

Universiteit Twente

Flood Insurance: Public or Private?

On the desirability and feasibility of flood insurance in the Netherlands



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Foreword

For my Master of Public Administration I have chosen to research the feasibility and desirability of private flood insurance in the Netherlands. I have an interest in the field of economics and wanted to explore how governmental action can influence economic conditions, in this case flood defense in particular. While the suggestion to concentrate on the field of flood insurance came from my supervisor, the particular details of this study have been developed by myself. Protection against floods is a relevant topic in the Netherlands, and unlike in other countries, large scale private flood insurance is not present. This has made me curious and led me to ask the questions: why is there no flood insurance present in the Netherlands? And what benefits would private flood insurance have?

While at first I thought that the geographical situation of the Netherlands surely is different from many other countries, the way the government has approached the issue of flood protection had also been different from that of other nations. This way I have managed to combine my personal interest in economics with governmental policy, which is related to my study, and apply these theories to the issue of flood defense.

I would like to thank my first supervisor Tatiana Filatova for her continual support during the whole process of my research, and for her insightful comments and feedback, and my second supervisor Tsjalle van der Burg for his help on economic theory and research method. I am furthermore grateful for the time the people whom I have interviewed have given me and all of their useful insights which were crucial for this study. The responsibility of all the content in this work are of course entirely my own.

Kelvin Thompson,

Enschede, 24 June 2013

Summary

Unlike other European countries, the idea of private flood insurance is uncommon in the Netherlands, until quite recently, only one insurer is offering flood insurance. This is quite surprising because the Netherlands is unlike other European countries situated below sea level. Since the flood catastrophe of 1953 the Dutch government has been responsible for flood defenses and flood damage compensation, and still is to this day. What benefit would private flood insurance have for homeowners who are at risk of flooding in the Netherlands?

Flood insurance premiums can be differentiated according to the flood risk of a household. This will result in economic incentives to mitigate risks in order to lower premiums, these risk mitigations will minimize potential damages that may result from a flood. Furthermore, higher premiums in areas of high flood risk may lower property values near water, this will give economic incentives to build homes in certain ways and certain locations keeping flood risk in mind.

Despite these benefits, insurers are less likely to be able to cope with larger floods. The nature of flood disasters are that a lot of damage is being done in a short amount of time, insurers may not have reserves at hand, leaving homeowners without compensation. In such situations government assistance can be considered in order to cover the shortcomings of insurance companies. Taking the difficulties of covering flood risk in mind, is private flood insurance feasible in the Netherlands?

In terms of flood risk, individual insurers are reluctant to offer flood insurance because they may run the risk of going bankrupt. It may be more feasible if multiple insurers work together in offering flood insurance and pool their risks, reinsurance on the international market is also an option. Another problem for insurers is that homeowners are generally unaware of their flood risk, meaning they have insufficient demand for flood insurance. Homeowners are also reluctant to purchase flood insurance because they have the expectation that the government will support them in the event of a disaster.

In current conditions, the idea of private flood insurance is not feasible in the Netherlands. Insurers in the Netherlands have no prior experience of estimating flood risk, and also have limited capacity of coping with larger flood catastrophes. There is also little demand among homeowners for flood insurance due to unawareness of flood risk and the expectation of government assistance.

That said, conditions more favorable to flood insurance can be realized in cooperation with the government. For instance the government can create certainty by not compensating flood damages below a certain amount, effectively making citizens partly responsible for their own risk, providing opportunities to offer private flood insurance.

1. Introduction & research method

1.1 Introduction

On the night from the 31st of January to the 1st of February in 1953, a major flood catastrophe has hit the Netherlands resulting in major casualties and property damages. As a result of this, the Dutch government has since taken full responsibility for flood protection and flood insurance. This task has met little objection since the government is widely regarded to have the task to protect its citizens.

Nevertheless, government protection for flood disasters are not the only means, private options are also possible. In the United Kingdom the government does not intervene by offering flood damage compensation (Botzen & van den Bergh, 2008, p.422). Instead private insurers offer flood insurance in the UK. The government is not completely absent from the private provisions of flood insurance however, flood insurance in the UK is a bundled and compulsory system. Homeowners are obliged to buy insurance coverage when applying for a mortgage, and flood insurance is included in the coverage. A problem however is that there are no price controls in this situation, meaning insurers may charge high prices, which they can easily do when buying insurance is compulsory (Huber, 2004, p.173).

In France flood insurance is arranged in a public-private partnership, where the government only compensates flood damages if it recognizes a flood as a disaster. In France everyone has insurance coverage because it is mandatory. Insurance companies can also reinsure their risk, and the reinsurer is covered by a state guarantee (Shoubroeck, 1997, p.249).

In Germany flood insurance is provided for by the private sector. Flood insurance is limited since it is not compulsory in Germany. Without a compulsory flood insurance scheme, market penetration for natural hazards is 10% for household contents and 4% for residential buildings (Thieken, 2006, p.387). Because of a considerable flood in 2002, the German government has stepped in to compensate for damages, due to public pressure (Botzen & van den Bergh, 2008, p.423).

The United States has voluntary flood insurance, the National Flood Insurance Program (NFIP). Insurance premiums are determined by FEMA based on flood maps (Barnhizer, 2003, pp.331-332). The voluntary nature of the program makes sure that properties with the highest risk get covered. A problem however is that the actual risk is not well reflected in the premiums because much of the insurance is subsidized by the government (Filatova, 2011, p.17).

While in the Netherlands, the government still plays the biggest role in the supply of flood protection and damage compensation, several changes have been made in recent years that give more room for private alternatives. The prohibition of private flood insurance, which has been in effect since the 31st of December 1953, has been repealed in 1998 due to conflicts with European legislation (Lengkeek, 2010, p.33). The 'commissie waterbeheer 21e eeuw' recommended to keeping unprotected areas (such as coastal areas and areas near riverbeds) uninsured because flood defense is seen as the responsibility of government (Lengkeek, 2010, p.33). In recent years views regarding government responsibility have changed. The 'Nationaal Bestuursakkoord Water' in article 11 (2008) states the following: "Citizens and businesses are responsible to prevent or reduce water damages" (Lengkeek, 2010, p.33). Recent political developments also imply that there is a tendency for a public-private partnership regarding flood insurance. But the current administration does not have private flood

insurance constructions set as a priority due to difficult economic times and restrictions of private insurance (Lengkeek, 2010, pp.36-37). Due to the expected increases of flood risk as a result of climate change, the Deltacommissie (2008) has given several recommendations. These recommendations emphasize the strengthening of flood defenses, and also discuss the cooperation between the government, citizens and businesses.

Today the government can provide compensation for flood damages through the wet tegemoetkoming schade bij rampen (WTS).¹ There are limitations to the amount that can be compensated, this will be discussed more extensively later in this work. Despite the fact that the prohibition for private flood insurance has been lifted, there are almost no private alternatives to flood insurance available in the Netherlands (Botzen & van den Bergh, 2008, p.414). The only recent exception is Neerlandse who does provide flood insurance to a limited extent.

1.2 Research problem

This research intends to investigate the possibility of flood insurance in the Netherlands from two perspectives. The first perspective is desirability: what benefits does private flood insurance have from the point of view of homeowners compared to the current situation? In terms of desirability it will be discussed what benefits flood insurance can have for homeowners in terms of lowering costs and flood risk in various ways. Possible disadvantages for private flood insurance as compared to governmental action will also be discussed. The second perspective is feasibility: to what extent is private flood insurance a feasible alternative in the Netherlands? Feasibility of flood insurance in the Netherlands will be investigated from an economic and institutional point of view. Economic conditions, such as flood risk and demand can affect feasibility, and institutional conditions, such as laws and governmental intervention can affect feasibility also.

1.3 Research question and method

The research question and sub-questions are stated as follows:

To what extent is private flood insurance a desirable and feasible alternative in the Netherlands under current economic and institutional conditions?

- To what extent is private flood insurance a desirable alternative in the Netherlands under current economic and institutional conditions?
- To what extent is private flood insurance a feasible alternative in the Netherlands under current economic and institutional conditions?

Before the research question will be answered the two sub-questions need to be dealt with first. In order to investigate the utility of private flood insurance in the Netherlands existing economic theory and literature on the topic will be the object of our study. For the aspect of feasibility of flood insurance literature will also be used, and in addition the WTS and its applications will be analyzed. Next to a literature review, various experts in the field of flood insurance will also be interviewed in order to discover the feasibility of flood insurance in the Netherlands.

¹ For more details on the WTS see <http://wetten.overheid.nl/zoeken/>

1.4 Structure

In the second chapter of this work the desirability of flood insurance will be investigated. Existing theories and literature will be used to explore the advantages and disadvantages of flood insurance from the point of view of homeowners. It will also be compared with various governmental schemes such as a public private partnership. The conclusion of the second chapter will answer the first sub-question. The third chapter will focus on the feasibility of flood insurance and will also use existing theories and literature, in addition historical events and institutional conditions particular to the Netherlands will be investigated. Relatively little is known of the prospect of private flood insurance in the Netherlands because it is mostly absent. Therefore chapter three will not provide definitive conclusions on the feasibility of flood insurance, but will rather propose certain propositions which will be tested by further research. Interviews have been held with various experts in the field of flood risk and insurance in order to give more reliable answers to the second sub-question. Chapter four will highlight the specific method in which the interviews have been carried out. The results of the interviews will be discussed in the fifth chapter, followed by conclusions in chapter six. Finally the research process will be reflected upon in chapter seven.

2. Flood insurance: public and private

Flood insurance can be provided in two different ways, firstly it can be provided by voluntary cooperation. Insurance companies will offer flood insurance for homeowners, and homeowners can decide to take a flood insurance policy or not. It should be noted that the government can alter the nature of a flood insurance market by intervening, interventions can for instance be price fixing, subsidization or making the purchase of flood insurance mandatory. In this case there is still a market, although it has been influenced by government intervention. Another method for the provision of flood insurance is the coercive or involuntary method. With this method the government provides compensation for flood damages, in contrast to private flood insurance, the funds used to pay for the compensation do not come from insurance premiums that have been paid for voluntarily, but has been collected from the general population in the form of taxation. Krutilla (1966, pp.185-186) argued that governmental compensation programs separates beneficiaries from those who bear the costs (taxpayers). Not only those whose benefits exceed the costs will live in an area with flood risk, but also those who only marginally benefit by living near water. This would cause an overinvestment in areas with flood risk, and increase the capital value of these areas. In the following sections the differences between private flood insurance and government intervention will be discussed.

2.1 Prices

The price or the insurance premium is determined by supply and demand. The demand for flood insurance, or the willingness-to-pay, depends on the perceived difference between the loss of flooding and the paid insurance premium (Macdonald et al, 1987, p.364). Demand for flood insurance varies between individuals. At any given level of flood risk, individuals may have a very high demand for flood insurance if they value their property much. Some homeowners may have a lot of emotional value for their home which may cause them to have a very high willingness-to-pay. On the other hand willingness-to-pay may be lower if the homeowner attaches less value to his or her home. The individual then has to decide whether the insurance of his property against floods is worth the premiums he has to pay. Next to the value someone attaches to the property itself, environmental amenities may also be taken into account, and indifference to flood risk can also influence the willingness-to-pay of flood insurance.

Another important factor in the decision to buy flood insurance is the level of flood risk. It is obvious that the demand for flood insurance is higher at a high flood risk and lower when there is low flood risk. The risk triangle as described by Crichton (2008, pp.123-124) gives a clear illustration on the factors that determine the level of flood risk.



