiences (Q11-Q12).*

Considering the experiences and memories revealed by the answers it is not surprising that on average almost half of the respondents could not see any positive effects of the floods. About two-three in ten in all the countries appreciated preventive measures that followed especially in the UK. One-two in ten Norwegian, Swedish and German households thought that the flooding situation brought the community together, while the same amount of the Dutch did not choose any of the alternatives suggested (Fig. 3.2-12).

The results show that luckily rather few have experienced flooding but for some of these the experiences were very bad, which explains a dominating negative attitude to floods.

## *3.3. Beliefs or knowledge?*

*The things one feels absolutely certain about are never true.*

*Oscar Wilde*

It seems so far that a flood hazard is not really perceived as a hazard by many citizens in the areas at risk and very few of them really experienced a flood. Although such an attitude may have many reasons, knowledge about adequate defence measures undertaken may certainly give a feeling of safety. **But do people really know something about flood protection in their region?**

Examining the diagram in Fig. 3.3-13 it is seen that on average, roughly half of the respondents in all countries knew that there were flood defence measures in their area, although the variation between the countries is rather big. While in Norway seven in ten knew about the flood defence, in the Netherlands only five in ten knew, and in Sweden, Germany and the UK even less, only four in ten. Except for the Norwegians, many had

difficulties answering this question, especially among the Dutch (three in ten).

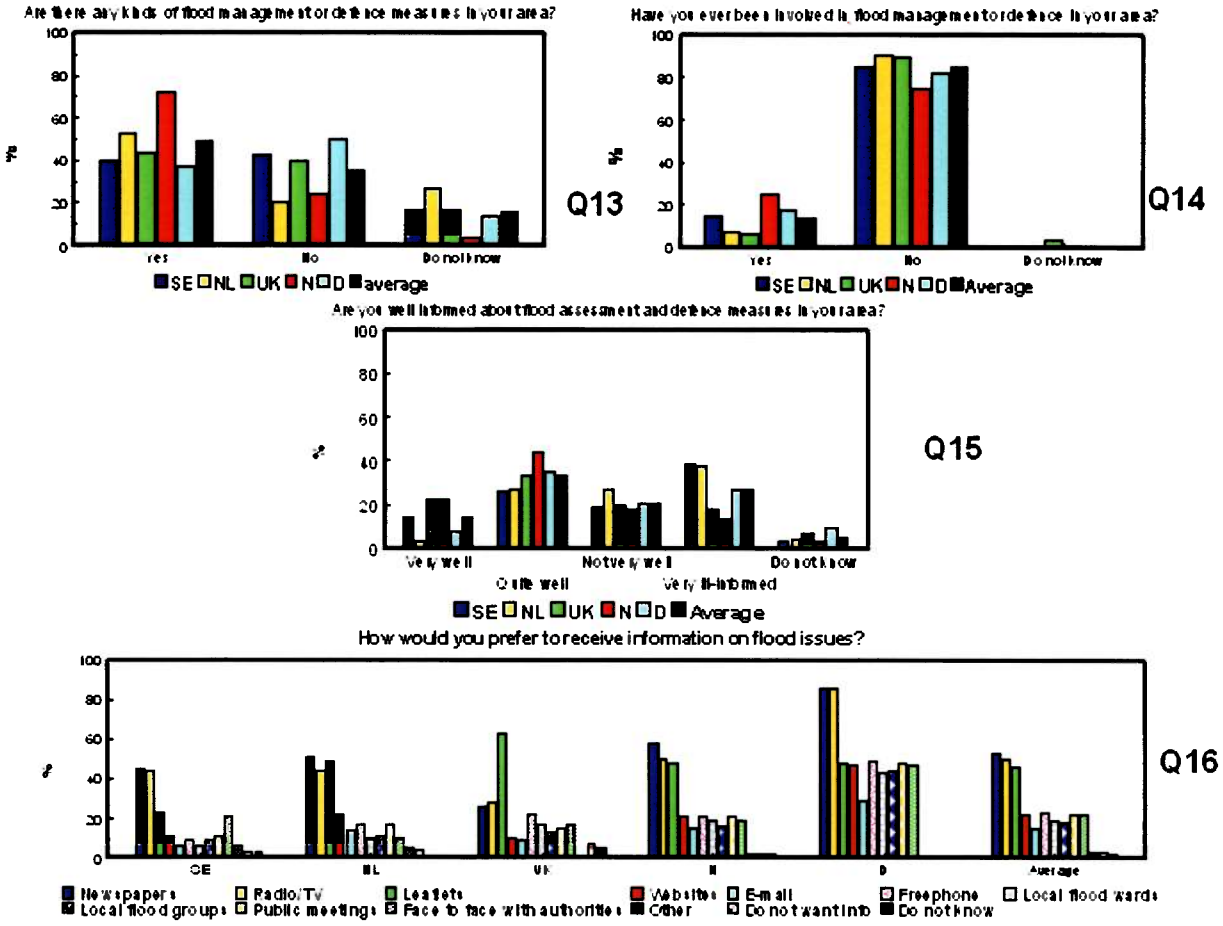



*Figure 3.3. Area flood management defence measures (Q13-Q16).*

It can therefore be questioned whether the information about flooding is understood by the citizens and is sufficient. The much higher proportion of the population that really knew about the flood defence in Norway might be a result of streamlined continuous information propagated to them by the authorities after a disastrous flood event in 1995.

*Have I seen this somewhere?*

Personal involvement in flood assessment may bring indispensable knowledge and stimulate greater awareness of flood hazard. Unfortunately, as evident from the answers, very few citizens have had such an experience, only one or two in ten (Fig.3.3-14). The variation between the countries is big. In Norway four in ten respondents had been personally involved in flood assessment, while in Germany and Sweden this was two in

ten and only six-seven in hundred in the UK and the Netherlands. Differences in organisation of flood assessment between the countries are the most probable reason for the discrepancies noted.

**Some indications of insufficient or inadequate information on flood hazard were noted earlier but how people feel about it themselves?** The Norwegians seemed to be most satisfied with the information; seven in ten were well or quite well informed (Fig.3.3-15). This supports the explanation of their better knowledge of the defence measures in their area suggested before. Also six in ten British respondents considered that they that they were very or quite well informed. Here this could be a positive outcome of regular information activities of the Environment Agency. (At the same time only four in ten households there knew that there was flood defence in their area!). Three in ten Germans and four in ten Swedes and Dutch felt very ill informed about flood issues, which might indicate a necessity for better dissemination policy for information on flood hazard but might equally indicate a passive attitude from citizens.

**How would people like to get information about floods?** Quite expected half of the respondents in all the countries gave clear preferences to newspapers and radio and TV with the exception of the UK, where people obviously preferred leaflets with information. Websites appear twice as popular in Germany (five in ten respondents) compared to the Netherlands and Norway (two in ten) and less still in the UK and Sweden. In general, besides radio and TV, Germans expressed high preference equally often (five in ten respondents) to all other listed information sources apart from e-mail. Websites are often used by the authorities to inform citizens about flood hazard. This information source, however, requires an active search for information, which does not yet seem to be common among the population. Newspaper, radio/TV, leaflets are all examples of information sources which serve ready information and is the way that is preferred by the citizens (Fig.3.3-16). It is worthwhile to note that about two in ten citizens appreciated getting information in public meetings or directly from decision-makers. This information link offers the possibility of a direct dialogue between decision-makers and laymen and certainly deserves to be promoted as it stimulates active citizenship. The fact that so few people chose this source of information (among manifold different reasons) may reflect the very few occasions on which such a possibility existed in the past. Very few people (three in every hundred) stated that they did not want any information on flooding, which is encouraging. As noted earlier, rather many citizens, especially in Germany, Sweden and the Netherlands felt ill-informed about flood hazard. Knowledge about their preferred information links might help to improve this.

It can be concluded that information on flooding issues is insufficient and/or inadequate, and that people display a passive attitude, giving preference to information links which "serve" information rather than having to look for it themselves. Flood information dissemination policy may require adjustments in order to raise awareness of flood hazard among population more efficiently.

*Something about flooding, please!*

## *3.4. "A room with a view"*

*If you always do as you always did*
*You will always have what you always had.*

*Kevin Dunbar*

As seen earlier approximately half of the respondents were not aware of living in areas at risk of flooding, so is hardly surprising that more than eight in ten on average did not think about flood hazard when moving to the area. It seems however that many of those aware of this hazard also did not think of it when moving. The differences between the countries are rather big. Four in ten Norwegian respondents considered the danger of flooding before moving compared with one-two in ten in Britain and Germany, while in the Netherlands and Sweden only seven in hundred gave this danger a thought (Fig. 3.4-17).

*"A room with a view"*

**What other reasons drew people to the area?** The diagram in Fig. 3.4-18 illustrates the answers given. Attractiveness seems to be one of the dominant reasons for settling in the area but its importance differed between the countries. While in the UK it was definitely the governing reason, its importance was still prevalent but in competition with other reasons in the Netherlands. It was almost as important as other reasons in Sweden but much less important in Norway and Germany, where "other" reasons prevailed. The importance of work as a reason for settling in a flood prone area appears to be rather modest. It had the highest importance for the Dutch households (almost twice the average but still very low) followed by the British and German households, while job seemed less important as a reason in the two Scandinavian countries. In these latter the attractiveness of the residence seemed to have been more important, especially in Sweden. The price of the house played a very modest role in the choice to settle in the area and the importance of local services was less still. Rather more people in the UK (three in ten) and Germany (two in ten) did not answer this question, which might indicate that they had never reflected on it .

One may assume that some people may have learned about danger of flooding after having moved to their houses. **Would they consider moving out when they became aware of this?** As seen in Fig. 3.4-19, almost unanimous answer is "No"! **Why?** One reason is of course that people rank flood hazard very low and, as noted earlier, are not

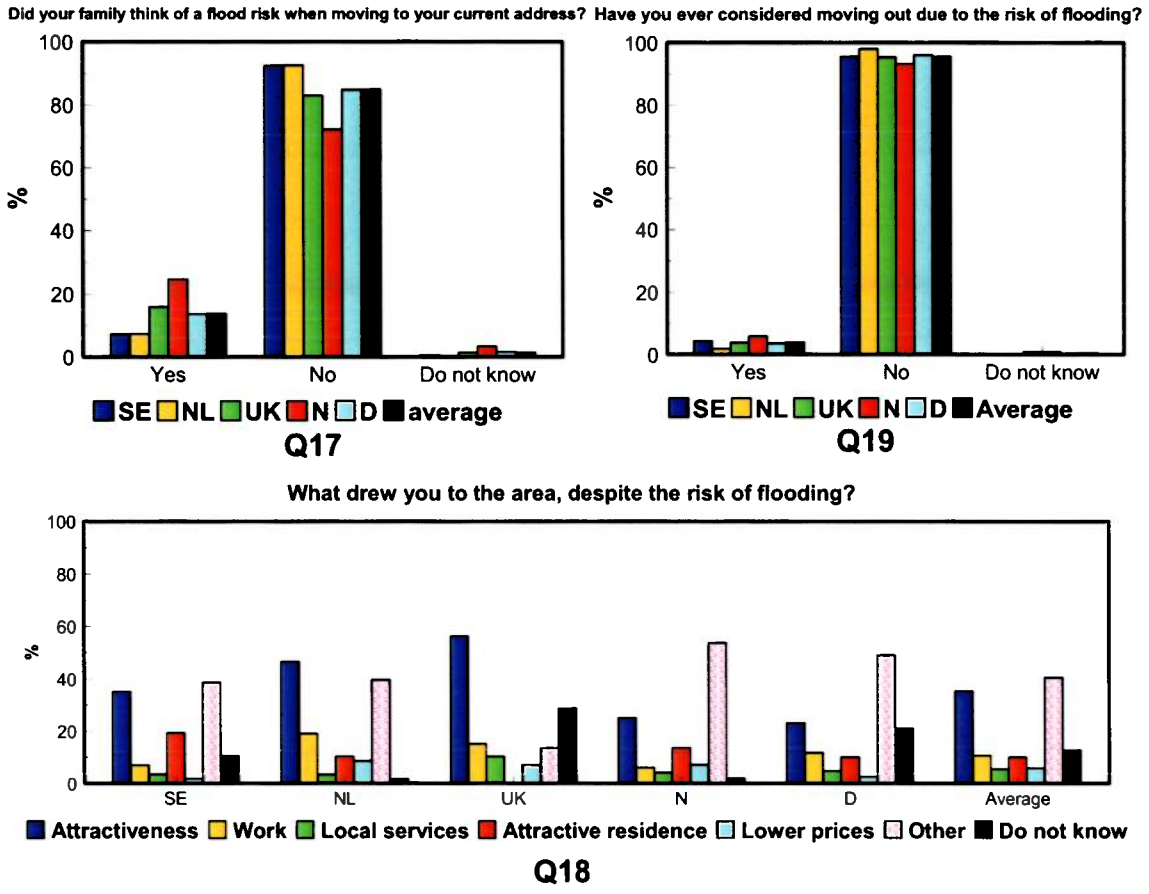
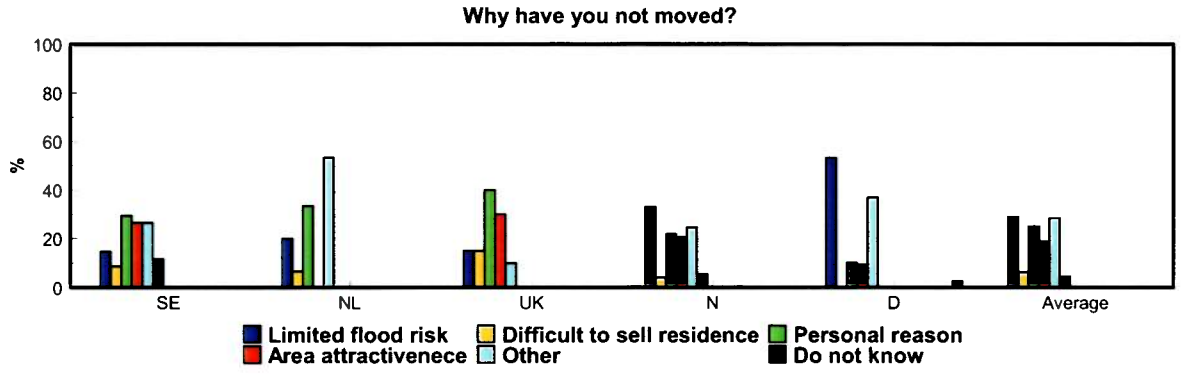


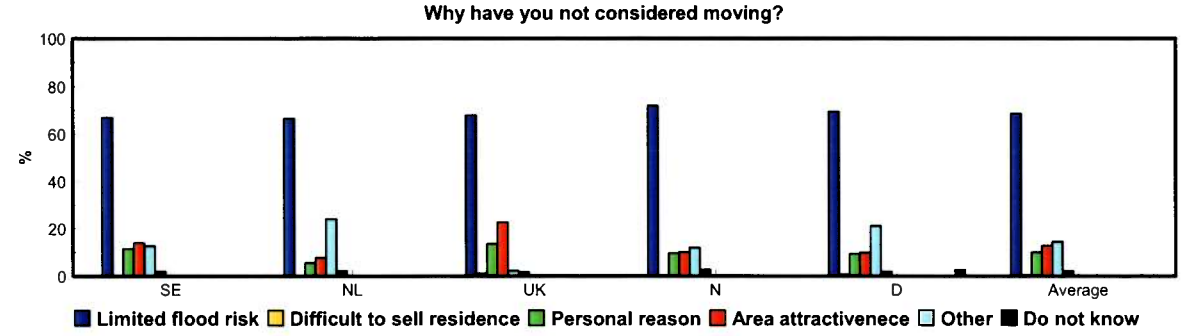

*Figure 3.4. Flooding and area preferences (Q17-Q19).*

really concerned about it. **What other reasons make people stay in spite of the risk of flooding?** The answers reflect once again a low appreciation of the flood hazard (Cf. Fig.3.1-2). About one in three respondents, on average, considered the flood risk to be limited (Fig. 3.4-20a). In Germany about a half answered in this way. Personal reasons seemed on average to be rather important for each fourth respondent with a rather big variation between the countries. While in the Netherlands one in three had not moved for personal reasons, in Germany this was only one in ten. Area attractiveness seemed to have mattered most for the British and the Swedish respondents but not for the Dutch. Such an attitude of these latter is in contradiction to their explanation of the reason for moving to the area. Difficulties in selling the house were obviously less important reason with perhaps the exception of the British respondents. Three in ten respondents, on average, had not moved for reasons other than those proposed. Such answers were especially common among the Dutch (about five in ten) and the German (about four in ten) respondents.

**Why did people not consider moving?** The limited risk of flooding (as understood by the respondents) seems to be the main reason for about seven in ten households (Fig. 3.4-20b). For the British and Swedish respondents attractiveness of the area seems to be




**Q20a**



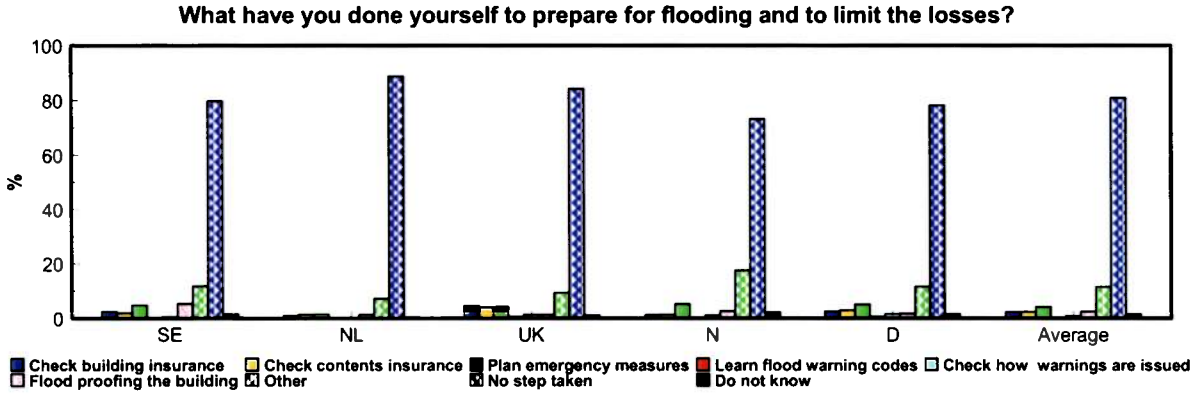

**Q20b**

*Figure 3.4 (continued). Flooding and area preferences (Q20a,b)*

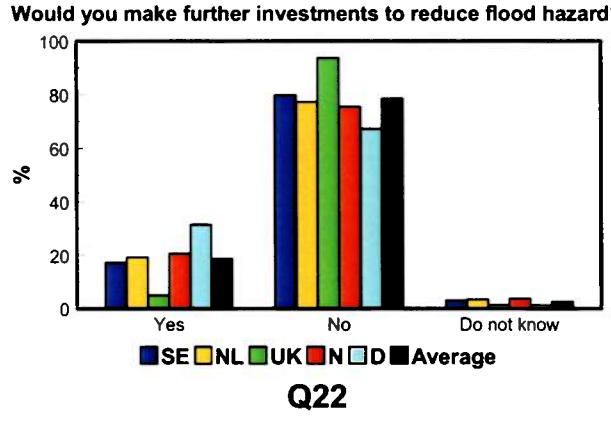
important as noted already, though this reason seems to have less importance than before, which is rather unexpected. Similarly, the importance of "other reasons" for not considering moving is remarkably lower than before. In general, the importance of all other reasons than the "limited risk of flooding" drops remarkably in the answers to this question. Such changed attitudes put forward the actual reason for staying, namely - an underestimation of flood hazard.

*I shall not move!*

Failure to understand the flood hazard correctly naturally leads towards a passive attitude towards actions to reduce losses. As evident from Fig. 3.4-21, eight in ten on average had not taken any steps to increase safety of their homes, though the suggested measures did not require any particular investments. The differences between the countries are very small and only one-two in ten had done something. Another reason for passiveness might be lack of knowledge of what can be done. Personal investments to reduce damage to the home during flooding do not seem to have been considered by more than two respondents in ten, on average (Fig.3.4-22). Germans seem to be more inclined to make such investments (three in ten), while only five in hundred British respondents want to do so. German respondents at the same time are those least aware of living in flood prone areas and among those with least concerns about flooding and flood experiences. So willingness to invest should originate from other reasons.



