COMRISK – Common strategies to reduce the risk of storm floods in coastal lowlands

Subproject 3: Public perception of coastal flood defence and participation in coastal flood defence planning

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Gunilla Kaiser
Stefan Reese
Horst Sterr
Hans-Jörg Markau

Department of
Geography
University of Kiel

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Introduction

Natural hazards and their partly disastrous impacts have increased in recent years. Managing the resulting risks has become a growing challenge. Along the North Sea coast vast low-lying areas are threatened by recurring storm flood events and are hence at risk of being flooded. During the severe storm flood disaster in 1953, more than 2,000 people lost their lives in the Netherlands, Belgium, and the United Kingdom. The "Hamburg-Flood" in 1962 caused a death toll of 340 in and around Hamburg. Especially with regard to climatic change and the accelerating rise in sea-levels, risk management of natural hazards will become more and more important.
In the North Sea Region, approximately 16 million people live in flood-prone areas protected by coastal defence measures. Important economic centres are situated in this region. To maintain present safety standards, despite increasing natural and socio-economic pressures, long-term investments are mandatory.

National and regional coastal defence authorities in the North Sea Region conduct the transnational project COMRISK (Common Strategies to Reduce the Risk of Storm Floods in Coastal Lowlands). The project aims to improve risk management for coastal flood-prone areas by means of a transfer and evaluation of knowledge and methods as well as pilot studies. The project runs from 2002 to 2005 and is co-financed by the Community Initiative Programme INTERREG III B North Sea Region of the European Union. COMRISK is divided into an umbrella project and nine subprojects. The project is led by the Schleswig-Holstein State Ministry of the Interior, which co-ordinates the umbrella project and the subprojects. Each subproject is led by a project partner.

Subproject 3: "Public Perception and Participation in Coastal Flood Defence" focused on analysis and evaluation of public perception of coastal flood defence and participation in coastal flood defence planning in the countries participating in the COMRISK project: Denmark, Germany, the Netherlands, Belgium, and the United Kingdom. The coastal defence division of the Ministry of the Interior, State of Schleswig-Holstein, was responsible for this subproject, with the University of Kiel (Department of Geography) as a subcontractor to carry out the work. Associated partners were the Research and Technology Centre Westcoast in Büsum and the Disaster Research Unit of the University of Kiel.

Methodology

As the perception of risk is supposed to influence the acceptance of coastal defence measures and policies, this component is nowadays considered within an integrated risk management scheme. It is assumed that people who are aware of the risks might react faster and better in case of an emergency. To improve the awareness of risk, information plays a key role and so does participation of the public in the planning process. It is necessary to further develop

suitable instruments and apply them more intensively, e.g., information tools, flood warning systems and participation procedures.
The analysis of the perception of risk and of the participation of the public in the coastal defence planning process was based on some **working hypothesis:**

- Intensive perception causes an increase in willingness to participate.
- Risk awareness and personal experience influences the degree of preparedness.
- Participation increases the acceptance of planned measures.
- Active participation has barely been part of coastal defence planning procedures.
- There are international differences concerning perception and participation.
- There is no ideal participation procedure for coastal defence planning.
- The population does not feel adequate informed.
- The authorities and the public are very interested in participation.

Assuming this, the objectives of subproject 3 were:

1. Analysis of the present state of public perception and participation in the partner regions
2. Investigation and evaluation of methods to improve public perception of flood risk & management and participation in coastal flood defence
3. Recommendations for methods to improve public perception of the risks of coastal flooding as well as public participation in coastal flood defence.

In order to establish an effective risk management process, social and scientific conditions in the areas at risk have to be determined. Hence, the perception of the risk of storm floods as well as the participation of the public in the planning process needs to be considered.
The discussion about the civil use of nuclear energy in particular indicates the limits of the classic concept of risk in the past. Risk factors are increasingly unknown components. The objective statistical risk is less relevant for the options and restrictions of public behaviour than the individual risk evaluation of the society. According to this, the quantitative-analytical approach of risk assessment on its own is not sufficient to make political decisions. In fact, the social consideration and consequently acceptance ought to be integrated into the management process.

The perception of the risk of storm floods and the participation in coastal defence planning in the framework of SP3 was investigated in specifically selected areas in the COMRISK partner regions: Oostende/Belgium, Ribe/Denmark, St. Peter-Ording/Germany, Gemeente Sluis/ Netherlands and Skegness/United Kingdom. The study areas were partly different in size and character due to differing interests of the COMRISK partners, co-operating pilot studies, political interests, actual coastal defence planning and regional circumstances. All study areas are situated directly at the coast, are flood-prone and of significance due to tourism.

In Belgium, approximately 3 % of the land surface is flood-prone (MINVENW, 2001, p.8). The city Oostende is situated at the Flemish coastline. Morphologically speaking the area is a sedimentary plain, which consists of sandy banks in the shallow sea, sandy beaches and

dunes. Behind the dunes, low-lying polders dominate the landscape. Oostende is the largest urban settlement on the Belgian coast, characterised by tourism and the town's infrastructure as a transportation hub. The Flemish coast has been affected by severe storm floods in the past, the disaster in 1953 having been the worst. For coastal protection measures in the recent past, e.g. beach nourishments in Oostende, safety levels for a 1,000-year period have been used as well as a 1:1,000 years breakthrough probability of the dunes. In Oostende, an improvement of coastal protection is urgently needed and planned but discussed controversial.

Denmark borders on the North Sea as well as on the Baltic Sea. Approximately 4 % of the country is low-lying area beneath 5 m NN. The community Ribe is situated at the southern Danish Wadden Sea coast, located at the Ribe Å with a distance of 6 km from the sea. Tourism is important for this ancient trading town. Compared to the other study areas Ribe is not a typical beach resort. Here the historic town itself, the landscape, and the Wadden Sea are of tourist interest. From Esbjerg south to the German border some 100 km of dikes protect the low-lying marshland areas against flooding. Dike safety in Denmark is standardised to a 50 years' safety. Where it is economically justifiable it is set higher, e.g. in Tønder to 200 years and in Thyborøn to 1,000 years. Several storm surge events have hit the Danish coast in the past, the last flooding when people drowned was in 1923. Since the 1970s, the dikes protecting the low-lying towns Ribe and Hojer have been reinforced repeatedly and two new dikes have been built. Since the 1970s, the frequency of storm surges has been much higher than earlier in the 20th century (MINVENW, 2001, p.3).

The flood-prone area of the four German states at the North-Sea - Niedersachsen, Bremen, Hamburg and Schleswig-Holstein - covers as many as 11,240 km² (17.5 % of the total area). Due to the land reclamation during the last centuries, most of the North Sea coastline is divided into flood units, so-called "koege". The beach resort St. Peter-Ording is situated at the North-Sea coast of Schleswig-Holstein. A (partly interrupted) sea dike protects the municipality. Sandbanks run parallel to the coastline, creating the sandy beach and dunes in St. Peter-Ording as kind of a natural sea-defence. The Hinterland is a low lying terrain at between 0 and 2.5 m NN. For the safetylevels of dikes, a return period of 100 years is minimum. In addition, the highest regionally recorded water or storm surge level has also been taken into account. In 1962, a severe storm flood in the German Bight killed 350 people in Germany (MINVENW, 2001, p.8). For the most parts of the German North-Sea coast, however, the highest storm surge occurred in 1976. Because dikes were raised and enforced following the 1962 flood, no major damages were suffered during these peak flood levels of 1976.

The 25,000 km² large flood-prone area in the Netherlands covers about two-thirds of the entire country (MINVENW, 2001, p. 6-1). Sixty percent of the Dutch population and economy are situated in this vast and densely populated area. Effective coastal protection is essential for the existence of the nation, thus protection against flooding is an important national issue and a political task embedded in the constitution. Failure of flood defence structures would have devastating human and economic consequences for the entire country. In 1953, the Netherlands experienced the country's worst flooding in modern times, with 1,835 people losing their lives. Since then the Netherlands has implemented the highest safety level in Europe with a range from 2,000 to 10,000 years (expressed as return periods). In Zeeuws

Vlaanderen, the safety level is 4,000 years. The southern part of the coastline between the Belgian border and Hoek van Holland consists of estuaries of the rivers Rhine, Meuse, and Scheldt. The tourist settlements in Gemeente Sluis are situated in the western part of the province Zeeland. The study region is protected by a sea-defence dike near Cadzand/ Cadzand–Bad and high dunes at Breskens.

Five percent of the United Kingdom is at risk of flooding by the sea. The low-lying areas at the coast are spread over numerous regions. In most of the regions, e.g. in estuaries, there is a danger of coastal flooding as well as riverine flooding. Skegness is a tourist beach resort, located at the North Sea coast of Lincolnshire, south of the Humber estuary and north of the bay "The Wash". The coastline between Mablethorpe and Skegness is a retreating coast with sandy beaches and coastal defence structures, sand dunes, clay embankments and seawalls, providing flood protection for the low-lying area. In the severe storm flood in 1953, multiple dike and dune breaches at the Lincolnshire coast led to the loss of 41 lives. The current coastal defence strategy is to stabilize the coastline through beach nourishment. Along the coastal frontage between Mablethorbe and Skegness 24 km of coastal defences provide flood protection for over 20,000 ha of low-lying land (EA, 2002).

The public perception and participation were investigated first by a randomly sampled household survey. The empirical instrument for the survey was a standardised questionnaire that contained twelve questions about risk perception, nine questions about participation, and three questions concerning demographic information. This questionnaire was developed by the research group of the Department of Coastal Geography in cooperation with socio-economic experts. A total of 2,000 questionnaires were distributed, 400 in each of the five study areas. They were translated into Dutch, Danish and English, so that they could easily be filled out by all local inhabitants. The questionnaires were distributed personally to randomly selected households with prepaid return envelopes. The entire enquiry was designed taking into account important aspects of DILLMANs' Total Design Method (1978) that gives a set of procedures, which should lead to the maximum success of a mail survey, e.g. guaranteed anonymity, the avoidance of delicate questions, prepaid envelopes to be sent back, serious letter with official logos of the university; also detailed information about the project aimed at convincing people that a problem exists, that is of importance to locals they identify with, and that their support is needed to find a solution.

Assuming that the perception of the risk of storm floods is different within and between the areas of investigation, representative results are to be expected from this approach. Different regional conditions, historic and actual disasters and the degree of participation as well as the flow of information were taken into account when comparing the results.
The following questions summarize the main topics required for an analysis:

- To what extent are storm surges considered a threat / risk?
- To what extent is risk accepted?
- What are the regional distinctions of risk awareness?
- How can risk perception be improved?
- What kind of participation methods are available and are there practical experiences?
- What extent of participation is effective?
- Is there a demand for more participation?

- What are the differences of participation methods in the partner regions?
- How can participation procedures be improved?

In its first part, the public survey investigated the perception of risk as well as the level of and demand for information in the study areas of the five COMRISK partner regions.

Perception

Human behaviour depends on perception, experience, and knowledge and not only on facts. In order to be able to develop effective information and communication strategies and policies on natural risks, the perception and evaluation of these risks and influencing factors should be known (RENN, 1989; PLAPP, 2001).
In this study, risk perception is defined as "the sensual or rational, individual or collective perception process and the associated identification, analysis and verbalisation of risk. Influencing factors are the input and processing capacity of the percipient persons as well as the situational, social, and cultural framework. The perceived risk is the basis for the evaluation or judgement of the risk, whereas there is no exact separation of perception and judgment process" (MARKAU, 2003; REESE, 2003).
In the context of analyzing risk perception, the first step is the identification of the risk and, subsequently, its evaluation. This means the process of perception may be subdivided into two parts, the perceptional phase and the valuation phase. The first phase is an extensive unconscious process, through which possibilities and problems are identified, analyzed and then verbalised, categorized and classified. In the second phase, risks are evaluated and options or alternatives for action are measured.
Several studies have shown that risk perception and risk evaluation are influenced by numerous factors. The identified factors, which make up the whole stimuli set, can be assigned to three dimensions, the *risk criteria* such as dread risk, familiarity, exposure, occurrence probability, damage potential etc., *personal attributes* such as knowledge or experience and *environmental conditions* such as the spatial vicinity and the political, economical, and social conditions.
Risk communication has a strong impact on all communication processes, which refer to identification, analysis, evaluation, and management of risks as well as the associated interactions amongst all parties (JUNGERMANN ET AL., 1991, p.5). Hence, communication plays an important role both in the perception and in the participation process.
Two groups of influence factors can be distinguished with regard to risk perception and assessment of natural hazards: situation factors, which result from the physical and socio-economic background, and awareness factors, which include psychological aspects and attitudes.
Due to different cognitive information processes people tend to overestimate or underestimate the probability of events, a fact that has been found in numerous studies on natural hazards.
Information regarding perception cannot be deduced from historic considerations, but has to be derived empirically, just as in the survey at hand.

Results of the survey on perception

The results of the survey on perception and participation in the five North Sea countries were analyzed and evaluated by comparing the answers from the five study regions.
In total 411 questionnaires (20.6 %) were sent back from 2,000 that were delivered. The return rate was similar in all countries, except for the UK. 20.5 % to 27.5 % of the questionnaires were returned in Belgium, Denmark, Germany and in the Netherlands, whilst in the UK the return rate was only 11.3 %. Most of the respondents (64 %) were male and belonged to the age group 30-60 years.
In the UK 84 % of the respondents had never experienced a storm flood, while in the other regions only 15-43 % never had.
34 % of the overall respondents estimated the risk of a coastal flooding in their region high or very high, especially in Belgium with 42 %. This implies that a call for action or at least more information exists. Nevertheless, although 1/3 of the respondents estimated the flood risk as high, only 7 % had ever take personal measures to be prepared for a future storm flood. There appears to be a discrepancy between the perception and the action of the people, as 90 % of the persons who estimate the probability of a storm flood as *very high*, had not taken any personal measures. These results show that the knowledge of risk does not necessary lead to immediate understanding or action.
The information people have about the general risk of storm floods in their region appears to be insufficient to prepare them for a possible disaster. Apparently, people know about the risks but they are not fully aware of the consequences nor do they know what to do or how to prepare appropriately.
Information provided by the authorities (persons in charge) may not be understood or reflected in all detail, as 30 % of the respondents were not aware that their house could be damaged by water in case of coastal flooding, although they live in a flood-prone area. In the Danish study area Ribe 68 % of the population were not aware of this risk although local authorities had distributed flood-maps to all people in and around Ribe. This leads to the assumption that the use of maps as an information tool may be problematic. Obviously, not everyone is able to read or interpret a map appropriately.
38 % of the respondents felt that there is insufficient protection against storm floods in their region. Especially in Oostende/Belgium, where a controversial discussion about the coastal defence situation is taking place, 56 % were not satisfied. From the comments given at the end of the questionnaire it became clear that of those persons who were not satisfied with the coastal protection most desire more / better information. A lack of information is expressed by 59 % of the respondents apparently not knowing what to do in case of a coastal flooding, especially in Belgium (78 %). The only country where people felt informed fairly well was Denmark, where 66 % said they know what to do in case of a coastal flooding. Of those people, nearly all said they would leave the area. Over all regions, 62 % of the respondents felt that the authorities had not informed them satisfactorily. There appears to be a general discrepancy between Denmark and Belgium. Whilst in Denmark 79 % of the respondents thought themselves to be well- or very well-informed by the authorities about flood risks, in Belgium only 14 % thought so. Furthermore, 65 % of the respondents in Denmark knew where to find precautionary information about their own protection in case of a storm flood, whilst in Belgium only 15 % did. The main sources from where people obtain information turned out to be the TV and radio; the authorities, and the fire brigade were named second. Surprisingly enough, the Internet was barely mentioned. It might develop into a future

instrument to inform people, but certainly not all of the people will be reached by Internet, especially in rural areas.

In Denmark, the information policy turned out to be the most advanced. *Stormflodberedskabet* runs a website where the people are informed about the risk of storm floods in *Ribe kommun* and where they obtain information about what to do in case of an emergency. Even a flood area map is shown at this site. This information about the website is given to households in form of a leaflet. It became very clear from the survey that the citizens of Ribe took notice of the information provided this way. In the other study areas, this kind of information is not available to the public in such an extensive way. There, people in demand for more and better information, are not satisfied with the current situation.
A gap seems to exist even in the information provided in Ribe, because 68 % of the inhabitants were not aware of living in the flood-prone area lower than 5 m NN. This may have two reasons: One is, that Ribe town is situated about 6 km behind the dike, lies slightly elevated and has not been hit by a disastrous storm flood for a very long time; the other is that people seem not able to read topographical or thematic maps appropriately. One solution to this problem may be to include the names of the streets at risk from being flooded in the maps. Information has to be very clear and simple to reach as many people as possible. Below the main conclusions from the public survey on risk perception are summarized:

- The experience of a disaster and the time passed since the event strongly influence the perception of risk.
- There is no apparent correlation between the experience of a disaster or the perception of risk and the behaviour concerning precaution against the risk of storm floods.
- Knowledge about risk does not imply awareness of consequences and own concernment.
- A large information deficit exists in Oostende/Belgium, St. Peter-Ording/Germany, Gemeente Sluis/NL and Skegness/UK concerning the risk of flooding, precautionary measures and what to do in case of an emergency.
- Especially in Belgium the interviewees are very dissatisfied with the coastal defence situation and the behaviour of the authorities, (due to an ongoing measure)
- The interviewees in Ribe and Oostende reflect some contrary positions. Whilst in Ribe people feel informed and satisfied, in Belgium people feel not informed and are not satisfied with the authorities.
- In Ribe/Denmark a good information-policy exists. A homepage and a leaflet to the households are providing the necessary information; yet there is still demand for improvement, especially because most of the people are not aware that they live in a flood-prone area.
- Maps turned out to be a limited information tool, they may be replaced by street names.
- People are partly sensitive for climate change and sea level rise but the majority is not adequately informed about this issue.

The second part of the public survey investigated the participation of the public in the planning process of coastal defence.

Participation

Participation means "the act of taking part or sharing in something" (The American Heritage Dictionary of the English Language). RENN ET AL. (1995) defined Participation as "forums of exchange that are organised for the purposes of facilitating communication between government, citizens, stakeholders and interest groups, and businesses regarding a specific decision or problem". The term *participation* obviously implies both information and active involvement.

The OECD (1994) gives this definition: 'Participatory development stands for partnership which is built upon the basis of dialogue among the various actors, during which the agenda is jointly set, and local views and indigenous knowledge are deliberately sought and respected. This implies negotiation rather than the dominance of an externally set project agenda. Thus people become actors instead of being beneficiaries.'

There is no universal public participation method(s) to support decision-making in coastal protection planning processes. Perhaps the best-known examination of public participation is the *Arnstein's ladder of citizen participation* (1969). The crucial point of the Arnstein model is the idea that as involvement increases there is a shift in power and resources to those involved in the participation. The model specified eight rungs (levels) of citizen participation that corresponded to different purposes ranging from manipulation of the public to citizen control of the decision making process.

There is a range of theories as to why participation might be important. The advantages are that the population becomes involved in the development of their own environment. In the ideal case, the policy sullenness can be reduced through the experience of democratic procedures and active involvement in the social system. This might improve the mutual trust between society and state and may encourage permanent socio-political engagement. In addition, participation can influence the quality of a planning process positively because the authorities have to face a critical public. An accurate and fair participation allows a consensus and the participants identify with the results of the planning process. According to (FÜRST ET AL., 2001) the responsibility is spread on a broad basis, which prevents people from pointing the finger in case of negative planning consequences. Another important aspect of participation is the gain in knowledge of all actors (FÜRST ET AL., 2001; HABEKOST, 1999). Besides the advantages, disadvantages ought to be mentioned. Most crucial deficits might be: technically and organisationally excessive demands as well as the fear of conflicts on the part of the administration, a lack of communicative competence and independency of planning and administration, specific needs of affected people which may not be recognised or interpreted correctly, a long period between discussion and decision that might be discouraging.

The legal framework of the future development of participation was provided with the commencement of the so-called ***Aarhus-Konvention*** on the 30th October 2001. This agreement of different European countries governs the future participation of the public in decisions and the access to information and to courts in case of environmental issues.

Manifold methodologies exist to help authorities or groups which seek participatory discussion with people. "Many have described it as a 'tool kit' of methods" (CUFF, 2001,

p.17). Many of the methods are in fact quite simple in practice and many of the techniques overlap in practice as elements from one technique are used in another. There are a vast number of participatory methods already described by TOOGOOD & CUFF, 2000; WATES 2000; FAO, 2004; ÖGUT, 2004. Certainly, some methods are more appropriate for certain situations and certain types of stakeholder than others are. Many academics and researchers have tried to prepare guidance on which methods might be most appropriate for which situations.

In this study the following information and participation tools were considered:
enquiry/survey, circular/leaflet, exhibition, press/local radio, Internet, open council, discussion, excursion/field trips, referendum, advisory board, assembly, public hearing/meeting, ombudsman, project approval procedure, future workshop, citizen jury, working group, round table, workshop, citizen panel, strategic environmental assessment round table, mediation, consensus conference, cooperative discourse, advocacy planning, charrettes, open house, collaborative task force, nominal groups, focus groups, stakeholder analysis, information centres and field offices.

"Every participatory process has to be evaluated; both the participation process itself and the impacts of that process" (CUFF, 2001, p.75). The following criteria should be considered:
(VATTER, 1998; ROWE & FREWER, 2000):

1. Fairness,
2. Transparency of the process to the public,
3. Opportunity to learn,
4. Early and iterative involvement,
5. Direct and understandable information,
6. Open discussion of conflicts,
7. Structured and shared decision (planning, procedure, outcomes),
8. Representativeness of participants,
9. Motivation of participants,
10. Independence of true participants,
11. Competence of participants,
12. Equalisation of different interests,
13. Influence on final policy,
14. Institutional integration,
15. Cost effectiveness

Results of the survey on participation

The public survey of SP3 revealed that 92 % of all respondents had never been involved in a participation procedure, although at least one procedure had taken place in each of the study areas. Obviously, the authorities failed to disperse the information widely enough because the interviewees stated that no participation procedure had taken place.
On the other hand, a considerable portion of the people pointed out, that they wanted to take part in a participation process. It seems surprising, however, that more than half of the respondents seem not interested in giving their opinion to the planning process although they are affected by this subject, living in a flood prone area. The results indicate that 41 % are interested in giving their opinion to the planning process, 35 % are interested in being actively involved, 15 % confirm their statement with their will to attend an information evening or actually work regularly as a volunteer, even though this is a time-consuming

activity. 15 % is a percentage to be improved, which shows that there is a considerable demand for informing the public better and for taking participation procedures further. 48 persons said they would go to an information evening. Only very few people would work as a volunteer or sacrifice a workday. In St. Peter-Ording however 18 of 85 people are interested in working regularly as a volunteer

In total 61 % of the respondents do not know how to express their opinion, which may be due to lack of information. Often, people are interested in being involved in the planning process but do not know how to do this. An improved information policy by the authorities may lead to more engagement from the public. This deficit of public participation leads to frustration and resignation amongst the respondents in the study areas. In some areas people say, that they don't have any impact on the decision-making.

In summary, the main conclusions from the public survey on participation were:

- 92 % of the interviewees have not been in contact with participation procedures.
- 1/3 of the respondents are interested in being involved in the planning process.
- Those persons who participated, would do it again.
- A communication problem exists. The information about participation procedures does not reach the public to the desired extent.
- People feel that they are not informed sufficiently.
- Many people are annoyed stating that the authorities do not involve them or listen to their opinions.
- There is a demand to further develop and extend participation procedures in order to promote awareness.
- Information events are most wanted by the interviewees. Time-consuming activities turned out not to be well-accepted, but still wanted by a minority.

Following the public survey, expert-interviews were carried out. A questionnaire addressing the issue of public participation was sent by e-mail to experts in the five COMRISK countries. The aim of the expert-interviews was to gain information about participation procedures in the partner-regions, their successes and shortcomings, and about the perception of the experts regarding different participation procedures.

In total 121 questionnaires were sent off. Compared to the household survey the average return rate of the expert-interview was high (35 % versus 21 %), but answers were rather inhomogeneous.

In the questionnaires, both information and participation tools were to be assessed. Both were given high importance for coastal defence. The local press and the project approval procedure were the tools mentioned most as being best suited to become participation instruments. However, others such as enquiries, public hearings, working groups or workshops were also named fairly often. Hence, there was not one single instrument recommended as the most appropriate in the context of coastal defence. Most experts said that the choice of the instrument has to be adapted to the circumstances and that a mix of instruments might be applied instead of only one instrument

The valuation of the participation procedures, which had taken place in the regions, showed that both participation and information are almost consistently successful if implemented

properly. With regard to the question about the most appropriate instrument to increase the acceptance, a *workshop* was assessed as most suitable to increase the acceptance because all stakeholders can be involved. Requirements for such a measure are a well-managed process, an independent chairperson, and sufficient information at the onset of the process. The *Internet* was only evaluated as suitable as an additional, informational tool.

More innovative instruments such as *future workshop* or *citizen jury* were valued comparatively low. The experts prefer more conventional procedures, although the other methods have not been used in practice at all.

The vast majority of experts are convinced that participation does increase the acceptance of the planned measure.

The comments about possible measures for improvement were quite manifold. Good preparation of the process was mentioned as very important. Furthermore, giving prior information about the process was considered as necessary as well as about the advantages of participation and how people might be affected. Obviously, 61 % of the public do not know how to represent their opinion, not to mention how and where to participate. Hence, the basic information where the people can get involved and express their views is obviously one central aspect. This in turn might be the reason why people do not participate. Another statement from one of the experts concerned the necessity to take the public serious since private persons complain, that their opinion is not heard. Only a minority of the experts think project approval procedures alone are sufficient to get the public involved.

The experts also mentioned, that information events are often enough and could also result in better acceptance. This statement is supported by the result of the household survey. Referring to what the citizens would do to express their opinion, information events were often named. For a great part of the population and especially for those who are not interested in becoming actively involved, information might be the appropriate alternative.

Around 80 % of the experts stated that participation could cause trouble for the involved administration. Apart from the effort, the extra costs, and the time that a participation procedure requires, both the authorities and the public were criticised for various reasons, mostly for communication problems.

Communication and information as well as good preparation were the main suggestions to solve the problems. External supervision, an increased budget, and, primarily, the individual adaptation are other means which can help to improve participation.

Only very few experts knew about evacuation plans or where they might be available. Even if this information is more relevant to the citizens, the answers lead us to assume that the population knows even less about it than the experts.

Compared to the implemented participation procedures many more information tools have apparently been used in the study areas. However, only 40 % of the experts were able to name information instruments. As expected, the press was mentioned most frequently. This is attributed to the good coverage of the local press and to the fact that it needs the least effort. Nevertheless, other instruments such as exhibitions, excursions or the Internet are of importance as well. The importance of the school as a long-term i.e. sustainable information tool is recognized amongst the experts. In most study areas coastal flooding & flood risk has obviously been the topic at school various times.

Thus not one ideal instrument can be recommended. Each problem needs its own solution and individual adaptation and preparation of the process.

The question of whether more information leads to feeling more safely or not was not clearly answered. Although the majority expresses the opinion that information improves the

feeling of safety, quite a lot of experts were unsure about this. On the other hand, it might be more important that the population is well prepared for the case of an emergency and that it has adequate information what to do then.

In summary, the main conclusions from the expert-interviews on participation were:

- Information is as necessary and important as participation.
- Participation in and information about coastal defence is still not very common.
- Implemented tools were all more or less successful or very successful.
- There is no ideal information and participation tool.
- Each process needs to be individually adapted.
- The Internet is suitable as an additional information tool, but not for participation.
- Participation does increase acceptance.
- Participation causes effort with administration.
- Coastal defence should not be separated from disaster management and prevention.
- Controversial opinions about formal participation.
- Communication is the often the key problem.
- Lack of information in various fields.
- Process needs to be excellent prepared.
- External/independent chairperson/supervision

Conclusions and recommendations

The results of the investigation were applied to check the hypothesis stated at the beginning of the project.

- **Intensive perception causes an increase in willingness to participate**

Only a slight tendency is observed that perception influences the willingness to participate. As expected, the people who estimated the flood risk as low or very low had no interest in giving their opinion or participating. However, among those people who assessed the flood risk to be high or very high were also quite a few persons who were not interested in participation. Knowledge and information about the personal well-being turned out to be essential in increasing the willingness to participate. Information about the participation process is also mandatory to get the public involved.

- **Risk awareness and personal experience influences the degree of preparedness**

No obvious correlation was found between personal experience of the flood risk and the preparedness. Because only 7 % of the respondents took protective measures at all, the total number is consequently fairly low and, hence, the statistical significance is limited.

- **Participation increases the acceptance of planned measures**

According to the literature, participation is said to increase the acceptance. Nevertheless, in the study at hand, the statistical analysis revealed no significant results, even if a weak correlation between participation and the acceptance seems to exist. Participation may even lead to less acceptance as the participants feel that their arguments have not been considered.

- **Active participation has barely been part of coastal defence planning procedures**

This hypothesis was corroborated, because 92 % of the interviewed citizens stated that they had not been in contact with participation procedures.
The expert-interviews revealed that at least one participation procedure had taken place in the respective study areas. These events were often formal or somewhat reactive procedures such as planning approval procedures. However, 92 % of the interviewed citizens said they had not been in contact with participation procedures. Hence, it may be concluded that the public either is not interested, does not know that these procedures exist, does not recognize them as participation events or they were not well informed about it.
The positive aspect on the other hand is that conducted participation events were mostly evaluated as successful or even very successful. In addition, the public participants stated they are still interested.

- **There are international differences concerning perception and participation**

Concerning the comparison of the perception of flood risk, the results were fairly consistent. Even the results of the public survey concerning participation were very homogenous. The number of citizens who had already taken part in participation procedures was consistently low. In total only 8 % had been involved. Except for Denmark (15 %), the study regions did not show significant differences. The interviews in the Danish study area reveal a partly better information policy than in the other countries. This was reflected by the higher acceptance of the local / regional coastal defence. Furthermore, comparatively many people in DK feel well-informed about flood risk and feel prepared for an emergency situation. Despite this obvious success of the good information policy, the results also show some significant weaknesses concerning the general preparation of the information. A strong demand for simple and understandable information applies to every country.

- **There is no ideal participation procedure for coastal defence planning**

The expert evaluation of the different participation instruments produced no clear results. Even if the survey shows a preference for more conventional and simple procedures such as workshops, round tables or working groups, the other tools obviously also have some strengths.
In addition to the described instruments, the experts named numerous other possibilities of participation. This variety pointed out that participation strongly depends on the specific objectives of each project. Hence, it is advisable to tailor each tool to the individual problem, project goal and regional conditions and distinctions. In some cases, it might be suitable to combine or mix different tool or techniques.

- **The population doesn't feel adequately informed**

This hypothesis was corroborated by the public survey. It turned out that a significant information deficit exists in three main categories. A great number of people are not aware of the risk. Furthermore, the majority of them does not know how they can protect themselves or their property against flooding and where they can get information concerning this issue. Finally, a total of 59 % of the respondents said that they do not know what to do in case of a flooding event.
Moreover, the survey showed that people who seemed to know more often had wrong or insufficient information. Hence, the proportion of appropriately informed people is in fact lower than the quoted rate.

- **The authorities and the public are very interested in participation**

At first glance and as already described, public interest in participation seems to be not very high. The interest of advancing an opinion was still comparatively high (41 %), but when it comes to active involvement the rate decreases significantly. There is no doubt that this can be improved by informing the people about their personal well-being and the participation process itself, but it also depends on the authorities' expectation and objectives. How many people do we want to get involved and what number can we handle? Assuming a rate of 10 % of the entire population of a municipality, this would amount to a large group of participants. Yet it is doubtful whether all of the people who expressed their willingness would actually participate. Thus, it is difficult to assess if these findings are significant. Obviously a proportion of the public is interested in this particular topic and, by means of more and better information, this rate is to be increased significantly. The survey also revealed that a regular and sufficient information policy is not only desirable but in many cases may also sufficient. One expert described it clearly: Participation is necessary but it is more important that the people get prepared for the case of an emergency. Therefore, better information is essential at any rate.

85 % of the experts believe that participation increases the acceptance of planned measures. On this account, the authorities should have a positive attitude and interest in participation.

The study leads to the following recommendations:

Recommendations on public information

Recommendation one:	Awareness concerning flood risk and its consequences has to be improved.
Recommendation two:	Information has to be neutral, objective, simple, targeted, comprehensive and understandable.
Recommendation three:	The public should obtain more background information about coastal defence.
Recommendation four:	The public should obtain more information about flood precautionary measures.
Recommendation five:	The public should obtain more information about what to do in case of a coastal flooding.
Recommendation six:	Local press should be involved in information dissemination.
Recommendation seven:	Different information tools should be combined.
Recommendation eight:	Information centres and open houses turned out to be innovative and successful information tools, which might be expandable possibilities to inform the public.
Recommendation nine:	On a long-term perspective the Internet should become a increasingly important information tool.
Recommendation ten:	Make flood risk and coastal defence out as a central theme at school.
Recommendation eleven:	Information is a prerequisite for participation.
Recommendation twelve:	Coastal defence and disaster management should not be treated separately.

Recommendations on participation

Recommendation thirteen:	Provide more participation procedures.
Recommendation fourteen:	The department/agency attitude concerning the implementation of participation procedures should be positive and responsive.
Recommendation fifteen:	Extra time and money for participation processes within projects should be allowed.
Recommendation sixteen to twenty refer to information within participation:	
Recommendation sixteen:	Background information about the personal well-being should be provided.
Recommendation seventeen:	Background information about the problem, the project, and the objectives of the procedures should be provided.
Recommendation eighteen:	Thoughtfully prepared and coordinated materials should convey the appropriate level and kind of information.
Recommendation nineteen:	The press should be involved and good media relations established.
Recommendation twenty:	Results and outcomes should be properly disseminated.
Recommendation twenty-one:	More detailed information should be given about already existing procedures.
Recommendation twenty-two:	The exact level of participation should be defined in the early phase of the project.
Recommendation twenty-three:	Affected people should be involved as early as possible.
Recommendation twenty-four:	Participation technique should be individually adapted to the specific problem, subject and local conditions.
Recommendation twenty-five:	Less complex procedures should be implemented.
Recommendation twenty-six:	The selection of participants should be accurate.
Recommendation twenty-seven:	The publics' input should be valued and translated into real decision.
Recommendation twenty-eight:	Good communication in all phases of the procedure should be mandatory.
Recommendation twenty-nine:	Keep the participation process flexible to possible changes during its course.
Recommendation thirty:	Use independent chairpersons.
Recommendation thirty-one:	Train authorities in active participation.
Recommendation thirty-two:	The process and the results should be documented and evaluated.

Different developments in recent years such as the increase of weather extremes have caused an enhanced engagement with natural hazards and the associated risk management. Risk management in turn implies the consideration of different interests and individual perspectives. The importance of risk perception and participation has increased constantly.
Agenda 21, Aarhus convention, but also ICZM (Integrated Coastal Zone Management) are just a few examples that prove the important role of public participation and perception in today's society. Responding to recent events and anticipating the predicted climatic changes, the coastal defence authorities also are changing their planning policy. In the framework of a coastal defence management scheme they are encouraging an integrated approach and hence also public involvement.
The results of this study have shown significant deficits in the range of information: these deficits should be eliminated or minimized. An improved information policy and, consequently, a population which is better-informed about flood risks and coastal defence objectives is crucial to get people more involved in the coastal planning process. Sufficient, adequate and, targeted information is seen as the basis and a prerequisite for more public involvement. This ought to be an important step on the way to an efficient coastal management scheme.

PART 1 Introduction

Natural hazards and their partly disastrous impacts have increased in recent years. Managing the resulting risks has become a growing challenge. Along the North Sea coast vast low-lying areas are threatened by recurring storm flood events and are hence at risk of being flooded. During the severe storm flood disaster in 1953, more than 2,000 people lost their lives in the Netherlands, Belgium, and the United Kingdom. Even the "Hamburg-Flood" in 1962 caused a death toll of 340. Especially with regard to climatic change and an accelerating rise in sea-levels, risk management of natural hazards will become more and more important. A high risk potential already exists today but much more in the upcoming decades.
In the North Sea Region, approximately 16 million people live in flood-prone areas protected by coastal defences. Important economic centres like the harbours of Rotterdam or Hamburg as well as many tourist facilities are situated in this region. To maintain present safety standards, despite increasing natural and socio-economic pressures, long-term investments are mandatory. Social and scientific conditions in the areas at risk have to be determined when establishing an effective management process. Hence the perception of risk of storm floods as well as the participation of the public in the planning process also needs to be considered.

1.1 The COMRISK project

The transnational project COMRISK (Common Strategies to Reduce the Risk of Storm Floods in Coastal Lowlands) is carried out by national and regional coastal defence authorities in the North Sea Region. The aim of this project is improved risk management for coastal flood-prone areas by means of a transfer and evaluation of knowledge and methods as well as pilot studies.
The project runs from 2002 to 2005 and is co-financed by the Community Initiative Programme INTERREG III B North Sea Region of the European Union.

COMRISK is divided into an umbrella project and nine subprojects. The project is led by the Schleswig-Holstein State Ministry of the Interior (IM), which co-ordinates the sub-projects. Each subproject is led by a project partner.

Evaluation Studies:

SP1: Policies and Strategies. National Institute of Coastal and Marine Management (RIKZ), Netherlands.
SP2: Risk Assessment for Strategic Planning. Environment Agency, United Kingdom.
SP3: Perception and Participation. Schleswig-Holstein State Ministry of the Interior, Germany.
SP4: Performance of Flood Risk Management Measures. Environment Agency, UK.
SP5: Hydraulic Boundary Conditions. Road and Hydraulic Engineering Division (DWW), Netherlands.

Pilot Studies:

SP6: **Flanders**. Ministry of the Flemish Community, Waterways and Maritime Affairs Administration, Coastal Waterways Division, Belgium.
SP7: **Ribe**. Danish Coastal Authority, Denmark.
SP8: **Lincolnshire**. Environment Agency, United Kingdom.
SP9: **Langeoog**. Lower-Saxony Water Management and Coastal Defence Agency (NLWK), Germany.

1.2 Subproject 3 – Public perception of coastal flood defence and participation in coastal flood defence planning

The storm flood disasters in 1953 and 1962 as well as the flooding at the Oder in 1997 and Elbe 2002 showed the dramatic consequences for the people in the areas at risk and revealed the increasing demand for an effective risk management. Deficits in coordination and communication occurred during the disasters. The perception of risk and the knowledge about what to do in case of an emergency are very important issues of an effective management and mitigation strategies.

Against this background the project at hand was initiated to investigate the public perception and participation in the North Sea countries participating in COMRISK.

The subproject 3 ran from 01.05.2003 until 30.09.2004 and was led and financed by the Schleswig-Holstein State Ministry of the Interior. It was carried out by the Department of Coastal Geography of the University of Kiel (Prof. Dr. Horst Sterr, Gunilla Kaiser, Dr. Stefan Reese, Dr. Hans-Jörg Markau and partly by Daniel Witzki), associated partners were the Research and Technology Centre West Coast, Büsum (Dr. Andreas Kannen) and the Disaster Research Unit of the University of Kiel (Dr. Wolf Dombrowsky).

1.2.1 Objectives of the subproject

This study focuses on public perception and participation in coastal flood defence in the countries participating in the COMRISK project: Belgium, Denmark, Germany, the Netherlands and the United Kingdom.

The awareness of the risk of coastal flooding and the perception of coastal defence in the population strongly influences policies and strategies. It is assumed that people who are aware of the risk of flooding will probably accept this and could help to reduce it. Further, an alert and aware coastal population might react faster and better organised in an emergency situation. Awareness decreases with time passed by since the last event. In order to maintain an adequate level of public awareness, it is necessary to further inform the people and to develop respective instruments, e.g. information tools and flood warning systems. One way to achieve awareness is public participation of the people in the planning process. Active involvement in planning procedures could lead to shared responsibilities and higher acceptance of measures.

On this basis at the beginning of the project some working hypothesis were expressed:

Working Hypothesis:

- Intensive perception causes an increase in willingness to participate.
- Risk awareness and personal experience influences the degree of preparedness.
- Participation increases the acceptance of planned measures.
- Active participation has barely been part of coastal defence planning procedures.
- There are international differences concerning perception and participation.
- There are no ideal participation procedures for coastal defence planning.
- The population does not feel adequately informed.
- The authorities and the public are very interested in participation.

In order to verify these hypothesis, the main objectives of the subproject 3 are:

1. Analysis of the present state of public perception and participation in the partner regions
2. Investigation and evaluation of methods to improve public perception of and participation in coastal flood defence
3. Recommendations for methods to improve public perception of the risks of coastal flooding as well as public participation in coastal flood defence.

To meet these objectives the project was carried out in three stages:

In stage 1 an overview of the perception of coastal flood risk and coastal flood defence was given. The state of information and the demand for information was investigated. To what degree people participate in coastal flood defence planning and how they are satisfied with participation possibilities were also analysed. This was done by carrying out a household survey in selected areas of investigation as well studies of the literature. The methodology and the questionnaire were presented and discussed on a workshop on "Perception and Participation" carried out by the Schleswig-Holstein State Ministry of the Interior and the SP3 COMRISK team as a start-up event for SP3.

In stage 2, procedures and tools of participation and their effectiveness were investigated and evaluated through literature and expert-interviews in the partner regions. Furthermore methods to improve public perception and participation were investigated and evaluated.

In stage 3, recommendations for methods to improve the perception of flood risk as well as public participation were given.

1.2.2 Project restrictions

The project started one month later than planned in the time schedule and therefore ran for 17 instead of 18 months.

In the planning phase of the survey some problems and delays occurred.
Due to summer-holiday time in July our project partners in Holland had some problems to reach all the authorities which had to be informed about the survey. In England we did not get the necessary response and had problems contacting our project partners, who were to agree to the questionnaire and approve our choice of the area of investigation in the UK. For this reason, we postponed the survey from September to October and even to November in the UK, which caused time problems for the schedule of the whole project.

Our criteria for the choice of similar investigation areas in the five partner regions could not be fulfilled in all of the partner regions since the expectations of our project partners had to be respected. The major criteria "flood-prone location at the North Sea coast" and a "strong tourist influence" were accomplished in all of the regions. Concerning the number of inhabitants/size of the town/community the city Oostende was accepted in spite of being bigger. The reason for this was the strong interest of our Belgian COMRISK partners in the actual coastal protection plans going on there. Our approach to use areas where participation procedures have taken place in the recent years was difficult to fulfil and had to be subordinated to the other criteria as stated above and the individual interests of the partners.
The same problem occurred concerning the questionnaire. The discussion of the questionnaire at the workshop and with several other experts resulted in making compromises to respect the wishes of the project partners. Afterwards, it turned out that some aspects which are important for a scientific empirical evaluation were not taken into account (e.g. asking for occupation or income of the interviewees) because it was distinguished that these aspects were not important on the field of coastal defence. To reach the target of obtaining as many answers as possible from all countries, some deficits had to be taken into account to keep the questionnaire as short and simple as possible.
The expert-interviews did not produce the same amount of answers in every country. In some countries, the rate of return was quite low. The selection of experts was partly done by ourselves, partly with the help of the COMIRSK contact persons in every country. But nevertheless although low in quantity, the answers were useful and thus a sufficient evaluation could be undertaken.

PART 2 Risk Concept and Definitions

Especially the discussion about the civil use of nuclear energy illustrated the limits of the classic concept of risk in the past. Risk factors are increasingly unknown components. Hence, beyond the uncertainties of classic risk assessments the subjective scope is rising. In addition the objective statistical risk is less relevant for the options and restrictions of public behaviour than the individual risk evaluation of the society. According to this, the quantitative-analytical approach of risk assessment on its own is not sufficient to make political decisions. In fact, the social consideration and, consequently, acceptance must be integrated into the management process, because the perception of risk is the basis for dealing with the storm surge risk. The perception is also relevant for the acceptance of coastal defence and the achievement of an increased participation of the population in planning procedures.
Within the objective to conceive and evaluate the risk perception and existing participation procedures it is necessary to explain some terms and illustrate the cohesions of risk and perception within the context of risk and natural hazard research.

2.1 Risk Concept – A first approach towards an integrated risk management

The term risk is often used synonymously with hazard, whereas risk additionally implies the probability of the occurrence. Hazard is a natural or human-induced process or event with the potential to cause harm. The distinction is illustrated by OKRENT (1980; in SMITH, 2001, p. 6): "Two people crossing an ocean, one in a liner and the other in a rowing boat. The main hazard (deep water and large waves) is the same in both cases but the risk (probability of capsize and drowning) is very much greater for the person in the rowing boat." Consequently one is exposed to hazards but one takes the risk via one's own decisions (REESE-SCHÄFER, 1996, p. 84; cp. KAPLAN & GARRICK, 1997, p. 93). Thus, risk encloses the uncertainty and describes the dimension of possible damages and losses caused by a natural event in a specific area. Risk is defined by the majority of natural scientist as the mathematic product of the amount of losses and occurrence probability (cp. HOLLENSTEIN, 1997; KOLLERT, 1997; PLATE, 2000; THE H. JOHN HEINZ III CENTER FOR SCIENCE, ECONOMICS AND THE ENVIRONMENT, 2000; GTZ, 2001; PLATE & MERZ, 2001; SMITH, 2001; VON LIEBERMANN & MAI, 2001).

While there is a consensus within natural science about the possibility to quantify risk, the term varies extremely in the everyday language use and depends on individual perspectives and decisions. Every risk observer gets his own idea of risk according to the personal perception, imagination and learning process. From the social-science point of view, risk is basically a construct (RENN, 1989). Thus, qualitative risk criteria have to be considered for risk evaluation. Within the framework of the perception this will be explained in more detailed.

Research on risk eventually aims at avoiding or reducing risks and losses, as does the coastal defence. The understanding and the knowledge of risk provides basic

information for decision making, enables some future prognoses, allows the selection of appropriate alternatives or strategies and is an essential part of the perception and everyday action.

The investigation of risk from natural hazards can be classified into the three segments, risk analysis, risk evaluation and risk management (cp. figure 1).
The natural-science orientated risk analysis addresses the issue "what can happen". Thereby, the hazard analysis evaluates the threat of a specific event usually in terms of a statistic frequency. The objective of the vulnerability assessment is to calculate the potential damages and costs of a disastrous storm flood on the basis of the determined overall damage potential (monetary and non-monetary assets). The specific risk is finally computed via the risk assessment by multiplying vulnerability (damages) and hazard (flood occurrence probability/frequency). Specific risk must be carried out for individual coastal segments according to the given standards of flood defence.
Sociological risk evaluation investigates the public risk perception and the subsequent evaluation of existing risks, which is normally different, depending on the stakeholders' interests, experience and awareness. Basically, risk evaluation analyses the question "what may happen or what do we accept". The results of the risk analysis and evaluation provide the basis for local- and object-orientated risk management.

These segments have been part of risk and natural hazard research for a long time. But just a few studies are based on an integrated approach i.e. combining all three segments as a necessary framework for a comprehensive and sustainable risk examination (cp. HOLLENSTEIN, 1997; WBGU, 1999; PLATE, 2000; ISDR, 2002). But SMITH (2001, p. 72) revealed that "it is clear that risk assessment and risk perception have to be combined in the attempts made by governments and others to reduce hazards …".

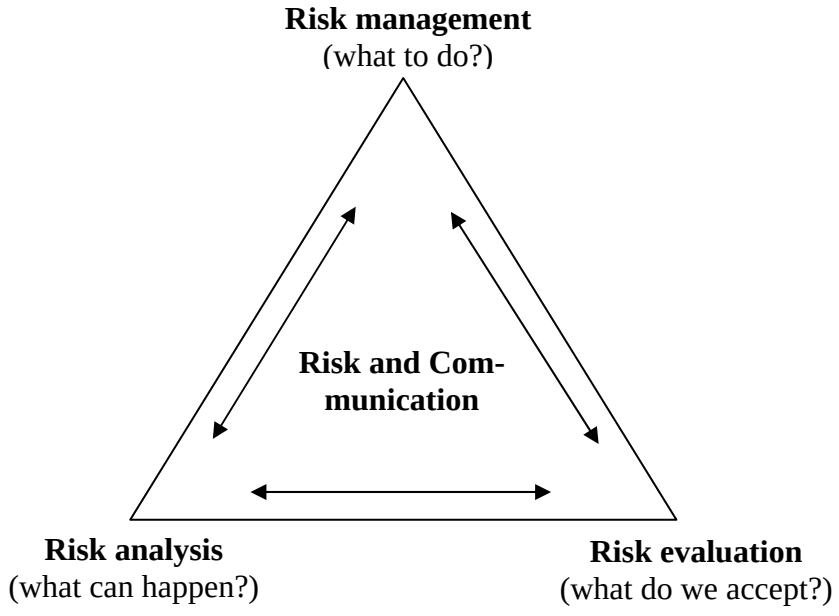


Figure 1: Risk examination

2.2 Definitions

The following terms are often used inconsistently in the literature. They have completely different meanings in other fields but even within risk research there are some variations. Thus, some terms which are of importance for this study must be defined prior to further explanations. The definitions are mainly own schemes but in some cases they are aligned with the current scientific natural hazard literature (cp. DHA, 1992; HOLLENSTEIN, 1997; PLATE, 1999; PLAPP, 2001; PLATE & MERZ, 2001; SMITH, 2001; ISDR, 2002; REESE ET AL., 2003).

(Non) Accepted Risk:
A (not) accepted (subjective) risk is an empirically calculated description of a personal or collectively evaluated risk. A non-accepted risk is the result of a risk aversion, while an accepted results from a risk acceptance.

(Non) Acceptable Risk:
In contrast to the accepted risk, the (non) acceptable risk is a normative term, which describes basic ethical criteria for acceptability of risk.

Damages:
In order to separate it from loss expectancy, damages are defined as the real incurred consequences of an impact on the elements at risk from a specific extreme event in a specific area. The degree of loss can be expressed either as an absolute value (e.g. monetary value) or as a relative value on a scale between 0 (no damage) and 1 (total loss = 100 %).

Damage Analysis:
Damage analysis is the systematic, comprehensible and formal procedure to determine the real damages of the elements at risk caused by a specific event in a specific area. A damage analysis provides empirical information for the prognostic vulnerability analysis.

Damage Estimation:
Damage estimation is also a systematic, comprehensible and formal procedure and the subprocess of the vulnerability analysis. On the basis of the damage potential and under consideration of the general conditions of specific events, conditions, processes or actions the damage expectancy of the elements at risk in a specific area is quantitatively or qualitatively evaluated.

Damage Potential:
Damage potential is the quantitative or qualitative value of all elements at risk, which can suffer damages from a specific event in an area at risk.

Damage Potential Analysis:
Damage potential analysis or valuation analysis is a sub-process of the vulnerability analysis and the systematic, comprehensible and formal procedure to evaluate the damage potential respectively the (monetary) value of the elements at risk quantitatively or qualitatively which are potentially threatened by a specific event in a specific area.

Hazard:
Natural or man-made induced singular, sequential and combined events, conditions, processes or actions which can potentially cause damage or loss to the environment respectively the people and their property. If the threat comes from a natural source, it is called a natural hazard. Exposure is thereby the threat of a specific event, defined as the combination of hazard (intensity) and frequency (occurrence probability) of the phenomenon.

Hazard Analysis:
The hazard analysis is the methodical, comprehensible and formal procedure to evaluate the threat of specific events, conditions, processes or actions in a specific area. It is displayed as the combination of hazard (intensity) and frequency (probability) of a specific threat.

Participation
Participatory development stands for partnership which is built upon the basis of dialogue among the various actors, during which the agenda is jointly set, and local views and indigenous knowledge are deliberately sought and respected. This implies negotiation rather than the dominance of an externally set project agenda. Thus people become actors instead of being beneficiaries" OECD (1994).

Probability:
The objective definition of probability (of an event) describes the number of cases, in which the event occurs, divided by the total number of events. Subjectively speaking it is the probability of the expectation degree or the confidence in a statement that an uncertain event will occur (KORTENHAUS & OUMERACI, 2002).

Residual Risk:
The risk remaining after reduction measures and decisions made to accept or decline the risk. The use of this term is discussed very controversially, because it is not clear if the residual risk has an empirical dimension or is a normative value (HOLLENSTEIN, 1997). In the following, the terms accepted respectively acceptable risks were used.

Risk:
Risk is the combination of vulnerability of the elements of risk in a specific area and the exposure by a specific event (intensity and occurrence probability). The term risk is often used as a basis for decisions in case of uncertainty.
Risk has to be further distinguished:

Risk Acceptance:
Risk acceptance is the personal or team willingness to tolerate the subjective, accepted risk of a condition or process (HOLLENSTEIN, 1997, S.20). Acceptance is defined by the consideration of a potential damage and possible benefit from a risk (risk evaluation) (JUNGERMANN & SLOVIC, 1997, S.195).

Risk Analysis:
Risk analysis is the systematic, comprehensible and formal procedure to evaluate a numerical or qualitative value for the risk regarding the probability of occurrence and the dimension of the consequences in a defined system. Thereby the causes and consequences of a specific exposure are considered.

Risk Assessment:
Risk assessment is a sub-process of the risk analysis. It is the systematic, comprehensible and formal method to link and quantify the possible consequences of an event (vulnerability) with the likelihood of the occurrence of a triggering event (exposure). The result of the risk assessment is the specific risk.

Risk Evaluation:
Risk evaluation is the individual or collective judgement of risk under the aspect of receiving information and the influence of personal, social and cultural parameters. The decision process is classified into two phases. During the perception phase risks are identified, analysed and verbalised. The judgement (evaluation) phase is characterised by the creation and valuation of alternatives and the decision of practices. The result of the risk evaluation is a numerical or qualitative risk level of the (non) accepted risk.

Risk Examination:
Risk examination is defined as the illustration and discussion of possibilities, experiences and explanations of methodical bases for analysis, evaluation and management of risks from natural hazards. In many cases the term risk management is used for the complete examination of risk, but in this concept risk management is only one segment of an integrated concept. Hence the neutral term risk examination appears to be more suitable.

Risk Management:
Risk management is defined as the use of methods for the designing, development and control of systems to prevent, reduce or spread risks. It comprises the articulation of goals and the construction of strategies which lead to a decision about the demand of practices and the implementation of concrete measures and the installation of a monitoring. Within natural hazard research, the term risk management is often equated with disaster management. In this connection, both prevention and recovery measures are developed for a specific exposure in a specific area. In many cases, the overall context of risk analysis, evaluation and management is called integrated "risk management". In this study the value-free and purposely open term "risk examination" is used.

Risk Perception:
Risk perception is the sensual or rational, individual or collective perception process and the connected identification, analysis and verbalisation of risk. Influencing factors are the input and processing capacity of the percipient person as well as the situational, social and cultural framework. The perceived risk is the basis for the evaluation or judgement of the risk, whereas there is no exact separation of the perception and judgment processes.

Specific Risk:
Specific risk is the calculated probability of a damage by a specific event in a specific area and is computed by means of a risk assessment. The term can be also expressed as the product of exposure and vulnerability. If the specific risk is an objective factor, it is sceptical, since every risk analysis implies subjective assessments and valuations.

Vulnerability:
Vulnerability is the expected loss to the elements at risk in a specific area, as a possible consequence in the specific hazard situation. The degree of the damage expectancy can be expressed either as an absolute value (e.g. monetary value), as a relative value on a scale between 0 (no damage) and 1 (total loss = 100 %) or descriptive in terms of vulnerability classes.

Vulnerability analysis:
Vulnerability analysis is defined as the systematic, comprehensible and formal procedure to estimate the possible damages to the elements at risk in a specific area threatened by specific events, conditions, processes or actions.

PART 3 Study Areas

For the questionnaire-based survey one investigation area in each of the five countries participating in COMRISK was selected.
At the beginning of the project the following main criteria for the selection of the investigation areas were formulated:

- flood-prone area
- area with seaside tourism (beaches, resort)
- area with urban as well as rural characteristics
- approximately 10,000 – 30,000 inhabitants
- participation progress in recent years

It was decided to conduct the selection of the investigation areas in coordination with the project partners to make sure that individual interests and the expectations of the partners had to be taken into consideration. Hence, they were asked to make suggestions concerning possible study areas based on the given criteria. As a result of this discussion, the following areas were chosen (cp. Figure 2):
Belgium: Oostende
Denmark: Ribe
Germany: St. Peter-Ording
The Netherlands: Gemeente Sluis (Breskens, Cadzand, Cadzand-Bad)
United Kingdom: Skegness

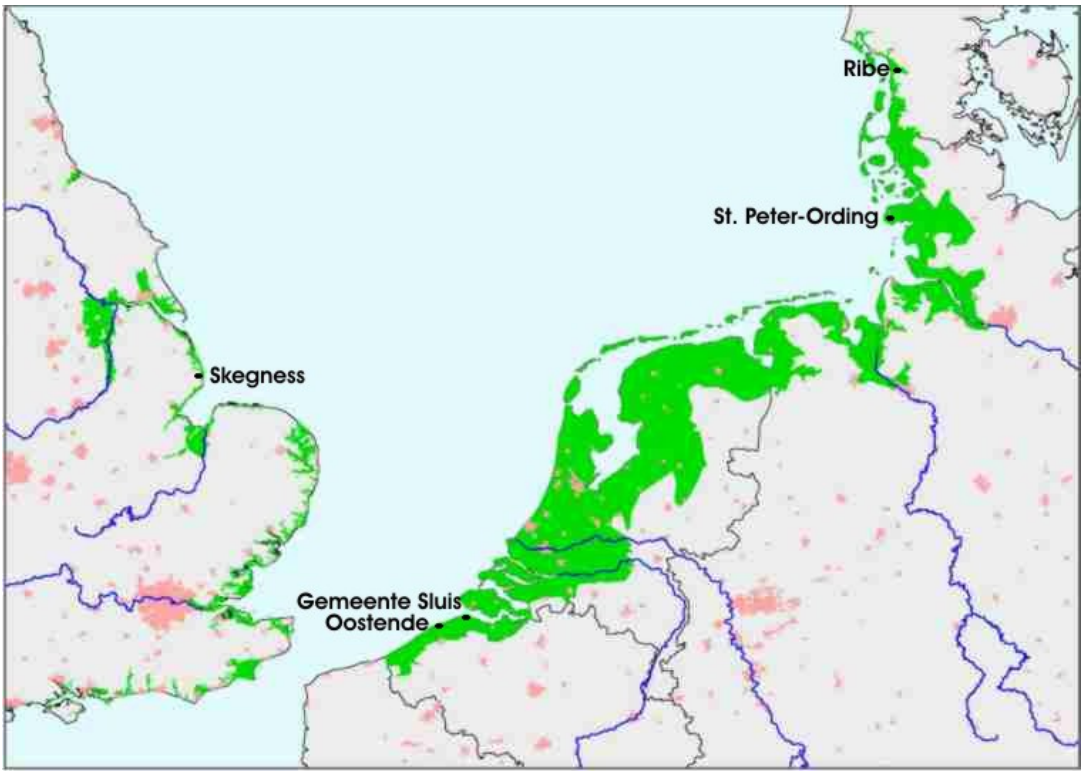


Figure 2: Areas of Investigation

Political interests, actual coastal defence planning and other regional conditions, influenced the selection of the study areas so that not all criteria were fulfilled and the areas differed in some aspects. All areas are situated directly at the coast, are flood-prone areas, and have a tourist character. Oostende is much bigger than the other areas. This was accepted because of the strong interest of the Belgian COMRISK partners in the ongoing, current coastal protection planning.

3.1 Belgium – Municipality of Oostende

3.1.1 Geography

The Federal Kingdom of Belgium is divided into three regions, only one of which, West-Flanders (Vlaanderen) is coastal.
The Belgian, respective Flemish, coastline is 65 km long. The flood-prone area covers approximately 3 % of Belgium's surface (MINVENW, 2001, p.8).
The Belgian coast is a sedimentary plain, which consists of sandy banks in the shallow sea, sandy beaches and dunes. Behind the dunes, the low-lying polders dominate the landscape.
The morphology of the Belgian North Sea coast is characterised by large sand banks alternating with shoals and tidal flats. The high dunes in the north and the south of Oostende are at least 60 m wide. Along important parts of the Flemish coastline erosion is a problem for the coastal protection management and for tourism (RIKZ, 2003).

The natural coastal ecosystem is used for many human activities. It is a densely populated living space – in some areas the density reaches 485 persons per km². The functions include coastal defence, nature conservation, ports and shipping, industry, fishery, agriculture, trade, tourism and recreation (www .vliz.be).
For a long time the seacoast has been dominated by tourism and recreation. Due to the small length of the seacoast and heavy population pressures most of the seacoast have become urbanised and half of the coastal dunes have disappeared (cp. Figure 3). This is why Vlaanderen adopted a Duinendecreet (Dunes Act, protecting the remaining dunes) in 1995 as well as an Ecosysteemvisie (ecosystem management strategy) for the dunes.

