



Ministry of Environment
and Food of Denmark
Coastal Authority

The recovery period after storm Bodil's destruction in Jyllinge Nordmark in 2013/2014

Background report



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1. Introduction

This report presents the results of the research project "The rebuilding period after Storm Bodil's damage in Jyllinge Nordmark in 2013/2014".

After Storm Bodil hit in December 2013, the residential area of Jyllinge Nordmark on Roskilde Fjord was affected by severe flooding. A total of 268 houses were flooded, many of these so badly that residents had to be rehoused. The rebuilding process for the residential area has been a long one. For many, it took over a year until they were able to return to their homes. Six years later, few houses have been returned to the same condition as they were before the flooding. From both a Danish and a European perspective, this flooding is thus an unusual and an extreme example of how far reaching the consequences of a flood can be when it hits a densely built-up residential area. Climate developments in recent years have also shown that these type of incidents could well become something we start experiencing much more often. The purpose of this study is thus to learn from the rebuilding process in Jyllinge Nordmark, not only in terms of what went well but also from those things that prolonged the process. The hope is that these experiences can improve efforts with similar incidents in the future.

The research project is part of the EU project "Flood Resilient Areas by Multi-layered Safety" (FRAMES), which is supported with funds from the EU InterReg North Sea Region Programme.

The project aims at answering the following questions:

- (1) How was the rebuilding experienced?
- (2) Which conditions were relevant to the rebuilding?
- (3) Which learning points have led to new practice?
- (4) Which problems have yet to be solved?

The results of the research project build upon a questionnaire sent out to residents in Jyllinge Nordmark who were affected by flooding after Storm Bodil in 2013, along with a number of qualitative interviews. Two group interviews were carried out with residents as well as 10 interviews with professional stakeholders, which had been involved in the rebuilding process in Jyllinge Nordmark. The aim was to gain an insight into the rebuilding process, both from a professional perspective and from the viewpoint of residents. All data was collected over the course of 2019, i.e. approximately five years after the rebuilding took place. This means that there has subsequently been a reaction to many of the challenges that residents and professionals experienced during the rebuilding process, and that better and more effective solutions and approaches exist today. The study shows however that there is still a great deal of potential for improvements, if rebuilding after future flooding of residential areas is to be handled in the best way possible. Many of the challenges that remain unresolved can be attributed to their connection to tasks that are not clearly defined or placed under the jurisdiction of a specific authority or organisation. As a reaction to the study's results, a short recommendation has also been developed, directed primarily at authorities. These recommendations focus on tasks and initiatives that currently exist in a grey zone between the various authorities responsible, and which are therefore often overlooked or forgotten, but which are extremely relevant to the overall rebuilding process.

1.1 Structure of the report

The report is structured around the four interview questions. After this introduction, residents' and professionals' experiences of the rebuilding process are described in the second section. This includes the results of both the questionnaire and group interviews with residents, as well as interviews with authorities and organisations that played a part during the rebuilding of Jyllinge Nordmark. In the third section, the five most important reasons why the rebuilding became such a drawn-out process is described in

more detail. On the other hand, mention is also made of how community cooperation had a positive effect on the rebuilding process. 2013's post-Bodil flooding took both residents and authorities completely by surprise. No one had ever seen anything like it before. Everyone learned a lot about what worked well and what worked less well during their handling of the far reaching incident. Much of this learning has already led to changes in practice, structures and relevant legislation. Those changes that are the result of learning experiences during and after Storm Bodil are described in section four. Section five presents a selection of the most important elements, which the study showed to be problematic, and for which a clear solution has yet to be found. Section five thus also forms the basis for the recommendations described. Section six offers a conclusion of the complete study, while section seven presents the study's methods in greater detail.

The report includes a selection of quotes taken from the study's interviews as well as charts and graphs, which show the responses from the questionnaire. Reference is made to specific charts and graphs in the report with (figure X). Note how many in total have responded to the individual question. This is shown as (N= number of responses). The graphs that are not included in the report itself can be found in the report's appendix. The appendix is in Danish and a separate document. When referring to questionnaire responses that are not included in the report, reference is made to the number on the question in the sent out questionnaire (Q. X). The appendix also includes the sent out questionnaire with question numbers, answers to the open questions in the questionnaire and question guides for the interview study.

Happy reading.



2. How was the rebuilding experienced?

The first section provides an overview of how the rebuilding process in 2013 and afterwards was experienced by both residents and professionals. First, an insight is given into the residents' experiences. Two stories are selected to offer an overall picture of the process, which the affected residents went through. After this, it looks in more detail at the roles played by the various professional stakeholders. The central players described here are the municipality, the insurance companies, the Danish Storm Council, Red Cross, the emergency services and the electricity grid company. The descriptions include the perspectives of both residents and professionals, as taken from questionnaires and interviews.

2.1 The Residents

For most people, the flooding of one's home is an extremely dramatic experience, and one that leaves both physical and psychological scars. Both the house and its contents are destroyed. There is the realisation that one's home, the safe base for everyday life, is gone – at least for a time.

Both the physical and psychological aspects can be clearly seen in the responses to the questionnaire and the interviews. With the aim of creating a starting point for understanding the results in the rest of the report, this section is introduced with two personal stories. These narratives then set the framework for what is highlighted in the following sections.

Story 1

- The rebuilding took approx. one year
- There was 60 cm of water inside the house

So I had a little over 60 cm inside my house and almost 1 m outside at the front. As I said, I hadn't moved anything, so it was all just ruined. My daughter's bedroom and all her toys, which were kept in these nice boxes. Things were just swimming around in it all across the entire house. It was pretty crazy... And so yes, I reported the damage to the Danish Storm Council and contacted my insurance company, and it was weird, because they came out pretty quickly. They sent a recovery firm out to me. There was this officious woman, who came out and it was like, there would be no expense spared. "Then we'll come out tomorrow and pack it all up and get it sent out to storage," and I thought, "Great! They've got it all under control!". And then she called the day after and said, "hmmm... well now because it's storm surge, then they couldn't, and they weren't allowed to," and bla, bla bla... And then it was, kind of... Now we'd set our sights on getting a load of help, so... But I mean in general, what shocked me was how unprepared the insurance people and the Danish Storm Council were for the whole situation. There was no one who knew who should do what and we were just tossed back and forth. It was as if there was no action plan drawn up for how they should tackle this. And that felt extremely uncomfortable. Normally what you do is make sure the damage doesn't get worse, so you make sure to rip things out and keep on like that, but then we learned that we mustn't do that before a loss adjuster had come and looked at it, so I just went round for a couple of days thinking, well I had better wait then. But the thing with the loss adjuster, it just keep on

drawing out. So I just started ripping up the floor and throwing out the kitchen and well... I cleared out the house fairly quickly... It looked like a war zone here... Out the front of each house there was a pile of flooring, a pile of house contents, a pile of plaster and a pile of I don't know what. It was crazy. For me personally, once the insurance company had joined in the fight, then I think actually that they were very reasonable. And a loss adjuster came out relatively quickly as well. I think that within 14 days or something I had two loss adjusters out to see us - one for the building and one for the contents. And there were no problems, they could see that my floor was lying out the front. But in general, then I just think the whole thing was utterly chaotic. It was almost... It's still not quite clear up in my head, those days afterwards... Because I think it was... It was a shock, almost like walking around with shell shock.

(Resident)

Story 2

- The rebuilding took approx. four months.
- There was 2 cm of water inside the house

I got out of bed at midnight and put my foot out of the bed, luckily it was dry but then one more step and, no it wasn't dry. In total about two centimetres of water came in. But that was enough. We have a house that was built in 2004, so we had solid foundations and a good brick house and so on. So it was reasonably foreseeable to say, okay, this wooden floor is never going to be a proper wooden floor again. So we took out a circular saw and pulled it all out the following day. We contacted the insurance company and we actually experienced that they were very forthcoming and would send a recovery service as quickly as possible, and I can't remember whether we contacted them over the weekend or whether it was Monday morning. It must not have been until Monday morning. We might actually have called a hotline on the Sunday. But the recovery¹ company arrived quickly and by keeping up the pressure and saying, now you have to be here, and now we have to do this and that and this, then we managed to stay living there. When the power returned we turned up the under-floor heating, which dealt with the worst of it. We quickly brought in some dehumidifiers, like three or four of them, which meant we spent Christmas in Hawaii style almost, because it was so hot inside. It was a pity about our dog, who was at home during the day, because they made a lot of noise. We turned the dehumidifiers off during the night. Naturally, the brickwork had taken in some moisture, as had the insulation inside. Recovery again, they said that the insulation was damp, so we put outdoor dehumidifiers out there. Took some stones out and suction pumps, inside and out. We were quickly finished. Over February-March. We carried on living there the whole time and experienced only cooperation from our insurance company. They had to push the Storm Council once in a while, but we weren't afraid to take decisions ourselves, but then again we weren't quite as shell shocked as those who had a metre [of water] come in.

(Resident)

These two stories represent the difference between those who were affected. Some homes experienced large amounts of water, while others only had a few centimetres. Some (very few) could stay in their homes, while many had to be rehoused - some of them for up to a year. For some, it was a confusing

¹ Recovery = rebuilding

and frustrating process, where they received conflicting messages and communication. For others, the process was less complicated. To show how widespread the different types of experiences were, the responses from the questionnaire have been included.

The questionnaire was sent out to 500 homes in Jyllinge Nordmark, all of which were located in those areas that were flooded after Storm Bodil in 2013. Responses were received from 155 people². Of these, 64 had experienced their houses being flooded (figure 1)

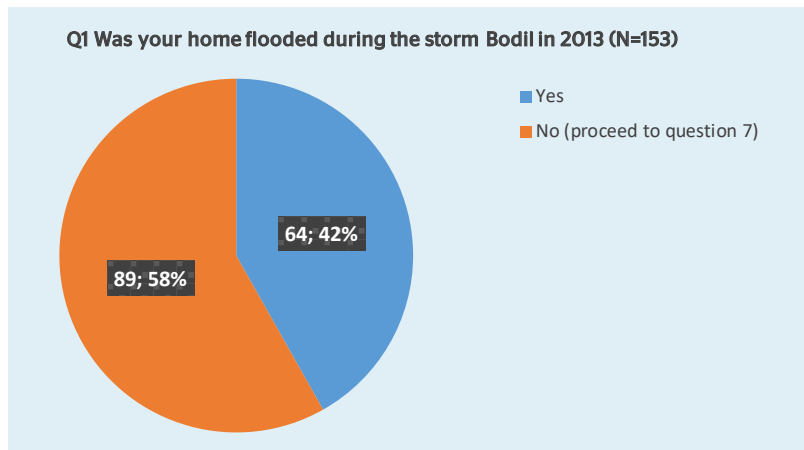


Figure 1: Q. 1 Was your home flooded in connection with Storm Bodil in 2013?

Figure 1 shows that 153 have answered this question (N=153). Out of these, 64 people (42%) answered that their home was flooded. 89 people (58%) answered that it was not. The other charts in the report are built up in the same way. The figures in the charts show the number of people who have responded to this question and/or how large a proportion of those who responded to the question (N) have given this answer (%), here for example this is 64 out of 153 people.

Of the 64 respondents, who experienced their home was flooded, the majority - 81% - were rehoused (Q. 2).

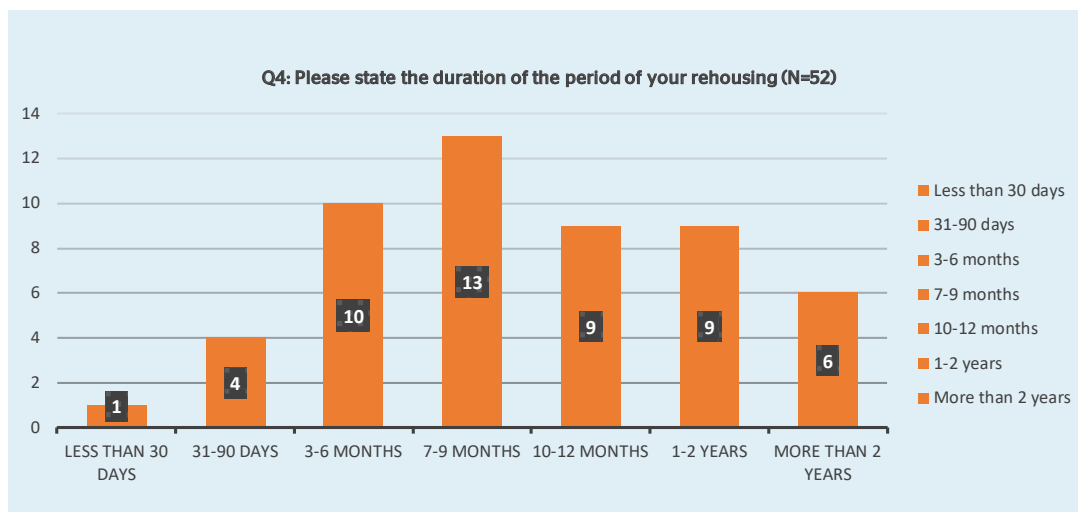


Figure 2: Q. 4 For how long were you rehoused?

The duration of the rehousing was very different among the 52 respondents who said that they were rehoused. The majority of the residents were rehoused for 7-9 months, but there was also one single instance where the rehousing lasted under a month, while 15 spent more than one year in a rehousing situation (Figure 2). This shows that Story 2, where the family did not need to leave their house, represents a minority. For the vast majority, the flooding meant that they had to be rehoused and in most cases the rehousing period lasted for over 6 months.

² It is not known whether one person in the household has answered the questionnaire, or whether several people answered it together.

Among those who responded to the questionnaire, the level of satisfaction with the handling of the rehousing was primarily negative (Figure 3). The table below shows the individual responses. The placing of the median in the response category 'poor' illustrates this clearly.

Not surprisingly, there was a significant difference between those whose homes were flooded and those whose homes were not. The people whose homes were flooded were more likely to answer the question about their experience of the handling of the rebuilding process as 'bad' or 'very bad'.