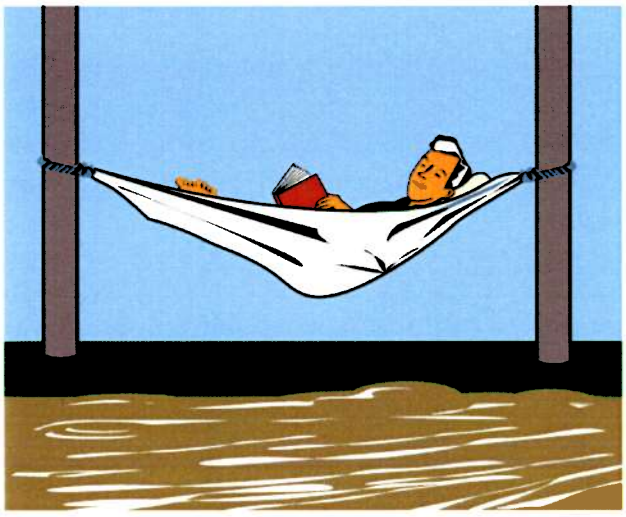

**Q21**




**Q22**

*Figures 3.4 (continued). Flooding and area preferences (Q21-Q22).*

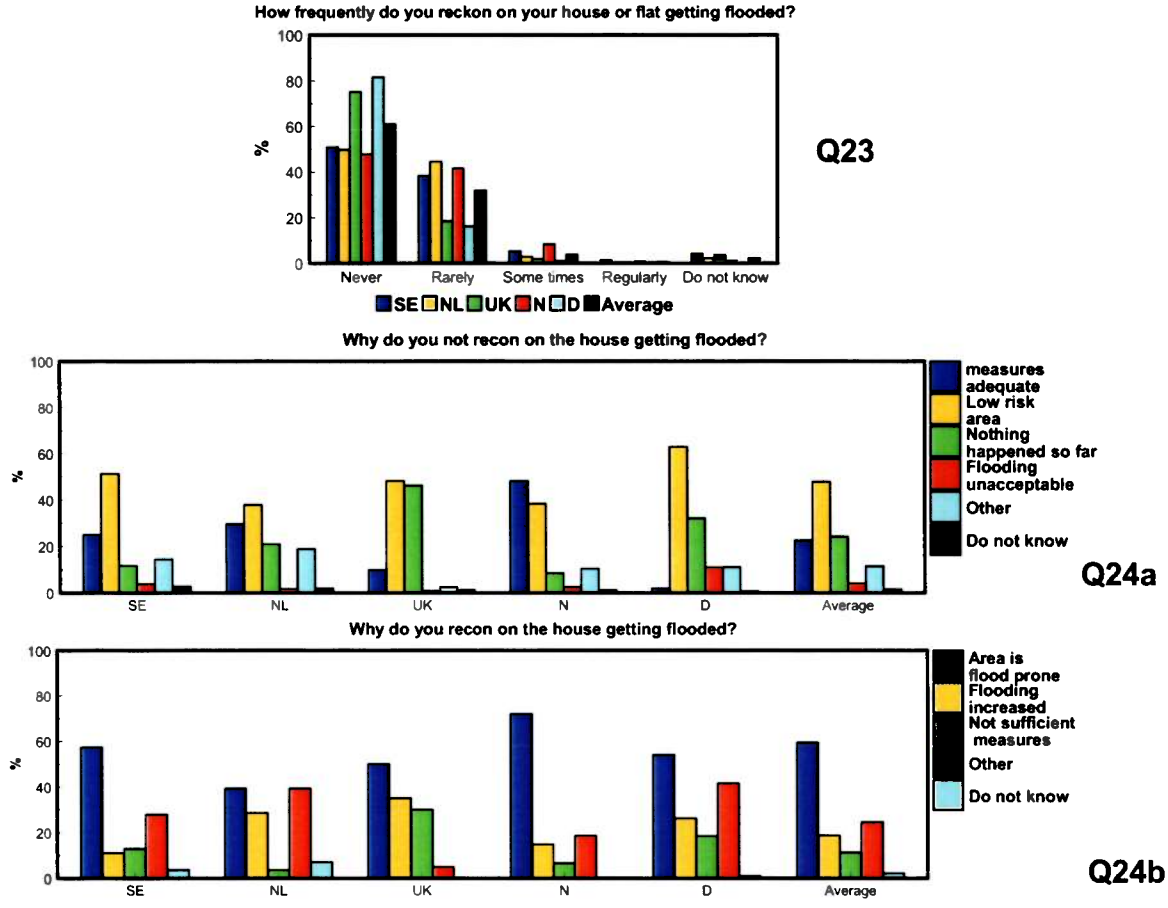
We can summarise that it is non-material reasons that make people move and stay in flood prone areas, jobs and difficulties to sell being of a secondary order. Unaware of the flood hazard people remain passive towards taking steps to reduce possible damage from flooding and are not inclined to invest in flood-proofing of their homes.



*"This will be arranged somehow..."*

## *3.5. False safety*

As seen until now the awareness of flood hazard is very low. **In reality, would people reckon on their homes flooding?** On average, nine in ten respondents would never or rarely reckon on this (Fig 3.5-23). The differences between the countries are rather big. While for about eight in ten British and German respondents this out of the question, four in ten of the Dutch, Swedish and Norwegian respondents could conceive of being flooded, rarely. Negligibly few could envisage regular flooding of their homes and only four in hundred on average would reckon on being flooded from time to time. The Norwegian respondents seem to be more realistic than the others in this respect, as twice as many of them reckoned on this (but still very few!). This is still further confirmation of a somewhat better awareness of flood hazard among them acquired from own experience (Cf. Figs.3.2.-6 to 3.2-8).




*Figures 3. 5. Opinions about flooding, homes (Q23-Q24a,b).*

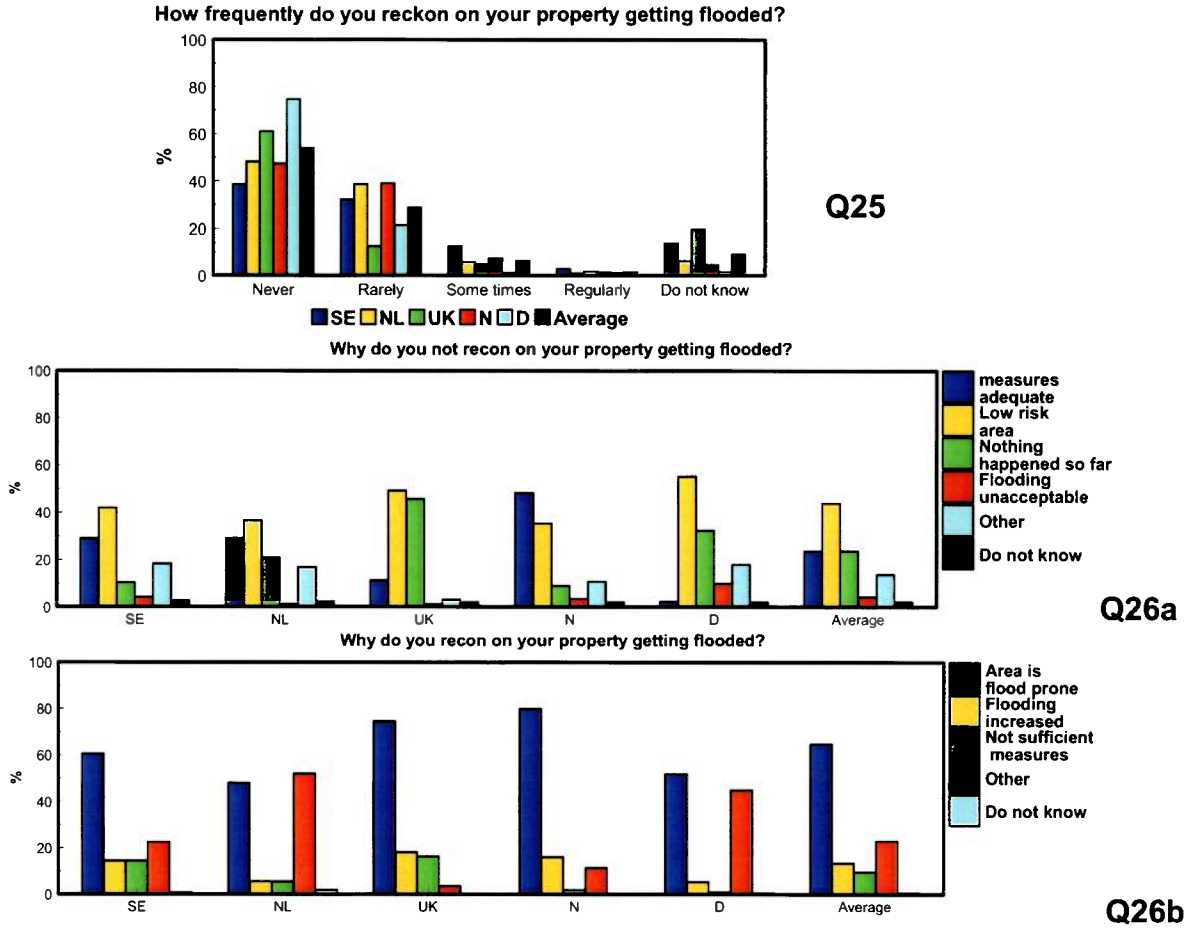
**What makes people feel so safe?** Unfortunately, it is again unawareness of living in an area at risk of flooding. On average, half of the respondents chose lower risk of flooding as an explanation (Fig. 3.5-24a). The variation between the countries is high: six in ten Germans believed they were living in low risk compared to only four in ten Norwegians and Dutch. The responses are in accordance with the patterns revealed earlier (Cf. Fig. 3.1). Almost half of the British respondents, one third of the German and one fifth of the Dutch based their feeling of safety on the fact that nothing happened before. This is an obvious indication of misunderstanding the nature of floods and their return periods, shown earlier (Cf. Figs. 3.1-3 to 3.1-5). Only for two in ten respondents on average except for the Norwegians, were adequate flood-proofing measures reassuring. Among the Norwegians, as many as almost a half felt safe due to flood defence measures. German respondents showed a tendency of not accepting floods at all, which is almost three times greater than the average. This is in accordance with the fact that German respondents showed most interest in investing in flood-proofing. Anyhow, misunderstanding of the nature of floods is apparent.

Among those few who really reckoned on flooding the majority (six in ten) did so because they were aware of living in an area at risk of flooding (Fig. 3-24b). Here too the Norwegians take the lead in awareness of the flood hazard: more than seven in ten believed they were living in a flood-prone area. Except for the Scandinavian countries, one third of their respondents believed that flooding had become more frequent, which hardly depends on personal experiences (Cf. Fig.3.2-6) but rather other factors, such as mass media coverage of climate change topics. One third of the British respondents and

one fifth of the German were not satisfied with the existing flood defence measures, which is higher than the average. The German respondents demonstrated earlier greater readiness to invest in flood proofing of their houses (Cf. Fig. 3.4-22), which may stem from a mistrust of existing defence measures, among other reasons. Many people gave non-specified reasons for reckoning on being flooded.

*After a devastating flood*

Reckoning on property being flooded is higher (two in ten respondents, on average) but is still not quite realistic (Fig. 3.5-25). The Swedish respondents reckoned on property flooding twice as much than others. One in ten and in the UK two in ten respondents could or did not give answer to this question, which might indicate that people never thought of such a situation.




*Figures 3.5 (continued). Opinions about flooding, own property (Q25-Q26a,b).*

The reasons for feeling safe about property are much the same as in case of homes, i.e. people believed living in low risk area with the exception of the Norwegians who relied upon flood defence (Fig. 3.5-26). Also in this case the UK respondents showed the biggest mistrust of the safety measures undertaken and "Nothing happened so far" seemed to matter to them (and to a certain extent to the Dutch respondents) for feeling rather safe. Many noted "other reasons" for not reckoning on flooding of their properties. Among those reckoning on flooding of their property, the majority assigned this to the fact that the area was flood-prone, more than six in ten respondents on average (Fig.3.5-27). Many people, especially among the Dutch and the Germans (about five in ten) noted "other reasons" as a motivation.

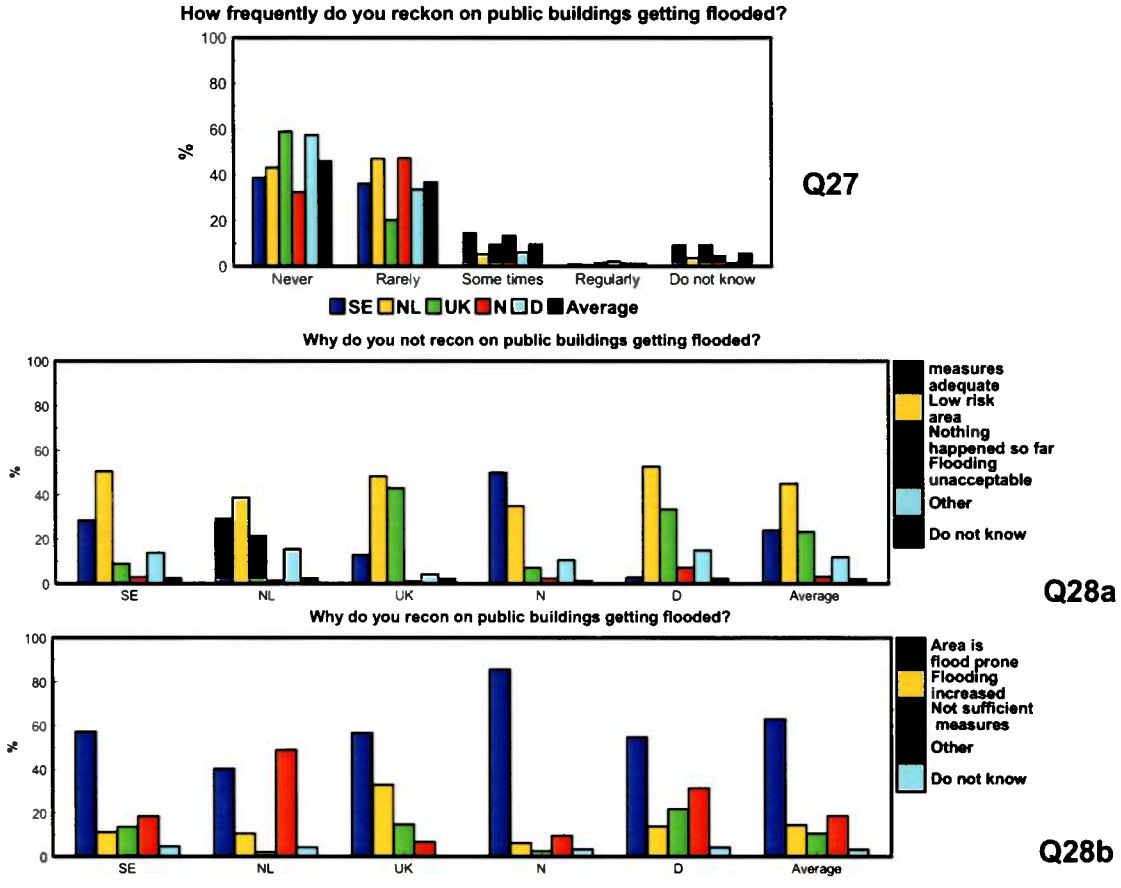



*Figure3.5 (continued). Opinions about flooding, public property (Q27-Q28a,b).*

It seems that people in general do not reckon on flooding of their own belongings. **Do they care as much about public property?** Eight in ten respondents, on average, did not reckon on flooding of public property at all or reckoned on this occurring only rarely, which is somewhat higher compared to flooding of own homes (Fig. 3-28). In Germany only one in ten respondents could reckon on this. This is in accordance with higher intolerance for flooding of their belongings demonstrated earlier. One in ten could reckon on flooding of public property sometimes, somewhat more in the two Scandinavian countries. The patterns of reasoning are very similar to those shown earlier: belief that they were living in areas at low risk of flooding and absence of bad past experiences or on the contrary - living in flood prone areas (Figs. 3-28a and b).

The feeling of safety is dominant in the answers discussed above. The most obvious reasons are lack of awareness of living in areas at risk of flooding and misunderstanding

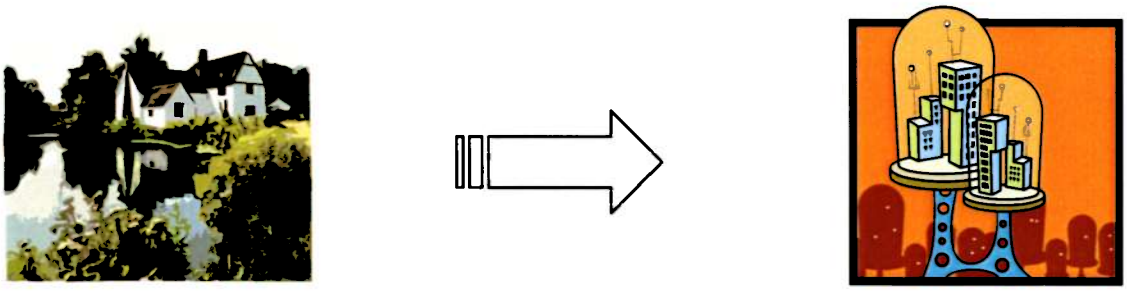
of the nature of floods ("not happened before", "floods are unacceptable"). Both call for better information. Confidence in existing flood defence seems to be low in general, which may well reflect its insufficiency but also unrealistic expectations of "absolute" protection.

## *3.6. Change the Environment!*

*Life is not complex. We are complex.*
*Life is simple and the simple thing is*
*The right thing.*

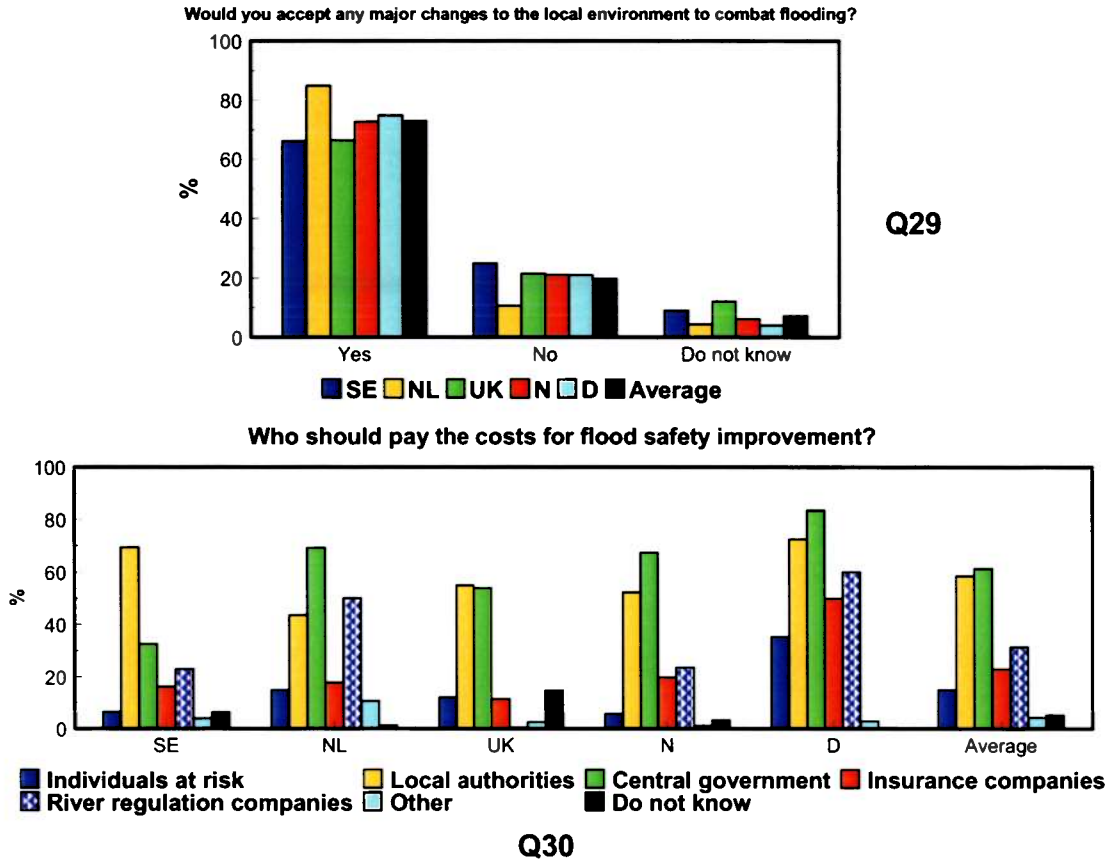
*Oscar Wilde*

People are obviously not quite satisfied with flood protection measures that exist. **Would they accept major changes in their environment to improve flood safety?** In spite of the fact that attractiveness of the area was the major reason for moving to and staying in areas at risk of flooding, seven in ten respondents would accept such changes (Fig. 3.6-29). The acceptance was particularly high in the Netherlands (eight in ten respondents). Each fifth respondent on average, however, would not accept major changes in environment to increase flood safety.



*Flood proofing environment?*

Opinions about who should pay for increasing flood safety were defined (Fig. 3.6-30). Eight in ten Germans and seven in ten Dutch and Norwegians considered it to be a responsibility of the central government, while the majority of the Swedes (six in ten) thought that it was a matter for local authorities. The British respondents supported equally often both these alternatives. "Local authorities" was the second best alternative for the Germans, the Dutch and the Norwegians. In Germany and the Netherlands five-six in ten respondents also considered that river regulation companies should pay – an alternative non-existent in the UK. Only one fifth of the respondents in Scandinavian countries wanted regulation companies to pay. The responsibility of insurance companies was considered to be almost twice as high in Germany (almost five in ten respondents) compared to other countries and was the lowest in UK (one in ten). The role of individual financial responsibility varied as well. While in Germany about one third of the respondents considered that individuals in danger should pay, in Scandinavian countries it was only six in hundred respondents who supported this alternative. Amazingly many British respondents seem not to have reflected on this matter.




*Figures 3.6. Opinions about changing environment to increase flood safety and paying the costs (Q29-Q30).*

Reflecting on the answers given, we may conclude that in general central government and local authorities are expected to bear the main costs for improving flood safety, followed by regulation companies (except for the UK). The role of insurance payouts still remains rather modest. Individual responsibilities are ranked very differently, from rather high – by the Germans to very low – by the Scandinavians. The German households, as seen earlier (Cf. Fig. 3.4-22), also demonstrated greater willingness to invest in flood safety compared to other countries. The differences in the attitudes expressed most probably originate from the differences in practices applied in respective countries.

***"As nature becomes invaded, and even 'ended', by human socialization, and tradition is dissolved, new types of incalculability emerge".***

***Beck et al.***

## *3.7. Confidence in public authorities*

*"Défiance est mère de sûreté"*[9].

*French proverb*

It is clear from the answers given that most households prefer to delegate the responsibility for flood proofing to authorities and remain passive (Cf. Fig. 3.4-21). **Under these circumstances one can assume that they have a high confidence in the ability of public authorities to handle flood issues. But do they?** Fig.3.7-31 shows that it is not quite so. On average, only about half of the respondents confirmed to be very or quite confident in the way public authorities handle the flood hazard. Lowest confidence was noted among the German households, where only four in ten were confident, while in the other four countries it was about six in ten. This might explain why the German households were more inclined to invest in the safety of their homes than the others (Cf. Fig. 3.4-22), especially bearing in mind that rather many of them shared the opinion that their own house should never be flooded as floods are unacceptable (Cf. Figs.3.5-23 and 3.5-24a).