Figure 3: Promenade at Oostende (photo: Kaiser)

The city Oostende is located at the North Sea in the region Flanders. With 67,000 residents, it is the largest population centre on the Belgian coast. Oostende and its surrounding is charac-

terised by tourism. Another important function is the town's infrastructure as a transportation hub (www.trabel.com).

3.1.2 Hydrology and coastal defence

The Flemish coast has been affected by storm floods in the past. During the severe storm flood disaster of 1953, eight people died in Belgium.
The highest waterlevels in Oostende since 1953 have been:

01.02.1953, water level: 666 (TAW)
03.01.1976, water level: 590 (TAW)
15.11.1993, water level: 596 (TAW)

In Belgium (Flanders) there is currently no statutory level of coastal defence. For coastal protection measures in the recent past, e.g. beach nourishment in Oostende, safety levels for a 1,000-yearperiod were used as well as a 1:1,000-years breakthrough probability of the dunes. Almost all the creation can be attributed to human intervention such as beach nourishment and the construction of groynes (www.coastalguide.org).

In Oostende, which has 9 km of sandy beach (cp. Figure 4), a better coastal protection is needed and planned but being discussed controversially. The current sea-dike is too low. Consequently, water is overtopping the dike during storms and floods the city centre, where the ground level is lower than the sea level during high storm tides. The stability of the dike revetment is not good, resulting in a risk of breaching. Beach-nourishment in front of the city centre of Oostende is planned to reduce the risk of flooding. To avoid a silting up in the port channel a protection dam is planned which will also be accessible to pedestrians (cp. PORT OF OOSTENDE, 2001).

Figure 4: Oostende beach (photo: Kaiser)

3.1.3 Political and legal framework

West-Flanders is responsible for spatial and environmental planning, but the North Sea is under the full jurisdiction of the federal government.
The legislative and organisational structure of coastal defence is centralised (at the level of the Flemish region) and permissive. This region owns all the coastal defence structures (DE WOLF ET AL., 2002, p.8).

In Flanders at the moment, public participation mainly deals with the implementing of works. There are some possibilities to discuss the general policy, but these are scarcely used by the public (RIKZ, 2004, p.47).

3.2 Denmark – Municipality of Ribe

3.2.1 Geography

The total length of Denmark's coastline is 7,300 km. Denmark borders on the North Sea as well as on the Baltic Sea. Four percent of the country is beneath 5m NN. The coastline is generally formed in sandy glacial or moraine cliffs and continuously changes due to marine erosion and deposition and, in the long term, due to changes in sea level. The West Coast (North Sea Coast) is sandy and particularly vulnerable to erosion. One third of the coastline is built-up area and half of the coastline is visually affected by development structures (www.coastalguide.org).

The town Ribe is located near the southern Danish Wadden Sea coast at the Ribe River with a distance of 6 km from the sea. 18,107 people live in the community Ribe Amt while the town Ribe itself has approximately 9,000 inhabitants. Tourism is important for this ancient trading town, which is the oldest town in Denmark (www.ribekommun.dk). Compared to the other study areas Ribe is no typical beach resort. Here the ancient town itself, the landscape, and Wadden Sea are of tourist interest.

3.2.2 Hydrology and coastal defence

The Danish coast has also been hit by several storm surges in the past. The last flooding when people drowned took place in 1923, where a storm surge unusually occurred in August.

The three most severe storm surges in Ribe since 1923 have been:
03.01.1976, water level: 465 (NN)
24.11.1981, water level: 490 (NN)
03.12.1999, water level: 499 (NN)

In the Danish Wadden Sea area, the main coastal problem is the risk of flooding while coastal erosion only takes place in a few small localities and in larger measure at the peninsula of Skalligen (ANDERSEN, 1998, p.1). From Esbjerg south to the German border, some 100 km of dike protect the low-lying areas against flooding.
The safety levels in Denmark are comparable to those in the United Kingdom (MINVENW, 2001, p. 8). The dike safety in Denmark is standardised to 50 years. Where it is economically justifiable, it is higher, e.g.: in Tønder to 200 years and in Thyborøn to 1000 years. Otherwise, there are no national rules for safety assessment of dikes and dunes. Safety assessment policies are established through agreements between local authorities and the central government, based on the recommendations of the Danish Coastal Authority (MINVENW, 2001, p. 4-5).

After a storm flood in 1976, a new dike in front of the Tønder dike was finished in 1980/81. A flood warning and alert system was established in 1975. Most of the dikes are funded by the state, others with contribution from the local authorities. Twice a year, the dike committees and the Danish Coastal Authority inspect the dikes to point out possible damage or other aspects that can influence safety (ANDERSEN, 1998, p.3-11).

The investigation area is a low-lying plain of marshland and thus at risk of flooding. Since the 1970s, many reinforcements of the dikes protecting the low-lying towns of Ribe and Hojer have been carried out and two new dikes have been built. The Ribe River, which leads to the town of Ribe, is secured by a sluice (cp. Figure 5; MINVENW, 2001, p. 5). Since the 1970s, the frequency of storm surges has been much higher than it was earlier in the 20th century (MINVENW, 2001, p.3).

Figure 5: Sluice at Ribe River (photo: Witzki)

3.2.3 Political and legal framework

Denmark has an elaborate coastal zone planning with a high level of cross-sectoral integration and participation. The Danish law is permissive. The national government has only the duty to judge proposals which impact on environmental processes.

The Danish Coastal Authority (*Kystdirektoratet*), an organisation under the Ministry of Transport, is the key authority involved in coastal defence. On a regional level, the Coast Protection Act empowers the counties (Amter) to protect the coastal areas (www.coastalguide.org). After the disasters in the Netherlands and Germany in 1953 and 1962, a storm flood committee was appointed in Denmark in 1964 to evaluate existing flood safety conditions. The central government and local authorities share the costs of coastal defence on the North Sea coast.

The Danish Planning Act stipulates communication between the state, the counties, and the municipalities. Public hearings and requests for comments and amendments are also statutory obligations in legislation and planning. Regional plans (to be renewed every 4 years) usually provide guidelines for the rational use of coastal areas including planning of recreational activities. The regional planning is followed up by action plans for nature, water quality, land use, development of tourism, etc.

The special protection of the coastal zone has recently been extended from 100 up to 300 m, while there is also a planning zone of 3 km (both cases are land zones). In this planning zone, development is only permitted when it is functionally linked to the coast, while there is a

complete ban on new summerhouses. All natural coastal habitats are protected, incl. the Wadden Sea and the dunes (VAN ELBURG-VELINOVA 1999, p. 7).

3.3 Germany – Municipality of St. Peter-Ording

3.3.1 Geography

Germany is divided into states (Länder) of which five, Niedersachsen, Schleswig-Holstein, Mecklenburg-Vorpommern, Hamburg and Bremen are coastal.
The total length of the German Coastline is 3,160 km. 2,005 km (63 %), account for the Baltic Sea Coast, 1,155 km (37 %) are part of the North Sea Coast (SCHELLNHUBER & STERR, 1993, p. 153).
The flood-prone area of the four German states at the North-Sea Niedersachsen, Bremen, Hamburg and Schleswig-Holstein covers 11,240 km² (17.5 % of the total area). Because of land reclamation during the last centuries, most of the North Sea coastline is divided into flood units, so-called "koege". The typical marshland of the North Sea Coast arises through deposition of marine sediments. Except for the glacial Geest, a great part of the region lies only a few meters above or under MThw.
The community St. Peter-Ording is situated at the North-Sea coast of Schleswig-Holstein. The area of the municipality is 2,825 ha (STATISTISCHES LANDESAMT SCHLESWIG-HOLSTEIN, 1997). A partly interrupted sea-dike protects the municipality. Parallel to the coast there are sandbanks, which created the sandy beach and dunes in St. Peter-Ording, serves as a natural sea-defence. The Hinterland is a low- lying country with heights on average between 0-2.5 m above NN.

St. Peter-Ording has 7,278 inhabitants, whereof 4,022 have permanent residence, the others a second home or summer residence. The economy of this sea-resort depends on tourism and local services. The coastal landscape of this investigation area is on the one hand dominated by dunes, which at least in the north of the town are high enough to serve as a natural coastal protection structure. On the other hand, glacial sediments influence the morphological shape of St. Peter-Ording. Except from the extended higher areas in the dune-belt along the sea, the community is flood-prone.
A dike along the largest part of the communities' coastline secures the coastal protection (cp. Figure 6). In this section, a vast sandy beach is stretched along the coastline. In the north, dunes are high enough to protect the town from flooding.

Figure 6: Dike in St. Peter-Ording (photo: Witzki)

3.3.2 Hydrology and coastal defence

The highest severe storm surge at the German coast occurred in 1976.
The maximum water levels in Husum, which is close to St. Peter-Ording, have been:

17.02.1962, water level: 521 (NN)
03.01.1976, water level: 561 (NN)
03.12.1999, water level: 537 (NN)

The water level in the North Sea depends primarily on tides and the movement of air masses. The German West Coast is at risk by winds coming from the West and Northwest. The strongest winds occur between October and March. The highest water levels occur when flood tide and storm, caused by a storm depression from Iceland or southern Sweden appear at the same time and the wind turns from southwest to northwest (LANDESAMT FÜR WASSERHAUSHALT UND KÜSTEN SCHLESWIG-HOLSTEIN, 1994, p. 13).

In Germany, coastal flood-defence is the responsibility of the coastal states. The federal government co-finances capital measures with 70 % of the total costs while maintenance is completely financed by the states. The technical and financial frameworks for coastal defence are described in master plans for each coastal state. In the state of Niedersachsen, local water boards are responsible for implementing state measures against flooding.
For the safetylevels, a return-period of 100 years is minimum. In addition, the highest regionally recorded water or storm surge level is taken into account. In 1962, a severe storm flood in the German Bight killed 350 people in Germany (MINVENW, 2001, p.8).

3.3.3 Political and legal framework

The organisational structure for decision-making and planning in Germany involves three different political levels of decision making: community, state and federal government. The states (Länder) are the first responsible bodies for spatial planning and for coastal and water management. The central government has chosen to leave further legislation to the states.
In Schleswig-Holstein the primary, main dikes are built and maintained by the coastal division of the State Ministry of the Interior. Secondary dikes are the responsibility of the waterboards. The State Water Act of Schleswig-Holstein prescribes the duty to design the state dikes to withstand all storm floods.
Planning in the German coastal zone has a predominantly sectoral character. All natural ecosystems in the coastal zone are protected. National Parks (five in the coastal zones) play an important role in the German coastal zone. Three National Parks cover almost the entire German Wadden Sea (VAN ELBURG-VELINOVA 1999, p.6).
In Germany, most projects require (reactive) public consultation within the approval procedure. In Schleswig-Holstein, for participation on the more strategic level an advisory council (Beirat) has been initiated. In this, both governmental organisations and non-governmental organisations participate.

3.4 The Netherlands – Municipality of Gemeente Sluis

3.4.1 Geography

The coast of the Netherlands is approximately 350 km long. The 25,000 km² large flood-prone area in the Netherlands covers about two-thirds of the entire country (MINVENW, 2001, p 6-1). 60 % of the Dutch population and economy is settled in this extended and densely populated area (www.biodiversity.ru). The southern part of the coastline, which is 350 km long, (between the Belgian border and Hoek van Holland) consists of the estuaries of the rivers Rhine, Meuse and Scheldt. Between Hoek van Holland and Den Helder the coast is nearly continuous (except the mouth of the old Rhine and the sea-defence structure Hondsbossche Zeeweering). Between Den Helder and the German border lies the Dutch part of the Wadden Sea.
The low-lying nature of the coastal zone makes it particularly vulnerable to coastal flooding and erosion associated with storms and sea level rise.
Effective coastal protection and -policy is essential for the Netherlands. Being essential for the existence of the nation, protection against flooding is an important national issue and political task embedded in the constitution. Failure of flood defence structures would have devastating human and economic consequences for the entire country.

The Gemeente Sluis has 24,791 inhabitants and is situated in the western part of the province Zeeland (www.gemeentesluis.de). Two selected settlements near the coast, Breskens and Cadzand/ Cadzand-Bad were investigated.
Tourism plays an important role for the economy of this area. In Cadzand-Bad most of the houses are for rent and some hotels have been built behind the dike. The morphology of the region is influenced by the estuary of the Western Scheldt, which has dissected the former coastal peat bog into a large estuary and tidal basins (cp. Figure 7). Land reclamation and loss during severe storm-surges have shaped the landscape since.

Figure 7: Dunes in Cadzand-Bad (photo: Kaiser)

3.4.2 Hydrology and coastal defence

In 1953, the Netherlands experienced the country's worst flooding in modern times. On 1st February 1953, the coastlines of the southern North Sea were hit by a severe storm surge. A weather depression – combined with an exceptionally high spring-tide – caused a storm surge on the North Sea, pushing water levels to record heights. The area that suffered the most direct hit was the Delta region, between Vissingen and Hook of Holland. In total 187 km of the sea defence was damaged, of which 48 km seriously.
Most damage was caused by water flowing over the crest of the dikes and eroding the inner slope. Many deep polders were inundated to a depth of more than 5 m. In total 1,835 people died in the Netherlands, 200,000 cattle were lost and over 135,000 ha of fertile land were inundated. 72,000 people were evacuated. The direct economic damages of the disaster were 1.5 billion NLG (1956 price index). The indirect economic damage is estimated as a multiple of this (JAK & KOK, 1999).
As a consequence and to prevent further disasters the Delta Committee was formed on 18th February 1953. After eight years the output of their work was a landmark and coastal engineering design. This proposal became known as the Delta Project, one of the most extensive coastal defence systems in the world in which dams and dikes protect nearly one half of the 451 km of the coastline (www.biodiversity.ru). For the flood protection structures, a statutory safety level with a range from 2,000 to 10,000 years (expressed as return periods) is taken into account. In Zeeuws Vlaanderen the safety level is 4,000 years. This is the highest safety level in Europe. From 1990, the strategy is to maintain the coastline with sand nourishment to prevent further loss. In the future, problems may occur due to sea level rise and further urbanization of the coastal zone.
The Dutch flood-protection framework is rather centralised. The Ministry of Transport, Public Works and Water Management sets the policy and legislation framework including safety standards. The Ministry also is responsible for managing the coastline and a limited number of flood protection structures. Engineering guidelines are prepared by a technical advisory committee and issued by the Ministry. Local water boards are responsible for the accomplishment of the safety by constructing and managing the majority of flood protection structures (MINVENW, 2001, p.1-5).

Even since 1953 Zeeuws-Vlaandern has been affected by storm floods.

The highest water levels after 1953 in Vlissingen were:
01.02.1953 water level: 455 (NAP), (Vlissingen)
03.01.1976 water level: 394 (NAP), (Cadzand-Bad: 377, estimated)
27.02.1990 water level: 387 (NAP), (Cadzand-Bad: 357, estimated)
28.01.1994 water level: 387 (NAP), (Cadzand-Bad: 365, estimated)

The Gemeente Sluis is protected by a sea-defence dike near Cadzand/ Cadzand–Bad and high dunes at Breskens (cp. Figure 8). The immediate vicinity to the Belgian border has an influence on the economy and therefore on the coastal zone management in this coastal region. Dredging measures in the Scheldt estuary have been carried out to maintain the shipping canal to Antwerpen in Belgium.

The dumping of the material has occasionally been used for the realignment of eroding coastal and estuarine sections (RIKZ, 2003). The western part of Zeeuws-Vlaanderen in the province of Zeeland is one of three regions in the Netherlands with the highest priority for coastal protection measures. The area is considered to have a low spatial quality and a safety-level that should be improved within the next 50 years. A plan study is being carried out at present (www.kustzonebeleid.nl, p.20-22).

Figure 8: Beach in Cadzand-Bad (photo: Kaiser)

3.4.3 Political and legal framework

In the Netherlands, planning frameworks for all sectors are made at a national level. The national government does not only set standards for coastal defence but also provides a technical guidance. They are usually related to each other because their development is a long process involving many stakeholders, ministries and the Parliament. In the Netherlands there is a legal duty to act. This duty is limited to dike rings. The Netherlands is unique in the fact that the law contains quantified standards, which are laid down in the Act on Water Defences. The construction, maintenance and management of most of the coastal works are left to the waterboards. The county (province) supervises the waterboards, whilst the national government acts as higher supervisor of coastal flood defence.
Coastal ecosystems (Wadden Sea, all marine foreshore zones, sand dunes and salt marshes) are all given a high protection status as key elements of the *Ecologische Hoofdstructuur* (*EHS*, a national ecological network). This EHS provides the main guideline for coastal planning and management. It gives increasing attention to the integration of land and marine areas. For fifteen years, the Dutch Wadden Sea (part of three provinces) has had a special status as a separate planning area with a special council (*Waddenadviesraad*) for horizontal and vertical integration. A national planning instrument (Planologische Kernbeslissing, PKB Waddenzee) regulates major planning decisions. In the Netherlands there are extensive public participation procedures in building and spatial planning process (RIKZ, 2004).

3.5 United Kingdom – Municipality of Skegness

3.5.1 Geography

In the United Kingdom, 5 % of the population live in the area at risk of flooding by the sea covering 2,200 km² of land (5 %). The coastline is approximately 4,500 km long (MINVENW, 2001, p. 2).
The low-lying areas at the coast are spread over separate regions. In most of the regions, e.g. in estuaries, there is a danger of coastal flooding as well as riverine flooding.
Skegness is located at the North Sea coast of Lincolnshire, south of the Humber estuary and north of the bay called "The Wash". It has a population of approximately 18,000 people. Tourism is the economical basis of Skegness and is the reason for its development from a small village at the end of the 19th century to an extended sea-resort today.

3.5.2 Hydrology and coastal defence

In the severe storm flood in 1953, 300 people were killed in England (ANDERSEN, 1998, p. 3). Multiple breaches at the Lincolnshire coast lead to the loss of 41 lives.
The Environment Agency maintains a total of about 1,400km of sea defences around the coast. This is about two-thirds of the total, with the remainder being either the responsibility of local authorities or privately owned.
The standards for new defences are assessed based on an economic analysis that compares the present value cost of different standards of protection to the present value of damage that would be avoided. The safety levels are based on a flood-level return period from 200 to 1,000 years (MINVENW, p. 6-7). The coastline between Mablethorpe and Skegness is a retreating coast with a sandy beach and coastal defence structures, sand dunes, clay embankments and seawalls providing flood protection for the low-lying area. The current coastal defence strategy is to hold the line through beach nourishment. Along the coastal frontage between Mablethorbe and Skegness 24 km of coastal defences (cp. Figure 9) provide flood protection for over 20,000 ha of low-lying land (EA, 2002).

Figure 9: Lincolnshire coast (photo: Kaiser)

3.5.3 Political and legal framework

The legislative and organisational structure is decentralised and permissive, meaning that the relevant authorities have the legislation to carry out flood defence and coastal protection

activities but are not required to do so. The principle flood-defence operating authority in England and Wales is the Environment Agency. In the UK, national government only has the duty to provide information (if available) to local planning authorities on their request, but for the remainder the law only contains power (right to act). The relevant laws are the coastal protection act and land drainage act.

The Department for Environment Food and Rural Affairs (DEFRA) has the responsibility for flood and coastal defence in England and administers the legislation which enables such works to be carried out. In Wales, the National Assembly has the policy responsibility. The aim of DEFRA's flood and coastal defence programme is to reduce risks to people and to the developed and natural environment from flooding and coastal erosion in England. DEFRA pursues this aim in three main ways:
Firstly by giving financial support to flood- and coastal-defence operating authorities in England (local authorities, the Environment Agency and Internal Drainage boards); secondly by providing published advice and guidance to the operating authorities and thirdly by funding a research programme (www.coastalguide.org)
A variety of authorities have been assigned permissive powers for the implementation of flood and coastal defence policy and the construction of defence works (MINVENW, 2001, p. 3). Coastal management is strongly determined by instruments such as National Parks, Heritage Coasts and properties of national NGO's. Management initiatives are locally based, non-statutory, cross-sectoral plans and implemented through voluntary partnerships. Local management initiatives often feature strong public consultation. Participation of the citizens has increased in recent times. Consultation rounds are the main instruments. Currently the consultation for a new flood strategy is going on (RIKZ, 2004). In these consultations any organisations or citizens can react, though a number of organisations – the statutory consultees – must be heard.

Table 1: Overview of flood protection policies (MINVENW, 2001, p. 9)

	Netherlands	United Kingdom	Denmark	Belgium (Flanders)	Germany
flood-prone areas	The coastline is 350 km long. 2/3 of the country (25,000 km²) is at risk of coastal flooding. The flood-prone area comprises densely populated polders. The capital value at risk is estimated at 2,000 billion euros (1992).	The coastline is 4,500 km long. 2,200 km² (with 5% of the population), is at risk of coastal flooding: some large urban and agricultural areas, but also very many small areas. The capital value at risk is estimated at 250 billion euros (2000)	The coastline is 7,300 km long. A few towns and some agricultural areas are at risk of coastal flooding.	The coastline is 65 km long and about 3% of total area of Belgium is at risk of coastal flooding.	11,240 km² (17.5% of the area) of land at risk of coastal flooding in the coastal states Niedersachsen, Bremen, Hamburg, Schleswig-Holstein.
types of sea defence	- dunes (70%) - embankments - storm surge barriers	- sea walls - embankments - dunes, beaches, some shingle gates and storm surge barriers	- embankments - beaches, some sandy	- embankments - dunes and beaches	- embankments - dunes - Combination of embankments and dunes
organisation / responsibilities	centralised policy framework, decision making and engineering, decentralised operational management	centralised policy framework, decentralised engineering and decision-making	centralised	centralised (at the level of Flanders)	centralised (at the level of coastal states)
legislation	prescriptive legislation (Flood Protection Act,1996)	permissive legislation	permissive legislation (Act of Reinforcement of Ribe Dike, 1976; Fremskudt Dige, 1977)	permissive legislation (Regionalisation Act, 1988)	permissive legislation (State W ater Act)
decision criteria	legal safety standards	economic efficiency, indicative standards	size of the population at risk	absolute standard	absolute standard
safety levels	Statutory standards by dike ring area. Standards are expressed as return periods of extreme water levels. Safety standards in the coastal area range from 2,000 to 10,000 years.	No target risk or flood defence standard; general aim of reducing risks to people and the environment, and requirement to achieve value for money spent. Indicative standards range from less than 200 to 1,000 years.	Safety levels are proposed by the DCA and approved by the Ministry. Safety levels are based on a cost /benefit analysis. Safety standards range from less than 50 to 1,000 years.	A minimum safety level of at least a 1,000 years is prescribed according to the Dutch methodology.	Safety levels expressed as a combination of design water level, design wave run-up and slope criteria. In practice this standard will exceed a 100 years.

PART 4 Survey

4.1 Workshop

In the beginning of the project a workshop was held as a start up event by the lead partner, the Schleswig-Holstein State Ministry of the Interior in cooperation with the project team of SP3. Subject of the workshop was perception and participation.
Aim of the workshop was to discuss the chosen methodology concerning the inventory of SP3 of the risk perception and the participation methods. Furthermore, the draft questionnaire was discussed controversial. The ideas and wishes of the COMRISK partners were taken into account and the questions were checked for their usefulness. The results were implemented in the final questionnaire.

SP3 Workshop: Public Perception and Participation
11-12 June 2003, Eckernförde, Germany

Programme

Wednesday 11.06.2003

13.00	Arrival, cold lunch buffet	
14.00	**Welcome, Introduction into the aims of the subproject**	COMRISK Team IM
14.15	**Climate change, coastal protection and the public: Concept, methods and preliminary results of the KRIM-subproject "Climate Change in the Public Sphere"**	Harald Heinrichs, Research Centre Jülich
14.45	**Risk perception in the Netherlands**	Martijn Flinterman, Bouwdienst
15.15	**Flood risk awareness in the Netherlands: Learning from foreign experiences**	Aline Arends, RIKZ
14.45	**Risk communication and public participation in flood defence management**	Jonathan W Mc Cue, Atkins Simon Mc Carthy, University of Surrey
16.15	Coffee Break	
16.45	**A view to the Baltic – the SEAREG project**	Philipp Schmidt-Thomé, Geological Survey Finland

17.00	**Action plan and methodology of the subproject, introduction into the workshop sessions**	University of Kiel
17.15	**Workshop session 1: discussion of methodology and questionnaire**	University of Kiel
19.30	Dinner in the "Ratskeller", Old Town Hall	

Thursday 12.06.2003

8.30	**Instruments and procedures for public participation**	Erk Ulich, Raum & Energie GmbH
9.00	**Assessment of methodologies for public participation on the local level**	Hugo Niesing, RIKZ, EUROSION
9.30	**Workshop session 2: discussion of methodology and questionnaire**	University of Kiel
11.15	Coffee break	
11.45	**Results of the workshop sessions, conclusions, outlook**	COMRISK Team IM
13.0	Lunch buffet, departure	

As an introduction and a basis for the discussion experts presented their projects and results in some speeches summarized below:
Harald Heinrichs (Research Centre Jülich, KRIM project)

- Awareness concerning climate change and risk arises primarily through mass media
- Media have a key function concerning awareness
- Investigation of the threat of storm surges in Bremen, Wilhelmshaven, Wangerland: the threat is estimated medium or high, the personal concernment is estimated lower
- The trust in coastal defence is high, but mistrust exists about the ability of the coastal defence system to cope with climate change
- 30-50 % support the reinforcement of coastal defence structures
- Outlook: communication training for experts

Martijn Flinterman (Bouwdienst, Rijkswaterstaat):

- Study on risk perception: Inquiry with two target groups 1) experts, 2) public
- General result: people feel safe
- Definitions of risk have to be distinguished: measurable risk and personally feeled risk
- Result of studies in the 90s: gap in risk communication between the authorities and the public, message doesn't reach its destination: both from government to the public and the other way around

- Results: more information, more communication and understanding of risk

Aline Arends (RIKZ):

- Since 2000 new flood-policy: "Netherlands live with the water", proactive instead of reactive policy, technical flood defence but even land use planning
- Integrated risk management = risk analysis, prevention, intervention, follow-up care
- Indications for risk communication: continuous information is an important tool for raising awareness (the information should come from an institution people trust in), images say more than words, best communication is an emergency
- Risk awareness in the Netherlands: People are aware of climate change, people do not realise the effects and cannot translate it to their own situation, regional differences, high level of trust in the government

Jonathan McCue and Simon McCarthy (Atkins, University of Surrey).

- Improvement of the effectiveness of risk communication and participation in flood defence
- Awareness is a prerequisite for participation
- Inquiry with experts and the public: only 55 % in flood-prone areas feel affected,
- The public cannot be treated as one target group (made up of many different groups).
- There may be a lack of appreciation of the real consequences of a given event especially amongst those who have not suffered from an event
- Differences within the public could not be solely attributed to a difference in understanding but more with a difference in perception or reaction to that risk
- People try and deny the significance of the risk for personal and financial reasons
- The most effective means of risk communication will vary with circumstance and audience
- If the public are made aware of the risk then it can be more proactively and effectively managed
- If provided with the right information harm arising from an event can be reduced by individual action
- Direct/personal experience of flooding affects perception of risk: Make a Family Flood Plan
- More effective public participation could help to build trust and understanding between the public and the professionals.
- Successful risk communication opens up new ways of working with the community including: building trust with community, encouraging self help, utilising community expertise, and more effective public participation in decision making

Discussion:

In the first workshop sessions the methodology of the inquiry and the prepared questionnaire were discussed:

- The questionnaire should have a length to be answered in 20 minutes.
- According to the demographic data it was decided to include a map in the questionnaire where people should mark with a cross where they live in the area.
- It was decided that definitions at the beginning of the questionnaire have to be kept as simple as possible.

- In the discussion about where to send the questionnaires back, it was decided to choose the competence which is trusted most by the public. In an additional letter it should be named that COMRISK is an EU-project because the public might be encouraged to be involved in an international project.
- It was mentioned that three rules have to be followed to make an inquiry as successful as possible: 1. introducing letter, 2. text in the local press, 3. present for taking part. Rule 1 and 2 were afterwards adopted in the survey. A present was difficult to handle because of the international case studies and because of the anonymity.
- The idea of presenting the results in the internet was refused.
- The areas of investigation were decided to be areas with rural as well as urban elements; the regions should be comparable.
- The COMRISK partners agreed to suggest regions in their country that are suitable for the investigation. Criteria should have been given by the SP3 team.
- The idea came up to give an advice that only the one with e.g. the latest birthday should answer the questionnaire, otherwise there is would have been a risk that only men fill in the questionnaire. Problem: Women may have a different perception of risk.
- The suggestion to ask an evaluating question after each question (why not) was refused for a part of the questions.

Conclusions:

- A letter of intent should be given together with the questionnaire.
- A preamble with a reference to the EU and the website should be included to increase reliability
- The questionnaire should start with a map, asking where about people live in the study area.
- Demographic questions should be included.
- Use of the regional broadcasting has to be made.
- The questionnaire should have a length so that it takes about 20 minutes to answer it.

Participants:

COMRISK Project Team:	Thorsten Piontkowitz
	Marinka Kiezebrink
	Sandra Fraikin
	Ard Wolters
	Frank Thorenz
	Holger Blum
	Toon Verwaest
	Koen Trouw
	Ian Meadowcroft
	Jacobus Hofstede
	Matthias Hamann
University of Kiel	Horst Sterr
	Daniel Witzki
	Gunilla Kaiser

KPMG	Heleen Verlinde Roel van Raak
Speakers	Harald Heinrichs Aline Arends Martijn Flinterman Erk Ulich Jonathan Mc Cue Hugo Niesing Philipp Schmidt-Thomé
Others:	Kees Poot Jan Visser Simon Mc Carthy Robert Misdorp Koen Trouw Gabi Gönnert Gerald Schernewski Hans-Jörg Markau Stefan Reese

4.2 Public survey

The aim of the public survey carried out in SP3 was to investigate the perception of flood-risk and the participation in coastal flood defence planning of people, who live in flood-prone areas in Belgium, Denmark, Germany, the Netherlands and the United Kingdom. To evaluate the present situation of perception and participation as many people as possible had to be interviewed to collect a large amount of data. The international framework of the study required a well-organized inquiry.

According to PORST (1998, p. 7) the data collection was accomplished in the following steps:

1. Choice of the technique of the inquiry and the empirical instrument
2. Planning of the data collection
3. Appointment of the population
4. Definition of the random sample for a Pre-test
5. Pre-test
6. Definition of the random sample for the main survey
7. Survey

In a first step it had to be decided what kind of technique is most suitable for the survey:

- Personal, oral interview
- Telephone interview
- Mail survey
- (Computer-based (internet) survey)

Table 2: Compares of survey-methods (PORST, 1998, p.17)

	Telephone interview	Personal, oral interview	Mail interview
Costs	Median/high	high	Low
Size of random sample	high	median	Very high
Application flow	Very high	median	no
Data accuracy	high	median	Median
Influence of the interviewer	median	high	no
Anonymity	low	Median/low	High
Random sample	Partly constricted	No constriction	constricted
Complexity of the questions	low	high	low
Exhaustion	high	High	median
Duration	Median/long	long	Short/median

The mail survey with a standardised questionnaire, to be filled in and sent back by the interviewees was chosen. For the purpose of this study the mail survey turned out to be the most suitable method of inquiry.
Advantages of mail surveys:

- lower costs
- less time consuming with less organisation and personal effort
- the interviewee can decide by himself, when he wants to fill in the questionnaire, so that the risk to meet the interviewee in an unsuitable moment can be avoided
- self-determination and anonymity lead to more honest and elaborated answers (PORST, 1998, p. 15).

Disadvantages of mail surveys:

- personal reactions of the interviewee can not be gathered
- the questions have to be expressed very clearly, because there is no possibility for the interviewees to ask
- there is a high risk, that interviewees leave out questions

A written questioning by postal mailing provides the best procedure for collecting this kind of data. Postal surveys have been proved in the psychological research on risk perception and are an accepted survey instrument for the measuring of attitudes (SJÖBERG, 2000b, p. 409ff). A written interview is said to be the method with the slightest influence of the interviewer on the interviewee. Hence, it documents the answer to the questionnaire by the interviewee most suitable and unaltered. In addition it is regarded as an advantage that the interviewee can think through the questions without ruffle. But in this questioning technique there is no possible control of real participation and answer of the questionnaire. This can result in other problems and is thus assessed as a big drawback. It can't be reconstructed if really the addressed person has completed the questionnaire or if it was done without any help (DIEKMANN, 1997, p.439ff; FRIEDRICHS, 1990, p.236ff). Effects such as self-selection of the respondent due to personal interest in the topic haven't been proved as relevant in case of written questionings about risk perception (SJÖBERG, 2000b, p. 414f).

The challenge of the chosen method of data collection was to achieve a rate of return, as high as possible (DIEKMAN, 1997, p.439ff). The main reason for the decision to conduct the survey by mail was the large amount of questionnaires (2,000) and the international area of investigation. Personal, oral interviews would have requested an enormous amount of time and it would have assumed that all the interviewees were English speaking. Telephone interviews would not have guaranteed the anonymity requested in this survey.

The questionnaire as well as the whole information-package was created taking into account important aspects of Dillman's Total Design Method (TDM, 1978).
This method was developed to make a mail survey as successful as possible taking considering that the main target of the survey is to achieve a high rate of return (DILLMAN, 1978, p.54). Dillman developed a theory of the peoples' behaviour to response. He gives a set of procedures, which should lead to a maximum success of a mail survey. He acts on the assumption that people accept *costs* because they expect a *reward*. Because the application is not awarded immediately *trust* is an important pre-requisite between the interacting partners.

The TDM criteria adopted in the investigation of SP3 are:

- *cost*: clearly structured questionnaire, guaranty of anonymity, avoiding delicate questions, prepaid envelopes to be sent back,
- *reward*: serious letter with official logos of the university, information about the project (flyer, introducing letter),
- *trust*: convincing people that a problem exists that is of importance to a group with which they identify, and that their support is needed to find a solution.

The questionnaire was tested in a Pre-test in Büsum/ Germany, which gave satisfactory results. Fifty questionnaires were distributed, whereof 28 % (14) were sent back, filled in correctly.

Using flooding maps, the basic population was selected in the areas lower than 5m NN in Oostende, Ribe, St. Peter-Ording, Gemeente Sluis and Skegness.

After the regional and local authorities were informed about the survey by our project partners 2,000 questionnaires were distributed, 400 in each area. From 12th till 22nd of October 2003 in Ribe, St. Peter-Ording, Gemeente Sluis and Oostende the questionnaires were handed out. In Skegness the survey was carried out from 25th till 28th of November. The questionnaires were distributed personally with prepaid envelopes to randomly selected households. To have comparable samples in all areas small spots were selected. 1/3 of the questionnaires were distributed in the town centre, 1/3 directly behind the dike or dunes and 1/3 in a district with a longer distance from the sea. A map was included in the questionnaire where the people should mark where about they live in the area of investigation. In these maps, streets were eliminated, so that the anonymity is guaranteed. This cross will make sure that the answers come comparably from all the three areas and it will help to obtain information about the correlation of risk perception and the individual distance from the shoreline.
In order to provide the best possible information to the areas involved a press release was mailed to the local newspapers a few days before the inquiry was carried out, containing

information about the purpose of the questioning. This press release was also intended to raise the amount of answered questionnaires.

4.3 Questionnaire

The questionnaire contained twelve questions about risk perception, nine questions about participation and three questions concerning demographic data (s. Appendix A). It was translated into English, Dutch and Danish to get as much people involved as possible by giving them the chance to answer in their native language. Additional background information was given in a leaflet.
The questionnaire was divided in three parts. In the first part, the interviewees were asked about their perception of the risk of storm floods and their possibilities of and satisfaction with getting information. In the second part, they were asked to give their opinion concerning their own participation possibilities and wishes in the planning process of coastal defence. In a third part demographic data were queried, age, gender and how long they have been living in the area of investigation. The questions were arranged in this order because a questionnaire should show a curve of tension (RICHTER, 1970). The introducing question should be simple, so that everyone can answer it and feel encouraged to continue with the questionnaire. In the second part the more complicated questions are asked. In the end the demographic questions came up, because they do not require special attention (RICHTER, 1970). Questions concerning occupation and income were left out in accordance with the COMRISK partner discussion. Including these questions could have reduced the amount of answers, because people might think this would give to much personal information.
In the questionnaire all types of questions discussed in literature were applied.

- **Open questions**

- **Closed questions**
  Identification-type: question that asks for persons, groups, places, time, number etc.
  Selection-type: alternative answers given, the respondent can chose one of them
  Multiple choice-type: alternative answers given, the respondent can choose one or more
  Scales-type: ranking, 4-scales were chosen to avoid a neutral answer and the answer "don't know" was left out, because it activates the high failure quota of answers (RICHTER, 1970).
  Yes-No-type-type: question can be answered with yes or no
  Hybrid-type: beside alternative answers given, there is space for an open answer (Others)

Assuming that the perception of the risk of storm floods is different in and between the areas of investigation, representative results should be gained. Different regional circumstances, the impact of historical and actual disasters, and the degree of participation as well as the flow of information are crucial for the perception of risk. In addition to compare, the framework in the areas it should be considered to what degree the risk of a storm flood is felt as a threat and to what degree people feel affected.

The following questions resume the main topics required for an analysis:

1. To what extent are storm surges considered as a threat / risk?
2. To what extent is risk accepted?
3. What are the regional distinctions of risk awareness?
4. How can risk perception be improved?

5. What kinds of participation methods are available and are there practical experiences?
6. What extent of participation is effective?
7. Is there a demand for more participation?
8. What are the differences of participation methods in the partner regions?
9. How can participation procedures be improved?

4.4 Expert-interview

In a second stage expert-interviews were conducted. The aim of the expert-interviews was to gain information about participation procedures in the partner-regions, their success and the perception of the experts concerning demand and success of different participation procedures.

The expert interviews were conducted by sending emails to the selected persons. The selected experts were people from authorities, university and research, consultants and stakeholders in Belgium, Denmark, Germany, the Netherlands and the United Kingdom. The correspondence per email was chosen because personal interviews with more than 100 experts all over the countries could not be realised. In total 121 questionnaires were sent off. 48 in Germany, 30 in the United Kingdom, 12 in Denmark, 23 in the Netherlands and 8 in Belgium. The uneven dispersion in the countries occurred because we did not get more contact addresses and even the project partners could not name more experts for their country.

The questionnaire (cp. Appendix C) included 12 questions concerning the evaluation of information tools, experience with and evaluation of participation procedures. The questions were multiple choice, ranking, as well as open questions. The interviewees were also asked to name further experts. The questionnaire was a downloadable form and could be returned electronically or by mail.

PART 5 Risk Perception

The human behaviour depends on perception, experience and knowledge not on facts. The daily, "intuitive" perception and evaluation of risks is the basis for the individual, subjective assessment. Consequently, perception and evaluation of risk is basic for our behaviour in dangerous situations. This also applies for the perception and handling of risks from natural hazards and accordingly for the storm surge risk as well. Perception is also fundamental for decisions concerning preventive protective measurements like coastal defence. In order to be able to develop effective information and communication strategies and politics about natural risks, the perception and evaluation of these risks and influencing factors should be known (RENN, 1989; PLAPP, 2001). Hence, this transnational project was conducted to identify and analyse the risk perception of the people living in flood prone areas along the North Sea region.

5.1 Risk Perception Theory

5.1.1 What is Risk perception?

The handling of risk has primarily the objective to prevent or reduce risks or losses. Therefore certain strategies or concepts are mandatory, which with regard to natural hazards are developed within the risk management. That again implies several decisions and these decisions and the resultant actions are shaped by individual and collective perceptions of risk. Decisions about risk management are not only a task of authorities and professional managers, it is also necessary, though often neglected, to actively involve the people living in the exposed areas. "Their risk perception is a fundamental base for their decisions and behaviour concerning natural risks and their management of natural risks. Consequently, the risk perception of the inhabitants of a community has been taken into consideration concerning disaster management planning on community level. For the development of effective information strategies on protective measurements (risk and communications policies), the risk perception of the targeted group and as well influences on risk perception should be known" (PLAPP, 2001, p. 2).
Due to the objective to identify and evaluate the perception of the population concerning the storm surge risk and coastal defence, the focus of the theoretical background lies on the perception of risks from natural hazards. Other aspects will be dealt with only peripherally.
Generally speaking is perception the way in which an individual interprets stimuli received by the senses. In connection with natural hazards it is the sense of hazards and the evaluation of adherent risks, formed by the own subjective understanding.
In this study the following definition will be valid.

Risk Perception:
Risk perception is the sensual or rational, individual or collective perception process and the connected identification, analysis and verbalisation of risk. Influencing factors are the input and processing capacity of the percipient person as well as the situational, social and cultural framework. The perceived risk is the basis for the evaluation or judgement of the risk, whereas there is no exact separation of perception and judgment process (MARKAU, 2003; REESE, 2003).

In the context of risk perception the first step is the identification of the risk and, subsequently, its evaluation. That means the process of perception can be subdivided into two parts, the perceptional phase and the valuation phase. The first phase is an extensive unconscious process, where possibilities and problems are identified, analysed and then verbalised, categorized and classified. The capacity of reception and processing as well as the situation and the cultural pattern of thoughts have a selective effect and lead to an automatic selection.
In the second phase risks are evaluated and options and alternatives for action are measured. These perception and valuation phases can hardly be separated within the day-to-day practise, because these processes are going on rather unconsciously. Hence, only the term risk perception or risk evaluation is used, even though both phases are meant.

Several studies have shown, that risk perception respectively risk evaluation is influenced by different factors. The identified factors, which make up the whole stimuli set, can be assigned to three dimensions, the **risk criteria**, personal attributes and environmental conditions. Concerning the first dimension SLOVIC ET AL. (1985) could identify two risk criteria through several studies, which have a significant influence on the individual risk perception: dread risk and familiarity.
Aspects, which affect the dread risk are for example the possibilities to control, voluntarily deal with and reduce risk; (un-)familiarity is for instance determined by scientific clarification or the direct effect.
Dread risk is the most investigated criteria. It describes the estimated damage dimension which people associate with risk. That applies especially to the risk evaluation of so called lays. Dread risk is thereby assessed comparatively independent from the probability. This distinguishes non-professionals from professionals. The latter attach a much higher importance to the probability.
Contrary to these results other studies pointed out that people insure themselves rather against more frequent minor losses than accidents with heavy losses but low frequency (cp. KUNREUTHER ET AL., 1978). HOLTGRAVE and WEBER also stated that "…the dimension of probability of harm is an important predictor of risk ratings" (ibid. 1993, p.558; cited in KARGER, 1996, p.43).
The familiarity of a certain risk – in terms of name recognition – is directly connected with dread risk. A new, unknown risk such as genetic engineering raises fears, because people have to become acquainted with it and new things must be learned. Since familiarity is not necessarily dependent on the individual knowledge, it is not classified as a people's characteristic (JUNGERMANN & SLOVIC, 1993, 1997; SLOVIC, 1987).

SLOVIC (1987) describes exposure in terms of the number of affected people as further risk criteria. The WBGU identifies the occurrence probability, the damage potential, the perceptibility, temporal aspects, the terminableness of the impacts, direct and indirect consequences, and the irreversibility of the consequences as the perceived risk attributes (ibid. 1999, p.169). Subject to these risk attributes damaging events have different announcement effects, whereas the event, which is related to a unknown and dreadful risk, has a much higher announcement effect than familiar ones. This effect can result from the (hypothetical) risk due to the ignorance of possible risks (JUNGERMANN & SLOVIC, 1993, p.104). It is experienced as especially threatening.

Other studies stated, that the individual accident rate affects the estimation of the own risk of accident. If it is categorised as low, the disaster potential is decisive for the risk evaluation and the **personal attribute** concernment corresponds with the risk of accident.
Knowledge, experience and the mental attitude about valuation is of vital importance concerning the personal attributes. For the individual RENN (1993) defines risk evaluation as the following personal concomitants which influence the assessment additionally:

- personal attitudes and interests
- voluntariness
- possibility of personal control
- nativeness of risk source
- reliability about consequences
- reversibility of consequences
- eventuality of disaster
- justice of benefit and risk distribution
- possibility of extensive consequences
- impact on future generations
- sensual perception
- familiarisation of risk
- experiences with techniques and nature
- balance betw. beneficiary & bearer of risk
- confidence in public control

Beyond these factors also cultural-sociological aspects are considered as relevant for the risk perception. The cultural system of the receptor and the associated moral concept as well as the social integration into the society is of importance for the perception. Different studies have shown that there are not only cultural specific differences in the valuation of risk, but there are also different subcultures or groups within a society who have varying perception and valuation pattern. Herewith the differences within one country are often greater than between different countries (ROHRMANN, 1995).

Among risk and personal attributes the **environmental conditions** complete the set of stimuli (DEUTSCH, 2002). The spatial vicinity has an important influence on the risk evaluation. People who live close to technical objects rank the associated risk and the expected drawbacks much higher (NIMBY - Not-in-my-Backyard). This factor corresponds with the assessment of the personal dismay (MARKS & VON WINTERFELDT, 1984). Furthermore, the political, economical and social conditions (war, recession, crisis) have effects on the risk attributes. The represented factors and concomitants of the risk evaluation are just a range of possible impacts. The influences as a whole can't be charted in a model.

The perception of risk varies with the social influences. Thus, it is obvious that the communication is of great importance. Risk communication concerns all communication processes, who refer to identification, analysis, evaluation and management of risks as well as the associated interactions amongst all parties (JUNGERMANN ET AL., 1991, p.5). Hence, the communication plays an important role both in the perception and the participation process. Communication about risks, i.e. what is communicated when and from whom, is also important in the range of prevention.
E.g. What kind of information is of importance for the inhabitants of a flood prone area and how does it have to be conveyed to achieve the proposed effect? What is more recommendable, to inform the people by the means of a presentation in the town hall or by a brochure with hints about the emergency case? In order to develop an effective risk communication it is considered helpful if one can revert to the risk perception of the target group (PLAPP, 2003).

Risk communication, risk perception and the behaviour concerning potential risks and damages are regarded as a unit. Moreover, the process of acceptance can be partly influenced by means of communication. This is a particular issue especially on the political and administrative level. Risk communication can enhance the public awareness for hazards, sensitise the risk perception but also contribute to the uncertainty of the public (RENN & ZWICK, p.99).
It is assumed that an improvement of the communication process can solve a number of social problems, such as inappropriate risk perception, resistance to accept technique or unwanted risky behaviour (RENNER, 2000). The possibility to exert influence through communication directly or unilaterally is considered unrealistic (RUHRMANN & KOHRING, 1996, p.16).

Benefits and risks are conveyed to the social recipients through science, policy and mass media. Even though the influence of the mass media is not unessential, it is often overrated. A conclusion of effect and relevance of mass media reports is not provided within the communication research. If the communication via media results in risk acceptance or aversion remains unacknowledged (*chicken-egg-question*).
The following assumptions about the different cohesions exist: (WBGU, 1999, p.175):

- Media influence the standard of knowledge and their acquisition of the recipients;
- Media affect the selection of problematic topics (*agenda setting*);
- Media have influence on the recipients opinion and position;
- Media affect the image of the actors;
- Media have influence on the capability to deal with risks and cope with them.

Therefore, it is to be considered, that it is extremely difficult to separate media influences from inter-personal communication. Different studies determined that the press coverage of the media is often distorted or incorrect (DUNWOODY & PETERS, 1993; HALLER, 1987). Communication processes normally include certain objectives. This again requires a specific acceptance. According to the transfer-acceptance-model a positive reporting would lead to a significant increase of acceptance, cause especially positive and negative statements or reports are memorized (BRUHN, 2004)

The term acceptance comprises all social and political coherences. Definitions in the literature vary from "pure obedience" up to "political participation". The following definition of acceptance appears to be most appropriate in our context: "The affirmative or tolerable attitude of a person or group to normative principles or regulations. Concerning the material field it is the positive attitude to the development and distribution of new technologies or products. The attitude results in a corresponding behaviour. A lack of acceptance can lead to a change of official standards or influence social-political decisions (BROCKHAUS ENZYKLOPÄDIE, 1986).
In other words, acceptance is the chance to get the explicit or implicit consent of a group or person for specific concepts, measures, proposals or decisions. Acceptance always refers to intended or already performed actions. Traditionally the term risk assumes that only the state is responsible for political action. The population can either refuse or accept this. The coastal defence and disaster management authorities are also part of the political organisations. Acceptance of national communication in case of storm surges and a associated inun-

dation means that the population has to attend the order of the national staff (RUHRMANN & KOHRING, 1996).

In the meantime the term is more related to political acceptance. Hence, acceptance of national communication would only be achievable through a participation of the population in risk communication and management. This has been neglected especially in coastal defence and disaster management. By the means of the project at hand new insights shall be gained to raise the risk awareness and enable an improvement of participation and thus enhance the acceptance.

5.1.2 Risk perception of natural hazards

The risk perception and valuation, especially of natural hazards, is now illustrated against the theoretical background. Thus, both dominating parameters and exemplary results of prior studies are presented. That enables a comparisons with other investigations and in the first instance a better assessment of the own results respectively understanding of causes and backgrounds of the individual risk perception and valuation. Concerning the social relevance of disasters investigations, which are dealing with the human handling of the threats of natural hazards are dominating.

TOBIN & MONTZ (1997) differentiate various factors, which determine the perception of natural hazards (HIDAJAT, 2001). These are illustrated in figure 10.

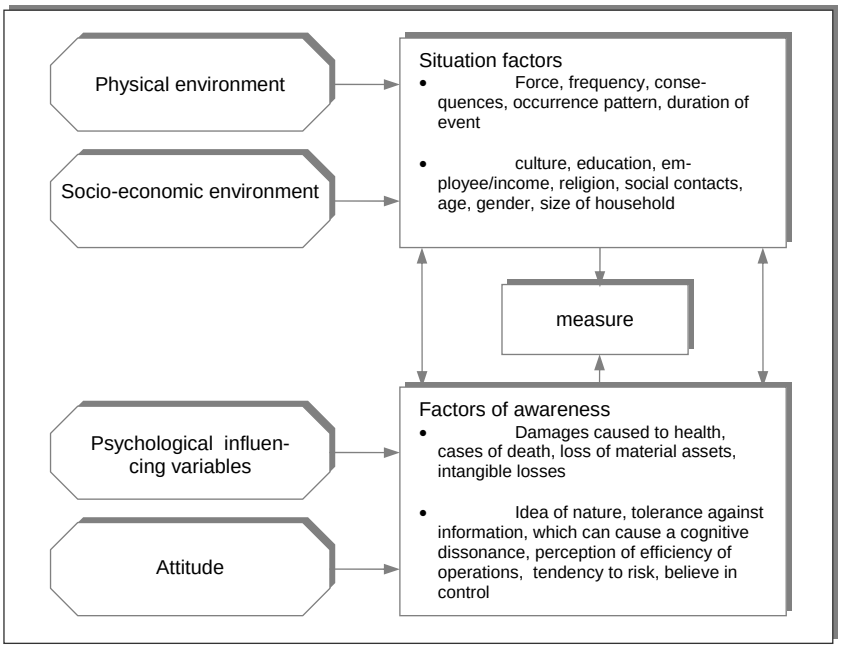


Figure 10: Influencing factors of perception
(after TOBIN & MONTZ, 1997)

The authors differentiate two groups of influence factors: situation factors, which result from the physical and socio-economic framework and awareness factors, which include psychological aspects and attitudes.

People have problems to think in probabilistic terms. Numerous natural hazards studies have shown, that people overestimate and underestimate event probabilities due to different cognitive information processes. They also interpret information in different ways to facilitate the handling of the uncertainty. SMITH distinguishes three different basic types of perception models (SMITH, 2001, p. 70f):

Determinate perception
The arbitrariness of occurrence of disastrous events prompt people to put the events in specific orders (e.g. iterative cycles or regular intervals).
Dissonant perception
The denial of hazard is the most negativing form of perception. Past events are regarded as exceptional coincidences. Consequently, it is reckoned as unlikely that they will occur again. The complete denial of events is a way to deal with the everyday threat.
Probabilistc perception
Hazards are identified, perceived, the events categorized as arbitrary and accepted. The acceptance is connected with a handover of the responsibility to a higher level such as the government or god (a*ct-of-god-syndrome*).

Concerning criteria of risk natural risks are perceived likewise. Hence, inundation is said to be a frequent event, more or less predictable, regional, uncontrollable and increasing.

- The assessment of the degree of exposure reveals a differentiated view; inundation for instance is medium in rank. The greater the personal exposure is valuated, the higher the general assessment. Only slight interrelations to the perceived risk criteria appeared. Effects of adaptation or repression, socio-demographic factors and experience with damages possibly have a significant influence on the appraisal of the exposure. Within the comparison of different flood affected areas, it could be detected that people in frequently inundated areas assess the hazardousness lower than people affected for the first time.
  Tremendous differences partly exist concerning the assessment of the threat of various risk sources between so called experts and lays. Moreover, the danger of inundation is often under-estimated by the population, while it is viewed as rather threatening by the experts. Beyond that, significant differences of the exposure assessment between male and female respondents could be determined.
- *The probability of occurrence* and its influence on the risk evaluation are not clarified satisfactorily. Research results show considerable differences. The assessment of the occurrence probability mainly depends on the knowledge and experience. Several mental heuristics and strategies of handling with uncertainty lead to a misinterpretation of the occurrence probability (Over- and underestimation). In comparison to civilizing risks accidents and disasters caused by natural hazards are assumed less likely to unlikely. While lays consider river floods as rather unlikely, experts regard them as fairly likely. Concerning the probability there have also been differences between experts and lays. A study carried out in the USA has shown that in particular events with low frequency were often under- and overestimated by the laymen. If the individual assessment of the damage probability correlates with the individual experience couldn't be clearly determined.

- The *controllability* of risks is an essential factor for the perceived differentiation of natural hazards. In contrary to the valuation of technological risks, the controllability has only a minor importance for the individual assessment of natural hazards. Natural hazards are normally regarded as uncontrollable. A low level of control can lead to lower sensitivity. Inundation is often attached with a medium level of controllability. Associated with the controllability, a loss of control is perceived in case of failure of the protective element, which again can cause disaffection with the risk management. The individual belief in the possibility of control as a personal variable is important for the will and the degree of adaptation and thus an essential prerequisite for a sufficient disaster and crisis management as the help to help themselves
- People's *knowledge* and *experience* with risks significantly define the degree of risk perception. A pre-experience enhances the awareness of problems and the readiness for a risk management up to an adaptation to the certain hazard situation. Different strategies dealing with uncertainty can cause contrary reactions, such as the denial of hazard or a fatalistic attitude. The personal experience with a hazard often leads to the opinion that damages are avoidable, whereas this is normally considered as a task for the responsible institutions and authorities. The individual experience with damages and disaster coping generally results in an increased estimation of the exposure and is hence significant for the faith in the authorities and the disaster management. PLAPP (2003) demonstrated that people who have experience with damaging events classify inundation considerably higher. Experience is especially in case of very rare events a function of time. Thus young generations often possess only minor knowledge about natural hazards in their area. Approximately six months after an event begins the motivational decay, which causes that at the latest after 15 years the knowledge fades insofar as a decision isn't influenced through this anymore.
- The *personal attitude* may influence the risk perception significantly. The general attitude towards nature affects the risk decision. Political orientation, economic interests, and optimism are individual attitudes, which can influence the perception and the valuation of risks.
- *Emotions* like fear may imply that risks are assessed higher or that they are denied or suppressed. GEIPEL ET AL. (1997) pointed out that compared to other risks the fear of inundation was classified rather low.
- *Socio-demographic* differences are found for example between men and women. The latter normally tend to a higher risk estimation than men. Also the age of the perceiving person has a noticeable influence on the risk perception. Elderly people perceive a risk more intense. They normally have a more comprehensive knowledge concerning the hazards, but are less willing to change their position. In addition, the assumption exists, that younger people assess those risk higher, which threaten their own life or property. Whereas elderly people rather assess global risks higher or those who threaten the environment. Due to economic interests and optimism the risk of natural hazards is often underestimated or suppressed by the younger generation. If other determinants such as attitude are included, socio-demographic components have only a marginal relevance for the risk valuation. Education and income are only of secondary importance. Some studies determined differences in risk valuation between lands- and townsmen. People from rural areas often have a more broad knowledge about past events and thus a higher sensitivity.
- *Cultural factors* lead to pronounced intercultural differences between societies and sub-civilizations within a society.

- The *causation* obviously corresponds with the voluntariness of the assumption of a risk and the controllability. Risks, which were not caused by the receptor himself, are assessed rather high, less controllable and are often declined. Inundation is mostly viewed as a man-made risk.

Concluding can be noticed, that generalized and transferable statements concerning the relevance of the different influence factors on the social risk evaluation are hardly possible. Consequently investigations in the considered areas are mandatory to approach to the risk as a social generated construct.

5.2 Public survey – the surveys results

From the 2,000 questionnaires (s. Appendix A) distributed, in total 411 (20.6 %) were sent back (Figure 11). This amount is comparable to other postal inquiries on the field of natural disasters and flood-risk. PLAPP (2002) and JONES ET AL. (2003) who distributed approximately the same number of questionnaires, but on national level, achieved a rate of return of 24 % and 25 %. According to JONES ET AL. (2003, p. 52) a return rate of 25 % is unusual high for a postal questionnaire surveys. In our survey the number of returned questionnaires differed considerably between the countries. The highest amount was reached in Belgium with a rate of 27.5 % (110).

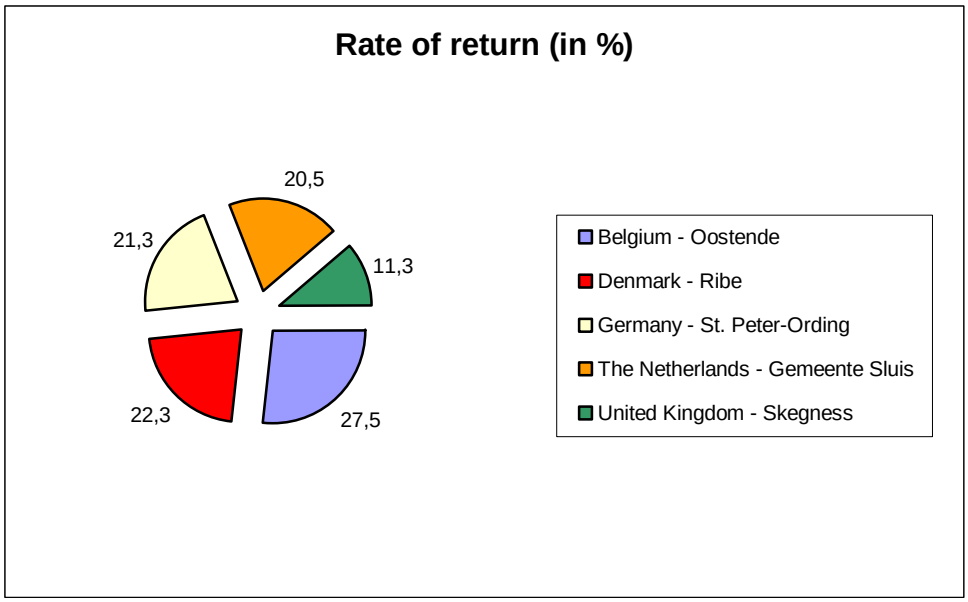


Figure 11: Rate of return of the public survey

Table 3: Country specific rate of return of public survey

Study area	Distributed questionnaires	Answers	Answers (%)
Belgium - Oostende	400	110	**27.5 %**
Denmark - Ribe	400	89	**22.3 %**
Germany - St. Peter-Ording	400	85	**21.3 %**
The Netherlands - Gemeente Sluis	400	82	**20.5 %**
United Kingdom - Skegness	400	45	**11.3 %**
Total	2000	411	**20.6 %**

Most of the questionnaires were sent back in a time-period of one month, only very few came a few weeks later. The data collected in the survey were entered into a database, translated from Dutch and Danish and analysed. The analysis was undertaken using SPSS software, which enables cross tables and statistical analyses. A matrix was generated including the 411 cases and answers with different scales (ordinal, nominal and cardinal). The open questions were categorized so that they could be visualized in diagrams.

Among the total of 411 respondents 47 % were between 30 and 60 years old, 45 % older than 60 years and only 7 % younger than 30 years. In Germany/ St.Peter-Ording, however, more than 60 % of the respondents were older than 60 years (Figure 12).