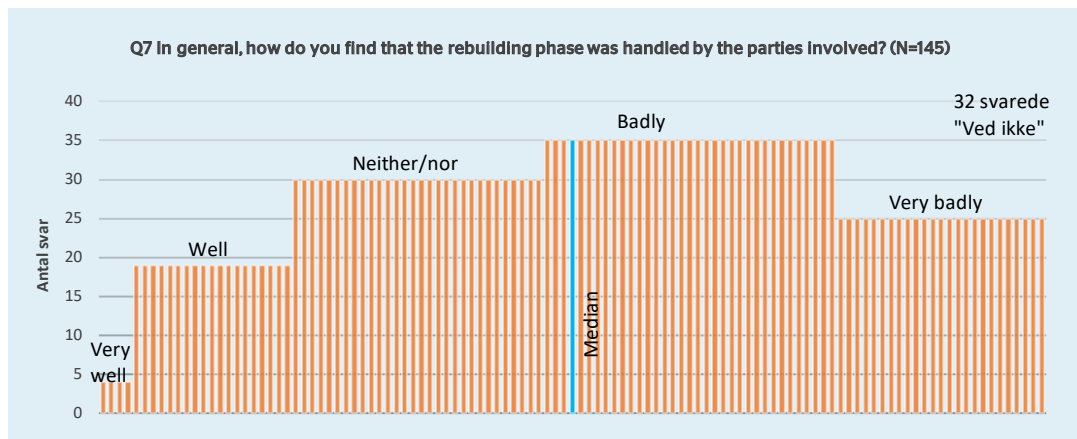


Figure 3: Q. 7 In general, how do you feel the rebuilding phase was handled by the parties involved?

The answers to Q. 7 could be commented upon in Q. 8, which 108 respondents have done. The general picture generated from these comments is that there is a big difference between how the homeowners were treated by their insurance company, and what they were subsequently awarded in compensation. The responses give the direct impression that the insurance companies did not provide their policyholders with a uniform and transparent process – far from it. A great many respondents mention disagreements with the loss adjuster as the cause of dissatisfaction with the rebuilding, and many also write that they were responsible themselves for driving much of the process, and therefore that it was the most resourceful and persistent homeowners who ended up getting the most back. This is supported by Story 2 above, where the residents' perception was that the reason why they felt they received a good and fair treatment was perhaps because the family had the resources to push the insurance company more. Many mentioned in their responses that the process was far too slow and drawn-out, and that there were too many agencies involved, which resulted in poor or lacking communication between the parties. Some of them were also dissatisfied with the municipality and did not feel that they were visible enough. There were also a few individuals who expressed their satisfaction with the process. It should be added that many respondents noted that this question was worded too broadly, as they were in contact with many agencies, that they could not provide a brief explanation, and that there were both positive and negative sides to the rebuilding process. Furthermore, many of those who responded had not experienced flooding of their own homes, and therefore had little experience with the rebuilding phase. In a few cases they had therefore recounted what they had heard, rather than what they had experienced themselves.

Overall, the responses to the questionnaire, both open and closed, together with the two group interviews with residents, give a picture wherein the great majority whose homes were flooded experienced the subsequent rebuilding process as being difficult and frustrating. They experienced a lack of clarity in the delegation of responsibility and in communication generally, uncertainty about their insurance coverage and were unsure as to what was expected of them. On this basis, Story 1 must be considered to be the most representative.

In the next section: "What circumstances contributed to the rebuilding process", those dimensions of the rebuilding process, which the residents experienced negatively, are looked at in more detail.

2.2 The Municipality

After the flooding of Jyllinge Nordmark, Roskilde Municipality was placed in a difficult situation. Legally, the municipality has no responsibility to assist with the rebuilding process after a storm surge. At the same time however, the local politicians in Roskilde took on some of the responsibility and wanted to help those people who had been affected. The residents also expressed an expectation that the municipality should take responsibility.

Municipal employees described this as a difficult dilemma. They describe that while they could assist with smaller tasks, such as answering questions as to the reasons for the flooding, arranging information meetings and assisting with the clean-up of the area, what really meant something to the residents, that is the insurance process and the financial challenges, were things that they could not help with.

But the urgent problem people had was that there some of them who had been hunted out of house and home, where the water had stood a metre high in their house and it was an insurance problem... and how on earth do you communicate with an insurance company and how... the municipality has no role in this do they, and what it was that was perhaps a little hard for our politicians to say, that we have no role in this other than we can stand at the homeowner's side and say to the insurance companies and the Storm Council and the legislator that this simply cannot be right, a case handling time of such length, when it is dealing with conjecture, and it can't be right that you take some extremely conservative assessments and so on and so on. These were things that we knew nothing about whatsoever and which we had no professional expertise in, you know. It was pure and simple insurance science.

(The municipality)

At the same time, many of the affected residents expressed their sentiments that the municipality could have done more. In the group interviews, some individuals mentioned that they had expected the municipality to have supported them more, particularly in the form of offering advice.

There's no handbook as an example of how you should... There was no one who could say, "You need to do this", you know? There was no one who took responsibility in any way, people from the municipality tried, but the municipality was completely unprepared.

(Resident)

Of those who responded to the questionnaire, relatively few had contact with the municipality during the rebuilding phase: Just 30 respondents (Q. 22). Out of those, there were nine who received help from the municipality to some or to a great extent, while the majority noted that they received a lesser degree of assistance or none at all (Figure4).

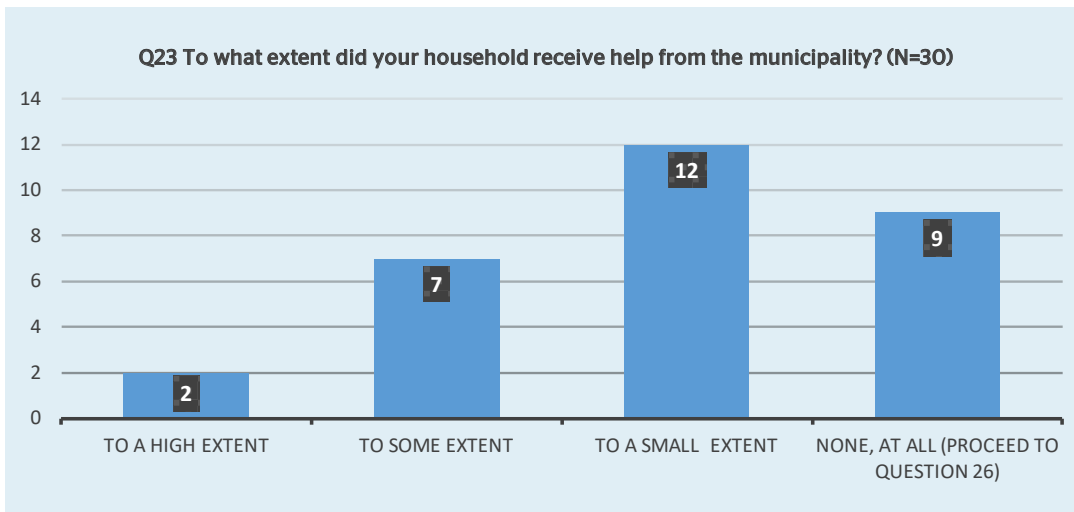


Figure 4: Q. 23 To what extent did your household receive help from the municipality?

The majority of those who received help from the municipality responded that the assistance was of very different kinds (Figure 5, Q. 24). Some mentioned help with the handling of building cases/permits, while others mentioned that the municipality held residents' meetings with the mayor (open answer to Q. 24). To the question "What type of help do you think was missing from the municipality in connection with the rebuilding phase?" (Q. 25) many pointed out that there were omissions in the municipality's handling of the process, including that they wanted a better level of information, for them to have been more proactive in terms of future incidents and wished that the municipality had taken more responsibility.

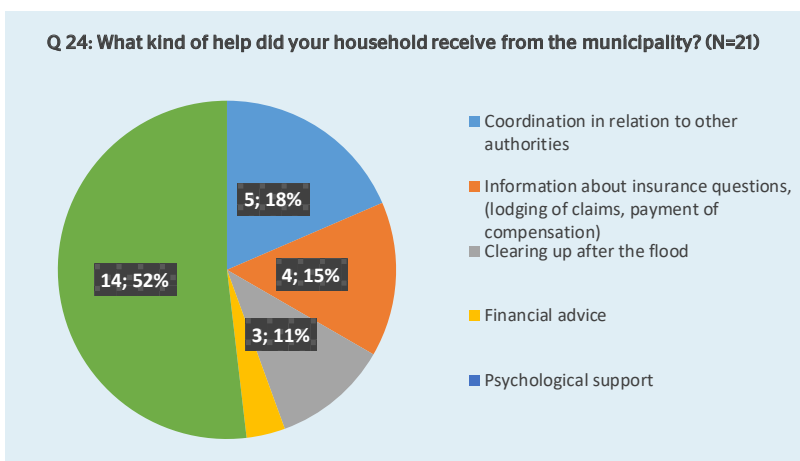


Figure 5: Q. 24 What kind of help did your household receive help from the municipality?

In January, the municipality held a resident's meeting in the local sports hall Jyllingehallen, where they invited representatives from the insurance companies, the Danish Storm Council, the local emergency services and their own staff to come and talk about the situation during the storm surge, as well as about the coming rebuilding process. Several similar residents' meetings were held in other places in the municipality where there had also been flooding. The municipal employees who attended these meetings experienced however that there was very little interest from residents in hearing about the reasons for the flooding. What the residents were interested in was hearing about their options for insurance and coverage. In both interviews with the insurance companies and the Danish Storm Council, these residents' meetings were described mostly as uncomfortable experiences, where the employees felt themselves personally under attack from the residents who attended.

In the period immediately after the flooding, the municipality implemented a number of initiatives connected to cleaning up the damage. They set up a temporary staffed recycling station in the form of a number of skips close to the affected area in Jyllinge Nordmark. They also offered homeowners the

opportunity to club together on the cost of ordering an additional skip for bulky waste, which was collected on 20 December. The group interviews indicate however that these offers were not taken up by everyone. It is mentioned on several occasions that those residents not affected by floods in the area arranged a big effort to help with the clean-up on 22 December, where they offered to help those affected transport their waste to the tip, for example. The municipality's efforts were not mentioned, however. In the group interviews, two of the participants said that they would have liked the municipality to have helped them with their waste as well.

M: But you were also left with a load of things besides those collected on the 22nd and which the municipality quite simply could have taken,

L: JYes, set up some skips, which we could just have tossed it all into.

M: Yes, something or other (could have been) made available.

(Residents)

This is a direct request for one of the initiatives, which the municipality explains that it did actually set in motion. The reason for this could possibly be the chaotic situation generally and the lack of any clear overview, which many of the affected residents described experiencing during the period after the flooding. This could mean that what were otherwise positive initiatives were not noticed and therefore not used.

In the graph (figure 5) showing what assistance the residents received from the municipality, no one responded that they received any psychological support. This is an area where there was an expectation that the municipality would take a greater level of responsibility than it did.

We were in a situation where it was very hard to get in contact with the municipality. In my opinion, the municipality was unprepared. So when you have to find out from the municipality; who do you get in touch with if you are suffering psychologically? Then you were given a telephone number for someone or other. There was no access to this, so the fact that the municipality could not address the matter and provide any solid information to residents only added to the confusion.

(Red Cross)

This exception from the Red Cross was backed up by numerous residents. Their experience was that the municipality had no crisis support scheme available and could do no more than refer them to the general mental health system. Later in the process, the municipality held a residents' meeting, where one of their own psychologists came out and talked about the normal psychological reactions to crises, such as the one the residents had been through. An anonymous advice line was set up in connection with this, which the residents could call.

In summary it can be said that in practice, the municipality played a smaller role than the residents and the local politicians expected of it, but that the efforts were in line with Danish law in this area. This meant that in many ways the municipal employees were placed in a conflict between what residents and local politicians wanted from them and what it was legally possible for them to do. In reality, their contribution consisted of smaller, practical tasks, such as help with the collection and disposal of waste and facilitation of information meetings.

2.3 The Insurance Companies

The insurance companies played a very central role in the rebuilding, as they were responsible for the first line of advice to residents with a flooded house. Their next task consisted of appraising the damages and calculating the individual compensation amounts.

In general the residents who responded to the questionnaire felt that the cooperation with their insurance company was lacking (figure 6).

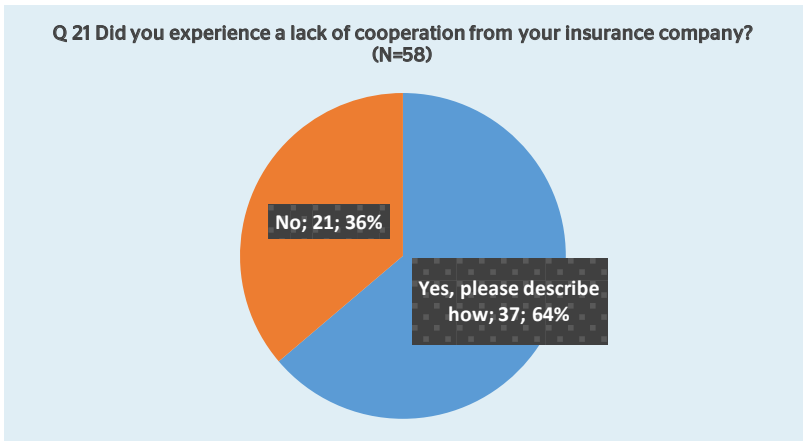


Figure 6: Q. 21 Did you experience a lack of cooperation from your insurance company?

To this question (figure 6) the residents had the opportunity to comment further on their answer, which 35 out of the 58 respondents made use of. Some of the things, which they mentioned were lacking, were a hotline for reporting storm damage, more competent advice, openness – especially from loss adjusters – a more proactive role and a greater capacity, so that waiting times could be minimised. Finally, more consideration and understanding for the difficult situation, which many of them found themselves in, was seen to be lacking.

The majority of those who had their homes flooded did however, to some degree or another, receive help from their insurance company (figure 7).

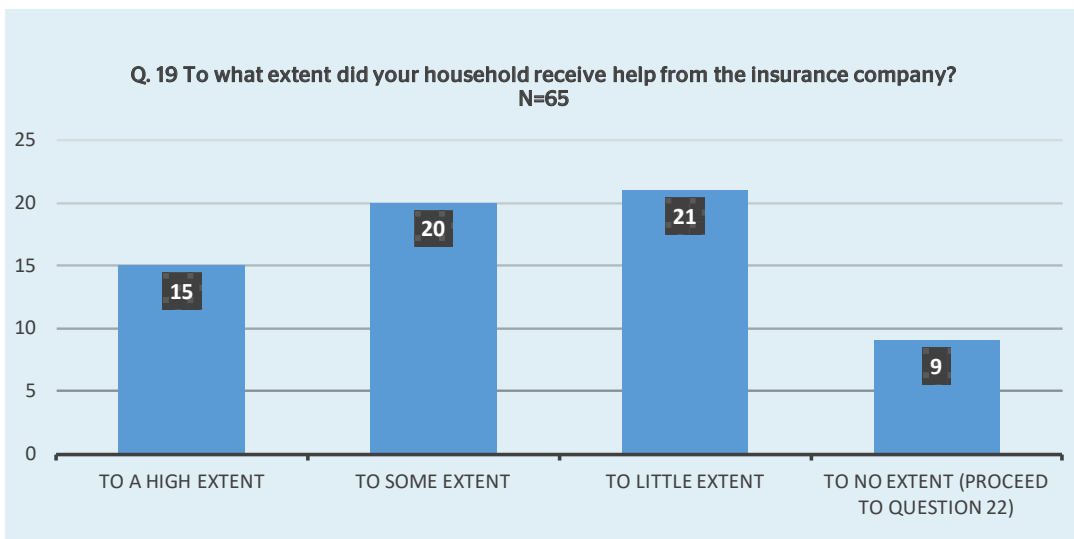


Figure 7: Q. 19 To what extent did your household receive help from the insurance company?