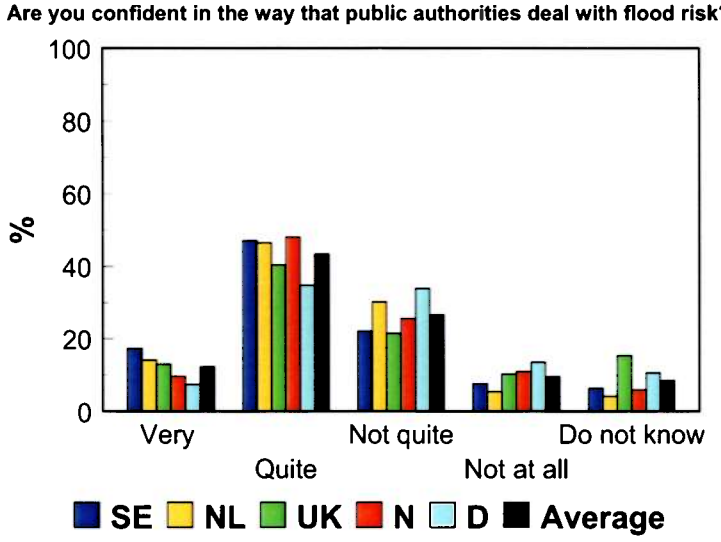



*Figure 3.7. Confidence in public authorities (Q31).*

On the other hand, confidence in the ability of public authorities to handle flood issues was highest among the Swedish households, which is well in accordance their view that this is matter for local authorities (who should bear the costs) rather than individuals (Cf. Fig.3.6-30).

**What makes people reply that they are confident or not confident, respectively, in the way public authorities assess flood hazard?** It seems that people are confident for different reasons in different countries, though some reasons are common (Fig.3.7a-32 top).

While for more than a half of the Norwegian households confidence was based on the knowledge about flood defence measures installed (which once again confirms that they are rather well informed, cf. Fig. 3.3-13), for four in ten Swedish households it was a

[9] Distrust is security's mother

general trust in public authorities. Four in ten German households referred to the previous good experience. All the mentioned reasons were chosen equally often by the British households, while the Dutch ones had confidence for other, non specified reasons besides their general trust in authorities and knowledge about defence measures. Almost two in ten British respondents (twice as many as the average) declared that they did not worry specially about floods. Earlier (Cf. Fig. 3.1-2) we saw that eight in ten British respondents were hardly concerned or not concerned at all about the flood hazard and in this context the latter figure seems too low.

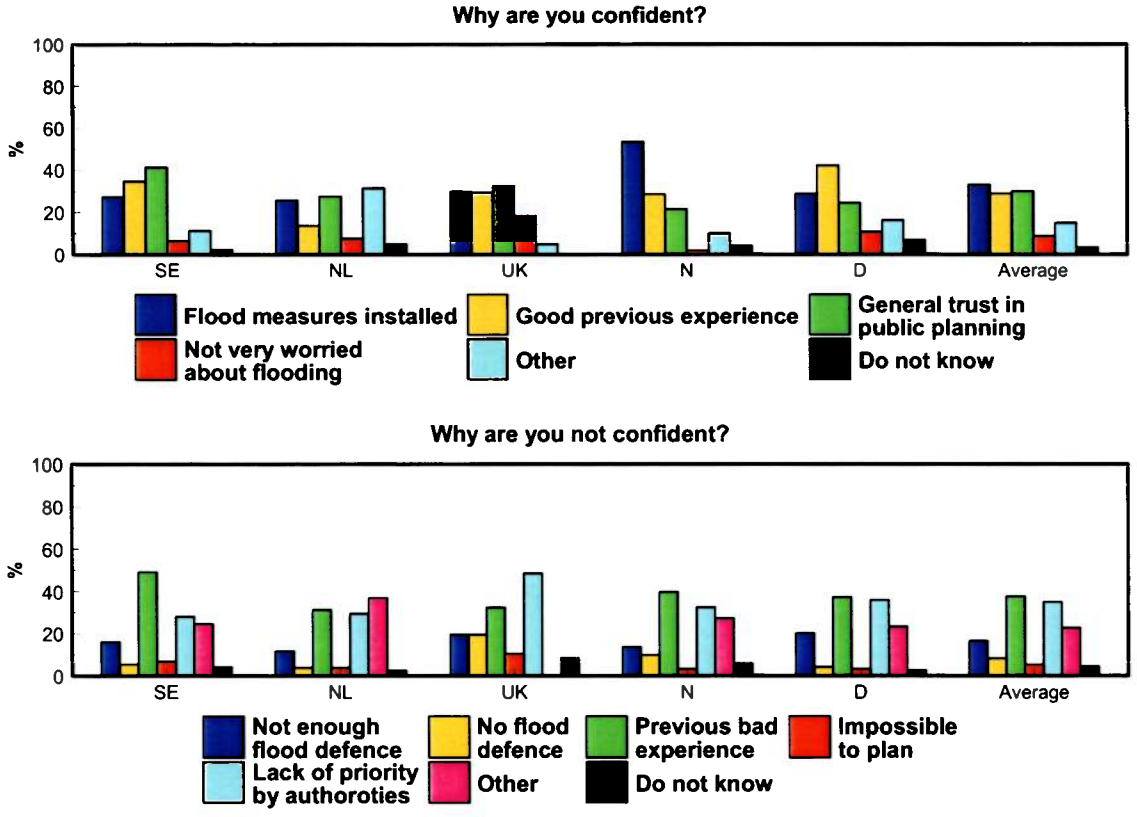



*Figure 3.7a. Reasons for being confident or not confident in the way that public authorities deal with flood risk (Q32).*

Previous bad experience was the dominant reason for the respondents with no confidence in public authorities in Sweden, Norway and Germany (Fig.3.7-32 bottom). Lack of priority by the authorities was the second important reason for non-confidence in these countries. It was the major reason for half of the British respondents, followed by previous bad experience. In similar response to many other questions the Dutch households chose "other" non-specified reasons as the major explanation, followed by the previous bad experience (three in ten households). Pointing "previous bad experiences" as a reason for not being confident is inconsistent with the fact that the majority of households declared they had no experience of flooding (eight in ten, except for in Norway (cf. Figs. 3.2-6 and 3.2-7) while only a few reported bad experiences from flooding (Cf. Figs3.2-9 to 3.2-11).

The fact that half of the population were not confident with the way public authorities assessed flood hazard might also originate from the lack of personal experience of such activities, as seen earlier in Fig.3.3-14. Personal engagement in flood assessment would not only raise awareness of flood hazard, as noted earlier, but might help increase

confidence in the way public authorities handle this issue.

## *3.8. Population structure*

The households in the survey are represented by the most informed household members who answered the questions. The diagrams in Fig.3.8 (Q33 to Q42) at the end of this chapter illustrate the structure of the population involved in poll. We can see a balanced mixture of males and females in general, with more males in Norway and more females in the UK[10]. The majority of the respondents are in their 40s-60s, somewhat older in the UK.

Approximately half of them are employed while two-three in ten are retired. In the UK there are somewhat more retired people than in the rest of the countries (about five in ten respondents). Four in ten households have on average two persons, 20% are one-person households and 30% are three-four person households. On average, approximately half of the households have been living in the area for at least ten years and four in ten for a shorter period of two-ten years. "Newcomers" were almost twice as many in Sweden. Basically people own their houses/flats (seven-eight in ten) with the exception of Sweden, where four in ten rent their houses/flats.

The population is on average urban in Sweden (62%) and Norway (73%), rural in the Netherlands (43%) and in particular the UK (85%), while mixed in Germany. Such a result might seem surprising but can be explained by different "official" definitions of what is urban or rural in the participating countries, as seen from some examples in Table 3-1.

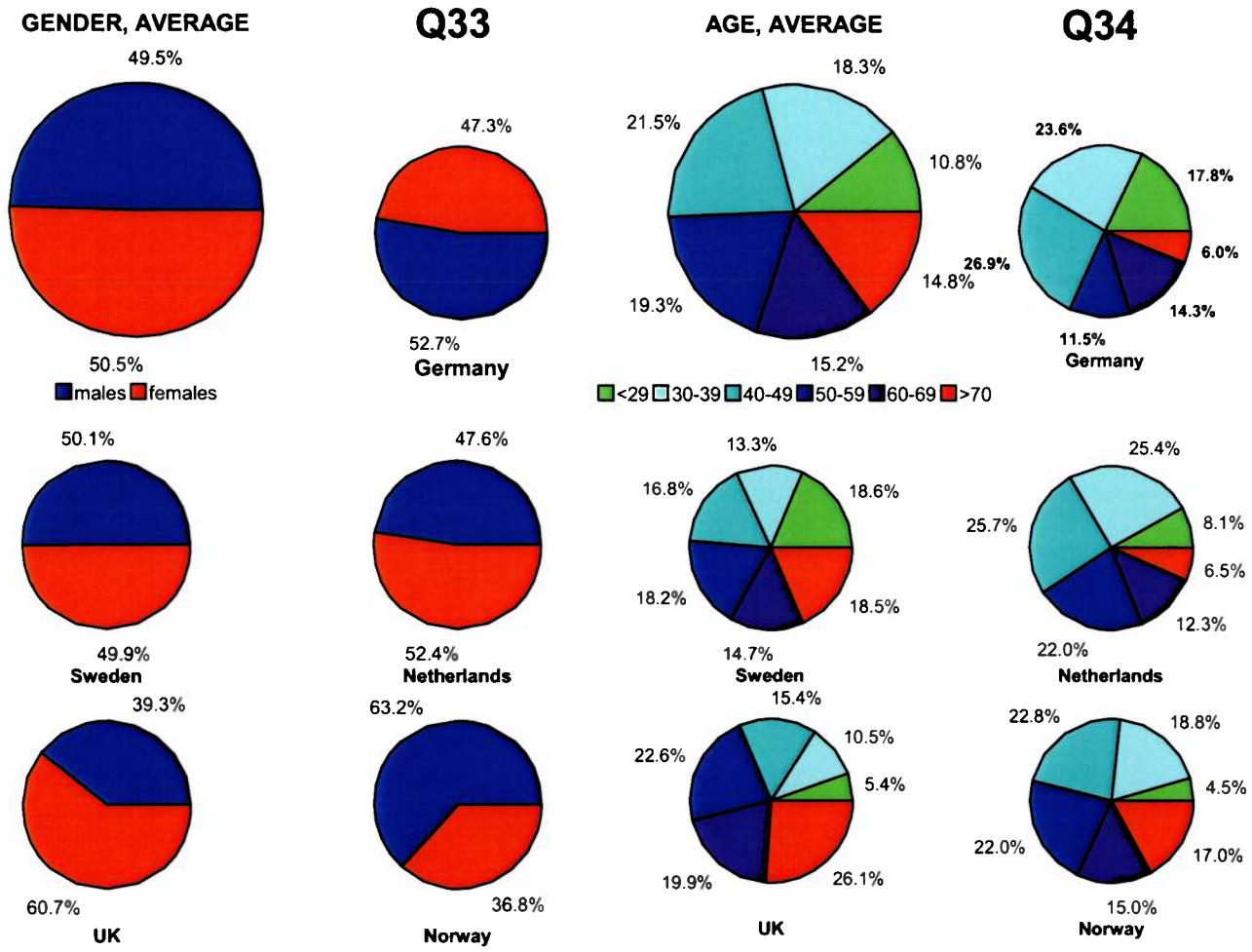
Table 3-1. Urban/rural definitions in the participating countries.

| **Norway** |
|---|
| **"Urban"** - *Level 3*: Urban settlements on level 3 shall normally have a population of at least 50.000 and otherwise have functions as a regional centre or within 75 minute's time travelling from such a center (90 minutes for Oslo).<br><br>**"Suburban"**- *Level 2*: Urban settlements on level 2 shall normally have a population between 15.000 and 50.000, or lie within 60 minutes travelling from the center of such a settlement.<br><br>**"Suburban"** - *Level 1*: Urban settlements on level 1 shall normally have a population of between 5.000 and 15.000 or lie within 45 minutes travelling from the center of such a settlement.<br><br>"Rural" - *Level 0*: Municipalities that do not fulfill the above requirements. |
| **Netherlands** |
| **Very strongly urbanized** - more than 2500 addresses per km2<br>**Strongly urbanized** -1500 - 2500 addresses per km2<br>**Moderately urbanized** - 1000 - 1500 addresses per km2<br>**Little urbanized** - 500 - 1000 addresses per km2<br>**Not urbanized** - less than 500 addresses per km2 |
| **UK** |
| **Urban** >500 households per sq km<br>**Suburban** 100-500 households per sq km<br>**Rural** <100 households per sq km |

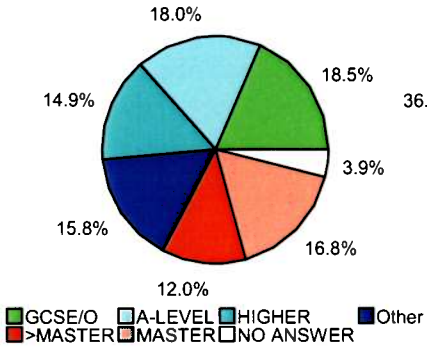
[10] UK sample proved to have a slightly different structure compared to official local statistics. The proportion of: females; citizens over fifty; two people households; owned house/flat; self-employed persons and persons 'looking after home and family' are higher in the sample than those in local statistics.

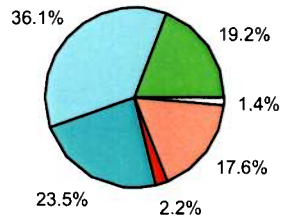
Comparing the values given in this table, it is easy to see what perspective the respondents had in mind answering the question about the type of area where they live. Except for the deviant proportions of urban/rural households, differences between the countries are rather small. Deviations from official local statistics noted in some cases are inevitable in a poll study, as it is totally based on the responses given.

*Figure 3.8. Social structure of the population sample in the poll (Q33-Q42).*

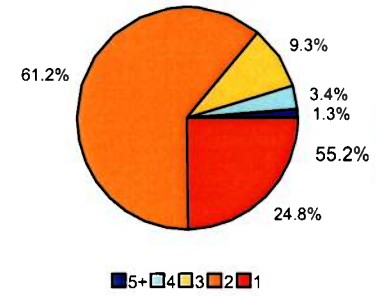


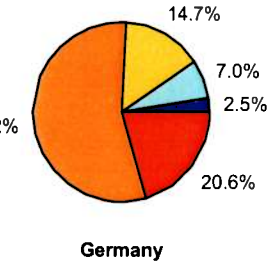
## EDUCATION LEVEL, AVERAGE Q35

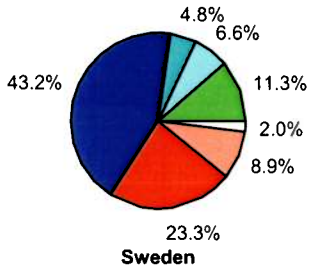


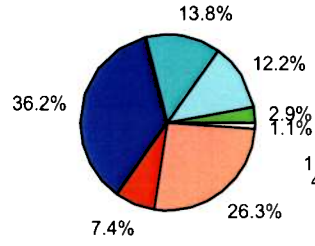



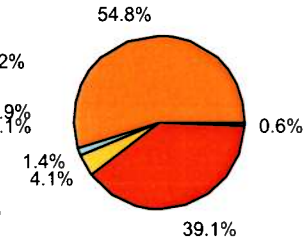

## ADULTS IN HOUSEHOLD, AVERAGE Q36

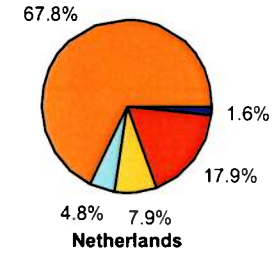


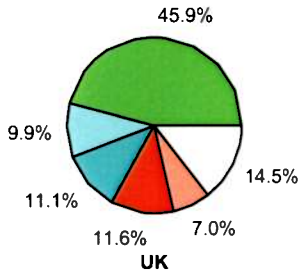



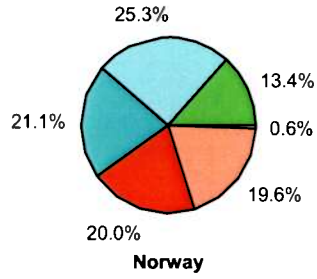



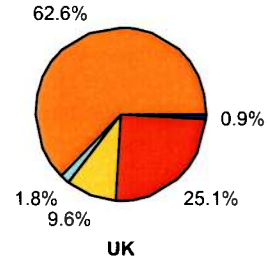



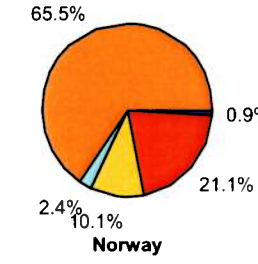



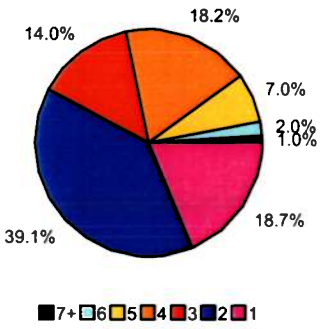



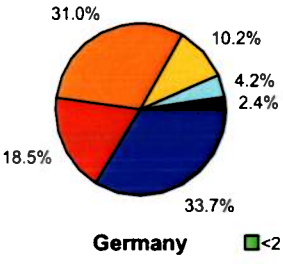



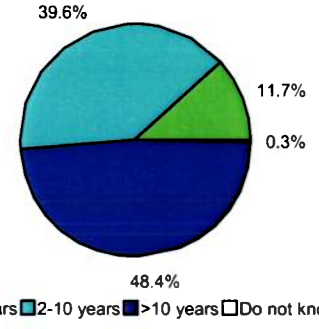



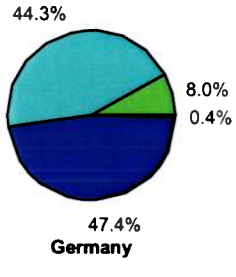
**TOTAL HOUSEHOLD MEMBERS, AVERAGE** **Q37**