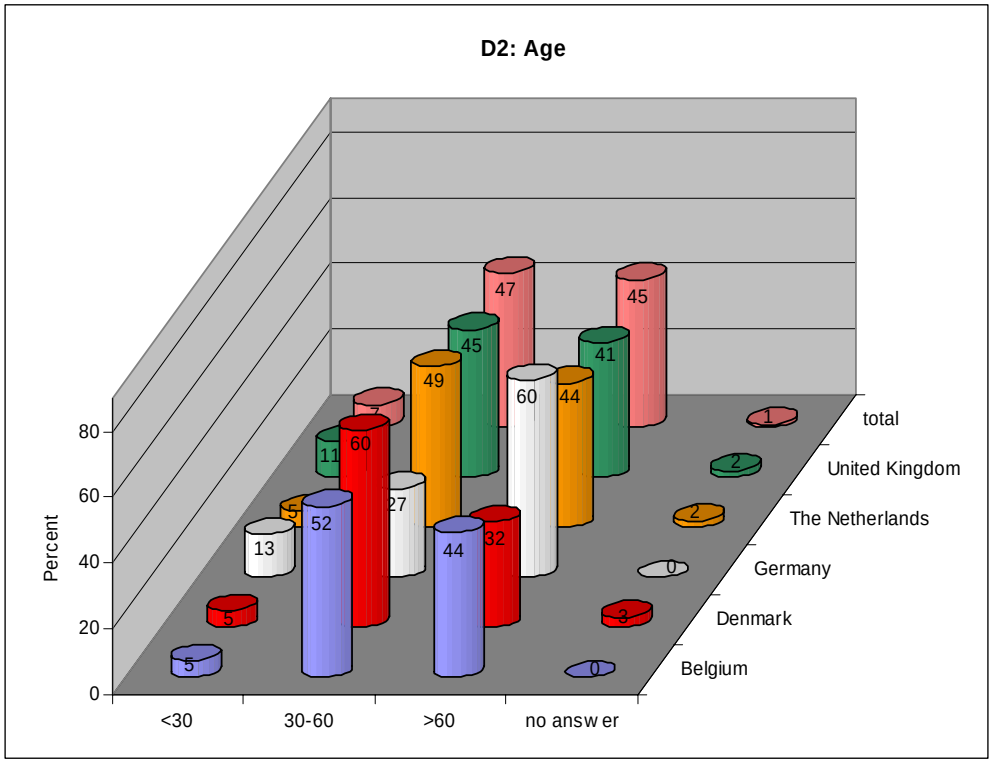


Figure 12: Age of the respondents

The gender distribution is quite homogenous in all countries. 64 % of the people were male and 32 % female.

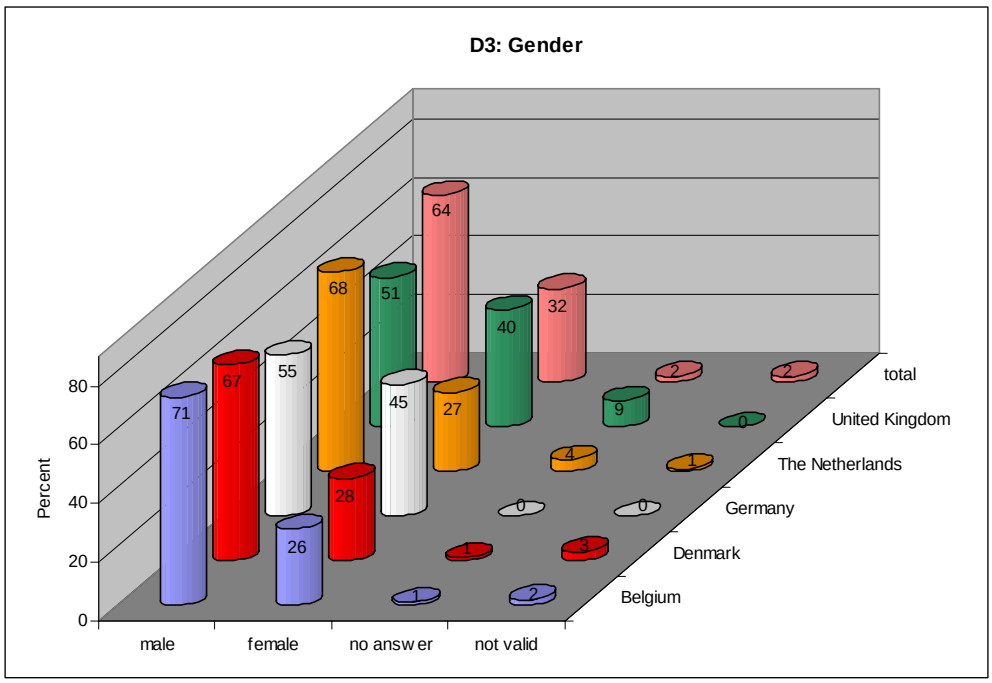


Figure 13: Gender of the respondents

5.2.1 Responses to the questionnaire – public perception of risk

The first part of the questionnaire deals with the perception of the people in the five countries.

Question R1: *Have you ever experienced a storm flood?*
This introducing question is of importance for the perception of risk. It is supposed that people who have experienced a severe storm surge event are all the more aware of the risk (cp. 5.1.2). A general overview (Figure 14) shows that, in total, 62 % of the respondents have experienced a storm surge. Noticeably, in Denmark 83 % of the interviewees had been affected by a former storm flood, while in the UK only 11% percent answered *yes*. The answers to this question correlate strongly with the occurrence of former storm flood events.

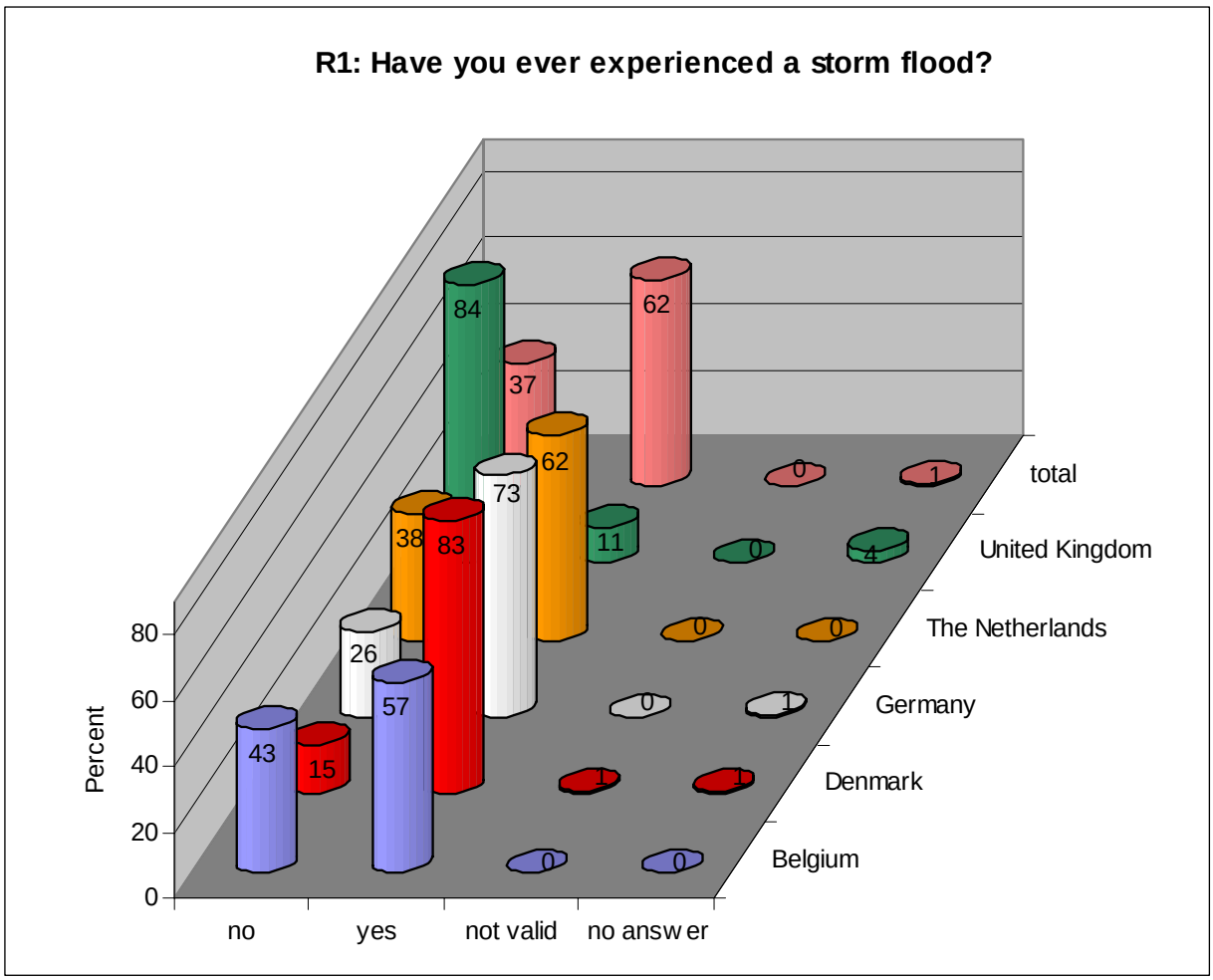
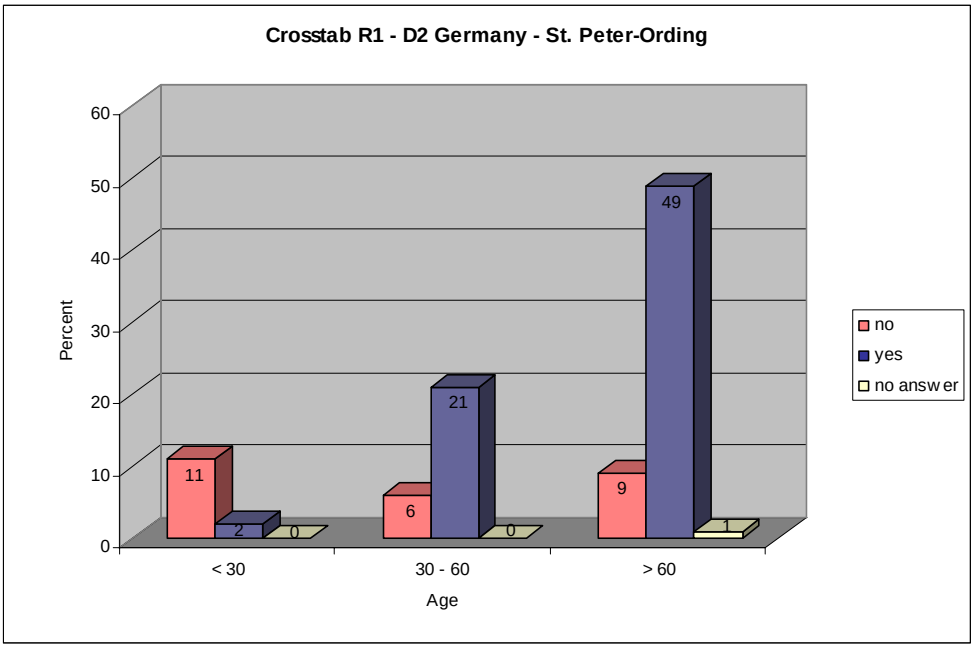


Figure 14: Personal experience with a storm flood

Table 4: Experiences with storm floods in the different study areas

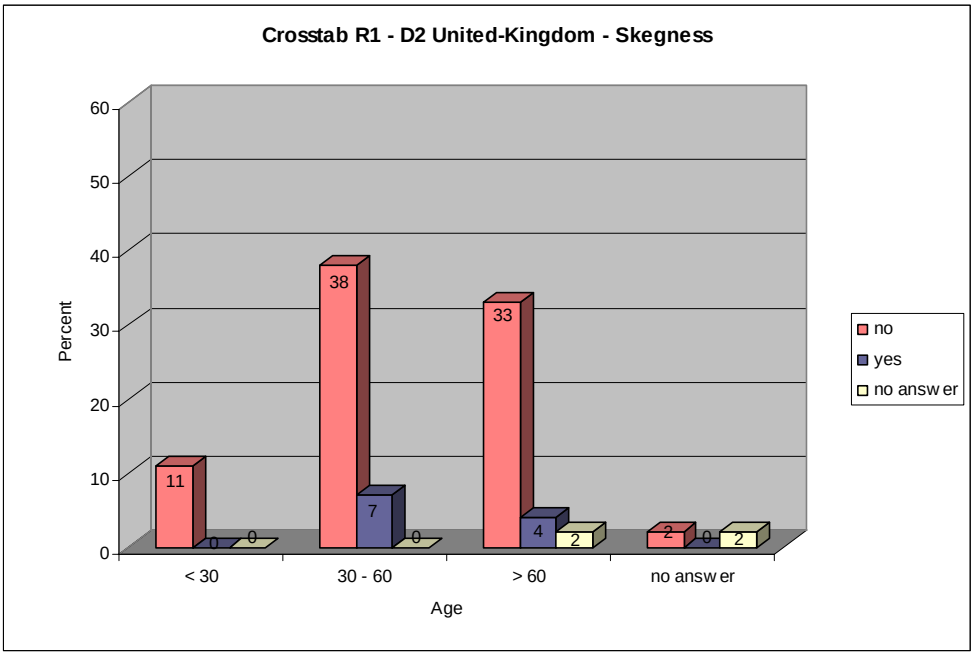
answer	Belgium (%)	Denmark (%)	Germany (%)	Netherlands (%)	United Kingdom (%)	total (%)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
no	43	15	26	38	84	37
yes	57	83	73	62	11	62
not valid	0	1	0	0	0	0
no answer	0	1	1	0	4	1

The correlation of question one (*R1: Have you ever experienced a storm flood?)* with the age of the people (Figure 15 and Figure 16) shows very clearly that in St. Peter-Ording most of the people older than 60 years experienced a storm flood (e.g. the storm flood events of 1962 or 1976).



Symmetric measures:	Interval by Interval Pearsons's R:	0.098
	Ordinal by Ordinal Spearman Correlation:	0.378
	N of Valid Cases:	85

Figure 15: Cross table between the age of respondents and the personal experience of a storm flood in St. Peter-Ording



Symmetric Measures:	Interval by Interval Pearson's R:	0.480
	Ordinal by Ordinal Spearman Correlation:	0.190
	N of Valid Cases:	45

Figure 16: Cross table between the age of respondents and the personal experience of a storm flood in Skegness

In the UK only few people said that they had been affected by a storm flood. Due to the geographical position at the east coast of the UK the frequency of storm surges is in this area is much lower than compared to the frequency in the other study areas.

Question *R2: Have you ever experienced a coastal flooding (dike breaching)?*
The answers here were more consistent. In total 29 % of the respondents had experienced a coastal flooding or dike breaching. This question also correlates strongly with the last storm flood **disaster**, which was in 1953 in the Netherlands, Belgium and the UK and in 1962 in Germany. Although in Denmark smaller dike breaches happened in the recent decades, 70 % of the respondents didn't mention them. The reason for this may be, that Ribe town is situated about 6 km away from the coastline and that the town itself had not been effected by these dike breaches.

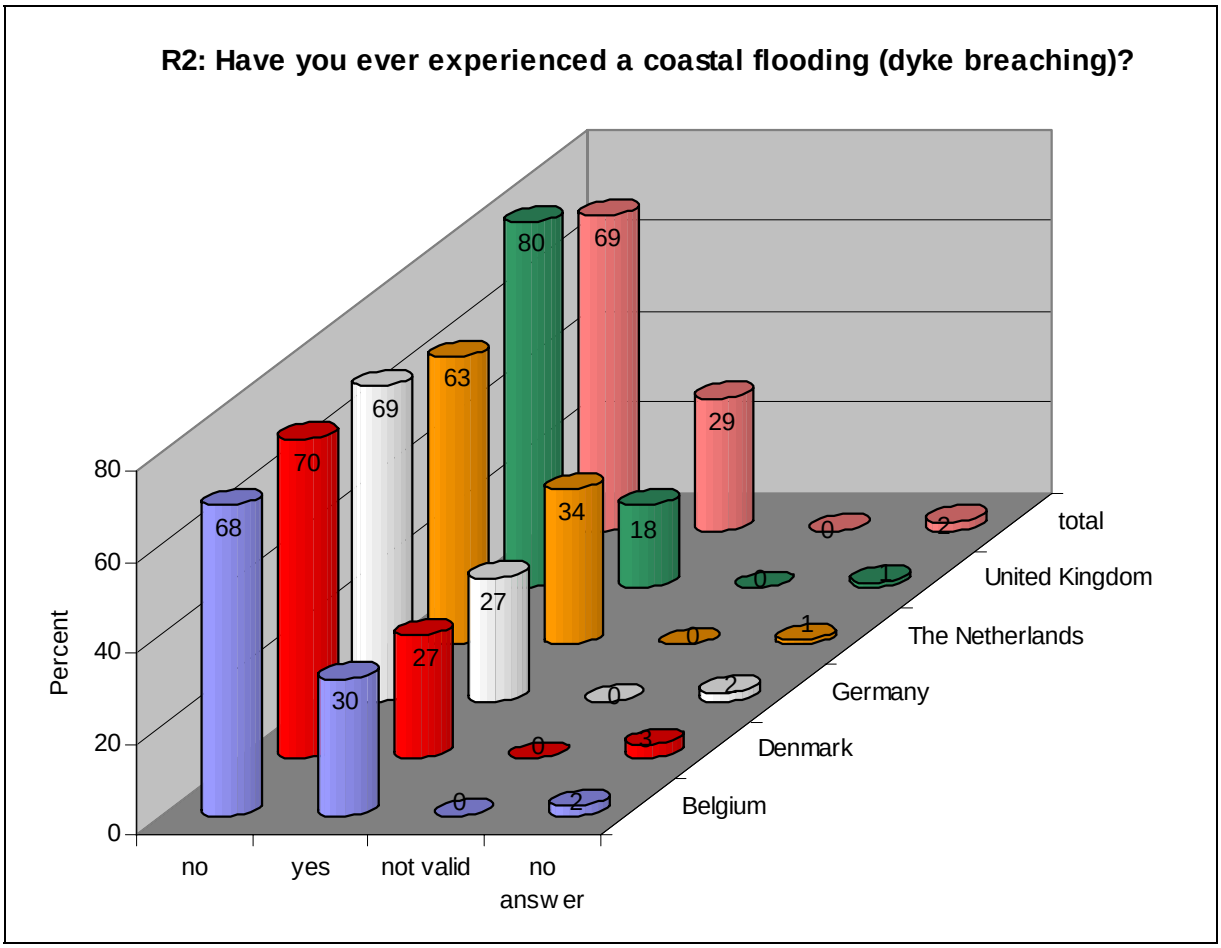
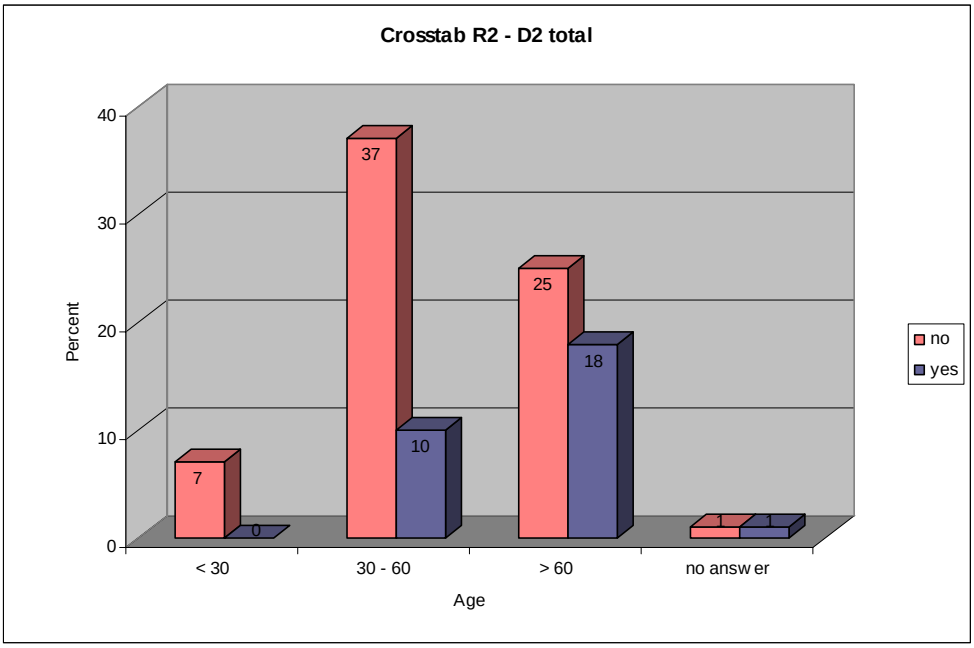


Figure 17: Personal experience with coastal flooding (dike breaching)

Table 5: Experiences with coastal flooding (dike breaching) in the different study areas

answer	Belgium (%)	Denmark (%)	Germany (%)	Netherlands (%)	United King-dom (%)	total (%)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
no	68	70	69	63	80	69
yes	30	27	27	34	18	29
not valid	0	0	0	0	0	0
no answer	2	3	2	1	1	2

The cross table (Figure 18) shows that most of the people who experienced a coastal flooding or dike breaching were older than 60 years. Only 10 % of the interviewees were between 30-60 years old. People younger than 30 years had not been affected.



Symmetric Measures:	Interval by Interval Pearson's R:	0.223
	Ordinal by Ordinal Spearman Correlation:	0.287
	N of valid cases:	411

Figure 18: Cross table between the age of respondents and the personal experience with coastal flooding (dike breaching)

Question *R3: Do you know the year when a storm flood disaster occurred in your area in the past?*
This question relates to question R2 and thus needed no further interpretation.

Question *R4: How high do you estimate the probability of a coastal flooding?*
The answers here showed homogenous results. In total 33 % of the interviewed people estimated the probability of a coastal flooding to be high or very high; in detail these were 24 % in Denmark, 30 % in Germany 24 % in the Netherlands and 25 % in the UK. An exception is Belgium where 42 % of the respondents considered the probability of a coastal flooding to be high or very high. One reason for this may be the coastal defence situation in Oostende with a sea dike that is rather low, so that the city is flooded every year by water overtopping during storms.

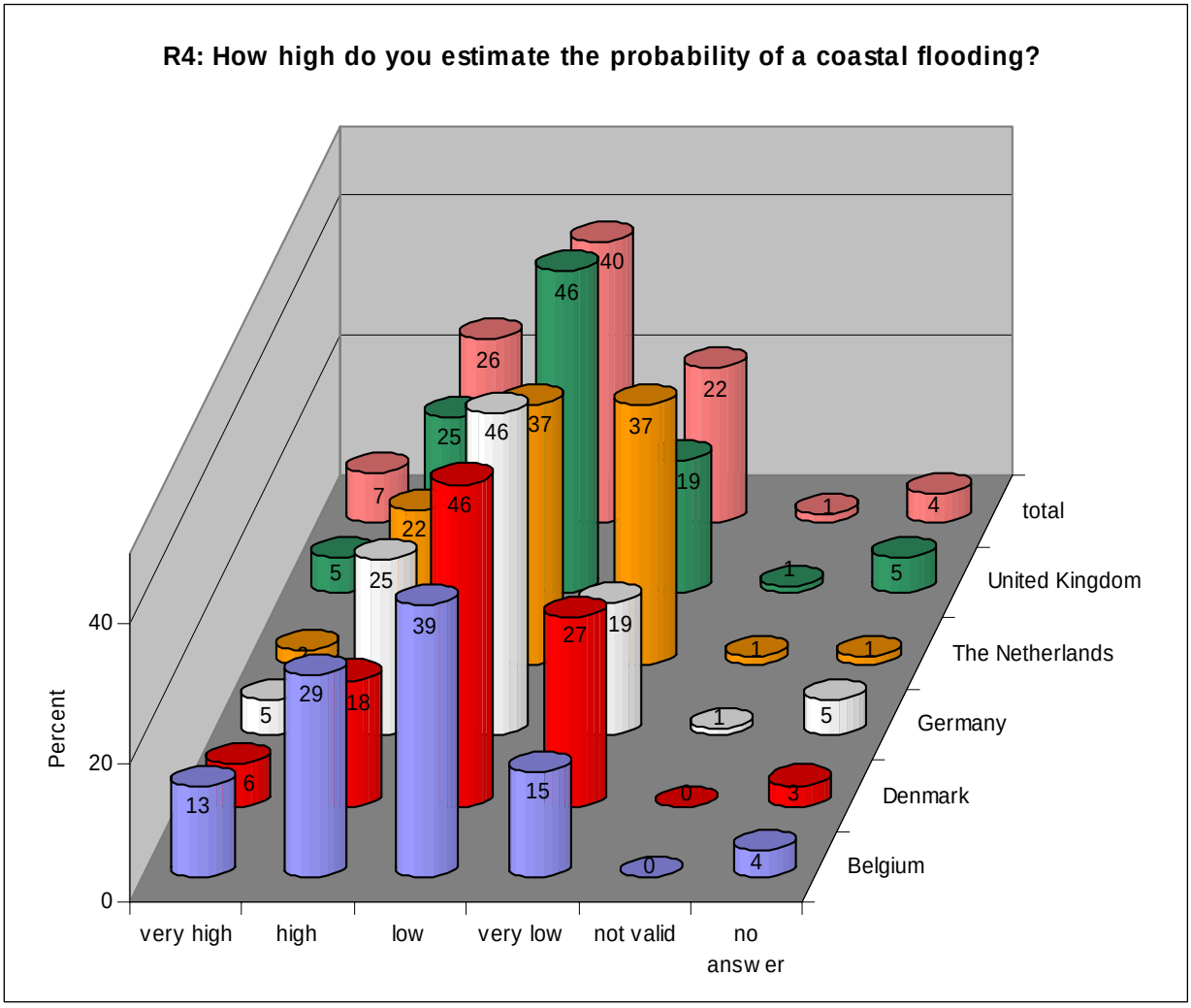


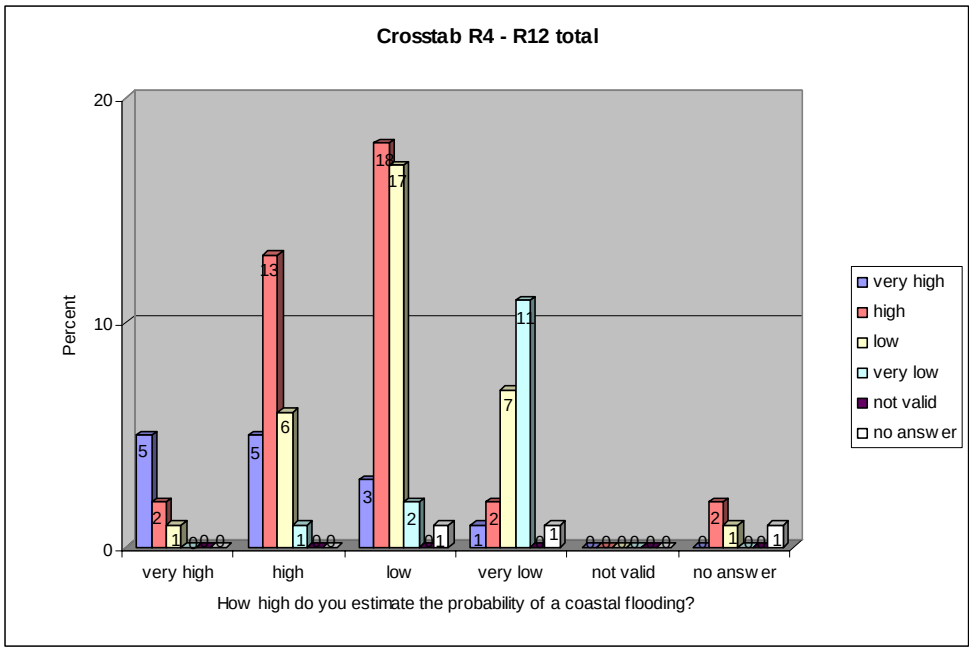
Figure 19: Estimation of coastal flood probability

Table 6: Estimation of flood probability in the different study areas

answer	Belgium (%)	Denmark (%)	Germany (%)	Netherlands (%)	United King-dom (%)	total (%)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
very high	13	6	5	2	5	7
high	29	18	25	22	25	26
low	39	46	46	37	46	43
very low	15	27	19	37	19	22
not valid	0	0	1	1	1	1
no answer	4	3	5	1	5	4

A cross table of question R4 and R12 shows that a correlation exists between the estimation of the probability of a coastal flooding and estimation of the influence of a sea-level rise on the danger of storm floods. People who thought that the probability of a storm flood is high or very high also thought that the influence of sea level rise is high or very high. This leads to

the assumption that those people are aware of the risks and consequences of a climate change and sea-level rise.



Symmetric Measures: Interval by Interval Pearson's R: 0.316
Ordinal by Ordinal Spearman Correlation: 0.502
N of valid cases: 411

Figure 20: Cross table R4: How high do you estimate the probability of a coastal flooding and R12: How great do you estimate the influence of a sea-level rise on the danger of a storm flood?

The often in the literature mentioned correlation between risk perception/ awareness and socio-demographic factors and personal experience (cp. 5.1.2) couldn't be approved in the study at hand. The statement, that the individual experience would influence the assessment of the probability couldn't be confirmed. There was also no significant correlation between the age and the risk estimation or the gender and the individual risk perception. Hence, it couldn't be affirmed that women have a higher risk estimation and elderly people a more intensive risk perception.

Question *R5: Could your dwelling be hit by the floodwater in case of a coastal flooding?* In total 30 % of the respondents thought that their house could not be hit by the floodwater in case of a coastal flooding (Figure 5). This appears a high ratio considering that all the respondents actually live in the flood-prone area below 5m NN. In the Netherlands 90 % of the respondents are obviously informed about risk area they live in.

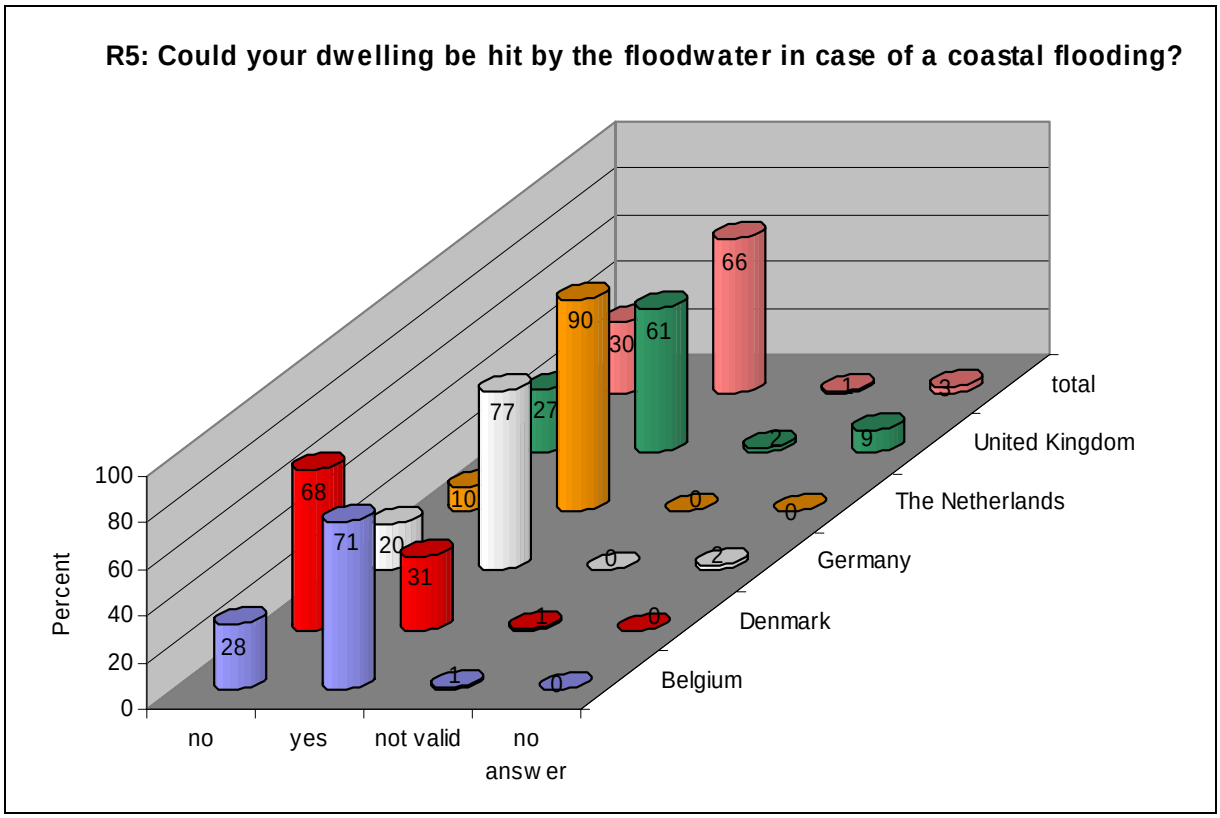


Figure 21: People who are of the opinion that their dwelling could be hit by the floodwater in case of a coastal flooding

Table 7: Estimation if own dwelling could be hit by flooding in the different study areas

answer	Belgium (%)	Denmark (%)	Germany (%)	Netherlands (%)	United Kingdom (%)	total (%)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
no	28	68	20	10	27	30
yes	71	31	77	90	61	66
not valid	1	1	0	0	2	1
no answer	0	0	2	0	9	3

The survey for Denmark showed some remarkable results. In Ribe, 68 % of the respondents believed that they do not live in the flood prone area and their house could not be hit by the water, although the whole Ribe-area lies lower than 5 m NN. The map in figure 22, showing the flood-prone area lower than 5 m, is distributed by the *Stormflodsberedskabet* via Internet and as a leaflet to the households. Reasons for this wrong interpretation maybe that Ribe town is situated about 6 km behind the dike and lies slightly higher than the surrounding marshland. Although there have been storm floods in the last decades people were not aware of the risk of being flooded.

This implies that people are poorly informed about the elevation of their houses and that the distance to the coastline distracts from the fact that they live in the flood-prone area. A map like that one distributed in Ribe might cause another problem: Are all people able to read maps? Risk- or flood maps may be difficult to be interpreted by the public.

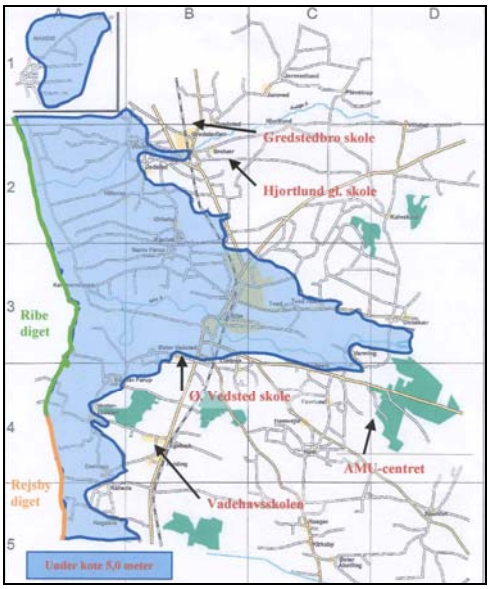


Figure 22: Flood prone area of Ribe

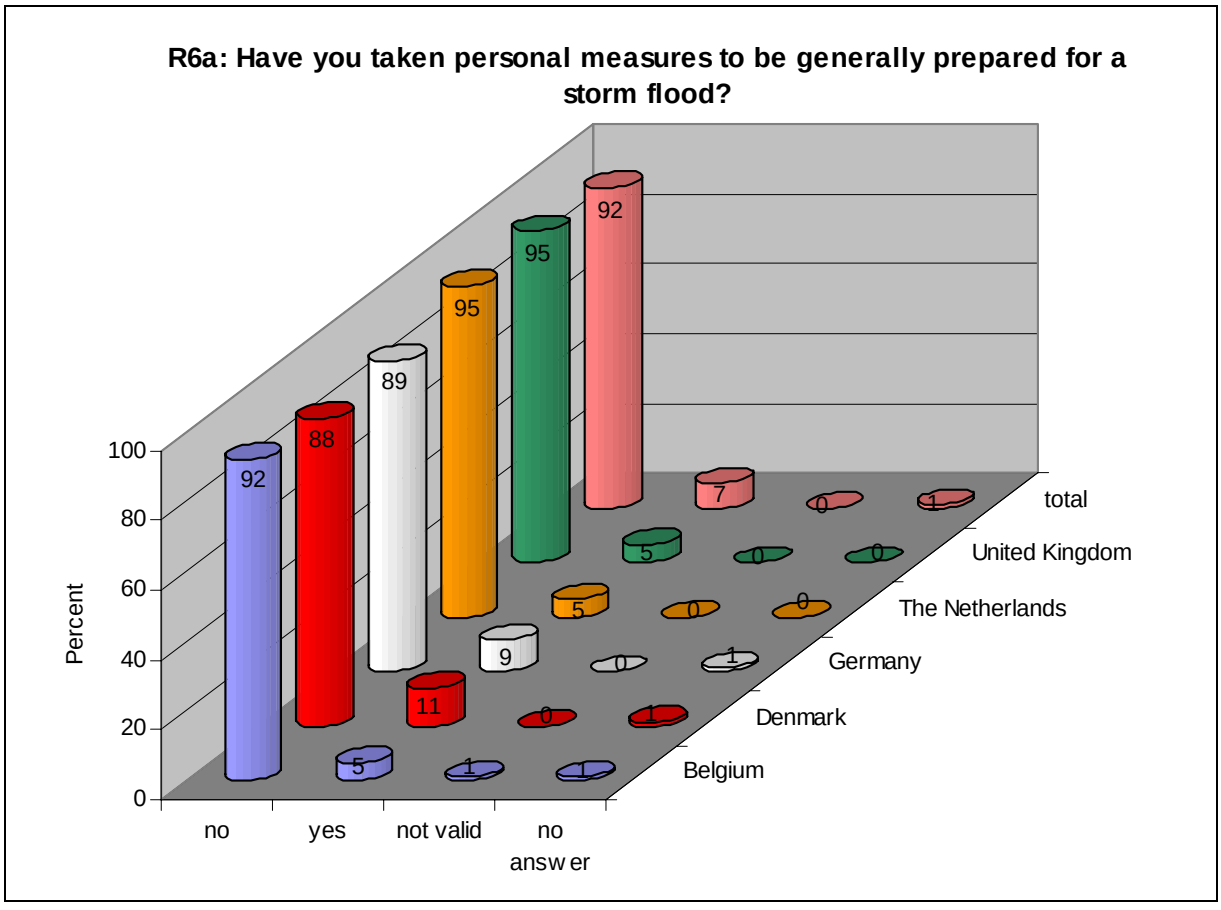


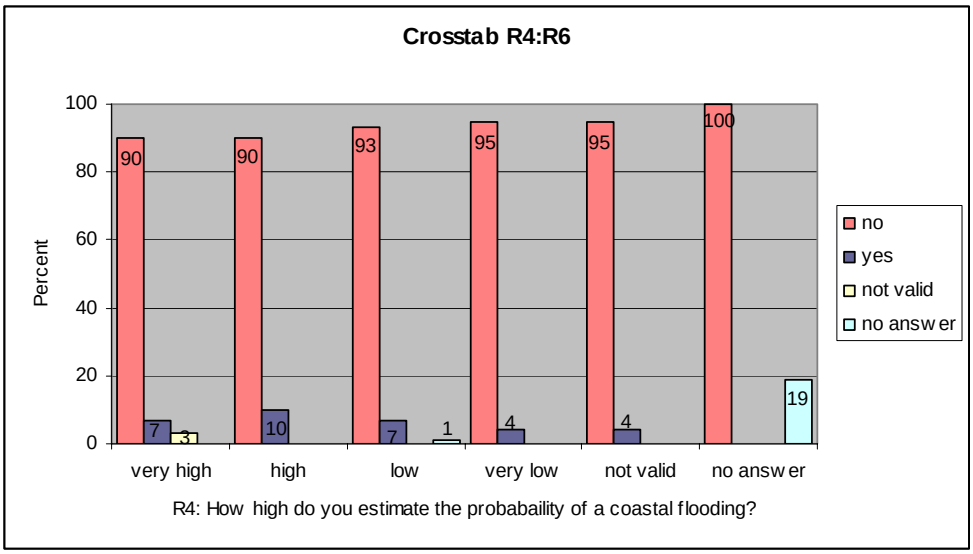
Figure 23: Proportion of the people who have taken personal measures to be generally prepared for a storm flood

Table 8: People who are generally prepared for a storm flood in the different study areas

answer	Belgium (%)	Denmark (%)	Germany (%)	Netherlands (%)	United Kingdom (%)	total (%)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
no	92	88	89	95	95	92
yes	5	11	9	5	5	7
not valid	1	0	0	0	0	0
no answer	1	1	1	0	0	1

Question *R6: Have you taken personal measures to be generally prepared for a storm flood?*
The answers to this question revealed that there is a large gap between the risk perception and the resulting actions taken: Only 7 % of the respondents had taken protective measures. A cross table of questions *R2* and *R6* respectively the assumption that the personal experience would influence the degree of preparedness (cp. 5.1.2) does not show any correlation. This emphasises the results of former studies (BAKER & PATTON, 1974; MOLINE, 1974). The experience of a dike breach or the awareness of living in the flood-prone area does not necessary induce precautionary actions (cp. Figure 24).

A cross table (Figure 24) of question *R4: How high do you estimate the probability of a coastal flooding?* and *R6a: Have you taken personal measures to be generally prepared for a storm flood?* shows that 90 % of all persons who estimated the probability of a storm flood to be *very high*, do not take any personal measures. These results showed that the knowledge about a risk does not necessary lead to comprehensive understanding.



Symmetric measures: Interval by interval Pearson's R: 0.321
Ordinal by Ordinal Spearman Correlation: -0.014
N of valid classes: 411

Figure 24: Cross table: R4: How high do you estimate the probability of a coastal flooding? and R6: Have you taken personal measures to be generally prepared for a storm flood?

An additional open question *R6b: If you answered yes in question R6a, what kind of measures have you taken to be prepared for a storm flood?* brought up, that of those 7 %, who take personal measures, the measures named most frequently were "settlement outside the flood-prone area", "protection of the building" and the "availability of emergency equipment" (Figure 25). Question R6b was an open question, the results were categorized afterwards. Answers like "insurance" demonstrated the misinformation of some respondents, because it is not possible to be insured against natural disasters. Also the belief of having settled outside the flood-prone area illustrated the information deficit of a large part of the public.

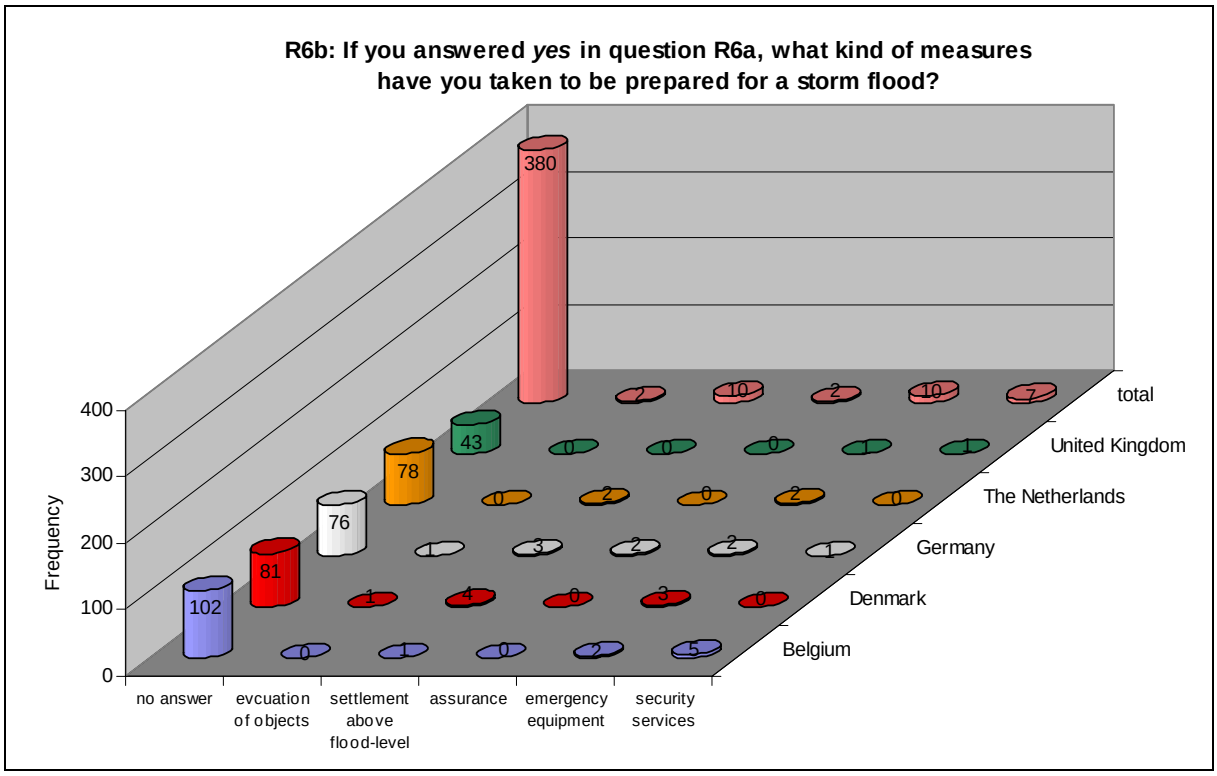


Figure 25: Kind of measures people have taken to prepare themselves for a storm surge

Table 9: People who have taken measures in the different study areas

answer	Belgium (freq.)	Denmark (freq.)	Germany (freq.)	Netherlands (freq.)	United King-dom (freq.)	total (freq.)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
security services	5	0	1	0	1	7
emergency e-quipment	2	3	2	2	1	10
assurance	0	0	2	0	0	2
settlement above flood- level	1	4	3	2	0	10
evacuation of objects	0	1	1	0	0	2
no answer	102	81	76	78	43	380

5.2.2 Responses to the questionnaire – information policy

Question *R7a: In your opinion is there sufficient protection against storm floods?*
The answers to this question are diverse in the five case study areas. Of the respondents 56 % in Belgium and 45 % in Germany and the Netherlands thought that there is no sufficient protection against storm floods. In Denmark 93 % of the respondents were satisfied with the protection. This satisfaction may be influenced by the fact that (falsely) 68 % of the respondents think that they do not live in a flood prone area (cp. Figure 21 and Figure 22). This feeling of safety may be emphasised by the fact that the last storm surges had not reached Ribe town. In Oostende, where 56 % of the people were not satisfied, there is a special situation because of the insufficient state of the sea-dike.

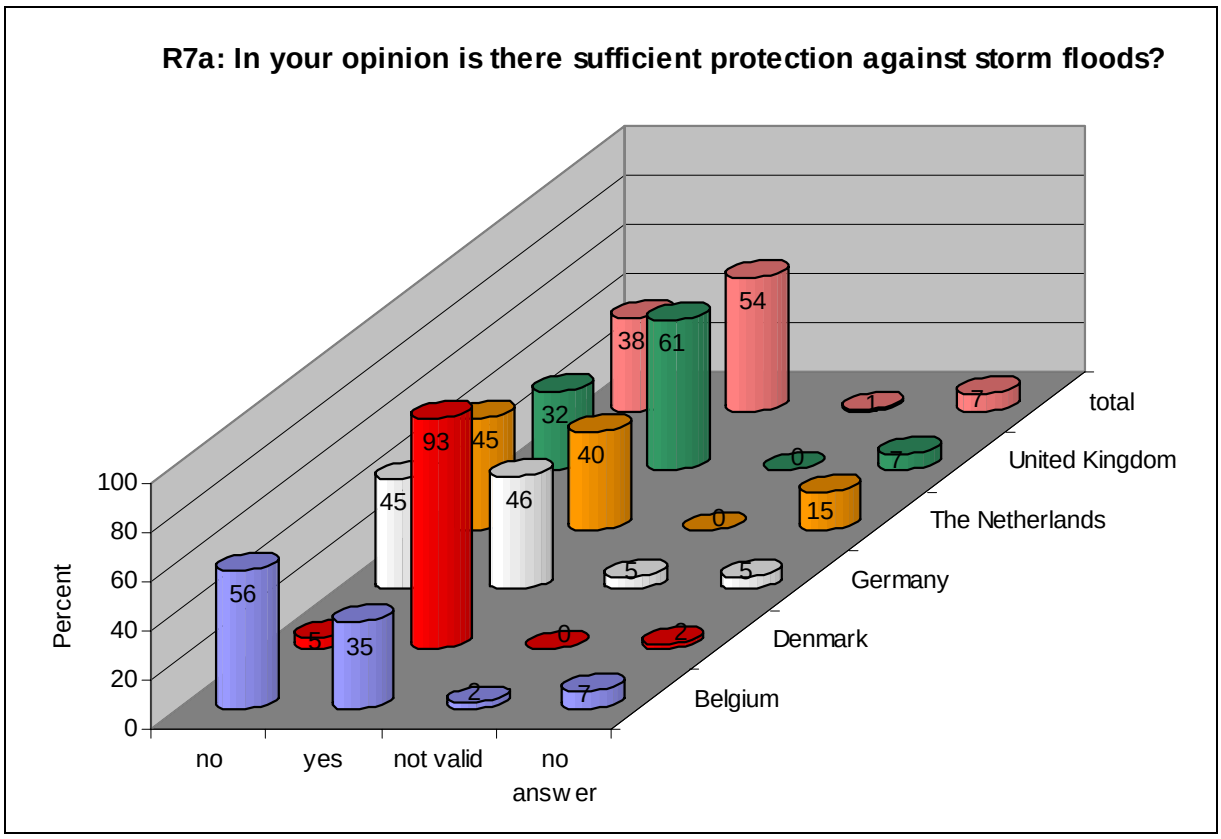


Figure 26: Estimation about protection against storm floods

Table 10: Country specific satisfaction with protection against storm surges

answer	Belgium (%)	Denmark (%)	Germany (%)	Netherlands (%)	United Kingdom (%)	total (%)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
no	56	5	45	45	32	38
yes	35	93	46	40	61	54
not valid	2	0	5	0	0	1
no answer	7	2	5	15	7	7

Question *R7b: If you have answered no in question 7a, in your opinion, how could the safety in case of a storm flood be improved?*

Most of the respondents who had answered *no* in the previous question desired more information or an improved disaster plan. Especially in Belgium and in the Netherlands people seem to require more and better information. It must be noted that this question was an open question, i.e. the respondents had to give their own answers.

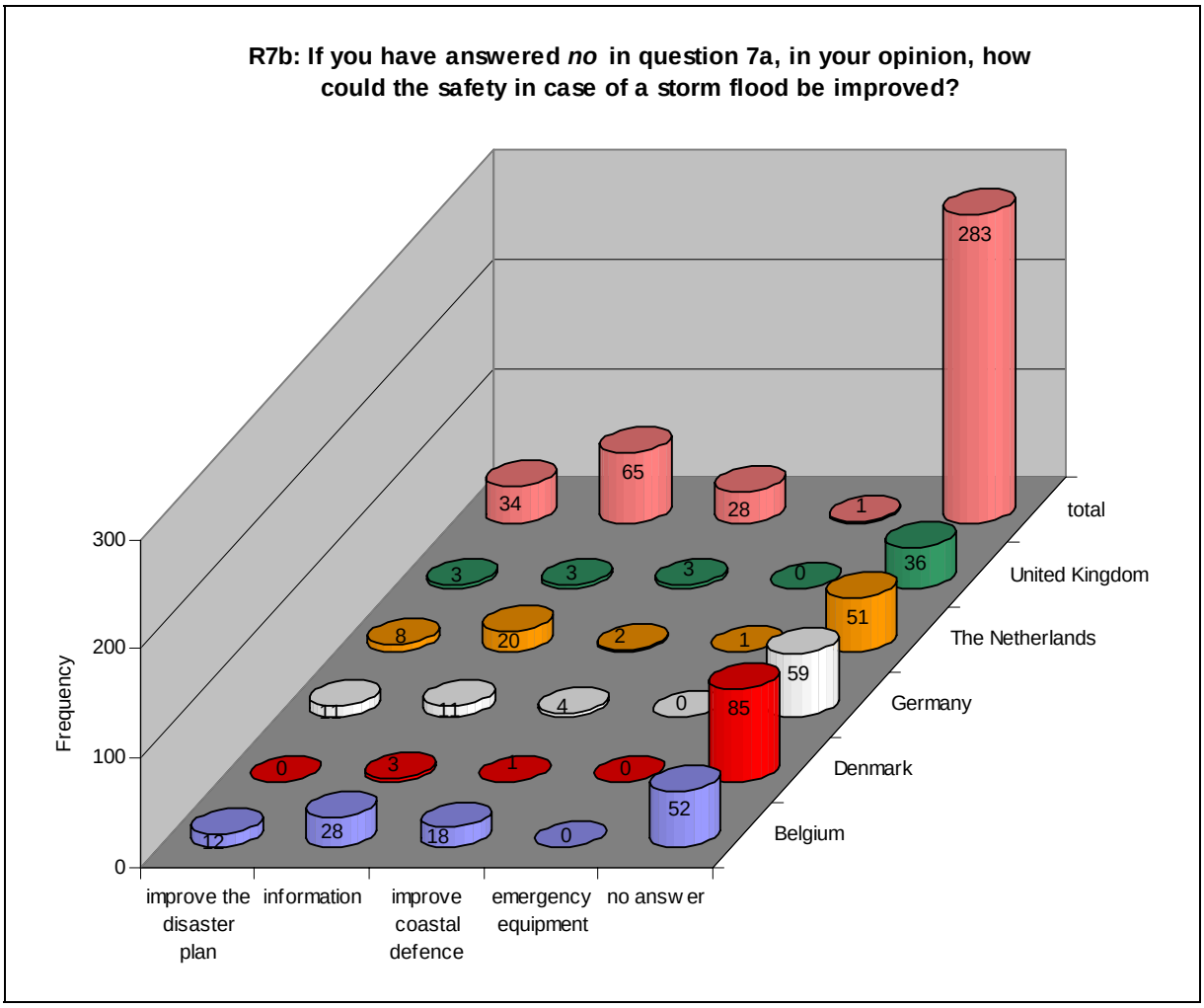


Figure 27: Personal preferences to improve safety in case of storm floods

Table 11: Country specific statements about options to improve safety

answer	Belgium (freq.)	Denmark (freq.)	Germany (freq.)	Netherlands (freq.)	United Kingdom (freq.)	total (freq.)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
improve the disaster plan	12	0	11	8	3	34
information	28	3	11	20	3	65
improve coastal defence	18	1	4	2	3	28
emergency equipment	0	0	0	1	0	1
no answer	52	85	59	51	36	283

Question *R8a: Do you know what to do in case of a coastal flooding?* The answers were quite homogenous, except for Denmark. In total 59 % of the respondents said they do not know what to do in case of a flooding event. In Belgium, Germany, the Netherlands and United Kingdom there seems to be a lack of information, mostly so in Belgium, where 78 % of the respondents answered *no*. The only region, where a majority of the people felt sure about what to do in case of a coastal flooding was Denmark (Figure 28). The fact that 66 % of the people in Ribe answered *yes*, probably reflects the effect of the information distributed to the households in form of leaflets. These leaflets show a map of the flood-prone area and instructions how to behave in case of a coastal flooding. Nevertheless, this information has to be improved because despite of having a flood prone map included 68 % of the people considered not living in a flood-prone area.

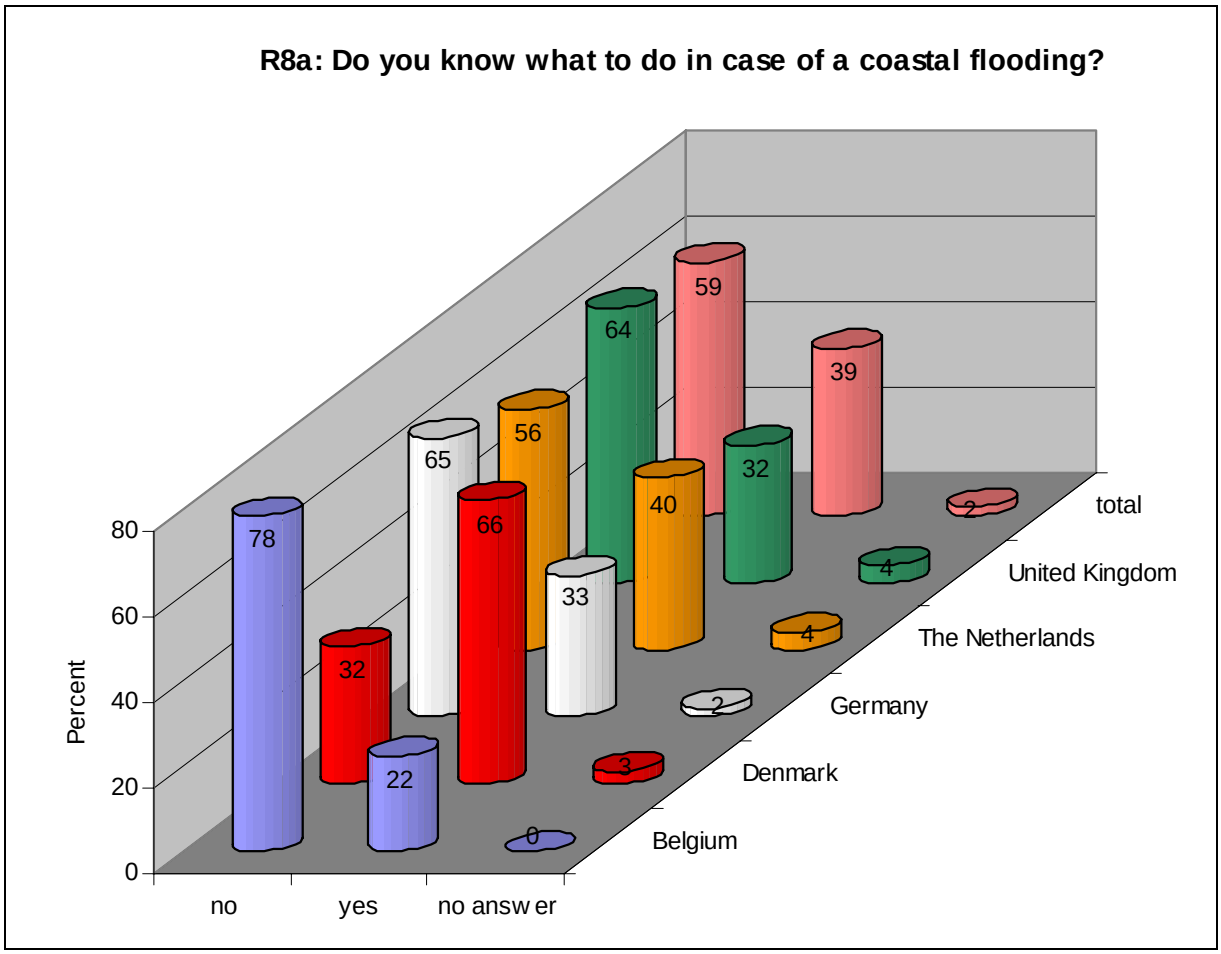


Figure 28: Estimation about personal preparedness for an emergency case

Table 12: Country specific statements about the preparedness

answer	Belgium (%)	Denmark (%)	Germany (%)	Netherlands (%)	United Kingdom (%)	total (%)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
no	78	32	65	56	64	59
yes	22	66	33	40	32	39
no answer	0	3	2	4	4	2

Question *R8b: If you have answered yes in question R8a, what exactly can you do to protect yourself in case of a coastal flooding?* This additional question revealed that for most of people who answered (76) leaving the area is the preferred consequence (Figure 29).