To the question of what they received help with (Q. 21), 71% answered that they received information about insurance processes (reporting a claim, requirements and payouts), while 17% received assistance with the clean-up after the flooding (see Q. 20). By comparing these answers with the question of whether they experienced a lack of cooperation from their insurance company, we can see that there is one group in particular, which only received information or other assistance from the insurance company, who felt that this help was lacking. The group of respondents who received help with clean-up and financial advice is more positively balanced (figure 8).

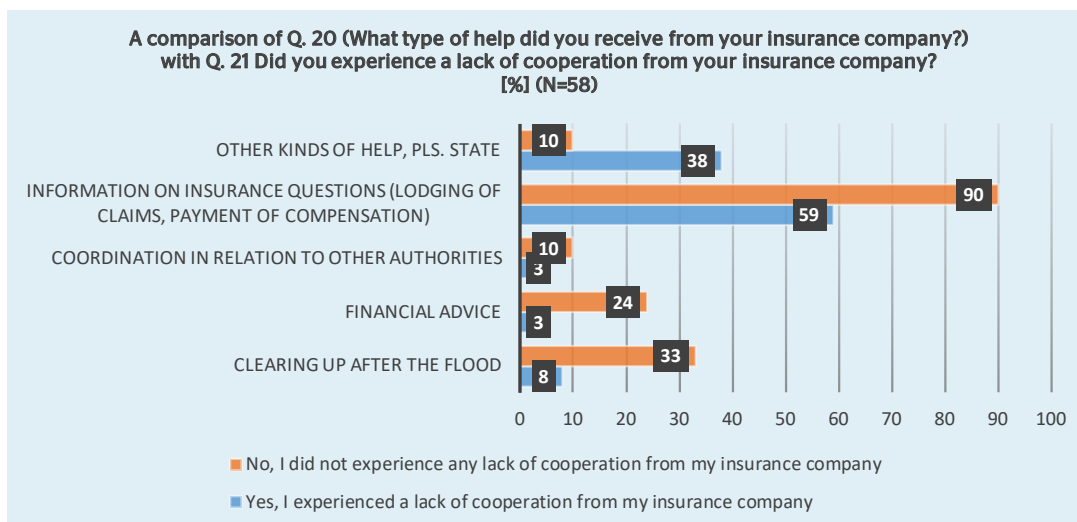


Figure 8: A comparison of Q. 20 (What type of help did you receive from your insurance company?) with Q. 21 Did you experience a lack of cooperation from your insurance company? The figures are in percentages – it was possible to provide multiple answers (N=58).

This is supported by the interviews with residents, which show that there was a relatively large difference in how much help the residents received from their insurance company. Some people only received help in relation to the specific appraisal, while others also received assistance of a more practical nature, including with clean-up. For good reason, the amount of help influenced the residents' satisfaction with their insurance company's handling of the incident.

The insurance companies stood in an unfamiliar situation. Coastal flooding is not covered by ordinary insurance policies, but by a state-managed disaster scheme that is managed by the Danish Storm Council. This means that it is storm surge legislation that decides what people get in compensation, and not the insurance companies' own rules. When storm surge damage needs to be managed, it is therefore the insurance companies' employees that go out to the affected customers and make appraisals, but they do this on the basis of legislation.

When flooding occurs, the first question is thus whether it can be defined as a storm surge. If not there is no compensation, neither from one's insurance company nor from the storm surge compensation scheme.

The storm surge hit Jyllinge Nordmark on Friday 6 December. The Danish Storm Council did not declare this as a storm surge until Tuesday 10 December. In the intervening period, the insurance companies could not answer the questions from affected residents as to whether they would receive any compensation whatsoever, as there was nothing they could or were obliged to do from a purely legal perspective before it was declared as a storm surge.

So the first thing we did was to call it in and find out how we should handle this, as there was a sizeable group of customers where we basically could not tell them whether they were covered or not, because we had to wait for the green light from the Danish Storm Council. Over the course of the Saturday however we made the decision that we simply had to do something. One of the things we did, naturally, was to say that we would open a case and then we could guarantee that we would cover any costs there might be in terms of recovery assistance. Simply so that the customers, in the first instance, could get some help in getting the water out of their homes.

(Insurance company)

Once it was declared a storm surge and the insurance companies could begin appraising the damage, another challenge appeared: According to the Danish Act on Storm Surges and Windfall ('Stormflodsloven'), the coverage is less than that of ordinary fire insurance, for example. That is, the residents expected that they would have more of their losses covered than was actually the case.

I mean all this with wearing two hats and having to explain that I'm coming here in the capacity of insurance company, but that you can't look at your insurance terms. You need to look into the legislation as well and it is different because this is a disaster scheme. (...) and then you can come with just as many arguments and say, well yes before 1991 there was no scheme, then you'd have had to pay for it all yourself. I mean when you're standing there thinking, I need help, then you're not all that interested in the whole history behind things.

(Insurance company)

The fact that the insurance companies had the job of communicating and administering rules that they had no influence over themselves was difficult. In addition, the Danish Act on Storm Surges and Windfall ('Stormflodsloven') had just been amended and the new rules had entered into force in 2012. The vast majority of loss adjusters and case handlers from the insurance companies therefore had no previous experience in implementing the new law.

The new storm surges legislation had just been passed, it had been amended from previously, so it was also the first time for us to say how it should be interpreted.

(Insurance company)

Because so many claims were reported at the same time, the insurance companies did not have the capacity to process them all fast enough. Most of them therefore had to bring in external consultants to help with the appraisals and the case work. Some of them were previous employees who were now in retirement, but many of them were brought in from outside the company, e.g. from Rambøll or other big consultancy companies. These external consultants knew even less about the new legislation and how to deal with it. This led to errors in the appraisals and subsequent complaints and disagreements with the residents affected.

It is clear from the two stories from residents that introduced this chapter that they were in doubt as to what they could and were allowed to do themselves. Many of them learned that they must not start emptying their homes of wooden flooring, for example, before someone from the insurance company had been out to appraise the damage. Many residents saw this as an unreasonable restriction. Several insurance companies expressed however that it was necessary in order to avoid anyone taking advantage of the system.

We've had cases where people go, excuse the expression, completely bananas pulling their house apart. I don't know how to express this diplomatically, but we have sat there with a feeling that what they did was done with no consideration or respect for the fact it could actually have been fixed with dehumidifiers. But because they had a good idea that this old crappy flooring, kitchen cabinets etc. could just be ripped out, and then they could have some brand new ones put in without significant depreciation. And have the lot removed before the insurance company could come round and inspect it.

(Insurance company)

In summary it can be said therefore that from the residents' point of view, there was great dissatisfaction with how many of the insurance companies handled the situation. From the insurance companies' viewpoint however, it was a challenging matter. They had to deal with a new law that they were unfamiliar with and had no influence in implementing. They were held accountable by the residents, despite only trying

to implement the law. The scale of the incident was such that they had to bring in external help, which several examples have shown led to errors in the case handling. In conclusion, they noted examples of some residents attempting to get coverage for their damages in ways the insurance companies found unreasonable.

2.4 The Danish Storm Council

The official role of the Danish Storm Council is to oversee the insurance companies' handling of storm surge cases, process any complaints and represent ministerial management in cases concerning storm surges. However, the insurance companies' lack of knowledge in their handling of the relatively new law meant that the council took on a far more active role during Storm Bodil. In the first instance, the insurance companies and residents began calling to get help in understanding and interpreting the new legislation. Shortly after, residents and local politicians started contacting the council because they felt the new legislation was unreasonable in relation to the lower level of coverage. This led to community pressure on the politicians responsible in the Danish Parliament, which also meant more work for the Storm Council, as the frequency of enquiries increased dramatically in line with demands from the ministry.

From the Monday after the storm surge, and for three months after. Every working hour, virtually everything we could manage, including overtime and working nights, and so on. I mean, during our normal office hours we talked on the phone non-stop. And people were thrown out of the system, because there simply wasn't the capacity. So we were forced to bring in more resources, who also took over handling the endless phone calls. And then people in Jyllinge, they were really good at speaking up, you could say, at getting the politicians to take up their cause and drawing attention to what the problem was. So they started writing to the ministry: 'is this correct' and (...). So it was the ministry, so we had to answer these questions and... I've lost count of how many enquiries were sent to the minister which naturally were simply forwarded on to us, which we also had to deal with at the same time as all these telephone calls. So there was work around the clock, in any case for three months after that storm surge.

(Danish Storm Council)

Due to pressure on the politicians, a change was made to the law in 2014 which meant that the affected residents could receive more compensation. Part of what had provoked such great dissatisfaction was that before the change in law it was not possible to have the costs of rehousing or the removal of mould covered; nor was it possible to have your house declared a total loss and thereby have the costs of getting a new house covered. In addition, the high deductible was considered unreasonable. The deductible was calculated as a percentage of the compensation, and because the damage was so great, in some cases this came to more than 100,000 Danish kroner. All this was changed when the law was amended in spring 2014. The Storm Council was also responsible for ministerial management in relation to this law amendment and the questions that came from the residents both before and afterwards.

During the period from December 2013 and for at least six months afterwards, the Danish Storm Council thus had a very different role than that officially assigned to it by law. There was a huge pressure of work due to the many tasks

2.5 The Red Cross

The Red Cross was one of the actors that took part actively in the rebuilding, without having an official role. Staff from the charity explained that they saw their role as one that filled in the holes which authorities did not have the time or resources for. They focused in particular on practical help and psychosocial support for the residents affected.

One of their first initiatives was to have volunteers go from house to house in the affected area to talk to the residents in the days immediately after the flooding. This had several purposes. Firstly, to better

understand the needs of the affected residents. Was there anyone who lacked assistance and with what? This information was passed on to the municipality, where social services could follow up on it. The second purpose was to inform the residents about other offers, which the Red Cross could provide them with, for example the opportunity to collect free things in the local Red Cross charity shops. Red Cross also described, however, that they discovered that the simple act of going round and knocking on their doors was viewed positively. It showed the residents that there was someone who was aware of their needs and challenges. The Red Cross' efforts were mentioned in both the group interviews. While no one mentioned having taken directly advantage of the Red Cross' offer, they all mentioned the charity's presence as positive.

The information that the Red Cross gathered by going from house to house was used to find out how they could best take initiatives to accommodate the residents' wishes.

This resulted in the information meetings on normal reactions to these kinds of situations. And in the Easter camp, and the family network and sending out information that you could pick things up if there was anything you were missing. It was these four things that we opted to do.

(Red Cross)

At the end of December after the flooding, the local Red Cross branch arranged an information meeting in Jyllingehallen, a local sports hall, where one of Red Cross' crisis counsellors came out and talked about ways to deal with a traumatic incident. It was this initiative that the municipality took over and held a similar arrangement themselves at a later date.

We also held the first meeting around Christmas, about the psychological impact. What kind of reactions do people normally have? We had a counsellor come and talk about them. He talked about what the normal reactions are in situations like this. So that was some of what we did, and after that we also offered families with children the chance to join a trip to Lalandia holiday centre in the Easter holiday. That was in April. In April however, and for many months afterwards, people were still living in trailers. It was still chaotic out there, so it was actually an offer that was welcomed. We also tried to start a family network, which was placed in a kindergarten. It turned out however that there was not much demand for this.

(Red Cross)

27 respondents said that they received help from the Red Cross during the rebuilding phase (Q. 14). This includes two respondents, who indicated that they received a 'great deal' of help from the Red Cross (Q. 15). The help the respondents received from the Red Cross was primarily in the form of events organised with the local community (Figure 92).

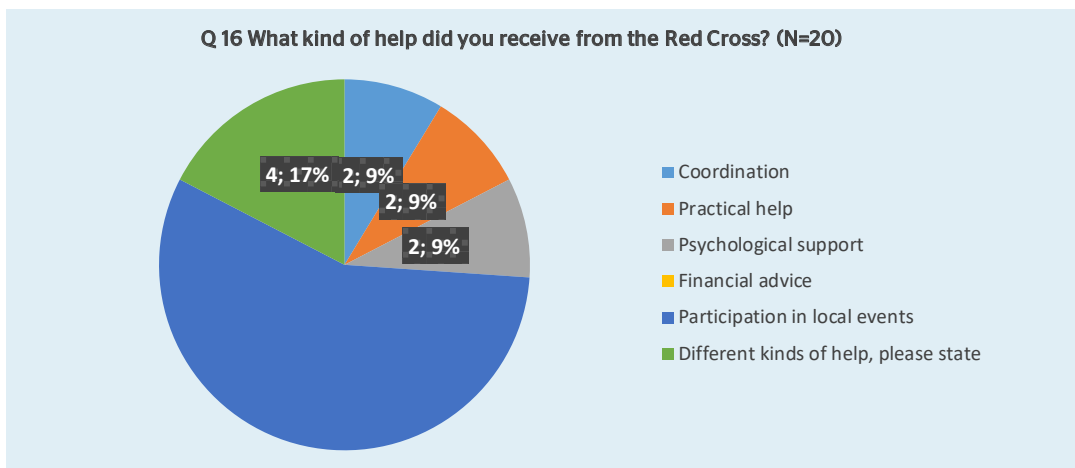


Figure 92: Q. 16 What type of help did you receive from the Red Cross?

The fact that just 27 people said that they received help from the Red Cross can be attributed to the fact that the need was not there, but it could also have been because they did not know about the Red Cross' offer.