Hazard implies the frequency and severity of flood catastrophes, vulnerability can be reduced by constructing homes in such a way that minimizes damages in the event of a flood. Finally, exposure is determined by how many structures are in an area with high flood risk, typically areas near water

and with low elevation. These characteristics are particularly prevalent in many areas in the Netherlands. The level of flood risk may have significant impact on the willingness-to-pay of homeowners and therefore on the demand and the eventual price. While the objective level of flood risk may or may not be known, the subjective perception of flood risk of individual homeowners may have an even more significant impact on demand. First and foremost, the perception of flood risk does depend on the actual awareness of any flood risk. According to Browne & Hoyt (2000, p.296), individuals that underestimate flood risk may find the price of flood insurance too high. Lack of awareness of flood risk can be a cause. Better informing individuals may increase their willingness-to-pay, provided that the information reveals that flood risk is higher than previously perceived. Another effect is that individuals who are better informed about flood risk may also be more inclined to take flood reduction or prevention measures themselves (Ludy & Kondolf, 2012, p.830). Secondly, past experiences of flood risk may have left an impact, which may cause someone to perceive flood risk as a more severe risk than someone who has no previous experience. Lastly, the expectations of the flood management is essential, for if someone has a lot of confidence in the ability of the government to manage a flood disaster, one may perceive a flood risk more lightly than otherwise would be the case. On the other hand, with little trust in the management, flood risk may be perceived more highly, resulting in increased demand for flood insurance (Treby et al, 2006, p353). In summary, the willingness-to-pay of flood insurance depends on the individual valuation of property and the perception of flood risk. Homeowners will only take flood insurance if the premiums offered by insurance companies are equal to or lower than the willingness-to-pay. Estimations have also been made on the willingness-to-pay which suggest that a market for flood insurance could indeed be possible (Botzen & van den Bergh, 2009, pp.271-272). Four factors that affect the perception of flood risk have been show by Palm (1995, p.74). The first factor implies the diversity between individuals in how they value or interpret expert advice on flood risk. Secondly, individuals also differ in the way they balance costs and benefits. Thirdly individuals also vary in their expectations as to who must take responsibilities and risks in the event of a disaster. And the fourth factor takes into account how individuals differ in the importance they ascribe to flood hazard compared to other aspects of their lives.

The actual price of the premiums will be determined at the point where supply and demand meet, now that we know how the demand for flood insurance is determined, we shall move on to the supply side. For insurance companies, offering flood insurance is different than other insurance policies. Accidents and theft occur regularly and can be better predicted by looking at statistics. For this reason insurance companies can accurately estimate how much funds they need to keep in reserves in order to cover expected losses. Floods however do not occur frequently, are therefore more difficult to predict, and also flood damages are much larger in scale. The losses in the case of flood insurance are "lumpy" and require much more liquidity (Raykov, 2011, p.2). This also means that in order for flood insurance to have enough liquidity, insurance premiums need to be high enough. How much these premiums would be largely depends on the flood risk.

To assess flood risk insurance companies can run models that help them predict possible damages resulting from flooding. For this purpose, models have already been created for catastrophe situations. Lohmann & Yue (2011, p.133) described the four elements such a model typically consists of:

1. Stochastic model

This model randomly generates stochastic events with various sizes, locations and frequencies. Lohmann & Yue (2011, p. 135) have used historical data from the China Meteorological Administration to generate 24500 unique stochastic events. The model basically calculates probability of events based on historical data.

2. Hazard model

The hazard model generates the local severity of a catastrophe should it occur. In the event of flooding the flood depth would be estimated.

3. Vulnerability model

This model estimates the losses that would occur given the local severity of a catastrophe.

4. Financial model

This model estimates industry and economic losses.

Insurance companies need to take all of these four elements into account when estimating flood risk. It must first be estimated what the probability of a certain event is, secondly the severity of such a catastrophe needs to be estimated, then it will be possible to estimate the associated losses, and finally industry and economic losses can be associated with the potential damages.

A specific model of estimating flood insurance premiums in the Netherlands has been used by Aerts & Botzen (2011, pp. 1050-1052). This is called the Climate Risk Insurance Model (CRIM), it estimates over time the flood insurance premiums. At a specific point in time, premiums can be estimated by looking at the severity and probability of a flood, and the amount of structures present in the area of concern. A projection over time can also be made with estimations of future changes in the climate and economic developments.

Another specific model is the Integrated Catastrophe Risks Management Model (ICRM). This model has been applied in the Rijnmond-Drechtsteden area in Rotterdam, and has differentiated flood risks and the height of insurance premiums between different geographical areas (in this case they have been grouped by different neighborhoods). Another feature of the model is that it has taken into account the burden of flood risk among various stakeholders, such as the government, insurers, businesses and private homeowners (Ermolieva et al, 2013, pp. 26-33).

Just as homeowners would have a higher willingness-to-pay when they expect a high flood risk, so would insurance companies charge higher premiums when they expect high flood risk. According to Raykov (2011, pp.14-15) insurance companies may exit the market if the price of insurance premiums becomes too low. But Raykov also states that a market for flood insurance may not arise because homeowners are not willing to pay too low insurance premiums because then they no

longer trust the ability of insurance companies to pay for damages. It is clear that with high flood risk, insurance companies would charge higher premiums, and a market can only arise if homeowners have high enough willingness-to-pay. But according to Raykov (2011, pp.14-15) low insurance premiums can also prevent the formation of a market if consumers do not trust the ability to pay of insurance companies. Low insurance premiums however would not automatically mean that insurance companies cannot cover the losses. The premiums can also be low because the flood risk also is low. What is important is not if the price is “too high” or “too low” but whether the price of the premiums is proportional to the expected losses. If insurance companies ask a lower price than the expected losses of homeowners, this may cause homeowners to distrust insurance companies, however insurance companies in this case likely perceive flood risk as lower. The case can also be the reverse, the homeowners perceive very little flood risk and insurance companies expect a high flood risk, then premiums will be higher than the willingness-to-pay of homeowners. This means in short that a market can also be prevented to form when there are significant differences in expectations of flood risk between consumers and insurance companies. There can also be other cases where insurance companies indeed take too much risk, in that case consumers would be correct in not trusting an insurance company. Transparency of the operations of insurance companies can be helpful for consumers to check how reliable they are.

In summary, the price of flood insurance is determined on the market by the voluntary transactions between homeowners and insurance companies. The major determining factors are the valuation of property on the side of homeowners, and the perception of flood risk by both homeowners and insurance companies. Research into the actual flood risk plays an important role, for the knowledge of flood risk may cause homeowners and insurance companies to act differently.

2.2 Government intervention in the market

The previous section offered an explanation of how a purely private flood insurance market would look like. Prices are formed where supply and demand meets, but there is also reason to assume that a market in flood insurance will not look like it is depicted in the previous section. The government may also decide to intervene in the flood insurance market for various reasons. The prices that would otherwise arise out of the market may be different in such a situation.

2.2.1 Monopolies and cartels

Let's assume that in the Netherlands conditions have turned more favorable for private flood insurance. In the beginning it is likely only a small number of insurance companies will enter the market, at this point the supply of flood insurance is still relatively limited. Because of the limited supply premiums will still be high, but as long as insurance is voluntary, prices cannot be too high, otherwise no one will buy the insurance. A lot of competitors will be attracted to the flood insurance market because of the high premiums. The competition for customers will bid the prices down. But what if no new competitors enter the market and there is a monopoly or a cartel? In this case prices will stay high, and the supply of flood insurance will remain limited, and many homeowners are not willing to buy the insurance. Monopolies and cartels can be outcompeted by other insurers who offer lower prices, but this may not happen in all cases. Some insurers can maintain monopolistic positions if the monopoly arises in the form of a grant of special privilege by the government (Rothbard, 2009, p.1089). In this case competitors may be prevented to enter the flood insurance by legislation. In the Netherlands cable companies have a similar privilege after this sector has been privatized. If government legislation would give one or a few insurers a position of privilege and newcomers

cannot compete, this will result in higher prices than would have been the case when there was more competition. There would still be a limit to the level of prices a possible monopolist could charge, because monopolist too can lose customers who rather not take flood insurance instead of paying a high price.

2.2.2 Compulsory flood insurance

This situation changes when the government would make flood insurance compulsory. When homeowners are forced to pay flood insurance, the only way to escape the high prices is to move elsewhere, which is quite a high barrier. This means that (monopoly) insurers can charge even higher premiums when flood insurance is compulsory. As mentioned earlier, Huber (2004, p.173) asserts that price controls can solve this problem.

2.2.3 Price controls

Maximum price controls can help alleviate the problem that comes with compulsory flood insurance, namely that insurers can charge higher premiums. To some extent this may work, however new problems can arise if the price of flood insurance is fixed too low. If the government sets the price that low that the income from premiums cannot cover the flood risk, insurance companies will no longer enter the market, and some insurers are likely to leave the market. This means the supply drops, while at the same time the lower premiums will attract more demand. This will cause a mismatch between supply and demand, meaning there will be shortages of flood insurance schemes, or insufficient reserves available for covering potential losses. For a more detailed discussion on price controls see Rothbard (2009, p.1075).

2.2.4 Public-private partnership

Another alternative to purely private market in flood insurance is a public-private partnership. The French flood insurance system is a good example of a public-private partnership. Private insurers offer flood insurance to citizens on the market, but they have the option to get reinsurance at the Caisse Centrale de Réassurance (CCR), this is a state owned reinsurance company. The CCR has an unlimited government guarantee, so it cannot go bankrupt. This system is in fact similar to the modern banking system, where a central bank is the 'lender of last resort', but in this situation the government gives a guarantee should private insurers fail in the face of a catastrophe (Marcellis-Warin & Michel-Kerjan, 2001, p.7). Compared to a purely private market there are two differences worth noting. Firstly, there will be more incentives for insurance companies to offer private flood insurance because their risks are better covered. The government can always rescue them if they get into trouble, this state guarantee can potentially expand the market for private flood insurance. The second feature is that it there will be less incentives for private insurers to be careful with offering insurance. They may start giving flood insurance in areas where the risk is really too high, because the government will rescue them anyway. It must be noted that a government rescue will be a bailout consisting of taxpayer money, meaning people in low risk areas also pay, much like with governmental flood risk compensation. So in short, this form of public-private partnership does create the potential to expand the flood insurance market, but it also encourages more risky behavior. This extra risk could mean that profits are privatized and the losses are socialized, similar to the financial crisis of 2008.

2.3 Motivations for government intervention

Leaving the provision of flood insurance to market forces will by no means guarantee that a market in flood insurance will actually arise. Should the flood risk become higher, insurance companies need to accordingly price their insurance premiums in order to cover the costs. If homeowners are not willing to pay these higher premiums, a market for flood insurance cannot function. Insurance companies may also leave the market because it is too risky. On the other hand there are also opportunities for the insurance industry to grow by spreading risk by means of reinsurance (Sturm & Oh, 2010, p.161). However when purely private flood insurance is not possible, the government may decide to step in. For the Netherlands, the commissie Poelman (2005, p.21) states that private flood insurance would not be possible in all the unprotected areas. This report also states that the insurance industry makes a distinction between purely private insurance, and insurance constructions with government involvement. Governments can for example provide coverage for the risks that are not insurable by the private insurance companies.