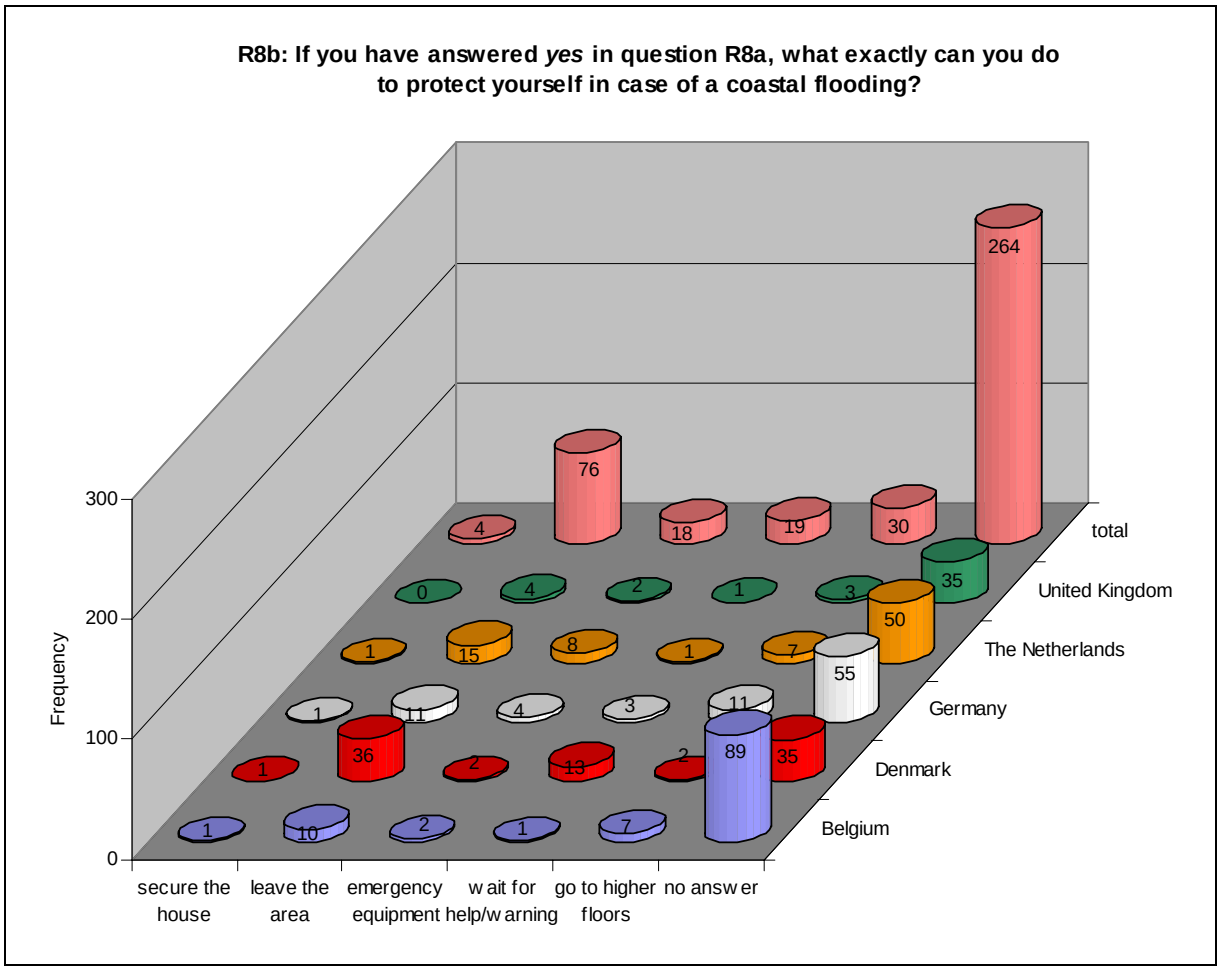


Figure 29: Personal options for self-protection

Table 13: Personal options for self-protection in the different study areas

answer	Belgium (freq.)	Denmark (freq.)	Germany (freq.)	Netherlands (freq.)	United King-dom (freq.)	total (freq.)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
secure the house	1	1	1	1	0	4
leave the area	10	36	11	15	4	76
emergency equipment	2	2	4	8	2	18
wait for help/warning	1	13	3	1	1	19
go to higher floors	7	2	11	7	3	30
no answer	89	35	55	50	35	264

Question *R9: How well have you been informed about the basic risks of a storm flood by the responsible authorities?* The results here reflected the overall results of this survey. Only in Denmark the trend of the answers was positive. In Ribe, 79 % of the respondents felt they were well- or very well-informed. In the other countries more than half of the respondents felt informed insufficiently, especially in Belgium, where 86 % of the respondents were not satisfied with the information provided to them (Figure 30). This significant difference might be the result of a rather broad information policy in Denmark. On the other hand, the low percentage of only 14 % in Belgium who felt well- or very well-informed might be a consequence of the public discussion of ongoing coastal protection measures. Controversial discussions often lead to discord among the concerned population.

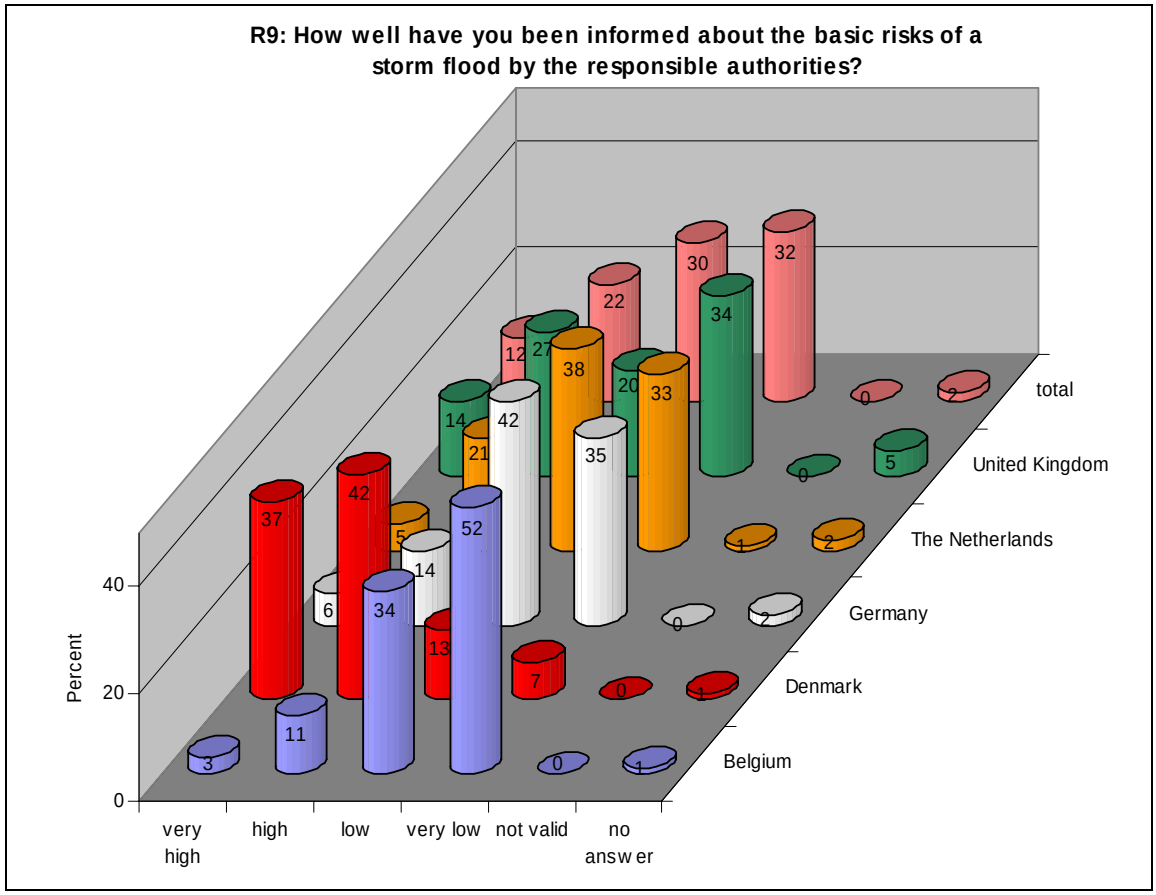


Figure 30: Assessment of authorities' information policy

Table 14: Assessment of authorities' information policy in the different study areas

answer	Belgium (%)	Denmark (%)	Germany (%)	Netherlands (%)	United Kingdom (%)	total (%)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
very high	3	37	6	5	14	12
high	11	42	14	21	27	22
low	34	13	42	38	20	30
very low	52	7	35	33	34	32
not valid	0	0	0	1	0	0
no answer	1	1	2	2	5	2

Question *R10a: Do you know how to get precautionary information about your own protection in case of a storm flood?* This question confirmed the tendency mentioned above. The only country, where the majority of the people (65 %) answered *yes* is Denmark. In total, 60 % of the respondents do not know, where to get information from. Especially in Belgium an information deficit is verified by 84 % of the population.

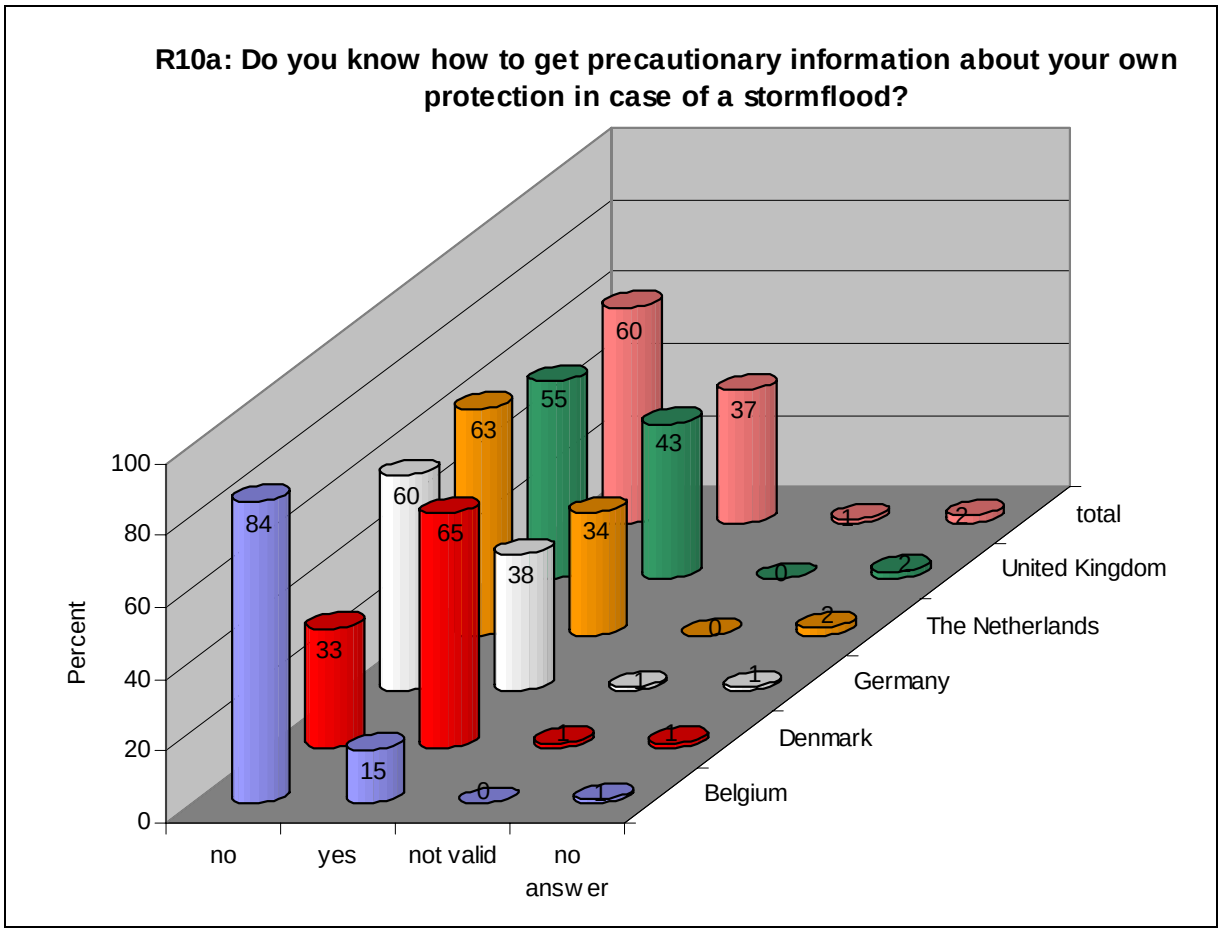


Figure 31: People's knowledge how to get information about self-protection

Table 15: People's knowledge how to get information about self-protection in the different study areas

answer	Belgium (%)	Denmark (%)	Germany (%)	Netherlands (%)	United King-dom (%)	total (%)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
no	84	33	60	63	55	60
yes	15	65	38	34	43	37
not valid	0	1	1	0	0	1
no answer	1	1	1	2	2	2

Question *R10b: If you answered yes in R10a, where do you get the information from?* The results here showed that the most relevant sources of information for the people are radio and TV. Authorities and prevention/fire brigade were named second. The internet was not mentioned as a commonly used information source (Figure 32). It appears, however, that some of the respondents marked "authorities" even when meaning internet platforms of authorities. Radio and TV might be useful to inform about flooding in general and contribute to raise the awareness, but they are definitely not the appropriate tool to get information about precise protective measures. This is again a sign of an information deficit. In spite of these findings the internet opens up more possibilities to inform people in the future.

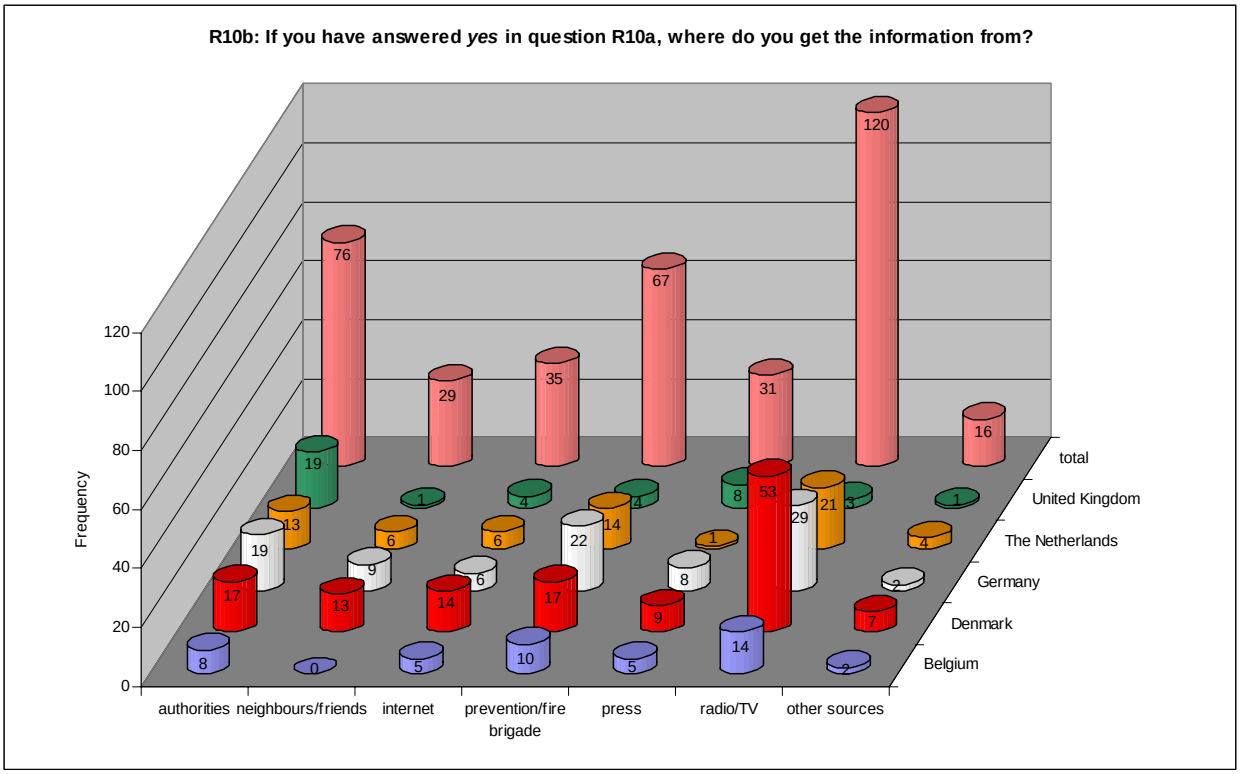


Figure 32: Information sources for protective measures

Table 16: Information sources in the different study areas

answer	Belgium (freq.)	Denmark (freq.)	Germany (freq.)	Netherlands (freq.)	United Kingdom (freq.)	total (freq.)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
authorities	8	17	19	13	19	76
Neighbours/ friends	0	13	9	6	1	29
internet	5	14	6	6	4	35
Prevention/ fire brigade	10	17	22	14	4	67
press	5	9	8	1	8	31
Radio/TV	14	53	29	21	3	120
Other sources	2	7	2	4	1	16

Question *R11: Do you feel personally endangered by a sea-level rise, inducted by the global climate change?*

The answers here revealed that, in total, 36 % of the respondents felt at risk by a sea-level rise, induced by global climate change (Figure 33). This indicated that a bigger part of the people seemed to be well-informed about the actual climate change discussion. But the majority of the people is not aware of the risks of a climate change. More detailed information should be given to the people.

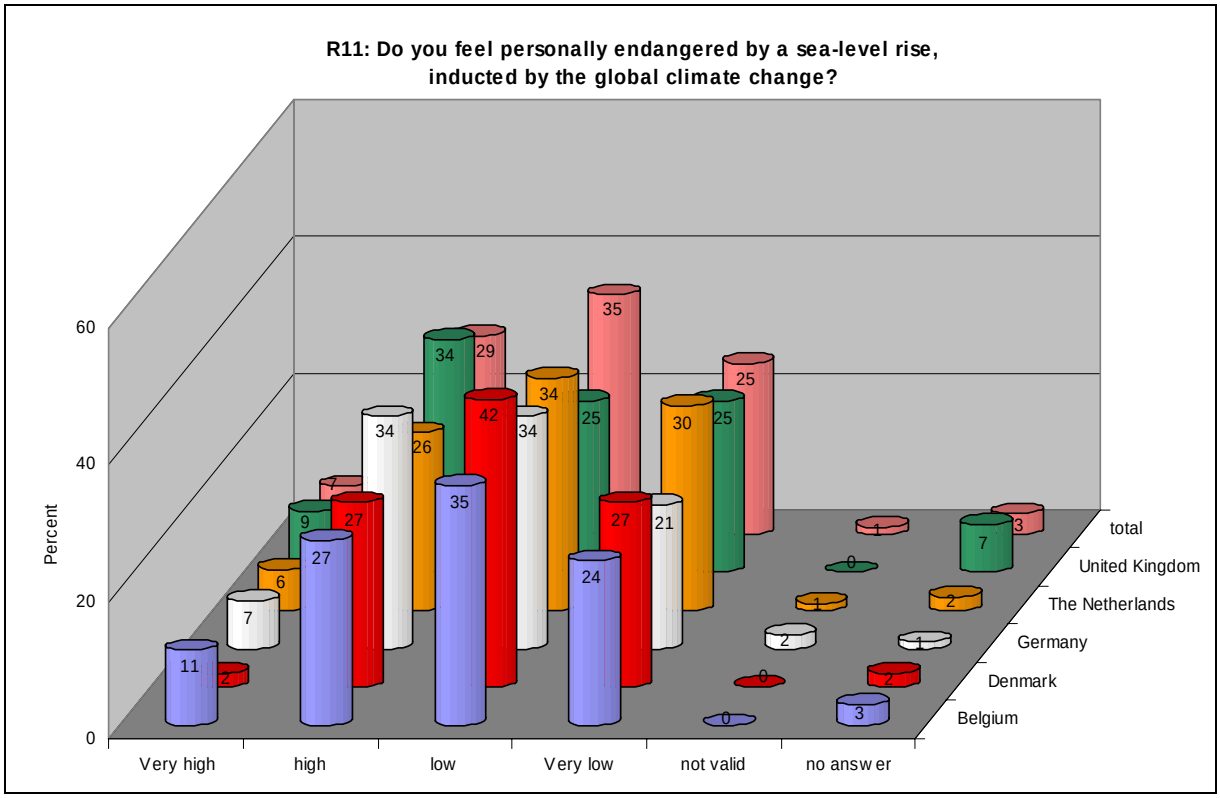


Figure 33: Estimation about personal risk of sea-level rise

Table 17: Estimation about personal risk of sea-level rise in the different study areas

answer	Belgium %	Denmark %	Germany %	Netherlands %	United Kingdom %	total (%)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
very high	11	2	7	6	9	7
high	27	27	34	26	34	29
low	35	42	34	34	25	35
very low	24	27	21	30	25	25
not valid	0	0	2	1	0	1
no answer	3	2	1	2	7	3

Question *R12: How high do you estimate the influence of a sea level rise on the danger of a storm flood?* This question yielded differing results. In total, 50 % estimated the influence of sea-level rise to be high or very high. In the Netherlands, however, a majority of the respondents (57 %) estimated the SLR influence as low or very low (Figure 34). To a certain extent the high safety standards in coastal defence in the Netherlands (based on a 1-in-10,000 year flood event) may be responsible for this deviation.

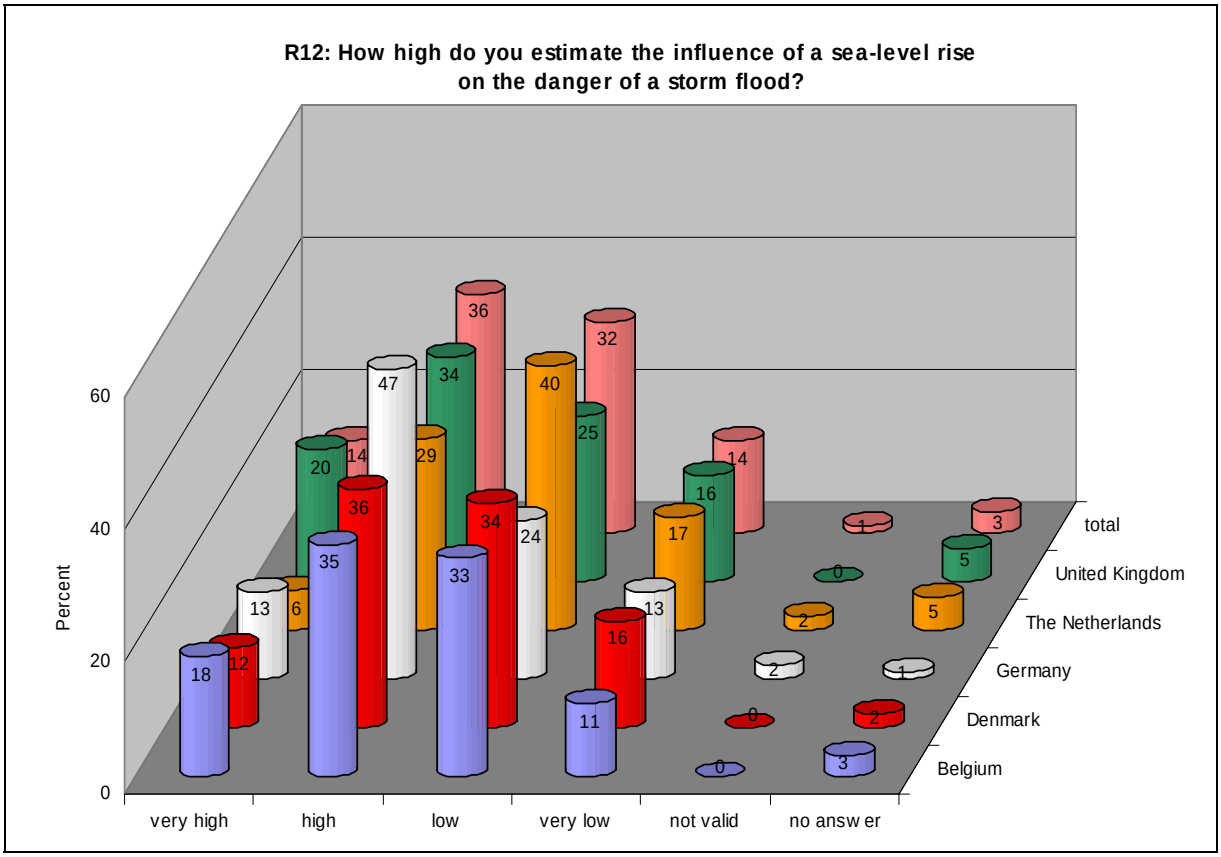


Figure 34: Estimation about influence of sea-level rise on risk of storm surges

Table 18: Country specific estimation about influence of sea-level rise on risk of storm surges

answer	Belgium (%)	Denmark (%)	Germany (%)	Netherlands (%)	United Kingdom (%)	total (%)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
very high	18	12	13	6	20	14
high	35	36	47	29	34	36
low	33	34	24	40	25	32
very low	11	16	13	17	16	14
not valid	0	0	2	2	0	1
no answer	3	2	1	5	5	3

5.3 Conclusions of the survey on risk perception

In the first part the survey investigated the perception of risk as well as the degree and demand of information in the study areas of the five COMRISK partner regions. The results were evaluated by comparing the answers from the five countries (study regions).
The number of questionnaires sent back was similar in all countries, except for the UK. 20.5 % to 27.5 % of the questionnaires were returned in Belgium, Denmark, Germany and in the Netherlands, whilst in the UK the return rate was only 11.3 %. Most of the respondents (64 %) were male and belonged to the age group 30-60 years. 69 % of them have never experienced a coastal flooding event. While these results were quite similar in all the participating countries, there were rather different answers to the question who had personally experienced a storm flood. In the UK 84 % of the respondents had never experienced a storm flood, compared to only 15-43 % in the other regions. But in general the basic conditions appeared to be comparable. Nevertheless, some geographical differences have to be taken into account. There are sandy coasts as well as coasts protected by a dike. The coastal defence structures show many differences. And the past storm flood disasters which strongly influence the individual perception of risk were in different time-periods and dimensions.

The fact that 34 % of the overall respondents estimated the risk of a coastal flooding in their region to be high or very high (especially in Belgium with 42 %) is considered to be of importance. This implies that a call for action or at least more information exists.
But although 1/3 of the respondents estimated a high risk, only 7% had taken personal measures to be prepared for the next storm flood. There appears to be little correlation between the perception and the action of the people, as 90 % of the persons who estimated the probability of a storm flood *very high*, had not taken any personal measures. These results showed that the knowledge about a risk does not necessary lead to immediate understanding or action. SJOBERG (1999) confirms this; he notes that differences in perception cannot be explained by lack of knowledge alone. Perception is rather influenced by difficulties in understanding probabilistic processes, biased media coverage and misleading personal experiences.
The information people have about the general risk of storm floods in their region appears to be insufficient to prepare them for a possible disaster. Apparently, people know about the risks but they are not fully aware of the consequences or they do not know what to do or how to prepare appropriately.

Information may not be understood or reflected in all detail, as can be seen in question R5. 30 % of the respondents were not aware that their house could be damaged by water in case of coastal flooding, although they live in a flood-prone area. Especially in the Danish study area, 68 % of the population were not aware of this risk. This is in spite of flood-maps information supplied to all people in and around Ribe. This leads to the assumption that the use of maps as an information tool may be problematic. Obviously, not everyone is able to read or interpret a map appropriately. This was confirmed by the questionnaire itself. People were asked to mark with a cross in a map, where about they live in the study area of investigation. From the results (many crosses were far away from the correct location) it could be concluded that people often have difficulties reading a map.

38 % of the respondents felt that there is not sufficient protection against storm floods in their region. Especially in Belgium, 56 % were not satisfied. From the comments given at the end of the questionnaire, it became clear that there is a controversial discussion about the coastal defence situation in the town of Oostende. Often people asked for beach nourishment or a dike. Comments were given like "the dike is in a miserable condition", "the authorities are waiting until it tumbles down". Even in the Netherlands some critical comments were given to the depression of the Westerschelde. Of those people who were not satisfied with the coastal protection most people desired more information. A clear information deficit was even expressed in question R8a: 59 % of the respondents do not know what to do in case of a coastal flooding, especially in Belgium, where 78 % answered *no*. The only country where people were informed fairly well is Denmark, where 66 % said they would know what to do in case of a coastal flooding. Of those people nearly all of them said they would leave the area. In all regions 62 % of the respondents felt that they were not informed satisfactorily by the authorities.
There appears to be a general discrepancy between Denmark and Belgium. Whilst in Denmark 79 % of the respondents thought that they were well- or very well-informed about risks by the authorities, in Belgium only 14 % thought so. Furthermore, 65 % of the respondents in Denmark knew where to find precautionary information about their own protection in case of a storm flood, whilst in Belgium only 15 % knew this. The main sources where people get information from turned out to be the TV and radio, authorities and fire brigade were named secondly. Surprisingly enough, the Internet was barely mentioned. It might develop into a future instrument to inform the people, but certainly not all of the people will be reached by the Internet, especially in rural areas.

In Denmark the information policy turned out to be the best. *Stormflodberedskabet* has a homepage where the people are informed about the risk of storm floods in *Ribe kommun* and where they get information about what to do in case of an emergency. Even a flooding map is shown on this site. This information is given to the households in form of a leaflet. It became very clear from the survey that the inhabitants of Ribe took notice of this information. This is reflected by the fact that the answers mentioning the evacuation points and measures to take in case of an emergency were very similar. In the other study areas, this kind of information was not provided to the public. Thus, people in demand for more and better information were not satisfied with the current situation.
However, a gap seemed to exist even the information provided in Ribe, because 68 % of the inhabitants were not aware of living in the flood-prone area lower than 5 m N.N. This may have two reasons: One is, that Ribe town is situated about 6 km behind the dike, lies quite

high and had not been hit by a storm flood for a very long time, the other is that people were not able to read topographical or thematic maps appropriately. One solution to this problem may be to include the names of the streets that are at risk from being flooded in the information given. Information has to be very clearly and simple to reach as many people as possible.
In the end the interviewees were asked how they feel about climate change and sea-level rise. 36 % of the respondents felt personally threatened by a sea level rise. 50 % estimated that the influence of a sea-level rise on the danger of storm floods is high or very high. It may be concluded that there is a sensibility for the issue of sea-level rise and global climate change.

In summary, the main conclusions from the public survey on risk perception are:

- The experience of a disaster and the time passed since the event strongly influence the perception of risk.
- There is no apparent correlation between the experience of a disaster or the perception of risk and the behaviour concerning precaution against the risk of storm floods.
- Knowledge about risk does not imply awareness of consequences and own concernment.
- A large information deficit exists in Oostende/Belgium, St. Peter-Ording/Germany, Gemeente Sluis/NL and Skegness/UK concerning the risk of flooding, precautionary measures and what to do in case of an emergency.
- Especially in Belgium the interviewees are very dissatisfied with the coastal defence and the behaviour of the authorities, due to an ongoing measure.
- The interviewees in Ribe and Oostende reflect some contrary positions. Whilst in Ribe people feel informed and satisfied, in Belgium people feel not informed and are not satisfied with the authorities.
- In Ribe/Denmark an good information-policy exists. A homepage and a leaflet to the households are delivering the necessary information, even though there is still demand for improvement, especially because most of the people do not think that they live in a flood-prone area.
- Maps turned out to be a limited information tool, they may be replaced by street names.
- People are partly sensitive for climate change and sea level rise but the majority is not adequately informed about this issue.

Part 6 Participation

This part of the report is about *Public Participation* (PP) and its importance for the planning process and an integrated risk management in flood prone areas along the coast of the North Sea.
The participation theory is partly based on the latest findings carried out in the EU Life-Environment Project *Wise Use of Floodplains* (CUFF, 2001). In this Project different participatory processes have been tested and general issues and principles for PP were developed in the context of the *Water Framework Directive*.

6.1 Participation Theory

When talking about the main objective of participation, namely to reach a widespread agreement or even consensus for planning and decision making – it is ironic that there is relatively little agreed participation theory. Before describing general principles for public participation in the context of coastal flooding and protection some basis for this theory must be carried out.

6.1.1 What is participation?

Participation means *the act of taking part or sharing in something* (The American Heritage Dictionary of the English Language). RENN ET AL. (1995) defined participation as "forums of exchange that are organised for the purposes of facilitating communication between government, citizens, stakeholders and interest groups, and businesses regarding a specific decision or problem". The term *participation* obviously implies both information and active involvement.

The OECD (1994) describes it as follows: "Participatory development stands for partnership which is built upon the basis of dialogue among the various actors, during which the agenda is jointly set, and local views and indigenous knowledge are deliberately sought and respected. This implies negotiation rather than the dominance of an externally set project agenda. Thus people become actors instead of being beneficiaries".

Unfortunately, it is not possible to find (an) universal public participation method(s) to support the decision-making in coastal protection planning processes. Besides there are many types of participation with a wide range of intensity of the public involvement, depending on the context within which participation is operating. Hence, in varying domains different models and approaches exist.

Perhaps the most well known examination of public participation is the *Arnstein's ladder of citizen participation* (1969). Central to the Arnstein model is the idea that as involvement increases there is a shift in power and resources to those involved in the participation. The model specified eight rungs of citizen participation that corresponded to different purposes ranging from manipulation of the public to citizen control of the decision making process (cp. Figure 35).

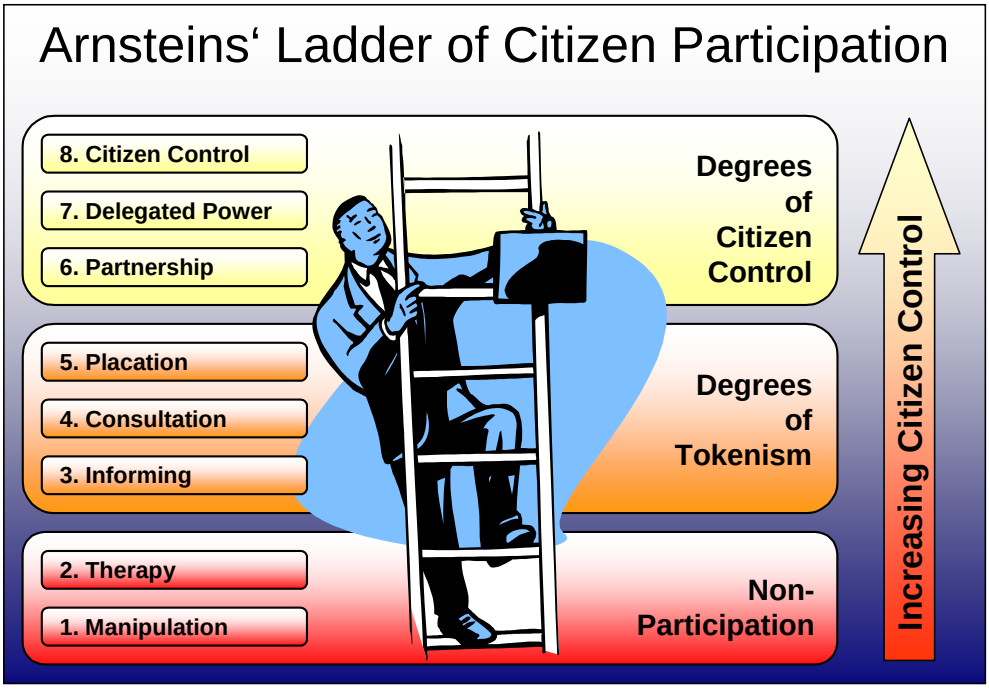


Figure 35: Arnsteins' Ladder of Citizen Participation (after ARNSTEIN, 1969)

Level 1 and **2:** These levels assume a passive audience, which is given information that may be partial or constructed

Level 3: People are told what is going to happen, is happening, or has happened

Level 4: People are given a voice, but no power, to ensure their views are heeded

Level 5: People's views have some influence, but traditional power holders still make the decisions

Level 6: People can begin to negotiate with traditional power holders, including agreeing roles, responsibilities and levels of control

Level 7: Some power is delegated

Level 8: Full delegation of all decision-making and action

Moreover, Arnstein's ladder can be grouped into three sub-sections including *Non participation*, *degrees of placation* and *degrees of citizen power*. With the first group encompassing 1 and 2, where "…the real objective is not to enable people to participate in planning or conducting programs, but to enable powerholders to *educate* or *cure* the participants" (ARNSTEIN, 1969, p.217). The second group (3, 4 and 5) describes varying degrees of tokenism where the 'have-nots' are allowed to hear and to have a voice, but are not afforded the power to ensure their views are heard or given the right to decide (ARNSTEIN, 1969, p.217). With increasing citizen power, further up the ladder, the degree of decision-making power is transferred from the *powerholders* to the citizens, providing opportunities for negotiation, formulation of trade-offs and full managerial power (ARNSTEIN, 1969, p.217). The UNDP (2004) also distinguishes between different forms of participation in terms of levels or degrees of participation and recommends a similar classification.

BYRNE & DAVIS (1998, p.13) reject Arnsteins' continuum or ladder of participation, because "it carries a value judgement that some methods are intrinsically more valuable than others".

They advocate an approach that uses a "typology of participation types and their related policy instruments", these are consultation, partnership, standing, and consumer choice (van der Lee, 2004, p.3). PATEMAN (1970, p.35; in SYME & SADLER, 1994, p.530) also illustrates a typology of strategies for interactive decision making, which describes the participation in terms of the level of participant interaction and the relative political power of the participation sponsor (cp. Fig. 36; VAN DER LEE, 2004, p.3).

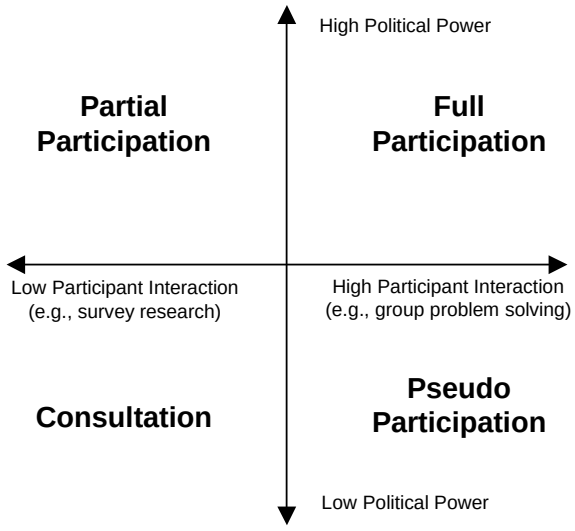


Figure 36: A Typology of Strategies for Interactive Decision Making
(PATEMAN, 1970, p.35 in SYME & SADLER, 1994)

While ARNSTEIN, PATEMAN and BYRNE & DAVES created their models in a Power Orientation, other approaches focused with their special public participation framework an Administrative Orientation (e.g. WIEDMANN & FEMER, 1993), a Conflict Resolution Orientation (e.g. CONNER, 1988) and a Planning Process Orientation (DORCEY ET AL., 1994) (see Table 19, cp. SCHLOSSBERG & SHUFORD, 2003).

Table 19: Comparison of Public Participation Purposes
(SCHLOSSBERG & SHUFORD, 2003, p.6)

Author	*Orientation*	*Spectrum*	
Arnstein	Power Orientation	Manipulation control	→ Citizen
Wiedemann and Femer	Administrative Orientation	Education decision	→ Joint making
Conner	Conflict Resolution	Education	→ Prevention
Dorcey, et al.	Planning Process	Inform	→ Ongoing involvement

JOUßEN differentiates between three kinds of participation, which result from different positions (1993, in RUHRMANN & KOHRING, 1996, p.50):

- "the restrictive position only allows belated participation. Decisions have been made due to expert knowledge before and are sanctioned subsequently.
- the democracy-theoretical position leaves the decisions exclusively to the citizens, who are potentially affected by a decision (competence of the affected). Deficits result from the inadequate consideration of external (expert-) knowledge
- the functionalistic position does not regard participation as normative compulsory. Participation is considered necessary only if it is believed that it promotes an effective and efficient decision."

The FAO (2004) defines participation as a "process of equitable and active involvement of all stakeholders in the formulation of policies and strategies and in the analysis, planning, implementation, monitoring and evaluation of activities". The objective is to allow a more equitable development process, disadvantaged stakeholders need to be empowered to increase their level of knowledge, influence and control over their own livelihoods.

Depending on the objective and the degree of participation the FAO classifies participation into the five steps: information, consultation, joint planning, decision making and empowerment (Fig. 37).

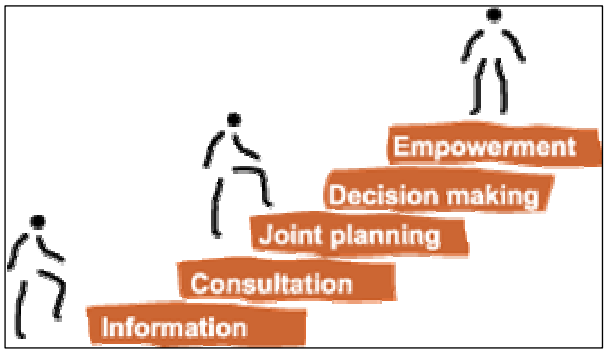


Figure 37: Steps of participation (FAO, 2004)

Participation is the key to sustainable development initiatives, since it will lead to: a greater sense of ownership on the part of the stakeholders

- increased commitment to the objectives and outcomes
- longer term social sustainability
- increased self-help capacities
- stronger and more democratic institutions and partnerships

The presented methods and approaches (authors) may all disagree about the semantics of definition, but it is clear from their discussion that *consultation* is generally an unacceptable form of participation, if genuine shared decision-making is the stated goal.

6.1.2 Why is participation important?

There are a range of theories, why participation might be important and there are still those who see it as undesirable. Reasons for implementing participation will depend largely on the context in which participation is carried out, who is driving the participation process and what their prime objectives are. This in turn will affect whom the participation organisers decide to involve. A useful way to look at reasons to do participation is to think of it in terms of its potential benefits.
MOSTERT (2001) points to five key potential benefits (which are not mutually exclusive):

- Promotion of **better informed and more creative decision making**
- Promotion of **public acceptance**, less litigation, fewer delays and more effective implementation
- Promotion of **social learning** – if participation results in constructive dialogue with all relevant parties involved then the various publics, government and experts can learn from each other. In the context of water policy, Mostert suggests that 'Public participation' can increase 'Water Awareness'.
- Promotion of more **open and integrated government**. Public participation can provide a stimulus for government and organisations to perhaps 'solve its internal conflicts and become more outward looking'.
- Promotion of **democracy**. This rationale is based on the belief that being informed and listened to are democratic rights.

The UNDP (2004) summarizes the following pros and cons of participation:

Pros:

- participation can increase the efficiency of development activities by involving local resources and skills, it can make better use of expensive external costs;
- can also increase the effectiveness of such activities by ensuring that, with people's involvement, they are based upon local knowledge and understanding of problems and will therefore be more relevant to local needs;
- participation helps to build local capacities and develop the abilities of local people to manage and to negotiate development activities;
- participation can lead to better targeting of benefits via the identification of key stakeholders who will be most affected by the activities;
- crucially participation can help to secure the sustainability of the activities as beneficiaries assume ownership

Cons:

- Participation costs time and money; it is essentially a process with no guaranteed impact upon the end product. Participation can greatly add to the costs of a development activity and therefore its benefits have to be carefully calculated;
- participation can be a destabilising force in that it can unbalance existing socio-political relationships
- participation is driven by 'ideological fervour' and is less concerned with seeking to secure direct benefits for people

"This does not necessarily mean that participation processes can always be really democratic in the sense of involving everyone or even giving everyone a chance to express themselves. Often practical decisions have to be made about how to get the best spread of viewpoints by, for example, seeking views from representative organisations" (CUFF, 2001).

The advantages of participation are obvious: the population interferes into the development of their own environment. In the ideal case the policy sullenness can be reduced through the experience of democratic procedures and the active involvement into the social system. This might improve the mutual trust between society and state and may encourage people to a permanent socio-political engagement. In addition participation can influence the quality of a planning process positively, because the authorities have to face up the critical public. An accurate and fair participation allows a consensus and the participants identify with the results of the planning process. According to (FÜRST ET AL., 2001) the responsibility is hence spread on a broad basis, which can prevent people from pointing the finger in case of negative planning consequences. Another important aspect of participation is the gain of knowledge of all actors (cp. FÜRST ET AL., 2001; HABEKOST, 1999).

Different surveys pointed out that the attendance of the public in civil protection and measure planning increases the effectiveness of disaster management. Furthermore it gives the population an idea, which behaviour is appropriate in the case of a disaster and enhances the efficiency of disaster warnings. The state and the government can benefit from participation procedures considerably. In the framework of a study carried out in the Netherlands the state and the industry have realised that the fear of contact was arbitrary. In the UK similar experiences have been made (RUHRMANN & KOHRING, 1996, p.54).
Besides numerous advantages there are also difficulties and problems associated with participatory planning in general which are described in the following (cp. HABEKOST, 1999; MÜLLER, 2002):

- absence respectively negative experience of citizens causes resignation and apathy,
- inflexible planner and administration block a proper participation due to a lack of interest as well as fear of additional work and complications,
- technical and organisational excessive demands as well as the fear of conflicts on the part of the administration inhibits the participation
- a lack of communicative competence and independency of planning and administration can lead to communication and interaction problems, if these people have to guide the process
- interpersonal animosity constrains communication
- especially in the beginning of the process a mutual trust between the actors has to be established; if information is revealed it is associated with risks for the individual, is the information restrained it can put a strain on the cooperation (confidence dilemma)
- dominance of individual persons or groups can polarise and prevent the integration of weak lobbies
- pre-defined responsibilities can cause barriers between the actors; can result in an active central group and a passive periphery
- specific needs of affected people are often not recognised or interpreted correctly
- unclear competence can lead to confusion within planning process
- a long period between discussion and decision acts disencouraging

- even if the motivation of the participants increases during the process, there is often a decrease in influence in the course of time (dilemma of time)
- participation procedures are occasionally alibi events to pass on decisions to the population and abandon institutional responsibilities

The education or clarification of the population always implies the risk that information is placed purposive to authorise strategies or measures. Hence, a responsible exposure to the information programs is mandatory. Hierarchical communication structures often cause that the people do not trust the information. Thus experience-orientated and participatory methods shall be preferred to receptive ones (cp. GTZ, 1996).

The legal framework of the future development of participation was provided with the commencement of the so-called ***Aarhus-convention*** on the 30th October 2001 (for more information see http://www.unece.org/env/pp/). This agreement of different European countries governs the future participation of the public in decisions and the access to information and to courts in case of environmental issues. The Aarhus-convention has not only consequences for the procedure of environmental administration but also for all processes who could have impacts on the environment and hence also for the management of natural hazards. Especially with the deployment of schemes and programs changes in the German law are to be expected by the means of the convention (cp. FÜRST ET AL. 2001; UNECE, 2003).
The Aarhus-convention, named after the Danish city Aarhus, where the signing took place in June 1998, is the first contract under international law, which credits every person with rights in environmental protection.
"The Convention adopts a rights-based approach. Article 1, setting out the objective of the Convention, requires Parties to guarantee rights of access to information, public participation in decision-making and access to justice in environmental matters. These rights underlie the various procedural requirements in the Convention" (http://www.unece.org/env/pp/ contentofaarhus.htm).

6.1.3 Who should be involved?

In addition to the manifold purposes and objectives of public participation it is important to know who should be involved. That again implies the question who the public actually is. This question sometimes goes unanswered in the literature (cp. DAY, 1997; LANGTON, 1978; THOMAS, 1995) or is answered ambiguously. FREEMAN (1984) for instance gave a more general definition: "any group or individual who can affect or is affected by the achievement of the organization's objectives". SCHLOSSBERG & SHUFORD (2003) stated that defining the participants in a public process is a fundamental element with clear linkages to the different goals and outcomes a particular process hopes to achieve. Hence a few different approaches are introduced. SCHLOSSBERG & SHUFORD (2003) classify the public into three groups:

1. Those affected by a decision or program
   The people who are most affected should have the greatest level of involvement
2. Those who can bring important knowledge or information to a decision or program
   Inclusion of people with technical expertise or information that is helping solving the issue

3. Those who have power to influence and/or affect implementation of a decision or program
   Stakeholder who can affect the activities of an organisation

One problem of identifying relevant publics or stakeholders is that the composition of these people or groups can change over time or the relevant public may differ according to the specific objectives. AGGENS (1983, p.189) mentioned that "there is no single public, but different levels of public based on differing levels of interest and ability".

RIETBERGEN-MCCRACKEN & NARAYAN-PARKER (1998) have developed five questions to identify relevant participants:

1. Who are potential beneficiaries?
2. Who might be adversely affected?
3. Have vulnerable groups be identified?
4. Have supporters & opponents been identified?
5. What is the relationship among stakeholders?

Answering these questions force the decision-makers to think broadly about who should be involved. While these and also some other approaches are trying to identify or describe the relevant groups in general (cp. WILLEKE, 1974; THOMAS, 1995) it is more important to identify the actual citizens or group of citizens who could be relevant members of public participation. BURBY (2003) provides a much more detailed list of different types of groups:

- Affordable housing groups
- Agriculture or forest industry groups
- Business groups
- Development groups
- Environmental groups
- Groups representing disadvantaged people exposed to hazards
- Local government departments
- Local elected officials
- Media representatives
- Neighbourhood groups
- Older people's group
- Port, fishing and marine industry groups
- Professional groups
- Property owner groups
- Special districts

TOM ATLEE (2003; in SCHLOSSBERG & SHUFORD, 2003) goes even more in detail and categorizes the public in nineteen different spheres:

- Elite power holders
- People who are interested in an issue
- Those who qualify due to legal standards (e.g. citizenship)
- Passionate partisans
- Elected representatives
- People who will be affected by a decision
- Those who implement decisions

- Anyone who knows a vote or conversation is happening
- Selected experts
- People from relevant stakeholder groups
- Scientific representatives sampling of population
- Random sample of the population
- Elected spokespeople of constituent groups
- Unheard voices
- Representatives from different sectors
- Outsider perspectives
- People who articulate archetypal viewpoints from their own
- Observers or witnesses to record events for those present, those who weren't and for those in the future

It is important to understand "public", the role of public and the goals or outcomes you can expect from a public participation. Due to the WUF-project "any persons, groups or organisations with an interest in an issue (either they will be affected or may have some influence) as a stakeholder should be considered. Furthermore they recommend or consider setting up an initial steering group or forum of interested parties to help identify stakeholders and manage participatory processes". If the people or groups are identified it is helpful to prioritise those who are essential to the process (key stakeholders). This can also be people of high priority because they could block or drive a process (CUFF, 2001, p.7)

6.1.4 When should the participation process start?

We can relate the decision when to involve people partly to the principles of participation and the levels of involvement referred to in Arnstein's ladder. True participation around levels 5 and upwards aims at involving people at a stage in decision making when they can have some influence. The most important point is that 'involving people at the outset of a project provides them with a greater opportunity to influence the outcomes' (ELCOMBE & BAINES 1999). And in turn people are generally more likely to participate if they feel their contribution will make a difference. (CUFF, 2001).
The figure below suggests a direct relationship between timing of involvement and influence.

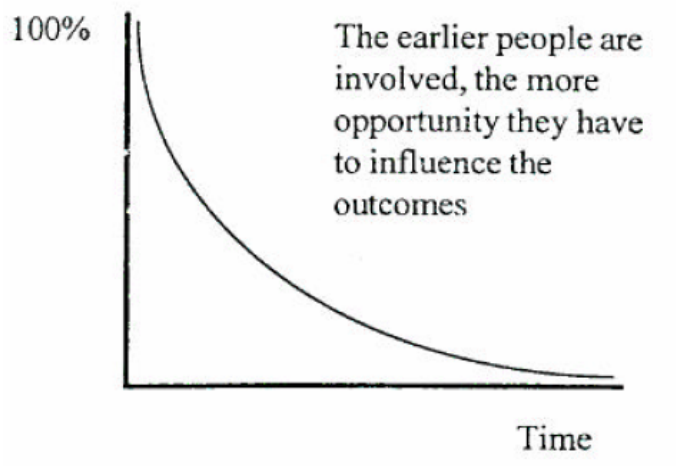


Figure 38: Ability to influence outcomes over time (taken from ELCOMBE & BAINES, 1999)

An observation of the Life-Environment project is that whilst early involvement is recommended, the managers of participatory events have to decide about the extent to which they are presenting a blank agenda or some guiding starting points on which to build up the participation and decision - making process. Do they want the participants to set the original agenda or shape it and develop it? Pure participation theory would involve participants in shaping an agenda from the outset, but this is not always practical or necessarily desirable (CUFF, 2001, p.17). Thus, it is recommendable to make decisions early on in the process about the appropriate level of participation. This in return depends on the extent to which the decision making is to be shared with the actors.

The circumstances vary so much that there is no ideal way to develop participation strategies. One of the key principles is to inform the wider community about their opportunities to participate, why participation is taking place, the overall objective, when they will be involved, what kind of participation it will be and how their input will be used. The citizens need to know that they might be affected and what the consequences could be. And that requires participation from an early stage on.
Early involvement may necessitate a prior period where participants are not influencing but learning about, for example, contexts to a particular issue or receiving some baseline information. This refers to the education phase of Arnstein. Participants may appreciate to go through an early passive stage to receive background information and so give more informed and meaningful involvement (CUFF, 2001).
Prior to this process the participation strategy must be considered and wherever applicable the technical program should begin at the same time, so the two processes may be interwoven. Another key principle is to involve as many stakeholders as possible from the early beginning of the procedure to win general agreement for the approach.

6.1.5 (How?) Participation Methodologies

There exist manifold methodologies to help authorities or groups who seek participatory discussion with people. "Many have described it as a 'tool kit' of methods" (CUFF, 2001, p.17). Many of the methods are in fact quite simple in practice and many of the techniques also overlap in practice as elements from one technique are used in another.
It should always be remembered that the objective is to involve people in full and participatory discussion. The techniques need to be identified and set within an overall coherent plan for participation (CUFF, 2001).

There are a vast number of participatory methods. It is not the aim of this report to give a comprehensive overview and detailed explanation of every single existing methodology, because there already has been a lot of research and literature on this topic (cp. TOOGOOD & CUFF, 2000; WATES 2000; FAO, 2004; ÖGUT, 2004). Certainly, some methods are more appropriate for certain situations and certain types of stakeholder than others are. Many academics and researchers have tried to prepare guidance on which methods might be most appropriate for which situations. According to CUFF (2001) the key questions to consider when selecting a methodology include:

- How complex is the issue I want to get discussion on?

- What is the scale of issue I want people to focus on? (Is it a very local issue? Is it an issue, which has regional or cross-border implications?)
- At what geographical scale do I want to conduct participatory events (just in one village, in several venues across the region, across a larger region, at national level forums?)
- What types of stakeholder do I wish to involve in my discussion (individuals, community groups, experts, and professionals?)
- How much money do I have to spend on participatory exercises?
- How much time do I have to spend on participatory exercises?
- How much training might be needed for the method chosen?
- Will I need to employ professional facilitators?

In the context of a forest design planning a participation guide has been developed. It is based on a matrix that considers the number of stakeholders that might be involved in a process (high numbers, moderate numbers and few numbers) and whether the process aims at information, consultation, partial community involvement, or full community involvement, based on the participation levels of Arnstein (HISLOP & TWERY , 2001).
The essence of their work is that some of the more complex participation methods become more appropriate as greater involvement is required with fewer numbers of people. Methods like questionnaires, use of the press or television for example, are most useful for information purposes with high numbers of stakeholders. More complex methods such as focus groups or working groups might be appropriate with fewer numbers of people and at a greater level of involvement.

Other publications dealing with the range of participation methods give more practical examples*:* The *Community Planning Handbook* (WATES, 2000) for instance is a very readable and easy to use guide, and methods are set out in alphabetical order (CUFF, 2001). The *New Economics Foundation guide* (1998) suggests that methods could be selected by a user setting out his own criteria against which to score each method. A simple scoring method (2 if fully meets criterion, 1 if partly meets it, 0 if does not meet it at all) could be used. The scoring would only be a guide and 'not a substitute for discussion and judgement'. MOYER & TIFFANY (1980) and SUMMERS (1987, p.17-18) list several specific criteria and questions for the selection of the appropriate involvement technique:

1. How well does the technique fit into the decision making process (Does it provide the information needed for the types of decision that need to be made)?
2. Does the technique allow information giving?
3. Can you obtain information from the audience?
4. How much time is available?
5. Do you need to reach a specific audience or general publics?
6. Does the technique permit social interaction?
7. Is the interaction face to face?
8. What quality of working together can be expected?
9. Does the technique meet legal requirements?
10. Does the technique meet people's expectations?
11. Does it assure people that they have been heard?

12. How representative of the general public will the result be (will it reach target publics)?
13. What are the costs in terms of time and money (authorities & public)?

Yoder (1979; in SILVEIRA ET AL, 1990) provides seven steps preparing a citizen participation strategy whereas these steps not solely refer to the selection of the instrument but more to the whole process of participation:

1. Define the purpose of citizen participation.
    - Why do we need public participation?
    - What is the objective of the involvement effort; what do we want to happen?
2. Decide how the results of the participation effort will be used.
    - Who will prepare the information generated?
    - How will the information be presented?
    - Is the format appropriate for the group's needs and providing feedback to the participants?
3. Identify those who should be involved.
    - Who has an interest in what happens?
    - Who will be affected by the proposed action or decision?
    - Who is willing to participate?
    - Whose support is critical to the projects success?
4. Determine when involvement should take place.
    - At what stage in the process should the public be involved?
    - Does the propose timetable allow adequate time for the citizen participation process to work effectively?
    - Does participation take place early enough in the process to assure participants that their input will be used?
5. Determine how participation will be obtained.
    - How can the sincerity in requesting participation be best communicated to the public?
    - How will you communicate to the public, the purpose of their involvement and how their input will be used?
    - How will feedback be provided to the participants?
6. Develop an evaluation.
    - Was the original purpose or objective achieved?
    - Were the relevant people involved?
    - What contribution did those involve make to the final decision?
    - Was the timetable adequate?
    - How appropriate were the methods or techniques used?
7. Implement the citizen participation plan as developed.

Another important point for those selecting participatory methods is that often no method fits. It is often recommendable to mix and match different tools. Flexibility within an overall plan is essential. To ensure a flexible and appropriate reaction to the various situations and problems, only individual adapted participation procedures are suited. Standardization and legal formalization is to be avoided. The textual and organisational framework should be

developed out of the process. That requires a comprehensive preparation and a continuous adjustment in case of arising changes during the whole process.

Apart from the fact that participation should take place in every phase of a planning process, especially in the beginning of a procedure it is of great importance (BARLOW, 1995, p.58). In this step the decisions about problem definition, objectives, etc. are made, which shape the further process. Joint rules can be established between the authorities and the participants much easier in the early phase of the process and discrepancies might be avoided.
Another extremely important basis for an effective participation process is the successful operation of communication and interaction between the involved people. The exchange of information is the basis for a productive work.

The process criteria are the main aspects of an innovative and progressive management and planning. However, these changes in the planning process can also lead to some problems.
Experiences have revealed that the number of participants is often the crucial dimension. The performance of the process has to be feasible. The more people become involved the more inactive the process can be. Finding a consensus, a problematic part anyway, may even be more complicated.
Hence, it is most important to choose the appropriate procedure and adapt it individually according to the problem and importance of the topic as well as the available financial and human resources.

Public participation can also be seen as a kind of conflict management. Participation aims to harmonise multiple, frequently divergent interests. Numerous participative procedures have been developed in the past twenty years. All are geared toward finding common perceptions and consensual solutions amongst the relevant parties. Participative procedures serve as instruments to enable and encourage a balancing of interests between stakeholders.

"There exist legally established possibilities of participation as well as informal participative models. Depending on the tasks and objectives of public participation, there exist several appropriate, matching participative instruments. The instrument of mediation, for instance, has proven successful in the joint solution of conflicts. The Future Workshop is a method to encourage a concerted creative generation of suggestions for reorganisation tasks in the public arena. Clarification of fundamental political and philosophical questions can take place within the framework of Neo-Socratic Dialogue. Strategic plans and programmes concerning regional or traffic planning, may be developed within the framework of a strategic environmental assessment (SEA) round table. Relevant stakeholders would constitute the round tables members" (ÖGUT, 2004).

In the following, the different information and participation tools are briefly described. The definitions and explanations are based on a selection of different literature (cp. SILVEIRA ET AL., 1990; FONT, 1998; NEW ECONOMICS FOUNDATION, 1998; ABELSON ET AL., 2001; CALTRANS, 2002 ; COASTAL CRC, 2004; NPS, 2003 ; IAP, 2004; ÖGUT 2004). Since the definitions often vary within the literature, an agreement for the questionnaire had to be made. The following descriptions reflect the definitions used in this report.

Enquiry / Survey

Surveys, questionnaires or inquiries belong to participation category public input techniques. They are research tools used to elicit answers and opinions from respondents. One of the most frequent mechanisms for getting public input is some form of survey. There exist several form of surveys such as mail surveys, telephone surveys, internet surveys or face to face surveys.

In general, the use of a community wide survey is not a highly rated technique for generating citizen participation and involvement. Although surveys are excellent at getting information from the public, they are quite poor in giving information to the public. Because of this inherent lack of interactiveness, surveys should be incorporated with other processes designed to maximize citizen participation.

Face-to-face surveys are best for specific user groups, Telephone surveys are a good method for reaching a very specialized segment of the population. Mail surveys enable soliciting public input from a large and representative group. Their advantage is that they are delivered directly to the perspective respondent who can fill them out at his or her leisure. An easy to return mailer helps to encourage respondents to reply. For mailed surveys, the percentage of people who reply, called a response or return rate, is very often fairly low. Most surveys are considered successful if the rate falls between 12–20 percent.

Circular /Leaflet

Circulars and leaflets belong to the category printed public information material. Whether if you want to present background information or announce a meeting, circulars, brochures, pamphlets, flyers, newspaper inserts and posters are great tools to reach a large number of people. The production can range from being fairly inexpensive and homemade, especially with today's desktop publishing capabilities, to slick, four-color, special paper and professionally printed. It all depends upon your budget, your community, and your needs. Public information materials are an essential form of communication in any public involvement process.

Public information materials communicate quickly, are often visually appealing, and often do not include a great deal of detail. The advantage is reaching a large audience and the possibility of permanent or regular information. A negative point of this kind of information material is that there is no guarantee that the material will be read and there is a limited capability to communicate complicated concepts.