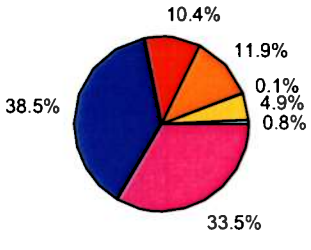


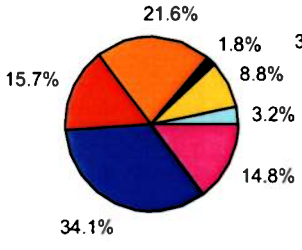



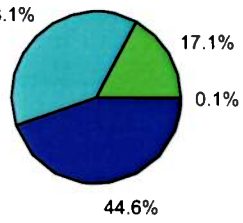

**Has been living at the current address, AVERAGE** **Q38**

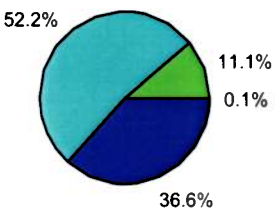


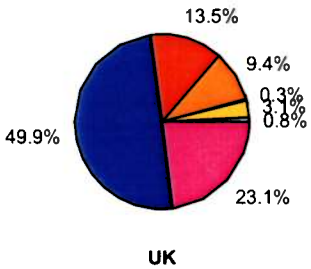



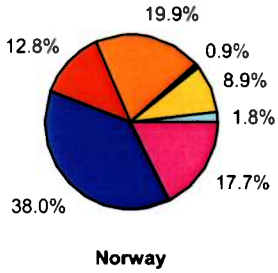



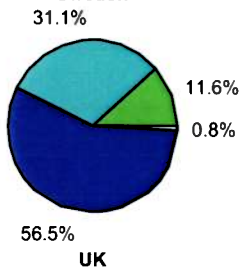



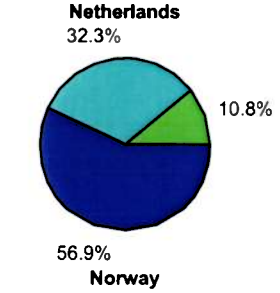



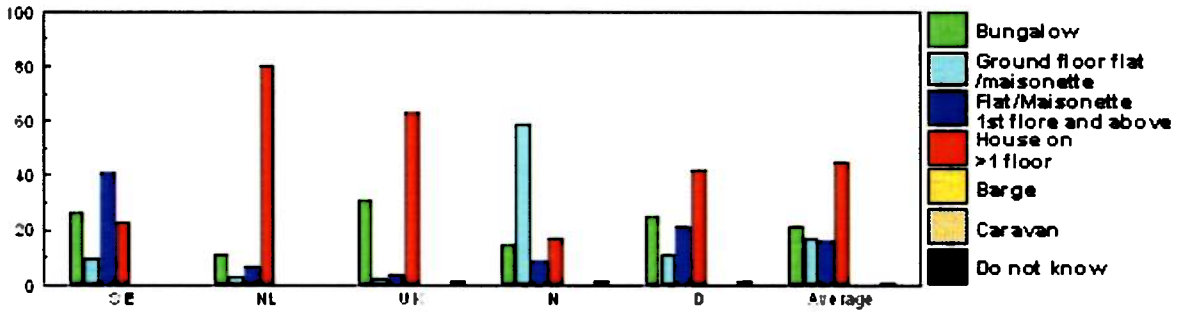



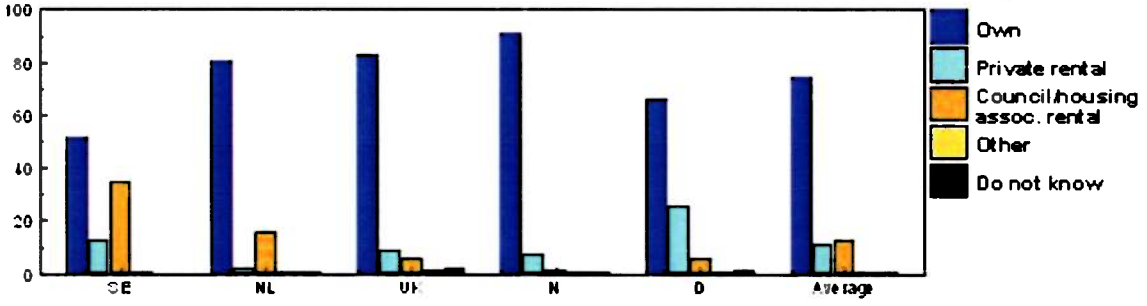



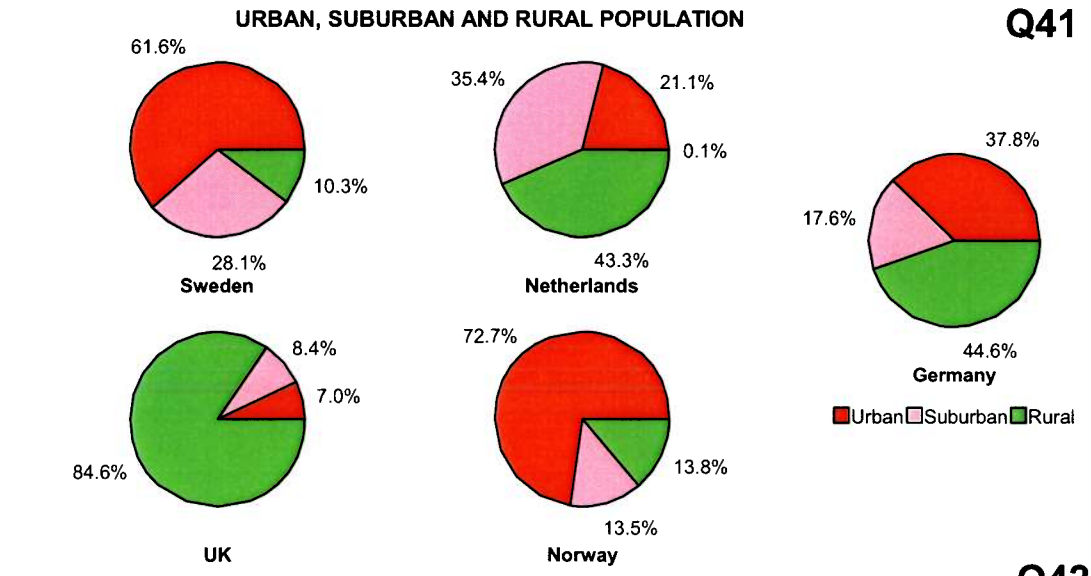



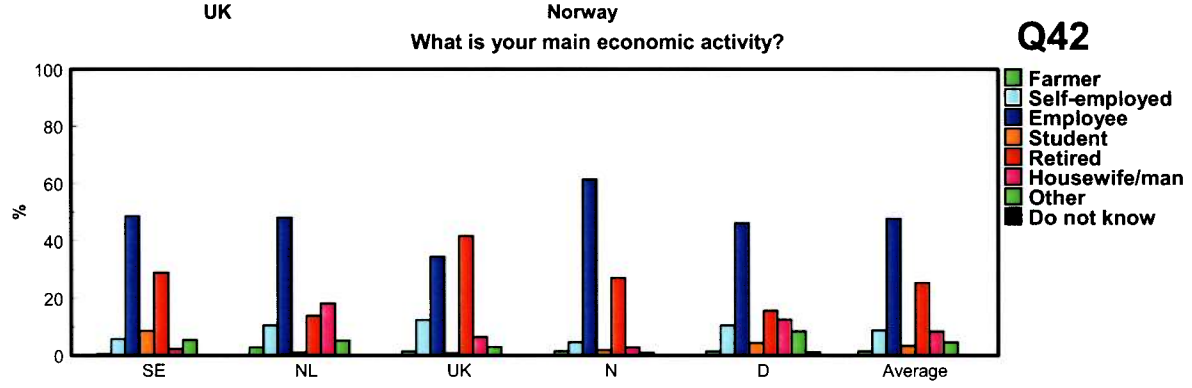

What kind of residence do you live in? **Q39**




Do you/your family rent or own your property? **Q40**




URBAN, SUBURBAN AND RURAL POPULATION
Q41
61.6%
10.3%
28.1%
Sweden
35.4%
21.1%
0.1%
43.3%
Netherlands
37.8%
17.6%
44.6%
Germany
Urban
Suburban
Rural
8.4%
7.0%
84.6%
UK
72.7%
13.8%
13.5%
Norway


What is your main economic activity?
Q42
100
80
60
40
20
0
%
SE
NL
UK
N
D
Average
Farmer
Self-employed
Employee
Student
Retired
Housewife/man
Other
Do not know

## 4. *Towards active citizenship*

*The same rain falls on the just man and the unjust;*
*And if the rain falls too heavily on them they will*
*Just have to sort out a solution together.*
*Matt.5.45*

In a democratic society the opinion of citizens is of great importance for acceptable political solutions. The poll study brought forward important information about the way people in flood-prone areas of the North Sea region perceive flood hazard. There are more similarities than differences between the countries in the way people perceive flood hazard. We can note:

- Limited interest in flood hazard
- Poor involvement in flood issues
- Sentimental rather than logical reasoning for living in areas at risk of flooding
- Passiveness with respect to raising flood safety of own homes
- Reluctant attitude towards moving
- Leaving responsibility to public authorities in spite of insufficient confidence in their ability to handle the problem
- Acceptance of major changes in environment to raise flood safety
- Newspapers and radio/TV are still the preferred information channels (except in UK), but information is insufficient or inadequate
- Misunderstanding of the nature of floods

Many studies conducted internationally have shown that people everywhere, regardless their social and cultural background use very similar risk criteria forming their opinions (Renn & Rohrmann, 2000). It is the relative effectiveness of these criteria in opinion-forming and risk tolerance that differ.

Among major differences we may note:

- A somewhat better awareness of flood hazard by the Norwegians
- Very low awareness of living in a flood prone area from the German respondents
- Low concerns about flood hazard among the Dutch respondents
- Lower tolerance for flooding of own houses in Germany
- Somewhat lower confidence in the ability of public authorities to handle flood issues among the German respondents and somewhat higher among the Swedish
- Higher willingness to invest in flood safety among the Germans and higher

unwillingness among the British respondents
- Higher acceptance of environmental changes to increase flood safety in the Netherlands
- Local authorities rather than central are given responsibility for the costs of raising flood safety by the Swedes
- Leaflets with information about flooding are the preferred information link by the UK respondents.

Passiveness and low interest in flood issues call for better information but not in isolation. It is important to stimulate people's engagement in decision-making with respect to flood issues. Elaboration of practices allowing involvement of laymen in flood assessment is crucial in this respect. The latter may help to raise the confidence in public authorities' actions with respect to flood hazard, increase general understanding of the nature of floods and also stimulate personal responsibility for raising flood safety. A growing frequency of flooding has already triggered a more active attitude among part of the population (e.g. "Flood Forum" in UK) and it is important to actively use their knowledge and experiences working at flood assessment policies.

As Norwegian respondents demonstrated higher awareness of flood hazard, it maybe worthwhile to make use of the dissemination practices applied in Norway in other countries. High appreciation of information leaflets by the UK respondents calls for testing this rather uncommon information source in other countries. The handling of flood issues by Swedish local authorities, appreciated by many Swedish respondents, may be a useful example for other decision-makers. These are only some examples, in fact, differences in the responses between countries indicate possible or less successful practices.

The views of laymen revealed by the poll study will be further compared with the views of decision-makers, as described in the "Introduction" in search for consensus on what is tolerable risk. As correctly noted by Renn (2004), **public perception and common sense cannot replace science and policy but they can certainly provide impetus for the decision-making process.** The information gathered during the poll study will also be used for other investigations within the FLOWS.

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# *ANNEX 1: Questionnaires*

Questions used in the poll are presented in the Master Questionnaire below. Some of the questions in the survey were adapted to local conditions. Table Ann-1 shows the modifications of national response alternatives. In the UK all response alternatives followed the Master questionnaire.

### *Master Questionnaire*

(DK – don't know; NA – No answer)

Q1. Do you live in an area at risk of flooding?

1. Yes
2. No
9. DK/NA

Q2. How concerned are you about the risk of flooding? Are you

1. Hardly concerned at all
2. Not very concerned
3. Quite concerned
4. Very concerned
9. DK/NA

Q3. How likely is it that your community will be flooded during the next 20 years? Is it

1. Very likely
2. Quite likely
3. Quite unlikely
4. Very unlikely
9. DK/NA

Q4. How likely is it that your own house or flat will be flooded during the next 20 years? Is it

1. Very likely
2. Quite likely
3. Quite unlikely
4. Very unlikely
9. DK/NA

Q5. How likely is it that other property of yours (farm land, garden, shop, garage etc) will be flooded during the next 20 years? Is it

1. Very likely
2. Quite likely
3. Quite unlikely
4. Very unlikely
9. DK/NA

Q6. Has your house or flat ever been flooded? [IF YES] More than once?

1. No, never
2. Yes, once
3. Yes, more than once
9. DK/NA

Q7. Has other property of yours than your house/flat ever been flooded? [IF YES] More than once?

1. No, never
2. Yes, once
3. Yes, more than once
9. DK/NA

Q8. Have you, your family or your business ever been evacuated during flooding?

1. Yes
2. No
9. DK/NA

Q9. Have you, or any family member, ever felt in serious danger during flooding?

1. Yes
2. No
9. DK/NA

Q10. How would you describe the financial impact of the last flood damage on your household? Was it

1. Very serious
2. Quite serious
3. Quite small
4. Very small
9. DK/NA

Q11. How badly would you say the last flood affected your life in general? Was it

1. Very badly
2. Quite badly
3. Not too badly
4. Very slightly/ not at all
9. DK/NA

Q12. Would you say there were any positive results from the last flood? [For example, bringing the community together, constructive media coverage, insurance payouts for your own household, improvement grants for your house, or larger-scale preventive measures implemented] (SELECT ALL THAT APPLY)

1. Bringing community together
2. Media coverage
3. Insurance payouts
4. Improvement grants
5. Preventive measures
6. It was fun/exciting/memorable
7. Other
8. No positive results at all
9. DK/NA

Q13. Are there any kinds of flood management or defence measures in your area?

1. Yes
2. No
9. DK/NA

Q14 Have you ever been involved in flood management or defence in your area?

1. Yes
2. No
9. DK/NA

Q15. How well do you feel you have been informed about flood management or defence measures in your area? Do you feel

1. Very well informed
2. Quite well informed
3. Not very well informed
4 Very ill-informed
9 DK/NA

Q16. How would you prefer to receive information about flood management and defence measures in your community? Is it through (SELECT ALL THAT APPLY)

01. Newspapers
02. Radio/TV
03. Leaflets
04. Websites
05. Email
06. Freephone telephone number
07. Local flood wardens
08. Local flood groups

09. Public meetings
10. Face to Face with a member of the Environment Agency/Local Authority staff
11. Other
12. Do not want to receive information
99. DK/NA

Q17. Did your family give any thought to possible flood risks when moving to your current address?
1. Yes
2. No
9. DK/NA

Q18 What drew you to the area, despite the risk of flooding? (SELECT ALL THAT APPLY)
1. Attractive area
2. Work
3. Local services (schools, hospitals etc)
4. Attractive residence
5. Lower prices
6. Other
9. DK/NA

Q19. Have you ever considered moving out due to the risk of flooding?
1. Yes
2. No
9. DK/NA

Q20a Why have you not moved? (SELECT ALL THAT APPLY)
1. Flood risk is limited
2. Difficult to sell residence
3. Personal reason (old age, job situation etc)
4. Area attractiveness
5. Other
9. DK/NA

Q20b Why have you not considered moving? (SELECT ALL THAT APPLY)
1. Flood risk is limited
2. Difficult to sell residence
3. Personal reason (old age, job situation etc)
4. Area attractiveness
5. Other
9. DK/NA

Q21. What steps have you taken yourself to prepare for flooding and to limit potential damage? (SELECT ALL THAT APPLY)
1. Checking building insurance
2. Checking contents insurance
3. Planning the emergency measures to take in the event of a flood
4. Learning the flood warning codes
5. Checking how flood warnings are issued
6. Investigating flood-proofing the building
7. Other steps
8. No steps taken
9. DK/NA

Q22. Are you willing to consider making further investments in your house/flat to reduce the impact of possible flood damage (waterproof material on basement floors, attic expansion etc)?
1. Yes
2. No
9. DK/NA

Q23. In general, how frequently do you reckon on your house or flat getting flooded? Would you say
1. Never

2. Rarely
3. Sometimes
4. Regularly
9. DK/NA

Q24a. Why do you say that? (SELECT ALL THAT APPLY)
1. Adequate measures have been taken
2. Residence is in a low risk area (e.g. on a hill, on the first floor or above etc)
3. Hasn't happened so far
4. Flooding is unacceptable
5. Other
9. DK/NA

Q24b. Why do you say that? (SELECT ALL THAT APPLY)
1. Area is prone to unavoidable flooding
2. Flooding has increased in recent years
3. Not enough has been done to prevent flooding/flood damage
4. Other
9. DK/NA

Q25. In general, how frequently do you reckon on other property of yours ( garden, garage, shop, farm land etc) getting flooded? Would you say
1. Never
2. Rarely
3. Sometimes
4. Regularly
9. DK/NA

Q26a. Why do you say that? (SELECT ALL THAT APPLY)
1. Adequate measures have been taken
2. Property is in a low risk area
3. Hasn't happened so far
4. Flooding is unacceptable
5. Other
9. DK/NA

Q26b. Why do you say that? (SELECT ALL THAT APPLY)
1. Area is prone to unavoidable flooding
2. Flooding has increased in recent years
3. Not enough has been done to prevent flooding
4. Other
9. DK/NA

Q27. In general, how frequently do you reckon on public buildings in your area – e.g. schools - getting flooded? Would you say
1. Never
2. Rarely
3. Sometimes
4. Regularly
9. DK/NA

Q28a. Why do you say that? (SELECT ALL THAT APPLY)
1. Adequate measures have been taken
2. This is a low risk area
3. Hasn't happened so far
4. Flooding is unacceptable
5. Other
9. DK/NA

Q28b. Why do you say that? (SELECT ALL THAT APPLY)
1. Area is prone to unavoidable flooding
2. Flooding has increased in recent years
3. Not enough has been done to prevent flooding

4. Other
9. DK/NA

Q29. Would you accept any major changes to the local environment, such as higher dikes, fewer paved sites, house clearance in risk zones, diversions to waterways etc in order to combat the possibility of flooding?

1. Yes
2. No
9. DK/NA

Q30. Who should bear the (main?) economic cost of improving flood safety in your community? Is it (SELECT ALL THAT APPLY)

1. Individuals who are at risk of flooding
2. Local authorities
3. Central government
4. Insurance companies
5. [NOT UK] River regulation companies
6. Others
9. DK/NA

Q31. How confident are you in the way that public authorities plan for and deal with flood risks? Do you feel

1. Very confident
2. Quite confident
3. Not very confident
4. Not at all confident
9. DK/NA

Q32a. Why do you say this? (SELECT ALL THAT APPLY)

1. Flood defences have been installed
2. Previous good experience
3. General trust in public planning
4. Not very worried about flooding
5. Other
9. DK/NA

Q32b. Why do you say this? (SELECT ALL THAT APPLY)

1. Not enough flood defences have been installed
2. No flood defences have been installed
3. Previous bad experience
4. Some things cannot be planned against
5. Authorities do not place enough of a priority on avoiding flooding
6. Other
9. DK/NA

**Q33**. Record gender

1. Male
2. Female

**Q34**. What is your age?

Record age: __ __

**Q35**.What is your highest completed educational level?

1. GCSE/O-Level
2. A-Level
3. Higher Education
4. Master's degree
5. Further Education
6. DK / NA

**Q36**. How many adults (18+), including yourself, are living in the household?

Record number: __ __

**Q37**. How many people in total including yourself, are living in the household?
Record number: __ __

**Q38**. For how many years have you been living at your current address? Is it..
1. <2 years
2. 2-10 years
3. > 10 years
9. DK/NA

**Q39**. What kind of residence do you live in?
1. Bungalow
2. Ground floor flat/maisonette
3. Flat/maisonette - first floor or above
4. House on more than 1 floor
5. Barge
6. Caravan
9. DK/NA

**Q40**. Do you / your family own or rent your property?
1. Own
2. Private rental
3. Council or housing association rental
4. Other
9. DK/NA

[**Q41** – RECORDED FROM SAMPLE – TYPE OF AREA]
1. Urban
2. Suburban
3. Rural

**Q42**. What is your main economic activity?
1. Farmer
2. Self-employed
3. Employee
4. Student
5. Retired
6. Housewife
7. Other

Table Ann-1. Responses adapted to local conditions.

| Master questionnaire | Netherlands | Norway | Sweden | Germany |
|---|---|---|---|---|
| Q39. Kind of residence<br>1. Bungalow<br>2. Ground floor flat/maisonette<br>3. flat/maisonette 1st floor or above<br>4. House on more than one floor<br>5. Barge<br>6. Caravan<br>9. DK/NA | Same as Master | 1. Villa uten kjeller<br>2. Villa med kjeller<br>3. Leilighet: sokkeletasje<br>4. Leilighet 2.etg eller høyere<br>5. Husbåt<br>6. Campingvogn<br>9. DK/NA | 1. Enplans hus eller villa<br>2. Lagenhet i markplan<br>3. Lagenhet/ bostad på 2 van.<br>4. Hus/ villa med mer an en våning<br>5. Båt/husbåt<br>6. Husvagn<br>9. DK/NA | Same as Master |
| Q40: Education<br>1. GCSE/O-level<br>2. A-Level<br>3. Higher education<br>4. Master's degree<br>5. Further education<br>6. DK/NA<br>7.<br>8.<br>9. | 1:LA - Elementary<br>2:Lower professional<br>3:Secondary<br>4:Secondary professional<br>5:High school<br>6:Higher professional<br>7:University<br>8:DK\NA | 1. Folkeskole/grunnskole<br>2. Fagutd./ yrkesutd. videreg.<br>3. Gymnas allmennfaglig<br>4. Høyskole/ universitet >3 år<br>5. Høyskole/ universitet >6 år<br>6. DK/NA | 1. Folkskola-Enhetsskola<br>2. Grundskola<br>3. Flickskola-Realexamen<br>4. Gymnasial utbildning <2 år<br>5. Gymnasial utbildning 2 år><br>6. Folkhøgskola<br>7. Høgskola/ universitet < 3år<br>8. Høgskola/ universitet 3 år><br>9. Ej svar | 1:Volksschule\ Hauptschule (low level of schooling)<br>2:Weiterbildenden Schule ohne Abitur (10-klassige polytechnische Oberschule, früher Mittelschule) (medium level of schooling)<br>3: Abitur, Fachabitur (12-klassige erweiterte Oberschule, früher Oberschule) (high level of schooling, university entrance qualification)<br>4:Abgeschlossenes Universitätsstudi- um (university degree)<br>5: Promotion, Habilitation (doctoral, postdoctoral level)<br>9: Weiß nicht, keine Angabe (Don't know, refused) |

*Question 21*: Please note that for Sweden, question 21 does not apply the international answering category number 4 ("Learning the flood-warning-codes).

# *Annex 2. Tables with data (from TNS Gallup's report)*

**CONCERNS ABOUT FLOODING**

**Q1 Do you live in an area at risk of flooding? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q1 Do you live in an area at risk of flooding? | Yes | Count | 526 | 302 | 384 | 515 | 101 | 1828 |
| | | % within Country | 65,8% | 37,9% | 48,0% | 64,4% | 12,6% | 45,7% |
| | No | Count | 257 | 461 | 377 | 272 | 699 | 2066 |
| | | % within Country | 32,1% | 57,9% | 47,1% | 34,0% | 87,4% | 51,7% |
| | DK/NA | Count | 17 | 33 | 39 | 13 | 0 | 102 |
| | | % within Country | 2,1% | 4,1% | 4,9% | 1,6% | ,0% | 2,6% |
| Total | | Count | 800 | 796 | 800 | 800 | 800 | 3996 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q2 How concerned are you about the risk of flooding? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q2 How concerned are you about the risk of flooding? | Hardly concerned at all | Count | 390 | 518 | 379 | 377 | 444 | 2108 |
| | | % within Country | 48,8% | 65,1% | 47,4% | 47,1% | 55,5% | 52,8% |
| | Not very concerned | Count | 290 | 209 | 249 | 313 | 161 | 1222 |
| | | % within Country | 36,3% | 26,3% | 31,1% | 39,1% | 20,1% | 30,6% |
| | Quite concerned | Count | 93 | 59 | 117 | 83 | 120 | 472 |
| | | % within Country | 11,6% | 7,4% | 14,6% | 10,4% | 15,0% | 11,8% |
| | Very concerned | Count | 22 | 9 | 52 | 26 | 72 | 181 |
| | | % within Country | 2,8% | 1,1% | 6,5% | 3,3% | 9,0% | 4,5% |
| | DK/NA | Count | 5 | 1 | 3 | 1 | 3 | 13 |
| | | % within Country | ,6% | ,1% | ,4% | ,1% | ,4% | ,3% |
| Total | | Count | 800 | 796 | 800 | 800 | 800 | 3996 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q3 How likely is it that your community will be flooded in the next 20 years? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q3 How likely is it that your community will be flooded in the next 20 years? | Very likely | Count | 70 | 11 | 77 | 89 | 38 | 285 |
| | | % within Country | 8,8% | 1,4% | 9,6% | 11,1% | 4,8% | 7,1% |
| | Quite likely | Count | 202 | 42 | 180 | 233 | 72 | 729 |
| | | % within Country | 25,3% | 5,3% | 22,5% | 29,1% | 9,0% | 18,2% |
| | Quite unlikely | Count | 264 | 283 | 192 | 275 | 345 | 1359 |
| | | % within Country | 33,0% | 35,6% | 24,0% | 34,4% | 43,1% | 34,0% |
| | Very unlikely | Count | 200 | 440 | 261 | 180 | 329 | 1410 |
| | | % within Country | 25,0% | 55,3% | 32,6% | 22,5% | 41,1% | 35,3% |
| | DK/NA | Count | 64 | 20 | 90 | 23 | 16 | 213 |
| | | % within Country | 8,0% | 2,5% | 11,3% | 2,9% | 2,0% | 5,3% |
| Total | | Count | 800 | 796 | 800 | 800 | 800 | 3996 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q4 How likely is it that your own house...? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q4 How likely is it that your own house...? | Very likely | Count | 29 | 5 | 31 | 50 | 18 | 133 |
| | | % within Country | 3,6% | ,6% | 3,9% | 6,3% | 2,3% | 3,3% |
| | Quite likely | Count | 103 | 27 | 74 | 127 | 23 | 354 |
| | | % within Country | 12,9% | 3,4% | 9,3% | 15,9% | 2,9% | 8,9% |
| | Quite unlikely | Count | 253 | 249 | 192 | 295 | 238 | 1227 |
| | | % within Country | 31,6% | 31,3% | 24,0% | 36,9% | 29,8% | 30,7% |
| | Very unlikely | Count | 371 | 503 | 437 | 312 | 515 | 2138 |
| | | % within Country | 46,4% | 63,2% | 54,6% | 39,0% | 64,4% | 53,5% |
| | DK/NA | Count | 44 | 12 | 66 | 16 | 6 | 144 |
| | | % within Country | 5,5% | 1,5% | 8,3% | 2,0% | ,8% | 3,6% |
| Total | | Count | 800 | 796 | 800 | 800 | 800 | 3996 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q5 How likely is it that other property of yours...? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q5 How likely is it that other property of yours...? | Very likely | Count | 46 | 18 | 38 | 57 | 36 | 195 |
| | | % within Country | 5,8% | 2,3% | 4,8% | 7,1% | 4,5% | 4,9% |
| | Quite likely | Count | 136 | 61 | 92 | 128 | 51 | 468 |
| | | % within Country | 17,0% | 7,7% | 11,5% | 16,0% | 6,4% | 11,7% |
| | Quite unlikely | Count | 176 | 263 | 127 | 284 | 192 | 1042 |
| | | % within Country | 22,0% | 33,0% | 15,9% | 35,5% | 24,0% | 26,1% |
| | Very unlikely | Count | 373 | 416 | 364 | 296 | 497 | 1946 |
| | | % within Country | 46,6% | 52,3% | 45,5% | 37,0% | 62,1% | 48,7% |
| | DK/NA | Count | 69 | 38 | 179 | 35 | 24 | 345 |
| | | % within Country | 8,6% | 4,8% | 22,4% | 4,4% | 3,0% | 8,6% |
| Total | | Count | 800 | 796 | 800 | 800 | 800 | 3996 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**FLOOD EXPERIENCES**