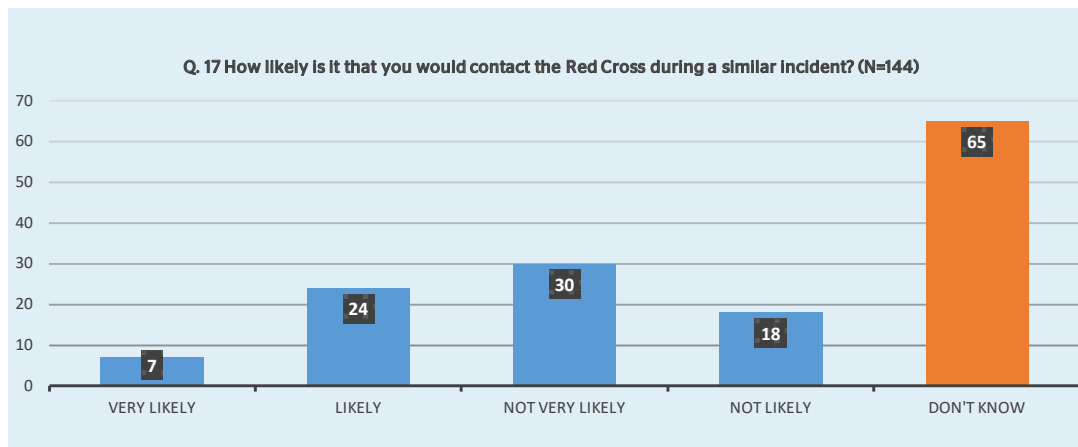


Figure 10: Q. 17 How likely is it that you would contact the Red Cross during a similar incident?

A majority of the respondents are not clear as to the question of whether they would contact the Red Cross. There were only a few who indicated that they would make contact (figure 10). The reason for this outcome could very well be that it is not clear to the respondents what the Red Cross can offer them. According to the Red Cross, they offered many relevant initiatives, which were well received. It is evident from the answers to the questionnaire that many of these initiatives were not used or were not known about by everyone. If the question above (figure 10) had therefore been rephrased to ask whether they would contact the Red Cross for psychological help or in order to pick up free things in their charity shops, it's possible that the breakdown of answers might have been different.

Based on the answers from the questionnaire it is hard to ascertain the demand for the Red Cross' offer, as only a small number of residents took advantage of their offer. These answers could have been different had the question been worded differently.

2.6 The Emergency Services

Traditionally, the primary role of the emergency services is to help prevent flooding from happening and to reduce the damage in the period during and immediately after the flooding.

I mean if you were going to stick rigidly to what it was our job to do, then this was already finished in terms of the definition of the emergency services once the water started to recede, but I mean we did things afterwards, naturally less and less, these tasks became sporadic as time went on, but [we were busy] for close to a week after I think.

(Roskilde Fire Department)

During the days after the flooding, the emergency services assisted by pumping the water away from those areas where it couldn't flow away by itself, they collected used sandbags and assisted by cleaning up the roads and other common areas. In this work, they tell how they were particularly focused on being visible for the residents.

We made it very clear that we were up there to help carry out one task or another. In this connection, a lot of the time was spent on speaking to residents, who actually came and talked about the efforts made thus far. We had two fire officers up there who live in the neighbourhood and who were affected by it and it was actually on that basis that we committed ourselves to just being available, as it could be that there was someone who simply needed to get rid of something, of any type generally. Right in

the middle of the affected area, we placed a bus that said Roskilde Fire Brigade on it. It was one of those buses, which we normally use to drive older people around in. So quite simply, we used that. So people could walk in there and talk. So we could say for example that the insurance company's number is this, whatever it is. Or that the power supply company knows we are busy out here, if that was the case.

(Roskilde Fire Department)

As with all the other professional actors who were interviewed for the study, the emergency services personnel describe being completely unprepared for such a widespread incident

...I dare say that we were completely unprepared for this type of incident and that this wasn't only us. No one was prepared, I don't think. Not even the residents, you could say. And that is one of the reasons why we ended up, actually, with so many flooded houses.

(Roskilde Fire Department)

2.7 The Electricity Grid Company

The electricity grid company played a role in the earliest part of the rebuilding phase. As water levels rose, the power was out in the area that was threatened by the flooding. When the water receded, many of the distribution boxes were damaged and needed to be cleaned and repaired before the affected households could get their power back on.

As water had also come inside many of the houses, employees from the electricity grid company spent the days immediately after the flood contacting the residents of all the flooded houses. They needed to make sure that the necessary safety measures had been taken in people's houses before their power was put back on. So they went from house to house, and in those houses where no one was home, they left a letter and asked the residents to contact them.



We quickly had some flyers printed because, once the water starts to recede, then we start on the repairs. And we have to turn the power back on. The challenge here was that the water had got inside people's homes. They were flooded. And then the water had receded. So we didn't want to turn the power back on their switchboards unless we had talked to the customer inside the house, because it is possible that something might be broken inside the panel. So that if we turn the power on, then the house blows up.

(Electricity grid company)

Three days after the flooding, all the houses had been reconnected to the electricity grid. It is interesting that this relatively long power outage was not one of the main topics raised by the residents in their interviews. Only two of them mentioned it, one in the context of explaining how their dehumidifiers ran on power from a generator for the first few days.

The residents' reactions are characterised by the state of their homes, the power supply is only a small part of what they are dealing with. They are overwhelmed by their situation, and they are upset. They are upset on a great many fronts. So naturally, the more we can help them normalise their situation the better. But this is their home that has been destroyed. So their focus is elsewhere. As operators, we must simply be professionals and ensure that things are carried out safely.

(Electricity grid company)

This quote paints a similar picture from the electricity grid company's perspective as that mentioned by both residents and many of the other professionals involved. For the residents affected, the day immediately after the flooding was characterised by shock and confusion, of which the power situation was just one small part. It can also be an expression however of the fact the electricity grid company's people were present and went around talking to all the residents who were affected, thereby making them feel they had been informed and knew what was going on. The power outage was thus not perceived as yet another uncertainty, and was seen as being less of a problem.

Once the power was back in all the houses, the electricity grid company played no further role in the rebuilding process.

3. Which conditions were relevant to the rebuilding?

Section 2 describes the rebuilding of Jyllinge Nordmark, as it was experienced by those involved. In this section, we have gone into detail as to the reasons why the rebuilding of Jyllinge Nordmark took so long, as well as highlighting one single element that had a positive influence on the rebuilding process.

To the question of what could have shortened the rehousing period and thereby the period leading up to the residents going back to their own homes and their former daily lives, there is a lot of variation in the replies (figure 11). The four most common conditions highlighted are: 1) shorter case handling time (22%), 2) better communication between the parties involved (21%), 3) clearer overall responsibility for the task (16%) and 4) better communication with the insurance company (16%). The importance of these four points is supported by the responses from the two group interviews with residents and also illustrate the conditions in the two stories, which introduced this report.

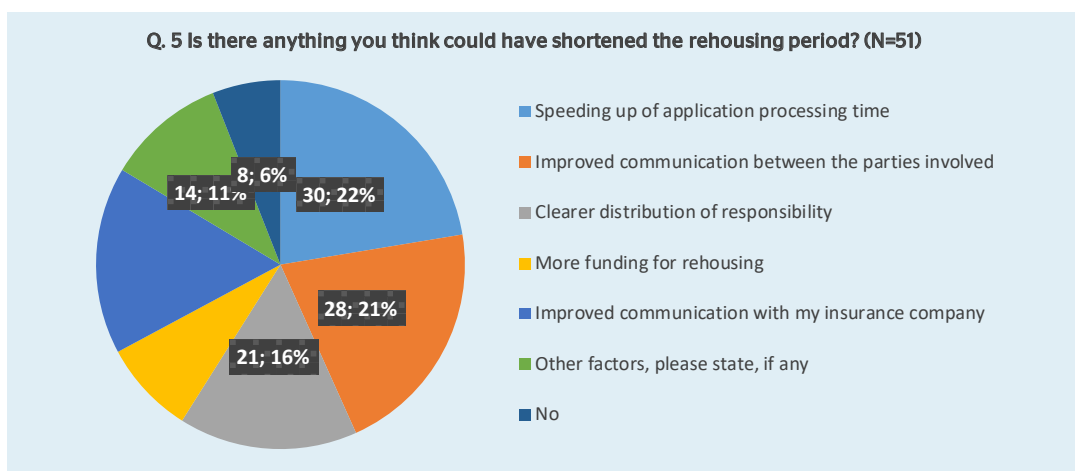


Figure 11: Q. 5 Is there anything you think could have shortened the rehousing period?

The residents' perspective on the reasons for the drawn-out rebuilding process are backed up by many of the professionals, in particular the municipality, the Danish Storm Council and, to some extent, by the insurance companies. There has however, especially from the Danish Storm Council and the insurance companies, been greater focus in the interviews on the reason behind the slow case handling and the lack of clarity that was present. To the question "Why did the rebuilding take so much time?", the following two replies were given throughout among the professionals involved: (1) No one was prepared for an incident like this and (2) The legislation that had just been passed in relation to coverage of storm surge damage immediately prior to the incident as well as the amendment to legislation, which was made immediately after the incident.

On the basis of responses from both residents and professionals, the following five topics were selected, in that they are assessed to have had the biggest influence on the length of the rebuilding process; (1) lack of preparation, (2) uncertainty about the delegation of responsibility, (3) lack of communication, (4) uncertainty about insurance coverage and (5) challenges attached to being one's own building contractor. These five will now be reviewed in detail.

The section concludes by pointing out the strong local community as one element that had a positive impact on the rebuilding.

3.1 Lack of preparation

In general, almost all the professional actors describe the storm and subsequent storm surge as taking them by complete surprise.

As to why it ended up being so bad, then I think simply it was because no one was aware of how much water there was. It simply took everyone by surprise. The municipality's calculations, the emergency services, the police, residents. Everyone. No one believed that so much water could come in such a short amount of time. What we've learned is that it can!

(Roskilde Fire Department)

As described, the emergency services only played a part during the flooding itself and the days immediately afterwards. Those actors that arrived on the scene later also expressed the same feeling of being unprepared; that is the municipality, the Red Cross, the Danish Storm Council and the insurance companies.

The same picture is painted by the residents. Many of them describe how they had never given any thought to the possibility of being flooded.

I was completely unaware that something like this could happen, because we bought the house in 2002 and I didn't know what the elevation point actually was. It says that the embankments must be a minimum of 1.5 m, and they were. But we didn't really know that the water could come into [our home]. We've lived here for 11 years and suddenly this happens, right.

(Residents)

Neither residents, organisations nor authorities therefore had a clear plan for handling such an incident or for the rebuilding afterwards. Everyone had to figure out solutions and options on the spot. The electricity grid company describes however that it had a flood map for the high water level, which meant that it could react in time and thereby avoid some of the power outages that might otherwise have occurred. The homeowners had never familiarised themselves with the rules for coastal flooding however, even though they lived close to the coast. It had never seemed relevant. When the residents called their insurance companies over those first few days, many employees were just as unsure of the rules as the residents themselves. As Story 1 in section 2 above shows, many residents were in doubt as to the extent to which they should get started on clearing out their houses. This meant that the uncertainty, especially in the first few days, delayed the necessary actions that could have reduced the damage.

Residents and authorities describe in unison that if they had been more prepared, it would have shortened the subsequent rebuilding process.

3.2 Uncertainty about the delegation of responsibility

A recurring theme in the answers to the questionnaire is that the respondents experienced uncertainty about the delegation of responsibility. Figure 6 shows that there is broad disagreement regarding who should have primary responsibility for the rebuilding phase. The insurance companies, the Danish Storm Council, the residents themselves, the municipality and the state all get between 17-22% of the answers. There is however a small majority of respondents who believe that the responsibility lies primarily with the insurance companies and the Danish Storm Council (figure 12). This question can be criticised for being able to be interpreted in two different ways, both as 1) who the respondent feels ought ideally to have the responsibility and 2) who in reality does have the responsibility. This might possibly explain the 18% who answered that the primary responsibility lies with themselves. The overall conclusion of this chart must be however that uncertainty exists as to who has the primary responsibility.

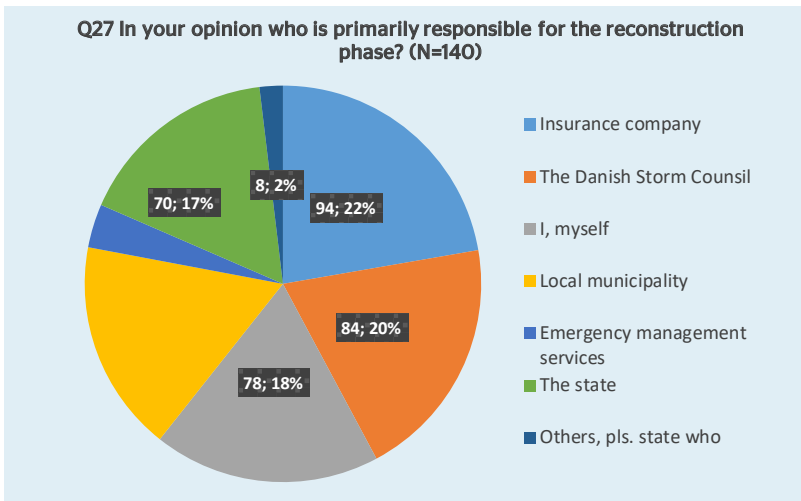


Figure 12: Q. 27 Who do you feel is primarily responsible for the rebuilding phase?

For the open question on the questionnaire on which other stakeholders could have assisted with the rebuilding phase (Q. 26), there are 41 replies. The vast majority mention that the state should take a bigger responsibility. One respondent wrote among other things: "All the jobs in regard to the big cases, which have been held by the community and stakeholders, should be guaranteed at state level and not dealt with in various municipalities".

If the question of who is primarily responsible (Q. 27) is coupled with the question of the extent to which you experienced flooding yourself (Q. 1), you can see that those whose homes were flooded were more inclined to think that the Storm Council had a responsibility than those whose homes were not flooded (figure 13). On the other hand those who did not experience flooding themselves are more inclined to point to the municipality, emergency services and the state as being primarily responsible. One explanation for this could be that those who have dealt with a flood themselves experienced that the authority that had most influence in this process was the Storm Council. Those who had not experienced a flood themselves were inclined to look at those actors who most often have or take responsibility in other contexts.