Exhibition

Exhibition is a word with several meanings. In the context of participation, it is a display of items for various topics. An exhibition as a participation or information tool has numerous advantages such as the high degree of information. Different subjects can be touched within one exhibition and the subject can be described and explained in detail and illustrated with photos, maps or other media. Another aspect is that an exhibition can always be updated, extended and adapted to regional conditions. On the other hand, it is connected with a lot of effort and costs and the large amount of information can overstrain the people. There is barely any control of success if the people are better informed than before.

Press/Local radio

Since media have great influence on the recipients' opinion and position, the press and local radio plays an important role within public participation. As described in chapter 5.1.1, a

positive reporting can lead to an increase of acceptance and a good communication in general can enhance the awareness and improve a more sensitive risk perception.
Press releases can respond to a recent development or announce a position, provide context and background information for breaking news, and announce a newsworthy event that the press can be invited to cover. Media strategies are important for several reasons. They give the basic who, what, why, when, how and where and, with relative ease and little expense, they have the potential to reach a wide circulation through print and electronic media. To help ensure that news about a project are noticed and results in media coverage, it should be considered to identify the news organizations that are most likely to be interested and write the release so it addresses their interests and audiences. A time release for Monday morning is recommended, Fridays are suppose to be the worst days for most news.
Press releases have the advantage to reach a vast audience. Press releases shouldn't be indiscriminately and routinely. If they are sent too often, the media will start to ignore them and your group. Press releases should be used throughout the planning process – as long as there is substantial new news to report. It has to be remembered to use press releases judiciously.

Internet
The Internet can provide information about a topic, an organization, an individual, or products or act as a participation tool. If a web site is easy to navigate and shows a complete, honest picture of the subject, organization or process it can be an effective information tool. However, it has to be taken into account that the coverage of internet access is limited.
Internet Participation stands for various new procedures, which support citizens' participation via the new media. New media are especially suited to support actual participation procedures and facilitate information to a wider public. Internet participation can take different forms, such as the virtual citizen's office, the Internet Forum and Online Mediation.
The problem with internet pages is that they have to be continuously updated, content refreshed, links between pages and to any other web sites checked, images changed, etc. That requires a lot of effort and time. The information can be overload and poor designed so that people will not find the appropriate information. If it is well prepared and maintained it can reach a large audience especially young people with enormous amounts of information and it can be cheaper than distributing large documents or reports.

Open Council
An open council is a meeting of citizens and an important alternative to involve the citizens of a municipality. It is used to inform the public, the discussion about community topics and the adoption of recommendations to the municipal council. At least in Germany open councils are the most common way of citizen participation.
These processes are often only routine events and have nothing to do with real public participation. Hence specific aspects should be considered planning or execute an open council. Like in other procedures, an open and friendly atmosphere is a basis for good teamwork. It is necessary to involve the public and discuss the topics comprehensively. Open councils should take more than two hours and all affected people have to be invited or at least informed prior to the event.

Discussion
Discussion Fora or events are instruments of citizen participation where self-selected citizens take part in discussions on policy-relevant issues. Discussion events are not meant to directly

influence policy decisions, but foster dialogue and deliberation among citizens. There are many different types of discussion fora. In the United States for instance the National Issues Forums (NIF) as one of the most outstanding participatory instruments is a type of discussion forum that allows common citizens to express their policy opinions and go beyond technical, ideological and political positions.

Excursion/ Field trips

Field trips are organised trips where participants visit physical sites. They are a venue for providing information and at times, opportunities for participant input. Public input is possible when other participative activities are combined with the field trip. It is a popular technique for environmental planning and design related participation processes. Field trips are especially useful as a complement to conference presentations, or when written work such as reports is inappropriate.

Excursions are usually provided tours for key stakeholders, elected officials, advisory group members and the media. They provide the opportunity to develop a rapport with the key stakeholders and can create greater public knowledge of issues and processes. Field trips can generate interest and enthusiasm for the problem respectively the procedure. This tool is also suited to reach diverse interests and non-traditional groups but only for a limited number of participants due to logistic problems.

Referendum

A referendum or plebiscite is a general poll on a legislative or constitutional issue. In other words, it is a process wherein an issue is put to popular vote. It can be initiated by governmental or other organizations or sometimes the citizenry. It is an official vote for special issues, where the opinion of the electorate is requested. Referenda can be binding or non-binding. A consultative referendum (also called an advisory referendum) leaves the interpretation of the vote to the legislature. A binding referendum is possible only in some countries, and a certain size of the participating electorate is sometimes a prerequisite. In Switzerland, the referendum is a central part of the political law. In half of the American states, the referendum is also one of the most important political instruments.

It is described as an appropriate way to get citizens directly involved with a legislative process. The advantage is that all voters have equal influence and it can potentially involve all members of a local or national population. It is difficult for the government to ignore the results. The results may not be representative if there is a low voter turnout and referendums are only used quite seldom. Besides, it is a very costly process and it should not replace representative democracy.

Advisory Board/ Advisory Committees

There is obviously a discrepancy in the literature regarding a uniform definition of advisory boards or committees. The difference mainly concerns the composition of the committee. While some describe is as a representative group of stakeholders that meets regularly to discuss issues of common concern other sources describe it as a not representative group of people.

All consulted literature had in common that it is a public participation tool, where the authorities can present goals and proposed programs and provide public input to a planning process. It is an instrument to represent the broader public. It provides a continuing forum for bringing peoples' ideas directly into the process and a known opportunity for people to

participate. The advisory committee brings participants into a working group. It is a democratic and representative way of opposing points of view, with equal status for each participant in presenting and deliberating views, and allows the members to be heard. The output of an advisory committee might help the authorities to monitor community reactions to policy, proposals, and progress. From an advisory board the participants can gain understanding of other perspectives, which might leads towards a compromise and should also produce informed citizens, boost trust in institutions and reduce conflicts. A disadvantage of advisory committees is that the public may not embrace the committee's recommendations or the members do not achieve a consensus. This instrument is very time and labour intensive.

Assembly
An assembly is a public facility to meet for open discussion where a group of people can gather together for a common purpose.

Public Hearing/ Meeting
Public meetings present information to the public and obtain informal input from community residents. They are held throughout the planning process; they are targeted to specific issues or community groups and are either informal or formal. Public meetings have been used for many years to disseminate information, provide a setting for public discussion, and get feedback from the community.
A public hearing is a more formal event than a public meeting. It tends to involve only interested and affected citizens and will be held prior to a decision point. A public hearing gathers community comments and positions from all interested parties for public record and input into decisions. This instrument has the potential to inform citizens, improve decision making and minimize conflicts. Public meetings and hearings have these basic features:

- Anyone may attend, as either an individual or a representative of specific interests;
- Meetings may be held at appropriate intervals; hearings are held near the end of a process or sub-process before a decision;
- Hearings require an official hearing officer, meetings do not;
- Hearings usually have a time period during which written comments are received; and
- Community comments are recorded in written form as input to the department or an agency.

There is a general scepticism by academics about the validity of the results from public hearings because the demographic and interest profile of the participants often appears to differ from the general population. It is generally contended that more educated, higher income and more extreme positions will be represented than found in the general public.
GUNDRY & HEBERLEIN (1984) found that even though those characteristics might still occur that when public hearing results were compared to extensive and expensive surveys the response to several policy options was not different, nor would they seriously mislead the decision maker of the prevailing opinion.

Ombudsman
According to a dictionary entry, an ombudsman has two different meanings:

1. A person who investigates complaints and mediates fair settlements, especially between aggrieved parties such as consumers or students and an institution or organization.

2. A government official, especially in Scandinavian countries, who investigates citizens' complaints against the government or its functionaries (http://dictionary.reference.com).

Since the Maastricht treaty in 1995, the European Community provides the European Ombudsman (also called Euro-Ombudsman - http://www.euro-ombudsman.eu.int). He has to deal with complaints from any citizen of the Union or any natural or legal person residing or having its registered office in a Member State concerning instances of maladministration in the activities of the Community institutions or bodies, with the exception of the Court of Justice and the Court of First Instance acting in their judicial role. Maladministration can occur when a public body fails to act in accordance with a rule or principle, which is binding upon it. The Ombudsman shall be appointed after each election of the European Parliament for the duration of its term of office.

Project Approval Procedure

This instrument is an administrative procedure to involve the public in large infrastructural projects. The aim is to involve all kinds of interests as well as the compensation of real property. According to HOFSTEDE (pers. comment 2004) the project approval procedures are mandatory within coastal defence planning at least in Belgium, Germany and the Netherlands.

Future Workshop

According to ÖGUT (2004) the Future Workshop is a procedure intended to motivate concerned citizens to participate in planning processes. A creative, sometimes unorthodox manner of working is characteristic of this approach. It makes the community think about and plan for their future. The participants collectively develop scenarios of the future - including such as may appear unrealistic at first sight - and then revise whether they can actually be implemented. Approximately 15 concerned individuals, who had not been active before, participate in the planning process in small groups. The procedure is especially suited to urban development, but also to political education and enterprise development. The Future Workshop is usually carried out as a 3-7 day event. The workshop is subdivided into different phases. In the first phase, criticism is voiced. Resentment and negative experiences are surveyed. The subsequent imaginative phase is denoted by the constructive redirection of criticism and the conception of utopias. The final phase is known as the realisation phase and involves checking the utopia against solutions that can realistically be implemented.

Citizen Jury

Citizen Juries are small groups of non-organised citizens that learn about an issue or elaborate solutions for planning & development tasks that affect them. They are usually supported by experts and present the results to the mandating bureau in form of a "citizens' evaluation". They are innovative instruments of citizen participation. In general terms, citizen juries are meant to engage citizens in the deliberation on complex policy issues and legitimate and improve traditional decision-making processes. They may cover a wide range of issues, including territorial, urban, environmental, health and agricultural policies, and can work at a local, regional and national level. First experiences on citizen juries took place in Germany and United States at the beginning of the seventies. More recently, citizen juries have also been promoted in the United Kingdom, Spain, Switzerland and Australia. As a matter of fact, the term Citizens juries encompasses a wide range of similar jury models that have been de-

veloped in the United States (Citizens Jury process), the United Kingdom (Citizen's Juries) and Germany (Planungzelle). In general terms, the jury procedure is similar in all models.
According to FONT (1998) the number of participants may vary, as it ranges from twelve in the English model to twenty-five in the German one. The NEW ECONOMICS FOUNDATION (1998) defines it as a process made up of exactly 16 people, selected as far as possible to be representative of the community, with a balance of men and women and an appropriate mix of ethnicity, employed / unemployed, etc., without any self-selection. ABELSON ET AL. (2001) describes it as a group of 12-20 people, COASTAL CRC (2004) speaks of 8 to 12 people and ÖGUT (2004) even of 25-250. Concerning the exact duration there is also a discrepancy, but most of the literature agrees with several days. Only ÖGUT (2004) defines it as a process going from 3-4 days to several weeks.
The strengths of citizen juries are they create informed, active and engaged citizens. The process promotes a consensus building and facilitates the communication between government/ authorities and the governed. However, citizen juries present some limitations. The criticism looks at whether citizen juries are representative of the population. This criticism concerns two points. On the one hand, the number of participants and the selection criteria may affect the representativeness of the jury, since only a few individuals participate. To this respect, cross-national variations have been detected by GARBE (1986). In the American and English models, a representative sample of participants is selected out of a wider sample of citizens selected through random phone calls. In the Spanish citizen juries, that are inspired in the German model participants are randomly selected from the municipal census. Citizen juries have no formal power and are not binding. Another critical aspect concerning citizen juries refers to citizens' opinion. This topic relates to whether citizens change their opinion after taking part in a jury process and whether their opinion is relevant in the policy-making process.

Citizens' juries work well when:
- The need is for consensus building and for problem solving;
- There are clearly defined options;
- The jury is independent and has time for scrutiny and deliberation;
- The sponsoring body has an open mind and is committed both to publishing the jury's report within a set time and to either following the recommendations or explaining publicly why they are not doing so.

Working Group
Working groups are usually informal meetings and consists of a small number of people working on a specific topic. According to the problem, members of a working group can be self-selected volunteers with relevant expertise or actively selected by a steering committee or by other working group members according to relevant expertise. It is usually aimed to get a balance of people with different backgrounds. Depending on the subject working groups can either meet regularly or just come together for definite times. Working groups are excellent for discussion and encourage small group or one-to-one communication. However, the participants may not be seen as representatives by the larger public.

Round Table
The Round Table is a negotiating round consisting of all interest group appointees that are affected either by a planning, a conflict or a problem. The Round Table method brings people

together to discuss local issues of shared concern, and brainstorm ideas for action, in a manner that allows maximum participation. Round tables aim to build relationships between different groups and sectors and conduct a dialogue on a specific issue and find a consensual solution. Participants are targeted from the local authority, business and the community. Decision-makers from the political sphere should participate in the Round Table in order to add weight to solution concepts in the political field. The Round Table is employed for concrete planning tasks in urban, regional and country planning. It is also employed for political and social questions, especially for latent conflicts.
Participants may also be appointees especially qualified for solving difficulties. The affected interest group representatives and experts constitute the Round Table's participants. Tables are allocated according to maximum mix. Each round may have an issue or topic in which participants have an interest, while coming from different sectors and organisations. This ensures people meet new faces and cross boundaries.
The participant group is hence heterogeneous and limited to a maximum of 20 people (ÖGUT, 2004). Due to round table events in the UK (NEW ECONOMICS FOUNDATION, 1998), participants can number from 30 to 100 for each event, and a series enables many more people to participate (up to 500). Round Tables are carried out in a variety of ways and have no standardised procedural sequence. Such a procedure can be as short as half a day, but ideally forms part of a series spread over a certain time depending on the subject.

Workshop
A workshop is an informal, task-orientated, non-structured forum where people are invited to work together in a group (or groups) on a common problem or task. The goals are resolving issues and building consensus for action, rather than provide information and answer people's questions. If the workshop is intended as a community event focusing on a community issue, the selection of participants is normally determined by knowledge, expertise or by selecting a cross-section of views. Alternatively, workshops can be organised to target particular groups e.g. young people, or women. The spectrum of participants, which should be as large as possible, consists of politicians, administrators, experts, real estate proprietors and affected individuals. Typically, it involves a relatively small group (20-40) and addresses aspects of a narrowly defined topic.
Workshops require a facilitator who is able to engage all participants in the discussion. Workshops are a participatory tool that is best used with smaller numbers of participants. Workshops allow the people to learn in detail the views and suggestions of participants, other viewpoints and ideas and possible solutions can be heard in a non-confrontational atmosphere and participants can have a free-flowing discussion of new approaches that can lead to group decisions or positions. This instrument is well suited for discussion.

Citizen Panel
A Citizen Panel is an open, informative event, wherein discussions touching upon intended planning and other public topics can be carried out. It consists of a group of people assembled to debate or provide input on specific issues. It aims to inform citizens about planned developments in a transparent, intelligible manner. At the same time, opinions stemming from an affected public can be gathered. Citizen Panels consist of an informative and a discursive part. They are usually employed on a municipal level and focus on a particular topic. They may also be established as permanent institutions for the discussion of various citizen concerns and requests. They address the broader public, that is to say, all interested indi-

viduals and also non-organised citizens. It normally requires a skilled chairperson and it has to be set up in advance how the results will be used. The advantage of citizen panels is the opportunity to develop deep understanding of an issue, but is fairly resource intensive.

Strategic Environmental Assessment Round Table

The purpose a pure Strategic Environmental Assessment (SEA) "is to ensure that environmental consequences of certain plans and programmes are identified and assessed during their preparation and before their adoption. The public and environmental authorities can give their opinion and all results are integrated and taken into account in the course of the planning procedure. After the adoption of the plan or programme, the public is informed about the decision and the way in which it was made. In the case of likely transboundary significant effects the affected Member State and its public are informed and have the possibility to make comments which are also integrated into the national decision making process. Strategic environmental assessments will contribute to more transparent planning by involving the public and by integrating environmental considerations" (http://europa.eu.int/comm/environment/eia/sea-legalcontext.htm#ep2).

According to ÖGUT (2004) there exists a "Strategic Environmental Assessment (SEA) *Round Table*, which is a combination of the Strategic Environmental Assessment and an environmental mediation consensus-seeking procedure. " In an SEA Round Table, the SEA is carried out cooperatively by an SEA team. The goal is for the SEA team to develop a policy, a plan or a programme, which builds on consensus. Such a consensus should be reached on the greatest possible number of points possible. Environmental aspects are to be equally taken account of. The SEA team consists of representatives from the affected interest groups (what is referred to as the "qualified public"), representatives of the administrative authorities (the authority responsible for the planning as well as the concerned environmental authority) and external experts. All three groups work together from the beginning. The team ideally consists of 15-20 individuals. In larger groups, balanced discussion and continuous participation of all representatives becomes increasingly challenging".

In the following a selection of additional instruments, which were not mentioned in the questionnaire will be explained:

Mediation

The goal of mediation procedures is to resolve conflict by involving all stakeholders. The stakeholders are supported by a neutral facilitator (mediator). Mediation is made use of on a national as well as on an international level in various fields, particularly for already existing conflicts. Only organised interest groups are active in these processes (not non-organised citizens). To ensure a certain level of public awareness, the public is informed in a concerted manner. When the parties concerned are numerous, the mediation forum can be divided into an active inner circle and a less active outer circle. The forum may also be subdivided into several small groups according to the topics. Mediation procedures last from a few days to several years. They pass through an initiation phase, a preparation phase, an execution phase as well as a contractual and implementation phase.

Consensus Conference

A consensus conference is a public meeting or procedure, which allows ordinary citizens to be involved in assessing an issue or proposal (traditionally, this has been used in the assessment of technology). The conference is a dialogue between experts and citizens. They aim to give members of the community a chance to have their say on community issues, to increase their knowledge of and ability to participate in such a discussion, and to come to one position statement that all participants can `own`. It is open to the public and the media. Developed in Denmark, there it is usually attended by members of the Danish Parliament. More recently, other countries such as Great Britain, the Netherlands and United States have followed the path.

The citizen panel plays the leading role, formulating questions to be taken up at the conference, and participating in the selection of experts to answer them. The panel has two weekends for this preparation. The expert panel is selected in a way that ensures that essential opposing views and professional conflicts can emerge and be discussed at the conference. An advisory/planning committee has the overall responsibility of making sure that all rules of a democratic, fair and transparent process have been followed. Consensus conferences have mostly been used where the topic being investigated concerns management, science or technology. They require a strict adherence to the rules of implementation to be successful. Where members of the community feel their views go unheard, the consensus conference offers an exciting participatory technique for democratic participation.

Consensus conferences are suited as a public debate from a range of perspectives. It empowers lay people to develop an informed understanding and make some contribution to the development of policy on a sensitive topic and may bridges the gap between experts and lay people.

Weaknesses are the high costs for set up and recruit participants. The conference would normally run for a 2-4 day period and therefore resources would be costly. Strict adherence to the rules of implementation is also required for the conference to be successful. Besides the formalized nature of this tool could discourage the public from participating.

Cooperative Discourse

A Cooperative Discourse is a combination of different participative procedures. These procedures are mediation, Group-Delphi and the Citizen Jury charged with solving planning tasks. The first step consists in the compilation of a criteria catalogue to evaluate different planning options. This is accomplished via mediation, with the participation of representatives from the affected interest groups. The second step has experts analyse the effects of the planning options. They do so within the framework of what is known as a Group-Delphi procedure. In the third and final step, randomly chosen citizens evaluate planning options. They do so with the help of the criteria catalogue and the analyses produced by the experts. The Cooperative Discourse is used for planning issues on regional and higher levels. It is employed to deal with open as well as with latent conflicts. By thus combining three participative procedures, it is possible to compensate deficits in each of the single procedures. This combination renders the Cooperative Discourse costlier.

Advocacy Planning

Advocacy Planning is intended to help less articulate, disadvantaged or non-organised segments of the population during planning processes. Such a group is counselled by its "lawyer" (usually a planner). The group will thus benefit from professional advice and be repre-

sented in communal and state panels. The goal is the balanced consideration of the interests of all groups affected by a planning process. Often the Advocacy Planning will "translate" and negotiate between everyday life and experts perspectives. Advocacy Planning is generally deployed on a local or regional level. Usually, lawyers are continuously available. Problems may occur if comprehensive conflicts are reduced to technically solvable problems. Difficulties may equally arise, if citizen groups are patronised or pushed into passive roles.

Charrettes

Charettes are intensive sessions where participants create or review concepts and/or designs and are empowered to work together to support the results of their efforts in future planning efforts. Charrettes are invaluable as they allow participants to understand several sides of the issues—usually very graphically--and the resulting "buy-in" or consensus most usually has a positive effect in reducing opposition down the road.

Open House

An open house is an informal setting in which people get information about a plan or project. It aims to provide one venue for people to visit where they can speak to staff or members of the authorities/ organisation, and obtain a variety of information about an institution, issue or proposal. It has no set, formal agenda. Usually, the open house includes display information and presentation material complimented by printed handout materials and the presence of the sponsor's staff to meet with and answer people's questions one-on-one. Brief presentations are also part of the open house to inform the guests. According to this, an open house is a combination of different single methods.

Those who visit during an open house will be more familiar with the venue, will know more about the operations and intention of the organisation or group that set up the open house, and may be more informed about an issue or proposal. An open house can either be arrange in the centre of affected/involved area or temporarily built up directly on site e.g. during a beach nourishment.

Open houses are useful when a large number of potential stakeholders exist and the issue is of concern to the wider community. Alternatively, it can be used to target a particular group. Due to COASTAL CRC (2004), it is frequently used as a lead-in to another participation activity and achieves early publicity for that activity. Another advantage is, it can fit into people's personal timetables and it provides a relaxed forum where conflict is less likely to occur.

Weaknesses are that the attendance is difficult to predict at an open house. Therefore, it is important to advertise in a number of ways that target different sections of the community and select the location carefully. Protesters may use the opportunity to disrupt the event. Open houses are also more staff intensive than a meeting.

Collaborative Task Force

A collaborative task force is a group assigned to a specific task, with a time limit for reaching a conclusion and resolving a difficult issue, subject to ratification by official decision-makers. Its membership usually includes local people or representatives from interest groups, appointed by elected local people or representatives from interest groups, appointed by elected officials or agency executives. Agency staff people are frequently assigned to provide technical support. Collaborative task forces have been used on a project level and for resolving issues within a project. Although a collaborative task force and an advisory committee focus on similar issues, each plays a different role in the decision-making process. An advisory

committee acts primarily in an advisory role, studying issues and presenting a mosaic of opinion to the department. By contrast, a collaborative task force usually helps solve a specific problem, working strenuously toward consensus and presenting a strong and unified voice. A collaborative task force includes the following features:

- A sponsoring agency is committed to the process,
- There is a broad range of representative interests,
- There is an emphasis on resolving an assigned issue through consensus,

Nominal Groups

Nominal groups are a widely used problem identification and prioritizing method (Miller & Hustedde, 1987; p.112-116). It works best in small groups of 8-12 people. Groups larger than this should be subdivided. The method's consists of a kind of brainstorming that builds on the peer pressure of seeing others writing furiously on note cards. The method requires strong facilitative skills to minimize the amount of 'lobbying' that might occur to justify particular positions or keep the discussion on problems rather than solutions. It permits quieter citizens to have an equal voice with those who are more vocal and provides a forum for exchange of information among the participants within the small group.

The disadvantage of nominal groups is the more limited interaction between respondents than occurs in focus group interviews. The formulation of the question is extremely critical because it conditions what and how people build responses. The question must solicit a series of reactions about 'problems' not perceived solutions. People are asked to quietly jot down problem issues, than those are shared one at a time without comment until everyone has exhausted their list. Then clarification of items and checking for similar or duplicate entries occurs. Typically, the person who puts an item up has veto power over their item being combined with another. Then people, in the small group, are asked to pick from three to seven top priority items (they can use equal or different weights for the items). Once the votes are cast and tallied, the group can discuss and clarify the tally and may even revote if they feel it is necessary. The limitation for the use of this technique is that it is not suited for the typical information-exchange meeting. If it is used, then a well-trained overall facilitator and small group facilitators are required. It also requires great planning to get as many representative citizens as possible to attend. Though a cross-section of the community might be there, the assumption cannot be made that the ideas obtained from the meeting will be readily accepted by the rest of the community.

Focus Groups

Another form of community involvement is a focus group. The focus group is currently one of the more popular tools in market research. Though surveys and face-to-face interviews are valuable in their own right, the focus group is able to gather information in a way that the other methods cannot. The focus group works best uncovering information on perceptions, feelings, opinions etc. (qualitative data) not quantitative data. The group interaction and greater insight into why certain opinions are held are some of the unique insights drawn from focus groups. The focus group interviewer needs to create a non-threatening environment to allow the voicing of perceptions and different points of view and to allow members to influence each other by responding to the comments made.

In surveys and individual interviews, the assumption is that people know exactly how they feel about an issue and that they developed this opinion in relative isolation. This is not al-

ways the case and focus group interviews demonstrate that other people's comments influence the belief structure as well as causing the belief structure to change. How the shift occurs and the nature of the influencing factors are the valuable gems extracted from focus groups.
One of the first steps in a focus group effort is determining what type of information is needed. The technique enables respondents to give you information in an open flexible manner that can, but really is not, appear unstructured. The facilitator must create a series of ideas or questions or points that elicit the information needed. Since the group meeting should be two hours or less, it is important to narrow down the potential list of questions to a few key questions. After completion of the interview, the team needs to formulate major themes discussed and integrate them within the context of the insights you are seeking. This can be done from notes or transcripts, although the latter implies some delay in doing it. The transcripts, however, permit quotes that make the point in the words of the focus group members. The nature of focus groups allows them to be used not just at the beginning stages of the project but also during all phases of the project. Focus groups can quickly, easily and inexpensively obtain a bearing for the project coordinators on how the project is going, or how and whether the project met its goals and objectives.

Stakeholder Analysis
A stakeholder analysis is a process of discovering the broadest possible range of people who will be affected by, or are interested in, proposed changes or a community issue. It is a cyclic process of surveys, interviews, feedback and fine tuning that allows for community consultation that includes many stakeholder groups whose opinions might otherwise be overlooked. As well, through the cyclic process of opinion surveys and feedback, this provides a mechanism for increasing stakeholder awareness and knowledge in relation to an issue or proposal. Through this process, groups can discover common interests that allow strategic alliances to be formed, for example, commercial and recreational fishers may find a common interest that permits them to work together.
Stakeholder analysis aims to ensure that the widest possible range of stakeholders` opinions and needs are known, so that these can be considered in any future planning and/or decision-making, and to increase stakeholders` knowledge of the issues so that they are enabled to make informed. This instrument can be used to ensure that as few of the affected stakeholder groups as possible are overlooked in the opinion polling and planning processes and serve an environmental education role, increasing knowledge and awareness of an issue. However, the process can be expensive to undertake on a large scale and it needs to cast a wide net to ensure that it can include unexpected and unpredicted connections between groups and issues.

Information Centres and Field Offices
Information centres and field offices can be established with prescribed hours to distribute information and respond to inquiries. It provides an opportunity for positive media coverage and for more responsive ongoing communications focused on specific public involvement activities. It is also possible to place the information dissemination in a positive educational setting and the information is easy accessible to the public. Disadvantage is the limited access to those in the vicinity of the centre unless the facility is mobile and the relative high costs for the development of the centre.

All the described instruments are finally summarized in the following table and have been analysed regarding their informational and participation suitability as well as the individual effort and representativeness. Though this assessment has been carried out on the basis of the included literature it is not free from subjective valuation but gives a fairly good overview, which tools are more suited as information instruments and which are more appropriate for participation.

Table 20: Forms and functions of participation tools (own illustration)

	Informational			Participative			
Instrument	To give	To get	Coverage	Interactive	Public influence	effort	Representativeness
Inquiry/ Survey	poor	Excellent	low	poor	good	high	potentially good
Circular/Leaflet	good	poor	excellent	poor	poor	medium	potentially good
Exhibition	excellent	poor	good	low	low	very high	potentially good
Press/ Local Radio	good	poor	excellent	poor	poor	low	potentially good
Internet	excellent	low	low	low	low	high	poor
Open Council	good	good	good	low	low	medium	potentially good
Discussion Fora	low	good	low	excellent	low	low	poor
Excursion/ Field Trips	excellent	low	low	low	poor	low	low
Referendum	poor	poor	excellent	poor	excellent	very high	excellent
Advisory Board/ Comittees	good	good	low	excellent	excellent	high	potentially good
Assembly	low	low	good	low	low	low	potentially good
Public hearing/meeting	good	low	good	poor	good	low	potentially good
Ombudsman	poor	poor	good	good	good	low	poor
Project Approval Procedure	poor	low	low	poor	low	medium	low
Future Workshop	poor	low	low	good	good	medium	poor
Citizen Jury	low	good	low	good	good	high	poor
Working Group	excellent	excellent	low	excellent	excellent	medium	potentially good
Round table	excellent	excellent	low	excellent	low	medium	low
Workshop	excellent	excellent	low	excellent	excellent	medium	potentially good
Citizen Panel	excellent	low	good	low	low	high	potentially good
Strategic Environment Assessment	good	low	good	low	poor	high	low
Mediation	low	good	low	low	low	medium	low
Consensus Conference	good	good	good	good	low	high	potentially good
Cooperative Discourse	low	good	low	good	good	high	low
Advocacy Planning	poor	good	low	good	low	medium	low
Charettes	low	good	good	good	good	medium	low
Open House	excellent	low	good	good	poor	high	potentially good
Collaborate Task Force	low	good	low	excellent	excellent	medium	potentially good
Nominal Groups	poor	good	low	low	good	medium	low
Focus Groups	poor	Excellent	low	low	good	low	potentially good
Stakeholder Analysis	poor	good	good	poor	good	high	potentially good
Information Centres/ Field Offices	excellent	poor	good	low	poor	high	potentially good

The described instruments just represent a selection of existing information and participation tools. It also becomes apparent that the instruments differ regarding definition, content or course of action depending on the selected literature. Especially the international comparison reveals different contents. Additionally there exist country-specific tools and specialties. A detailed analysis concerning this matter would go beyond the scope of the study at hand. The quantity of instruments also clarifies that there is no all-purpose or uniform tool appropriate for planning and management. In fact flexible procedures need to be applied, which can be adapted to the specific conditions and requirements.

6.1.6 Evaluating participatory processes

How do authorities accurately determine whether they are progressing towards, or achieving their goals and objectives? And who should be making these judgements? Increasing calls for accountability, efficiency and improved management performance have led to a more intense focus on the monitoring and evaluation stage of participation. And considering the investment of time and resources into the participatory processes it is vital that there has to be some sort of measurement. For these reasons an evaluation process is essential.

"The issues which need to be addressed in evaluating any participatory procedure will be different in different circumstances, and will depend on the needs and priorities of all stakeholders" (INTERACT, 2001). However, in all cases, both the process itself and the impacts of that process will need to be assessed. Evaluation can examine if the participation methods worked well and if things need to be done differently in the future.
Effective evaluation of participatory projects and programmes can offer considerable benefits both for stakeholders, organisers and participants. Possible benefits can be (INTERACT, 2001):

- Improving practice in participatory and co-operative projects and programmes,
- What works (or not),
- Sharing and consolidating learning,
- Provide a basis for selecting among competing applicants,
- Inform policy,
- Help promote the achievements of the project or programme,
- Provide an analysis of strengths and weaknesses which can be used to develop future plans,
- Ensure that resources are used efficiently in future,
- Help to clarify aims and objectives,
- Uncover unexpected consequences,
- Help validate new approaches,
- Provide evidence which can be used to demonstrate and strengthen the accountability, representativeness and legitimacy of certain stakeholder groups,
- Legitimate and extend the feedback process,
- Represent an opportunity for further active participation.

It could be assumed from the above that evaluation of participation will always produce evidence that will be positive: that evaluation will prove that participation 'works'. Good evaluation should certainly show what works, but also what does not work.
There are some other issues, which should be taken into account before designing and undertaking evaluations of participation. The purpose of the evaluation needs to be clear to evaluators and stakeholders and the evaluation process must assure that the lessons from the evaluation can be made easily accessible to those who need to understand and implement them. The potential for making the findings more widely available (e.g. to all stakeholders and to the wider policy community) should also always be considered as well as the available resources for the evaluation process (INTERACT, 2001).
There are different methods to conduct a evaluation:

- surveys (e.g. questionnaires by post, telephone or face to face),
- interviews (e.g. individual or group, face to face or telephone),
- facilitated events (one off, or a series),
- observation (group discussion, reports, presentation).

The selection of the appropriate method to evaluate the participation process in return is dependent on the mentioned issues like purpose or available resources.

INTERACT (2001) and CUFF (2001) have developed a framework for evaluating participatory processes. This framework aims "to evaluate both the participation process itself and the impacts of that process" (CUFF, 2001, p.75). The framework provides numerous key subjects,

which are relevant for a successful and sustainable participation. It is indicated that this serves as a flexible framework and is only a guidance. Each key subject is associated with several questions, which investigate the process in more detail. These key elements and some exemplary questions are listed below (CUFF, 2001; INTERACT, 2001):

1. Objectives of participatory process and overall objectives of project
    - What were the stated objectives of the process or programme?
    - How clear were the objectives, and how were they communicated?

2. Wider context within participation has taken place
    - Is the process or programme part of a larger strategy?
    - How does it relate to that larger strategy, structurally and informally?

2. Levels of involvement
   It may be useful to assess where the process lies on Arnstein's ladder of participation
    - What levels of involvement were used and at what stages?
    - Did participation really involve giving over any influence to those involved?

3. Used methods and techniques
    - What were the methods and techniques, which were used during the process or programme?
    - How were those methods identified, assessed and agreed upon?
    - How much did actual or potential stakeholders participate in identifying methods?

4. Inclusitivity & Stakeholder identification
    - How where decisions made about who is a key stakeholder?
    - How inclusive is the process?
    - Number of people involved.
    - What steps have been taken to reach excluded groups?

5. Innovation
    - Did I try and adapt existing methods in an innovative way?
    - Where any of the methods used groundbreaking at a EU/national/local level?

6. Commitment using results
    - What is the commitment to using the results from evaluation?
    - How the lessons from the evaluation will be articulated and shared

7. Inputs
    - What were the requirements in terms of time, money and administration
    - Where could money or time have been saved
    - Was voluntary labour used?
    - What processes represented good value in terms of outputs?

8. Outputs
    - Was publicity material produced?

- How many events were held?
- Where exhibitions held?

9. Outcomes
    - Has the participatory work resulted in changes to people?
    - Have participatory processes increased levels of trust?
    - Have participatory processes increased information and understanding?
    - Is there a detectable increase in the transparency of decision making?

Even if this is just a brief description of the comprehensive evaluation guide of Interact and the WUF-Project, it became clear that it requires a lot of effort and time. Furthermore it does not consider all the existing quality criteria of co-operation and participation procedures. These criteria which are essential for an effective and successful involvement of stakeholders and the public should be included in the evaluation process (VATTER, 1998; Rowe & Frewer, 2000):

1. Fairness,
2. Transparency of the process to the public,
3. Opportunity to learn,
4. Early and iterative involvement,
5. Direct and understandable information,
6. Open discussion of conflicts,
7. Structured and shared decision (planning, procedure, outcomes),
8. Representativeness of participants,
9. Motivation of participants,
10. Independence of true participants,
11. Competence of participants,
12. Equalisation of different interests,
13. Influence on final policy,
14. Institutional integration,
15. Cost effectiveness.

From our point of view, it is essential to keep the evaluation as simple as possible and involve all participants. It also seems to be important that the evaluation can be handled flexible and in case of long procedures, an in-between assessment is possible.
Hence, we would recommend the use of a questionnaire where all involved people, both authorities and the public, are asked to assess the procedure. The following questionnaire is a draft, developed by the authors together with sociologists and is just one possible way to evaluate participatory processes. It is based on the above criteria and contains an assessment scale to enable a quantitative evaluation and the comparison with other participation processes.

Draft for a Scoring Guide for Participation Processes

Name:
Member of: Authorities ☐
Stakeholder ☐
Public ☐

Now that you have finished the project, please take time to evaluate your work as well as the work of the other participants and authorities and the project as a whole.
Carefully answer the following questions using the provided scale:

Scale				
0	1	2	3	4
very negative				very positive

___ 1. Would you assess the whole process as fair?
___ 2. Did all participants have the same rights and influence?
___ 3. Was the whole process transparent? Do you think that all necessary information was provided?
___ 4. Do you feel informed about the project/problem better than before?
___ 5. Was the provided information clear und understandable?
___ 6. Do you think that the people's participation began early enough?
___ 7. Do you think the level of participation was sufficient?
___ 8. Have all problems and conflicts been discussed sufficiently?
___ 9. Was the participation process well structured?
___ 10. Was the participation process administrated well and independently?
___ 11. Were decisions made collectively?
___ 12. Do you think that all affected/relevant groups were involved in the participation process?
___ 13. Were you informed about the participation process in advance (Objective, duration, advantage of participating)?
___ 14. Did you feel qualified for the participation process?
___ 15. Was the duration of the whole participation process appropriate?
___ 16. Do you think feel that a consensus decision was achieved?
___ 17. Do you think that you had adequate influence on the decision (i.e. did the decisions satisfy you)?
___ 18. Do you think the consensus will be integrated or implemented in further decisions?
___ 19. Was the participation process cost-effective and time-effective?
___ 20. Would you engage again in a participation process? If no, why not?
___ 21. Do you feel that all in all the participation process was a success?

Recommendations for further improvement:

_____

Quite separate from evaluation is the principle that those involved in participatory processes should be kept involved and informed, throughout a project's life and beyond. Invariably those who have been involved in participation have done so willingly on a voluntary basis because they are interested in and/or affected by the project or issue under discussion. Therefore, it is essential to consider the extent to which they may want to be kept informed continuously as the project progresses and even be further involved. Professional stakeholders and organisations are often well involved anyway because they *deliver decided actions*. Some individuals or organisations may want to be involved only in the shorter term but it is vital to determine the expectations of all parties involved from the outset. If newsletters, for example, or other ways of feedback information just will not be continued for whatever reason, this must be explained, as it may affect some people's willingness to participate further.

6.2 Public survey - the surveys results

6.2.1 Questionnaire responses – Participation in coastal flood defence

The second part of the questionnaire (household survey) deals with the participation in coastal flood defence in the five countries. Hence, this part as well as the return rate and the methodology refers to chapter 5.2.

Question *P1: Have you ever taken part in a participation procedure concerning coastal protection?* The question was negated to 92 % on average. Only in Denmark (15 %) an appreciable number of people had attended a participation procedure (Figure 39). Except for Denmark the countries did not show significant differences. The results lead to diverse assumptions. Either the residents may have not been interested in coastal defence or may have not expected any success from participating. Alternatively, participation procedures may have indeed barely taken place or perhaps the population were not informed adequately.

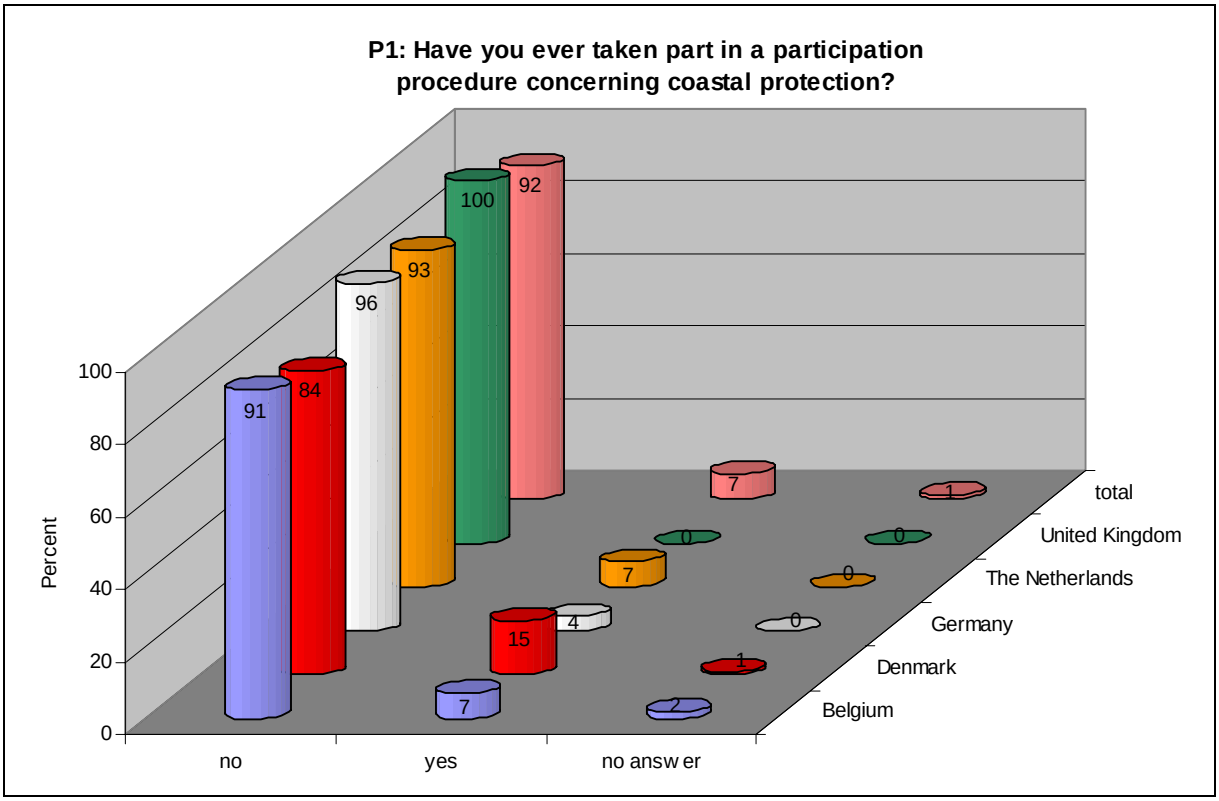


Figure 39: People who have taken part in a participation procedure

Table 21: Participants and non-participants in the different study areas

answer	Belgium (%)	Denmark (%)	Germany (%)	Netherlands (%)	United Kingdom (%)	total (%)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
no	91	84	90	93	100	92
yes	7	15	4	7	0	7
no answer	2	1	0	0	0	1

Question *P3: If you have answered no in question P1, why did you not participate?*
The answers were different. Most of the people in Belgium, Germany, the Netherlands, and the UK were of the opinion, that no participation procedure had taken place (Figure 40). Indeed the expert-interviews (chapter 6.5) gave the information, that at least one participation procedure had taken place in all of the study areas. At some places, the participation procedure may have taken place several years ago. Having regard to the fact that people forget events that have taken place for years ago it may be concluded that people had not been informed about it or they had not classified the "event" as a participation procedure. Either there had not enough information given to them or the information had not reached the public efficiently. Figure 40 shows that in total 48 % of the people considered that no participation procedure had taken place. "Other reasons" were the second most given answer. But it has to be added that most of the other reasons were namely "no participation procedure has taken place". 8 % of the respondents answered not having enough time. The results from Denmark are interesting because here the people had known of the present participation procedures. Here 15 % claimed not having enough time while 12 % were not interested. In addition, it is remarkable that in Belgium comparatively many people (10 %) did not expect positive results from engaging in participation. The reason might be the actual situation in the study area, where a controversial discussion about an ongoing planning process is taking place at the moment.

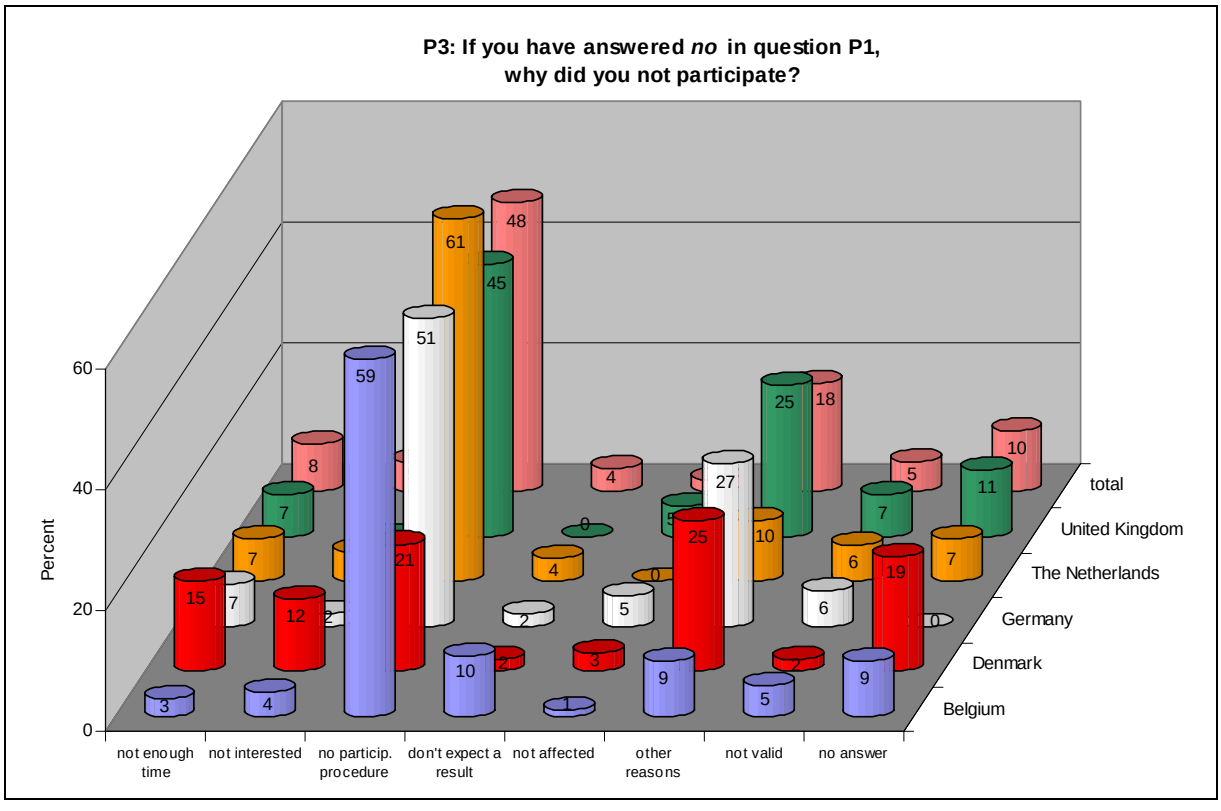


Figure 40: Reasons why people did not participate

Table 22: Country specific reasons why people did not participate

answer	Belgium (%)	Denmark (%)	Germany (%)	Nether-lands (%)	United Kingdom (%)	total (%)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
I have not enough time	3	15	7	7	7	8
I am not interested	4	12	2	5	0	5
no participation procedure has taken place	59	21	51	61	45	48
I don't expect a successful result	10	2	2	4	0	4
I am not affected	1	3	5	0	5	2
other reasons	9	25	27	10	25	18

Question *P4: Are you interested in giving your opinion to the planning process of coastal protection matters?*

The answers given here were very consistent in the five countries. In total 41 % were interested or very interested in giving their opinion to the planning process, 54 % were not interested (Figure 41). It is surprising that more than half of the respondents seemed not interested in giving their opinion to the planning process although they are affected by this subject, living in a flood prone area. But nevertheless, 41 % is a considerable number of people interested in a special field like coastal defence. If 41 % of the inhabitants of a municipality could get involved in coastal defence planning, this would be a positive result. A cross table with question *P1* shows, that 85 % of the people who already had taken part in a participation procedure still have been very interested or interested in giving their opinion. This may lead to the conclusion that they experienced the procedures as successful.

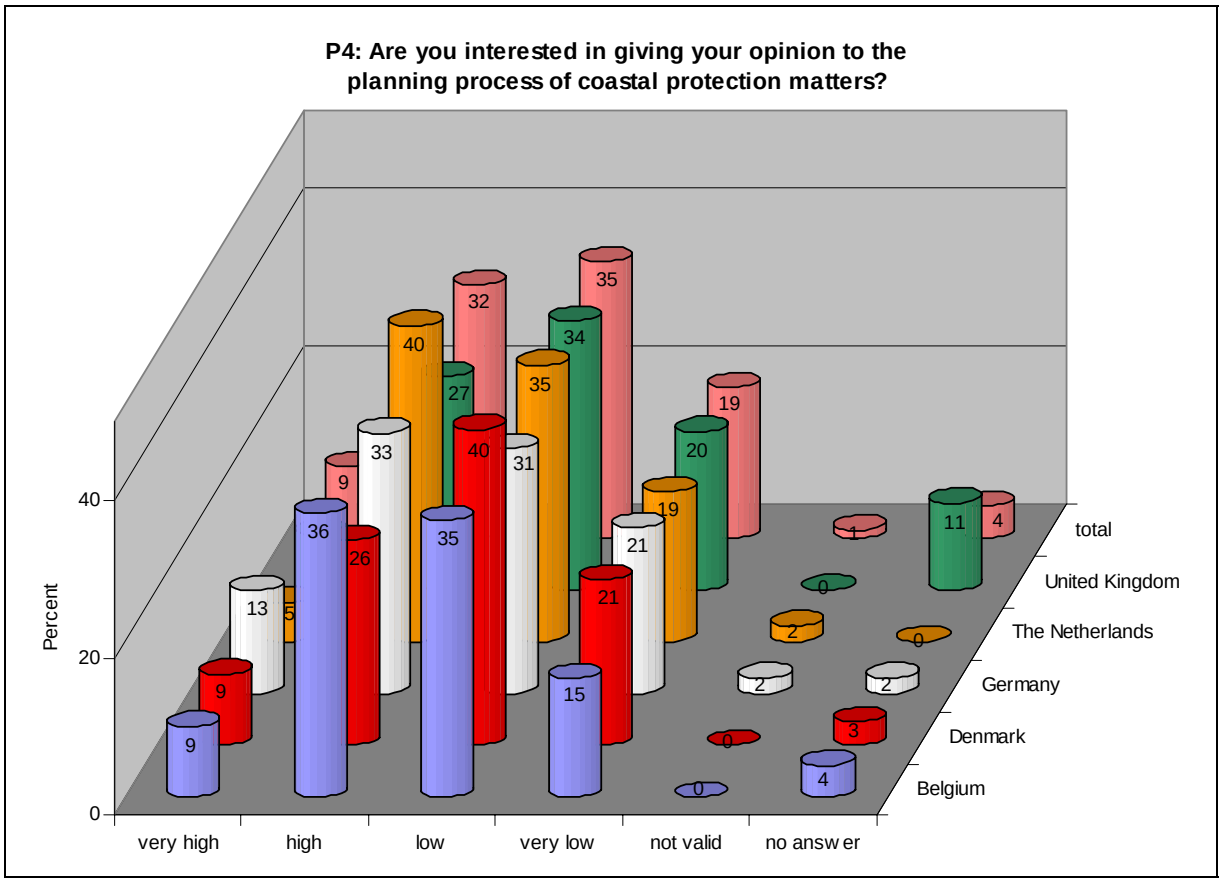


Figure 41: People interested in giving their opinion to the planning process of coastal protection matters

Table 23: People in each study area interested in giving their opinion

answer	Belgium (%)	Denmark (%)	Germany (%)	Netherlands (%)	United Kingdom (%)	total (%)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
very high	9	9	13	5	7	9
high	36	26	33	40	27	32
low	35	40	31	35	34	35
very low	15	21	21	19	20	19
not valid	0	0	2	2	0	1
no answer	4	3	2	0	11	4

Question *P5: Are you interested in being actively involved in the planning process of coastal protection matters?*

Not as many people as in question P4 were interested in being actively involved in the planning process. 34 % of the people were interested or very interested, especially in Germany (42 %) and in Belgium (39 %). On the average 60 % of the respondents were not interested in being actively involved (Figure 42). Compared to question P4 this shows the tendency that active involvement is a fairly time consuming activity many people are not interested in. But on the other hand 1/3 being interested is a considerable number. There is obviously a demand for active participation and a potential to further develop participation processes.

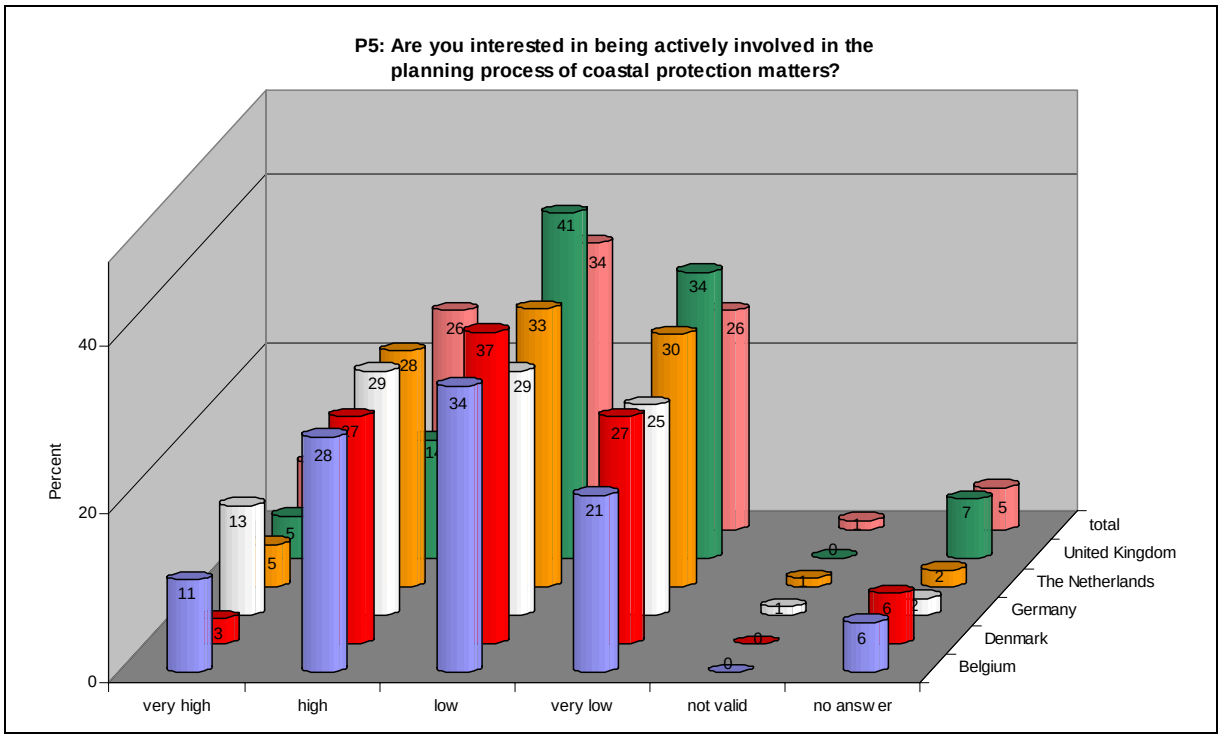


Figure 42: People interested in being actively involved in the planning process of coastal protection matters

Table 24: People in each study area interested in being actively involved in the planning of coastal protection matters

answer	Belgium (%)	Denmark (%)	Germany (%)	Netherlands (%)	United Kingdom (%)	total (%)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
very high	11	3	13	5	5	8
high	28	27	29	28	14	26
low	34	37	29	33	41	34
very low	21	27	25	30	34	26
not valid	0	0	1	1	0	1
no answer	6	6	2	2	7	5

Question P6: *If you want to represent your opinion in coastal planning, what would you like to do?* 48 people answered that they would go to an information evening. Only very few people would work as a volunteer or sacrifice a workday. In St. Peter-Ording however 18 of 85 people were interested in working regularly as a volunteer (Figure 43). A correlation with *P5* shows that those people who had only little interest in being involved in the planning process considered going to an information evening or making a phone call. This question reveals that the more concrete the respondents were asked to describe their willingness to participate the less people are ready. But nevertheless 204 people said they would attend an information evening. Although an information evening is not truly active participation procedure it is an important task to inform people and raise their awareness. The 15 % who were ready to actively participate may be seen as a low number, which has to be improved. However, it could also be seen as a potential to further involve people in the decision making process.

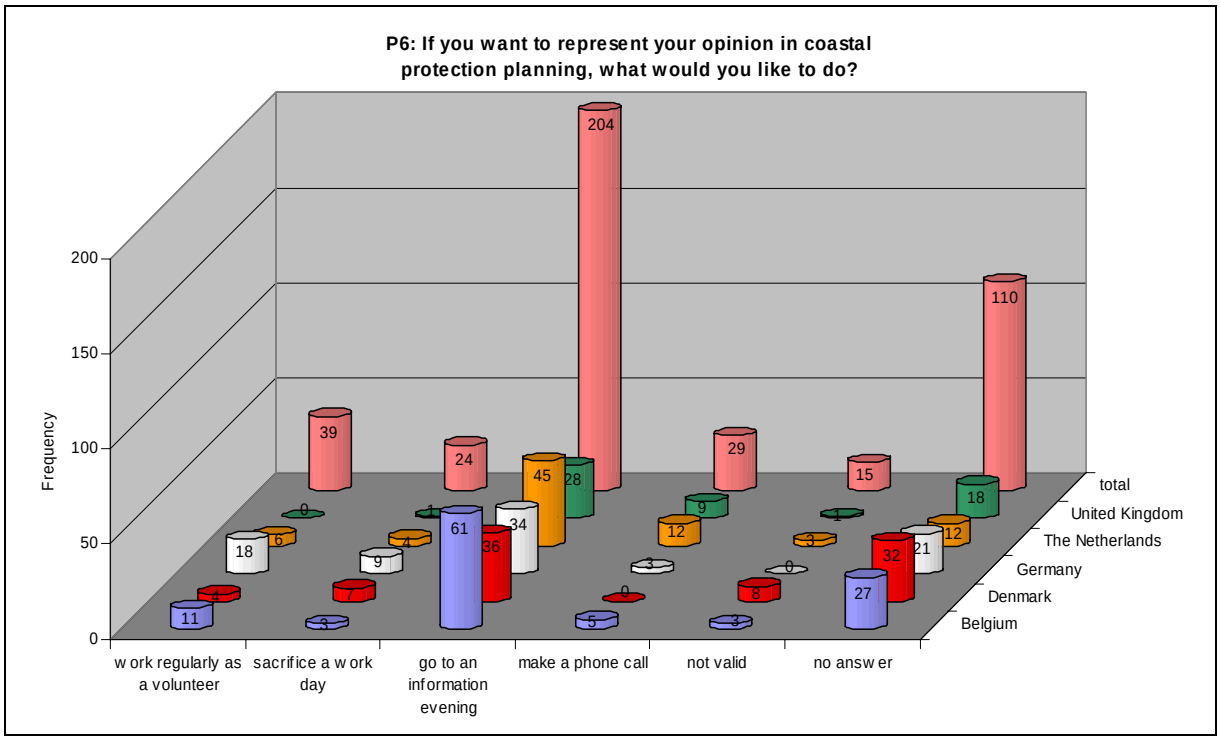


Figure 43: Things people would do to represent their opinion

Table 25: Things people would do to represent their opinion in the different study areas

answer	Belgium (freq.)	Denmark (freq.)	Germany (freq.)	Netherlands (freq.)	United Kingdom (freq.)	total (freq.)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
work regularly as a volunteer	11	4	18	6	0	39
sacrifice a work day	3	7	9	4	1	24
information evening	61	36	34	45	28	204
make a phone call	5	0	3	12	9	29
not valid	3	8	0	3	1	15
no answer	27	32	21	12	18	110

Question *P7*: *From your view what are important reasons to engage yourself in coastal protection?* This question provided some interesting aspects that might be used to involve people further in the processes. This question was an open question and the answers were categorized afterwards. Up to three answers could be given, which were added up in figure 37. More than half of the people did not answer the question. The others stated very clearly with 156 entries that safety is the most import reason. 37 persons considered that the possibility to influence the decision making of authorities is an important reason as well (Figure 44). In Ribe only 14 people considered safety to be an important reason for engagement in coastal protection matters. This can be explained by the fact that people in Ribe were very satisfied with the present situation of coastal protection (cp. R7a, Figure 26).