**Q6 Has your house or flat ever been flooded? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q6 Has your house or flat ever been flooded? | No, never | Count | 680 | 759 | 727 | 470 | 760 | 3396 |
| | | % within Country | 85,0% | 95,4% | 90,9% | 58,7% | 95,0% | 85,0% |
| | Yes, once | Count | 78 | 29 | 50 | 123 | 32 | 312 |
| | | % within Country | 9,8% | 3,6% | 6,3% | 15,4% | 4,0% | 7,8% |
| | Yes, more than once | Count | 36 | 7 | 19 | 194 | 5 | 261 |
| | | % within Country | 4,5% | ,9% | 2,4% | 24,2% | ,6% | 6,5% |
| | DK/NA | Count | 6 | 1 | 4 | 14 | 3 | 28 |
| | | % within Country | ,8% | ,1% | ,5% | 1,7% | ,4% | ,7% |
| Total | | Count | 800 | 796 | 800 | 801 | 800 | 3997 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q6b How long ago? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q6b How long ago? | Within the last 10 years | Count | 95 | 18 | 47 | 145 | 23 | 328 |
| | | % within Country | 83,3% | 50,0% | 66,2% | 45,7% | 60,5% | 56,9% |
| | More than 10 years ago | Count | 19 | 18 | 23 | 168 | 15 | 243 |
| | | % within Country | 16,7% | 50,0% | 32,4% | 53,0% | 39,5% | 42,2% |
| | DK/NA | Count | 0 | 0 | 1 | 4 | 0 | 5 |
| | | % within Country | ,0% | ,0% | 1,4% | 1,3% | ,0% | ,9% |
| Total | | Count | 114 | 36 | 71 | 317 | 38 | 576 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q7 Has other property of yours...? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q7 Has other property of yours...? | No, never | Count | 657 | 728 | 639 | 507 | 760 | 3291 |
| | | % within Country | 82,1% | 91,5% | 79,9% | 63,5% | 95,0% | 82,4% |
| | Yes, once | Count | 102 | 47 | 29 | 98 | 22 | 298 |
| | | % within Country | 12,8% | 5,9% | 3,6% | 12,3% | 2,8% | 7,5% |
| | Yes, more than once | Count | 36 | 15 | 12 | 157 | 15 | 235 |
| | | % within Country | 4,5% | 1,9% | 1,5% | 19,6% | 1,9% | 5,9% |
| | DK/NA | Count | 5 | 6 | 120 | 37 | 3 | 171 |
| | | % within Country | ,6% | ,8% | 15,0% | 4,6% | ,4% | 4,3% |
| Total | | Count | 800 | 796 | 800 | 799 | 800 | 3995 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q8 Have you, your family or your business...? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q8 Have you, your family or your business...? | Yes | Count | 24 | 11 | 15 | 194 | 9 | 253 |
| | | % within Country | 11,2% | 12,5% | 15,8% | 50,8% | 13,2% | 29,8% |
| | No | Count | 191 | 77 | 77 | 188 | 59 | 592 |
| | | % within Country | 88,8% | 87,5% | 81,1% | 49,2% | 86,8% | 69,8% |
| | DK/NA | Count | 0 | 0 | 3 | 0 | 0 | 3 |
| | | % within Country | ,0% | ,0% | 3,2% | ,0% | ,0% | ,4% |
| Total | | Count | 215 | 88 | 95 | 382 | 68 | 848 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q9 Have you, or any family member.... * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q9 Have you, or any family member.... | Yes | Count | 25 | 16 | 17 | 56 | 12 | 126 |
| | | % within Country | 11,6% | 18,2% | 17,9% | 14,6% | 17,6% | 14,8% |
| | No | Count | 189 | 72 | 73 | 327 | 56 | 717 |
| | | % within Country | 87,9% | 81,8% | 76,8% | 85,4% | 82,4% | 84,5% |
| | DK/NA | Count | 1 | 0 | 5 | 0 | 0 | 6 |
| | | % within Country | ,5% | ,0% | 5,3% | ,0% | ,0% | ,7% |
| Total | | Count | 215 | 88 | 95 | 383 | 68 | 849 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q10 Financial impact..? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q10 Financial impact..? | Very serious | Count | 41 | 23 | 18 | 22 | 13 | 117 |
| | | % within Country | 19,1% | 26,1% | 19,1% | 5,7% | 19,1% | 13,8% |
| | Quite serious | Count | 38 | 21 | 14 | 66 | 12 | 151 |
| | | % within Country | 17,7% | 23,9% | 14,9% | 17,2% | 17,6% | 17,8% |
| | Quite small | Count | 70 | 19 | 15 | 107 | 20 | 231 |
| | | % within Country | 32,6% | 21,6% | 16,0% | 27,9% | 29,4% | 27,2% |
| | Very small | Count | 62 | 20 | 32 | 152 | 17 | 283 |
| | | % within Country | 28,8% | 22,7% | 34,0% | 39,6% | 25,0% | 33,3% |
| | DK/NA | Count | 4 | 5 | 15 | 37 | 6 | 67 |
| | | % within Country | 1,9% | 5,7% | 16,0% | 9,6% | 8,8% | 7,9% |
| Total | | Count | 215 | 88 | 94 | 384 | 68 | 849 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q11 How badly would you say the last flood affected your life in general? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q11 How badly would you say the last flood affected your life in general? | Very badly | Count | 32 | 3 | 17 | 27 | 8 | 87 |
| | | % within Country | 14,9% | 3,4% | 18,3% | 7,0% | 11,8% | 10,3% |
| | Quite badly | Count | 44 | 10 | 18 | 66 | 14 | 152 |
| | | % within Country | 20,5% | 11,4% | 19,4% | 17,2% | 20,6% | 17,9% |
| | Not too badly | Count | 59 | 20 | 15 | 81 | 20 | 195 |
| | | % within Country | 27,4% | 22,7% | 16,1% | 21,1% | 29,4% | 23,0% |
| | Very slight/not at all | Count | 72 | 54 | 31 | 177 | 26 | 360 |
| | | % within Country | 33,5% | 61,4% | 33,3% | 46,2% | 38,2% | 42,5% |
| | DK/NA | Count | 8 | 1 | 12 | 32 | 0 | 53 |
| | | % within Country | 3,7% | 1,1% | 12,9% | 8,4% | ,0% | 6,3% |
| Total | | Count | 215 | 88 | 93 | 383 | 68 | 847 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q12 Would you say there were any positive results from the last flood? (Select all that apply)**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Row Total |
| Q12 Would you say there were any positive results from the last flood? (Select all that apply) | Bring community together | Count | 26 | 3 | 5 | 61 | 11 | 106 |
| | | %within Country | 12,1 % | 3,4 % | 5,4 % | 16,0 % | 16,5 % | 12,6 % |
| | Media coverage | Count | 11 | 4 | 3 | 8 | 3 | 29 |
| | | %within Country | 5,10 % | 4,50 % | 3,20 % | 2,20 % | 4,10 % | 3,40 % |
| | Insurance payouts | Count | 10 | 2 | 5 | 25 | 2 | 44 |
| | | %within Country | 4,7 % | 2,3 % | 5,4 % | 6,6 % | 3,7 % | 5,3 % |
| | Improvement grants | Count | 22 | 4 | 4 | 22 | 3 | 55 |
| | | %within Country | 10,2 % | 4,5 % | 4,3 % | 5,9 % | 3,8 % | 6,5 % |
| | Preventive measures | Count | 44 | 9 | 29 | 102 | 11 | 195 |
| | | %within Country | 20,5 % | 10,2 % | 31,2 % | 26,6 % | 16,6 % | 23,0 % |
| | It was fun/exciting/memorable | Count | 9 | 3 | 2 | 5 | 3 | 22 |
| | | %within Country | 4,2 % | 3,4 % | 2,2 % | 1,3 % | 3,9 % | 2,5 % |
| | Other | Count | 31 | 20 | 8 | 29 | 16 | 104 |
| | | %within Country | 14,40 % | 22,70 % | 8,60 % | 7,50 % | 23,80 % | 12,30 % |
| | No positive results at all | Count | 88 | 45 | 38 | 175 | 37 | 383 |
| | | %within Country | 40,9 % | 51,1 % | 40,9 % | 45,7 % | 54,2 % | 45,2 % |
| | DK/NA | Count | 11 | 4 | 13 | 19 | 3 | 50 |
| | | %within Country | 5,1 % | 4,5 % | 14,0 % | 5,0 % | 4,2 % | 5,9 % |
| Total | | Count (responses) | 252 | 94 | 107 | 446 | 89 | 988 |
| | | Respondents | 215 | 88 | 93 | 383 | 68 | 847 |
| | | %within Country | 25,4 % | 10,4 % | 11,0 % | 45,2 % | 8,0 % | 100,0 % |

**AREA FLOOD MANAGEMENT DEFENCE MEASURES**

**Q13 Are there any kinds of flood management...? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q13 Are there any kinds of flood management...? | Yes | Count | 320 | 420 | 348 | 577 | 294 | 1959 |
| | | % within Country | 40,0% | 52,8% | 43,5% | 72,1% | 36,7% | 49,0% |
| | No | Count | 343 | 162 | 316 | 195 | 398 | 1414 |
| | | % within Country | 42,9% | 20,4% | 39,5% | 24,4% | 49,7% | 35,4% |
| | DK/NA | Count | 137 | 214 | 136 | 28 | 109 | 624 |
| | | % within Country | 17,1% | 26,9% | 17,0% | 3,5% | 13,6% | 15,6% |
| Total | | Count | 800 | 796 | 800 | 800 | 801 | 3997 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q14 Have you ever been involved in flood management..? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q14 Have you ever been involved in flood management..? | Yes | Count | 115 | 61 | 51 | 199 | 142 | 568 |
| | | % within Country | 14,4% | 7,7% | 6,4% | 24,9% | 17,8% | 14,2% |
| | No | Count | 681 | 730 | 717 | 600 | 658 | 3386 |
| | | % within Country | 85,1% | 91,7% | 89,6% | 75,0% | 82,3% | 84,7% |
| | DK/NA | Count | 4 | 5 | 32 | 1 | 0 | 42 |
| | | % within Country | ,5% | ,6% | 4,0% | ,1% | ,0% | 1,1% |
| Total | | Count | 800 | 796 | 800 | 800 | 800 | 3996 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q15 How well do you feel you have been informed about flood management..? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q15 How well do you feel you have been informed about flood management..? | Very well informed | Count | 112 | 29 | 179 | 178 | 65 | 563 |
| | | % within Country | 14,0% | 3,6% | 22,4% | 22,3% | 8,1% | 14,1% |
| | Quite well informed | Count | 204 | 214 | 265 | 352 | 278 | 1313 |
| | | % within Country | 25,5% | 26,9% | 33,1% | 44,0% | 34,8% | 32,9% |
| | Not very well informed | Count | 151 | 213 | 154 | 141 | 166 | 825 |
| | | % within Country | 18,9% | 26,8% | 19,3% | 17,6% | 20,8% | 20,6% |
| | Very ill-informed | Count | 310 | 304 | 145 | 103 | 215 | 1077 |
| | | % within Country | 38,8% | 38,2% | 18,1% | 12,9% | 26,9% | 27,0% |
| | DK/NA | Count | 23 | 36 | 57 | 26 | 76 | 218 |
| | | % within Country | 2,9% | 4,5% | 7,1% | 3,3% | 9,5% | 5,5% |
| Total | | Count | 800 | 796 | 800 | 800 | 800 | 3996 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q16 How would you prefer to receive information about flood management and defence measures in your community? (Select all apply)**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Row Total |
| Q16 How would you prefer to receive information about flood management and defence measures in your community? (Select all apply) | Newspapers | Count | 364 | 405 | 212 | 467 | 682 | 2129 |
| | | %within Country | 45,5 % | 50,9 % | 26,5 % | 58,3 % | 85,5 % | 53,3 % |
| | Radio/TV | Count | 349 | 349 | 220 | 399 | 681 | 1998 |
| | | %within Country | 43,6 % | 43,8 % | 27,5 % | 49,9 % | 85,4 % | 50,0 % |
| | Leaflets | Count | 184 | 392 | 500 | 383 | 385 | 1844 |
| | | %within Country | 23,0 % | 49,2 % | 62,5 % | 47,9 % | 48,2 % | 46,2 % |
| | Websites | Count | 86 | 177 | 81 | 164 | 375 | 884 |
| | | %within Country | 10,8 % | 22,2 % | 10,1 % | 20,6 % | 47,1 % | 22,1 % |
| | E-mail | Count | 46 | 112 | 75 | 122 | 233 | 587 |
| | | %within Country | 5,8 % | 14,1 % | 9,4 % | 15,2 % | 29,2 % | 14,7 % |
| | Freephone telephone number | Count | 75 | 138 | 176 | 164 | 387 | 940 |
| | | %within Country | 9,4 % | 17,3 % | 22,0 % | 20,5 % | 48,6 % | 23,5 % |
| | Local flood wardens | Count | 51 | 78 | 135 | 153 | 342 | 759 |
| | | %within Country | 6,4 % | 9,8 % | 16,9 % | 19,1 % | 42,8 % | 19,0 % |
| | Local flood groups | Count | 72 | 80 | 103 | 128 | 349 | 732 |
| | | %within Country | 9,0 % | 10,1 % | 12,9 % | 16,0 % | 43,8 % | 18,3 % |
| | Public meetings | Count | 91 | 126 | 118 | 171 | 381 | 887 |
| | | %within Country | 11,4 % | 15,8 % | 14,8 % | 21,3 % | 47,8 % | 22,2 % |
| | Face to face with a member of the Environment Agency/Local Authority staff | Count | 169 | 71 | 137 | 150 | 373 | 900 |
| | | %within Country | 21,1 % | 8,9 % | 17,1 % | 18,7 % | 46,8 % | 22,5 % |
| | Other | Count | 45 | 39 | 12 | 18 | 0 | 114 |
| | | %within Country | 5,6 % | 4,9 % | 1,5 % | 2,2 % | 0,0 % | 2,8 % |
| | Do not want to receive informasjon | Count | 21 | 35 | 60 | 13 | 0 | 129 |
| | | %within Country | 2,6 % | 4,4 % | 7,5 % | 1,6 % | 0,0 % | 3,2 % |
| | NL Local press in | Count | 0 | 390 | 0 | 0 | 0 | 390 |
| | | %within Country | 0,0 % | 49,0 % | 0,0 % | 0,0 % | 0,0 % | 9,8 % |
| | DK/NA in | Count | 24 | 3 | 41 | 13 | 20 | 101 |
| | | %within Country | 3,0 % | 0,4 % | 5,1 % | 1,6 % | 2,6 % | 2,5 % |
| Total | | Count (responses) | 1577 | 2395 | 1870 | 2345 | 4208 | 12394 |
| | | Respondents | 800 | 796 | 800 | 800 | 797 | 3993 |
| | | %within Country | 20,0 % | 19,9 % | 20,0 % | 20,0 % | 20,0 % | 100,0 % |

**Q17 Did your family give any thoughts to possible flood risks when moving..? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q17 Did your family give any thoughts to possible flood risks when moving..? | Yes | Count | 57 | 58 | 126 | 197 | 109 | 547 |
| | | % within Country | 7,1% | 7,3% | 15,8% | 24,6% | 13,6% | 13,7% |
| | No | Count | 739 | 736 | 663 | 577 | 678 | 3393 |
| | | % within Country | 92,4% | 92,5% | 82,9% | 72,1% | 84,8% | 84,9% |
| | DK/NA | Count | 4 | 2 | 11 | 26 | 13 | 56 |
| | | % within Country | ,5% | ,3% | 1,4% | 3,3% | 1,6% | 1,4% |
| Total | | Count | 800 | 796 | 800 | 800 | 800 | 3996 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**FLOODING AND AREA PREFERENCES**

**Q18 If yes in Q17, What drew you to the area, desite the risk of flooding? (Select all apply)**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherland | UK | Norway | Germany | Row Total |
| Q18 What drew you to the area, desite therisk of flooding? (Select all apply) | Attractive area | Count | 20 | 27 | 71 | 49 | 25 | 192 |
| | | %within Country | 35,1 % | 46,6 % | 56,3 % | 25,0 % | 23,0 % | 35,2 % |
| | Work | Count | 4 | 11 | 19 | 12 | 13 | 59 |
| | | %within Country | 7,0 % | 19,0 % | 15,1 % | 6,0 % | 11,7 % | 10,7 % |
| | Local services (schools, hospitales etc) | Count | 2 | 2 | 13 | 8 | 5 | 30 |
| | | %within Country | 3,5 % | 3,4 % | 10,3 % | 4,1 % | 4,8 % | 5,5 % |
| | Attractive residence | Count | 11 | 6 | 0 | 27 | 11 | 55 |
| | | %within Country | 19,3 % | 10,3 % | 0,0 % | 13,1 % | 10,0 % | 10,0 % |
| | Lower prices | Count | 1 | 5 | 9 | 14 | 3 | 32 |
| | | %within Country | 1,8 % | 8,6 % | 7,1 % | 7,2 % | 2,6 % | 5,9 % |
| | Other | Count | 22 | 23 | 17 | 106 | 53 | 221 |
| | | %within Country | 38,6 % | 39,7 % | 13,5 % | 53,8 % | 49,0 % | 40,5 % |
| | DK/NA | Count | 6 | 1 | 36 | 4 | 23 | 69 |
| | | %within Country | 10,5 % | 1,7 % | 28,6 % | 1,9 % | 20,9 % | 12,7 % |
| Total | | Count (responses) | 66 | 75 | 165 | 220 | 133 | 658 |
| | | Respondents | 57 | 58 | 126 | 197 | 109 | 547 |
| | | %within Country | 10,4 % | 10,6 % | 23,1 % | 36,0 % | 19,9 % | 100,0 % |

**Q19 Have you ever considered moving out due to the risk of flooding? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q19 Have you ever considered moving out due to the risk of flooding? | Yes | Count | 34 | 15 | 30 | 47 | 29 | 155 |
| | | % within Country | 4,3% | 1,9% | 3,8% | 5,9% | 3,6% | 3,9% |
| | No | Count | 765 | 780 | 762 | 745 | 769 | 3821 |
| | | % within Country | 95,6% | 98,0% | 95,3% | 93,2% | 96,0% | 95,6% |
| | DK/NA | Count | 1 | 1 | 8 | 7 | 3 | 20 |
| | | % within Country | ,1% | ,1% | 1,0% | ,9% | ,4% | ,5% |
| Total | | Count | 800 | 796 | 800 | 799 | 801 | 3996 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q20A Why have you not moved? (Select all that apply)**

| | | | Country | | | | | Row Total |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | |
| Q20A Why have you not moved? | Flood risk is limited | Count | 5 | 3 | 3 | 16 | 15 | 42 |
| | | %within Country | 14,7 % | 20,0 % | 15,0 % | 32,8 % | 53,3 % | 28,8 % |
| | Difficult to sell residence | Count | 3 | 1 | 3 | 2 | 0 | 9 |
| | | %within Country | 8,8 % | 6,7 % | 15,0 % | 4,1 % | 0,4 % | 6,3 % |
| | Personal reason (old,age,job situation etc) | Count | 10 | 5 | 8 | 10 | 3 | 36 |
| | | %within Country | 29,4 % | 33,3 % | 40,0 % | 21,8 % | 10,0 % | 25,0 % |
| | Area attractiveness | Count | 9 | 0 | 6 | 10 | 3 | 27 |
| | | %within Country | 26,5 % | 0,0 % | 30,0 % | 20,6 % | 9,4 % | 18,9 % |
| | Other | Count | 9 | 8 | 2 | 12 | 11 | 41 |
| | | %within Country | 26,5 % | 53,3 % | 10,0 % | 24,5 % | 36,8 % | 28,4 % |
| | DK/NA | Count | 4 | 0 | 0 | 3 | 0 | 7 |
| | | %within Country | 11,8 % | 0,0 % | 0,0 % | 5,5 % | 0,0 % | 4,5 % |
| Total | | Count (responses) | 40 | 17 | 22 | 53 | 32 | 162 |
| | | Respondents | 34 | 15 | 20 | 47 | 29 | 145 |
| | | %within Country | 23,5 % | 10,4 % | 13,8 % | 32,6 % | 19,8 % | 100,0 % |