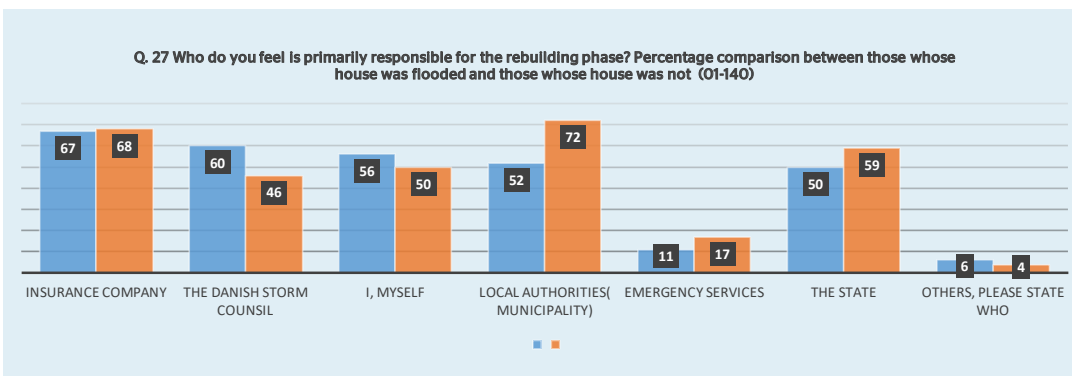


Figure 13: Q. 27 Who do you feel is primarily responsible for the rebuilding phase? Percentage comparison between those whose house was flooded and those whose house was not (see Q. 1).

The disagreement as to where the responsibility lies can help to explain the municipal employees' dilemma in living up to the residents' expectations.

So this is a situation, I think, where a municipality finds it hard to say: "what is a formal responsibility, and what is not a formal responsibility", that is you simply have some residents who have experienced a crisis of such proportions that the municipality will do whatever it can to support them with rehousing.

(The municipality)

The residents started out having an expectation that the municipality has and can take a bigger responsibility than is possible if it is to follow legislation to the letter. At the same time, municipal employees wanted to help. This created uncertainty, both among employees and residents in regard to the municipality's actual responsibility.

The professional actors describe that during the flooding incident itself the delegation of responsibility was clear and that this was partly the case afterwards as well. For example, the municipality and the emergency services were aware that officially they did not have any responsibility for the rebuilding after the water had receded. The Danish Storm Council had a defined role in terms of assessing whether this could be considered a storm surge or not, as well as whether the insurance companies should send out loss adjusters to assess the damage. Despite this, there will still be uncertainties and challenges in carrying out the tasks. The municipality's dilemma above is one example; another was the interpretation of the storm surge legislation. Was it the Storm Council that was responsible for interpreting and communicating this to the insurance companies, or was it up to the individual insurance companies to interpret the law themselves? Who was responsible for minimising the damage in people's homes, was it the homeowners themselves or the insurance companies? These uncertainties, in addition to a general state of unpreparedness, impacted the decision making processes and caused the rebuilding to draw out.

3.3 Lack of communication

In addition to the uncertainty about where responsibility lay, there were also challenges related to the communication between residents and authorities. Everyone who took part in the group interviews explained that what they lacked most in the days directly after the incident was information about what they could and should have done.

We got hold of (...) the insurance company the Monday after and I gave them an account of what had happened and that it was up in the base of the floorboards. Well, said the insurance company then, you mustn't do anything before the loss adjuster has been round. And as you say, it would have been greatly appreciated if we could have had someone to tell us what we should and must not do. And I mean it was wet, but I wasn't allowed to do anything. Naive as it might seem, we were in the middle of a crisis and believed in the authorities. As stupid as that sounds. So I waited and I believed that and the loss adjuster came in January, and when she saw it she said, this needs to come up now, but then she measured the moisture up in the walls, which were destroyed up to a height of one metre or 1½ metres. The water had gradually worked its way up, both into the inner and outer walls. But the only thing we got covered was the floor. The house had to be pulled down. It was utterly ruined, the entire house was ruined, completely!

(Borger)

This is one of the worst examples of how misleading information or misunderstandings led to much greater damage than if it had been handled correctly right from the start. One reason for this could be the uncertainty that existed internally at the insurance companies, but it can also be linked to a general problem with communication.

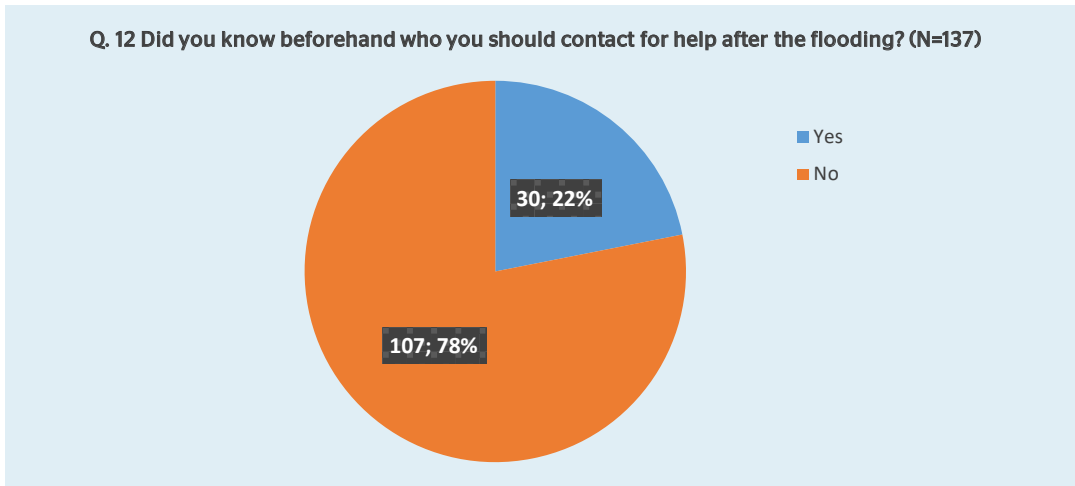


Figure 14: Q. 12 Did you know beforehand who you should contact for help after the flooding?

Figure 14 shows how the majority, i.e. 78%, did not know who to contact after the flooding to receive help. This supports the hypothesis that there was a lack of knowledge from residents, which can be explained by the fact that they were not prepared in any way for this type of incident. Furthermore it must be emphasised that authorities and organisations in this type of situation cannot expect residents to take the first step in terms of getting hold of the necessary assistance and information. This is supported by the following graph (figure 15), where the majority of respondents replied that they received "very little" or "nothing at all" of the information they needed.

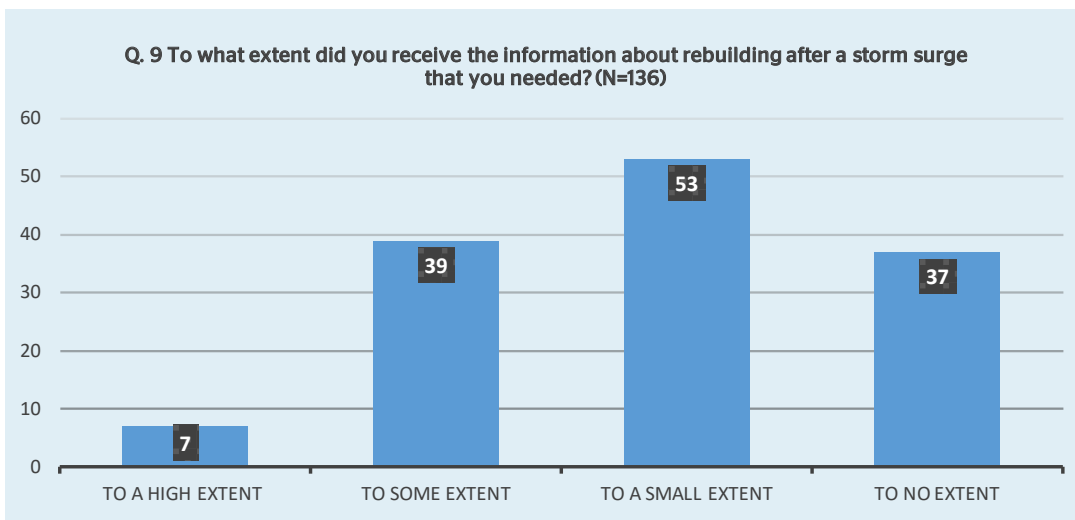


Figure 15: Q. 9 To what extent did you receive the information about rebuilding after a storm surge that you needed?

3.4 Uncertainties regarding insurance coverage

In the analysis of the qualitative interviews, the insurance coverage was the topic that interested the residents most. Naturally, it also took up a lot of the focus in the interviews with the insurance companies and the Danish Storm Council, but was also mentioned in the interviews with the municipality, the emergency services and the Red Cross. References to the challenges with insurance coverage in the interviews stretched beyond the problems with unprepared insurance companies and poor communication. One big topic was also the fairness of the extent to which flooded homeowners were covered, and the understanding of the rules attached to coverage in the event of storm surges.

3.4.1 A disaster scheme vs. ordinary insurance

As has been described, the biggest challenge was attached to the fact that a storm surge is considered as a disaster. It is therefore not covered by the homeowner's general insurance, but since 1991 this type of incident has been covered by the disaster scheme, which the Danish Storm Council manages.

Many expressed that it was particularly hard to understand the difference between the coverage of direct claims and indirect claims for both the affected residents and the insurance companies. A general insurance policy covers all claims related to an incident, but the storm surge scheme only covers the direct claims. In the aforementioned example in section 3.3 where a homeowner's house is ruined due to moisture but where only the floor is covered, the explanation is in the difference between direct claims (only the floor was flooded) and indirect claims. For many, this appeared incomprehensible and unfair, and led to disagreements between the affected residents and the insurance companies.

Seen from my point of view, I had terribly many interviews with claimants who were perhaps not entirely aware of the scope of the coverage under the storm surge scheme. Now I say clashes, and perhaps that isn't quite the right word, but we have had many discussions and we have had many disputes with people who had the impression that the storm surge scheme is exactly the same as an ordinary building insurance, and that the scope of coverage would naturally be the same.

(Insurance company)

As already described, Storm Bodil came as a surprise for all professionals involved, but was equally unexpected for the residents in Jyllinge. This also meant then that no one had familiarised themselves with the difference between fire damage claims and storm surge claims. As a Danish citizen, most people walk around with a basic belief that if their house and property is damaged, then this will be fully covered by the insurance. All those who took part in the group interviews said that this was also their immediate expectation after their houses were flooded. It was not until they contacted their insurance companies that they became aware that this was a different situation.

This confusion was not cleared up in the continuing collaboration between the affected residents and the insurance companies. As described, the loss adjusters who the homeowners met came from their own insurance company, but they represented the Danish Storm Council.

Ours, he said, "Hello. I'm from your insurance [company], but I'm wearing a different hat today. I'm wearing a Storm Council hat."

(Resident)

3.4.2 Authorities and legislators - who can make changes?

When the affected residents did not agree with the assessment made by their insurance company's loss adjuster, the insurance companies had to refer to the Storm Council and the legislation attached to it.

One of our biggest challenges as administrators of this set of rules was that you couldn't simply change it. There was a great many who said, especially from Jyllinge: "That can't be right, surely it can't be right that we can't get compensation for this here or this here or this here." And of course the politicians made a whole lot of commotion about it as well, so the rules were also changed right afterwards. It entered into force with retrospective effect. It entered into force in April or something, 2014. But it had to be handled in such a way, we couldn't just redo everything. And many people said that they thought, "this isn't okay. The Storm Council says that we can't get compensation for it, but that can't be right." And if you wanted to read the rules then it was absolutely right, but that was not what was at play. What was at play was that this was not seen as storm surge, that is a strict scheme. But rather as: "what would I normally get from the insurance company if something gets broken, or if the car got smashed up or something like that." And they didn't get that.

(Danish Storm Council)

This quote illustrates the challenging situation which the loss adjusters, insurance company case handlers and not least the Danish Storm Council were faced with. They were held accountable for their adminis-

tration of a law that the affected residents considered to be extremely questionable, but they were state officials who had no choice but to follow the law. They had no jurisdiction to change it. Only after the law was amended in April 2014 were they able to change their procedure. And as has already been mentioned, this led to extended case handling times, which they were also highly criticised for.

3.4.3 Legislative amendments

That the professional stakeholders were unprepared for such an incident occurring in Denmark was - among the insurance companies and the Storm Council - only compounded by the change to the Storm Surge Act, which was made immediately prior to the floods and which had not yet been put to the test in practice.

So the big test, which became a huge test, as there are also some [things], as we have talked about afterwards, where we have talked about: "Couldn't we just have had a small storm surge, like the one in 2011? A training storm surge." Then we could have handled things, we could have picked up on that, then we could have thought: "what went well and what went badly?" and stuff. But that was not to be. It was a huge storm surge with 3000 claims.

(Danish Storm Council)

This meant that those in charge of dealing with insurance questions after the flooding did not, as mentioned, have experience in interpreting or implementing the new legislation. Moreover, yet another amendment was made to the legislation in April 2014. This amendment was made as a result of pressure from citizens and local politicians, who found the current legislation to be unfair. This led to case handling times at all the insurance companies being severely prolonged.

We had been out to inspect and were reasonably sure that we could get started (with the rebuilding of our customers' houses) and we have sent our damage estimates out to the claimants. And then suddenly in April there was this change to the law, and it was probably this that actually messed everything up the most. It meant that we had to review all the claims through again. So we had to make re-appraisals, we had to find out about some things that were suddenly entitled to coverage, we had to inspect these and appraise them and add them to the estimate.

(Insurance company)

This last quote describes the frustration expressed by all the insurance companies over the fact that all the cases had to be reprocessed. First, the flooding had taken them by surprise and it had led to a great deal of overtime. A situation, which only got worse and dragged all the case handling times out as a result of the changes in the legislation, which now for example covered more consequential damage, such as mould. This could only be established by having the loss adjusters come out yet another time.

There is no doubt that disagreements about the coverage, which led to complaints and additional reviewing of cases, was highly influential in prolonging the rebuilding process for many homeowners. This was compounded by the legislative changes both before and after Storm Bodil hit in 2013. While the amendment to the law in spring 2014 gave homeowners more compensation, it also led to much lengthier case handling times.

3.5 Challenges attached to being one's own building contractor

As already said, the storm surge scheme only covers the remedying of damage. One thing it does not cover, as opposed to fire insurance, is building advice. This meant that the affected homeowners had to manage everything to do with the coordination and decisions in rebuilding of their houses themselves.

And the playing rules are slightly different when you're dealing with storm surge schemes, because the companies went out and appraised the direct damage and prepared an estimate based on that. But the repairs themselves, that is getting it started, contacting a builder etc. etc. Well it is the claimant themselves that has to sort all of that out. You are suddenly placed in the role of building contractor, and the expectation from some of our customers was that this was not their problem. That is, because their claim was covered by the Storm Surge Act, then it had to be the insurance companies that should go out and act as both contractor and building engineer and everything else you could think of.

(Insurance company)

This was described by many as a difficult situation. They did not possess the necessary knowledge and they were also psychologically affected by the chaotic situation they found themselves in. This situation made it hard to form the necessary overview and make rational and well-considered decisions. Many therefore requested professional help, and some also chose to pay for it, e.g. in the form of moisture tester technicians.