There are essentially two ways the government can intervene in the business of flood insurance, it can influence an already existing market by means of regulations and subsidies. Or alternatively the government could not allow a market and nationalize the provision of flood insurance altogether. This has been the case in the Netherlands from 1953 until 1998. Although private flood insurance is currently allowed, it is hardly present in the Netherlands, and the government still is heavily involved in the provision of flood protection and compensation. The main reason for the government to decide to intervene in the business of flood insurance is when it is believed that no flood insurance is possible without government intervention, or that a government program of flood insurance is preferable to private options.

Another argument for government involvement in flood insurance is that individuals may decide not to buy flood insurance if it is voluntary. In the United States for instance, few people chose to buy flood insurance under the National Flood Insurance Program (Blanchard-Boehm et al, 2001, p.201). Three categories have been listed by Blanchard-Boehm et al (2001, pp.203-205) as to why individuals choose not to buy flood insurance. The first category is psychological defense, here the individual may subconsciously underestimate the risk, they may think such things could never happen to them, or they assume the government will help them out. The expectation of government assistance may weaken their sense of individual responsibility. The second category mentioned is perception of vulnerability, here people may underestimate flood risk. Individuals with previous experience may have a higher perception of flood risk than individuals without such experience. The third category is the economic, individuals may find flood insurance premiums too expensive and decide not to buy it.

Out of this argument the recommendation for mandatory flood insurance follows. This way everyone is insured, even if they do not want to. Whether the reason someone does not want to is because of incorrect information about flood risk or judgments of value can differ per individual. An advantage may be that everyone is better protected. However the price formation that normally is determined on the market by the voluntary interactions of individuals is severely hampered. If flood insurance is voluntary, insurance companies would have to provide reliable flood insurance at an acceptable price to attract customers. But if everyone is forced to buy flood insurance, insurance companies have every incentive to provide lesser quality insurance for a higher price, assuming individual self interest in order to maximize income. In this case the government has to fix the price in order to prevent this

from happening. However the new price set by the government would be somewhat arbitrary and no longer reflects the voluntary interactions between insurers and customers.

2.4 Determining the value of flood insurance

To discover how homeowners value flood insurance, a distinction can be made between revealed preference and stated preference. In the case of revealed preference, the valuation of flood insurance is demonstrated by the behavior of individuals. The hedonic pricing method is an example of estimating value based on revealed preference. With voluntary flood insurance, the decisions to buy or not buy flood insurance demonstrates preference. When flood insurance is mandatory, or a public good, revealed preference cannot be used to demonstrate valuations. Homeowners have no choice in the matter, so the only way to find out how they value flood insurance is to ask them, this is an example of stated preference (Leuchinger & Raschki, 2009, p.621).

When flood insurance is a public good, value can no longer be demonstrated by the behavior of economic actors. There are no market prices, so it is not possible to calculate how much flood insurance is needed based on market demand. In this situation the value of flood insurance has to be estimated by stated preference. A well known stated preference method is the contingent valuation method (CVM). Because with the method of CVM respondents are asked directly in a survey how they value a public good, a lot of controversy emerges regarding validity and reliability (Leuchinger & Raschki, 2009, p.622). When flood damage compensation is paid for with tax money by the government, the homeowner does not have to directly pay for flood insurance, there is no more direct link between payment and services. Therefore no tradeoffs need to be made between flood insurance and other goods and services one can purchase. In other words it is easy to fill in a questionnaire that you are in favor of flood damage compensation when you are not directly liable for the costs. A good example of an application of CVM is the study of Botzen et al (2009) on the willingness of homeowners to mitigate risks through insurance. In a survey questions were asked such as if one is willing to buy sandbags if it could lower insurance premiums.

Another approach to value public goods is the Life Satisfaction Approach (LSA). Leuchinger & Raschki (2009) have performed a research on how flood disasters can decrease quality of life, using the LSA. The results of this study do indeed reveal that flood disasters have a negative impact on life satisfaction. This method may take away the bias that is present in the CVM. An example of an LSA research is illustrated well in Glenk & Fisher (2010) where citizens were asked on their views of public policy regarding flood management. Certain principles were concentrated on aspects such as sustainability, efficiency and solidarity. Here also the problem remains that the respondents do not make any tradeoffs as they would do if they had to buy flood insurance themselves.

When flood insurance is private and voluntary, personal preferences determine the demand for flood insurance, and in turn also in part determine the prices and the size of the flood insurance market. The reason why studies such as the LSA and the CVM are carried out because there is no price system that allocates resources when flood insurance is a public program.

2.5 Flood insurance and flood risk

The provision of private flood insurance and the level of flood risk are closely related. In terms of vulnerability, individuals will have an incentive to mitigate their flood risk if this results in the reduction of flood insurance premiums. Examples of the mitigation of flood risk are the purchase and

use of sandbags, or moving expensive equipment to the first floor to avoid water damages. By these measures flood risk and thereby potential damages are successfully reduced (Botzen et al, 2009). It should not be assumed that each individual homeowner has extensive knowledge of flood risk and will accordingly mitigate their risk. Insurance companies on the other hand, have every incentive to be very knowledgeable about flood risk, since the taking of risk is their business. Therefore, the height of the insurance premiums more accurately reflect flood risk and hence serve as a signal for homeowners for the level of flood risk. Even for homeowners that cannot afford or do not wish to buy flood insurance can recognize that there is considerable risk due to high premiums, and thus may provide them too with an incentive to mitigate risks. When private flood insurance has been replaced by government flood damage compensation with taxpayer money, no flood insurance premiums exist. When homeowners do not have to pay for flood insurance and receive government compensation regardless of their circumstances, they will have considerably less incentive to mitigate their risk. Therefore the amount of vulnerability to flooding is higher than it would have been in a private flood insurance market, resulting in higher flood risk, and higher costs should such a catastrophe occur.

In terms of exposure, private flood insurance may assist in more responsible decisions for the construction of houses. If decisions are made to irresponsibly build homes near areas with high flood risk, real estate developers would only harm themselves, for less people are inclined to buy these houses if flood insurance premiums are high, thus lowering the property values accordingly. Macdonald et al (1987, pp.366-269) presents empirical evidence on the relation between housing prices and flood risk. This creates incentives to build houses more safely and responsibly. In contrast, no such incentives exist when there are no insurance premiums and the government provides flood damage compensation. In fact, without insurance premiums, property values may actually be higher near the seaside due to the environmental amenities (Filatova 2011, p.5). Without the restraint of having to pay for flood insurance, there is an opposite tendency to construct homes in areas near the seaside where the flood risk is considerably higher. While private flood insurance creates incentives to reduce exposure to flood risk, governmental compensation actually has the tendency to increase exposure, resulting in higher costs in the case of a flood disaster. Flood defenses can have similar effects, after the construction of flood defenses more homes and businesses are attracted to a safer area (Filatova et al, 2011, p.165). While flood defenses do decrease flood hazard, they have the tendency to increase flood exposure. On the other hand this tendency could be restrained if flood insurance premiums would still be present.

Private flood insurance has a tendency for individuals to act responsibly with their own property, which has a tendency to also reduce flood risk, whereas public compensation removes these incentives and can even provide opposite tendencies that increase flood risk. On the surface public compensation seems very beneficial because the homeowners will just receive compensation without having to pay premiums, it also provides a safer guarantee for flood insurance. Everyone can be covered regardless of their income, and the government is far less likely to become bankrupt in the short term (compared to insurance companies), because it can also borrow more and tax more. However when looking at long term effects, it may increase flood risk by increasing vulnerability and exposure. This means damages can potentially be far higher than would have occurred in a private flood insurance market. The higher costs need to be paid by society as a whole and can thus result in a redistribution of wealth from people who live in low risk areas to people who live in high risk areas. Most importantly, because public flood defense and insurance results in a tendency towards higher

flood risk by increasing vulnerability and exposure, more resources need to be allocated towards flood protection and insurance. Where vulnerability and exposure adequately reduced by incentives of insurance premiums, a lot less would be spent on flood defense and insurance. All these resources would then have been used to fulfill more urgently needed ends.

In the future, flood insurance may be a useful tool in the adaptation to climate change. As expectations are that flood risk will increase due to climate change, insurance companies have to raise their premiums to cover the additional risk. This will decrease economic incentives to invest in areas with higher flood risk. There are limits to the benefits of flood insurance regarding climate change adaptation, should the flood risk become too high insurance companies may find it too risky to offer flood insurance. A problem may also be that homeowners would not be willing to pay the higher insurance premiums. Estimations on the demand side from Botzen & van den Bergh (2009, p.275) indicate that flood insurance can become more profitable due to climate change, because homeowner will have more willingness-to-pay.

2.6 Government and risk communication

The previous section demonstrates that government compensation for flood risk can actually increase flood risk because there are no individual incentives to reduce risk. A way for the government to counter this problem is to communicate risk with the public, using various media such as, television, pamphlets, newspapers or the internet. It may to some extent alleviate the problem that the perceptions of individuals regarding flood risk are at variance with the objective facts of the actual risk (Filatova et al, 2011, p169). However, even if everyone has perfect knowledge about the dangers of flood risk in certain areas, the benefit of government protection and flood compensation may still weaken individual economic incentives to mitigate risks. In contrast private flood insurance may have the potential to be a means of risk communication in its own right (Filatova et al, 2011, p.169). High flood insurance premiums may deter individuals from settling in a high risk area, they may not want to have to pay the high premiums, and living in a high risk areas without paying the premiums may give a feeling of insecurity. Additionally the high premiums may reduce demands for homes in high risk areas, thereby lowering property values in these particular areas. This will reduce incentives to continue the construction of homes in high risk areas. Thus, with a purely private flood insurance market, price signals will influence individual decisions and provide economic incentives to minimize risks. What the government can also do is make the flood insurance mandatory. So that when an individual decides to buy a house he or she will immediately notice the extra costs of the mandatory insurance, which may deter that person to live there if the insurance is deemed too expensive. Another alternative is zoning and strict building regulations, in effect forbidding the construction in certain high risk areas, or requiring that only houses are built that are considered flood proof (Lave & Apt, 2006, p.125). While these regulations do provide certain guarantees regarding safety, they also disregard individual valuations of homeowners, and it does also shift responsibility from the individual to the state. A sense of individual responsibility is also important for enhancing incentives for individual risk mitigation.

Private flood insurance may also be complementary when combined with instruments of communication used by the government. Thus far government risk communication has not proven to be useful in raising flood risk awareness among citizens. The Dutch government has communicated flood risk with the campaign "Nederland Leeft met Water" and "Denk Vooruit". These campaigns have been confusing for many because the government did not make clear who is responsible, and

the extent of the risks involved (Heems & Kothuis, 2012, pp.28-29). An improvement in the risk communication from the Dutch government may be more successful in the future if the message is clearer. However, this communication may be more effective in combination with private flood insurance, so that citizens will notice the flood risk in a more direct manner through the payment of flood insurance premiums.

2.7 Development charges

Another way for the government to cope with flood risk is to apply the Pigouvian theory, this is well explained by Clinch & O'Neill (2010, pp.2153-2154). A negative externality implies that there are social costs involved that are not included in the market price. A classic example is a factory that causes pollution, where the costs of pollution into the air are not included. This is an argument for the Pigouvian tax, which taxes pollution on the "polluter pays principle". In the same way homeowners can be taxed because they increase the risk without paying the extra costs. If taxes are increased on them, they would pay for their own risk, instead of other taxpayers.