**Q20B Why have you not considered moving? (Select all that apply)**

| | | | Country | | | | | Row Total |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | |
| Q20B Why have you not considered moving? (Select all that apply) | Flood risk is limited | Count | 512 | 519 | 510 | 535 | 534 | 2610 |
| | | %within Country | 66,9 % | 66,5 % | 67,8 % | 71,8 % | 69,4 % | 68,5 % |
| | Difficult to sell residence | Count | 3 | 0 | 9 | 3 | 5 | 20 |
| | | %within Country | 0,4 % | 0,0 % | 1,2 % | 0,4 % | 0,7 % | 0,5 % |
| | Personal reason (old,age,job situation etc) | Count | 89 | 44 | 102 | 72 | 72 | 379 |
| | | %within Country | 11,6 % | 5,6 % | 13,6 % | 9,7 % | 9,4 % | 10,0 % |
| | Area attractiveness | Count | 107 | 60 | 170 | 76 | 76 | 489 |
| | | %within Country | 14,0 % | 7,7 % | 22,6 % | 10,1 % | 9,9 % | 12,8 % |
| | Other | Count | 97 | 187 | 17 | 90 | 163 | 553 |
| | | %within Country | 12,7 % | 24,0 % | 2,3 % | 12,0 % | 21,1 % | 14,5 % |
| | DK/NA | Count | 16 | 18 | 13 | 20 | 15 | 82 |
| | | %within Country | 2,1 % | 2,3 % | 1,7 % | 2,7 % | 2,0 % | 2,2 % |
| Total | | Count (responses) | 824 | 828 | 821 | 796 | 865 | 4133 |
| | | Respondents | 765 | 780 | 752 | 745 | 769 | 3811 |
| | | %within Country | 20,1 % | 20,5 % | 19,7 % | 19,6 % | 20,2 % | 100,0 % |

**Q21 What steps have you taken yourself to prepare for flooding and to limit potential damage? (Select all that apply)**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Row Total |
| Q21 What steps have you taken yourself to prepare for flooding and to limit potential damage? (Select all that apply) | Check building insurance | Count | 19 | 8 | 36 | 9 | 20 | 93 |
| | | %within Country | 2,4 % | 1,0 % | 0,5 % | 1,2 % | 2,5 % | 2,3 % |
| | Check contents insurance | Count | 15 | 10 | 32 | 10 | 23 | 90 |
| | | %within Country | 1,9 % | 1,3 % | 4,0 % | 1,3 % | 2,9 % | 2,3 % |
| | Planing the emergency measures to take in the event of a flood | Count | 38 | 12 | 33 | 42 | 40 | 165 |
| | | %within Country | 4,8 % | 1,5 % | 4,1 % | 5,2 % | 5,1 % | 4,1 % |
| | Learn the flood warning codes | Count | 0 | 0 | 4 | 0 | 5 | 9 |
| | | %within Country | 0,0 % | 0,0 % | 0,5 % | 0,0 % | 0,6 % | 0,2 % |
| | Check how flood warnings are issued | Count | 4 | 1 | 10 | 9 | 13 | 36 |
| | | %within Country | 0,5 % | 0,1 % | 1,3 % | 1,1 % | 1,6 % | 0,9 % |
| | Investigating flood-proofing the building | Count | 42 | 10 | 10 | 21 | 14 | 96 |
| | | %within Country | 5,3 % | 1,3 % | 1,3 % | 2,6 % | 1,7 % | 2,4 % |
| | Other steps | Count | 94 | 57 | 75 | 141 | 93 | 459 |
| | | %within Country | 11,80 % | 7,20 % | 9,40 % | 17,60 % | 11,60 % | 11,50 % |
| | No steps taken | Count | 638 | 708 | 674 | 585 | 626 | 3231 |
| | | %within Country | 79,8 % | 88,9 % | 84,3 % | 73,2 % | 78,2 % | 80,9 % |
| | DK/NA | Count | 12 | 3 | 9 | 17 | 13 | 54 |
| | | %within Country | 1,5 % | 0,4 % | 1,1 % | 2,2 % | 1,6 % | 1,4 % |
| Total | | Count (responses) | 862 | 809 | 883 | 834 | 847 | 4233 |
| | | Respondents | 800 | 796 | 800 | 800 | 800 | 3996 |
| | | %within Country | 20,0 % | 19,9 % | 20,2 % | 20,0 % | 20,0 % | 100,0 % |

**Q22 Are you willing to consider making further investments...? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q22 Are you willing to consider making further investments...? | Yes | Count | 138 | 154 | 38 | 166 | 252 | 748 |
| | | % within Country | 17,3% | 19,3% | 4,9% | 20,7% | 31,5% | 18,8% |
| | No | Count | 638 | 615 | 734 | 605 | 537 | 3129 |
| | | % within Country | 79,8% | 77,3% | 93,7% | 75,5% | 67,2% | 78,6% |
| | DK/NA | Count | 24 | 27 | 11 | 30 | 10 | 102 |
| | | % within Country | 3,0% | 3,4% | 1,4% | 3,7% | 1,3% | 2,6% |
| Total | | Count | 800 | 796 | 783 | 801 | 799 | 3979 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

FUTURE EXPECTATIONSA. HOUSE FLOODING

**Q23 In general, how frequently do you recon on.... * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q23 In general, how frequently do you recon on.... | Never | Count | 406 | 396 | 587 | 382 | 653 | 2424 |
| | | % within Country | 50,8% | 49,7% | 75,1% | 47,8% | 81,6% | 61,0% |
| | Rarely | Count | 306 | 354 | 145 | 332 | 130 | 1267 |
| | | % within Country | 38,3% | 44,5% | 18,5% | 41,6% | 16,3% | 31,9% |
| | Sometimes | Count | 42 | 24 | 16 | 67 | 9 | 158 |
| | | % within Country | 5,3% | 3,0% | 2,0% | 8,4% | 1,1% | 4,0% |
| | Regularly | Count | 12 | 4 | 4 | 8 | 5 | 33 |
| | | % within Country | 1,5% | ,5% | ,5% | 1,0% | ,6% | ,8% |
| | DK/NA | Count | 34 | 18 | 30 | 10 | 3 | 95 |
| | | % within Country | 4,3% | 2,3% | 3,8% | 1,3% | ,4% | 2,4% |
| Total | | Count | 800 | 796 | 782 | 799 | 800 | 3977 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q24A Why do you say that? (Select all that apply)**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Row Total |
| Q24A Why do you say that? (Select all that apply) | Adequeste measures have been taken | Count | 177 | 222 | 74 | 345 | 15 | 833 |
| | | %within Country | 24,9 % | 29,6 % | 9,9 % | 48,2 % | 2,0 % | 22,5 % |
| | Residence is in a low risk area (e.g on hill, on the first floor or above etc) | Count | 365 | 284 | 361 | 274 | 493 | 1777 |
| | | %within Country | 51,3 % | 37,9 % | 48,2 % | 38,4 % | 62,9 % | 47,9 % |
| | Hasn't happened so far | Count | 83 | 157 | 346 | 61 | 251 | 898 |
| | | %within Country | 11,7 % | 20,9 % | 46,2 % | 8,5 % | 32,1 % | 24,2 % |
| | Flooding is unacceptable | Count | 27 | 13 | 6 | 19 | 86 | 151 |
| | | %within Country | 3,8 % | 1,7 % | 0,8 % | 2,6 % | 11,0 % | 4,1 % |
| | Other | Count | 103 | 142 | 19 | 75 | 87 | 426 |
| | | %within Country | 14,5 % | 18,9 % | 2,5 % | 10,5 % | 11,1 % | 11,5 % |
| | DK/NA | Count | 20 | 15 | 10 | 8 | 6 | 59 |
| | | %within Country | 2,8 % | 2,0 % | 1,3 % | 1,1 % | 0,7 % | 1,6 % |
| Total | | Count (responses) | 775 | 833 | 816 | 782 | 938 | 4144 |
| | | Respondents | 712 | 750 | 749 | 714 | 783 | 3708 |
| | | %within Country | 19,2 % | 20,2 % | 20,2 % | 19,3 % | 21,1 % | 100,0 % |

**Q24B Why do you say that? (Select all that apply)**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Row Total |
| Q24B Why do you say that? (Select all that apply) | Area is prone to unavoidable flooding | Count | 31 | 11 | 10 | 54 | 8 | 114 |
| | | %within Country | 57,4 % | 39,3 % | 50,0 % | 72,1 % | 54,1 % | 59,5 % |
| | Flooding has increased in recent years | Count | 6 | 8 | 7 | 11 | 4 | 36 |
| | | %within Country | 11,1 % | 28,6 % | 35,0 % | 14,9 % | 26,2 % | 18,8 % |
| | Not enough has been done to prevent | Count | 7 | 1 | 6 | 5 | 3 | 22 |
| | | %within Country | 13,0 % | 3,6 % | 30,0 % | 6,6 % | 18,6 % | 11,3 % |
| | Other | Count | 15 | 11 | 1 | 14 | 6 | 47 |
| | | %within Country | 27,8 % | 39,3 % | 5,0 % | 18,7 % | 41,6 % | 24,6 % |
| | DK/NA | Count | 2 | 2 | 0 | 0 | 0 | 4 |
| | | %within Country | 3,7 % | 7,1 % | 0,0 % | 0,0 % | 1,0 % | 2,2 % |
| Total | | Count (responses) | 61 | 33 | 24 | 84 | 21 | 223 |
| | | Respondents | 54 | 28 | 20 | 76 | 15 | 192 |
| | | %within Country | 28,1 % | 14,6 % | 10,4 % | 39,3 % | 7,6 % | 100,0 % |

**B. OTHER PROPERTY FLOODED**

**Q25 In general, how frequently do you reckon on other property of yours..? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q25 In general, how frequently do you reckon on other property of yours..? | Never | Count | 309 | 384 | 478 | 379 | 597 | 2147 |
| | | % within Country | 38,6% | 48,2% | 61,1% | 47,4% | 74,7% | 54,0% |
| | Rarely | Count | 257 | 308 | 97 | 312 | 170 | 1144 |
| | | % within Country | 32,1% | 38,7% | 12,4% | 39,0% | 21,3% | 28,8% |
| | Sometimes | Count | 101 | 46 | 38 | 60 | 9 | 254 |
| | | % within Country | 12,6% | 5,8% | 4,9% | 7,5% | 1,1% | 6,4% |
| | Regularly | Count | 23 | 8 | 14 | 12 | 10 | 67 |
| | | % within Country | 2,9% | 1,0% | 1,8% | 1,5% | 1,3% | 1,7% |
| | DK/NA | Count | 110 | 50 | 155 | 37 | 13 | 365 |
| | | % within Country | 13,8% | 6,3% | 19,8% | 4,6% | 1,6% | 9,2% |
| Total | | Count | 800 | 796 | 782 | 800 | 799 | 3977 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**26A Why do you say that ? (Select all that apply)**

| | | | Country | | | | | Row Total |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | |
| 26A Why do you say that ? (Select all that apply) | Adeqoate measures have been taken | Count | 164 | 202 | 67 | 332 | 18 | 783 |
| | | %within Country | 29,0 % | 29,2 % | 11,3 % | 48,1 % | 2,3 % | 23,7 % |
| | Property is in a low risk area | Count | 238 | 254 | 292 | 243 | 424 | 1451 |
| | | %within Country | 42,0 % | 36,7 % | 42,9 % | 35,3 % | 55,2 % | 43,8 % |
| | Hasn't happened so far | Count | 59 | 145 | 271 | 62 | 249 | 785 |
| | | %within Country | 10,4 % | 21,0 % | 45,6 % | 9,0 % | 32,4 % | 23,7 % |
| | Flooding is unacceptable | Count | 24 | 8 | 8 | 24 | 76 | 140 |
| | | %within Country | 4,2 % | 1,2 % | 1,3 % | 3,5 % | 9,9 % | 4,2 % |
| | Other | Count | 104 | 117 | 19 | 75 | 139 | 453 |
| | | %within Country | 18,4 % | 16,9 % | 3,2 % | 10,8 % | 18,0 % | 13,7 % |
| | DK/NA | Count | 15 | 17 | 12 | 14 | 15 | 73 |
| | | %within Country | 2,7 % | 2,5 % | 2,0 % | 2,0 % | 2,0 % | 2,2 % |
| Total | | Count (responses) | 604 | 743 | 669 | 750 | 921 | 3685 |
| | | Respondents | 566 | 692 | 594 | 691 | 768 | 3311 |
| | | %within Country | 17,1 % | 20,9 % | 17,9 % | 20,9 % | 23,2 % | 100,0 % |

**26B Why do you say that ? (Select all that apply)**

| | | | Country | | | | | Row Total |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | |
| 26B Why do you say that ? (Select all that apply) | Area is prone to unavoidable flooding | Count | 75 | 26 | 41 | 58 | 10 | 210 |
| | | %within Country | 60,5 % | 48,1 % | 74,5 % | 79,9 % | 51,8 % | 64,7 % |
| | Flooding has increased in recent years | Count | 18 | 3 | 10 | 12 | 1 | 44 |
| | | %within Country | 14,5 % | 5,6 % | 18,2 % | 16,1 % | 5,4 % | 13,5 % |
| | Not enough has been done to prevent | Count | 18 | 3 | 9 | 1 | 0 | 32 |
| | | %within Country | 14,5 % | 5,6 % | 16,4 % | 1,9 % | 0,9 % | 9,7 % |
| | Other | Count | 28 | 28 | 2 | 8 | 9 | 75 |
| | | %within Country | 22,6 % | 51,9 % | 3,6 % | 11,4 % | 45,0 % | 23,0 % |
| | DK/NA | Count | 1 | 1 | 0 | 0 | 0 | 2 |
| | | %within Country | 0,8 % | 1,9 % | 0,0 % | 0,0 % | 0,6 % | 0,7 % |
| Total | | Count (responses) | 140 | 61 | 62 | 79 | 20 | 363 |
| | | Respondents | 124 | 54 | 55 | 73 | 19 | 325 |
| | | %within Country | 38,2 % | 16,6 % | 16,9 % | 22,4 % | 5,8 % | 100,0 % |

**C. PUBLIC BUILDINGS FLOODED**

**IQ27 n general, how frequently do you recon on public buildings in....? * Country Crosstabulation**

| | | | Country | | | | | Total |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | |
| IQ27 n general, how frequently do you recon on public buildings in....? | Never | Count | 311 | 345 | 463 | 260 | 461 | 1840 |
| | | % within Country | 38,9% | 43,3% | 59,1% | 32,5% | 57,6% | 46,2% |
| | Rarely | Count | 290 | 376 | 160 | 380 | 270 | 1476 |
| | | % within Country | 36,3% | 47,2% | 20,4% | 47,5% | 33,8% | 37,1% |
| | Sometimes | Count | 117 | 42 | 75 | 108 | 49 | 391 |
| | | % within Country | 14,6% | 5,3% | 9,6% | 13,5% | 6,1% | 9,8% |
| | Regularly | Count | 7 | 5 | 11 | 16 | 9 | 48 |
| | | % within Country | ,9% | ,6% | 1,4% | 2,0% | 1,1% | 1,2% |
| | DK/NA | Count | 75 | 28 | 74 | 36 | 11 | 224 |
| | | % within Country | 9,4% | 3,5% | 9,5% | 4,5% | 1,4% | 5,6% |
| Total | | Count | 800 | 796 | 783 | 800 | 800 | 3979 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**28A Why do you say that ? (Select all that apply)**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Row Total |
| 28A Why do you say that ? (Select all that apply) | Adeqoate measures have been taken | Count | 171 | 212 | 83 | 320 | 20 | 807 |
| | | %within Country | 28,5 % | 29,4 % | 13,0 % | 50,0 % | 2,8 % | 24,2 % |
| | This is a low risk area | Count | 304 | 280 | 310 | 225 | 386 | 1505 |
| | | %within Country | 50,6 % | 38,8 % | 48,4 % | 35,1 % | 52,8 % | 45,1 % |
| | Hasn't happened so far | Count | 54 | 154 | 276 | 46 | 245 | 776 |
| | | %within Country | 9,0 % | 21,4 % | 43,1 % | 7,2 % | 33,6 % | 23,3 % |
| | Flooding is unacceptable | Count | 18 | 11 | 7 | 15 | 53 | 105 |
| | | %within Country | 3,0 % | 1,5 % | 1,1 % | 2,4 % | 7,3 % | 3,1 % |
| | Other | Count | 85 | 112 | 27 | 69 | 110 | 403 |
| | | %within Country | 14,1 % | 15,5 % | 4,2 % | 10,7 % | 15,1 % | 12,1 % |
| | DK/NA | Count | 15 | 17 | 15 | 9 | 18 | 74 |
| | | %within Country | 2,5 % | 2,4 % | 2,3 % | 1,4 % | 2,4 % | 2,2 % |
| Total | | Count (responses) | 647 | 786 | 718 | 684 | 832 | 3670 |
| | | Respondents | 601 | 721 | 640 | 641 | 731 | 3334 |
| | | %within Country | 18,0 % | 21,6 % | 19,2 % | 19,2 % | 21,9 % | 100,0 % |

**28B Why do you say that ? (Select all that apply)**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Row Total |
| 28B Why do you say that ? (Select all that apply) | Area is prone to unavoidable flooding | Count | 71 | 19 | 50 | 106 | 32 | 278 |
| | | %within Country | 57,3 % | 40,4 % | 56,8 % | 85,7 % | 54,8 % | 63,1 % |
| | Flooding has increased in recent years | Count | 14 | 5 | 29 | 8 | 8 | 64 |
| | | %within Country | 11,3 % | 10,6 % | 33,0 % | 6,3 % | 13,9 % | 14,5 % |
| | Not enough has been done to prevent flooding | Count | 17 | 1 | 13 | 3 | 13 | 47 |
| | | %within Country | 13,7 % | 2,1 % | 14,8 % | 2,7 % | 21,8 % | 10,6 % |
| | Other | Count | 23 | 23 | 6 | 12 | 18 | 82 |
| | | %within Country | 18,5 % | 48,9 % | 6,8 % | 9,7 % | 31,5 % | 18,7 % |
| | DK/NA | Count | 6 | 2 | 0 | 4 | 3 | 15 |
| | | %within Country | 4,8 % | 4,3 % | 0,0 % | 3,5 % | 4,4 % | 3,4 % |
| Total | | Count (responses) | 131 | 50 | 98 | 133 | 74 | 486 |
| | | Respondents | 124 | 47 | 88 | 124 | 58 | 441 |
| | | %within Country | 28,1 % | 10,7 % | 20,0 % | 28,1 % | 13,1 % | 100,0 % |

FLOOD MEASURES AND COST COVERAGE

**Q29 Would you accept any major changes to the local environment.....? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q29 Would you accept any major changes to the local environment.....? | Yes | Count | 529 | 676 | 526 | 582 | 599 | 2912 |
| | | % within Country | 66,1% | 84,9% | 66,4% | 72,7% | 74,9% | 73,0% |
| | No | Count | 199 | 85 | 170 | 169 | 168 | 791 |
| | | % within Country | 24,9% | 10,7% | 21,5% | 21,1% | 21,0% | 19,8% |
| | DK/NA | Count | 72 | 35 | 96 | 50 | 33 | 286 |
| | | % within Country | 9,0% | 4,4% | 12,1% | 6,2% | 4,1% | 7,2% |
| Total | | Count | 800 | 796 | 792 | 801 | 800 | 3989 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q30 Who should bear the (main?) economic cost of improving flood safty in your community? Is it (Select all that apply)**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Row Total |
| Q30 Who should bear the (main?) economic cost of improving flood safty in your community? Is it (Select all that apply) | Individuals who are at risk of flooding | Count | 51 | 118 | 95 | 44 | 281 | 590 |
| | | %within Country | 6,4 % | 14,8 % | 11,9 % | 5,6 % | 35,2 % | 14,8 % |
| | Local authorities | Count | 554 | 346 | 439 | 418 | 579 | 2336 |
| | | %within Country | 69,3 % | 43,5 % | 54,9 % | 52,2 % | 72,4 % | 58,5 % |
| | Central goverment | Count | 260 | 550 | 431 | 540 | 668 | 2448 |
| | | %within Country | 32,5 % | 69,1 % | 53,9 % | 67,4 % | 83,4 % | 61,3 % |
| | Insurance companies | Count | 129 | 141 | 90 | 158 | 398 | 916 |
| | | %within Country | 16,1 % | 17,7 % | 11,3 % | 19,7 % | 49,8 % | 22,9 % |
| | (NOT UK) River regulation companies | Count | 183 | 398 | 3 | 188 | 480 | 1252 |
| | | %within Country | 22,9 % | 50,0 % | 0,4 % | 23,5 % | 60,0 % | 31,3 % |
| | Others | Count | 31 | 84 | 20 | 9 | 24 | 168 |
| | | %within Country | 3,9 % | 10,6 % | 2,5 % | 1,2 % | 2,9 % | 4,2 % |
| | DK/NA | Count | 50 | 10 | 117 | 26 | 3 | 206 |
| | | %within Country | 6,3 % | 1,3 % | 14,6 % | 3,2 % | 0,4 % | 5,2 % |
| Total | | Count (responses) | 1258 | 1647 | 1195 | 1383 | 2433 | 7916 |
| | | Respondents | 800 | 796 | 799 | 800 | 800 | 3995 |
| | | %within Country | 20,0 % | 19,9 % | 20,0 % | 20,0 % | 20,0 % | 100,0 % |