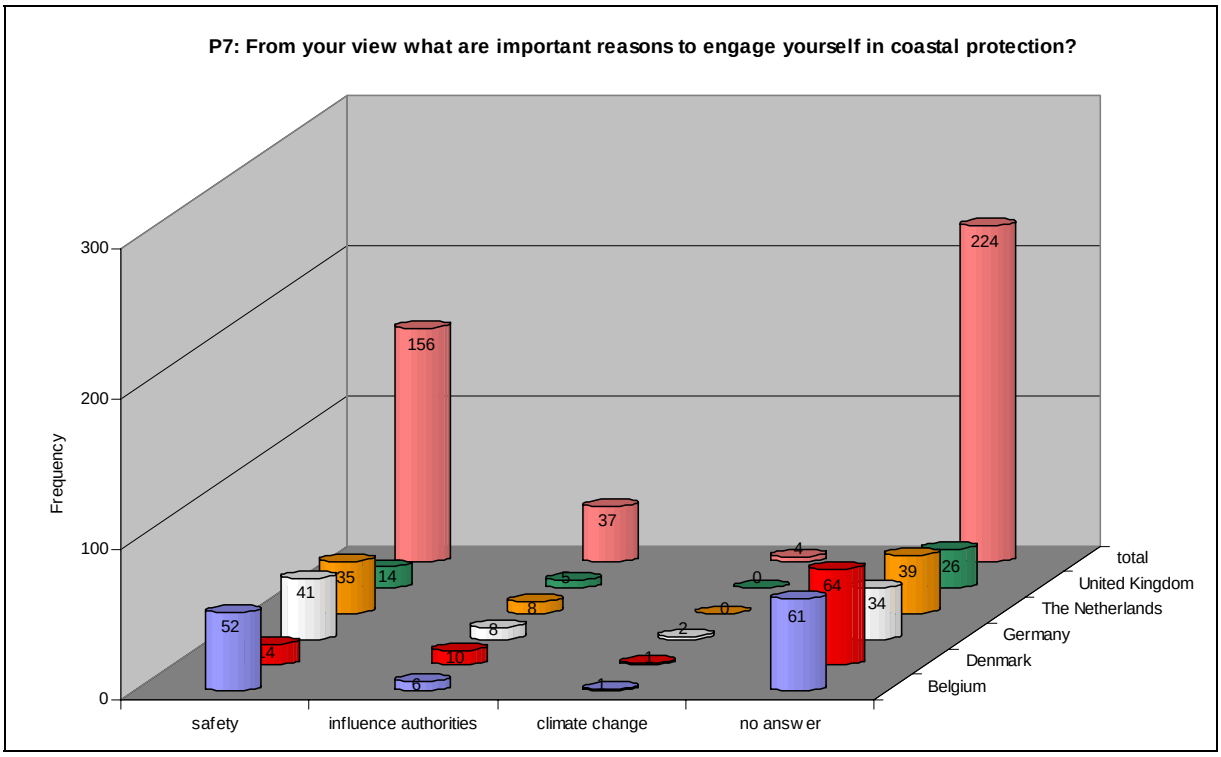


Figure 44: Reasons to become engaged in coastal protection

Table 26: Reasons to become engaged in coastal protection in the different study areas

answer	Belgium (freq.)	Denmark (freq.)	Germany (freq.)	Netherlands (freq.)	United Kingdom (freq.)	total (freq.)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
safety	52	14	41	35	14	156
influence authorities	6	10	8	8	5	37
climate change	1	1	2	0	0	4
no answer	61	64	34	39	26	224

Question *P8: Do you know a possibility to represent your opinion, if you do not agree with the declaration of the coastal protection authorities?*

Question eight yielded different results. As seen in question *P4* up to 45 % of the people were interested in giving their opinion to the planning process. Only 26 % seemed to know how to do this, whereas 61 % claimed not knowing a possibility to represent their opinion (Figure 45). It may be assumed that people were not informed at all or not in the right way. This necessitates a better information policy, which informs the public about how and where they can get information about the actual planning processes and where they have the possibility to play a part in the process.

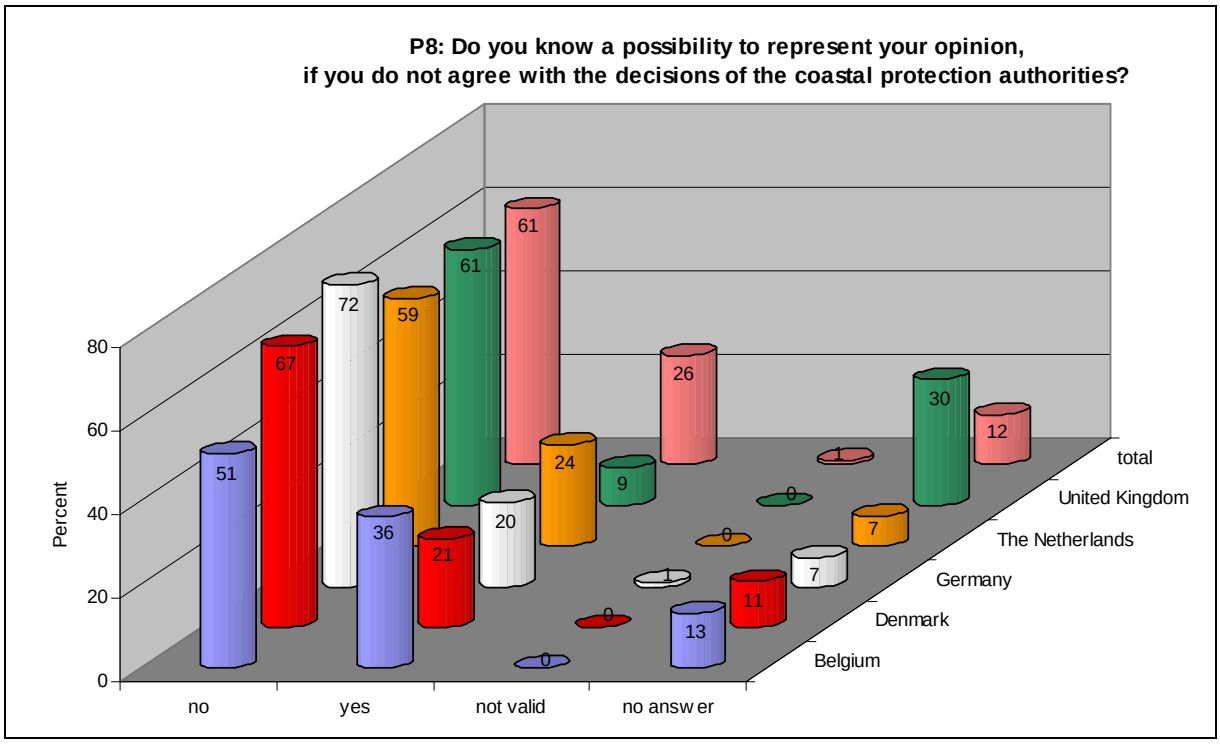


Figure 45: People who know how to represent their opinion

Table 27: Proportion of the people in each study area who know how to represent their opinion

answer	Belgium (%)	Denmark (%)	Germany (%)	Netherlands (%)	United King-dom (%)	total (%)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
no	51	67	72	59	61	61
yes	36	21	20	24	9	26
not valid	0	0	1	0	0	1
no answer	0	0	1	0	0	12

Question *P9: What could you do, if you do not agree with the coastal protection plans?*
This was an open question, where people could give their own statements. In total 71 persons answered that the public has no influence at all. Often some frustrated comments were added to these answers, especially in Belgium and the Netherlands. People considered that the authorities did not involve the public and did not take into account the opinion of the public. People resign, because their engagement does not seem to lead to any success. 41 persons answered that they would contact the authorities, 32 would write letters to newspapers (Figure 46).

Some comments given by the respondents:

- The authorities do not listen to an ordinary person anyway
- the planning authorities always do only what they want
- The people responsible for coastal defence do not want to hear not hear my opinion

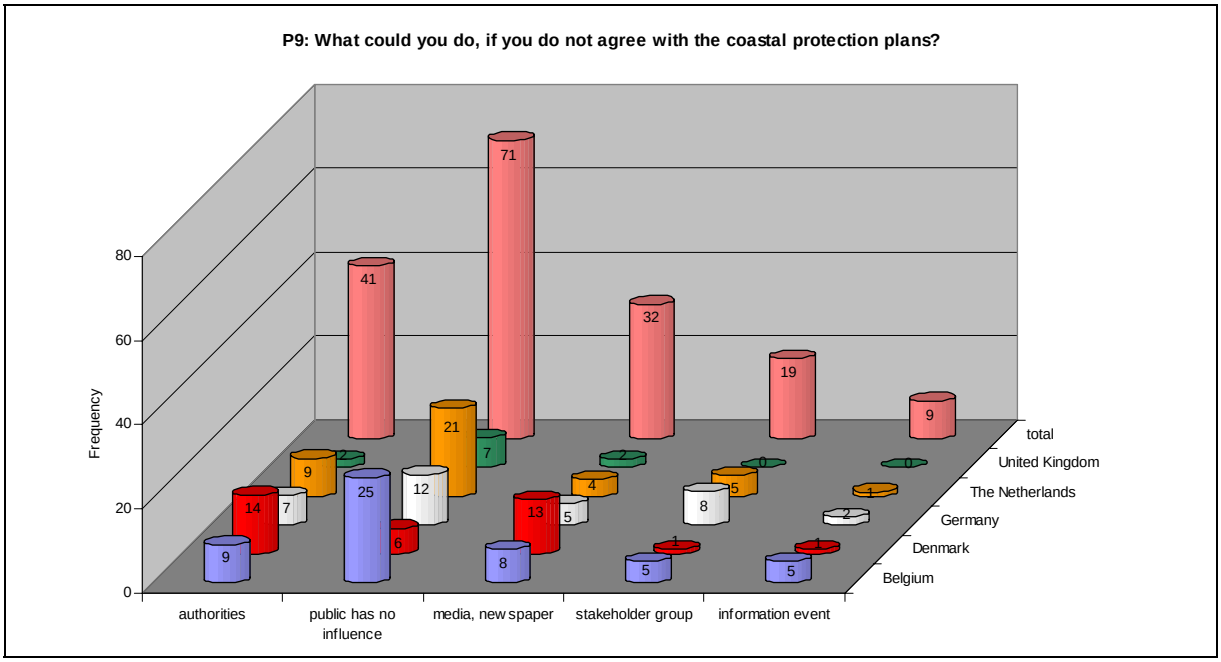


Figure 46: Things people would do if they do not agree with coastal protection plan

Table 28: Things people would do if they do not agree with coastal protection plan in the different study areas

answer	Belgium (freq.)	Denmark (freq.)	Germany (freq.)	Netherlands (freq.)	United King-dom (freq.)	total (freq.)
	n = 110	n = 89	n = 85	n = 82	n = 45	n = 411
authorities	9	14	7	9	2	41
public has no influence	25	6	12	21	7	71
media, newspaper	8	13	5	4	2	32
stakeholder group	5	1	8	5	0	19
information event	5	1	2	1	0	9

6.3 Conclusions

From the results of the questionnaire, it can be concluded that 92 % of all respondents had never been involved in a participation procedure, although at least one procedure had taken place in their neighbourhood. The reason for this may partly be that people were not interested, but when taking into account their explanatory statement in P3, it gets clear that most of them were not informed about it. Perhaps the authorities did not disperse the information broadly enough and therefore it did not reach everyone.

Asking the people if they are generally interested in getting involved in participation procedures yielded positive results. 41 % said that they are interested in giving their opinion to the planning process, 35 % seem interested in being actively involved. 15 % confirmed this statement by declaring their willingness to attend an information evening or to actually work regularly as a volunteer, even though this is a time consuming activity. In our opinion, the percentage of 15 % is still to be raised by better information to the public and by further de-

velopment of the participation procedures. As people live in areas of risk, participation may contribute to their awareness. In addition, participation procedures can more easily be extended to those who are already aware of the risk situation. Question P8 makes clear, that 61 % of the respondents did not know a possibility how to convey their opinion. Here again it becomes clear, that lack of information might be the problem. People who were interested to become involved in the planning process often did not know how to do this. They were not informed about it. Only an improved information policy by the authorities would lead to more engagement on the side of the public.
This deficit of public participation leads to frustration and resignation amongst the respondents in the study areas. In some areas people considered that the public has no influence at all, when they want to criticise the decision making (cp. P9).

Summarized the main conclusions from the public survey on participation are:

- 92 % of the interviewees have not been in contact with participation procedures.
- 1/3 of the respondents were interested in actively being involved in the planning process.
- Those people who participated, would do it again.
- A communication problem exists. The information about participation procedures does not reach the public to the desired extent.
- People felt that they are not informed sufficiently.
- A lot of people seemed frustrated stating that the authorities do not involve them or listen to their opinions.
- There is a demand to further develop and extend participation procedures in order to promote awareness.
- Information events were most wanted by the interviewees. Time-consuming activities turned out not to be so well-accepted, but still wanted by a minority.

6.4 Expert interviews - the results from the survey

Due to the number of study areas and the international approach person-to-person interviews were not feasible. Hence the decision was made to conduct an expert survey by mail. Approximately 120 questionnaires were mailed to different experts. These experts mainly belonged to public authorities and education facilities. Because of the specific topic – participation within the scope of coastal defence – the number of known experts was fairly small. We were dependent on the cooperation of the experts known to us. These experts were asked to name other colleagues or persons who also could have some experience in this topic. But especially in Belgium and Denmark almost no further contact persons were named or could be traced. In other cases the questionnaires had been sent to alternative specialists but either we didn't get any reactions from these or they declared themselves not to be qualified enough to answer the questions.
The return rate of the expert questionnaire was 35 % on the average. We received 29 questionnaires from Germany, but unfortunately, only few came back from the other North Sea countries. Hence, it does not seem meaningful to analyse the questionnaires separately by countries, due to the inhomogeneous rate of return. But unlike in the public survey the quality of the answers of experts is to be rated higher than an undifferentiated quantity. A thor-

oughly completed questionnaire usually provides very proficient and comprehensive information.

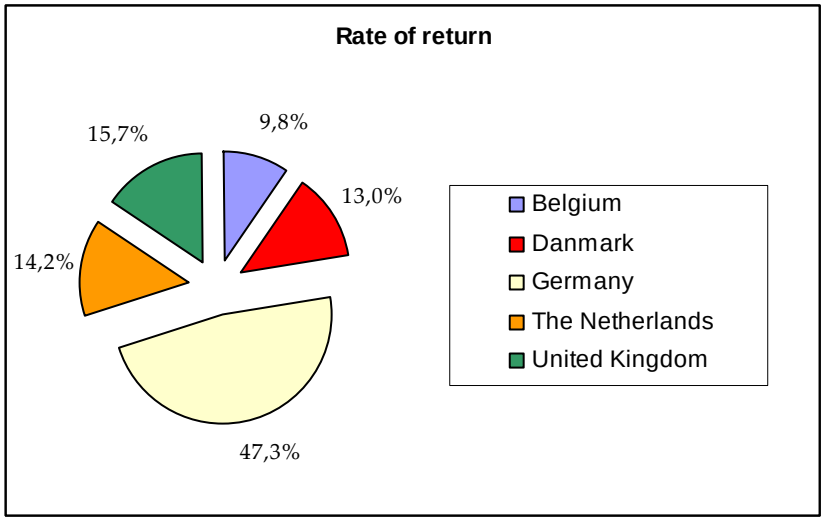


Figure 47: Rate of return of the expert survey

Table 29: Rate of return of expert questionnaires by study areas

Country	distributed questionnaires	answers	answers in %
Belgium	8	1	12,50
Denmark	12	2	16,67
Germany	48	29	60,42
The Netherlands	22	4	18,18
United Kingdom	30	6	20,00
Total	120	42	35,00

Question 1: What information tools respective formal and informal participation procedures are of superior importance for coastal defence?

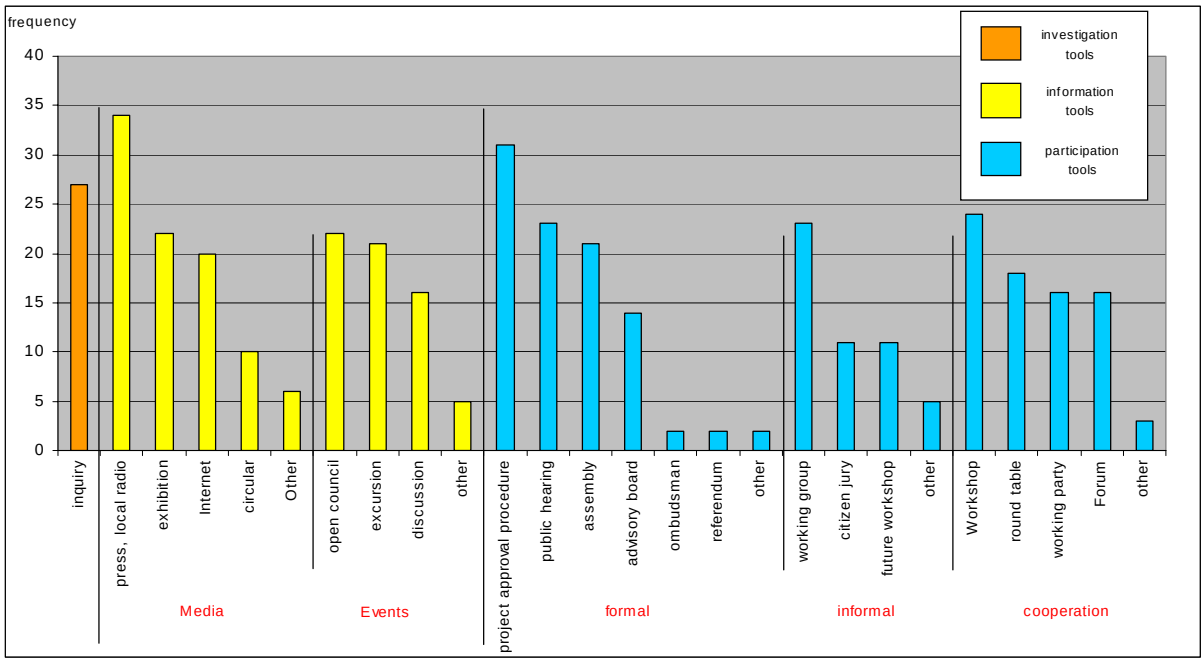


Figure 48: Frequency of mentioned information and participation procedures

As described in the participation theory chapter (chap. 6.1) the list of participation instruments is manifold and there are numerous differences between the countries. For this reason a selection had to be made before compiling the most common instruments and those who actually exist in all five countries. A set of 21 more or less common instruments were identified.

These selected instruments were classified after BISCHOFF ET AL. (1996) into the three categories investigation, information and participation. This classification has the limitation that a correct assignment to one category is sometimes difficult. A discussion event for instance can contain elements of participation as well; vice versa, participation procedures often imply information. But this classification is well suited to illustrate the main objectives of each instrument. According to BISCHOFF ET AL. (1996) all three classes can be assigned to participation in the broadest sense.

The interviewees had the alternative to mark as many procedures as they wanted. Concerning **information** tools or procedures, the press/ local radio was the most mentioned tool, followed by inquiries, public hearings, exhibitions and open councils. The least named procedures were circulars.
Regarding **participation** instruments, project approval procedures were the most mentioned tools, followed by workshops and working groups.

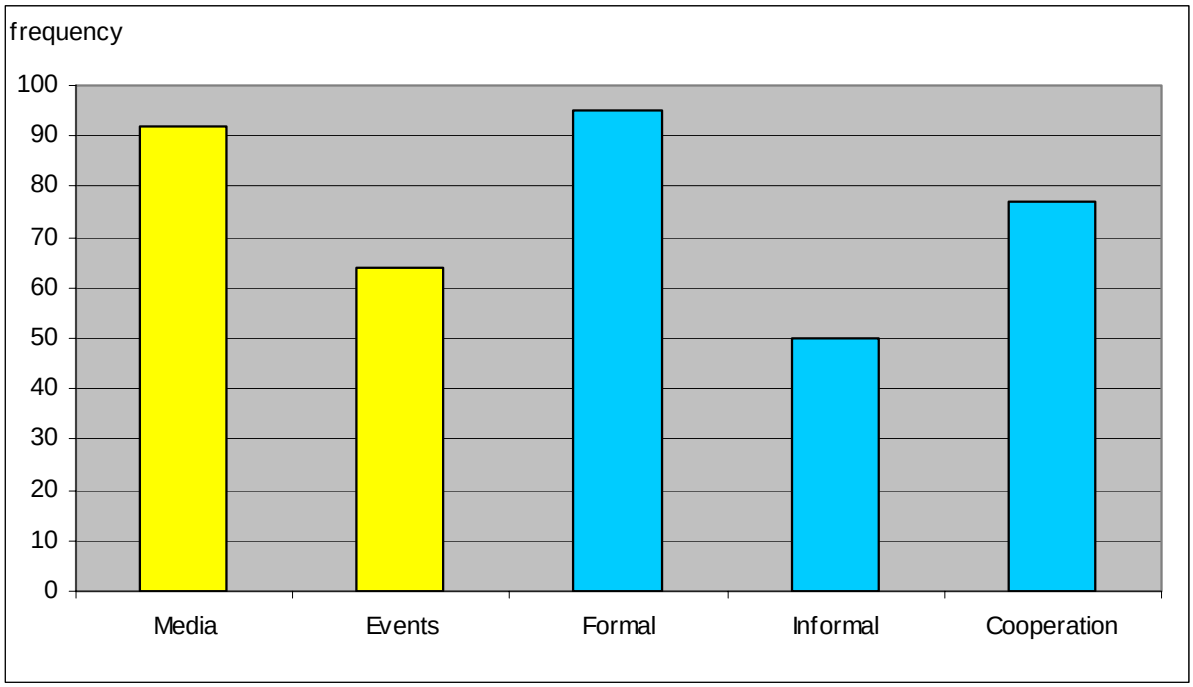


Figure 49: Summarized frequency of mentioned information and participation procedures

Remarkable is the fact that within the information tools **media** was much more often mentioned as appropriate than information **events**. This emphasises the influence and importance of the media spectrum, as already stated in chapter 5.1.1 Due to the fact that a large part of the experts belonged to authorities, formal procedures were considered as the most important instruments for participation. But at the same time cooperation was given a high priority as well.

In both cases, information and participation tools, only a few alternatives were specified, whereas they were very similar to those already indicated. The most frequent alternatives were *TV-information*, *talks*, *ICZM-procedures* and *local action groups*. The results revealed that the provided list obviously covered almost the whole set of possible information and participation instruments.

Question 2: Have you been involved in one of the named participation procedures (private, job-related)?

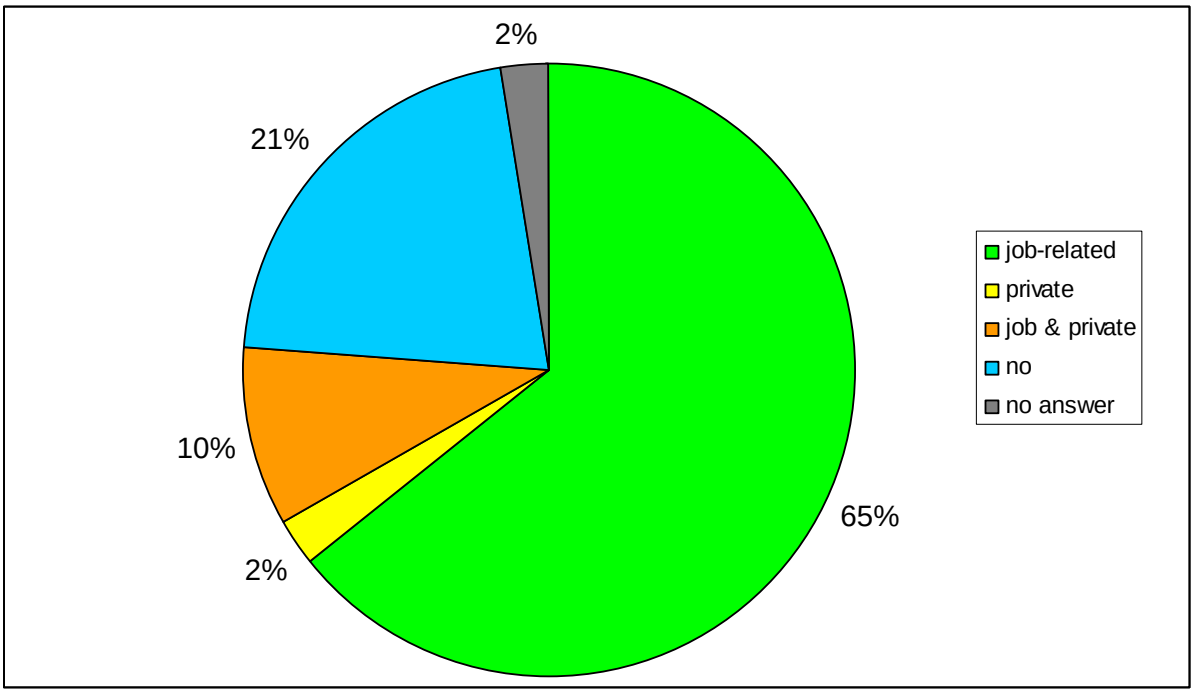


Figure 50: Percentage distribution of participation involvement

Two thirds of the experts have been involved into a participation process in relation with their jobs, whereas 10 % of them have been also been involved privately. Only 21 % stated that they had not been part of such a process. Only 2 % were only privately involved and another 2 % didn't answer the question.
Based on these numbers it seems that participation is already a part of the everyday work in the public authorities and other institutions. But since it is not clear whether people had been truly engaged in participation processes or whether they only hinted to an information event for the population, this distribution cannot be taken as an indicator for the practical implementation. It makes up more for the verification of the individual background of the interviewees. Since mainly experts have been addressed who are familiar with coastal defence it was to be expected that most of them had already some experiences with participation.

Question 3: What participation procedures concerning coastal defence planning have taken part in your country, particularly in the COMRISK research area (Gemeente Sluis, Oostende, Ribe, Skegness or St. Peter-Ording)?

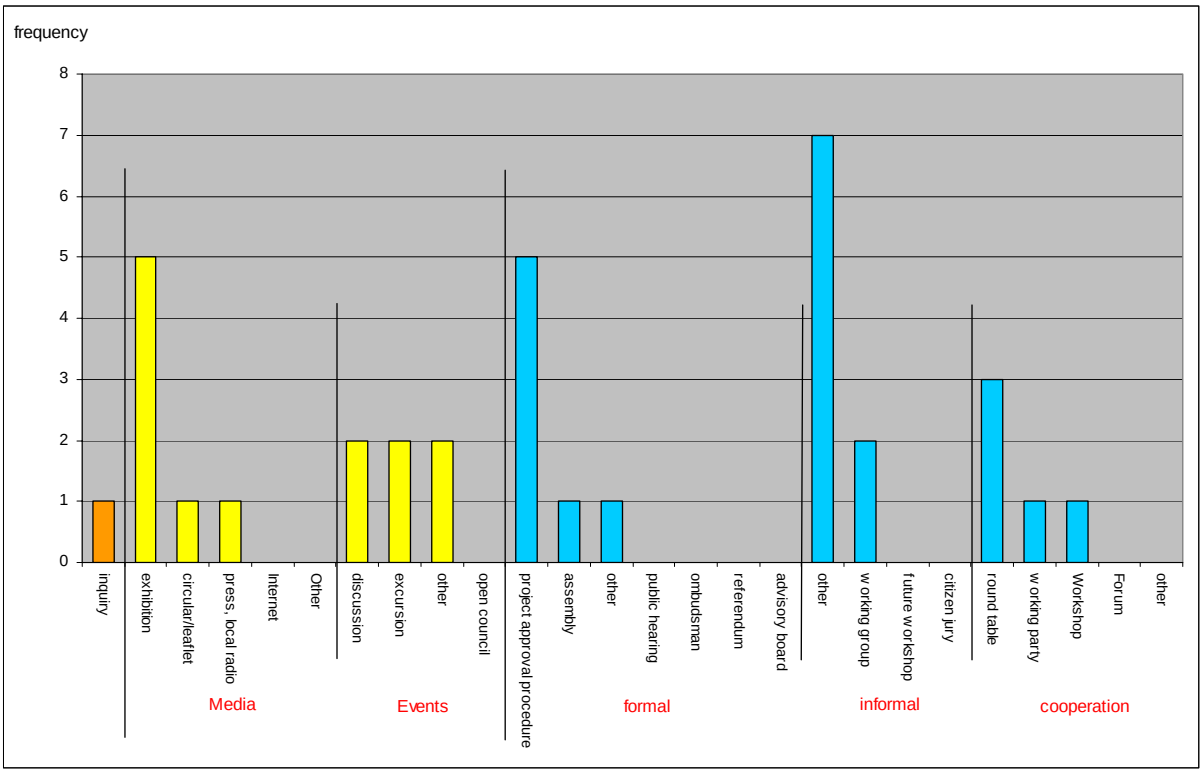


Figure 51: Frequency of information and participation procedures that have taken place

Despite the fact that 35 procedures were mentioned in total, it becomes apparent that participation is not yet widely-used in coastal defence. Because of naming several choices by most experts, the number of processes that have actually taken place is much lower. E.g. the same events were sometimes mentioned several times but by different people. Thus, the exact number of carried-out procedures cannot be identified.

Unfortunately, a number of experts who stated that they had been involved in participation processes didn't give an example. Sometimes it wasn't de facto a participation measure which was mentioned, sometimes they couldn't remember exact details or they referred the question only with focus on the specific study areas in this project. However, the information events or processes which have actually taken place were all described as successful or very successful, except for one. The experts reported that the attendance and feedback was very positive throughout the events. In one case the local press was more interested in protests phrased against the coastal defence project. Two procedures that were mentioned couldn't be assigned to anyone of the listed **information** instruments, an *open house* and *interest group meetings*. O*pen house* means the site office was open to the public once a week during a beach nourishment process, where the responsible project manager, site agent and resident engineer were at hand for answering questions. This instrument was reportedly successful. The *interest group meetings* were local venues and lasted between one and three hours. It was an open invitation to appropriate interest groups arranged by a project team. The success varied but was always described as supportive for the project progress.

Two instruments were not mentioned at all: *Internet* and *open council*, although the Internet is one of today's major communication and information media.
Concerning the **participation** process the results are more difficult to assess. One the one hand there are a lot more procedures which were not mentioned at all and the events were not always judged as successful. The project approval procedure was the most mentioned **formal instrument** but only in Germany. None of the other experts from Belgium, Denmark, the Netherlands or the UK said that he/she has participated in such a process in the scope of coastal defence, although this instrument exists in the Netherlands and in Belgium as well. In Germany the project approval procedure is a compulsory process. Hence, it is not remarkable, that this was mentioned five times. Much more interesting is the individual appraisal how successful the process was. While experts from authorities assess the procedures as more or less successful, external people have a rather different opinion. They stated that it was too formal, not a democratic participation instrument because "everything had been decided before the procedure began". In addition to the listed formal procedures, a so-called *sounding board* has apparently taken place in the Netherlands. In the framework of further development of recreation sites, the local authorities and the municipality conducted this event, which attracted many people, even though the process was very formal.
Regarding **informal events** for participation, working groups were mentioned two times and declared successful. Out of the seven alternatives (other) which where mentioned five could be attributed to the same event. It was a so called *sensitivity analysis* – carried out successfully in two municipalities at the Baltic Seas. The procedure included both information and participation elements, whereas the term sensitivity analysis is not correct in this context. Besides this a *stakeholder dialogue* was listed which produced fairly good results, despite the long process,. Another instrument was described as a *mediation* event, which caused tremendous protest during the process. But the protest can probably be attributed to the fact that the subject was dike relocation.
Round tables, working parties and workshops were co-operational procedures which have taken place. All of them were obviously (extremely) successful and obtained high attention.
In principle, it was sometimes difficult to assign the event listed by the experts to one of the categories. In some cases, the event consisted of different elements of the list or the procedure was different to the usual content or definition.

Although the return rate from the different countries was extremely inhomogeneous, one conspicuity could be identified. In the UK many different instruments (Leaflets, numerous exhibitions in different areas, round tables, open house, interest group meeting and working groups) have been obviously applied with preponderant good results within the context of flooding (management). This was confirmed by a consultant who was involved in several procedures throughout the UK (pers. Comment Floyd, 2004). But the results at hand have to be regarded always with the restriction of the limited number of interviewees.

Question 4: How useful are the procedures for the acceptance of coastal defence measures?

The most common participation procedures of all countries were selected and briefly described. Due to the primary issue of this assessment survey, the main focus was on procedures of active public involvement rather than information tools.
The experts were asked to evaluate the procedures with respect to the possible increase of the acceptance of coastal defence measures. The valuation scale was classified into four lev-

els, from ++ (very high) to - - (very low). For the analysis of the questionnaires these classes were substituted by numbers. Accordingly, 1 means very high, 2 high, 3 low and 4 very low.

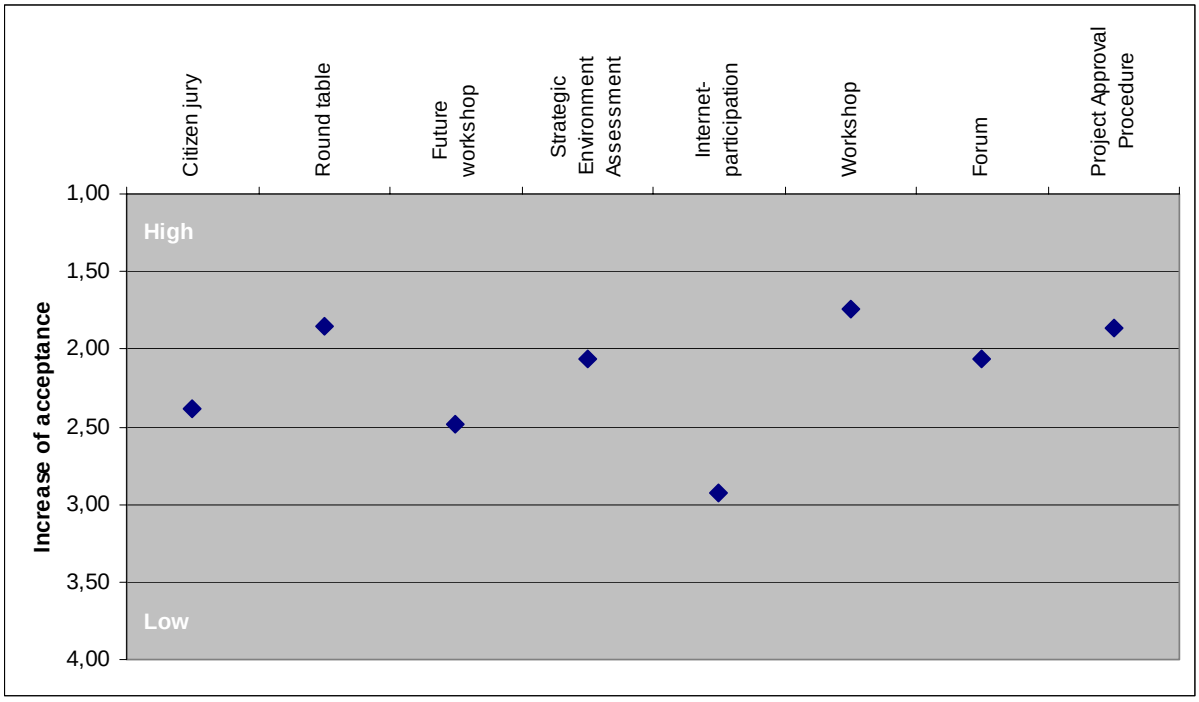


Figure 52: Average valuation of increase of acceptance

The above figure is just to illustrate the differences of the valuation between the instruments the mean has no statistical value.

Although the procedures were briefly described in the questionnaire not all experts assessed all of them. Only in some cases the remarks revealed the reason of it. Some people indicated that they had not heard of the specific instrument and hence they were not able to valuate them. Therefore, the individual procedures were assessed by 27 to 36 people (Figure 52).

Table 30: Absolute valuation of increase of acceptance

	Citizen jury	Round table	Future workshop	Startegic environment assessement	Internet-participation	Workshop	Forum	Project approval procedure
very high	6	9	4	9	1	14	9	16
high	10	21	10	14	6	16	16	12
low	12	2	9	9	14	5	7	5
very low	3	1	4	1	6	0	2	3
no answers	11	9	15	9	15	7	8	6

Due to the experts opinion ***internet participation*** is least suited to increase the acceptance. According to the statements given, the Internet is a powerful tool and eligible to inform people but has not a sufficient coverage yet. The personal contact is thought to be of much greater importance for participation.

This corresponds quite well with the literature (cp. Chapter 6.1.4). According to the previous findings internet participation is more suited to support actual participation procedures or inform people. Thereby it is essential that it is connected to a real decision making process (ÖGUT, 2004).

Future workshops and ***citizen juries*** can be described as innovative and modern participation instruments. The valuation of these two instruments was quite variable. Many experts had no experience with these instruments. Other criticised these processes as too complex or rather exotic. Especially the citizen jury requires a lot of competence to conduct special planning. Thus, some experts stated that the planning process should stay with the specialists, as it would be difficult to find people with the appropriate competence. However, supporters of this instrument argued that the public is directly involved in decisions.

Citizen juries are indeed described as suitable for planning tasks that are not strongly controversial. According to ÖGUT (2004) it is not necessary that everybody has special competence. Jury members need to be representative of the community in consideration. According to Coastal CRC (2004) citizen jurors "bring with them an intrinsic worth in the good sense and wisdom born of their own knowledge and personal experience".

The positive opinions about the *future workshop* indicated that it is a good process for generating ideas. It raises the peoples' awareness of the constraints and can be successful if it is broadly based. Others, however, stated that the process is too theoretical, time-consuming, and requires a lot of effort and competence.
Future workshops are usually carried out as a 3-7day event and aim to motivate concerned citizens to participate in planning processes. The characteristic is the sometimes unorthodox manner of working (ÖGUT, 2004).

The **Strategic Environmental Assessment** was on average evaluated better than previously named instruments even though quite some people had not heard of this process before. Many experts consider this procedure as useful if it is done properly, comprehensive and participatory. Although it rarely involves all stakeholders, it can be effective and supportive to the acceptance. But it was also stated that many aspects are already considered by other mandatory procedures. According to the literature the innovative element of this instrument is the consideration of ecological, economic and social aspects in one process (ÖGUT,2004)

Table 31: Assessments/ comments about participation instruments

Citizen Jury:
- Too complex
- difficult to find people who are prepared to support process
- May not encourage broad enough participation
- Limited experience
- May the blinders of the authorities will be opened
- Gap between professional competence and public interest too big
- Citizens are directly involved in decisions and have to really deal with problem
- Planning should stay with the experts

Round table:
- Good if there is buy-in by decision makers
- Used and was very effective; hard to manage people's concerns at individual level
- Consensual solutions at organisation level
- Probably more suited to development of strategic options/policies rather than scheme specific details
- Often ends up with no results, only transfer of opinions
- Dialogue between specialists and affected people leads to high transparency
- Who is competent and who decides
- Needs to be tightly moderated
- Useful, everybody has the chance to get a word; can improve acceptance
- Very good method to take arguments serious, prejudices can be cleared out;
- Personal dialogue important
- Dependant on topic; often very difficult to find a consensus

Future Workshop:
- Good if broadly based
- Good for generating ideas but too theoretical, need to be combined with other instruments
- Good at making people aware of the constraints
- No experience
- Too exotic for population
- Difficult to generate necessary competence
- Normally useless
- Too much effort and time-consuming
- Too much idealism possible
- Hardly successful; problems with competence

Strategic Environmental Assessment:
- Good if comprehensive and participatory
- Needs to be done properly including early consideration of alternatives
- They rarely involve all stakeholders; should play a much greater role in an integrated approach
- Does this really exist?
- Not clear how it will be converted into (German) national legislation
- No experience but sounds interesting
- Important for acceptance

Internet Participation:
- Powerful but limited value unless coverage is sufficient
- Will gain in importance
- Low coverage
- Recommendable but low coverage
- Personal contact much more important
- No guidance possible
- Useful to inform people

Workshop:
- Good if decision taker buy-in
- Could be powerful if set up to include representatives of all stakeholders
- Good at helping to resolve disputes
- Only if managed properly; need to be facilitated by independent persons
- Constructive form of work needed
- Integrated management of opinions possible
- Participants are often tired of workshops
- Not suited for broad acceptance

Citizen Panel:
- Inclusion buy-in
- Could be powerful if set up to include representatives of all stakeholder
- Not quite sure what it means
- Good for inform people
- Not suited for public
- If it is not an alibi event

Project Approval Procedure:
- Only if inclusive and meaningful
- Potential less valuable than the other approaches; decisions have already been made
- Debate not taken seriously by project promoters
- Procedure is a prime requirement so that all parties can see why, how and when decisions are made
- Decisions have been made before
- Formal "clean" procedure; creates legal security
- More suited for authorities
- Good if people are informed about it and know that they can participate
- Important instrument but not for increase of acceptance
- No active participation, just reaction of concrete planning

The **Citizen panel** was assessed likewise even though the experts are more sceptic or have more concerns about its effectiveness. It was stated that the citizen panel could be a powerful tool, if it is not an alibi event and all interests will be considered. Negative statements pointed out it might not be suited for the public or only good to inform people rather than evoke participation. The definition of citizen panel is not consistent in the literature. The method but especially the size of the group varies extremely. While ÖGUT (2004) describes it as an event for the broader public and all interested individuals, ABELSON ET AL. (2003) define it as a relative small group of stakeholders.

Except for three experts, the **Round table** was evaluated as appropriate or very appropriate to raise the acceptance. It was described as effective and well suited to take arguments serious. Furthermore, it can improve the transparency but the process must be supervised tightly.
Others felt that this instrument won't lead to a consensus because it is only an exchange of different opinions.
The round table is commonly defined as a negotiating round. The goal is a dialogue and to find a consensual solution (ÖGUT, 2004). Thus, it is not just an exchange of opinion.

Concerning the **Project Approval Procedure** the opinions were extremely controversial. Being a primary legal requirement in Germany most of the experts from authorities assessed the instrument as a formal effective procedure. However, this was the fact criticised by the experts not belonging to authorities. In their view, the procedure is more suited for authorities and does not really strengthen public participation. They claim that this procedure it is only taken as a reaction to decisions that have been already made and that the public debate is not taken seriously by the project managers.

The **Workshop** received the best assessment on average regarding the eligibility to increase the acceptance. The instrument can be powerful if all stakeholders are involved and the process is managed properly, i.e. it has to be facilitated by independent persons. It was also valued as helpful to resolve disputes and to manage different opinions in an integrated way. Others said the process is not suited for broad acceptance and the participants are often tired of workshops. This was just a selection of the most common or frequent statements. The individual pro and cons are completed listed in Table 31.

Question 5: Does participation increase the acceptance of the planned measures within the affected population?

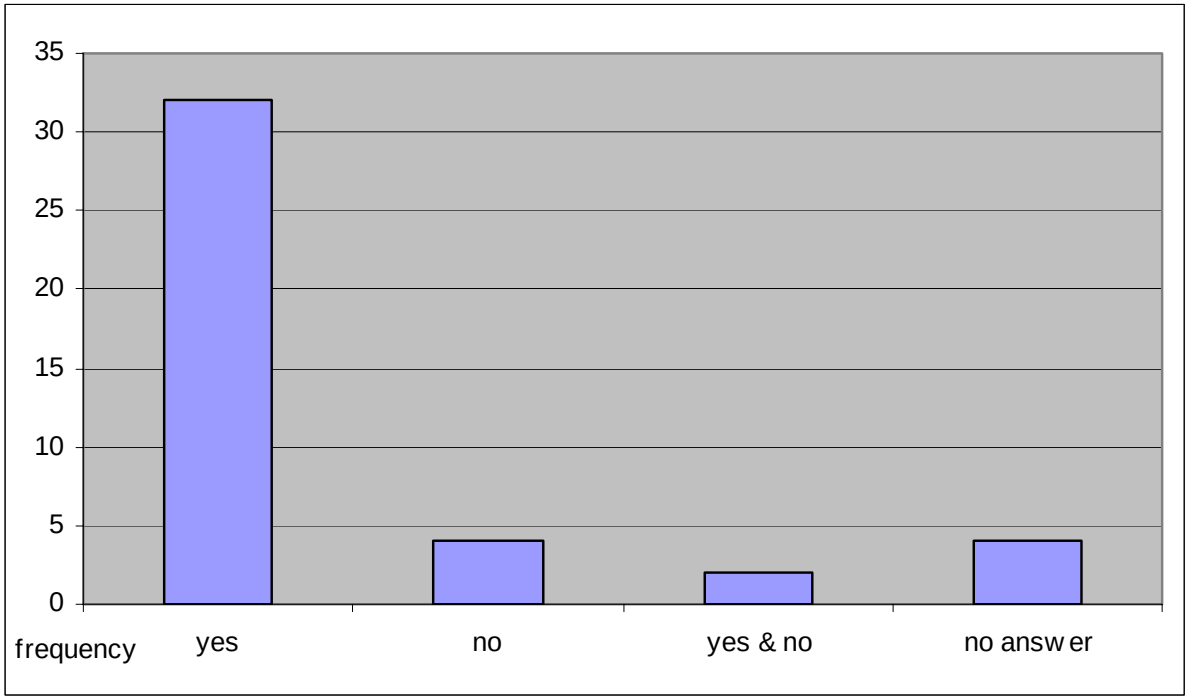


Figure 53: Valuation if participation can increase acceptance

This result is fairly clear. 85 % of the experts believe that participation increases the acceptance of planned measures, even though ideally the measures are the outcome of active participation programs, not the input. Two people also think participation can decrease acceptance because opinions are polarised and often own interest are proclaimed.
The advantage of participation indicated most was that people don't feel ignored and they can identify more easily with the topic.
It was often stated that the procedure has to be well prepared, transparent, fair and needs to be based on adequate information. The most important point is to guarantee the people that they really have influence and their concerns and arguments are taken into account. Furthermore, it is recommended to get an independent communication expert who supervises and conducts the procedures. Another important point, which was mentioned, is to inform the affected people early on and to keep open-minded on the authorities' side to discuss with the public.
Others thought that appropriate information might be enough to raise awareness and increase acceptance.

Question 6: What measures are necessary to increase the participation of the affected people in the coastal defence planning?

The comments about possible measures to increase participation was fairly manifold (cp. Tab. 32). A few people were of the opinion that a major storm surge event or a dike breach would be the best measure to increase participation. According to SMITH & TOBIN (1979), the personal experience influences the awareness of the people, but does not necessarily enhance

the estimation of the personal vulnerability. Hence, it is doubtful if people would be more willing to participate.
A frequent recommendation was to raise the awareness and interest of the public. This might be realized by informing the people about the problem, the overall objective, the necessity their concern and the advantages of participation. It is most important that the process is open, no decisions have been made beforehand, and that the participants are all taken serious. When a participation process has been initiated, the ideas and concerns of the people should be considered and addressed. The process has to be well prepared and a variety of factors such as the number of participants, duration of the process or the expected output need to be considered. Others stated that the project approval procedures offers all possibilities and provides enough participation. Another opinion was that information events are often enough and also result in better acceptance.

Many of the statements correspond with the recommendations and theoretical background of participation procedures (cp. Chapter 6.1). Those requirements provide an excellent basis preparing a participation procedure. The better the basis and the preparation, the greater the chance to be successful with the process. Even though it is always necessary to consider the framework and the regional / local conditions. The success is certainly dependant on the individual problem and the respective environment.

Table 32: Main statements about possible measures to increase participation

- Storm flood, dike breach
- Raise awareness and interest
- Inform public about problem, affectiveness, advantages, participation and overall objective
- sufficient, understandable information during process
- keep effort and time or participation low
- good public relation from the early beginning
- participation in early stage
- consider and implement public & stakeholders ideas, active involvement - open process
- take all participants serious
- no pre-determined solution
- procedure should be individually styled
- consider relevant factors such as number of participants, budget, etc.
- placement of reliance and honesty and reduction of authorities arrogance
- make clear that it is an integrative process and people have influence
- no longer absolute coastal defence
- improve project approval procedure
- pre-phase with problem definition and subsequent formulation of solutions by affected
- better ask affected people
- a consequent project approval procedures offers all possibilities
- often information events or brochures are enough or result in better acceptance

Question 7: What are the reasons why affected people do not participate?

The decision if a person participates is highly dependent on the individual situation. Public interests are normally not given high priority. Hence, often personal causes such as job or family commitments are the main factors why people don't participate in specific processes. Other reasons are relevant. The main reasons mentioned by the experts were the lack of in-

terest or information. Many people are not aware of the possible consequences in case of flooding. The information about these might be insufficient, too abstract or scientifical.
Another aspect is the inadequate information about the participation process itself, why people should participate, what the procedure will look like, what kind of influence do the people have and so on. If the population does not know about this, they probably will not participate. Some statements referred to the trust in the authorities, that the government will take the responsibility. Contrary to this, some people guess they are not taken serious anyway or they do not have influence and the decisions have already been made.
Furthermore, it was mentioned that people might have had bad experiences with participation previously or they are frustrated about the authorities in general.
One expert revealed he made the experience that once informed people do participate.
All the statements emphasize the necessity to inform the public sufficiently and prepare the participation process comprehensively.

Table 33: Main reasons why object to participation

- information abstract, scientifical
- participation unpopular with engineers
- insufficient information
- trust in authorities, government takes responsibility
- lack of interests and oversupply
- people feel generally save
- perception not high
- people think that it's not their problem
- lack of awareness and understanding of risk
- lack of confidence and time
- no belief of views taken note of
- experience showed that once informed people participate
- do not trust the process
- no immediate value
- doubts about individual influence
- snugness
- subjectivity of experts
- participation process often too long
- lack of information about participation; procedure not understandable
- other activities more important
- lack of transparency, guidelines from authorities
- fear of contact with authorities and scientist, no experience
- not to be taken serious; fear of complexity; sullenness of policy and authorities
- lack of interest and effectiveness
- information about affectiveness must be provided
- difficult official language; unclear problem
- responsibility delegated
- no interest - only people directly affected participate
- decisions are already made
- bad experience with participation
- frustration about authorities
- if participation procedure is just an alibi

Question 8: Do participation procedures cause problems for the involved administrations?
From the experts point of view there are also some drawbacks of participation. 76 % (32 counts) think that participation causes problems for the involved administration. Two people indicated both yes and no and around 10 % said, that it does not cause problems.

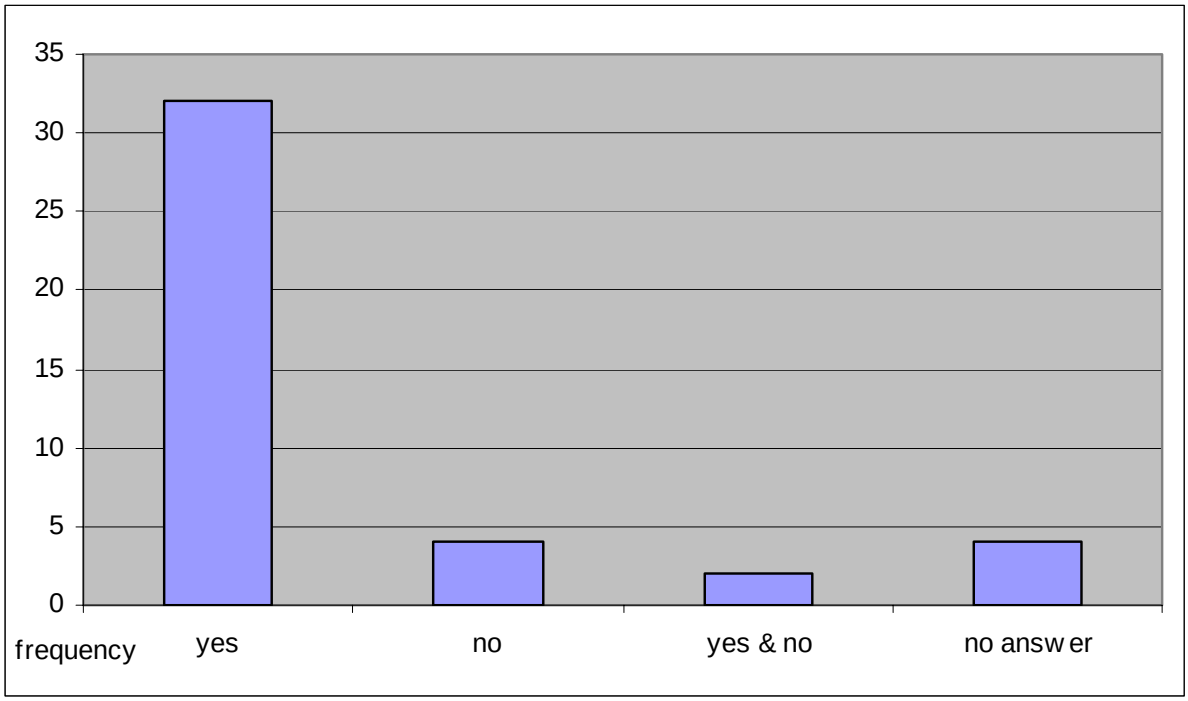


Figure 54: Does participation cause problems for the involved administration?

Table 34: Main reasons why participation causes problems to involved administration

- time-consuming
- extra costs
- effort; extra man-power
- citizens ignorant, unwilling to accept unpopular measures; engineers are right
- individual adaptation, establishment of participation in authorities, more work for authorities
- authorities have to listen to the public, can't ignore the outcome
- political vs. public goals
- lack of training participation techniques
- reaction may not the one you want;
- paybacks make it worthwhile
- challenging to keep to programme and internal structures
- outset scheme not preferred by stakeholders
- public expectations sometimes not cost-effective and practical
- unrealistic suggestions, more concerns about plans
- conflicts
- more effort for preparing understandable information and consideration of participation results
- more than legaly required
- authorities have to be more transparent
- who is responsible for what;
- limited scope - less flexibility; democratic legetimation
- authorities have to justify their decisions
- authorities are not familiar with "normal-public" thinking;
- objective is prior defined
- freedom of planning is reduced
- results sometimes contrary to authority expectation
- participation enhances the duration and effort of official procedures
- risky if people get to another result, what happens?
- participation is volitional
- Implementation into formal procedures often difficult
- cost-benefit for authorities
- political belief in participation necessary
- maybe difficult to integrate all interests
- Official language not compatible with everyday language
- Arrogance

Regarding the possible kinds of problems the most mentioned objection concerned the extra effort and time. In most cases participation obviously enhances the duration of the overall process and requires extra man-power, which the authorities normally must provide. The lack of experience with participation and supervision was also a frequently mentioned problem. Authorities are used to and bound to formal procedures. Participation requires more effort and preparation and reduces the freedom in planning; hence, it is hard to maintain the regular working programme, time schedule and internal structures. Moreover, participation to date is not solidly established with authorities and the acceptance of it seems to be often lacking on the political level. This is documented by the statement that "active participation is more than legally required". Another aspect, which can cause problems in the administration, is the output of the participation process. The results may be contrary to the authorities' expectation or they may trigger reactions the authorities may not like. In other cases the public suggestion might be unrealistic, not cost-benefit effective or so diverse that they can't all be integrated. On the other hand, there is the opinion about ignorant citizens and their unwillingness to accept unpopular measures.
Criticism of the authorities was also mentioned. It was said that they are often too arrogant, don't want to listen to the public or they are inflexible cause the official language is not compatible with the everyday language. This might be an expression of a general communication problem. Apart from the problems which the experts worry about it was also stated that the paybacks make it worthwhile and that participation is however volitional.

The second part of this question asked for possible solutions to the problems mentioned above.
Good planning and preparation of the process was one suggestion to solve the problems, which could occur in the administration. That includes comprehensive information of the public about the planning process and the importance to participate. It was also recommended to start the participation as early as possible and to discuss the problems and tasks of the procedure. Doing so would probably raise the confidence of the people and reduce their scepticism whether their views will be considered. That again requires open solutions and taking the public serious.
Concerning the lack of experience with participation, it was suggested to bring in external experts who supervise the process. That in turn enhances the objectivity of the overall procedure. With regard to the extra effort and time a participation process obviously takes it was proposed to increase the budget and extend the project, respectively the procedure. Another important recommendation was that the process should be adapted to the specific conditions and issues. Some critical experts stated that "there is no solution to the problems and others are still looking for it".
In some of the answers the authorities were criticised. These experts wanted the authorities to act more as a service providers for the public and be more open-minded. Furthermore, they said that laws and official procedures should be interpreted more flexible. An extreme critic required even the abolition of the officialdom. The Aarhus convention was also addressed. According to this convention, (cp. chapter 6.1.2) participation should gain greater importance and solve the problems occurring related to it.

Table 35: Suggestions for possible solutions

- open mind
- better approach -> better dialogue
- take them seriously
- do it, internal discussion about governance position
- training or bring in experts
- Aarhus convention requires that we solve the problems
- Lengthen the project programme
- ensure sufficient budget
- involvement and commitment of organisations
- good reasons to contribute
- no pre-conceived solutions
- more care and preparation
- discussion (round table)
- inform about importance of participation
- still look for a solution
- is justifiable
- abolition of officialdom
- flexible interpretation of laws, procedures
- individual adaptation
- external communicator;
- raise confidence that peoples view will be considered
- professional and comprehensive preparation
- open to consider results
- improve official procedures (effort)
- early participation
- authorities strive to improve
- start early with information and discussion about problems and tasks
- participation prior to formal procedures
- involve politicians; external moderation
- no solution
- best-practice; focus on successful approaches; can also lead to a more effective process
- authorities should act more as service provider for public

Question 9: Does a disaster or evacuation plan for the case of coastal flooding in the study area exist?

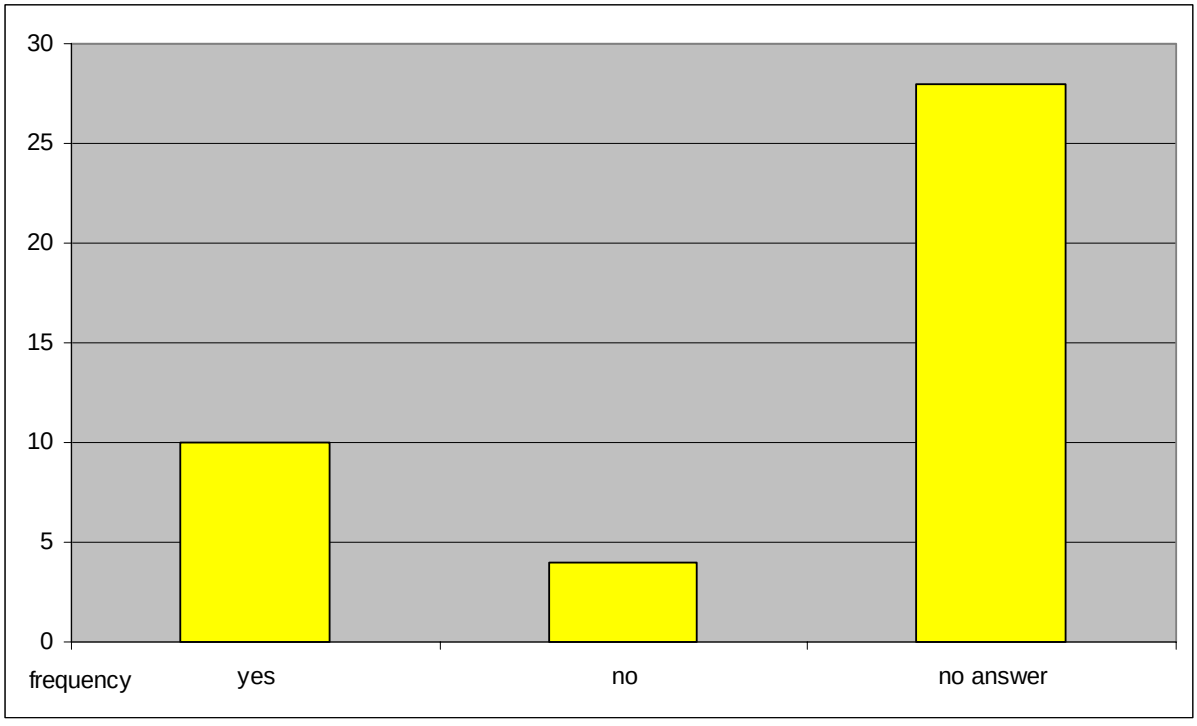


Figure 55: Does an evacuation or disaster plan exist?

The last questions more or less concerned active participation. Now the role and importance of information is addressed. This question referred to the evacuation and disaster planning in the respective countries. 76 % did not answer the question or said that such a plan doesn't exist.
Indeed evacuation plans for the selected study areas do not exist in all countries. While in Belgium, Denmark and Germany the authorities confirmed that there is such a plan, the UK has no evacuation plan for Skegness, the district only has a more general disaster plan. The Gemeente Sluis in the Netherlands is presently building up information material for the public about the risk of storm floods and is beginning to publish the general disaster plan. But obviously there is no specific evacuation plan as of yet.
A few experts assumed that the districts probably have an evacuation or disaster plan because they are responsible in case of flooding. It is correct that the district is responsible for the disaster plan but not for the evacuation on site. In Germany three people knew about the existence of an evacuation plan and about the fact that it's only available on municipality level. Unfortunately, only a couple of experts from Belgium and Denmark answered this questionnaire, so that the results are not representative. But these experts knew about the plan and where it is available (townhall).
From the comments, it can be deduced that many people just do not know about these plans, neither if it exists, or where and how it is accessible. That reveals a considerable lack of information. And if even the experts wouldn't know, the population won't either.

Question 10: Which of the following instruments to inform the population about the risk of coastal flooding are/ have been implemented in the study area?