Externalities however do assume that the costs are not included in the market price, this is called a market failure (an example is air pollution). However in the case of flood damage compensation in the Netherlands, there is no market failure, for there is hardly any flood insurance market to begin with. If flood insurance premiums are priced according to risk, the extra flood risk is indeed included in the market price. Development charges may alleviate the flood risk problem from the perspective of our current situation of flood damage compensation, but flood risk would also be included in the market price, where an flood insurance market to function.

2.8 The capacity of insurers and the government

In the event of a large scale flood disaster, the capacity of an insurer to compensate its customers for flood damages becomes important. An insurer is limited in capacity depending on the reserves they have at hand, this would in a large part depend on their income from premiums. Also reinsurance is a way to spread the risk to a larger area, making insurers more capable to cope with larger scale disasters. Homeowners may choose for larger insurers that also take part in large scale international reinsurance schemes, which means a larger amount of reserves are available to cope with floods. Smaller insurers who have less reserves at hand may be seen as more likely to go bankrupt in a large scale flood disasters. The government on the other hand has far more resources at hand and could more easily provide flood damage compensation without going bankrupt, this may also be a reason for the public to favor the government to compensate flood damages rather than having private insurance. The capacity of a government to cope with large scale flood disasters stretches farther than that of private insurers. However even the government has limits. The Laffer curve represents that government revenues may drop when taxes are too high, for more people will try to avoid paying those taxes. With the European Central Bank the Dutch government can no longer print its own money, and borrowing will also have limits considering credit ratings and the debt problems of European countries today.

2.9 The situation in the Netherlands

In the Netherlands a clear distinction can be made between protected and unprotected areas. There are areas in the Netherlands with a high population density and large concentrations of capital which are well protected by flood defenses, an example of such an area is the province of North Holland. In these protected areas the probability of a flood disaster is smaller compared to unprotected areas.

But when a flood does occur in these protected areas the flood has to be large enough to break the defenses, meaning a large scale flood disaster in an area with a high population density and large concentrations of capital. A large scale flood disaster in such an area may make it difficult for insurers to cope with the situation financially. Government assistance may be required because the government has a larger capacity to cope with disasters.

In the unprotected areas in contrast, the probability of a flood is higher but most of these flood disasters will most likely be smaller floods. These mostly are river and coastal areas which are located outside of the flood defenses. In these areas it is easier for private insurers to cover flood losses with a considerably smaller risk of bankruptcy.

2.10 The desirability of flood insurance

After having learned the economics of flood insurance and the effects of government intervention, something can be said about the utility or desirability of flood insurance in the Netherlands. With desirability is implied the utility homeowners may derive from private flood insurance. Now the first sub-question can be answered:

To what extent is private flood insurance a desirable alternative in the Netherlands under current economic and institutional conditions?

A major difference between the current system in the Netherlands and the idea of private flood insurance are economic incentives. Differentiating flood insurance premiums to flood risk induces homeowners to mitigate their risks, whereas in the current situation no such incentives exist. Furthermore, individuals who do not live in high risk areas no longer have to subsidize homeowners who live in high risk areas. Charging premiums according to risk can also effect the values of structures near areas of high flood risk, preventing overinvestment in these areas.

It can also be argued that if economic incentives can help reduce flood risk, the government can also act as an insurer, and instead of providing compensation with tax money, charge (compulsory) flood insurance premiums to citizens directly. Then homeowners will still have the economic incentives without having insurance companies charging premiums. A problem with this system could be that there would be no economic incentives on the side of the government. When flood risk is high, insurance companies would have an economic incentive also to charge higher premiums, for they need enough funds to cover potential losses. A government may not have such incentives because they can also tap other sources of revenue to cover flood losses, and are less likely to go bankrupt. This does not mean however that a government cannot act as an insurer to differentiate premiums, they just do not have an economic incentive to do so. That said, if insurers would get guaranteed government support in the event of a bankruptcy, their economic incentive to cover their risks too may have weakened.

A problem insurers may have is that they do not have the capacity to cover losses from large scale flood catastrophes. The government can tap into other sources of revenue to cover losses, while this may be lacking of incentives to act economically, it does enable the government to cope with large scale disasters. The same can be said for when insurers will enjoy government support.

So is private flood insurance a desirable alternative to the current situation? In terms of economic incentives, this means that in the short run the costs for individuals who live in high risk areas will

rise, while costs will be lower for those in low risk areas. In the long run the economic incentives to mitigate risks will be beneficial insofar it reduces flood risk. A disadvantage of fully private flood insurance would be that insurers on their own will have less capacity to cope with large scale disasters than governments have.

In conclusion it can be said that the utility of private flood insurance is higher in unprotected areas. While the probability of a flood is higher, the severity of a flood would be less, meaning insurers will be more capable of coping with a flood. The benefits of economic incentives can be better utilized here. In protected areas however, utility of private flood insurance would be lower. While economic incentives can still be beneficial, the higher severity of possible floods may exceed the capacity of private insurers to cope with such large scale flood catastrophes. In short it may be desirable to have private flood insurance in unprotected areas and government support in protected areas, from the point of view of homeowners living in areas of flood risk.

3. Flood insurance in the Netherlands

Having discussed the possible benefits and problems of private flood insurance in the previous chapter, it is now time to look at the feasibility of private flood insurance in the Netherlands. Factors that may have a significant impact on the possibility of flood insurance are flood risk, demand for flood insurance and government legislation.

3.1 Flood risk

In the Netherlands private flood insurance may not be provided by most insurers because the level of flood risk is too high. This means that insurance companies would have to charge high premiums to cover potential losses, and homeowners are not willing to pay for these high premiums. A big portion of the land in the Netherlands is situated below sea level, and it is expected that sea levels will rise even further in the future.² In addition to high water levels, the Netherlands is also densely populated, and most of the population is situated in the lower west areas of the country.³ This also means that there are a lot of homes and businesses settled in areas where flooding is more likely. This may also explain why other countries such as the UK do have private flood insurance, since that country is not situated below sea level.

Another explanation is that since 1953, the government has been heavily involved in flood protection and flood damage compensation. During these years, there was little incentive for individuals to mitigate their risks and more incentive to build homes and business in areas near water due to the amenities. It is not unthinkable that if there had been private flood insurance since 1953, individual incentives may have successfully reduced flood risk in terms of vulnerability and exposure, making private flood insurance both more feasible and more desirable.

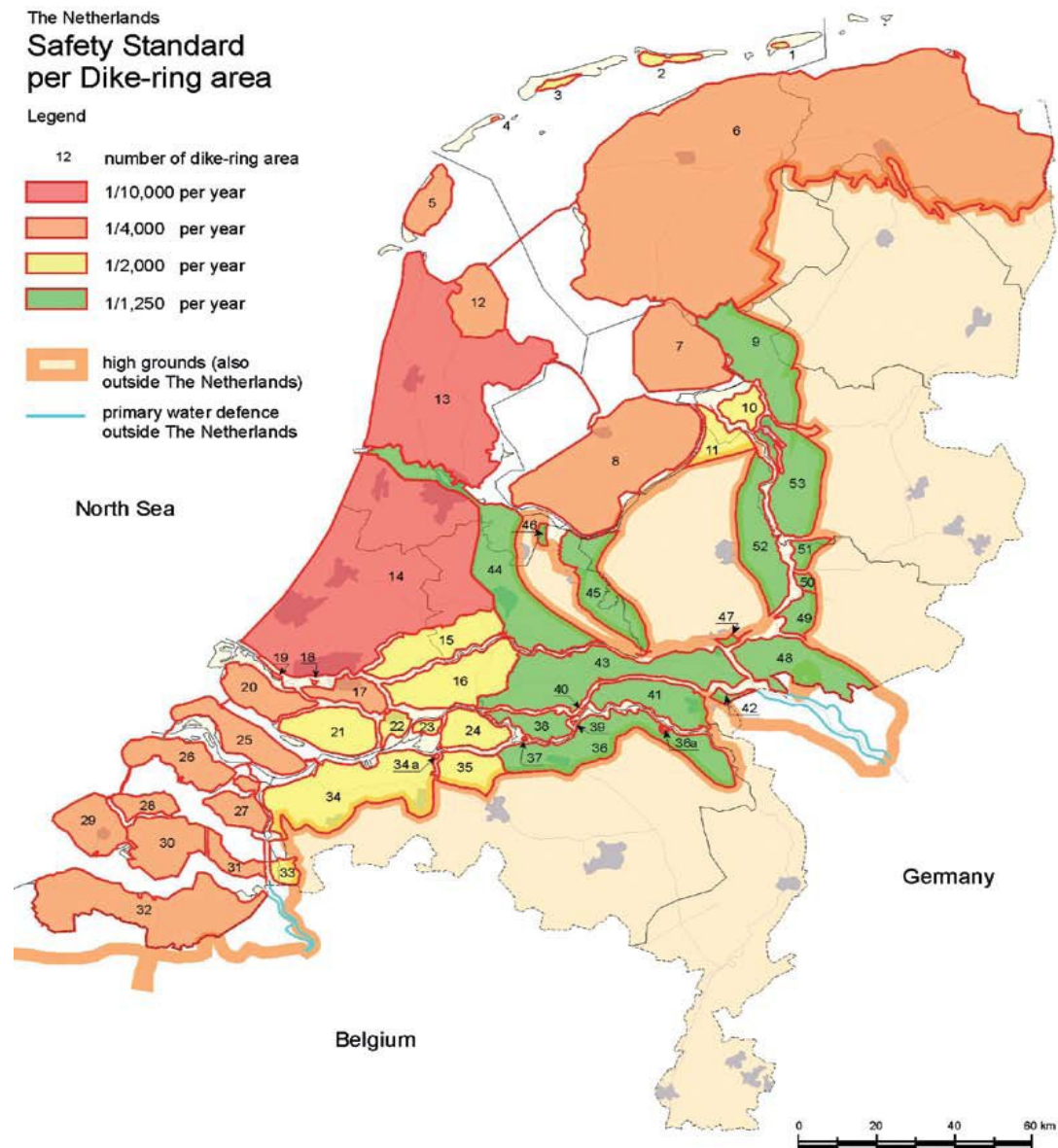
Having private flood insurance may prove difficult in our current situation. To clarify this we can imagine that all government involvement in flood protection and flood damage compensation is instantaneously abolished, and all would be left to private insurance. For many areas of high flood risk, many homeowners likely will have to spend a lot of money on flood insurance. Many people with lower incomes may not be able to afford it at all. A lot of people will most likely end up uninsured. The consequences of such a measure would prove disastrous for a large number of people, at least in the short term. In the long run on the other hand, a lot more people will have incentives to mitigate their risk, less people will move to high risk areas and more people will move to low risk areas. And in the future less homes will be built in high risk areas. It will result in a long and painful correction of previous errors that have been made. While such a measure may have long term gains in exchange for short term pains, it will most likely be socially unacceptable and politically impossible. Thus more reasonable alternatives will be more likely to happen. A gradual shift from government involvement to private flood insurance may soften the short term pains of resource reallocation, but would also lengthen the necessary period of adjustment. On the other hand the short term pains may be so painful that the government will stay involved in flood damage compensation, and may opt for other alternatives such as public-private partnerships.