I mean, I live in a brick house and... I simply opted to hire a consulting engineer for all that with dehumidification because I was so nervous about the insulation in the walls and everything. At any rate, I was glad that I had hired a consulting engineer, because they came out and took some tests, like they drilled holes in the floor and in the walls and took some moisture tests before they started dehumidifying and they came round regularly, every now and again to check. So I was assured that when they said it was okay then I could start rebuilding.

(Resident)



Another factor in this regard, which was mentioned by all the insurance companies, employees at the Danish Storm Council and many of the residents, was being challenged by the lack of builders. This was the result of the sudden increase in demand and led to two specific challenges: firstly, it meant that the rebuilding took much longer for some residents as they could not find the builders to do the work. Secondly, it prolonged the process because the builders they did find carried out such bad work that in many cases it had to be redone later.

Quite simply, there were some building contractors that went out of business 1½ years later. Some of them did this to avoid claims being made against them from injured parties, who felt that the work the contractors had carried out was sub-standard. I'm not directly saying that what we might normally call cowboy outfits or such like appeared, but there were those sorts of people who think: well, there's some public money up for grabs, I'd like a piece of that.

(Head of claims management)

The fact that such a situation arises when so much damage occurs at the same time was described by most as unavoidable. In many cases reference was made to the fact that the same thing happened after the firework accident in Seest in 2004. According to the Danish Storm Council, however, it was a situation that they tried to follow up on.

We heard about a number of damage and recovery companies where we had to react; that had demanded a security deposit and all sorts just to come out there and pump the water out. And I think they did that because they had plenty of jobs, so they could simply afford to do whatever they liked and demand excessively high prices for their work and stuff. And that was disgraceful, don't you think? So we actually talked to someone from the trade association about how this wasn't very nice to see going on.

(Danish Storm Council)

3.6 Strong local community as a positive aspect

After having gone through the five most important factors that helped to prolong the rebuilding efforts, we would like to end by mentioning a positive element; the cooperation between residents and the helpfulness of the local community.

Of those who responded to the question of what worked well during the rebuilding period in the questionnaire, 57% highlighted the local community as a positive factor (figure 16).

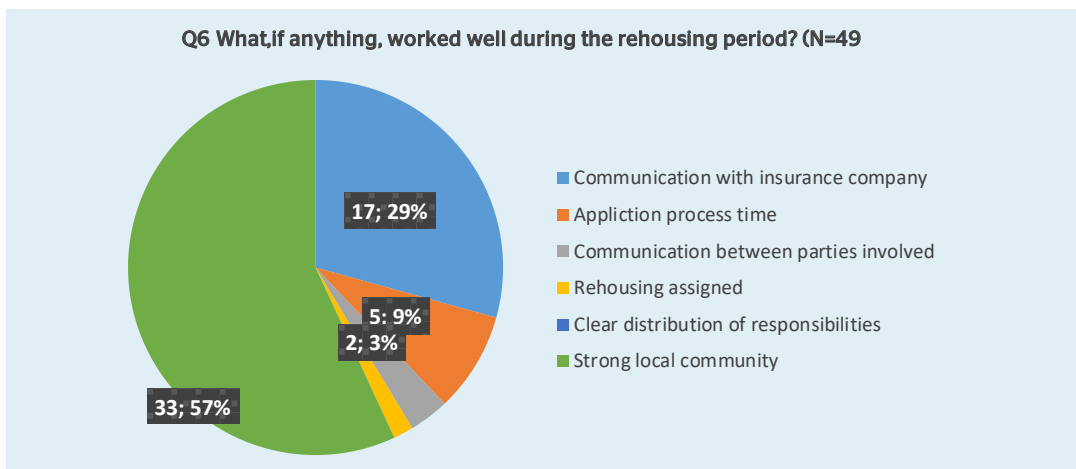


Figure 16: Q. 6 Are there things that worked well during the rehousing period? (N=49)

This was looked at in more detail through the two group interviews. Two elements were highlighted here. One was attached to the practical assistance which many of the flooded homeowners experienced get-

ting from neighbours and other people they did not know at all.

On 22 December we had a clean-up day, where people could come and help those of us who lived there to clean up and empty our houses, clean the streets and drive things to the tip. People came with cars and trailers from all places imaginable, not just Jyllinge but also much further away, some people came from Ballerup (22 km away) to help us. My husband was very touched by this. A man showed up with an artificial leg to help him, he stood there and said 'you don't need to do that', but he wanted to help. It was fantastic.

(Resident)

There was also another element attached to the challenges there were in terms of the delegation of responsibility and communication. Many mentioned that because they did not know who to turn to, they received much of the essential information they required through their local network.

Neighbourly relations and solidarity are what saved the area. There's always someone who has dealt with some sort of crisis at some point or another, who can help in some way to carry the burden... who knows, for example, who to call to hire a skip. Isn't that right? At a time like this.

(Resident)

This shows how a strong local community and a strong network can help to contribute towards reducing the challenges that residents, authorities and organisations are faced with when an unexpected incident suddenly hits.

4. Which learning points have led to new practice?

Much of what was experienced by the professional stakeholders during the period during and after Storm Bodil has led to specific changes to practice, structures and legislation. This section presents a selection of these. Those changes that are presented in this section were mentioned as the most important ones by the professionals in the study.

4.1 More emergency planning

As described Storm Bodil and the subsequent floods took everyone by surprise. One of the reactions to this has been an increased focus on emergency planning and structure.

Yes, we learned that structure is absolutely essential. Also, that there is structure in all fields and it doesn't matter whether it's hardware or software in terms of manpower. And quite simply, to prepare a timetable that accumulates both the number of tasks and in what order they should be carried out, as well as when you can count on the various things to be finished. So it is just crucial you have this structure.

(Roskilde Fire Department)

This planning has been focused on the handling of a flood as it happens. Since 2013, Jyllinge Nordmark has been hit by several more storm surges, but in the case of these later incidents, emergency services have been better prepared and, with the help of mobile flood barriers and sandbags, have been able to prevent houses being flooded. This shows that their new and improved emergency planning works. All other professional actors also describe having drawn up or improved their emergency preparation plans since Storm Bodil for when a flood is warned or hits.

However, these emergency preparation plans only cover the period from when a warning is issued until the water has receded. Only the insurance companies note having renewed and improved their emergency plans for the rebuilding phase. The Red Cross mentions wanting to have more systematic plans for handling the period after a flood, but for now they count on repeating what they did during Storm Bodil, which appeared to be the correct course of action. That is to say that for most parties involved, the increased planning and structure did not include the rebuilding period. We will return to this in the next section (5.1).

4.2 Storm surge is declared immediately

During Storm Bodil, it took four days from when the flooding occurred until the Danish Storm Council officially declared the incident as a storm surge. This caused great frustration, both for the affected residents and the employees of the insurance companies who had to handle their cases. This has now been changed:

It has changed from taking two to three days. Now it happens the same day. It happens without us having to hold a meeting. It happens as an electronic flow, and naturally has something to do with how the secretariat works. So we have got further with that part of it. That kind of frustration will not arise there..

(Danish Storm Council)

4.3 More educating in the Danish Act on Storm Surges for professionals

The insurance companies and the Danish Storm Council all describe the lack of loss adjusters and case handlers in the insurance field with insight into what was at that point relatively new storm surge legislation as being a big challenge. This was only compounded by the high volume of work experienced by many insurance companies, which forced them to hire external loss adjusters. The experience of these external loss adjusters, from both residents and the insurance companies themselves, was that they did not possess the necessary knowledge.

And you also need to keep a clear head, because although the calculation method might look like ordinary water damage from a burst pipe or whatever, there are some key differences in connection with what is called direct losses and indirect losses, and insurance companies work a lot with consequential damages. It's true that these are usually covered after a coverage-entitled claim, but a storm surge claim distinguishes between these things differently. And it was done quite systematically and methodically, you had to operate on the right track mentally to calculate the storm surge claims.

(Insurance company)

This means that all the insurance companies that took part in the survey now have a procedure for this type of more complex cases, which their internal employees use. During periods with high volumes of work, external loss adjusters may take over some of the simpler and more everyday tasks, but they will not be sent out to appraise storm surge damage.

In addition, guidelines for how to interpret the Act on Storm Surges have now been drawn up aimed at the insurance companies tasked with handling such cases. These guidelines have been drawn up in collaboration with some of the employees at the insurance companies who were involved in the cases related to Storm Bodil. Finally, the Danish Storm Council now holds a number of 'experience exchange meetings' for employees at the insurance companies twice annually. The purpose of these are to make employees better prepared for handling storm surge cases in the future.

4.4 Better information on storm surge coverage

As described above, not only was there a great demand for more and better information from the residents, but insurance companies and the Danish Storm Council also learned an important lesson about the need for clear information on coverage in the event of storm surges.

I think that I have learned that I should spend much more time on making claimants aware of what this is actually about. I mean, that this is a disaster scheme. It's important to get people to realise this. It is the public sector that are giving you a plaster for your cut. And it may well be that it can't cover the whole cut, but it's this that the public sector can offer. And it should not be confused with an actual compensation amount.

(Head of claims management)

The Danish Storm Council's website had been improved since then to offer more, and better, information. Two short information videos have also been produced, which are available on the website, and which explain the difference between ordinary coverage and storm surge coverage as well as what people can and should do themselves in the event of a storm surge.

4.5 Better communication about power outages

For the electricity grid company, the flooding immediately after Storm Bodil led to an increased awareness of the challenges it faced in communicating with the affected residents. It noted that it was hard for the residents to find the correct information on the company's website. The website has thus now been improved. The company also uses Twitter to inform of any power outages.

People are actually very understanding about the power going out. They just want to know when they will get it back again. Or that they'll have to wait. We can only balance the expectations of the customer if we can communicate with them properly.

(Electricity grid company)

After Storm Bodil, the company also introduced an SMS notification so it can send targeted messages to the affected residents about possible power outages and thereby inform them of when they can expect their electricity to return.

4.6 Greater focus on being physically present

One important lesson that the Red Cross learned from its efforts after Storm Bodil was the significance of being physically present.

Yes, it meant a lot, and we have also done this in subsequent situations. Even though we have only walked back and forth and our efforts have not been particularly big, they have still been significant. And this has really been an important lesson for us. I think that these door to door efforts play an enormous part in terms of being seen. That people are personally seen. It could be that you don't feel as if you need anything at the point in the situation or, phew, it's all going really well, isn't it? But even so, someone has bothered to notice you.

(Red Cross)

This experience has meant that going from door to door and showing an actual presence is now a standard element in the Red Cross' disaster management work.

4.7 More experience and greater knowledge

In general all the professionals who were interviewed said that if a similar incident occurred today, they would be much better prepared for it - because of both the practical experience and the knowledge they acquired from Storm Bodil. They do not expect therefore the same degree of confusion and uncertainty that arose during the rebuilding process to be repeated.

So I think that we are more clear about our role. And I also think that we are much more clear about how to work together with the emergency services, and I think that it is much clearer that all parties must sit down together fairly quickly and figure out what resources they have to work with. It was very difficult at that time to find out what resources were available from the municipality. The mayor was very visible however. So there is a political wish to make an effort, but I think perhaps the administration was not always sure who should take charge.

(Red Cross)

The expectation among all the professionals is therefore that the handling of the rebuilding after Storm Bodil in 2013 is and will continue to be an extreme example. Further coastal flooding, which hits a residential area, will be handled better and faster.

5. What can still be improved?

As described, many improvements have been carried out since Storm Bodil. Besides those described in the chapter above, several amendments have been made to legislation, which mean that homeowners are generally better covered should their home suffer the effects of coastal flooding.

This study also shows however some potential for further improvements to future rebuilding processes. These will be described in this section. This will include the perspectives of both residents and professionals. Some of the suggestions presented below could be implemented with relatively few resources. Others, however will require prioritising the area completely differently in terms of management, as it will demand a wide range of resources and, for some of the proposals, political backing at legislative level

5.1 A general (emergency preparedness) plan for the rebuilding efforts

Both the emergency services, the municipality, the Red Cross and the electricity grid company mention the coordination that was present between the groups during the flooding itself and the days immediately afterwards. The Red Cross has criticised the fact however that this coordination stopped completely once the recovery phase was over. It argues that there ought to be a similar coordination during the rebuilding phase as well, not least due to its focus on psychological reactions.

Just as daily coordination meetings are held when dealing with a disaster overseas, these should also take place in a situation like this. There should be daily coordination meetings, where the Red Cross meets with the municipality, emergency services and other stakeholders, just for 30 minutes each morning and says; this is the status, we are busy with this and you are dealing with that. That is, this type of set-up ought to be routine.

(Red Cross)

Both in Danish³ and international⁴ disaster management literature, a central point is that the rebuilding should be considered as part of the overall disaster management efforts. That is, that the coordination that takes place between authorities and organisations during a flood, as well as internally in each individual authority/organisation, should not end once the initial incident is over, but continue up to and during the rebuilding phase. During a flood in Denmark on the scale that hit Jyllinge Nordmark, a task force was established, led by the local police district⁵. Permanent members are the emergency services, the Danish Emergency Management Agency, Danish Defence and the regional health emergency response team. In addition, other members can be invited on an ad-hoc basis. These are other stakeholders that are relevant for the coordination of the specific incident. In 2013 for example the electricity grid company also took part. This group is responsible for leading and coordinating the efforts. The same organisational structure could ideally be used for the rebuilding phase. The relevant stakeholders could be different from those during the incident itself, but the purpose remains the same.

In the analysis of the remaining interviews as well as in the answers to the questionnaire, there are a number of things that point towards some kind of coordination between the professional stakeholders involved in the rebuilding phase being a positive initiative. As the Red Cross mentions: This is to ensure not only that the physical and psychological state of the affected residents is followed up on, but also in relation to the practical clean-up and in terms of getting the right information out to the right people.

³ Danish Emergency Management Agency (2019): *Guidelines for crisis management*

⁴ Damon P. Coppola (2015): *Introduction to International Disaster Management*

⁵ An LBS (local emergency management team)

Once the response phase is over, the coordination ends. The organisations fall back into their respective sectors. Now they just go in and follow the normal structures. This is where people fall between the cracks. If you wish to offer more information, more social interaction and fellowship, more psychological follow-up and more practical assistance, well there won't be any coordinated effort. Because there is no forum for coordination in the rebuilding phase, these efforts are simply sent out to the ordinary administrations.