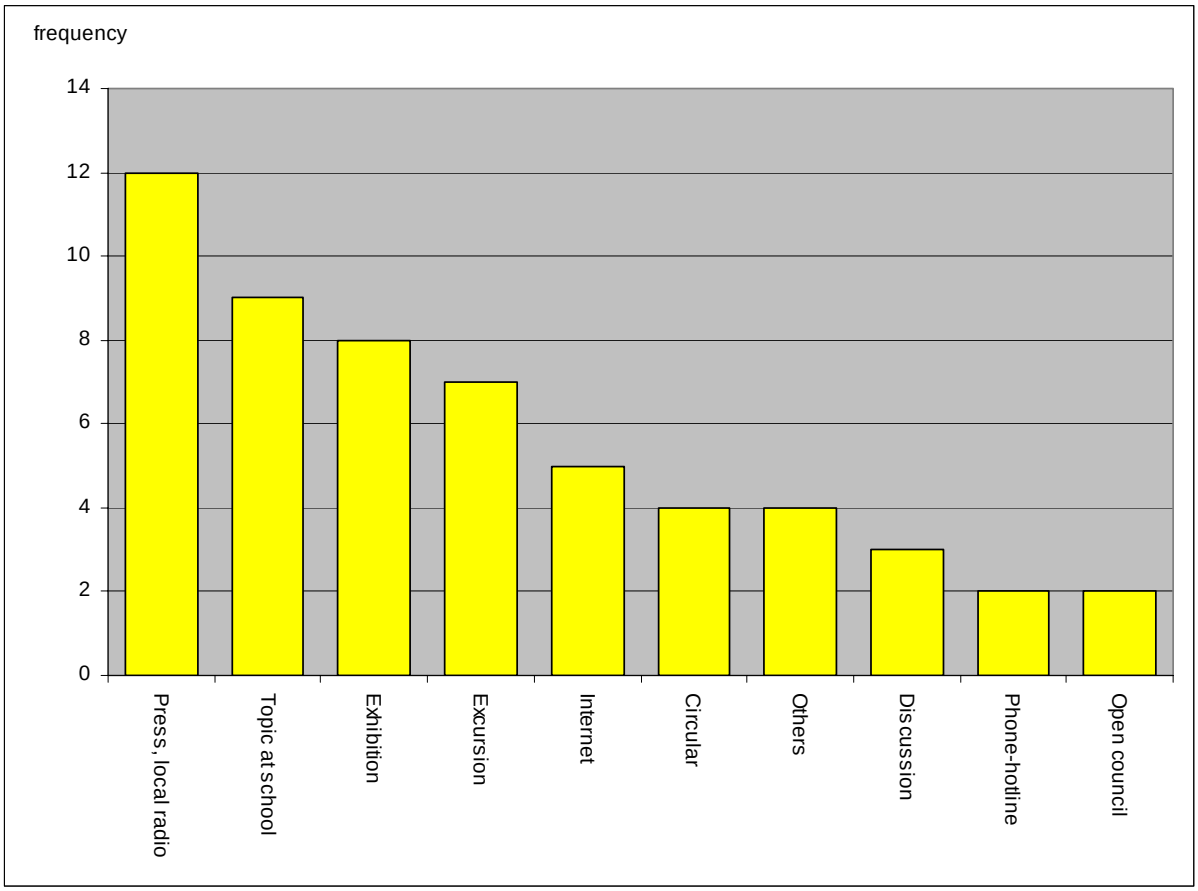


Figure 56: Instruments which have been/ are used to inform population

Due to the fact that each expert was able to name several instruments the total number is not an indicator for the real quantity of implemented instruments. 25 out of 42 experts didn't name any instruments or procedures which have taken part in the study area. Hence only 17 experts could specify information instruments which have been used either in Ribe (Denmark), St. Peter-Ording (Germany), Skegness (UK), Oostende (Belgium) or Breskens (Netherlands).

As expected there is there a strong emphasis on the press since it causes the least effort and is the easiest way to pass information on to the public.
Exhibitions and excursions were also mentioned quite often. While exhibitions have obviously taken place in each of the countries, excursions were only named by German experts except for one. The reason is that according to statutory provisions in Germany the condition of the dike has to be inspected twice a year. This procedure was classified by the experts as an excursion. But in the scope of dike inspections the general public isn't involved; only authorities and relevant organizations are invited. Hence, this cannot really be assessed as an instrument to inform the public.

According to the statement of nine experts, the risk of coastal flooding was already topic at school. Even though it wasn't specified whether the topic was discussed in a more general sense of local history/ geography or with regard of climate change and sea level rise problems, it shows that education plays an important role to inform young people in particular.
Contrary to the results of question four where the Internet had been regarded as not so important to increase the acceptance of coastal defence measures, the web is obviously more important as an information tool. As already mentioned, the Internet was nonetheless assessed as a powerful tool and eligible to inform people but without a sufficient coverage as of yet. In the context of coastal defence and disaster management the use of the Internet is still in its infancy.

The other instruments such as circulars, open councils, discussions and phone-hotlines were named less than five times. Thus, these tools apparently are not widely used in the study areas. As examples for alternative information instruments were cited: a research-project, an inquiry about storm surges and a group meeting.

All in all the appropriate use of information tools can be assessed as quite low in most of the selected study areas. In Denmark and Belgium, respectively Ribe and Oostende, the situation appears to be different but due to the very small number of returned questionnaires these results have to be considered as not very reliable.

Question 11: Which of the following instruments are most qualified to sustainable inform people about the risk of coastal flooding?

Here multiple answers were also possible. The order of the most mentioned instruments is almost congruent to the one of question 10. The *press* was again named most frequently. The good coverage of press media was often mentioned as a reason for the suitability of this instrument to inform people.
Furthermore, it was pointed out that the frequency of information can be very high thereby and it is easy to understand as well. The local press is regarded as traditional and influential

and hence capable of creating a public opinion. However, it was also stated that this instrument is only suited for local people and even if it is an appropriate information tool the information process is passive.

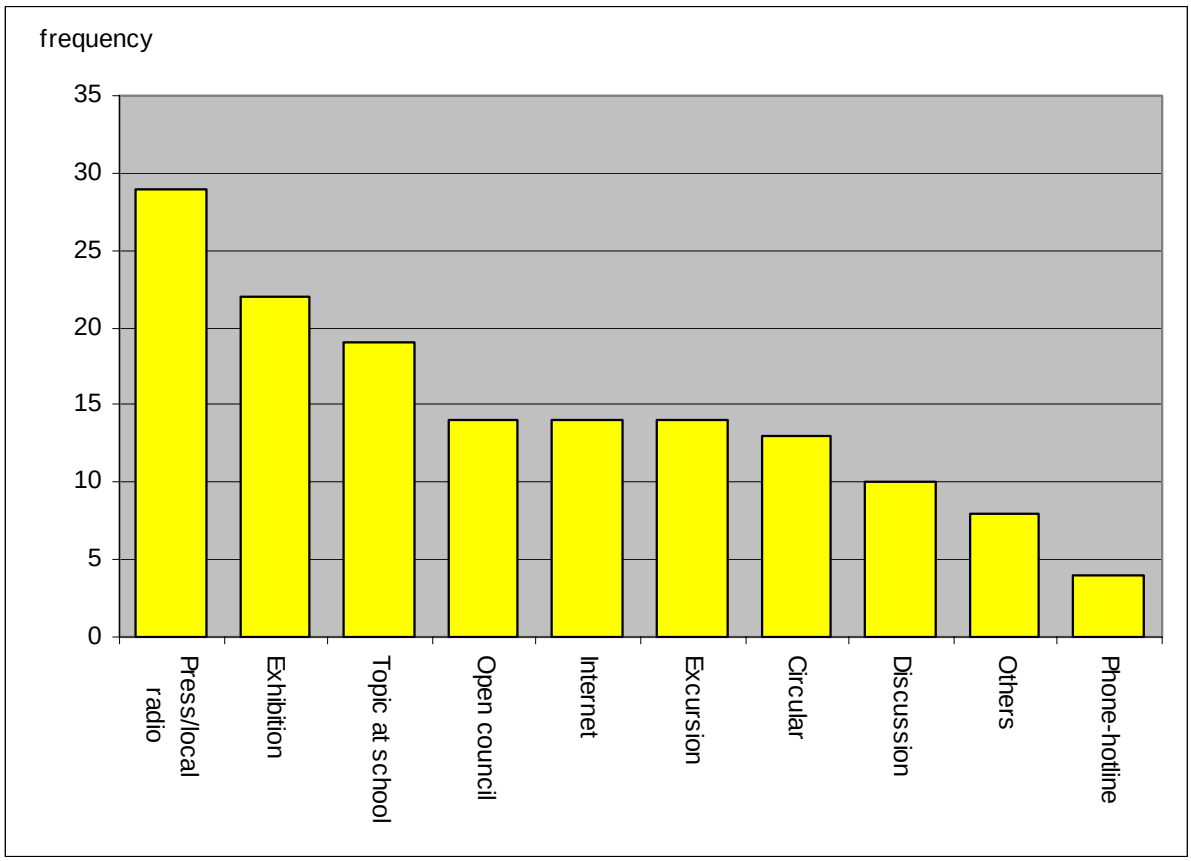


Figure 57: Instruments which are most suited to inform people

Exhibition was named by 22 experts as an appropriate information tool. The advantage of an exhibition is the permanent available information and if it is good and professional prepared it contains detailed and comprehensive information. Other experts stated exhibitions can pinpoint the specific subject and are popular and highly frequented. They are also suitable to raise the awareness and deepening peoples' knowledge. Another advantage would be that the population is not bound to fixed dates but can come to suitable times and talk to experts.

To make the risk of coastal flooding a *topic at school* was also mentioned fairly often as an important instrument to inform the public. Most of the experts thought that it is important to improve the early understanding of this topic because the children are our future decision-makers. This information path enhances the discussion within the family and strongly assists in raising the awareness of the younger generation. The coastal defence authorities of the northernmost federal state of Germany, Schleswig-Holstein have recently published school material about coastal defence and the associated risks.
Circulars, *open councils*, the *Internet* and *excursions* were all named by 14 experts as appropriate information instruments. According to their answers circulars are best for complete coverage. Even though it's passive information it can be regular and the affected people feel addressed. Circulars are also suited to raise awareness and the sensibility among the addressed groups.

Concerning *open councils* the experts assessed this process as adequate to improve the acceptance, but only if it is regular, well prepared and institutionalised. Furthermore it enables information transfer and is directly addressed to the population. Open councils were also described as a more active involvement of the population than circulars or exhibitions.
Excursions are considered as demonstrative, vivid and good for peoples' understanding of coastal defence mechanism. But so far it has only found little use (mainly in Germany). The experts valuated the *Internet* as actual, permanent and increasingly important. But it still has a low coverage and it requires great effort and time to keep it up to date. Beyond this, it has to be vivid to attract peoples' attention. Other interviewees thought that the Internet could be suitable as supplementary tool.
Discussion as an information tool was assessed by 10 experts as an appropriate instrument. In their opinion it is a good process for the expression of views but not suited for debate. It implies active involvement; special or important issues can be raised with it, but only a few people can really participate. It was also mentioned that it is most important to take the people serious.
Phone-hotlines were assessed as least appropriate to inform the population; at the most it could serve as a supplement to concrete measures or in case of emergency.
Additionally to the predetermined instruments the following eight alternatives were named:

- participation in projects,
- Local flood action group,
- Formal steering group to guide project/informal local action group,
- TV, Talks,
- storm days – combination of talks, open house, exhibition,
- local information events, regional conferences,
- Simulation of storm floods (e.g. museum),
- society of property owners can inform people as well.

Question 12: What is the effect of an improved information status of the population about storm floods (e.g. occurrence, safety standard of the coastal protection structures, disaster plan)? Do the affected people feel safer or less safe?

55 %, respectively 23 experts are of the opinion that with sufficient information people would feel safer, mainly because the people's awareness will be increased and hazards/ risks are taken more serious due to a better understanding of the risks. The knowledge about prevention and how to react might also contribute to feeling safe. It was indicated that the information ought to be of good quality and sufficient and illustrations have to be realistic. On the other hand, 12 % stated, the information itself or the knowledge that storm surges can occur every day might lead for some people to feeling less safe. Others thought that information raises only the awareness and improves the knowledge about prevention and is less important than personal experience with flood situations and the basic trust in the authorities. 21 % respectively 9 experts didn't answer the question because they were unsure about the consequences of improved information. Others mentioned it night be more important that the population is better prepared and informed about prevention. Some experts were totally unsure about the effect of improved information (12 %).

Another point raised was that flooding and structural improvement could also lead to a decrease of awareness and a more safe feeling.

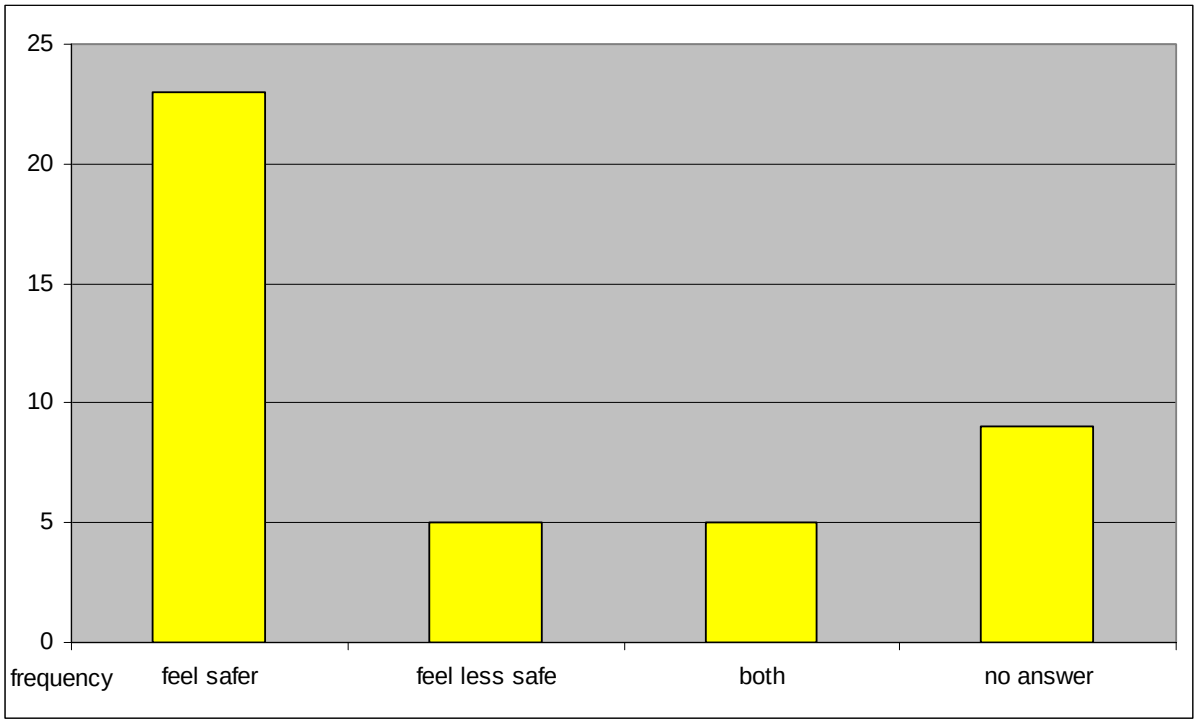


Figure 58: Effect of an improved information status

6.5 Conclusions

Compared to the household survey the average return rate of the expert interview was comparatively high (35 % to 21 %), but extremely inhomogeneous. This made it difficult to analyse the results by comparing the regional distinctions. But nevertheless, meaningful results could be gained that might be important in the continuing process of coastal risk management.

The first conspicuity was the fact that information and participation tools were considered equally important. Both were attributed high relevance to coastal defence. The local press and the project approval procedure were mostly mentioned as suitable participation instruments. But others such as inquiries, public hearings, working groups or workshops were also named fairly often. Hence, there apparently was no priority on one single instrument as the most appropriate for coastal defence. Rather it becomes clear that the choice of the instrument has to be adapted to the circumstances. Instead of one instrument, a mix of instruments should be applied.
Even though two thirds of the interviewed experts answered that they had been involved in participation procedures before, only a few of these obviously have taken place in the study areas. The few processes, which were named often, refer to the same measure so that the real number is even smaller. To a certain extent, this explains why 92 % of the public never participated in such a procedure (cp. Fig. 39). Obviously, the information about the measures which were actually carried out seems to have been insufficient. Otherwise, the people in the study areas would at least have known about it. In the Skegness area (UK) for example the

experts stated that there have been many participation procedures, but none of the private interviewees seems to have participated.

All but two procedures were valuated as more or less successful or even very successful. Of the two exceptions one was a negative mediation event caused by a dike relocation and the other was a negative press article.
The valuation of the procedures which have taken place indicates that both participation and information are successful rather consistently if implemented in the right way. Concerning the question about the appropriate instrument to increase the acceptance, a selection of the most common tools had to be made before. Thus, not all possible procedures were to be valuated. Among the eight instruments suggested a workshop was assessed as most suitable to increase the acceptance because all stakeholders can be involved. Other requested procedures were: a well managed process, an independent supervision and sufficient information prior to the process. The Internet was valuated as only an additional tool, mainly for information purposes.
Noticeable is the fact that the instruments considered more innovative such as future workshop or citizen jury were valued comparatively poorly. The experts obviously prefer more conventional procedures such as workshops or round tables, although the others haven't been used in practice at all.
The vast majority of the experts seems to believe that participation in general does increase the acceptance of the planned measure. Several recommendations and preconditions were named to make a participation process a successful one.
A meaningful suggestion was that a concrete measure should be the output of participation rather than the input.

The sixth question referred to necessary measures for improving participation. First of all, there is the prerequisite that the population really wants to participate. Indeed the public survey showed that 41 % of the interviewees are interested in giving their opinion and 31 % (chapter 6.3.1) are even willing to become actively involved. That is a good basis and should be a stimulation to improve and enhance participation.
The comments about possible measures were quite manifold. Good preparation of the process was mentioned as very important. Furthermore, it was considered necessary to provide information about the process as well as about the advantages of participation and the people's concern early on. Chapter 5.2 pointed out that 61 % do not have any idea how to represent their opinion, not to mention how and where to participate (cp. Chapter 6.3.1, Fig. 46). Hence, obviously the basic information where the people can get involved and express their views is one central aspect. This in turn could be a reason why people don't participate. Another important point is that 30 % of the people are not aware that their house could be affected by flooding even though they live near the coast and they are aware of the risk. This also seems to be a very important aspect concerning information strategies.
Another statement from one of the experts was about the necessity to take the public serious because private persons complained that their opinion is not heard. People resign or become disinterested, because they feel that their engagement does not lead to any. Only a minority of the experts believe that project approval procedures are suitable enough to get the public involved.
One interesting statement should be born in mind. It was said by some experts, that there are enough information events and these also contribute to improve acceptance. This statement

is supported by the result of the household survey. Referring to what citizens would do to voice their opinion, information events were often named. Thus, enhancing information might be the appropriate alternative for a huge part of the population and especially for those who are not interested originally in becoming actively involved.
Around 80 % of the experts stated that participation may cause trouble for the involved administration. Apart from the effort, the extra costs and the time that a participation procedure requires, both the authorities and the public were criticised for various reasons, the criticism relating mostly to communication problems.
Good communication and information as well as sufficient preparation were the main suggestions given to solve these problems. Other aspects which can help to improve participation are: external supervision, an increased budget and primarily the individual adaptation of the tool to the specific problem and condition.
When the experts were asked about an evacuation plan in question nine there turned out to be a considerable lack of information. Only very few people knew about the plan or where it could be available. Even if this information is more relevant to the citizens than to the experts, the results indicate that probably the population is informed even less than the experts.
In comparison to the implemented participation procedures many more information tools have apparently been used in the study areas. But only 40 % of the experts could name information instruments at all. As it could be expected, the press was mentioned most frequently. This is attributed to the good coverage of the local press and to the fact that it causes the least effort to authorities. However, other instruments such as exhibitions, excursions or the Internet are of importance as well. The importance of the school as a sustainable information platform is recognized amongst the experts. In most study areas coastal flooding/ risk has obviously been a topic at school at various times.
The ranking of the results of question 11 concerning the suitability of the instruments to inform people was almost congruent to the one before. The press, exhibitions and topic at school were the instruments mentioned most.
Even though we attempted to address the most common information and participation instruments in the questionnaire, it became clear that there are many more tools and options to inform people and allow them to participate. Several alternatives, which are listed below, were named by the experts:

- participation in projects,
- open house,
- interest group meeting
- sounding board,
- stakeholder dialogue,
- mediation,
- Local flood action group,
- Formal steering group to guide project/informal local action group,
- TV information,
- Talks,
- ICZM-approaches,
- storm days – combination of talks, open house, exhibition,
- local information events,
- regional conferences,

- Simulation of storm floods (e.g. museum),
- society of property owners can inform people as well.

Even though some of them are very similar to the instruments named before this listing reveals the broad spectrum of possible tools. Thus not one ideal instrument can be recommended. Each problem needs its own solution and individual adaptation and preparation of the process.
The last question whether better information leads to a safer feeling was not clearly answered. Although the majority of experts believe that information improves the safe feeling, quite a few of them were not sure about it. But it became apparent that it might be more important that the population is well prepared for emergency situations and possesses the necessary information.

The main conclusions from the expert-interviews on participation are the following:

- Information is as necessary and important as participation.
- Participation in and information about coastal defence is still not very common.
- Implemented tools were all more or less successful or very successful.
- There is no ideal information and participation tool.
- Each process needs to be individually adapted.
- The Internet is suitable as an additional information tool, but not for participation.
- Participation does increase acceptance.
- Participation causes effort with administration.
- Coastal defence should not be separated be separated from disaster management and prevention.
- Controversial opinions about formal participation.
- Communication is the often the key problem.
- Lack of information in various fields.
- Process needs to be excellently prepared.
- External/independent chairperson.

PART 7 Recommendations

Before we describe our recommendations based on the results of the survey we would like to descend to the working hypothesis defined in the beginning of the project.

1. Intensive perception causes an increase in willingness to participate

Only a slight tendency could be detected that the perception of risk influences the willingness to participate in coastal defence planning. As expected the people who estimated the flood risk low or very low had no interest in giving their opinion or participating. But among those who assessed the flood risk as high or very high were also several persons who were not interested in participation. Hence from a statistical aspect there doesn't seem to exist a significant correlation between the perception and the willingness to participate. The individual estimation of the flood risk (cp. 5.2., question R4) was therefore correlated with the willingness to express the opinion (cp. 6.2.1, question P4) and the willingness to become actively involved (cp. 6.2.1, question P6).

From our point of view other reasons are responsible for the willingness to participate. The main criterion which is described in the literature (cp. 6.1) and was also confirmed by the experts (cp. 6.4, question 6) is the knowledge about the personal concern. The people who have a positive or good perception do not necessarily know that they could be affected by a flooding event; neither can they imagine what the possible consequences could be.

Hence, information about how the population and individuals might be affected is essential to increase their willingness to participate. Information about the participation process is also mandatory to get the public involved.

2. Risk awareness and personal experience influences the degree of preparedness

Based on a correlation analysis a connection between the awareness and the preparedness is likely (Pearson coefficient 0,675). The individual estimation of the flood risk (cp. 5.2., question R4) was correlated with the personal preparedness (cp. 5.2., question R6a). No obvious correlation could be determined between the personal experience and the preparedness (cp. 5.2, question R2 & R6a). Due to the fact that only 7 % of the respondents have installed protective measures at all, the total number is consequently fairly low and hence the statistical significance is limited. However, in our opinion it could be expected that the people who are more aware of the risk are more willing to get engaged with protection measures.

3. Participation increases the acceptance of planned measures

According to the literature participation can contribute to increase the acceptance of measures (cp. 6.1.2). But in the study at hand the statistical analysis revealed no significant results of this kind, even if a week correlation between participation and the acceptance seems to exist. But being involved in a participation procedure doesn't imply a general acceptance of the decision or the outcome, even if the event itself was assessed as successful. The personal point of view might still be different from the majority opinion. This is supported by the responses of the people who have already taken part in such a process. 85 % off those people are still very interested or interested in giving their opinion (6.2.1, question P4), which in return means it must have been a positive experience.

4. Active participation has barely been part of coastal defence planning procedures so far

This hypothesis was more or less corroborated, because 92 % of the interviewed citizens stated that they had not been in contact with any participation procedures. Even though the expert interviews revealed that at least one participation procedure had taken place in each of the study areas, in total only very few procedures have yet been implemented in coastal defence planning. Those participation events which were indeed carried out often were formal and reactive procedures such as planning approval procedures. This leads to the assumption that the public either isn't interested, does not know that these procedures exist, that it does not recognize them as participation events or that it was only poorly informed about them.

The most positive aspect of these results is the fact that most conducted participation events were more or less all valuated as successful or even very successful. And the public participants stated they are still interested. From our point of view can this be taken as an incentive to provide and implement more participation processes.

5. There are international differences concerning perception and participation

The results concerning the comparison of the risk perception are fairly consistent. The answers to question *R4 (How high do you estimate the probability of a coastal flooding?; cp. 5.2.1)* showed comparatively homogenous results. In total 33 % of the interviewees estimated the probability of a coastal flooding high or very high, in Denmark these were 24 %, in Germany 30 %, in the Netherlands 24 %, in the UK 25 %. An exception was Belgium where 42 % of the respondents considered the probability of coastal flooding to be high or very high. One reason for this high percentage may be the coastal defence situation in Oostende with a low sea dike and a city flooded regularly by water overtopping during storms. The assumption that the personal experience would influence the perception couldn't be asserted. The results concerning this matter (*Have you ever experienced a storm flood?)* showed rather opposite tendencies.

Supposedly people who had experienced a severe storm flood event were all the more aware of the risk, which also implies a different risk perception. In total 62 % of the respondents had experienced a storm flood. Conspicuously, in Denmark 83 % of the interviewees had previously experienced a former storm flood, while in the UK only 11 % percent answered *yes*. However, these different experiences don't fit to the perception results. In these particular study areas no correlation between the personal experience and the perception could be found.

As mentioned before, we have to distinguish between the findings of the public and the expert survey. The results of the public survey are again very homogenous. The number of citizens who already had taken part in participation procedures was consistently low. In total only 8 % had been involved. Only in Denmark an appreciable number of people (15 %) attended a participation procedure (cp. 6.2.1, question P1). Except for Denmark the other countries didn't show significant differences. The reasons why they didn't participate were manifold.

In total 48 % thought that no procedure had taken place even though the experts stated that at least one participation procedure had taken place in all of the study areas. In Ribe (Denmark) flooding and evacuation had been a public topic recently. Hence the proportion of people stating that no procedures had taken place was much lower there (21 %). On average 8

% of the people mentioned that they had not enough time and 5 % stated they were not interested. Only 4 % said they didn't expect a result from the event, but Belgium with 10 % was noticeable higher. The reason might be the actual situation in the study area, where a controversial discussion about an ongoing planning process is taking place at the moment. In total 2 % of those who did not participate were of the opinion that they are not affected by flooding. No one in the Netherlands named this argument as a reason for not participating.
The interviews in the Danish study area revealed a more effective information policy than in the other countries. This was reflected by the higher acceptance with the local/ regional coastal defence measures (cp. 5.2.1, question R7a). Furthermore comparatively many people felt well-informed about the flood risk and feel prepared for an emergency case. Despite this obvious success of the good information policy the results showed some significant weaknesses concerning the general preparation of the information. The requirement of simple and understandable information exists in every country.

The question about the public's interest giving their opinion to the planning process of coastal protection was answered also very consistently in all countries. In total 41 % were interested or very interested in giving their opinion to the planning process and 54 % were not interested. The differences between the countries were not significant. The positive results varied between 34 % in the UK and 46 % in Denmark. As expected the value decreased when the active involvement was addressed. In the UK only 1 % was willing to sacrifice a working day or work regularly as a volunteer. In the other study areas the willingness was significantly higher. In the Netherlands 10 % of the interviewees, in Denmark 11 %, in Belgium 14 % and in Germany 27 % said that they were interested to become actively involved. With the exception of Germany the positive responses are fairly low. Certainly there is still some potential to improve the willingness. But if these proportions were related to the entire population of each study area a fairly large group of participants would turn out. It is doubtful however, whether all the people who expressed their willingness would really participate. This makes it difficult to ascertain the quality of obtained results.
The experts were also interviewed about their experiences with and their attitude toward participation. But unfortunately the return rate of the questionnaires from experts was very inhomogeneous so that no solid comparison was possible on the international level. There seemed to be the tendency that in the UK (Skegness region) participation is a bit more common than in the other countries.

6. There is no ideal participation procedures for coastal defence planning

This is definitely a valid finding. The expert evaluation of the different participation instruments produced no clear results. Even though the tendency shows a preference for more conventional and simple procedures such as workshops, round tables or working groups, the other tools obviously also have some strengths.
In addition to these instruments the experts named numerous other possibilities of participation. This variety shows that the participation measures depend on the individual objectives of each project. Hence it seems necessary that each tool is tailored to the individual problem, project goal and regional conditions and distinctions. In some cases it might be an advantage to combine different tools or techniques into a suitable mix.

7. The population doesn't feel adequately informed

This hypothesis was also corroborated by the public survey (cp. 5.2.1). It turned out that a huge information deficit exists in three main categories. First of all a lot of the people are not aware of the risk resulting from storm surges, not to mention the possible consequences. 67 % of the public estimates the flood risk as low or very low and 30 % of the respondents thought that their house could not be hit by the floodwater in case of a coastal flooding (cp. 5.2.1, question R4 & R5). This appears a high ratio considering that all the respondents actually live in the flood-prone area below 5m NN. Furthermore the majority (60 %) doesn't know how to protect themselves or their property adequately against flooding and where to get information concerning this matter (cp. 5.2.1, question R10a). The third category concerns the case of emergency. Here 59 % of the respondents said they do not know what to do in case of a flooding event (cp. 5.2.1, question R8a).

In case of the people who claimed to be better informed it often turned out that the information was wrong or insufficient. Hence the proportion of appropriately informed people is in fact considerably lower than the quoted rate.

8. The authorities and the public are very interested in participation

At first view and as already described, in number five above the interest of the public in participation seems to be not very high. The interest of advancing an opinion was still comparatively high (41 %) but concerning active involvement the rate decreases significantly. The results varied between 1 % and 27 % (cp. number 5). There is little doubt that this ration can be improved by informing the people about their personal well-being and about the participation process itself, but it also depends on the authorities' expectations and objectives: how many people do we want to get involved and what number of persons can we handle? Assuming a rate of 10 % of the entire population of a municipality would result in a rather large group of participants. Yet it is doubtful whether all who expressed their willingness would indeed participate. Thus, how does one value the obtained results? Fact is that a ratio of 100 % is neither obtainable nor desirable. There already is a significant part of the public who is interested in this particular issue. By the means of more information this rate can definitely be increased. The survey also revealed that a regular and adequate information policy is not only necessary but in many cases may also be sufficient to improve the participation process. One expert made a clear point: "Participation is necessary but it is more important that the people are prepared for the case of emergency. And therefore information has to be provided".

The attitude of the experts about public participation could be identified from their experiences with implementing formal participation procedures, although they were not asked directly.

85 % of the experts believe that participation increases the acceptance of planned measures (6.4, question 5). On this account the authorities should have a positive attitude and interest in public participation. From our perspective, this is a clear argument to encourage participation. On the other hand it turned out that participation may cause problems for the involved administrations (6.4, question 8). According to the majority of experts these problems can be resolved or at least minimized. A few experts thought that participation is not really necessary and that information is enough. Others wouldn't like to expand participation activities because the existing methods provide all possibilities. These answers indicated that most of the experts have a positive attitude about participation

Especially the results in Belgium and Denmark (Oostende; cp. 5.2.1, question R4 & R9) pointed out that the local conditions and regional distinctions are of great importance and hence should finally determine the selection of the appropriate strategy. Another aspect is to what degree the selected municipality/ study area is representative. Every region has its own special situation and consequently these results will not represent the entire countries conditions.
Thus no country-specific recommendations will be made, but more general procedure-related problems respectively solutions are considered.
The recommendations are classified into two categories: information and participation.

7.1 Recommendations on public information

Recommendation one:	Awareness has to be improved concerning flood risk and consequences

In total 67 % of the interviewees estimated the probability of coastal flooding low or very low (cp. 5.2.1, question R4) although all of them live almost right at the coast. Even the people provided with information about the local flood-prone area and their personal concernment are not necessarily aware of the risk (cp. 5.2.1, question R5). Furthermore awareness does not lead automatically to a better understanding or action. Hence the recommendation here is to provide the public with detailed information about the risk and particularly the possible personal consequences.

Recommendation two:	Information has to be neutral, objective, simple, targeted, comprehensive and understandable

The second recommendation about the way information should be provided concerns both information and participation. The Danish results regarding the knowledge of the personal concernment illustrated that it is important to keep the information simple, comprehensive and understandable. The people of Ribe obviously didn't understand the provided map where the flood-prone area is indicated. Even though visualization should normally be preferred to plain text, the information has to be clear. In case of risk or flooding maps there should be a personal spatial reference for the people. One method might be the to provide the names of the streets at risk. Recommendation two also concerns the language. In the expert interviews the use of officialese or scientific language was often criticised (cp. 6.5, Question 7). Thus the information has to be neutral, objective, simple, comprehensive and understandable. Always follow the principle to keep the information as simple as possible.

Recommendation three:	The public should obtain more background information about coastal defence

On average 40 % of the public is not satisfied with the actual coastal defence situation (cp. 5.2.2, question R7a). This can't be ascribed only to shortcomings in the safety standards. As expected the results showed that the local situation has to be considered as well. But there is also a lack of information. When asked about possible improvements most people demanded more information. From our point of view more background information about the coastal defence policy may improve the acceptance of and the satisfaction with the coastal defence situation.
The information should encompass details about the designing of a dike, the future planning under the aspect of the sea level rise and, probably also about financial and technical limitations. The results further revealed that this information should be combined with the disaster management, because the public also demanded an improved disaster plan besides information about coastal defence.
People stated that higher safety is the most important reason to deal with coastal defence. This might be a link to improve the information and also participation.

Recommendation four:	The public should obtain more information about flood precautionary measures

In total 60 % of the respondents do not know, where to get information about precautionary measures (cp. 5.2.2., question R10a). TV and radio was most often mentioned as appropriate sources for this kind of information. It confirms the lack of information concerning this topic, because TV is suited to disperse information but definitely not appropriate to provide basic and technical information.
The people should be personally addressed by sending the information directly to each household in the area at risk. Leaflets/ circulars or newspaper inserts combined with an internet platform could be a useful approach. It is important that the information is comprehensive and detailed, i.e. includes contacts where the people can get professional help or necessary materials.

Recommendation five:	The public should obtain more information about what to do in case of a coastal flooding

The survey showed that in total 59 % of the population doesn't know what to do in case of an emergency. Additionally the experts where asked about their knowledge of a local evacuation plan. Only a minority knew about it hardly anybody seems to know where it is available. Even though mainly coastal defence experts were asked it probably represents the general situation.
A number of experts think it is essential that the people are prepared for an emergency situation. The results however pointed out that the public needs a lot more basic information

about it. The information should at least include details about where to go in case of flooding, where more information can be obtained, how much time is left after warning, whether there is a meeting point or will people be picked up at home.

Recommendation six:	Local press should be involved in information dissemination

According to the experts opinion the local press is the most important information tool (cp. 6.4, question 1 & 10). Apart from its positive valuation this instrument was also most frequently used in the study areas. The strengths of this instrument are the wide coverage, the small effort required for the authorities and the easy access to the public.

Recommendation seven:	Different information tools should be combined

All instruments do have strengths and weaknesses and one single tool will not reach all people. Hence it is recommendable to combine different information instruments. That enables a wider coverage, different information formats and specifications and consequently the chance to reach different parts of the population.

Recommendation eight:	Information centres and open houses turned out to be innovative and successful information tools, which might enhance the possibilities to inform the public

Due to the fact that open houses and information centres are both a combination of different tools (e.g. exhibition, discussion, leaflets, presentation, field trips; cp. 6.1.5) they have obvious advantages compared to "conventional, single" instruments. Furthermore a spatial relationship can be established by allowing people to visit the measure on site.
Exhibitions, open councils and excursions were also mentioned as valuable tools to inform the public (cp. 6.5, question 1 & 10).

Recommendation nine:	On a long-term perspective the Internet should become an increasingly important information tool

Even though the Internet still has a small coverage and despite the regional differences, the experts valued this instrument as an appropriate and powerful tool which will gain importance in the future (cp. 6.5, question). Up to now it is used mainly as an additional tool or in combination with other instruments. To be effective an internet platform (website) has to be simple and clear, easy to navigate and up to date.

Recommendation ten:	Make flood risk and coastal defence a central theme at school

Most of the experts were of the opinion that it is mandatory to improve the understanding of coastal defence and flood risk early on. It contributes to increasing the awareness of the young generation and to fostering general discussions about this topic within the family.

Recommendation eleven:	Information is a prerequisite for participation

Public interests are normally not automatically given high priority unless the people are affected themselves. Thus the public or individual safety as well as the personal concernment should play a major role in the information policy of coastal defence and disaster management. Sufficient information about these issues is a prerequisite to make the people participate. They need to know why it is crucial for them to become involved and what personal advantages there are.

Recommendation twelve:	Coastal defence and disaster management should not be treated separately

As already mentioned in recommendation three the public associates coastal defence directly with disaster management. Hence coastal defence and disaster management shouldn't be taken as separate administrative tasks. This was also confirmed by the experts who stated that the citizens not only have to be aware of the flood risk but also need to be prepared for a flooding event.
It is obvious that people who are well prepared for a specific risk situation might react faster and are probably better organized in case of an emergency. In reverse this implies that people who are well prepared for an emergency probably are also aware of the risk.

7.2 Recommendations on participation

Recommendation thirteen:	Provide more participation procedures

Awareness doesn't necessarily imply correct information and good preparation (cp. 5.2.1, question 5) but as mentioned in chapter 6.1.2 information and participation are key to increasing the acceptance and improving the information level of the public. As the expert interviews revealed that participation is presently not very common in coastal defence planning, more participating procedures ought to be provided (cp. 6.5, question 3). But nearly all the events which actually have taken place were assessed as successful. And nearly all the citizens who were involved in such procedures say that they want to become involved again. Hence it is concluded that it ought to be worthwhile to include more participation in coastal defence planning. However, the process must be prepared well.

Recommendation fourteen:	The department/ agency attitude concerning the implementation of participation procedures should be positive and responsive

The public criticized that they have no influence anyway and hence it wouldn't be worth to participate. Other statements concerned the outcome of participation. The authorities wouldn't take their opinion into account or their engagement wouldn't lead to any success (cp. 6.2.1, question P8). Also the experts remarked that the willingness of the authorities to deal with the public is missing sometimes (cp. 6.5, question 6, 7 & 8). Hence the authorities ought to make clear that they are really interested in public's opinion and that their opinion will be taken into account.

Recommendation fifteen:	Extra time and money for participation processes within projects should be allowed

All experts agreed that participation procedures require extra time, effort and often also money (cp. 6.5, question 8). If the authorities decide to involve stakeholders and/or the public this should be considered right from the start of the planning process.

Recommendations sixteen to twenty refer to information within participation.

Recommendation sixteen:	Background information about the personal concernment should be provided

This recommendation refers to recommendation twelve that information is a prerequisite to get people to participate. The experts stated information about the personal concernment would enhance participation (cp. 6.5, question 6 & 7). One expert reported his that once informed people do participate (cp. 6.5, question 7).

Recommendation seventeen:	Background information about the problem, the project, and the objectives of the procedure should be

According to the experts (cp. 6.5, question 6 & 7) background information is another prerequisite to get people involved. Information about the issue, the problem, the procedure, the overall objective, duration of participation process, use of outcomes, etc should be provided.
Sufficient notice during the process and in advance of a meeting/event helps the attendees to set aside time for preparation and attendance.

Recommendation eighteen:	Thoughtfully prepared and coordinated materials should convey the appropriate level and kind of information.

As mentioned before, sufficient and apt information is a key to successful participation in its various phases. The people must be informed prior and also during the process. Not the quantity of information is important but the quality. It needs to be simple, clear, easily understandable and still detailed even though it shouldn't exceed a certain amount. Thus the information material has to be prepared and disseminated very carefully.

Recommendation nineteen:	The press should be involved and good media relations established

It is important to keep the people who don't participate informed as well. Thus it is recommended to use newspapers, radio, and/or television coverage as a cost-effective alternative to reach broad segments of the public and keep them up-to-date with the process.

Recommendation twenty:	Results and outcomes should be provided

Generally, the public should be informed not only about the ongoing process but particularly about the outcomes and decisions derived from it. It should be always be attempted to make the findings and lessons learned widely accessible, because there might be other people who are also affected or have to react on the decisions but haven't been actively involved. Another recommendation is to keep the interest of the public alive via thank-you letters, surveys, reports or regular newsletters.

Recommendation twenty-one:	More detailed information should be given about already existing procedures

Both the public survey and the expert interviews pointed out that in addition to further participation procedures the public should be better informed about existing ones. It turned out the people did not know about existing or previous procedures (cp. 6.2.1, question P1 & P3). From this it might be assumed that other/ additional information tools should be applied and that the information needs to be more detailed. The people usually desire precise information such as: how to participate, where to go, how their opinion will be involved in the planning process, etc. Moreover it is necessary to tell the people more about the participation processes itself e.g. what the advantage of participating is, where the process takes place, the duration, the outcome, implementation and so on.

Recommendation twenty-two:	The exact level of participation should be defined in the early phase of the project

When a decision was made to implement participation, the next step will be to define the exact level of participation. According to Arnstein's ladder (cp. 6.1.1) the greater the involvement the more power the participants will get. Hence the realizing people have to decide which level of participation is appropriate for their project. And dependent on the level of participation the appropriate instruments and their design (scale, number of people to be involved, number of meetings/events etc.) have to be chosen.

Recommendation twenty-three:	Affected people should be involved as early as

In general the basic principle *involve people as early as possible* should be applied. The earlier the public is involved the greater the influence on the process and its outcome. But it is of importance that the results of the procedure will be realised as fast as possible, so that be people do not become discouraged. People are generally more likely to participate when they feel that their engagement and their contribution will make a difference (cp. 6.1.4). Moreover citizens can often contribute positively to the process due to their local and special knowledge. This may be of importance already in the early planning phase. Locals and key stakeholders often know regional problems and specifications or can even indicate particular communication problems.

Recommendation twenty-four:	Participation techniques must be tailored to the specific problem, subject and local conditions

The quantity of participation instruments, as described in chapter 6.1.5 made it clear that no all-purpose or uniform tool exists which is appropriate for all planning and management purposes. In fact flexible procedures need to be applied, which ought to be tailored/ adapted to the specific conditions and requirements. Each problem/ project as well as the favoured level of participation and financial framework requires its individually designed instrument. Just like the information tools all participation tools have their strengths and weaknesses. Thus it seems best to combine or mix different instruments.

Recommendation twenty-five:	Less complex procedures should be implemented

According to the assessment of the participation procedures the experts seem to prefer more conventional instruments which are less complex (cp. 6.4, question 1 & 4). Working groups, workshops and round tables were not only the highest valued tools but also the ones most frequent applied. This is not a plea for not trying new ones but the procedure should be quite

simple and understandable. The participation procedure should be kept as simple and understandable as possible.
Apart from the accurate selection of the instrument there are some further recommendations concerning the course of the procedure:

- Clearly determine the purpose of the meeting or event
- Have a clear agenda and basic rules but be flexible to allow changes,
- Use a clear and easily understandable language during the process,
- Meeting times and locations should optimize the people's possibility to participate,

Keep the participation process enjoyable (provide breaks, side talks, beverages, food).

Recommendation twenty-six:	The selection of participants should be accurate

The selection of the participants is a fundamental element with clear effects on the objectives and outcomes of the process (cp. 6.1.3). Even though this process is not very simple it should be done carefully. On the one hand it should be assured that all groups or individuals who are or could be affected by a decision are represented and on the other hand a high level of competence ought to be achieved. Especially if the number of participants is limited due to the project framework it is important to obtain a representative spectrum of the public. To this end it can be useful to set up a working group to identify the key stakeholders. The number of participants is dependent on the available time, the budget, and the desired level of participation. A more informative event allows to involve a lot more people than a decision making process. Thus the number of participants should be defined mainly on the basis of these criteria and not only on the type of instrument.

Recommendation twenty-seven:	The publics' input should be valued and translated into real decision

The key objective of pure participation is to learn about the people's point of view and get them involved in the procedure. When citizens invest some time and effort to participate they expect to be taken seriously and to have influence on the outcome and the final decisions (cp. 6.2.1, question P9; 6.4, question 5, 6, 7 & 8). Only if this output is ensured an increase of the acceptance of such a procedure will be achieved. Thus it is essential to value the public's input and take it into consideration as far as possible. It is also recommended to inform the people prior to the active involvement how their opinion will be considered. Some experts were of the opinion that the willingness of the authorities to take the people seriously and actively involve them is missing sometimes (cp. 6.4, question 6, 7 & 8).

Recommendation twenty-eight:	Good communication in all phases of the procedure should be mandatory

A good communication is not only essential within a participation process (cp. 6.4, question 7) but also for the every-day cooperation. Good communication is a necessity both for the

authorities and the public. According to the WBGU recommendations (1999) communication ought to be fair, open, equal, complete and understandable.
To guarantee a good communication during the participation process it should be addressed as a central theme in the early phase or prior to the event. It can also be useful to set up specific communication rules.

Recommendation twenty-nine:	Keep the participation process flexible to possible changes during course

At first sight this recommendation might seem to be a contradiction to number twenty-five where a clear agenda was recommended. But keeping the process flexible refers mainly to the evaluation process. If/when problems or weak points are identified in the course of the process, adjustments should be made and changes may be introduced. Thus, it might be helpful to carry out a process assessment during the participation procedure.

Recommendation thirty:	Use independent chairpersons

Within a participation process all people should have equal chances to give their opinion. If the responsible authority controls and guides the procedure they will automatically be in a leading position. This may be taken negatively by the public and may stir up prejudices. To keep the process fair, an independent chairpersons should be asked in (cp. 6.4, question 8), either a professional supervisor or a qualified person from another institution who is not involved in this particular process.

Recommendation thirty-one:	Train authorities in active participation

Regarding the fact that participation is not very common in coastal defence planning yet, the authorities have only little experience with participation and moderation. They are neither familiar with the techniques nor with the course of such an event not to mention the moderation of a large discussion. Thus the authorities should train their personnel.

Recommendation thirty-two:	The process and the results should be documented and evaluated

Usually the authorities want to find out whether they have achieved their goals or have made progress towards them. Considering the investment of time and resources it is vital to document the process and have a kind of assessment (cp. 6.1.6). Hence an evaluation procedure is recommended. There should be an assessment at least at the end of the process

to identify the successes and failures and ways how to improve future events. Another possibility is to have step-by-step valuations to implement improvements during the process.

7.3 Outlook

In recent years different developments, such as the increase of weather extremes have resulted in an enhanced engagement with natural hazards and the associated risk management. Risk management in turn implies that various interests and individual perspectives are considered. In turn, this leads to an increasing importance of risk perception and participation.
Drivers such as Agenda 21, the Aarhus Convention but also ICZM (Integrated Coastal Zone Management) initiatives are just a few examples which prove the important role of public participation and perception in today's society. According to the recent events and predicted changes the coastal defence authorities are also changing their planning policies. In the framework of a coastal defence management scheme they are encouraging an integrated approach and hence also the involvement of the public.
The study at hand aims at improving and advancing this new orientation. As the results of this study have shown, there seems to exist a significant deficit especially with respect to information policies. From our point of view one priority should be to eliminate or minimize this deficit. An improved information policy and, consequently a better informed population enhance the understanding and facilitate the next step, i.e. to get more people involved in the coastal planning process. Sufficient and comprehensive information are seen as the basis and a prerequisite for a wider involvement of the public, which is the next step on the way to an efficient coastal management scheme.

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Risiken in der räumlichen Planung

Appendix

Appendix A

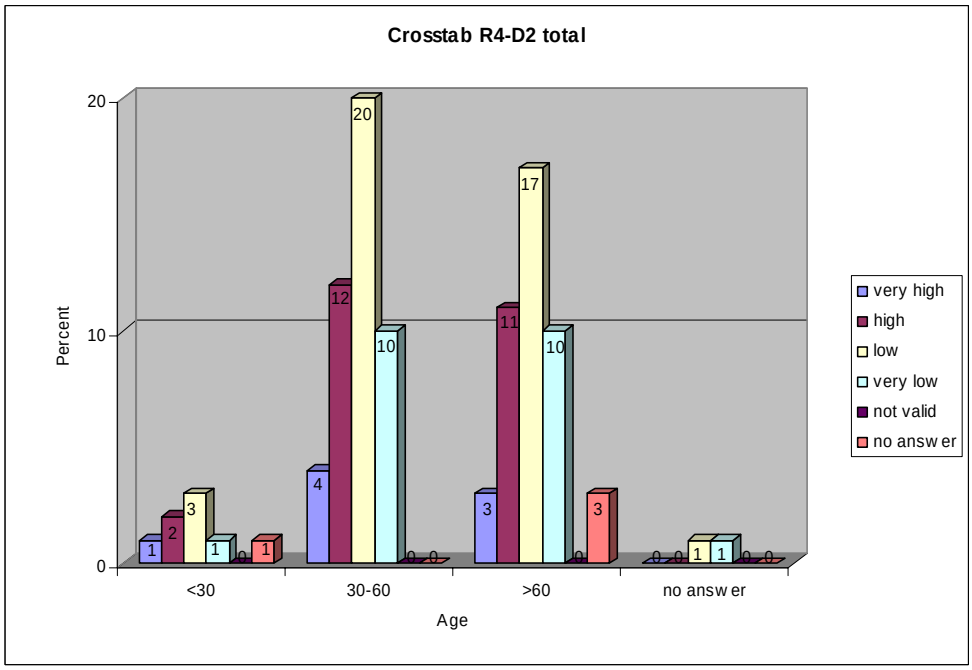


Figure 59: Cross table between the age of respondents and how they estimate the probability of a coastal flooding

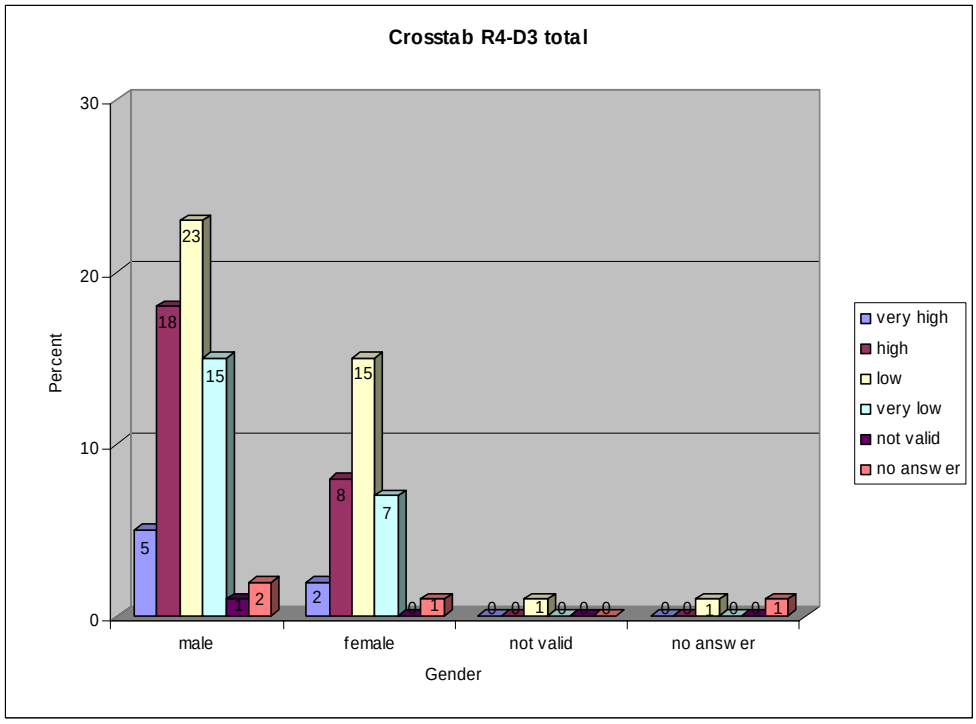


Figure 60: Cross table between the gender of the respondents and how they estimate the probability of a coastal flooding

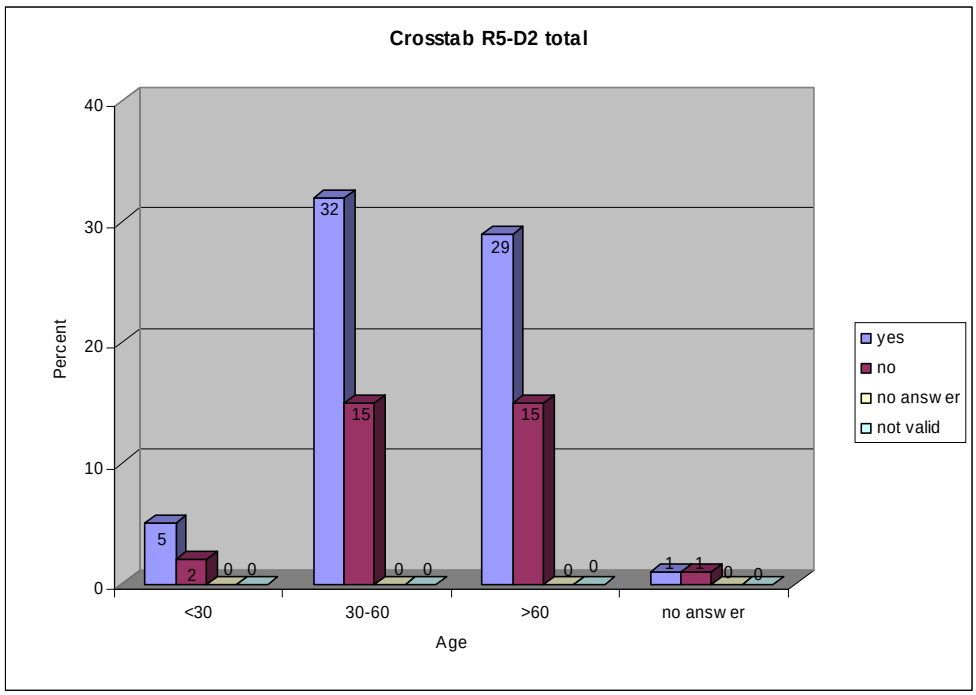


Figure 61: Cross table between the age of respondents and their knowledge about the possibility of being hit by floodwater

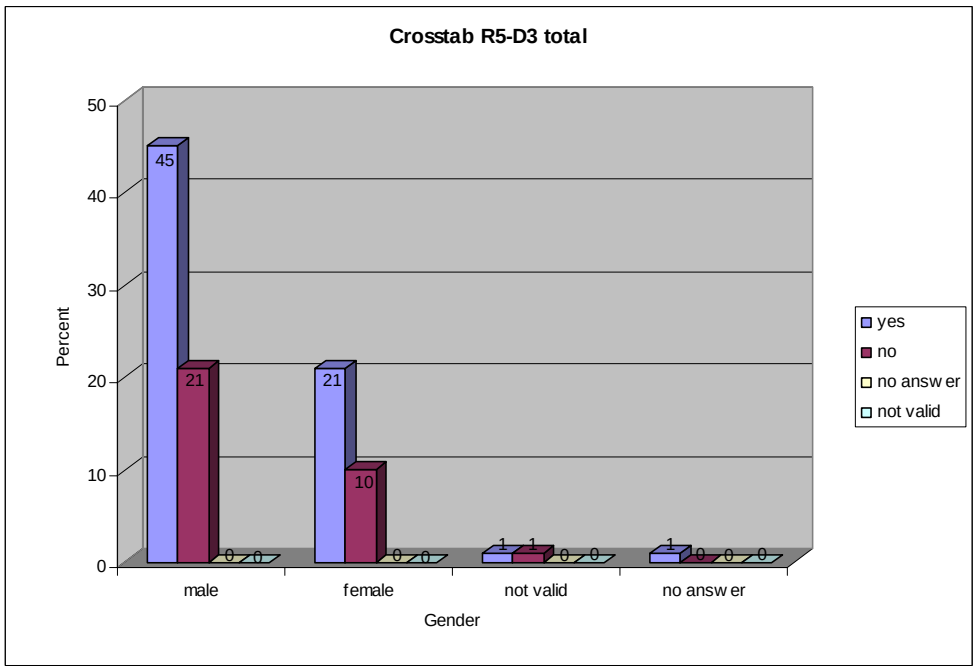


Figure 62: Cross table between the gender of respondents and their knowledge about the possibility of being hit by floodwater

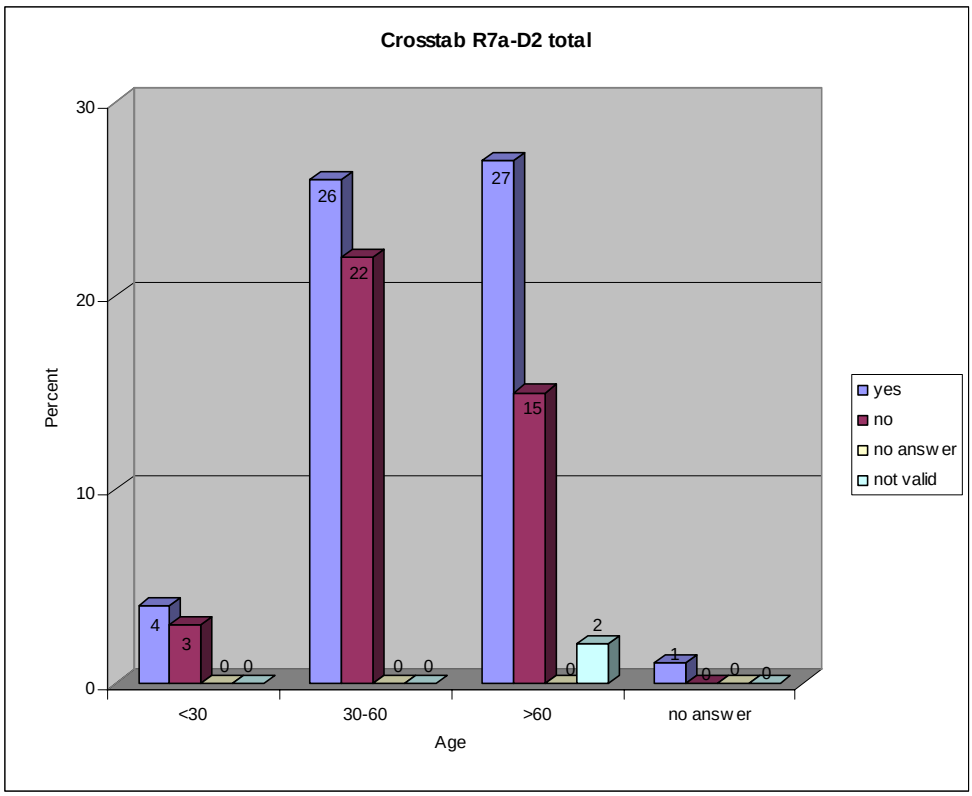


Figure 63: Cross table between the age of respondents and their opinion if there is sufficient protection against storm floods

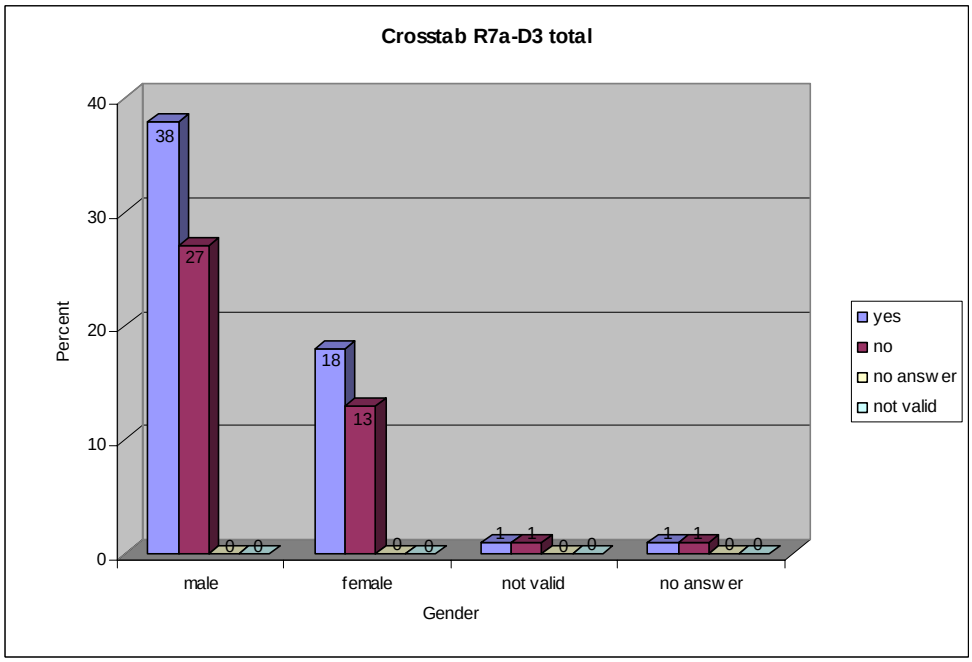


Figure 64: Cross table between the gender of respondents and their opinion if there is sufficient protection against storm floods