**Q31 How confident are you in the way that the public authorities..? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q31 How confident are you in the way that the public authorities..? | Very confident | Count | 138 | 112 | 101 | 77 | 59 | 487 |
| | | % within Country | 17,3% | 14,1% | 12,9% | 9,6% | 7,4% | 12,2% |
| | Quite confident | Count | 376 | 369 | 316 | 384 | 278 | 1723 |
| | | % within Country | 47,0% | 46,4% | 40,3% | 48,0% | 34,8% | 43,3% |
| | Not very confident | Count | 176 | 240 | 168 | 205 | 271 | 1060 |
| | | % within Country | 22,0% | 30,2% | 21,4% | 25,6% | 33,9% | 26,6% |
| | Not at all confident | Count | 60 | 42 | 80 | 87 | 108 | 377 |
| | | % within Country | 7,5% | 5,3% | 10,2% | 10,9% | 13,5% | 9,5% |
| | DK/NA | Count | 50 | 33 | 120 | 47 | 84 | 334 |
| | | % within Country | 6,3% | 4,1% | 15,3% | 5,9% | 10,5% | 8,4% |
| Total | | Count | 800 | 796 | 785 | 800 | 800 | 3981 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**32A Why do you say this? (Select all that apply)**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Row Total |
| 32 A Why do you say this? (Select all that apply) | Flood defences have been installed | Count | 141 | 124 | 129 | 247 | 98 | 738 |
| | | %within Country | 27,4 % | 25,8 % | 29,9 % | 53,5 % | 29,0 % | 33,2 % |
| | Previous good experience | Count | 178 | 66 | 127 | 132 | 143 | 646 |
| | | %within Country | 34,6 % | 13,7 % | 29,5 % | 28,7 % | 42,3 % | 29,0 % |
| | General trust in public planning | Count | 213 | 133 | 140 | 100 | 83 | 669 |
| | | %within Country | 41,4 % | 27,7 % | 32,5 % | 21,6 % | 24,6 % | 30,1 % |
| | Not very worried about flooding | Count | 33 | 36 | 79 | 9 | 36 | 193 |
| | | %within Country | 6,4 % | 7,5 % | 18,3 % | 1,9 % | 10,7 % | 8,7 % |
| | Other | Count | 58 | 152 | 21 | 46 | 56 | 333 |
| | | %within Country | 11,3 % | 31,6 % | 4,9 % | 10,0 % | 16,4 % | 15,0 % |
| | DK/NA | Count | 12 | 24 | 0 | 19 | 23 | 78 |
| | | %within Country | 2,3 % | 5,0 % | 0,0 % | 4,1 % | 6,9 % | 3,5 % |
| Total | | Count (responses) | 635 | 535 | 496 | 553 | 439 | 2657 |
| | | Respondents | 514 | 481 | 431 | 461 | 338 | 2224 |
| | | %within Country | 23,1 % | 21,6 % | 19,4 % | 20,7 % | 15,2 % | 100,0 % |

**32B Why do you say this? (Select all that apply)**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Row Total |
| 32B Why do you say this? (Select all that apply) | Not enough flood defences have been installed | Count | 38 | 33 | 52 | 40 | 76 | 240 |
| | | %within Country | 16,1 % | 11,7 % | 19,5 % | 13,7 % | 20,2 % | 16,5 % |
| | No flood defences have been installed | Count | 13 | 11 | 52 | 29 | 16 | 121 |
| | | %within Country | 5,5 % | 3,9 % | 19,5 % | 9,9 % | 4,2 % | 8,3 % |
| | Previous bad experience | Count | 116 | 88 | 86 | 116 | 140 | 546 |
| | | %within Country | 49,2 % | 31,2 % | 32,3 % | 39,7 % | 37,1 % | 37,5 % |
| | Some things cannot be planned against | Count | 16 | 11 | 28 | 10 | 13 | 77 |
| | | %within Country | 6,8 % | 3,9 % | 10,5 % | 3,3 % | 3,3 % | 5,3 % |
| | Authorities do not place enough of a priority on avoiding flooding | Count | 66 | 83 | 129 | 95 | 135 | 508 |
| | | %within Country | 28,0 % | 29,4 % | 48,5 % | 32,4 % | 35,8 % | 34,9 % |
| | Other | Count | 58 | 104 | 0 | 79 | 88 | 329 |
| | | %within Country | 24,6 % | 36,9 % | 0,0 % | 27,2 % | 23,3 % | 22,7 % |
| | DK/NA | Count | 10 | 7 | 22 | 17 | 10 | 67 |
| | | %within Country | 4,2 % | 2,5 % | 8,3 % | 5,9 % | 2,7 % | 4,6 % |
| Total | | Count (responses) | 317 | 337 | 369 | 386 | 478 | 1888 |
| | | Respondents %within Country | 236 | 282 | 266 | 292 | 378 | 1454 |
| | | | 16,2 % | 19,4 % | 18,3 % | 20,1 % | 26,0 % | 100,0 % |

**SOCIAL BACKGROUND**

**Q33 Gender * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q33 Gender | Male | Count | 401 | 379 | 314 | 506 | 378 | 1978 |
| | | % within Country | 50,1% | 47,6% | 39,3% | 63,3% | 47,3% | 49,5% |
| | Female | Count | 399 | 417 | 486 | 294 | 422 | 2018 |
| | | % within Country | 49,9% | 52,4% | 60,8% | 36,8% | 52,8% | 50,5% |
| Total | | Count | 800 | 796 | 800 | 800 | 800 | 3996 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**AGE * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| AGE | <29 | Count | 147 | 64 | 43 | 36 | 142 | 432 |
| | | % within Country | 18,6% | 8,1% | 5,4% | 4,5% | 17,8% | 10,8% |
| | 30-39 | Count | 105 | 202 | 84 | 150 | 189 | 730 |
| | | % within Country | 13,3% | 25,4% | 10,5% | 18,8% | 23,6% | 18,3% |
| | 40-49 | Count | 133 | 204 | 123 | 182 | 215 | 857 |
| | | % within Country | 16,8% | 25,7% | 15,4% | 22,8% | 26,9% | 21,5% |
| | 50-59 | Count | 144 | 175 | 180 | 176 | 92 | 767 |
| | | % within Country | 18,2% | 22,0% | 22,6% | 22,0% | 11,5% | 19,3% |
| | 60-69 | Count | 116 | 98 | 159 | 120 | 114 | 607 |
| | | % within Country | 14,7% | 12,3% | 19,9% | 15,0% | 14,3% | 15,2% |
| | 70> | Count | 146 | 52 | 208 | 136 | 48 | 590 |
| | | % within Country | 18,5% | 6,5% | 26,1% | 17,0% | 6,0% | 14,8% |
| Total | | Count | 791 | 795 | 797 | 800 | 800 | 3983 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q35 What is you highest completed educational level? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q35 What is you highest completed educational level? | GCSE/O level | Count | 90 | 23 | 367 | 107 | 154 | 741 |
| | | % within Country | 11,3% | 2,9% | 45,9% | 13,4% | 19,2% | 18,5% |
| | A-level | Count | 53 | 97 | 79 | 202 | 289 | 720 |
| | | % within Country | 6,6% | 12,2% | 9,9% | 25,3% | 36,1% | 18,0% |
| | Higher education | Count | 38 | 110 | 89 | 169 | 188 | 594 |
| | | % within Country | 4,8% | 13,8% | 11,1% | 21,1% | 23,5% | 14,9% |
| | Master-s degree | Count | 71 | 209 | 93 | 157 | 141 | 671 |
| | | % within Country | 8,9% | 26,3% | 11,6% | 19,6% | 17,6% | 16,8% |
| | Further education | Count | 186 | 60 | 56 | 160 | 18 | 480 |
| | | % within Country | 23,3% | 7,5% | 7,0% | 20,0% | 2,2% | 12,0% |
| | 6 | Count | 36 | 229 | 0 | 0 | 0 | 265 |
| | | % within Country | 4,5% | 28,8% | ,0% | ,0% | ,0% | 6,6% |
| | 7 | Count | 121 | 59 | 0 | 0 | 0 | 180 |
| | | % within Country | 15,1% | 7,4% | ,0% | ,0% | ,0% | 4,5% |
| | 8 | Count | 189 | 0 | 0 | 0 | 0 | 189 |
| | | % within Country | 23,6% | ,0% | ,0% | ,0% | ,0% | 4,7% |
| | DK/NA | Count | 16 | 9 | 116 | 5 | 11 | 157 |
| | | % within Country | 2,0% | 1,1% | 14,5% | ,6% | 1,4% | 3,9% |
| Total | | Count | 800 | 796 | 800 | 800 | 801 | 3997 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Number of adults in household * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Number of adults in household | 1,00 | Count | 313 | 142 | 201 | 169 | 163 | 988 |
| | | % within Country | 39,1% | 17,9% | 25,1% | 21,1% | 20,6% | 24,8% |
| | 2,00 | Count | 438 | 538 | 501 | 524 | 436 | 2437 |
| | | % within Country | 54,8% | 67,8% | 62,6% | 65,5% | 55,2% | 61,2% |
| | 3,00 | Count | 33 | 63 | 77 | 81 | 116 | 370 |
| | | % within Country | 4,1% | 7,9% | 9,6% | 10,1% | 14,7% | 9,3% |
| | 4,00 | Count | 11 | 38 | 14 | 19 | 55 | 137 |
| | | % within Country | 1,4% | 4,8% | 1,8% | 2,4% | 7,0% | 3,4% |
| | 5+ | Count | 5 | 13 | 7 | 7 | 20 | 52 |
| | | % within Country | ,6% | 1,6% | ,9% | ,9% | 2,5% | 1,3% |
| Total | | Count | 800 | 794 | 800 | 800 | 790 | 3984 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Number of total household members * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Number of total household members | 1,00 | Count | 268 | 116 | 185 | 141 | 163 | 873 |
| | | % within Country | 33,5% | 14,8% | 23,1% | 17,7% | 20,7% | 22,0% |
| | 2,00 | Count | 308 | 267 | 399 | 302 | 211 | 1487 |
| | | % within Country | 38,5% | 34,1% | 49,9% | 38,0% | 26,7% | 37,5% |
| | 3,00 | Count | 83 | 123 | 108 | 102 | 116 | 532 |
| | | % within Country | 10,4% | 15,7% | 13,5% | 12,8% | 14,7% | 13,4% |
| | 4,00 | Count | 95 | 169 | 75 | 158 | 194 | 691 |
| | | % within Country | 11,9% | 21,6% | 9,4% | 19,9% | 24,6% | 17,4% |
| | 5,00 | Count | 39 | 69 | 25 | 71 | 64 | 268 |
| | | % within Country | 4,9% | 8,8% | 3,1% | 8,9% | 8,1% | 6,8% |
| | 6,00 | Count | 6 | 25 | 6 | 14 | 26 | 77 |
| | | % within Country | ,8% | 3,2% | ,8% | 1,8% | 3,3% | 1,9% |
| | 7+ | Count | 1 | 14 | 2 | 7 | 15 | 39 |
| | | % within Country | ,1% | 1,8% | ,3% | ,9% | 1,9% | 1,0% |
| Total | | Count | 800 | 783 | 800 | 795 | 789 | 3967 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q38 For how many years have you been living at your current address? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q38 For how many years have you been living at your current address? | <2 years | Count | 137 | 88 | 93 | 86 | 64 | 468 |
| | | % within Country | 17,1% | 11,1% | 11,6% | 10,8% | 8,0% | 11,7% |
| | 2-10 years | Count | 305 | 416 | 249 | 258 | 354 | 1582 |
| | | % within Country | 38,1% | 52,3% | 31,1% | 32,3% | 44,3% | 39,6% |
| | 10> years | Count | 357 | 291 | 452 | 455 | 379 | 1934 |
| | | % within Country | 44,6% | 36,6% | 56,5% | 56,9% | 47,4% | 48,4% |
| | DK/NA | Count | 1 | 1 | 6 | 0 | 3 | 11 |
| | | % within Country | ,1% | ,1% | ,8% | ,0% | ,4% | ,3% |
| Total | | Count | 800 | 796 | 800 | 799 | 800 | 3995 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q39 What kind of residence do you live in? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q39 What kind of residence do you live in? | Bungalow | Count | 211 | 84 | 244 | 117 | 201 | 857 |
| | | % within Country | 26,4% | 10,6% | 30,5% | 14,6% | 25,1% | 21,4% |
| | Ground floor flat/maisonette | Count | 76 | 21 | 16 | 471 | 85 | 669 |
| | | % within Country | 9,5% | 2,6% | 2,0% | 58,8% | 10,6% | 16,7% |
| | Flat/maisonette - first floor or above | Count | 329 | 49 | 29 | 68 | 172 | 647 |
| | | % within Country | 41,1% | 6,2% | 3,6% | 8,5% | 21,5% | 16,2% |
| | House on more than 1 floor | Count | 183 | 639 | 503 | 134 | 334 | 1793 |
| | | % within Country | 22,9% | 80,3% | 62,9% | 16,7% | 41,8% | 44,9% |
| | Barge | Count | 0 | 1 | 0 | 0 | 0 | 1 |
| | | % within Country | ,0% | ,1% | ,0% | ,0% | ,0% | ,0% |
| | Caravan | Count | 0 | 1 | 0 | 0 | 0 | 1 |
| | | % within Country | ,0% | ,1% | ,0% | ,0% | ,0% | ,0% |
| | DK/NA | Count | 1 | 1 | 8 | 11 | 8 | 29 |
| | | % within Country | ,1% | ,1% | 1,0% | 1,4% | 1,0% | ,7% |
| Total | | Count | 800 | 796 | 800 | 801 | 800 | 3997 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q40 Do you/your family own or rent your property? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q40 Do you/your family own or rent your property? | Own | Count | 415 | 643 | 665 | 726 | 531 | 2980 |
| | | % within Country | 51,9% | 80,8% | 83,1% | 90,9% | 66,3% | 74,6% |
| | Private rental | Count | 103 | 19 | 69 | 57 | 206 | 454 |
| | | % within Country | 12,9% | 2,4% | 8,6% | 7,1% | 25,7% | 11,4% |
| | Council or housing association rental | Count | 277 | 128 | 44 | 8 | 45 | 502 |
| | | % within Country | 34,6% | 16,1% | 5,5% | 1,0% | 5,6% | 12,6% |
| | Other | Count | 4 | 4 | 8 | 6 | 6 | 28 |
| | | % within Country | ,5% | ,5% | 1,0% | ,8% | ,7% | ,7% |
| | DK/NA | Count | 1 | 2 | 14 | 2 | 13 | 32 |
| | | % within Country | ,1% | ,3% | 1,8% | ,3% | 1,6% | ,8% |
| Total | | Count | 800 | 796 | 800 | 799 | 801 | 3996 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q41 Area type * Country Crosstabulation**

% within Country

| | | Country | | | | | |
|---|---|---|---|---|---|---|---|
| | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q41 Area type | Urban | 61,6% | 21,1% | 7,0% | 72,7% | 37,8% | 40,1% |
| | Suburban | 28,1% | 35,5% | 8,4% | 13,5% | 17,6% | 20,6% |
| | Rural | 10,3% | 43,4% | 84,6% | 13,8% | 44,6% | 39,3% |
| Total | | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

**Q42 What is you main economic activity? * Country Crosstabulation**

| | | | Country | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Sweden | Netherlands | UK | Norway | Germany | Total |
| Q42 What is you main economic activity? | Farmer | Count | 4 | 23 | 11 | 12 | 11 | 61 |
| | | % within Country | ,5% | 2,9% | 1,4% | 1,5% | 1,4% | 1,5% |
| | Self-employed | Count | 46 | 84 | 99 | 37 | 84 | 350 |
| | | % within Country | 5,8% | 10,6% | 12,4% | 4,6% | 10,5% | 8,8% |
| | Employee | Count | 389 | 382 | 276 | 490 | 369 | 1906 |
| | | % within Country | 48,6% | 48,0% | 34,5% | 61,3% | 46,1% | 47,7% |
| | Student | Count | 69 | 9 | 6 | 15 | 35 | 134 |
| | | % within Country | 8,6% | 1,1% | ,8% | 1,9% | 4,4% | 3,4% |
| | Retired | Count | 231 | 110 | 333 | 217 | 125 | 1016 |
| | | % within Country | 28,9% | 13,8% | 41,6% | 27,1% | 15,6% | 25,4% |
| | Housewife | Count | 18 | 145 | 51 | 22 | 100 | 336 |
| | | % within Country | 2,3% | 18,2% | 6,4% | 2,8% | 12,5% | 8,4% |
| | Other | Count | 43 | 41 | 24 | 7 | 67 | 182 |
| | | % within Country | 5,4% | 5,2% | 3,0% | ,9% | 8,4% | 4,6% |
| | DK/NA | Count | 0 | 2 | 0 | 0 | 10 | 12 |
| | | % within Country | ,0% | ,3% | ,0% | ,0% | 1,2% | ,3% |
| Total | | Count | 800 | 796 | 800 | 800 | 801 | 3997 |
| | | % within Country | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |

# *Annex 3. Additional information on sample selection (from TNS Gallup's report)*

### A1. 4. Sample selection

A critical issue involved in the sample selection is the identification of households living in flood-prone areas. Survey samples were prepared in each country in cooperation between the NVE and the TNS Gallup partners.

**Table A2: FLOWS sample selection by country.**

| Summary statistics | UK | Netherlands | Norway | Sweden | Germany |
|---|---|---|---|---|---|
| Survey population | 2.6m | 10228 | 3438 | 1583 | About 325.000 |
| Gross sample | 2184 | 10228 | 3438 | 1583 | 9623 |
| Sample not used | 310 | 5501 | 628 | 17 | 4348 |
| Net sample | 1874 | 4727 | 2810 | 1566 | 5275 |
| No contacts: | | | | | |
| Non-response | 481 | 1490 | 484 | 77 | 922 |
| IO not available | 0 | 0 | 100 | 65 | 18 |
| Not in target group | 2 | 117 | 136 | | 88 |
| Number not in use | 73 | 449 | 35 | 23 | 1405* |
| Other no contact | 189 | 53 | 94 | 36 | 197 |
| Sum no contacts | 745 | 2109 | 848 | 201 | 2630 |
| Refusals: | | | | | |
| Language problem | - | 0 | 12 | 41 | 32 |
| Refusals, in principle | - | 1347 | 374 | 181 | 1235 |
| Refusals, no time | - | 292 | 225 | 102 | 496 |
| Refusals, illness | - | 53 | 27 | 68 | 20 |
| Refusal, lack of interest | - | 0 | 254 | | 0 |
| Refusal, lack of competence | - | 0 | 69 | | 0 |
| Break offs | 57 | 94 | 19 | 17 | 35 |
| No reason/other reason | 272 | 36 | 182 | 156 | 27 |
| Total refusals | 329 | 1822 | 1162 | 565 | 1845 |
| Complete interviews | 800 | 796 | 800 | 800 | 800 |

*Mostly generated phone numbers.

In particular the sampling phase in Norway and Sweden turned out to be complicated, as the topography in these countries is complex. While in the Netherlands and in the UK the flood-prone areas are rather flat and wide in scope, in Norway and in Sweden they are narrow and follow strict topographical boundaries. The basic sample selection parameters for each country are displayed in table A2.

The following paragraphs provide some further information on the sample selection in each country.

A1.4.1 Sample selection Norway.

In Norway the survey population was initially identified by topographical flood inundation maps (FLOWS maps), and households living in the flood-prone areas according to the map boundaries were selected for interview.

At the same time the population living in these areas according to currently available maps, did not provide a gross sample large enough to provide the required 800 interviews. Hence an additional sample was selected by adding another flood-prone area (Lillestrøm) to the survey population. However, as flood maps were not available for Lillestrøm, this area was subdivided regionally by the smallest geographical location identifier readily available ("Grunnkrets). Thus, while about the half of the sample in Norway was defined by the flood-maps, the other half was selected from ordinary geographical maps.

Following the geographical delimitation of the survey area, the following adjustments were made:

5. Within the flood-prone areas, buildings are of several kinds, including industrial or commercial buildings, annexes, farm buildings etcetera. These were excluded from the survey population.
6. Following the identification of the survey population, the matching of the population to telephone registers proved to be difficult in some areas. Many flood-prone households are located in rural and remote parts of the country where addresses are less exact than what is typically the case in the urban and central areas. In some instances households are not listed in the telephone registers by an exact street address. This will be the case for example in a small community where street names are "irrelevant" for example due to the fact that mail is collected at a mail-box in the community postal office/grocery shop etc. In other instances addresses will be of the type "House number 54 along bus route number 12". In other words, exact matching of household addresses and telephone numbers (if telephone is at all available at the household) is in such instances impossible. The lack of addresses adds systematic bias in the sample prior to interviewing.
7. Finally, potential bias is introduced by lack of contact and none-response during the interview.

At the same time some pieces of information about all households in the survey population are available from the flood-map register, and can be used for identification of eventual sample selection bias. Table A3 demonstrates the consequences of the regional sample distribution at each stage of the sampling phase.

The table demonstrates the sampling effect at the various stages of the survey preparation.

- "Population" This column identifies all the initial addresses retrieved from the FLOOD maps.
- "Stage 1: building" Demonstrates the effect of filtering away non-residential buildings.
- "Stage 2: address" Shows the survey population following the matching of residential households with the telephone register. This also represents the "gross sample" at the time of fieldwork-start-up.
- "Stage 3: Sample": Displays the final sample composition with all completed interviews.

As seen from the table, the initial survey delimitations reduce the population fro 4665 to 3572 addresses. The exclusion of non-residential buildings represents the largest reduction, while some additional households are lost during the matching of telephone numbers to addresses. Note that, although the telephone number matching reduces the total survey population, in some areas it is actually enlarged. This is due to addresses that contain more than one residence, for example multi-story and other larger residential buildings, and is seen basically in the central and urban communities (02-03 area). A major effect of the address matching is that three-four areas are basically excluded from the survey population; Oslo, Elverum, Stor-ElvdaL, Dalen and Målselv.

Comparing the survey population at fieldwork start-up to the net sample, it is seen that the geographic composition is basically intact. All areas with more than one household are represented in the final sample. At the same time three significant deviations are observed: The Bærum sample is reduced to the half of it's population size, while Lærdal is doubled and Skedsmo is reduced from 42% to 34%.

Hence the Norwegian sample is weighted to correct for the survey sample bias introduced during the interviews. Weighting is performed in most regions at the level of "Fylke" to avoid the problem of empty cells in the weighting table. Table A4 displays the un-weighted and weighted samples by "Fylke".