(Red Cross)

This kind of coordination would require an emergency preparedness plan for the rebuilding phase. Ideally, there would be a joint plan made in cooperation with all the relevant stakeholders, but which can also be drafted by the individual authorities and organisations individually, as long however as it is also coordinated across the groups. Today the most relevant stakeholders, such as the municipality, the emergency services and the electricity grid company, have emergency preparedness plans for the flooding phase itself, but the results of this study show clear advantages in having an emergency preparedness plan for the rebuilding phase as well. That is a plan that covers the period from when the water recedes until the affected area has returned to what you can call normal conditions. It must be incorporated into this planning work that this period may last up to several years.

Regardless of whether this plan is made by the stakeholders individually or in collaboration, it is central that the individual stakeholders' roles and responsibilities are defined clearly and explicitly. It could be helpful in such planning work to include other stakeholders that could contribute. In the questionnaire we asked whether other actors could have contributed with assistance in the rebuilding phase (Q. 26). The insurance companies, the Danish Storm Council, the municipality and the Danish Coastal Authority were mentioned here on numerous occasions, but also banks, charitable foundations, homeowners' associations, neighbourhood groups, citizen advisory boards, scouts and other voluntary organisations were mentioned as alternative actors.

5.2 Coordinated communication

Initiatives have been taken to improve the communication to residents since Storm Bodil. The two short films from the Danish Storm Council are one of these. It must be concluded however based on this study that this alone is not enough.

There is no clear picture of how different residents in the affected area prefer to receive information in connection with a rebuilding process (figure 17). Electronic messages via email/digital mailbox and joint meetings arranged by the municipality are preferred by most people, while the minority would prefer to receive information via social media. Those whose houses were flooded (Q. 1) were more likely to answer that they would prefer information on an individual basis than those who did not have their homes flooded. There is a significant difference in what respondents wanted depending on whether they were rehoused or not. Those who were rehoused (Q. 2) were less likely to prefer communication via electronic media, but requested joint meetings arranged by the municipality and face-to-face dialogue on an individual basis, compared to those who were not rehoused.

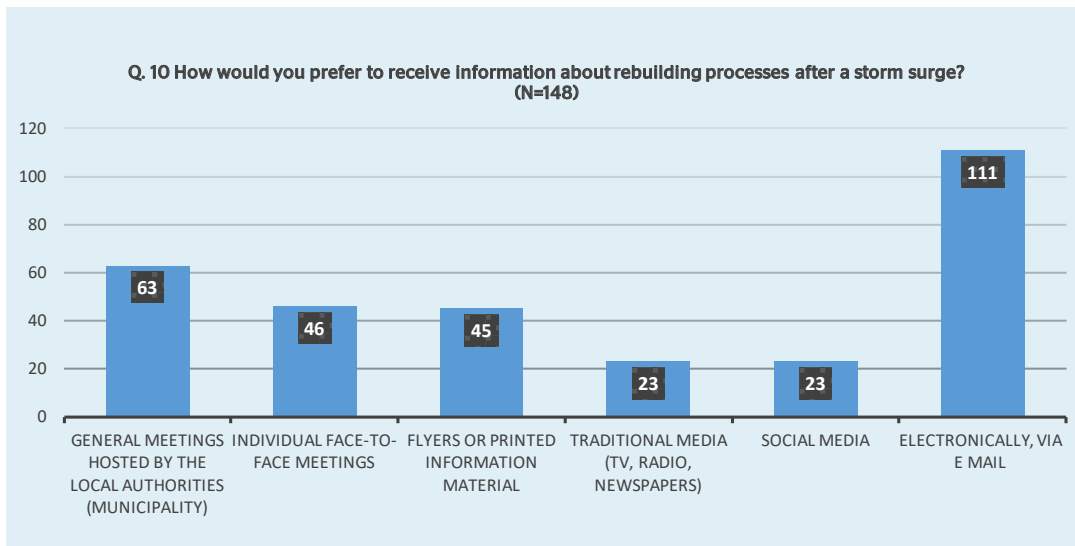


Figure 17: Q. 10 How would you prefer to receive information about rebuilding processes after a storm surge?

5.2.1 Written information and guidance

In the group interviews, many residents mentioned wishing that there had been some easily accessible written information that could have told them what they were expected to do, both purely practically regarding their home, but also in relation to registering their claim at the correct place.

What you really need in this kind of situation is, as you say, specific advice. Here is a folder with the things you need to do over the next 24 hours, 48 hours, next week...

(Resident)

Among the topics the residents wished could be included in such written guidelines were:

- What does the law say on this topic and what is covered?
- What can you and what must you do to minimise the damage?
 - What may I throw out and what must I save?
 - What may/should I take out of my house?
- Who has responsibility for what?
- Practical advice
 - Where do I find a trailer to leave in?
 - How do I get hold of a dehumidifier + a moisture tester technician, if necessary?
 - Where can I get financial advice from?
 - Where can I store my belongings?

5.2.2 Personal advice

Both the questionnaire and the group interviews show the residents' experiences from insurance companies, advisers and building contractors were very different. There was thus a clear wish for more uniform treatment.

Anything that removes the uncertainty and 'not knowing'... That's it, really. Anything that can help soften the turmoil of the experience is welcomed.

(Resident)

This takes a more specific form in the wish for better personal advice. In the questionnaire, about a third responded that they would have liked to receive face-to-face information on an individual basis (Figure

17, Q. 10) and the majority of those respondents were, as described, those who had personally experienced their homes being flooded. Another wish that was mentioned by many respondents, both in the interviews and the open questions in the questionnaire, was the opportunity to receive building advice, as they did not feel competent enough to carry out this role themselves.

In summary, better written information combined with the opportunity for some kind of neutral professional advice would have benefited the affected residents. This advice could have helped answer their questions about legislation, insurance policies and generally advise about technical building matters.

5.2.3 To be physically present

There is no doubt that concrete, factual information was important for the affected residents. This study also points out however that it is not only the information's content that is important but also how it is communicated.

Roskilde Fire Department explain that during the days immediately after the flooding, they tried to be visibly present in the area so that residents could see them and come out and talk to them. The most significant feedback regarding the Red Cross' efforts in going from door to door was that the residents felt they had been seen and that what they were going through was being taken seriously.

Another initiative that was mentioned in both focus groups as well as in the open answers in the questionnaire was a very specific initiative from one of the insurance companies:

And I think that with the insurance companies for example that the stunt which one insurance company pulled, by setting up a trailer down by the roundabout and having some people there in the area, well that was invaluable for those residents who had policies with that insurance company. While they might not have been able to help them directly, those residents could at least go down and look someone in the eyes and get some feeling or other of being seen or heard, and I mean... they at least got some help.

(Resident)

Many residents who did not have a policy with that particular insurance company mention that they wished that their own insurance company had made a similar initiative. The insurance company in question explained that it sent the trailer out so that residents could receive face-to-face service and have the opportunity to ask questions. Other insurance companies also said that while they knew about the initiative, they had neither the opportunity nor the resources to do something similar. This applied particularly to the smaller insurance companies. All of the insurance companies said that they brought in additional staff to answer questions on the telephone. That is, purely objectively, the residents who had other insurance companies had the same opportunity for obtaining assistance and advice, but it was not experienced in the same way.

Both the experiences with the Red Cross and this insurance company's efforts suggest that the personal contact between affected residents and the professional stakeholders should not be undervalued, even in those situations where it may be hard to see the specific reason for being present.

One way to improve communication between professionals and residents could then very well be simply to move 'the office' out temporarily to the affected areas. This example highlights the insurance companies, but the results of the study suggest that this could also be relevant for the municipality, for example.

5.3 More practical assistance

Many different kinds of practical assistance were offered to the residents whose homes were flooded in the incident. The municipality offered help disposing of waste and cleaning up. The Red Cross offered help with laundry and re-acquiring lost belongings, which however could have been done more systematically.

We work closely with the Finnish branch of the Red Cross, among others, and they are a little more advanced in the development of their national emergency preparedness planning. It is standard there for people to receive a voucher, which gives them certain offers at the shops. So you go down with your voucher because you are one of those people who has been affected and needs particular help. And then just can just take toothpaste and things from off the shelves up to a certain amount, and take them home with you. And you can also, just as we did, open the Red Cross shop and pick up clothes for a certain amount. And everything is structured and a fixed element in how the Red Cross there assists in the event of a big fire, for example. We're not yet that systematic in our operations.

(Red Cross)

There were two other things which many residents asked for, both of them connected to the rehousing process. One of these was help to find suitable places to store their things while their home was being rebuilt. The other was specific assistance in finding suitable rehousing. In the interviews one resident noted that her family had to move seven times during the rehousing period. She wishes that there had been more help to find a more permanent rehousing option.

This is supported by the fact that the majority of respondents in the questionnaire, 82%, answered that they had to manage the rehousing themselves (figure 18). It was also possible to add a comment to the question of rehousing, which eight respondents took advantage of (Q. 3). Here, they go into more detail about the conditions of the rehousing, for example that some people lived in a tent in the garden, others received help from their immediate family while a third household was assisted by a local contractor.

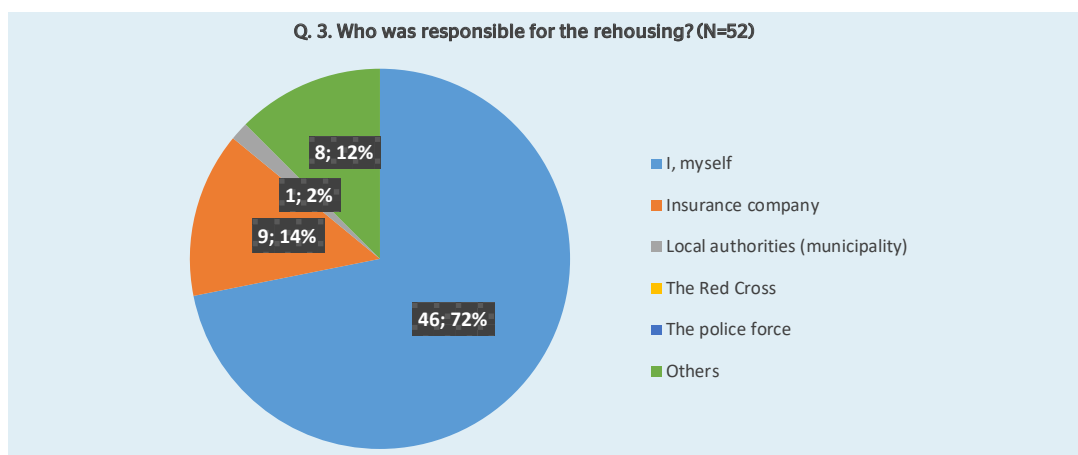


Figure 18: Q. 3. Who was responsible for the rehousing? (N=52)

Incorporating how the residents that need rehousing can best be helped, both with practical matters regarding moving and storing belongings and in finding suitable rehousing options, would be a big source of support for those affected.

5.4 Changes to the storm surge legislation and the handling of these

As already described, Storm Bodil led to a broad amendment to the law in 2014. Smaller changes to the Storm Surge Act have been made since, most lately in 2018. Despite this several interviewees, both residents and professionals, are still looking for a more general rethinking of the legislation in this area. A wish for new legislation is mentioned by both residents and professionals, which would make it possible to insure against storm surges in the same way as one does against fire and similar events. This would reduce the confusion that arises when the insurance companies have to administer a new law that they have no influence on the wording of themselves.

5.4.1 Better computer system for registering storm surge cases

One minor detail to add deals with the Storm Base – the IT system that residents need to register their claims in, and which the case handlers in the insurance companies later use to process the cases. This was described by everyone who has used it as cumbersome and not user-friendly. The insurance companies explain how it is built up in a way that does not fit with their normal case handling procedures. The Storm Base has since been improved but is still described as not being optimal. A new IT system is on the way which, based on the conclusions of this study, will be a clear improvement.

5.5 Greater focus on psychological consequences

Because this kind of storm surge, it's not just over and done with like that once you've got your money and moved in and stuff. I think there are a great many out here in Jyllinge who have been affected by it in all sorts of ways.

(Resident)

In the interviews with residents, several mentioned that they were still far from returning to a situation such as that they lived in before the storm surge in 2013, even despite their home now being completely rebuilt. Many note in particular that the psychological effects remain.

During the group interviews there were accounts of longer stress-related sickness absences, depression, children with PTSD and of periods with an unhealthy level of alcohol consumption, all reactions noted among residents in Jyllinge Nordmark to their experiences during and after the flooding.

Person 1: When I look back now, then I can see that I felt completely detached from myself for a whole year, but... it was like when I could finally relax and release my grip a little, then everything just fell apart.

Person 2: : I broke down at the beginning instead. We lay there crying that night, from Friday to Saturday, we were just so unhappy. We didn't know what had happened to our home. The not-knowing was awful

(Affected resident)

Both the Red Cross and the municipality highlight this further in the interviews. This is an area that both they and the affected residents feel has not been given enough attention. It places a question mark as to whether any of the symptoms could have been avoided if the affected residents had been followed up on more in the form of psychosocial support. This is an area where there is great potential for improvement.

5.6 Opportunity for a 'build back better'

One element that is also connected to psychological reactions is that there is still a risk of a similar incident repeating itself. As the final question in the questionnaire, the respondents were asked to address what most concerned them in connection with any flooding incident in the future. Here, it is the insurance process and the financial perspective, as well as the damage to their property, which concern the residents most, while concerns about their life/health and rehousing were a little less worrying to them (figure 19). There is a significantly higher level of concern among those who had their house flooded than among those who did not (Q. 1) especially in relation to concerns about damage to property. This difference in the concern level suggests that those who have been personally affected by the flooding have a more realistic picture of what a flooding in this area involves. The graph also shows that those people who had their homes flooded previously feel more vulnerable. They continue to fear for their homes in the event of similar floods in the future.