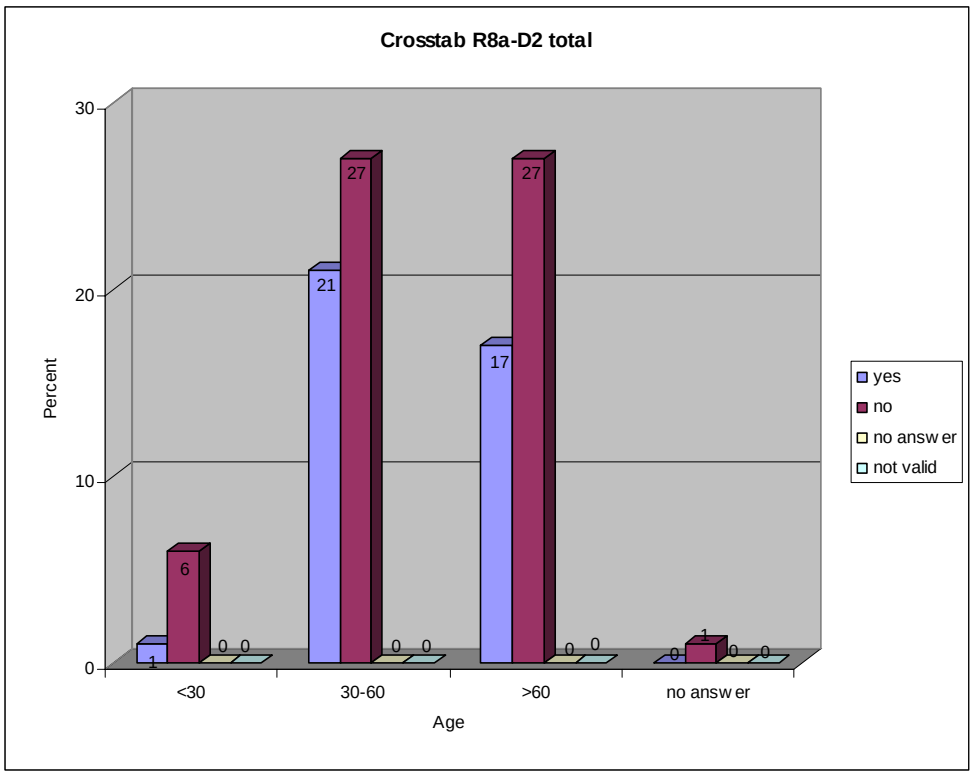


Figure 65: Cross table between the age of respondents and their knowledge about what to do in case of a coastal flooding

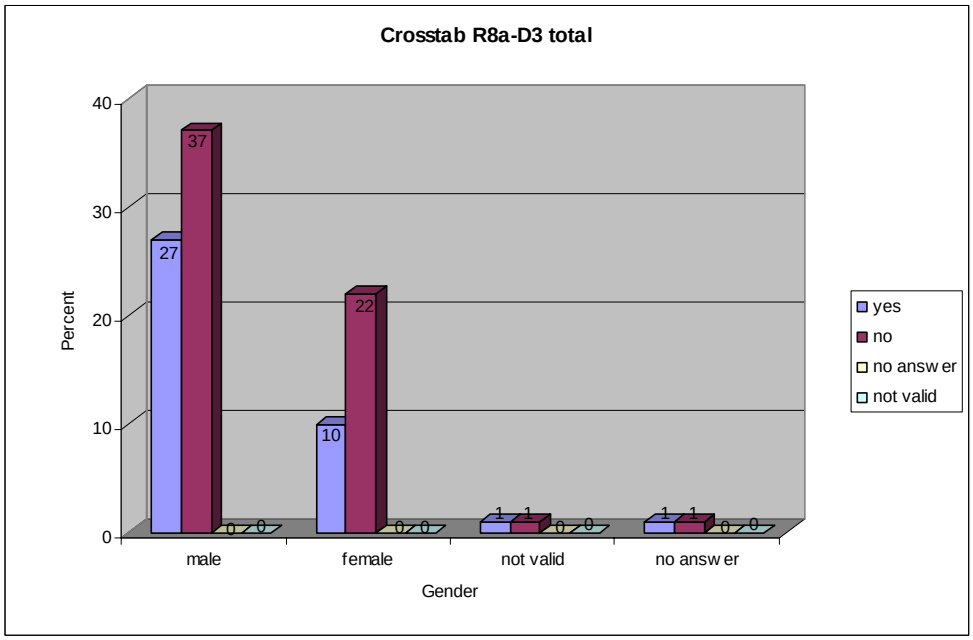


Figure 66: Cross table between the gender of respondents and their knowledge about what to do in case of a coastal flooding

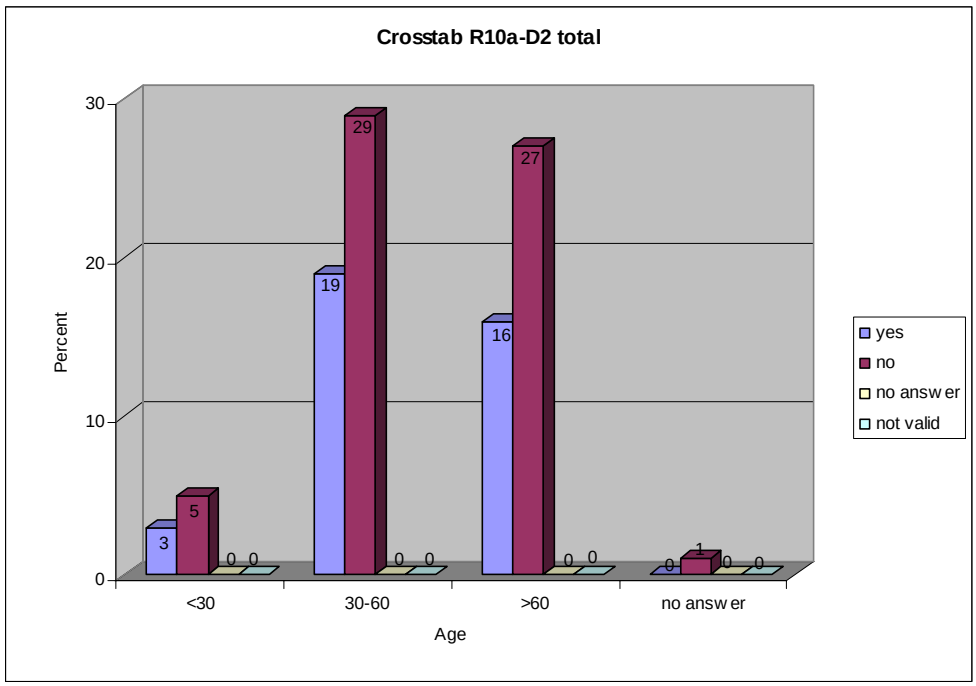


Figure 67: Cross table between the age of respondents and their knowledge about how to get information about their protection in case of a storm flood

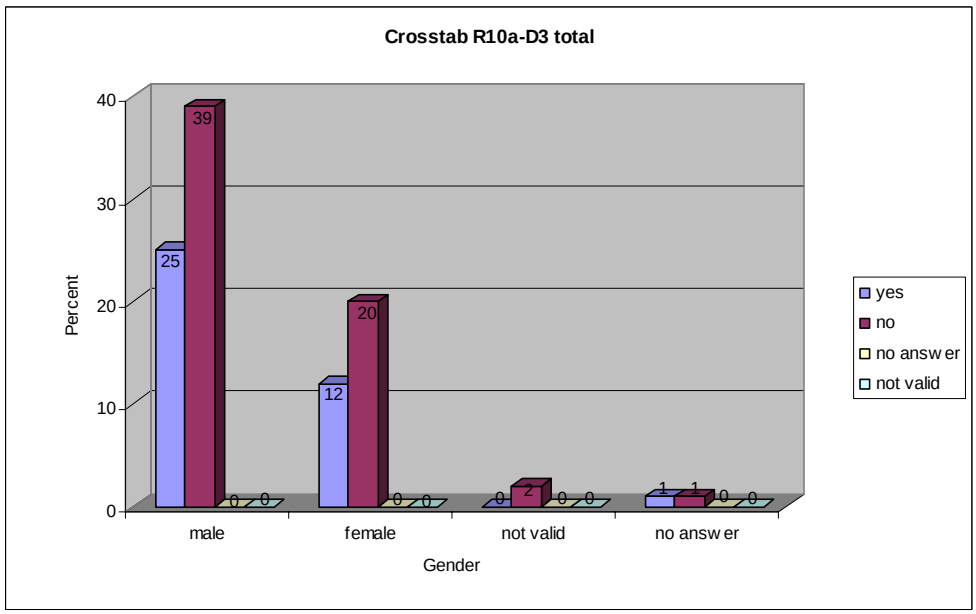


Figure 68: Cross table between the gender of respondents and their knowledge about how to get information about their protection in case of a storm flood

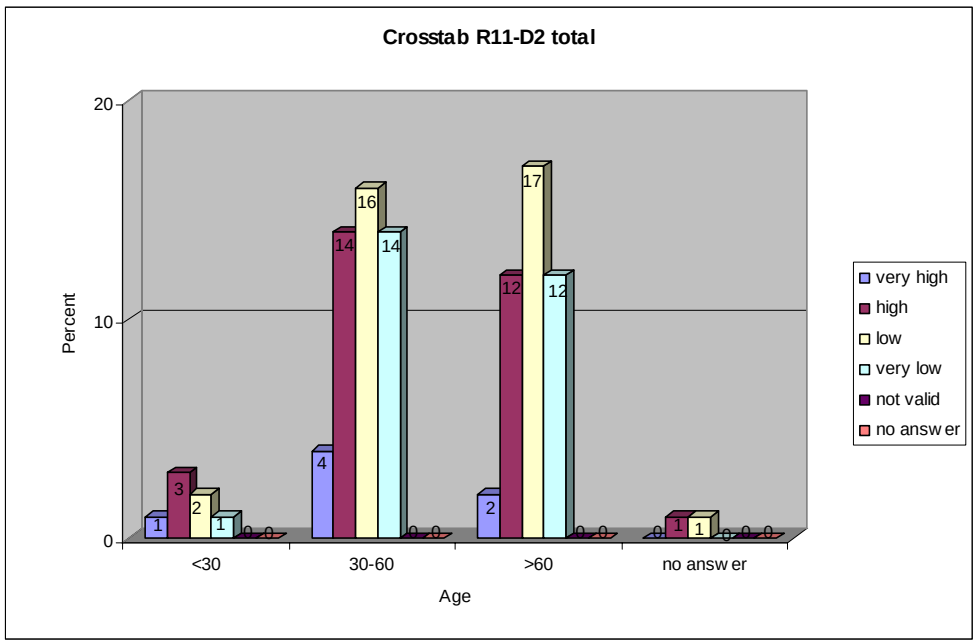


Figure 69: Cross table between the age of respondents and if they feel at risk of a sea level rise

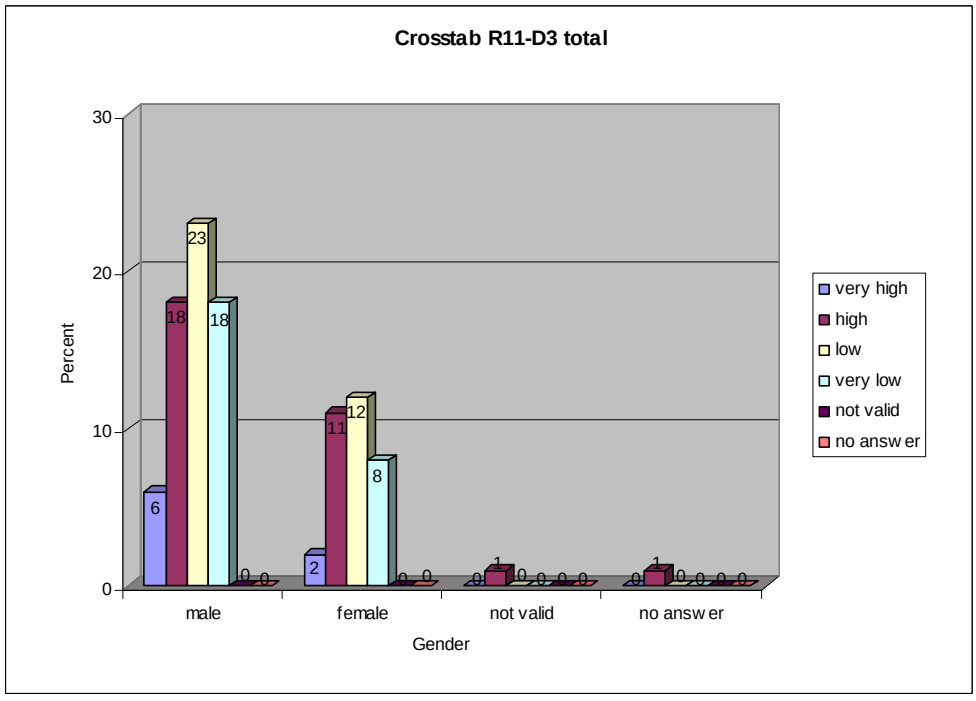


Figure 70: Cross table between the gender of respondents and if they feel at risk of a sea level rise

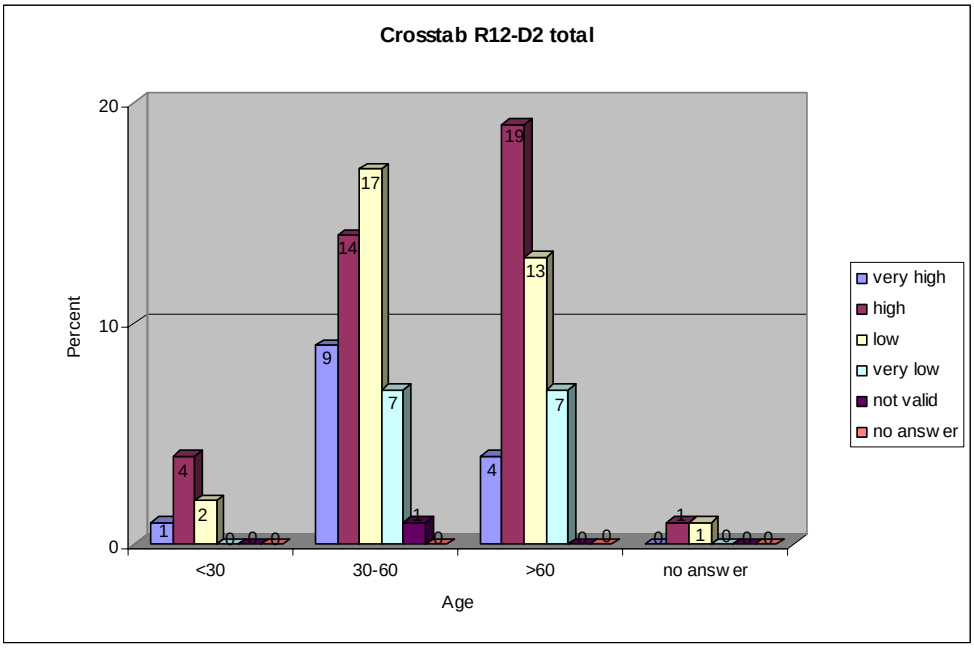


Figure 71: Cross table between the age of respondents and how high they estimate the influence of a sea level rise on the danger of storm floods

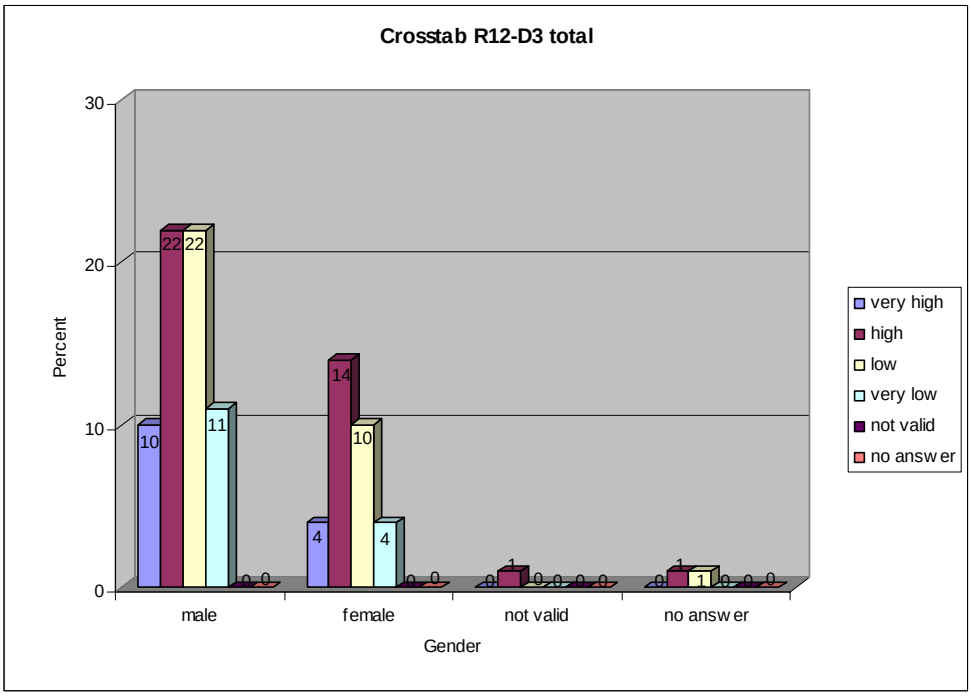


Figure 72: Cross table between the gender of respondents and how high they estimate the influence of a sea level rise on the danger of storm floods

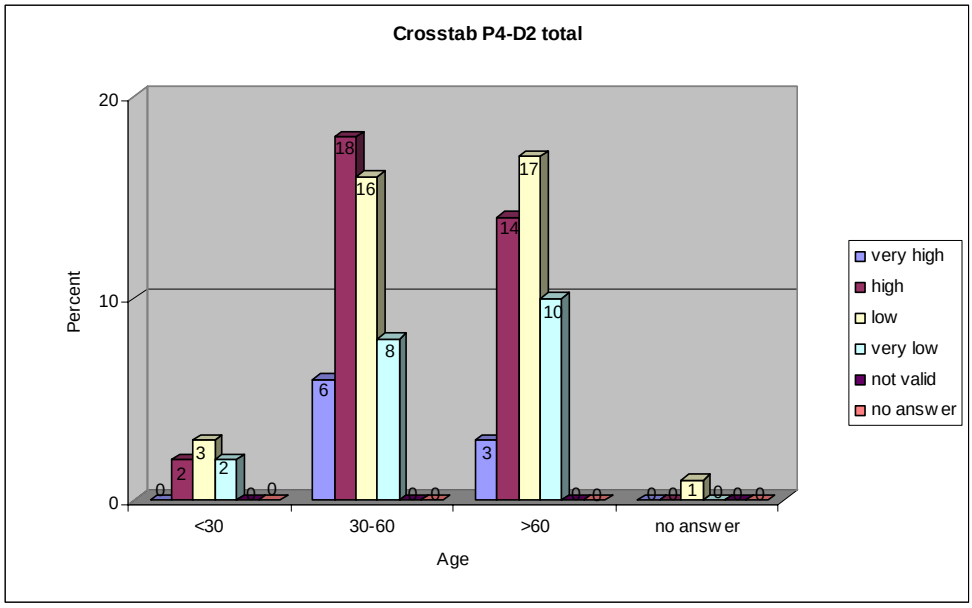


Figure 73: Cross table between the age of respondents and if they are interested in giving their opinion to the planning process

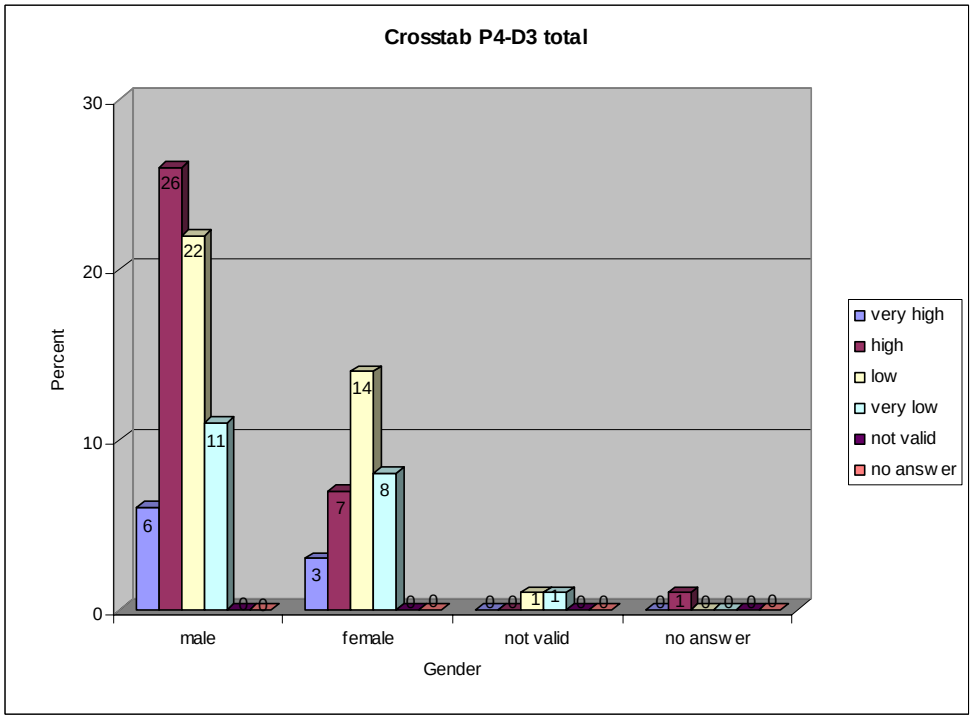


Figure 74: Cross table between the gender of respondents and if they are interested in giving their opinion to the planning process

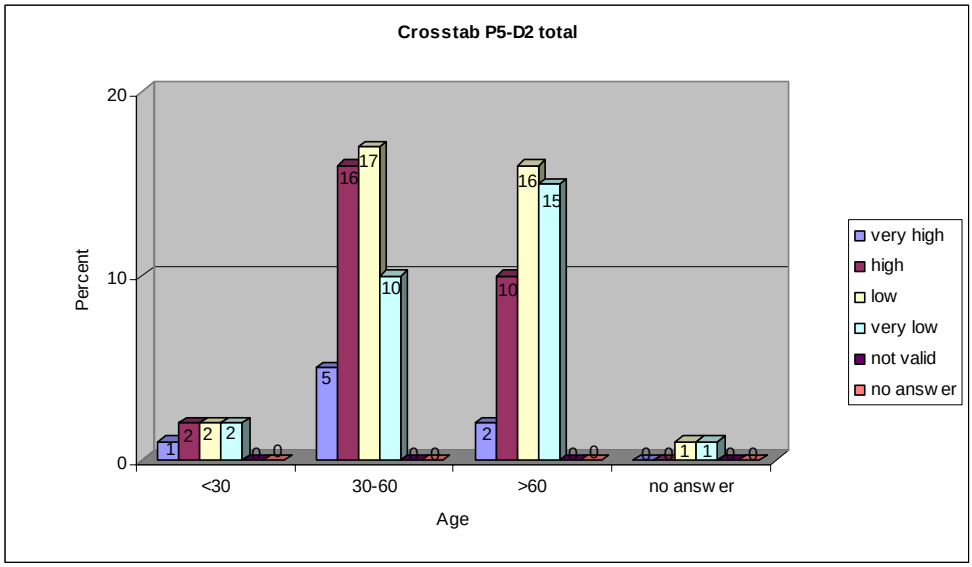


Figure 75: Cross table between the age of respondents and if they are interested in being actively involved in the planning process

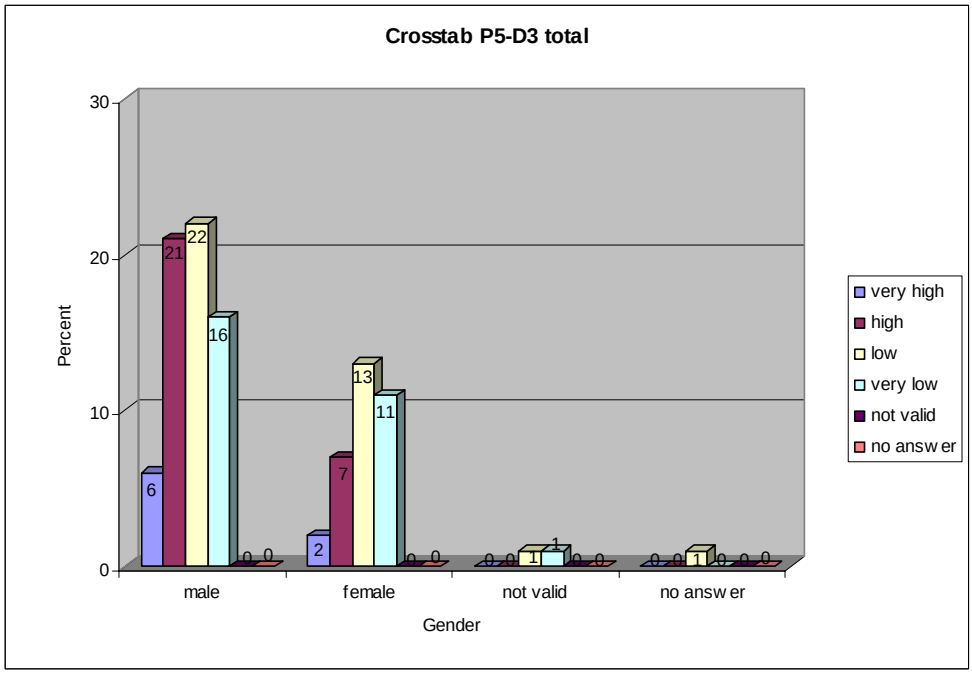


Figure 76: Cross table between the gender of respondents and if they are interested in being actively involved in the planning process

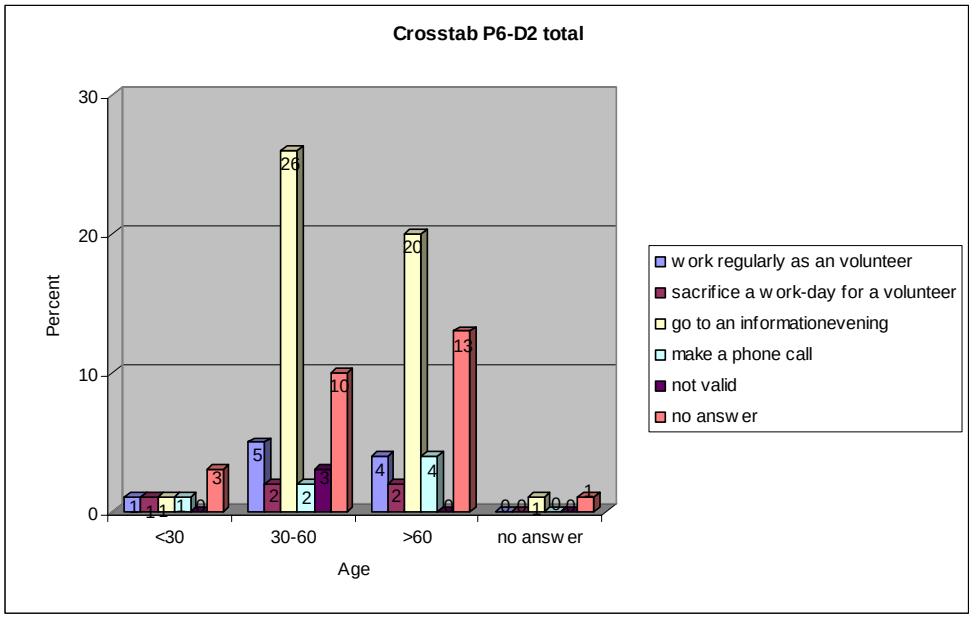


Figure 77: Cross table between the age of respondents and what they would like to do to represent their opinion in coastal protection planning

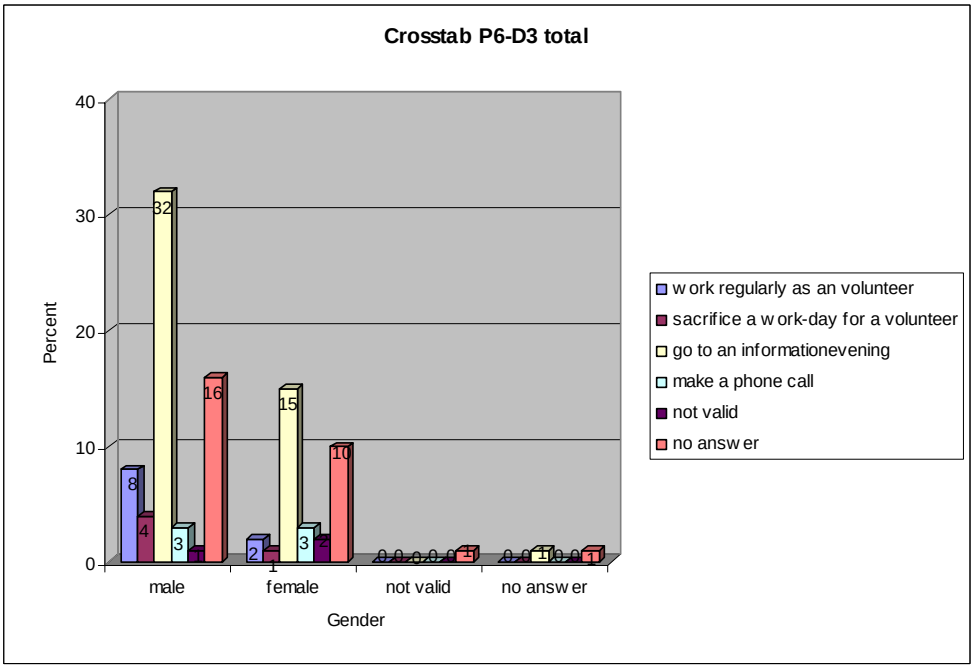


Figure 78: Cross table between the gender of respondents and what they would like to do to represent their opinion in coastal protection planning

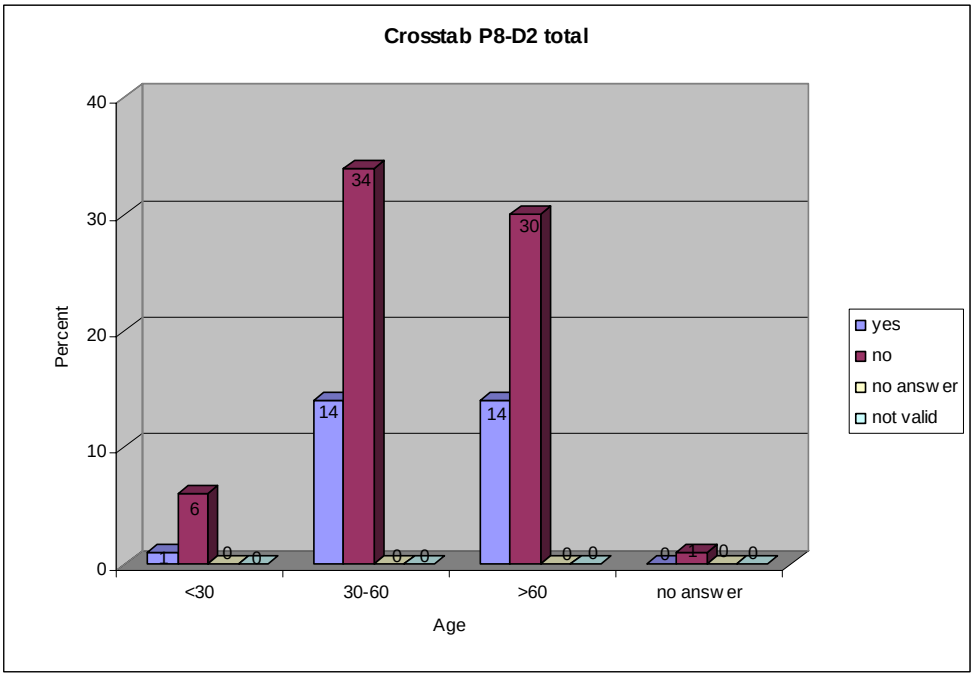


Figure 79: Cross table between the age of respondents and their knowledge about what to do if they not agree with the decisions of the coastal protection authorities

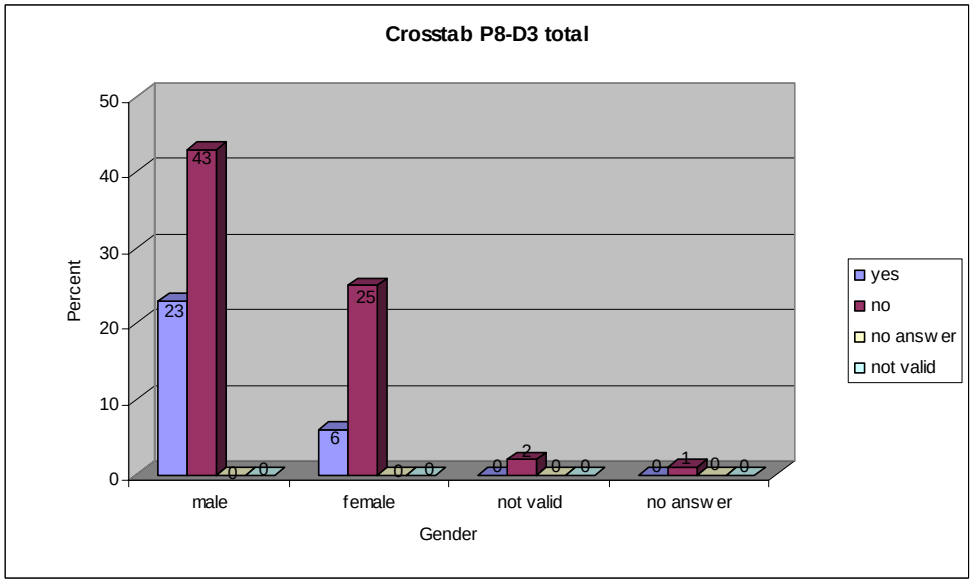


Figure 80: Cross table between the gender of respondents and their knowledge about what to do if they not agree with the decisions of the coastal protection authorities

ANNEX B
Questionnaire public survey

***Questionnaire**:*

"PERCEPTION AND PARTICIPATION IN COASTAL FLOOD DEFENCE"

Preamble

The survey is carried out for the coastal defence division in the Schleswig-Holstein State Ministry of the interior by the Institute for Geography of the German University of Kiel.
Both the inquiry and the evaluation are anonymous. The households were selected randomly.

Please return the questionnaires in the supplied, stamped envelope to: Prof. Dr. Horst Sterr, Geographisches Institut der Universität Kiel, Ludewig-Meyn Str. 14, D-24118 Kiel, Germany.

As there are no personal data about the interviewees available, we would like to know where abouts you live in the flood prone area. Whether you live directly behind the sea wall or five kilometres from the coastline makes a difference in your perception. We have to consider this in our evaluation.

Please mark with a cross where approximately you live in the area!

Questionnaire Part I – Risk Perception

*Please fill in the questionnaire and mark the chosen answers with only **one cross** per question, where it is required.*

R 1) Have you ever experienced a storm flood?

yes ☐ **no** ☐

R 2) Have you ever experienced a coastal flooding (defence breaching)?

yes ☐ **no** ☐

R 3) Do you know the year when a storm flood disaster occurred in xxx in the past?

yes ☐ **(in the year _____)** **no** ☐

R 4) How high do you estimate the probability of a coastal flooding in xxx?

assessment: **(<high)** **+ +** ☐ **+** ☐ **-** ☐ **- -** ☐ **(low >)**

R 5) Could your dwelling be hit by the floodwater in case of a coastal flooding?

yes ☐ **no** ☐

R 6a) Have you taken personal measures to be generally prepared for a storm flood?

yes ☐ **no** ☐

R 6b) If you have answered *yes* in the previous question (**R 6a**), what kind of measures did you take?

Please write here: _____

_____

_____

R 7a) In your opinion**,** is there sufficient protection against storm floods in xxx (e.g. disaster relief measures, public warning)?

yes ☐ **no** ☐

R 7b) If you have answered *no* in the previous question (**R 7a**), how , in your opinion, could the safety in case of a storm flood be improved?

_____

_____

_____

R 8a) Do you know what to do in case of a coastal flooding?

yes ☐ **no** ☐

R 8b) If you have answered *yes* in the previous question (**R 8a**), what exactly can you do to protect yourself in case of a coastal flooding?

_____

_____

_____

R 9) How well have you been informed about the basic risks of a storm flood by the responsible authorities?

assessment: (<high) **+ +** ☐ **+** ☐ **-** ☐ **- -** ☐ **(low >)**

R 10a) Do you know how to get precautionary information about your own protection in case of a storm flood?

yes ☐ **no** ☐

R 10b) If you have answered *yes* in the previous question (**R 10a**), where do you get the information from?

Please tick at the most three possibilities:

authorities	☐	**neighbours/ friends**	☐	**internet**	☐
prevention / fire brigade	☐	**press**	☐	**radio / TV**	☐
other sources _____	☐				

R 11) Do you feel personally endangered by a sea-level rise, inducted by the global climate change?

assessment:	**(<high)**	**+ +**	☐	**+**	☐	**-**	☐	**- -**	☐	**(low >)**

R 12) How high do you estimate the influence of a sea-level rise on the danger of a storm flood in xxx?

assessment:	**(<high)**	**+ +**	☐	**+**	☐	**-**	☐	**- -**	☐	**(low >)**

Questionnaire Part II - Participation

P 1) Have you ever taken part in a participation procedure concerning coastal protection (round table, workshop, mediation, referendum, sensitivity analysis or other)?

yes ☐ **no** ☐

P 2) If you have answered *yes* in the previous question (**P 1**), what kind of participation procedure was it?

subject of the participation procedure	kind of participation procedure

P 3) If you have answered *no* in the previous question (**P 1**), why did you not participate? (*please choose only one possibility*)

I have not enough time ☐ **I am not interested** ☐ **no participation procedure has taken place** ☐

I don`t expect a successful result ☐ **I am not affected** ☐

other reasons_____ ☐

P 4) Are you interested in giving your opinion to the planning process of coastal protection matters?

assessment: (<high) **+ +** ☐ **+** ☐ **-** ☐ **- -** ☐ **(low >)**

P 5) Are you interested in being actively involved in the planning process of coastal protection matters?

assessment:	**(<high)**	**+ +** ☐	**+** ☐	**-** ☐	**- -** ☐	**(low >)**

P 6) If you want to represent your opinion in coastal protection planning what would you like to do?

Please choose only one possibility:

work regularly as a volunteer	☐	**sacrifice a work-day for a volunteer work**	☐
go to an information evening	☐	**make a phone call**	☐

P 7) From your view, what are important reasons to engage yourself in coastal protection?

_____

_____

_____

P 8) Do you know a possibility to represent your opinion, if you do not agree with the decisions of the coastal protection authorities?

yes ☐ **no** ☐

P 9) What could you do, if you do not agree with the coastal protection plans?

_____

_____

_____

General data

D 1) How long have you lived in Skegness?

☐ **years**

D 2) *Please tick your age:*

below 30 years ☐

30 - 60 ☐

over 60 years ☐

D 3) *Please tick* :

female ☐ **male** ☐

Personal comments:

Thank you for your support!

Even if you did not fill in the entire questionnaire, please send it back. It is even then useful for us!

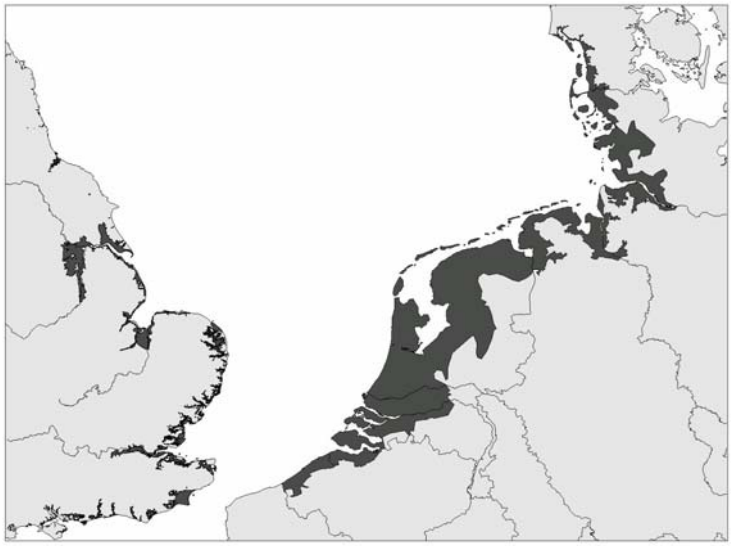
Did we awake your interest? Some more information on the project:

In the North Sea countries Denmark, Germany, The Netherlands, Belgium and Great Britain about 14 million people live in coastal lowlands (see map below). Without protective measures, these people and their assets would be at risk during every severe storm flood. Each country has had its own experiences and developed its own methods and strategies to cope with this hazard. In future, the threat of storm surges might increase without appropriate countermeasures due to climate change and sea level rise. To anticipate these global hazards, international co-ordination and efforts are needed. Further, the growing together of the European Union requires a closer co-operation of national coastal flood defence authorities.

In consequence, national and regional coastal flood defence authorities around the North Sea joined to conduct a transnational project "COMRISK – common strategies to reduce the risk of storm floods in coastal lowlands". The project is co-financed by the European Union through its INTERREG IIIB programme. In nine subprojects, the project partners exchange experiences to different topics of coastal flood defence. The main goal is to develop improved and harmonised methods to anticipate the future natural hazards described above. For more information about COMRISK you are warmly invited to visit our website: www.comrisk.org .

The third subproject, for which this questionnaire has been established, deals with perception of and participation in coastal flood defence. It has two general tasks. Firstly, to assess and evaluate instruments for improving the risk awareness of storm surges in the population. An improved risk awareness not only furthers the acceptance of appropriate defence measures, it also reduces the reaction time (and therewith the damages) in case of emergencies. Secondly, methods to secure an active involvement of the affected in the planning of defence measures will be (further) developed.

Coastal flood-prone areas in the North Sea Region



ANNEX C
Questionnaire expert survey

Survey on coastal defence planning

Dear Madam, dear Sir,

In the North Sea countries Belgium, Denmark, Germany, The Netherlands and The United Kingdom about 14 million people live in coastal lowlands. Without protective measures, these people and their assets would be at risk during every severe storm flood. To anticipate these global hazards, international co-ordination and efforts are needed. Further, the coalescence of the European Union requires a closer co-operation of national coastal flood defence authorities.

For these reasons in the framework of the INTERREG IIIB-program an international project, co-financed by the European Union, is conducted: „*COMRISK – Common Strategies to Reduce the Risk of Storm Floods in Coastal Lowlands*". In nine subprojects seven project-partners exchange their experiences, methods and strategies on coastal defence. Project-partners are the coastal defence authorities of the affected countries in the North Sea region. For more information please visit our website: www.comrisk.org.

This expert-interview is conducted within the framework of subproject 3: „*Public Perception of Coastal Flood Defence and Participation in Coastal Flood Defence Planning in the North Sea Region*" by the Department of Coastal Geography, University of Kiel (Project-director: Prof. Dr. Horst Sterr, Gunilla Kaiser, Daniel Witzki) by order of the Schleswig-Holstein State Ministry of the Interior. The project aims to develop methods to improve and evaluate the perception of the risk of storm floods. Furthermore methods will be enhanced, that afford a more active involvement of the affected people in the planning process of coastal defence measures. For the investigation the areas Oostende (Belgium), Ribe (Denmark), St. Peter-Ording (Germany), Gemeente Sluis (The Netherlands) and Skegness (United Kingdom) were chosen.

The **aim** of this expert-interview is the evaluation of **options concerning the participation** of the people in coastal defence planning (formal, informal procedures, co-operation, etc.) and the evaluation of **instruments to improve the perception of risk** within the affected population and stakeholders (use of media, events, etc.).

You were recommended as an expert to us, that is why we would like to ask you to contribute to the success of this project by filling in the questionnaire in English or German as far as possible. Please send it to sterr@geographie.uni-kiel.de via e-mail or as a printed document via mail to:

Prof. Dr. Horst Sterr
Geographisches Institut der CAU Kiel
Ludewig-Meyn-Str. 14
D- 24118 Kiel
Germany

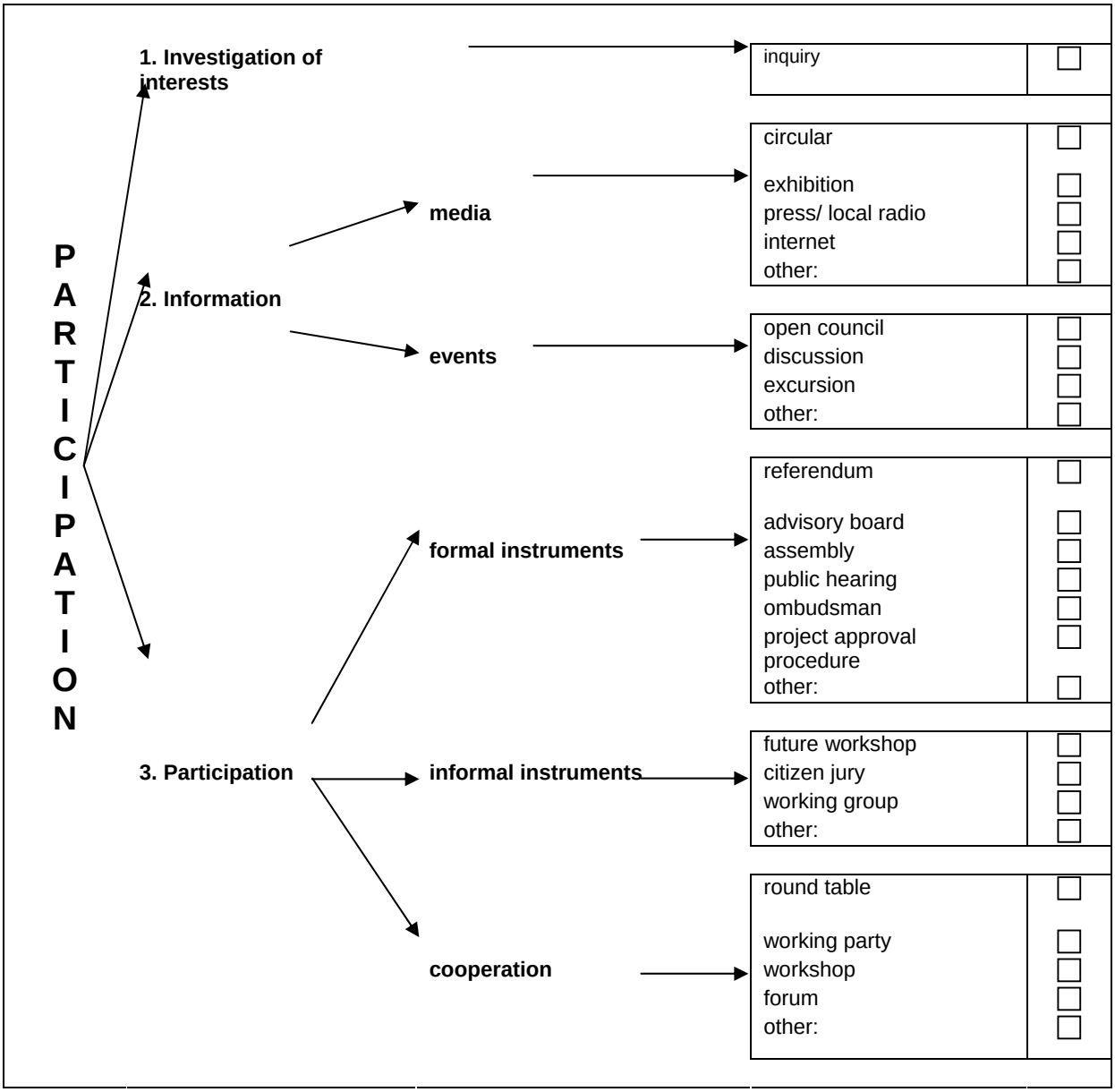
The answers will be treated confidentially and will be evaluated anonymously.

Questionnaire

How to fill in this form:
If you fill in with your PC, please click on the grey fields and tick or write.
If you fill in on paper, please tick the boxes or use the space for writing.
Because experts from many different fields of work were asked, not every expert can contribute something to all questions. Please skip the relevant questions.

Definition Participation
Political participation can be defined as the peoples behavioural intentions to influence political decisions. In coastal defence planning primarily formal and informal participation procedures are of importance, that involve the people in the planning.

1) What information tools respective formal and informal participation procedures are of superior importance for coastal defence?



2) Have you been involved in one of the named participation procedures (private, job-related)?

yes, job-related ☐ yes, private ☐ no ☐

3) What participation procedures concerning coastal defence planning have taken part in the UK, particularly in the COMRISK research area Skegness so far?

Please give us detailed information:

type of participation procedure (e.g.: round table)	1. example	2. example	3. example
location, time-period (e.g.: xxx)			
responsible authority (e.g.: municipality xxx)			
type of measure/ topic (e.g.: beach nourishment in xxx)			
participating actors/ association (e.g.: tourism association, local government, Greenpeace)			
comment on the success of a procedure (e.g.: low participation, protest after the procedure, workshop before the procedure would have been better)			

4) How useful are the procedures for the acceptance of coastal defence measures?

The most common participation procedures are presented in the table below. One aim of such procedures is to increase the acceptance of planned coastal defence measures.

Please evaluate the following participation procedures as a result of your experience:

Name of the participation procedure	**Does the procedure increase the acceptance of measures?** ***Please mark with a cross or make an annotation:***
Citizen Jury: Citizen Juries are groups of non-organised citizens that elaborate solutions for planning & development tasks that affect them. They are supported by experts and present the results to the mandating bureau in form of a "citizens' evaluation.	**(<high) + + ☐ + ☐ - ☐ - - ☐ (low >)** **Annotation:**
Round Table: A negotiating round consisting of all interest group appointees that are affected either by a planning, a conflict or a problem. Participants may also be appointees especially qualified for solving difficulties. The goal of the Round Table is to conduct a dialogue on a specific issue and find a consensual solution.	**(<high) + + ☐ + ☐ - ☐ - - ☐ (low >)** **Annotation:**
Future Workshop: A procedure intending the motivation of affected citizens to participate in planning processes (activating effect). A creative, sometimes unorthodox manner of working is a characteristic of this approach.	**(<high) + + ☐ + ☐ - ☐ - - ☐ (low >)** **Annotation:**
Strategic Environmental Assessment: An SEA serves the purpose of ensuring that during the preparation of policies, plans, and	**(<high) + + ☐ + ☐ - ☐ - - ☐ (low >)** **Annotation:**

programmes (PPPs), ecological, economic and social aspects are equally taken into account. The SEA team consists of representatives from the affected interest groups and representatives of the administrative authorities	
Internet-Participation: The umbrella term Internet Participation stands for various new procedures, which support citizens' participation via the new media. New media are especially suited to support actual participation procedures and facilitate information to a wider public. Internet participation can take different forms, such as the virtual citizen's office, the Internet Forum and Online Mediation.	**(<high) + + ☐ + ☐ - ☐ - - ☐ (low >)** **Annotation:**
Workshop: An informal, event-based procedure that aims at an intense and factually treatment of a planning-task. The spectrum of participants, which should be as large as possible, consists of politicians, administrators, experts, real estate proprietors and affected individuals.	**(<high) + + ☐ + ☐ - ☐ - - ☐ (low >)** **Annotation:**
Citizen Panel: A Citizen Panel is an open, informative event, wherein discussions touching upon intended planning and other public topics can be carried out. The goal consists in informing citizens about planned developments in a transparent, intelligible manner. At the same time, opinions stemming from an affected public can be gathered.	**(<high) + + ☐ + ☐ - ☐ - - ☐ (low >)** **Annotation:**
Project Approval Procedure: Administrative procedure to involve the public in large infrastructural projects. The aim is to involve all kinds of interests as well as the compensation of real property.	**(<high) + + ☐ + ☐ - ☐ - - ☐ (low >)** **Annotation:**

5) Does participation increase the acceptance of the planned measures within the affected population?

yes ☐ no ☐

Annotation:

6) What measures are necessary to increase the participation of the affected people in the coastal defence planning? Please suggest:

7) What are the reasons why affected people do not participate?

8) Do participation procedures cause problems for the involved administrations?

yes ☐ no ☐

If yes, what kind of problems?

Is there a solution?

9) Does a disaster or evacuation plan for the case of a coastal flooding in Skegness exist? Where and in which way is it available for the public?

yes ☐ no ☐

Where available: *(e.g.: townhall*…)

How available? (*e.g.: public invitation to tender,. annual newsletter…*)

10) Which of the following instruments to inform the population about the risk of coastal flooding are/ have been implemented in Skegness?

circular	☐	Annotations:
exhibition	☐	
press/ local radio	☐	
open council	☐	

discussion ☐

excursion ☐

phone-hotline ☐

internet ☐

topic at school ☐

others: ☐

11) Which of the following instruments are most qualified to sustainable inform people about the risk
of coastal flooding ?

circular ☐ Explanatory statements:

exhibition ☐

press/ local radio ☐

open council ☐

discussion ☐

excursion ☐

phone-hotline ☐

internet ☐

topic at school ☐

others: ☐

12) What is the effect of an improved information status of the population about storm floods (e.g. occurrence, safety standard of the coastal protection structures, disaster plan)?

affected people feel safer ☐ affected people feel less safe ☐

Annotation:

Further contacts

We would like to interview further experts about participation or coastal defence planning. For this reason it would be helpful, if you could give us information about further persons/ colleagues who are interested or might have experience with these topics:

Name / Institution	E-mail, (phone, adress)

Further Annotations:

Thank you very much for your contribution!

Even if you did not fill in the entire questionnaire, please send it back. It is even then useful for us!

Study definition

for an external expert report under the framework of the Interreg IIIB project COMRISK:

"Public perception of coastal flood defence and participation in coastal flood defence planning in the North Sea Region"

About COMRISK

COMRISK (common strategies to reduce the risk of storm floods in coastal lowlands) is a transnational project of national and regional coastal defence authorities in the North Sea Region. It aims at improved risk management for coastal flood prone areas through a transfer and evaluation of knowledge and methods as well as pilot studies. The project runs from 2002 to 2005 and is co-financed by the Community Initiative Programme Interreg III B North Sea Region of the European Union. COMRISK is divided into two main parts: an umbrella project and eight subprojects. An international project team, consisting of members from the participating institutions, co-ordinates the project. For further information about COMRISK please visit www.comrisk.org.

Background

In the North Sea Region, approx. 14 million people live in coastal lowlands that are in danger of being flooded during storm surges. In some countries and regions, e.g., the Netherlands or the western coast of Schleswig-Holstein, the awareness of coastal flood risks and, in consequence, the perception of coastal flood defence as a national obligation is well established. In other less affected countries this perception may be less developed. The reasons for these differences that strongly influence policies and strategies may be diverse.

To maintain present safety standards, despite increasing natural and socio-economic pressures, long-term investments are inevitable. People that are aware of the risks will accept this. Furthermore, an aware coastal population will react faster and better organised to an emergency. The public and political memory of catastrophes, however, normally does not last for long after the last event. In order to maintain an adequate level of public awareness, it is necessary to further develop and more intensively apply respective instruments, e.g., information tools, flood warning systems.

One way to achieve awareness is public participation or rather, active involvement of the people in the planning process. The EU-demonstration projects on integrated coastal zone management showed that active involvement of the affected leads to increased engagement and acceptance of shared responsibilities. In result, the long-term awareness of the risks of coastal flooding in the population may be improved.

Objectives of the external expert report

The study will focus on public perception of, and public participation in coastal flood defence in the countries participating in COMRISK, i.e., Denmark, Germany, The Netherlands, Belgium and England (study area). The expert report shall comprise the following actions:

1. **Analysis of the present state of public perception and participation in the partner regions**

   Objective of the analysis is to:

   1) give an overview of the perception of coastal flood risk and coastal flood defence in the study area,
   2) establish to what degree people feel involved in coastal flood defence planning and how people are satisfied with participation procedures.

   It shall become clear to what extent flood risk is present in the public mind and what level of flood risk would be accepted. The results must be comparable and enable to 'measure' the state of risk awareness and perception in the different regions of the study area. To conduct the analysis, travels to these regions will become necessary.

2. **Investigation and evaluation of methods to improve public perception of and participation in coastal flood defence**

   In a second step, a survey on information and participation methods and tools in coastal flood defence planning in the study area shall be conducted. The result of this survey will be a compilation and description of all applied respective instruments, e.g. Internet presentations, flood warning systems, public involvement procedures etc. in planning processes. Based upon the analysis of the state of flood risk perception these instruments shall be evaluated. It shall become clear how effective these tools are, i.e. how they can improve public risk awareness and perception of coastal flood defence.

3. **Recommendations for methods to improve public perception of the risks of coastal flooding as well as public participation in coastal flood defence**

   The evaluation of existing information and participation methods will form the basis for the development of recommendations to improve these instruments. It shall be pointed out which instrument is suitable for what kind of purpose, taking into account national conditions. Best practice shall be shown in order to improve information strategies and public participation. Not only suggestions shall be made how to improve instruments already applied but also other existing information and participation tools shall be investigated and checked for their suitability to improve perception of coastal flood defence. The respective methods and instruments shall be investigated considering also the following questions: will higher awareness automatically result in higher acceptance? How much participation is effective?

The activities described above shall be carried out in close co-operation with the COMRISK project team. The project team members will support the contractors by supplying relevant information and making contacts to respective persons and authorities. Participation of the consultants in one or two relevant project team meetings and/or workshops is expected. Close contact to the following other COMRISK subprojects is necessary: SP 1 strategies and policies, SP 2 strategic planning, SP4 performance indicators (see www.comrisk.org).

Furthermore, the following activities have to be carried out:

- preparation of a subproject workshop (together with the lead partner) to discuss specific aspects with the COMRISK project team, invited external experts and local and regional stakeholders. The workshop will be held on 11/12 June 2003 in Schleswig-Holstein Germany, organized by the lead partner, and will give the opportunity to give input to the study. Therefore the contractors are expected to take part in the preparation of the workshop program (find external speakers and participants, draft a questionnaire, etc.) and in the evaluation of the workshop
- establishment of a final study report, including summary and illustrations
- deliver a contribution to the first COMRISK brochure
- deliver a paper for the international COMRISK conference in April 2005
- preparation of a list of potential participants for the COMRISK conference
- presentation of the results of the subproject during the COMRISK conference

The contract for the expert report will run from March/April 2003 until September 2004. Because of the international character of the project working and reporting language will be English. A first draft of the final report has to be ready by end of August 2004. The final expert report has to be ready by end of September 2004.

Phasing and timing of activities

The following table gives the phasing of the subproject, with the dates and locations which are already fixed. Where no (precise) indication is mentioned a date will be fixed by mutual agreement.

Phase	**Activities**	**Time and Location**
1 Preparations	• Literature review • Definition of activities and methods • Contributions to the preparation of subproject workshop	March/April – June 03
2 Workshop (start-up event)	• Performance of a workshop to get a first overview on risk perception in general and in particular for S-H by questionnaire-based discussions	11/12 June 03, Schleswig-Holstein
3 Workshop evaluation, preparation of survey	• Evaluation of workshop results • Establish a workshop report	

4 Survey	• Interviews in the partner regions • Inventory of perception and of participation methods	
5 Conclusions and reporting	• Evaluation of survey results, give recommendations • Establish a final report • Deliver a contribution to the first COMRISK brochure • Deliver a paper for the COMRISK conference • Preparation of a list of potential participants for the COMRISK conference	First draft of final report ready by 31 August 04 Final report ready by 30 September 04
6 Conference	• Presentation of the results of the subproject during the international COMRISK conference	April 2005

Proposals

The proposals should at least contain:

- a clear description of the methods used to conduct the actions / achieve the goals
- a time schedule and pricing for necessary travelling and other actions

Proposals will be evaluated according to the following criteria:

- Price
- Price/quality ratio
- Demonstrable experience in international (North Sea region) projects
- Demonstrable experience in empirical socio-economical studies
- Demonstrable experience in and knowledge of coastal flood defence issues in the North Sea Region
- Timing and planning

The estimated price (in Euro) should be specified according to the phases and activities mentioned in this study definition. **The total fee may not exceed 125,000 €.**
If it will not be possible to make a tender decision based upon the proposals, selected potential contractors will be asked to present their proposal orally.
Deadline for the submission of proposals is 14 March 2003. Proposals shall be directed to the following address:

Matthias Hamann
Ministerium für ländliche Räume, Landesplanung, Landwirtschaft und Tourismus
des Landes Schleswig-Holstein
Referat Küstenschutz
Postfach 7129
D-24171 Kiel