² On their website the Dutch national government states that the KNMI expects a sea level rise from 35 to 85 centimeters in the year 2100, starting from 1990, see <http://www.rijksoverheid.nl/onderwerpen/water-en-veiligheid/vraag-en-antwoord/wat-is-de-zeespiegel-en-wat-veroorzaakt-de-zeespiegelstijging.html>

³ For more data see <http://www.cbs.nl/nl-NL/menu/themas/bevolking/cijfers/default.htm>

Regarding flood risk, it should not be assumed that the possibilities for flood insurance are uniform throughout the Netherlands. There is a lot of diversity in population figures, insurance companies, flood risk (hazard, vulnerability and exposure) and legal-institutional conditions. In some areas it may be very easy and beneficial to implement private flood insurance, while in other areas it may be less so. Flood defenses also have a major influence on flood risk, and there are also differences between flood defenses in different areas of the countries. This is illustrated on the map below, the areas between the dike ring areas are unprotected and are mostly situated near rivers.

Figure 1 Safety Standards⁴



⁴ Source: Aerts, J. Adaptation cost in the Netherlands: Climate Change and flood risk management. Climate Research Netherlands

3.2 Perceptions of flood risk

In addition to the level of flood risk, the perception of flood risk also has a significant influence on the demand for flood insurance. Previous research has been done on the perception of flood risk among citizens in the Netherlands.

One study done by De Boer, Botzen & Terpstra (2012, pp. 17-92)) has several interesting conclusions. Survey results conclude that nearly half (47%) of respondents who live in unembanked areas are unaware of this fact, it has also been shown that individuals who live in unembanked areas and are aware of it were less concerned about flood risk than others. The results also show that the effects of climate change had a negligible effect on flood risk perceptions, mainly among respondents who were skeptical of the severity of climate change. With regard to confidence in government action, respondents with higher perceptions of flood risk had less confidence in the government. The survey included a group who received risk communication prior to the questionnaire, while the control group did not receive risk communication. The results show that the control group was more confident in the government with regard to handling a flood catastrophe than the group that received risk communication. With regard to flood insurance, respondents who were concerned with flood risk were more inclined to purchase flood insurance than respondents who were less concerned with flood risk. The survey also assumed that in this situation the government would not compensate flood damages. The results furthermore imply that risk communication has a positive effect on the demand for flood insurance. Next to raising concern of flood risk, risk communication also increased the motivation of homeowners to mitigate their risks.

Another study conducted by Terpstra (2009) also made some interesting conclusions. With regard to flood risk, respondents indicate a low level of perception, and mostly regard flood defenses as the responsibility of the government. However, 67% of respondents were also willing to buy private flood insurance, here the survey did presuppose a situation in the future where government no longer compensates flood damages. In this situation more than half of respondents were willing to buy flood insurance, but also held negative views regarding flood insurance, presumably because they consider flood protection the task of government.

The studies described above show that Dutch citizens do demand flood insurance, but only in certain circumstances. The demand of flood insurance is higher when homeowners are better aware of the risk (and received risk communication), however it appears the awareness of flood risk is currently low. Secondly, homeowners also have a higher demand for flood insurance when it is assumed the government does not intervene and the responsibility is one's own. It is however generally assumed by most that flood protection is primarily the responsibility of the government.

Now the question arises as to why perception of flood risk is low, and why citizens regard the government as responsible for flood defense. Since the flood catastrophe of 1953 the government has communicated to its citizens that it is responsible for flood defense. The government even takes responsibility formally in article 21 of the Dutch constitution, which asserts that the government has the task to keep the living environment safe and livable (Raad voor Verkeer en Waterstaat, 2011, p.30). Now next to communicating that the government is responsible, the government has also actually made the Netherlands safer by constructing flood defenses. These flood defenses and the accepted notion of government responsibility does not create a lot of awareness of flood risk and sense of individual responsibility. It would make people feel safe.

3.3 Governmental flood damage compensation

Next to high levels of flood risk, institutional conditions may also affect the possibilities for private flood insurance. The Dutch government provides flood damage compensation through the WTS. It should be clear that if the government were to compensate for all flood damages unconditionally, a private flood insurance market will be impossible. Who is willing to pay for private flood insurance if the government can compensate all flood damages for free? But through the WTS the government is not legally obliged to provide unconditional flood damage compensation for all.

Article one of this law describes the scenarios when government compensation is applicable. Section b of this article shows that the law is applicable in the event of a freshwater flood. The exact scenario in which this law is applicable is described as follows:

1. High water levels for rivers where the average probability of prevention is less than 1/50 a year. This applies for the part of the river Maas where flood defenses are lacking.
2. The flooding of other water areas in the Netherlands where flood defenses are lacking.
3. When flooding occurs in areas where government flood defenses are present, this law does not apply.

Article two makes an exception for areas of the Maas where the construction of flood protection is not yet completed, here the probability of prevention is less than 1/10 per year (in the areas where flood protection is lacking). The third article makes sure that this law is only applicable if the concerned flooding is recognized as a catastrophe as defined in the 'wet op de veiligheidsregio's'. In the law, a catastrophe is defined as follows: a severe accident or other event where the lives and health of many persons, the environment or large material interests are seriously damaged or are threatened and where coordinated action of emergency services and organizations of a variety of disciplines are required to remove the threat or to minimize the destructive results.

When the law indeed does apply, article four describes in what categories citizens can be eligible for compensation. The compensation of homes and home contents are included. There are however some exceptions, these are some relevant circumstances when someone is not eligible for compensation:

- If the damages or the costs have been reasonably insurable;
- If there have been other means to obtain compensation;
- If the person concerned has caused the damages him- or herself;
- If insufficient measures have been taken to prevent or limit the damages or costs.

Damages and costs will be examined by a damage-expert and will be documented in a damage report (article 5). Issues regarding the amount to be compensated, will be determined in a legal provision after the catastrophe has occurred (article 6). The amount of compensation will be determined, and damages and costs will be calculated based on the damage-report as described in article 5. Next to the amount of compensation, the legal provision can also determine the level of 'own risk' and the maximum amount to be compensated.

In the cases where the government provides compensation, there cannot be private flood insurance at the same time, in the cases where the government does not provide compensation, there are opportunities for private flood insurance. As stated above, compensation is not provided through the

WTS if the damages or the costs have been reasonably insurable. A question that immediately arises is when something is 'reasonable insurable' or not. If insurability depends on factors such as, flood risk, willingness-to-pay and the market value of the contents, then insurability can be different depending on persons, the value of the goods insured, and the location. However if there is no private flood insurance to begin with, and homeowners can apply for government compensation, there is no willingness-to-pay and no incentive to make uninsurable goods insurable.

Insurance companies also historically have been discouraged to provide flood insurance. After the 'watersnoodramp' of 1953, the Verbond van Verzekeraars has advised not to provide insurance coverage for flood catastrophes because of the risks associated with it.⁵ However after the floods of 1998 the government tried to stimulate the insurability of goods for water damages. As a result, the Verbond van Verzekeraars has advised insurance companies to provide insurance for water damages, mainly from local rainfall. But damages from flooding as a result from high water levels are still excluded in the advice (Ministerie van Verkeer en Waterstaat, 2003). The results from a research from the Ministerie van Verkeer en Waterstaat (2003, p 22) indicate that insurance companies have not established contact with experts from water management. While the WTS covers damages from floods as a result of high water levels, insurance companies exclude damages of this kind from their coverages and limit their insurance to local rainfall (Ministerie van Verkeer en Waterstaat, 2003, p.6).

Lack of communication could be a problem here. If government experts do not know what contents insurance companies can insure, and that insurance companies are unaware of government procedures regarding flood damage compensation, it will be hard to make insurance policy complementary to government policy. Article 12 of the Nationaal Bestuursakkoord Water states that: citizens and businesses are themselves responsible for the prevention or reduction of water damages. While this article states that the government has to apply the WTS, it also sets as a goal to make most damages insurable. This goal however is difficult to achieve if insurance companies do not wish to even consider the matter of insuring damages for floods.

Recently, the Dutch government has provided flood damage compensation in a legal provision, for the flooding of the Maas in January 2011 (regeling tegemoetkoming schade bij overstrooming van de Maas in Januari 2011).⁶ On parts of the Maas from Eijsden to the Koninginnebrug in Well, high water levels have been measured for which the probability of prevention is less than 1/10 per year, this happened on the days of 8, 9, 10 and the 11th of January in 2011. Individuals, businesses and municipalities have reported for damages, individual homeowners suffered damages on homes and home contents. The amount that is to be compensated is described as follows:

1. 90% of damages to homes are compensated (article 4)
2. For home contents, the following is compensated (article 5):
 - o 90% for damages up to 10.280 euro's;
 - o 75% for damages from 10.280 euro's to 15.370 euro's;
 - o 50% for damages from 15.370 euro's to 30.740 euro's.

⁵ Recently the Verbond van Verzekeraars has been working on the introduction of private flood insurance, see: <https://www.verzekeraars.nl/actueel/nieuwsberichten/Paginas/Collectieve-dekking-van-overstromingsrisico.aspx>

⁶ See <http://wetten.overheid.nl/zoeken/>

For individual homeowners, the amount of own risk for home and home content damages has been determined as 570 euro's.

In this legal provision the limitations of flood damage compensation are clearly outlined and insurance companies here may have opportunities to fill the gaps. For instance if homeowners and insurance companies are aware of the fact that the government has set an own risk of 570 euro's, these and other restrictions can be taken over by private insurers. Whether such insurance schemes will actually work out will also depends on factors such as willingness-to-pay. Now the problem arises that these conditions have been set by the government in the provision after the disaster has occurred. There is no knowledge beforehand of either the amounts to be compensated and the conditions, neither is there any knowledge of what procedures the government follows in the determination of the amounts and conditions. And even when the law and the procedures are clear, nothing stops future elected representatives from changing the law and procedures, influenced by in part budgetary factors and public opinion. With this high degree of uncertainty it becomes difficult to make long term calculations for insurers. Homeowners may also become reluctant to buy flood insurance, if they consider the possibility that they might have received government compensation either way. The existence of the WTS since 1998 is however a step forward in terms of creating legal certainty, during the river floods of 1993 and 1995 the government has provided compensation regardless of the fact that they were not legally obliged to do so (Kok & Barendregt, 2004).

So while the level of flood risk and the willingness-to-pay of homeowners are important factors that determine whether a private flood insurance market is possible, there are also legal and institutional conditions that have influence. Since 1953 the government had a monopoly over flood insurance, and only since 1998 has the provision of private flood insurance been legalized. It should not come as a surprise that after 45 years of government monopoly, the government institutions and legal structure are fixated towards public responsibility of flood insurance and not private responsibility.

3.4 Barriers to flood insurance in the Netherlands

It can be derived from this analysis that both economic- and institutional factors can prevent the formation of a larger flood insurance market in the Netherlands, and thus affect feasibility. The economic factors are the level of flood risk in the Netherlands, and willingness-to-pay for flood insurance, which is also influenced by awareness of flood risk. The institutional factor is that the government can provide flood damage compensation through the WTS, making it harder for insurers to compete. In the next chapter hypotheses will be formulated regarding the possible causes as to why there is hardly any private flood insurance in the Netherlands. These will then be tested by conducting further research by means of interviews with experts.

4. Data collection

4.1 Method

The analysis from chapter three provides two possible answers to the second sub-question, to what extent flood insurance in the Netherlands is feasible. In terms of economic factors, flood risk and willingness-to-pay can have an influence the possibility of flood insurance. And in terms of institutional factors, governmental flood damage compensation through the WTS can be of influence. To provide a more clear answer to this question, empirical evidence will be gathered by means of in depth interviews with experts in the field of flood insurance and flood risk. The methodological focus of this research will be theory verification, which aims to test existing theory, contrasted with theory generation, which creates new theory out of empirical data. With theory verification, hypotheses need to be deduced from theory, which then will be tested. This method is more often used with quantitative data, but it can also be used with qualitative data (Punch, 2011,p.35).