**Table A3: Norway survey sample by county and sampling stage. Numbers and per cent.**

| | Population | | Satge 1: Building | | Stage 2: Address | | Stage 3: Interview | |
|---|---|---|---|---|---|---|---|---|
| Kommunenr | Count | Per cent | Count | Per cent | Count | Per cent | Count | Per cent |
| Frogn | 1 | 0,0 | | 0 | 1 | 0,0 | | 0,0 |
| Bærum | 574 | 12,3 | 570 | 16,0 | 781 | 22,6 | 96 | 12,0 |
| Fet | 52 | 1,1 | 52 | 1,5 | 72 | 2,1 | 18 | 2,3 |
| Skedsmo | 1265 | 27,1 | 1262 | 35,3 | 1451 | 42,1 | 274 | 34,3 |
| Nes (Akershus) | 1 | 0,0 | 1 | 0,0 | 1 | 0,0 | | 0,0 |
| Oslo | 33 | 0,7 | 28 | 0,8 | 6 | 0,0 | 2 | 0,3 |
| Kongsvinger | 1 | 0,0 | | 0,0 | 1 | 0,0 | | 0,0 |
| Hamar | 2 | 0,0 | 1 | 0,0 | 1 | 0,0 | | 0,0 |
| Eidskog | 1 | 0,0 | 1 | 0,0 | | 0,0 | | 0,0 |
| Grue | 447 | 9,6 | 365 | 10,2 | 325 | 9,4 | 104 | 13,0 |
| Åsnes | 145 | 3,1 | 72 | 2,0 | 65 | 1,8 | 11 | 1,4 |
| Elverum | 18 | 0,4 | 1 | 0,0 | | 0,0 | | 0,0 |
| Trysil | 118 | 2,5 | 63 | 1,8 | 34 | 1,0 | 14 | 1,7 |
| Stor-Elvdal | 34 | 0,7 | 14 | 0,4 | | 0,0 | | 0,0 |
| Tynset | 1 | 0,0 | 1 | 0,0 | 1 | 0,0 | | 0,0 |
| Vågå | 242 | 5,2 | | 0,0 | | 0,0 | | 0,0 |
| Sel | 104 | 2,2 | | 0,0 | | 0,0 | | 0,0 |
| Drammen | 1 | 0,0 | 1 | 0,0 | | 0,0 | | 0,0 |
| Nes | 109 | 2,3 | 83 | 2,3 | 51 | 1,5 | 15 | 1,9 |
| Nøtterøy | 1 | 0,0 | | 0,0, | 1 | 0,0 | 1 | 0,1 |
| Notodden | 234 | 5,0 | 85 | 2,4 | 60 | 1,7 | 29 | 3,6 |
| Tokke (Dalen) | 127 | 2,7 | 106 | 3,0 | 6 | 0,2 | 3 | 0,4 |
| Kvinesdal | 37 | 0,8 | 29 | 0,8 | 27 | 0,8 | 5 | 0,6 |
| Sokndal | 120 | 2,6 | 85 | 2,4 | 50 | 1,5 | 12 | 1,5 |
| Høyanger | 70 | 1,5 | 61 | 1,7 | 35 | 1,0 | 14 | 1,8 |
| Lærdal | 452 | 9,7 | 376 | 10,5 | 221 | 6,4 | 98 | 12,3 |
| Luster | 54 | 1,2 | 46 | 1,3 | 20 | 0,6 | 9 | 1,1 |
| Førde | 13 | 0,3 | 10 | 0,3 | 7 | 0,2 | 1 | 0,1 |
| Sunndal | 144 | 3,1 | 112 | 3,1 | 88 | 2,6 | 36 | 4,5 |
| Trondheim | 54 | 1,2 | 22 | 0,6 | 76 | 2,2 | 28 | 3,5 |
| M. Gauldal | 68 | 1,5 | 24 | 0,7 | 8 | 0,2 | 3 | 0,4 |
| Melhus | 66 | 1,4 | 57 | 1,6 | 42 | 1,2 | 22 | 2,8 |
| Selbu | 2 | 0,0 | 1 | 0,0 | 1 | 0,0 | | 0,0 |
| Saltdal | 11 | 0,2 | 1 | 0,0 | 1 | 0,0 | 1 | 0,1 |
| Målselv | 1 | 0,0 | 22 | 0,6 | | 0,0 | | 0,0 |
| Nordreisa | 31 | 0,7 | | 0,0 | 4 | 0,1 | 2 | 0,2 |
| Karasjok | 31 | 0,7 | 20 | 0,6 | 5 | 0,1 | 2 | 0,3 |
| SUM | 4665 | 100 | 3572 | 100 | 3442 | 100 | 800 | 100,0 |

**Table A4: Norway: Survey population, sample and weighted sample by "Fylke".**

| | Population | | Weighted sample | | Unweighted sample | |
|---|---|---|---|---|---|---|
| | N | % | N | % | N | % |
| All | 3442 | 100 % | 800 | 100 % | 800 | 100 % |
| Bærum | 788 | 22,9 % | 183 | 22,9 % | 98 | 12 % |
| Lillestrøm | 1451 | 42,2 % | 338 | 42,3 % | 274 | 34 % |
| Fetsund | 73 | 2,1 % | 17 | 2,1 % | 18 | 2 % |
| Åsnes | 65 | 1,9 % | 15 | 1,9 % | 11 | 1 % |
| Hedmark | 362 | 10,5 % | 84 | 10,5 % | 118 | 15 % |
| Buskerud | 52 | 1,5 % | 12 | 1,5 % | 16 | 2 % |
| Telemark | 66 | 1,9 % | 15 | 1,9 % | 32 | 4 % |
| Vest-Agder | 27 | 0,8 % | 6 | 0,8 % | 5 | 1 % |
| Rogaland | 50 | 1,5 % | 12 | 1,5 % | 12 | 2 % |
| Sogn | 283 | 8,2 % | 66 | 8,3 % | 122 | 15 % |
| Møre | 88 | 2,6 % | 20 | 2,5 % | 36 | 5 % |
| Sør-Trøndelag | 127 | 3,7 % | 30 | 3,8 % | 53 | 7 % |
| Nord-Norge | 10 | 0,3 % | 2 | 0,3 % | 5 | 1 % |

### A1.4.2 Sample selection Sweden.

The Swedish sample is selected from seven different geographical areas, by slightly differing sampling practices:

- *Arvika*: Sampling based on register information about actual flooding experiences from the last flood in the year 2000, with addition for all households that should have been affected by the flood according to their topographical position, but who are not covered by the register. These latter households are mainly located close to the sea and at an altitude less or equal to 50 meters above the sea level (The sea level during the 2000 flood was 43,38 meters).
- *Karlstad*: N.a.
- *Klarälvdalen*: Households selected from the flooding area of the 2000 flood.
- *Åmål*: Areas selected by the Rescue service organisation according to previous flooding experiences and current potential flooding danger.
- *Mariestad*: Hoseholds selected by Local authorities based on maps from the 2000 flood.
- *Kristianstad*: Three areas selected: Area 1 is located close to a barrage of an old sea. In case of barrage damage, the area will be flooded. Area 2 is a location where local authorities have distributed direct mail regarding potential flood risks. Area 3 is an area that never has been flooded, but in which flooding may easily happen, although it is located further away from water than areas 1 and 2. The basic idea is to compare information from area 3 with the other two ones.
- *Bollnäs:* Households selected from property register according to the 100-year flood risk definition (The water level might reach the household every 100$^{th}$ year).

### A1.4.3 Sample selection UK

The sample covers the flood prone areas of the East of England, mainly low-lying plains and including reclaimed land. There were originally 318 postcodes in the sample, of which 270 are represented in completed questionnaires.

The sample is self-weighting across regions (Table A5).

### A1.4.4 Sample selection Netherlands.

The survey population was divided into three sub-populations (Flevoland, Friesland and Groningen).

For the Friesland (1120 numbers) and Flevoland (3200 numbers) samples phone-numbers from distinct flooding areas of potential respondents were bought from Cendris .

For Groningen 6000 random phonenumbers were generated. These were all situated in (potential) flooding areas.

### A1.4.5 Sample selection Germany.

In Germany a total sample of 800 interviews was planned.

*Sample design:* The real sample consists of n=800 cases. This overall sample was split into the following three sub-samples: 180 cases in sub-sample A, 310 cases in sub-sample B, 310 cases in sub-sample C.

Sub-sample A (Außendeichs): certain streets in some flood-prone townships in the federal states of Schleswig-Holstein and Niedersachsen: township of Kellinghusen / federal state of Schleswig-Holstein (total of 30 streets), township of Hitzacker / federal state of Niedersachsen (total of 15 streets), township of Lauenburg / federal state of Schleswig-Holstein (total of 1 street)
Sub-sample B (Starkregen): certain areas in the outskirts of the city of Hamburg, that are flood-prone in case of intense rain (total of 34 streets)
Sub-sample C (Binnendeichs): flood-prone townships in the federal state of Niedersachsen (total of 83 townships)
The composition of the sub-samples is displayed in table A.6

**Table A5. UK FLOWS sample regions by postal code.**

| Cambridgeshire | Lincolnshire | Norfolk | | | Northamptonshire |
|---|---|---|---|---|---|
| CB1 6AN | DN37 0TJ | NR12 0AD | NR12 9PD | NR9 5SP | NN14 1AD |
| CB1 6BG | LN11 0EH | NR12 0AS | NR12 9PS | NR9 5SQ | NN14 1AZ |
| CB1 6BU | LN11 0EJ | NR12 0AY | NR12 9PT | NR9 5SS | NN14 3JT |
| CB1 6BY | LN11 0EL | NR12 0BA | NR12 9PU | NR9 5SX | NN14 4JJ |
| CB1 6HS | LN11 0EN | NR12 0BE | NR12 9PZ | PE31 6TF | NN14 4JL |
| CB1 6HT | LN11 0EQ | NR12 0BL | NR12 9QA | PE31 8DS | NN14 4JR |
| CB1 6HU | LN11 0JJ | NR12 0BN | NR12 9QD | PE31 8HL | NN14 4TP |
| CB1 6HX | LN11 0JN | NR12 0BQ | NR12 9QF | PE31 8HN | NN14 4TS |
| CB1 6HY | LN11 0JP | NR12 0BT | NR12 9QL | PE31 8HP | NN15 6GA |
| CB1 6JA | LN11 0JR | NR12 0BW | NR12 9QN | PE31 8HR | NN15 6GB |
| CB1 6JX | LN11 0JW | NR12 0BX | NR12 9QP | PE31 8HW | NN15 6GD |
| CB1 6LR | LN11 0LE | NR12 0XH | NR12 9QR | PE31 8JA | NN15 6GS |
| CB1 6NP | LN11 0LT | NR12 0XJ | NR12 9QW | PE31 8RB | NN15 6XG |
| CB1 6NR | LN11 0LU | NR12 0XL | NR12 9QX | PE31 8RF | NN15 6XN |
| CB1 6PW | LN11 0LW | NR12 0XN | NR12 9QY | PE31 8RG | NN29 7TD |
| CB1 6UA | LN11 0LY | NR12 0XP | NR12 9QZ | PE31 8RH | NN7 3LF |
| CB1 6UD | LN13 9PY | NR12 0XR | NR12 9RB | PE31 8RT | NN7 3LH |
| CB1 6UQ | LN3 4ER | NR12 0XS | NR12 9RE | PE31 8SU | NN7 3PB |
| CB1 6YT | LN3 4HN | NR12 0XT | NR12 9RF | | NN7 3PF |
| CB2 2EB | LN3 4HY | NR12 0XU | NR12 9RL | | NN7 3QR |
| CB2 2TS | LN3 5DQ | NR12 0XX | NR12 9RN | | NN7 3RG |
| CB2 4AG | LN3 5TA | NR12 0XZ | NR12 9RP | | NN7 4AD |
| CB2 4EQ | LN3 5TD | NR12 0YB | NR12 9RQ | | NN7 4AE |
| CB2 4HR | LN4 1AJ | NR12 0YE | NR12 9RR | | NN7 4AF |
| CB2 4HS | LN4 1GE | NR12 0YG | NR12 9RW | | NN7 4AG |
| CB2 4HT | LN4 1JH | NR12 0YH | NR12 9SH | | NN7 4AJ |
| CB2 4HW | LN4 1JL | NR12 0YJ | NR12 9TF | | NN7 4AL |
| CB2 4HY | LN4 1JS | NR12 0YL | NR12 9TQ | | NN7 4AQ |
| CB2 4HZ | LN4 1LD | NR12 0YQ | NR13 3AA | | NN7 4AT |
| CB2 4JA | LN4 1RF | NR12 0YR | NR13 3TE | | NN7 4BB |
| CB2 4JJ | LN4 4AU | NR12 0YS | NR14 6DQ | | NN7 4BQ |
| CB2 4NE | LN4 4AY | NR12 0YT | NR33 9JY | | NN7 4PL |
| CB2 4NS | LN4 4DD | NR12 0YU | NR34 0HS | | NN7 4PN |
| CB2 4PT | LN4 4HN | NR12 0YW | NR9 5AF | | NN7 4PW |
| CB2 4PX | LN5 9DZ | NR12 8UJ | NR9 5AG | | NN7 4PX |
| | LN5 9EF | NR12 9AA | NR9 5AL | | NN7 4QH |
| | LN6 9JU | NR12 9AX | NR9 5AP | | NN7 4QR |
| | LN8 5JJ | NR12 9AZ | NR9 5AX | | NN7 4QS |
| | LN9 5LB | NR12 9BT | NR9 5BL | | NN7 4QU |
| | LN9 6JG | NR12 9BU | NR9 5BT | | NN7 4RT |
| | NG23 5JB | NR12 9BY | NR9 5EL | | NN7 4RZ |
| | NG31 7UL | NR12 9BZ | NR9 5HL | | NN7 4SW |
| | NG32 2HT | NR12 9DJ | NR9 5LN | | NN9 5QF |
| | NG32 2NL | NR12 9ES | NR9 5QA | | |
| | NG33 4LA | NR12 9GT | NR9 5QG | | |
| | NG33 5LJ | NR12 9JA | NR9 5QH | | |
| | NG34 0AA | NR12 9JN | NR9 5QP | | |
| | NG34 0AD | NR12 9JP | NR9 5QZ | | |
| | NG34 0AE | NR12 9JT | NR9 5RB | | |
| | NG34 0HY | NR12 9JU | NR9 5RE | | |
| | NG34 0JL | NR12 9JX | NR9 5RF | | |
| | NG34 0NX | NR12 9LP | NR9 5RH | | |
| | NG34 0QF | NR12 9LQ | NR9 5RP | | |
| | NG34 0QX | NR12 9LR | NR9 5RR | | |
| | NG34 0RL | NR12 9LX | NR9 5RS | | |
| | NG34 0RP | NR12 9NE | NR9 5RZ | | |
| | PE23 5PZ | NR12 9NH | NR9 5SD | | |
| | PE23 5RG | NR12 9NZ | NR9 5SH | | |

**Table A6: FLOWS sample composition in Germany.**

## Sample A: Außendeichs

**Township of Kellinghusen**

| | |
|---|---|
| 1 | Feldhusenstrasse |
| 2 | Mühlenbeker Strasse |
| 3 | Marienstrasse |
| 4 | Mühlenstrasse |
| 5 | Poggfred |
| 6 | Mühlenbeker Strasse |
| 7 | Tewesallee |
| 8 | Neuer Kamp |
| 9 | Klaus-Groth-Strasse |
| 10 | Friedrichstrasse |
| 11 | Vorbrügger Strasse |
| 12 | Schützenstrasse |
| 13 | Birkenallee |
| 14 | Hauptstrasse |
| 15 | Mittelstrasse |
| 16 | Hafenstrasse |
| 17 | Breitenbergstrasse |
| 18 | An der Stör |
| 19 | Lehmbergstrasse |
| 20 | Neue Strasse |
| 21 | Fehrsstrasse |
| 22 | Bahnhofstrasse |
| 23 | Brauerstrasse |
| 24 | Störweg |
| 25 | Lohkoppelweg |
| 26 | Wischhof |
| 27 | Liliencron-Strasse |
| 28 | Hebbelstrasse |
| 29 | Hinterm Born |
| 30 | Steinstrasse |

**Township of Hitzacker**

| | |
|---|---|
| 1 | An der alten Jeetzel |
| 2 | Auf dem Brink |
| 3 | Kranplatz |
| 4 | Fischergang |
| 5 | Jeetzelufer |
| 6 | Rosenstrasse |
| 7 | Brauhofstrasse |
| 8 | Am Markt |
| 9 | Elbstrasse |
| 10 | Zollstrasse |
| 11 | Deichstrasse |
| 12 | An der Kirche |
| 13 | Schiffergang |
| 14 | Hauptstrasse |
| 15 | Marschtorstrasse |

**Township of Lauenburg**

| | |
|---|---|
| 1 | Elbstrasse |

## Sample B: Starkregen

**Flood-prone streets in Hamburg (intense rain)**

| | |
|---|---|
| 1 | Allermöher Deich |
| 2 | Alter Berner Weg |
| 3 | Am Stühm-Nord |
| 4 | An der Falkenbek |
| 5 | Baarkamp |
| 6 | Blakshörn |
| 7 | Döringweg |
| 8 | Falkenbergsweg |
| 9 | Grootmoorweg |
| 10 | Hagendeel |
| 11 | Hasenweg |
| 12 | Heferacker |
| 13 | Hildburgweg |
| 14 | Holtkoppelgraben |
| 15 | Islandstraße |
| 16 | Kleine Wiese |
| 17 | Kniep |
| 18 | Krögerkoppel |
| 19 | Liethwisch |
| 20 | Meiendorfer Weg |
| 21 | Moorfleeter Deich |
| 22 | Neuengammer Hausdeich |
| 23 | Ochsenwerder Norderdeich |
| 24 | Radekamp |
| 25 | Randersweide |
| 26 | Reitdeich |
| 27 | St. Jürgen-Straße |
| 28 | Stedingweg |
| 29 | Tatenberger Deich |
| 30 | Vorderdeich |
| 31 | Wehmer Weg |
| 32 | Wehmerstieg |
| 33 | Wolfdietrichweg |
| 34 | Wullwisch |

**Sample C: Binnendeichs**

| Township Codes | Township |
|---|---|
| 03151002 | Barwedel |
| 03151003 | Bergfeld |
| 03151004 | Bokensdorf |
| 03151005 | Brome |
| 03151007 | Dedelstorf |

| | |
|---|---|
| 03151008 | Ehra-Lessien |
| 03151009 | Gifhorn |
| 03151010 | Gr. Oesingen |
| 03151011 | Hankensbüttel |
| 03151014 | Jembke |
| 03151019 | Obernholz |
| 03151021 | Parsau |
| 03151025 | Sassenburg |
| 03151026 | Schönewörde |
| 03151028 | Sprakensehl |
| 03151029 | Steinhorst |
| 03151031 | Tiddische |
| 03151032 | Tülau |
| 03151035 | Wagenhoff |
| 03151036 | Wahrenholz |
| 03151038 | Wesendorf |
| 03151040 | Wittingen |
| 03353007 | Drage |
| 03353023 | Marschacht |
| 03353033 | Tespe |
| 03353037 | Vierhöfen |
| 03355001 | Adendorf |
| 03355003 | Artlenburg |
| 03355004 | Bardowick |
| 03355005 | Barendorf |
| 03355006 | Barnstedt |
| 03355007 | Barum |
| 03355008 | Betzendorf |
| 03355011 | Brietlingen |
| 03355014 | Deutsch Evern |
| 03355015 | Echem |
| 03355016 | Embsen |
| 03355017 | Handorf |
| 03355018 | Hittbergen |
| 03355019 | Hohnstorf |
| 03355020 | Kirchgellersen |
| 03355021 | Lüdersburg |
| 03355022 | Lüneburg |
| 03355023 | Mechtersen |
| 03355024 | Melbeck |
| 03355028 | Radbruch |
| 03355030 | Reinstorf |
| 03355031 | Reppenstedt |
| 03355032 | Rullstorf |
| 03355033 | Scharnebeck |
| 03355035 | Südergellersen |
| 03355038 | Vastorf |
| 03355039 | Vögelsen |
| 03355040 | Wendisch Evern |
| 03355041 | Westergellersen |
| 03355042 | Wittorf |
| 03360001 | Altenmedingen |
| 03360002 | Bad Bevensen |
| 03360003 | Barum |

| | |
|---|---|
| 03360004 | Bienenbüttel |
| 03360005 | Bad Bodenteich |
| 03360006 | Ebstorf |
| 03360008 | Emmendorf |
| 03360009 | Gerdau |
| 03360010 | Hanstedt |
| 03360011 | Himbergen |
| 03360012 | Jelmstorf |
| 03360013 | Lüder |
| 03360014 | Natendorf |
| 03360015 | Oetzen |
| 03360016 | Rätzlingen |
| 03360017 | Römstedt |
| 03360018 | Rosche |
| 03360019 | Schwienau |
| 03360020 | Soltendieck |
| 03360021 | Stadensen |
| 03360022 | Stoetze |
| 03360023 | Suderburg |
| 03360024 | Suhlendorf |
| 03360025 | Uelzen |
| 03360026 | Weste |
| 03360027 | Wieren |
| 03360028 | Wrestedt |

*Sample selection:* While in sub-samples A and B all households in the defined areas (streets) were part of the sample, sample C forms a subset of the whole population in the defined areas (townships):

Sub-sample C: The telephone numbers for sub-sample C were generated by applying the "random last two digits – RL(2)D-method" following the so-called Gabler/Haeder method. In the first step blocks of telephone numbers were built by cutting off the last two digits of all existing telephone numbers in the defined townships. In the second step the "universe" of all possible telephone numbers for these number blocks were generated by filling each existing number block with all possible digit combinations. From this "universe" a sample was randomly selected in a third step.
Sub-samples A and B: For setting up samples A and B, telephone numbers were taken from telephone directories. Because of the limited quantity of households / telephone numbers in these areas, all telephone numbers were used in the sample, without making a random selection.

*Weighting:* The weighting factor is based on the total population living in the areas covered in this survey. Since the population represented in sub-samples A and B forms only a small part of the whole population covered in the overall sample (consisting of all three sub-samples), the cases of sub-sample A and B were downweighted, while cases in sub-sample C were upweighted accordingly.

**Reports from FLOWS project 2A:**

## WP 2A -1: Perception of Flood Hazard in Countries of the North Sea Region of Europe

Author: Irina Krasovskaia, Norwegian Water Resources and Energy Directorate (NVE)

## WP 2A -2: Expert panel study

Author: Irina Krasovskaia, NVE, Norway

## WP 2A -3: Qualitative studies of the public's comprehension of flood risk Case studies from the UK and Norway

Author: Melita R. Hasle, NVE, Norway

## WP 2A-4: Combating flooding together

Authors:
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Denys Ngu, Norfolk County Council, UK
Barbro Näslund-Landenmark, Swedish Rescue Services Agency
Humphrey Smith, Rosslyn Research, UK
Sandra van der Vegt, Province of Flevoland, the Netherlands

## WP2A-5: Interactive Learning Groups

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