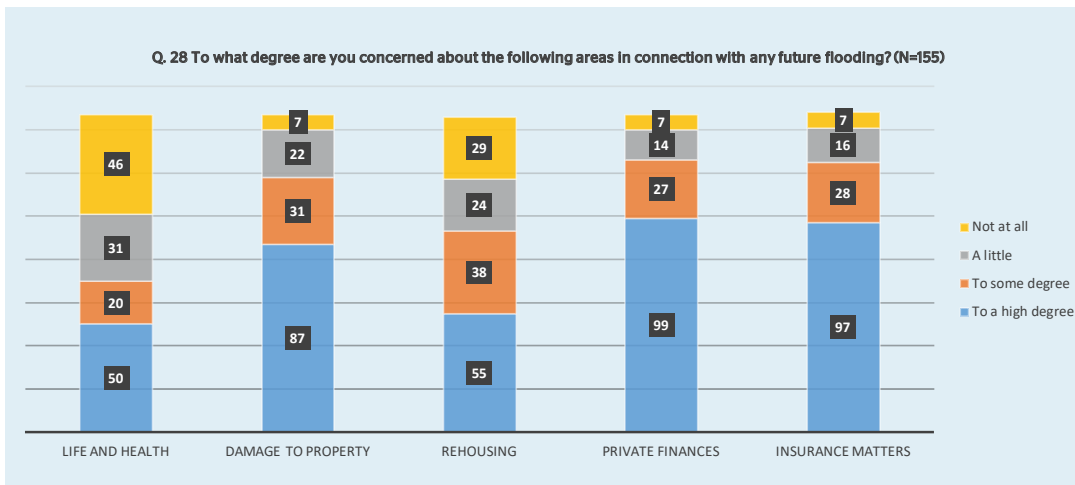


Figure 19: Q. 28 To what degree are you concerned about the following areas in connection with any future flooding?

One reaction to 2013's floods was to initiate a project to protect the area with a flood embankment. This project is not yet finished however, for many different reasons. A flood embankment would provide a higher degree of protection, so if the embankment had been built, the answers would have been different and the concern less.

There is however another element that is worth highlighting: in general, the present rebuilding has resulted in cleaning up the damage and building new structures. However, the rebuilding has not been done in a way that reduces the possibility of similar damage in the future. Again, this can be linked to the law on storm surges. What is covered is restoration to the standard the buildings had prior to the flooding. Additional safety measures, such as a raised column height, higher doorsteps etc. are not covered in most cases⁶.

In the literature concerning rebuilding processes⁷ (recovery) after natural disasters it is recommended that the destruction is used to rebuild in ways that prevent the incident repeating itself, see the theory of 'Build back better'. This has not been the case here. One exception is the electricity grid company, which as a reaction to the floods has since raised some of their distribution boxes, although other improvements were not mentioned. This can be attributed to the fact that the current focus in Jyllinge Nordmark is on getting the flood embankment project completed, which has been ongoing since Storm Bodil. A general recommendation could be however to study the possibilities of a rebuilding process not just bringing an area back to the state it was in before the incident but incorporating the opportunity to create more resilient solutions that can resist future flooding.



⁶ One exception to this is called 'legalisation costs' If building regulations are changed so the previous solution now becomes illegal, expenses for making this solution legal may be covered in some cases.

⁷ e.g. Damon P. Coppola (2015): *Introduction to International Disaster Management*

6. Conclusion

The aim of this research project has been to ensure that lessons can be learned from the experiences, which residents and professionals had during the rebuilding of the residential neighbourhood Jyllinge Nordmark after it was hit by floods from a storm surge in December 2013. A systematic collection and dissemination of this learning can contribute towards improvements in knowledge and practice, so that future rebuilding processes can be handled better.

In order to achieve this, the research project has attempted to answer the following questions:

- (1) How was the rebuilding experienced?
- (2) Which conditions were relevant to the rebuilding?
- (3) Which learning points have led to new practice?
- (4) Which problems have yet to be solved?

6.1 How was the rebuilding experienced?

Storm Bodil, and the scope of the subsequent storm surge, took both residents and professionals by complete surprise. This had an influence on efforts during the storm surge but equally on the rebuilding process that followed. No authorities or organisations had fixed procedures for coordinating such a task.

When houses are hit by coastal flooding, the resident's ordinary insurance policies do not cover them. Instead, a state supported disaster scheme steps in, which is managed by the Danish Storm Council. As a disaster scheme, this is created as a support to the affected residents but is not regarded as an ordinary insurance policy that covers everything. That is, the individual resident does not have anywhere near as much covered as if the house had burned down, for example. This came as a surprise to many residents, which was compounded by the fact that they had never considered the possibility that their house might be located in an area at risk of flooding. In addition, a change had been made to the Act on Storm Surges shortly before the incident. This meant that the case handlers and loss adjusters who had to administer the new legislation had no experience with it. This led to errors and uncertainties and meant that the residents were treated differently depending on who had dealt with their case. Overall this meant that the insurance question regarding coverage came to dominate the rebuilding process - for both affected residents and professionals.

In general, the affected residents experienced the rebuilding process as a very hard and confusing period. Many of them describe how the flooding sent them into a kind of shock, where many experienced psychological reactions that needed to be dealt with at the same time as the physical rebuilding.

6.2 Which conditions were relevant to the rebuilding?

That the flooding was such a surprise to everyone meant it was unavoidable that damage became greater and the entire rebuilding process dragged out. One central problem was the lack of coordination between the professional stakeholders involved. Many tasks were not clearly anchored with an organisation or authority, and there was uncertainty generally about the division of responsibility.

Besides the lack of coordination and planning, the insurance questions were the element that had most impact on the rebuilding time. Case handling times dragged on for longer because the affected residents did not believe the coverage they were offered was fair. Complaints prolonged the case handling time. In addition, the affected residents placed pressure on the national politicians to get them to change the law to make it possible to get better coverage and a lower deductible. This led to a change in the law in April 2014, which meant all the case needed to be reprocessed.

One last, important point is linked to the communication between the professionals and residents. The residents said that they did not know who they should contact or what they were expected to do themselves when suddenly faced with a flooded house. This meant that they spent unnecessary time searching for information, and many bad decisions were made. Some of the negative effect of the lack of communication from authorities to residents was offset by the strong local community and network. The residents found that they received information and assistance via those channels.

6.3 Which learning points have led to new practice?

The flood and the handling of it have already taught us new lessons that have led to a number of changes in the practice and structure of the authorities and organisations that were part of the study. In general everyone noted that on the basis of the knowledge and experience they gained from the storm surge in 2013, they would be better prepared and could react more appropriately if a similar incident occurred today.

In terms of more specific changes, many have worked at finding new and better ways of communicating with residents. Among other things, the Danish Storm Council has produced two small public information films, the electricity grid company has introduced an option to receive communication via SMS messages and the Red Cross has made it part of its standard practice to go from door to door in the affected area after an incident giving out information.

In terms of the collaboration between the Danish Storm Council and the individual insurance companies, a number of initiatives have been introduced to make the insurance companies' employees better prepared for handling these types of cases, including specific courses and a guide to interpreting the Danish act relating to storm surges and windfall.

6.4 Which problems have yet to be solved?

There are however still many areas where there is potential for improvement in future rebuilding efforts; especially those areas that fall between the authorities' and the organisations' formal areas of responsibility, and where there is thus no one who has a clear responsibility for dealing with them.

In general, there is a lack of proper emergency preparedness planning for the rebuilding process. Many of the authorities and organisations interviewed had emergency preparedness plans for how to react in the event of a flood. There are plans for who does what and which tasks need handling. Incorporated into these plans is how the team will cooperate with the other professionals involved. However, these plans stop immediately once the incident is over, which in the case of floods would be once the water has receded. This means that the further planning returns to the different sectors, and the general coordination across professional groups stops. There is a serious need for this emergency planning and approach to be extended to the rebuilding phase. That the coordination ends once the incident is over is a familiar problem in disaster management, but this does not make it any less problematic.

Two areas in particular suffer due to this lack of coordination. One deals with optimal communication, both between authorities and residents, but also between authorities and organisations. The other is linked to the psychosocial follow-up. The scope of psychological reactions when a residential area is affected in this way must not be under-estimated. If this is not handled through a coordinated psychosocial effort, then this can impact not only the affected residents' chances of returning to a healthy life, but also the rebuilding process itself. People under psychological stress find it harder to handle the overall task of rebuilding a home and a local area.

How these challenges can be best tackled will depend on the context and local conditions. We hope that this report and its accompanying recommendations will contribute towards putting the rebuilding process in more focus in the emergency planning work of authorities and organisations.

7. The study's methods

In this concluding section, the study's methods will be described in more detail. A questionnaire was carried out in February and March 2019. In November and December 2019, two group interviews were carried out with residents who had been affected by the flooding, as well as 10 interviews with professional stakeholders, which had been involved in the rebuilding process in Jyllinge Nordmark. First, the method for the quantitative questionnaire is described, followed by the method for the qualitative interview part of the study.

7.1 The quantitative questionnaire

This part of the study consisted of questionnaires sent out to residents in Jyllinge Nordmark, who lived in the area that had been hit by flooding. The questionnaires were sent by ordinary post by the Danish Coastal Authority with an enclosed franked return envelope on 8 February 2019 and the last reply was received on 25 March 2019. The questionnaire was sent out to 500 households. Replies were received from 155 respondents, which gives a general response rate of 31%. Of these, 64 had experienced their houses being flooded. A total of 268 houses were flooded in Jyllinge Nordmark after Storm Bodil. This gives a response rate of 24% from this group, with the reservation that there may have been residents of flooded houses who did not receive the questionnaire due to changes in home ownership, and it was sent to the current residents of the affected addresses.

The overall response rate, along with the response rate among homeowners whose houses had been flooded, is relatively high for these types of studies. It is therefore assessed that the questionnaire provides a fairly representative picture of both the affected and less affected homeowners in Jyllinge Nordmark. It must be noted however that homeowners with the most to say, most often about their negative experiences, had probably been more motivated to answer the questionnaire. Their responses can thus be over-represented.

As this was a questionnaire that was sent by post with a letter, it was not possible to check whether the respondents filled out the questions correctly, which is why the number of responses does not match the number of returned questionnaires in all cases. This could also be one reason for a distortion of data in the analysis of some questions.

The wording of the questionnaire had been made in a collaboration between the Danish Coastal Authority and Analyse Danmark ApS. The sending of questionnaires, collection of data and first round of data processing has been carried out by Analyse Danmark ApS. The final analysis as well as the wording of the report has been carried out by the Emergency and Risk Management Programme at University College Copenhagen.

7.2 The qualitative interview study

Here, the group interviews with residents are described first, followed by the interviews with the professional stakeholders.

7.2.1 Group interviews with residents

The two group interviews were held in November 2019, both in a room in the Jyllingehallen community sports hall. They took between one hour and 15 minutes and one hour and 30 minutes. The interviews started with questions about the participants' personal experiences of the flooding and progressed to questions focusing on how a similar incident could have been handled better, as well as what information people in their situation would need.

The participants were recruited through a variety of paths. In the first instance, the researcher group were given the names of several potential key people, partly through the Danish Coastal Authority and partly through their own contacts. Two of these were selected, as they were assessed as being the most neutral in the local political environment. They were contacted and asked if they could help by contacting other relevant residents. As we had only received a small handful of responses during the first two weeks, we decided to put a post up about the project on two local Facebook pages as well ('Flooding in Jyllinge - We help each other' and 'The Association - A better Jyllinge'). At the same time we contacted two of the more politically active key people, and this combination gave us a total of 10 focus group participants. Of these people, six were recruited through Facebook while four were recruited through the key people (one key person participated themselves).

The following criteria were set for selection:

- Equal distribution of age and gender
- Participants with different educational backgrounds and levels
- People who had experienced both bigger and smaller levels of damage to their homes, ground or other property
- People who were both active in the local community and those who were not active, with a slight majority of non-active participants

Four people took part in the first interview. Of these, three were male and one female. Six people took part in the second interview. Of these, four were male and two female. All those interviewed were aged between 38 and 75 and the majority were male. There was an equal breakdown of people under and over 50 years. Their educational backgrounds also varied, from a longer higher education to an unskilled background. Most of those interviewed had experienced between a half to a whole metre of water inside their house. Two had only had a few centimetres. One of those interviewed was a known figure in the local community. None of the others had any noteworthy active role in the local community, which we saw as positive, as it was these voices that we were especially interested in hearing.

Our group interviews had a predominance of males over 50 years and most of them had experienced significant damage. What we noticed during the interviews however was that different stories were told and that both positive and negative experiences and perspectives were presented. This, compared with the answers from the questionnaire, enables us to assess that we have managed to incorporate most perspectives into our interviews. There is however a tendency with these type of interviews for those who answer questionnaires and choose to take part in interviews to be the ones who need to share their experiences, and here they are largely negative. It is thus possible that more positive experiences exist, which are not fully represented in this study.

7.2.2 Interviews with professionals

In total, 10 interviews were carried out with professional stakeholders. Most of the interviews were with one person. Two were with several interviewees. A total of 13 people was interviewed. All the interviews were carried out between 15 November and 15 December 2019 and took between 30 minutes and 2 hours. Four of the interviews were carried out over the telephone, as this was the only option within the project's time frame. The remaining interviews were all carried out at the interviewees' workplaces.

The selection of the participants was made on the basis of the information, which the research group and the Danish Coastal Authority had about the flooding in Jyllinge Nordmark in 2013 along with similar incidents in Denmark. In addition, the interviewees were asked who they felt ought to be included in the study. This generated a list of relevant authorities and organisations, which were then contacted. In some places the starting point was the name of a specific person who we knew had been involved in the handling of the rebuilding process. In other cases we had to contact an authority/organisation and ask them to redirect us to the relevant person. With the insurance companies and the electricity grid company in particular, we had to first contact customer service and then be referred onwards in the system. It has required persistence and repeated efforts to get through to the interviewees in these companies.

The following interviews were carried out:

- Roskilde Municipality (Technical and Environmental Department)
- Roskilde Fire Brigade (incident commander during the flooding)
- Roskilde Fire Brigade (on duty during the flooding)
- Danish Storm Council (secretariat staff)
- Danish Storm Council (head of claims management)
- Insurance company 1
- Insurance company 2
- Insurance company 3
- Red Cross
- Radius (electricity grid company)

The interviews with professionals were carried out over the course of a relatively short period of time, which is why there is a number of stakeholders who we did not manage to get into contact with or who did not have time during this period. We would like to have included the social services department in Roskilde Municipality as well as a recovery company and building consultants, as was suggested in the interviews. It could also have been relevant to include the building contractors, recovery companies and building consultancy companies that worked in Jyllinge Nordmark during the rebuilding phase. These last groups were missed out due to lack of time and resources. Overall however, we managed to carry out interviews with all the stakeholders on our original list. Those we didn't manage to interview were those who were suggested along the way by other interviewees. It cannot be ruled out however that we may be missing certain perspectives from the study's conclusions.

7.2.3 Processing of interview data

All interviews, both with residents and professionals, were transcribed and coded based on the research project's focus points. Here, the starting point was the report's four study questions:

- (1) How was the rebuilding experienced?
- (2) Which conditions were relevant to the rebuilding?
- (3) Which learning points have led to new practice?
- (4) Which problems have yet to be solved?

The planning, completion and analysis of interviews was carried out by the Emergency and Risk Management Programme at University College Copenhagen.



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