The following hypotheses have been formulated to test the gathered data:

Hypotheses	Economic factors	Institutional factors
Null hypothesis	The level of flood risk and willingness-to-pay of homeowners does not prevent private insurers from offering flood insurance in the Netherlands.	Governmental flood damage compensation through the WTS does not prevent private insurers from offering flood insurance in the Netherlands.
Alternative Hypothesis	The level of flood risk and willingness-to-pay of homeowners does prevent private insurers from offering flood insurance in the Netherlands.	Governmental flood damage compensation through the WTS does prevent private insurers from offering flood insurance in the Netherlands.

We can only accept the alternative hypotheses (or reject the null hypotheses) if there is sufficient evidence to back these claims. The interview questions need to be constructed in such a way that the gathered data can be used to test the hypotheses. It should also be emphasized, that the results of this part of the research will be based on the knowledge of insurance experts.

4.2 Data collection

The next step in this research is to select the units of analysis, these are individuals or groups of individuals (organizations) that are being studied (Babbie, 2012, p.97). For this study insurance experts will be the units of analysis. In the form of in-depth interviews, questions will be asked with regard to their views on flood insurance. Topics that need to be addressed are the willingness-to-pay, flood risk and the WTS. The interview itself will be conducted by the researcher, either face-to-face or by telephone. Homeowners have not been selected as units of analysis because to obtain a sample of significant size will be too time consuming regarding the scope of this study.

The in-depth interviews will consist of both open-ended questions and closed-ended questions. Open-ended questions will be asked because they will give in-depth insights on the knowledge of

experts on various issues regarding flood insurance. It is expected that open-ended questions can give in-depth information that will help answer the research question. Closed ended questions will also be asked so that respondents can select specific answers which can be compared and analyzed. That way it becomes possible to obtain more in-depth information through open-ended questions and at the same time to analyze the data in order to make clear what the expert opinion is of most of the respondents on various issues. The reason it has been chosen to conduct in-depth interviews is because of the explanatory nature of the research. In explanatory research we seek not only to gather information, but also to explain and understand why and how things are the way they are (Punch, 2011, p.34).

4.2.1 Selection of respondents

The selected respondents are experts in the field of flood insurance and flood risk. Insurers have been approached, who currently offer building insurance or home contents insurance. It can also be argued that insurers may have an interest in having a market in flood insurance, especially with government support, this would greatly benefit insurers financially. Possible bias in answers must be considered for this reason. This is why experts who work in other organizations have also been selected for interviews. There are also experts in flood insurance and flood risk who work in various governmental organizations or academia.

4.2.2 Interview questions

The interview questions are constructed to serve as empirical evidence so that it becomes possible to either reject or not reject the hypotheses formulated earlier. Questions will be asked regarding the current state of affairs regarding research and interest in flood insurance among insurance experts. Further questions will be asked regarding their knowledge of flood risk, willingness-to-pay and the possible effects of the WTS.

If insurance experts have done extensive research regarding flood insurance, their insights can tell us something about the current economic and institutional conditions, and conclusions can be arrived at. Should it be the case that very limited research has been conducted on the matter, then the information gathered from the interviews would be insufficient proof to reject the null hypotheses. Nevertheless, this would still tell us something about the current state of affairs regarding flood insurance (from the supply side) and would still render us capable of answering the research question.

Before the interview commences, an explanation will be given on the nature of the research, and that it will be investigated whether flood insurance is feasible under current economic and institutional conditions. Several features of the WTS that are relevant for the respondent to know will also be elaborated upon. The respondent will also be informed of the fact that the questions concerning the WTS apply to freshwater areas. If questions appear unclear to the respondent, further explanations will be given during the interview. The questions are written in Dutch due to the fact that the interviews are conducted in this language.

The first three questions will tell us something about the activities of the insurance expert who is interviewed. They will also clarify the current state of affairs regarding the interest and activities in the area of private flood insurance. This will be relevant in explaining the feasibility of private flood insurance, and the current state of knowledge on the matter.

The fourth, fifth and sixth questions discuss the economic causes (flood risk and willingness-to-pay), these will give us insights on the expectations on the feasibility of flood insurance on economic grounds.

The seventh, eighth and ninth questions will be related to the institutional aspects (particularly the WTS and government), these questions will give us insights on the feasibility of flood insurance on institutional grounds. Finally the tenth question will give the respondent the opportunity to express which aspects are expected to be the most significant obstacle to the provision of flood insurance.

The questions are structured in such a way that the results of the interviews will enable us to reject or not reject the hypotheses.

5. Data analysis

The following section will discuss the results from the interviews that have been conducted. Eight experts have been interviewed from different fields, of whom all are expert in the area of flood damages and/or flood insurance. The contents of each question will be dealt with separately. The results from each interview can be seen in the appendix.

5.1 Interest in flood insurance on the supply side

The results of the following question will be discussed: to what extent is there an interest in offering private flood insurance in your field?

Answer	Frequency
Much interest	4
Little interest	4
No interest	0
Other...	0

The answers to this question are divided. On the one hand there is a lot of interest in the possibility of flood insurance among experts and academics, insurers on the other hand are less enthusiastic about offering flood insurance. Respondents give the following reasons for lack of enthusiasm among insurers:

1. Adverse selection

An example of this problem is when (with a voluntary insurance) homeowners with a low flood risk are not willing to buy flood insurance. This causes premiums to rise in areas with high flood risk, this in turn will also deter many homeowners with high flood risk from purchasing flood insurance. Thus a market in flood insurance cannot arise (voluntarily).

2. No public-private partnership

Negotiations between the government and the Verbond voor Verzekeraars have not been successful because the government was not interested in a public-private partnership, with the motivation of not wanting to burden citizens with additional costs in times of economic crisis.

3. Unawareness of risks and market demand

At the moment insurers are not aware of the risks involved and the demand for flood insurance, since no such market is currently present. In this case insurers also will assume a worst-case scenario, meaning a large scale catastrophe that may be uninsurable. No insurer is willing to take the first step in offering flood insurance, since this is very risky.

Keeping the third reason in mind, the Verbond van Verzekeraars is currently working on an agreement among its members to include flood risk coverage for building and home contents insurance. This agreement will have the character of a decree, meaning that all members of the Verbond van Verzekeraars are required to include flood risk coverage. Insurers are more enthusiastic regarding this proposition, since this will open new avenues regarding reinsurance. The Nationale Mededingingsautoriteit (NMA) has prohibited such agreements and is a large obstacle for the Verbond van Verzekeraars and its members. The reason for this prohibition is that such agreements

can be seen as fixing prices and setting terms and conditions, these are seen as characteristics of the formation of cartels. While the NMA does permit that the Verbond van Verzekeraars offers advice to its members regarding coverage of flood insurance, a binding decree is prohibited. Currently the Verbond van Verzekeraars is actively lobbying for the approval of the NMA regarding the proposed decree. Motivations are given regarding the benefits of private flood insurance and the contribution to the public good. Another good reason is that without such an agreement, insurers are unlikely to take the risk in being the first to offer flood insurance.

5.2 Previously conducted research by experts

The results of the following question will be discussed: has research been conducted regarding flood insurance in your field, if yes, can you tell something about the results?

Answer	Frequency
Research has been conducted	8
Research is currently being conducted	0
There are plans to conduct research	0
No research	0
Other...	0

On this question there is a wide consensus, all respondents are aware of conducted research and some also have conducted research in this field themselves. There has been reference to various studies by Wouter Botzen and Jeroen Aerts. AON and the Verbond van Verzekeraars were also actively researching the issue around 2008 and 2009, but this has stopped because the Dutch government was no longer interested. Many of the researches that have been discussed during the interviews have also been added to the literature in this work.

5.3 On flood risk

The results of the following question will be discussed: do you expect flood risk in the Netherlands to be acceptable for unembanked areas, can you explain your answer?

Answer	Frequency
Acceptable	5
Unacceptable	2
Unknown	0
Other...	1

The answers to this question were more divided mainly because it is asserted that the flood risk is only acceptable in certain conditions. The respondents who have answered that flood risk is acceptable also said the following:

- A maximum amount of damage to be covered is to be set in the event of a catastrophe;
- Customers should be able to choose to pay a higher premium with large coverage, or to pay lower premiums but with lower coverage;
- Because there is no prior market, it is still difficult to estimate the risks;
- The problem of adverse selection;
- Whether the risk is insurable also depends on market demand;

- It will be necessary to make use of reinsurance or to trade in catastrophe bonds.

In other words, the respondents who answered that flood risk was acceptable also stressed that to actually offer flood insurance is only possible in certain conditions. Similar arguments can be detected with the respondents who answered that flood risk is unacceptable:

- Flood risk is unacceptable, but a public-private partnership may change that;
- It is also necessary to access flood risk per household so that premiums can be determined with more precision;
- It is unacceptable because insurers assume a worst-case scenario;
- It is possible when above a certain amount of damage to government provides a guarantee.

Actually the respondents who answer that flood risk is unacceptable do not differ much in their views from the respondents who answers it is acceptable. They too assert that while flood risk currently is unacceptable, it can become acceptable in certain conditions. In this sense it can be said that the respondents are mostly in a consensus on this question.

5.4 Demand for flood insurance

The results of the following question will be discussed: do you expect there to be sufficient demand for flood insurance in unembanked areas?

Answer	Frequency
Sufficient demand	2
Insufficient demand	6
Unknown	0
Other...	0

On this question most respondents assert that there is insufficient demand for flood insurance. Respondents who said there was enough demand did say this demand was mainly among businesses and that more demand is expected in the future. There is however mostly a consensus that there is not enough demand, and for the following reasons:

- Little interest in flood insurance because homeowners need to make additional investments mitigating their risk if they want lower premiums;
- Homeowners assume flood defense and flood insurance is the responsibility of the government;
- Homeowners are not well aware of flood risks;
- Government flood defenses since 1953 has given a sense of security among citizens.

By respondents much emphasis has been given that people are not well aware of flood risks and that they regard flood hazards as the task of government.

5.5 Comments on estimates of flood insurance premiums

The results of the following question will be discussed: in 2011 Jeroen Aerts and Wouter Botzen have estimated possible insurance premiums for flood insurance in the Netherlands. The estimates varied from 1 euro to 250 euro's and the average premium per household per year has been estimated as

34 euro's. Assuming these estimates, to you regard offering flood insurance in unembanked areas to be realistic?

Answer	Frequency
Realistic	2
Unrealistic	1
Unknown	2
Other...	3

The answers to this question were different among respondents. Some respondents replied that this study does not distinguish between embanked and unembanked areas, and that the difference between the two is significant. Namely in embanked areas the probability of a flood is considerably lower, while the consequences would be that much more severe, whereas in unembanked areas the probability of a flood is considerably larger, but the consequences would be less severe. Another question some of the respondents asked is whether or not homeowners would be willing to pay these kind of premiums.

5.6 Government compensation and the demand for flood insurance

The results of the following question will be discussed: individuals can expect the government to compensate them in the event of a flood. Let's assume there currently also is private flood insurance. To what extent do you expect government compensation through the WTS to affect the demand for flood insurance in unembanked areas?

Answer	Frequency
Much effect on demand	3
Little effect on demand	1
No effect on demand	0
Unknown	0
Other...	4

The answers to this question too are divided. Respondents who answered that government compensation through the WTS has much effect on demand advanced the following arguments:

- Homeowners who know about the WTS will depend on it and so are not interested in buying flood insurance;
- Government compensation has much influence even without the WTS, citizens expect government action in these areas. The government could compensate uninsured homeowners due to political pressure;
- The WTS is unclear which creates uncertainty, also with regard to a possible decision to buy flood insurance.

One respondent noted that government compensation through the WTS has little effect on demand because compensation is only to be expected in the event of a catastrophe (such as defined in the Wet op de Veiligheidsregio's). This means that with small floods that are not a catastrophe, homeowners in unembanked areas are not covered by the WTS.

Other respondents answered in the "other" category and came with the following points:

- The problem of government compensation hampering market demand for flood insurance can be avoided if the government adapts its policy to insurers. The concept of "captive" used by bigger organizations could be emulated by the government. Let us take as an example a big organization such as a corporation with 5 different branches. Those 5 branches contribute to a fund of 150 million euro's. The corporation will insure itself with the 150 million euro's, which serve as an own risk. Any damages above 150 million euro's can be insured by an external insurer. The government could work by such a model, homeowners have an own risk and if damages rise above a predetermined amount, the government will step in. This would provide an amount of legal certainty with which insurers could work;
- This depends on how the government follows the law of the WTS, if they are strict and do not compensate those whose goods have been reasonably insurable, then this certainty will create opportunities for insurers (similar to the first argument);
- The WTS does not give homeowners the "right" to compensation, the WTS is merely a tool for the government to give compensation legally. Next to the WTS the expectations of citizens from the government and the political climate also play an important role.

Out of the answers given for this question, it becomes clear that the WTS itself does not have to be the only reason government compensation could hamper market demand, the political conditions and public opinion also play a vital role. That said, certain adjustment in government policy and more legal certainty may help to alleviate the problem.

5.7 Working around the WTS

The results of the following question will be discussed: through the WTS the government will not compensate those whose damages were not reasonable insurable. Do you see this as an opportunity for insurers to offer flood insurance?

Answer	Frequency
Yes there is an opportunity	2
No opportunity	4
Unknown	0
Other...	2

Different answers have been given, while most respondents do not see this aspect of the WTS as an opportunity to offer private flood insurance. Two respondents however said it was possible, and gave the following reasons:

- This is possible but cooperation with the government is required, a damage expert could determine in what category a homeowner belongs to, whether or not he is eligible for government compensation or needs to take out insurance;
- It is true that to a certain extent this is already the case, Neerlandse currently offers flood insurance. The WTS does not offer flood insurance to everyone, so for other the WTS still applies.

Most respondents said there was no opportunity to offer flood insurance in this scenario:

- It is still unclear who is responsible for the unembanked areas, for example the municipality or the water board;
- The political climate is unfavorable, it will not be expected for the government not to provide compensation to people who could have insured themselves but have chosen not to do so;
- The WTS itself is unclear.

In short there are several reasons why this is not possible, and if there is to be an opportunity, conditions need to be more favorable.

5.8 Working with the government

The results of the following question will be discussed: to what extent is there cooperation with the government regarding flood insurance, and can you tell more about that?

Answer	Frequency
Intensive cooperation	2
Some cooperation	3
Very limited cooperation	1
No cooperation	0
Unknown	2
Other...	0

Most respondents did answer that there is some cooperation with the government regarding flood insurance, ranging from very limited to intensive. Insurers and other organizations hardly have any contact with the government in this regard, the initiative mainly comes from the Verbond van Verzekeraars, more the details on this see above (paragraph 4.1).

5.9 Main obstacles to flood insurance

The results of the following question will be discussed: what obstacles do you expect to make offering private flood insurance difficult or impossible (multiple answers are possible)?

Answer	Frequency
Flood risk	1
Demand for flood insurance	4
Government compensation through the WTS	3
Lack of legal framework	2
None, no obstacles	0
Other...	3

A large variety of answers have been given to this question, but none of the respondents think there are no obstacles. It is generally asserted that if there were no obstacles, there would have been (more) flood insurance already. Some of the comments of the respondents to this question are described below:

- There is a lot of uncertainty among insurers regarding flood risk, no insurer wants to be the first to take the risks, this is why offering flood insurance needs to be done collectively;

- No major floods have occurred in recent years, people do feel safe and see no need for concern (lack of demand for flood insurance);
- Flood risk and flood insurance is generally regarded as the responsibility of the government so no measures are being taken on the individual level;
- The problem of adverse selection is an obstacle;
- The Verbond van Verzekeraars cannot make an agreement with insurers for coverage for flood risk because of the NMA;
- Homeowners are not well aware of the risks and the government is reluctant to communicate the risks of flooding in order to avoid scaring citizens unnecessarily;
- The government would need to provide a guarantee in the event of a major catastrophe;
- Lack of demand for flood insurance;
- Insurers assume worst case scenarios (no prior experience);
- The WTS, legal uncertainty.

Now that the results of the interviews have been analyzed it becomes possible to draw conclusions, these will be discussed in the following chapter.

6. Conclusions and recommendations

In paragraph 4.2.2 the interview questions have been divided into categories, this method will be used in this chapter in order to interpret the data.

6.1 Interpretation of the data

The first three questions will be interpreted first, which will tell us something about the current state of affairs regarding the activities and interest in flood insurance. All of the respondents are involved in the area of flood insurance, some are expert in insurance and others are damage experts. Interest in the aspect of flood insurance is limited among insurers themselves, few of them would be prepared to be the first to take the risk of covering flood damages themselves. The only exception is Neerlandse who does cover flood catastrophes, albeit to a limited extent. Important reasons why insurers lack enthusiasm regarding flood insurance is because of (1) adverse selection, (2) no public-private partnership and (3) unawareness of risks and market demand. Most of the interest in flood insurance comes from experts, academics and the Verbond van Verzekeraars. The research that has been conducted are also done by many of the same experts and academics. With regard to the current state of affairs regarding the activities and interest in flood insurance, it can be concluded that most of the interest and activities do not come from the insurers themselves, but from experts and academics.

Questions four, five and six are concerned with economic causes such as flood risk and willingness-to-pay. Flood risk is deemed acceptable by respondents but only under certain conditions, for example that government assistance is necessary and that reinsurance is required. There are also still a lot of obstacles to overcome such as estimating flood risk, and the problem of adverse selection. Most respondents asserted that there would not be enough demand for flood insurance, mainly because unawareness of flood risk and the idea that the government is responsible for flood risk. With regard to the estimation of flood insurance premiums by Wouter Botzen and Jeroen Aerts the question is raised whether or not homeowners would be willing to pay these premiums. Keeping the interview results in mind, we may restate our hypothesis regarding economic causes:

Null hypothesis

The level of flood risk and willingness-to-pay of homeowners does not prevent private insurers from offering flood insurance in the Netherlands.

Alternative hypothesis

The level of flood risk and willingness-to-pay of homeowners does prevent private insurers from offering flood insurance in the Netherlands.

The null hypothesis can now be rejected, meaning that the level of flood risk and willingness-to-pay of homeowners does prevent private insurers from offering flood insurance in the Netherlands. Mainly because it is difficult to estimate the risk with no prior market in flood insurance, the problem of adverse selection and perhaps most importantly, lack of demand among homeowners.

Questions seven, eight and nine refer to the institutional aspects (particularly the WTS and the government). While it is widely regarded by respondents that government compensation through the WTS does affect the demand for flood insurance, it is less regarded that the problem lies with the

WTS itself. The WTS is a legal channel through which the government can provide flood damage compensation legally, whether or not and to what extent damages are compensated depends largely on political conditions and public opinion. The WTS is also seen as vague, meaning it is hard to distinguish when the government is responsible and then it is the responsibility of the citizen. This is seen as one of the reasons why insurers cannot offer insurance because the WTS states that they do not compensate damages that are reasonably insurable. Another reason is that political pressure can likely prevent it, it may not be popular not to compensate the uninsured. Cooperation between government and insurers could solve some of these problems, currently there is some cooperation between the government and the Verbond van Verzekeraars on flood insurance. Now the hypothesis regarding institutional causes can be restated:

Null hypothesis

Governmental flood damage compensation through the WTS does not prevent private insurers from offering flood insurance in the Netherlands.

Alternative hypothesis

Governmental flood damage compensation through the WTS does prevent private insurers from offering flood insurance in the Netherlands.

The null hypothesis will be rejected because governmental flood damage compensation through the WTS does prevent private insurers from offering flood insurance in the Netherlands. It should however be emphasized that the reason why individuals are not interested in flood insurance is not because of the WTS as such, namely most individuals regard the task of flood protection and insurance as a task of government, regardless of the WTS. There is no need to extensively discuss question ten because these results are already reflected in the previous questions.

6.2 Answering the research question

To provide a satisfactory answer for the research question, the two sub questions will be dealt with first.

6.2.1 The desirability of flood insurance

The first sub-question on desirability has already been answered in the second chapter, and will be summarized shortly here:

To what extent is private flood insurance a desirable alternative in the Netherlands under current economic and institutional conditions?

- In terms of economic incentives, private flood insurance is more preferable than governmental programs;
- In terms of capacity to cope with large flood catastrophe, governments are more capable than private insurers;
- In areas with flood defenses, the probability of a flood disaster is smaller but the severity would be much larger. Government action of some sort would be required to cope with such a large scale disaster;

- In unprotected areas, more frequent floods of a smaller magnitude will enable private insurers to cope with the damages. Thus the benefits of economic incentives can be better utilized here.

6.2.2 The feasibility of flood insurance

With the interviews results, the sub-question on feasibility can be answered:

To what extent is private flood insurance a feasible alternative in the Netherlands under current economic and institutional conditions?

In terms of economic causes, respondents expect plenty of difficulties for insurers to provide flood insurance. While no problems are expected in terms of flood risk as such, other factors such as adverse selection, and the difficulty of estimating premiums are expected to be problems. Flood risk is deemed to be acceptable for smaller floods in unembanked areas, but large scale catastrophes in the embanked areas are deemed uninsurable. With regard to demand or willingness-to-pay for flood insurance, expectations are low. Homeowners in general are not very well aware of the risks involved and the government is seen as being responsible in these matters.

In terms of institutional conditions the expectations of respondents are low too. Citizens tend to expect that the government will cover the damages in the event of a flood, in this case it does not matter much whether or not there is a WTS, public opinion would put pressure on the government to do something in the event of a flood.

Overall, the expectations of insurance experts regarding the feasibility of providing flood insurance in the Netherlands under current legal conditions are low. With no existing market, insurers have to deal with a lot of uncertainty regarding flood risk. Rarely is a single insurer prepared to take the first step to provide flood insurance. Since the flood catastrophe of 1953, no other large incident has occurred and the government has been solely responsible for defending the land against floods. Dutch citizens generally feel safe from floods and are not well aware of the risks because no large catastrophe has happened. This makes them less inclined to buy flood insurance. Another reason that makes homeowners less likely to buy flood insurance is that they expect the government to act in the event of a flood.

Private insurers providing flood insurance is not feasible under current legal conditions, because of both economic and institutional causes. It is also permissible to say that the economic and institutional causes are closely related. From 1953 until 1998, the government has been the only organization responsible for the provision of flood defenses and flood damage compensation. In this period, private insurers were prohibited from providing flood insurance to homeowners. Firstly, the government constructs flood defenses with greatly lowered the probability of a flood catastrophe in the embanked areas. This caused many citizens to feel safe and unaware that there still are risks, this also causes many to think all matters related to flood defense is a government matter. And secondly, the government has prevented a market in flood insurance to form and therefore insurers have no experience with flood risk and how to insure floods in the Netherlands. Because of the government flood defenses, it is very difficult to provide flood insurance in embanked areas, since the probability of a flood is very low but the consequences could be enormous. In unembanked areas however the probability for a flood is larger and the consequences can be smaller, making it easier to insure.

6.2.3 Conclusion

Now that both sub-questions have been addressed, a two-fold answer of the main research question will be given:

To what extent is private flood insurance a desirable and feasible alternative in the Netherlands under current economic and institutional conditions?

The benefit of private flood insurance is that economic incentives can cause individuals to mitigate their risks, and therefore reducing flood risk. It can be desirable to the extent that insurers can cope with flood catastrophes. When flood disasters are too large for private insurers to handle, government action may be required to cope with the situation.

Currently, providing flood insurance in the Netherlands is not feasible for insurers because (1) there is no prior experience in providing flood insurance and estimating flood risk and (2) there is little demand for flood insurance because homeowners are generally unaware of flood risk and expect the government to provide compensation for flood damages.

6.3 Policy proposals

From the point of view of the government, replacing governmental flood damage compensation for private flood insurance can have several advantages. With flood insurance and premium differentiations citizens will be more inclined to take responsibility and reduce their flood risk. This will make the country safer and less damages are to be expected in the event of a flood. Another important advantage for the government is that with private flood insurance, the government would have to spend less money on possible compensation for flood damages, which is particularly beneficial during an economic crisis.

Assuming that the government wishes to have private flood insurance, several policy proposals based on the information obtained on this study, can be presented.

6.3.1 Inform Dutch citizens of flood risks

Dutch citizens who live in the unembanked areas can be informed of their situation by the government and also of the flood risk associated with it. Various instruments of risk communication can be used. One of the most important aspects of flood insurance is demand. While the level of demand depends on the way individuals appraise the risk and compare it with fulfilling other needs then taking flood insurance, a greater knowledge of flood risk can change the valuations of homeowners perhaps increasing the demand for flood insurance. It is true that in the past some forms of risk communication has proven ineffective, perhaps a different approach can be attempted.

6.3.2 Coverage of flood risk

The Verbond van Verzekeraars is working together with its members to provide coverage for floods in building insurance and home contents insurance. This binding agreement would compel members of the Verbond van Verzekeraars to cover flood damages. Since no one insurer is prepared to be the first to take the risk, it can be done collectively. This construction has the characteristics of a compulsory flood insurance (at least among members of the Verbond van Verzekeraars), only it is not directly enforced by the government. The Nationale Mededingings Autoriteit (NMA) is currently blocking this initiative. Cooperation between the NMA and the insurers may help them come to an agreement, making coverage of flood damages possible. When all insurers start covering flood

damages simultaneously, premiums can be pooled and reinsured. This way funds can be better coordinated in the event of a flood catastrophe, diminishing the problem of adverse selection. One problem of this proposal may be that homeowners may see their premiums go up without them voluntarily choosing flood insurance separately. Although on the other hand less would have to be paid in taxes for the government to cover flood damages.

6.3.3 Make responsibilities clearer

In order for a flood insurance market to function effectively, the government would need to clarify when something is the responsibility of the insurers and the homeowner and when of the government. Also the government would not need to intervene too heavily in the market. Updating the WTS by making it more clearer could be a solution. Here the responsibilities of the public and private sector need to be distinguished clearly. If the government succeeds in creating more legal certainty, this would also need to be communicated to homeowners in unembanked areas, if they know that they are in some circumstances completely uninsured they may have more demand for flood insurance.

6.3.4 Public private partnership

Another solution could be a form of cooperation between the government and insurers. The government could provide a guarantee for when flood damages exceed a predefined amount, all damages below this amount will be the responsibility of individual homeowners and can be covered by private insurers. This solution can be considered if the risk is too high for insurers to offer flood insurance on the market.

7. Reflection

During the entire process of making this work, I can say I have spent the most time in deciding the specifics of my research topic and the conducting of the interviews. Thanks to the reading of numerous articles on this issue and the advice of my supervisor, I have been able to design my research. When the foundations of my research were in place, the next step was to contemplate in how I will practically go about gathering the data. In the beginning I wished to take a survey approach, gaining as many respondents as possible. These respondents were to be insurers themselves. Unfortunately the response I have received from insurers was minimal if none at all. This realization has necessitated me to rethink my method of data collection, and the approach of my research. Therefore I have decided to conduct in depth interviews with a select few of experts who are more heavily involved in the area of flood insurance. This change of approach also led me to rethink the way I will conduct my research overall. For instance in the beginning I only wanted to approach insurers themselves, now I have also approached independent experts of different organizations.

Looking back I realize that this was the right decision to make, since the results of the interviews also do indicate that most insurers are barely involved or interested in flood insurance in the first place. In fact most of the activity in the area of flood insurance were exactly with the experts I have ended up interviewing. That said, my research could have been completed faster had I realized my error earlier.

Another point of concern was if the results of my interview will have enough reliability and validity. A strong point would be that the individuals interviewed were some of the foremost experts in this area, and that among most insurers there is little interest in flood insurance, they might not have been able to make any significant contributions. It is also the case that there is a lot of similarity to what the experts say and the conclusions of previous literature on the issue. Nevertheless, it is essential to emphasize that this study does have its limitations. Firstly there is no previous data of a flood insurance market in the Netherlands, since there is (almost) none to speak of. Secondly, constraints in time and resources has prevented in large scale survey among insurers and/or homeowners. Despite the advantages of interviewing the experts, the small amount of interviews give no statistical significance to attach to the results. In addition there is also a risk that the limited amount of respondents could have a certain bias in their answer, insurers for instance have an incentive to give answers in favor of flood insurance if this may benefit them. This bias may have been counterbalanced by also interviewing people in government and academia. It is therefore difficult to draw an exact picture of the current state of affairs of flood insurance in the Netherlands. It also can be said for instance that the policy recommendations by no means whatsoever could guarantee a market in flood insurance, but they could increase the likelihood of bringing about such a state of affairs.

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Appendix: interview results

The results of each particular interview will be shown in Dutch, the language in which the interviews have been done. In the interest of anonymity only the type of organization the expert is active in is being presented.

Interview 1

Type of organization: damage expertise

Date of interview: 25/01/2013

1. Kunt u in het kort wat vertellen over uw werkzaamheden?

Ik ben een schade expert op bouwkundig gebied, ik specialiseer mezelf in schades met betrekking tot brand en explosies. Ik concentreer me op opdrachten van verzekeraars in het hogere segment, daarmee wordt bedoeld schade van grotere omvang. In 1995 was ik ook betrokken bij de schade registratie van overstromingen, en ook bij schade registraties bij waterschade door regenval. Hier is ook met de overheid samengewerkt.

2. In hoeverre is er interesse naar de mogelijkheid voor het aanbieden van particuliere verzekeringen voor overstromingen in uw werkveld?

- a) Veel interesse
- b) Weinig interesse**
- c) Geen interesse
- d) Anders, namelijk...

Hier kan ik zelf niet zoveel over zeggen, omdat de verzekeraars het aanbieden, als expertise bureau pakken wij gewoon de opdrachten van de verzekeraars op. Hier is geen uitvoerige voorbereidingstijd voor nodig, expertise bureaus kunnen dit vrijwel per direct oppakken. Voor dit soort gevallen gaan verzekeraars ook vaak in overleg met de makelaar. Op het moment houden enkele verzekeraars zich bezig met overstromingsverzekeringen, echter zijn de meesten hier niet mee bezig.

3. Is er binnen uw werkveld onderzoek gedaan naar particuliere overstromingsverzekeringen, en kunt u eventueel wat vertellen over de resultaten?

- a) Er is hier onderzoek naar gedaan**
- b) Hier wordt momenteel onderzoek naar gedaan
- c) Er zijn plannen om hier onderzoek naar te doen
- d) Er is geen sprake van onderzoek op dit gebied
- e) Anders, namelijk...

Ja, ik heb hier zelf onderzoek naar gedaan. Ook in de literatuurlijst zijn veel onderzoeken terug te vinden.

4. Verwacht u dat het overstromingsrisico in Nederland acceptabel is voor het aanbieden van particuliere overstromingsverzekeringen in buitendijkse riviergebieden, kunt u dit toelichten?

- a) Acceptabel**
- b) Onacceptabel

- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Het risico is in zekere mate acceptabel. Maar een probleem is dat er onvoldoende premievolume is. Dit komt omdat er minder woningen buitendijks zijn, hier is ook het risico van antiselectie. Bijvoorbeeld dat van een flatgebouw bewoners op de onderste verdiepingen wel willen betalen voor een overstromingsverzekering maar bewoners op hogere verdiepingen (die minder risico) dit niet willen. Of het acceptabel is hangt niet alleen van het risico af, maar ook van de bereidheid van inwoners om te betalen. Met voldoende hoge premies is in principe alles verzekeraar, echter moet er dan wel voldoende vraag naar zijn.

5. Verwacht u dat er voldoende vraag zal zijn naar particuliere overstromingsverzekeringen in buitendijkse riviergebieden, kunt u dit toelichten?

- a) Voldoende vraag
- b) Onvoldoende vraag
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Ik verwacht voldoende vraag, echter is het op dit moment nog beperkt. Ik verwacht in de toekomst een toename in de vraag, naarmate er meer woningen buitendijks worden gebouwd. In Dordrecht zijn er bijvoorbeeld plannen om buitendijks te bouwen.

6. In 2011 hebben Jeroen Aerts en Wouter Botzen (2011, p.1053) onderzoek gedaan naar wat de mogelijke verzekeringspremies kunnen zijn als er overstromingsverzekeringen waren. Het onderzoek concludeert dat de premies kunnen variëren tussen 1 euro (in dijkkring 14) en 250 euro (in dijkkring 23) per jaar. De gemiddelde premie per huishouden per jaar is ingeschat als 34 euro. Stel we nemen deze gegevens als uitgangspunt, vindt u het aanbieden van overstromingsverzekeringen in buitendijkse riviergebieden in deze situatie realistisch, kunt u dit toelichten?

- a) Realistisch
- b) Onrealistisch
- c) Onvoldoende kennis om hier uitspraken over te kunnen doen
- d) Anders, namelijk...

Ik heb onvoldoende expertise op dit vlak om hier concrete uitspraken over te kunnen doen. Echter denk ik niet dat het een onoverkomelijk probleem is. Het is ook afhankelijk van hoe het aangeboden wordt. In België bijvoorbeeld is overstromingsdekking standaard inbegrepen als er tegen brandschade verzekerd wordt. Het is ook afhankelijk van de wijze dat verzekeraars overstromingsverzekeringen aanbieden, het kan gebundeld worden met andere verzekeringen. Ook zijn in sommige landen dergelijke verzekeringen verplicht. Het is bij deze vraag belangrijk rekening te houden met het feit dat er een groot verschil is tussen binnendijkse- en buitendijkse gebieden.

7. Particulieren kunnen in geval van een overstroming schadecompensatie van de overheid verwachten. Stel dat verzekeraars nu overstromingsverzekeringen aanbieden. In hoeverre verwacht u in dit geval dat overheidscompensatie via de WTS invloed heeft op de vraag naar privé overstromingsverzekeringen in buitendijkse riviergebieden?

- a) Veel invloed, hierdoor is er geen vraag meer naar overstromingsverzekeringen
- b) **Weinig invloed, er is nog wel vraag naar overstromingsverzekeringen**
- c) Geen invloed
- d) Onbekend, onvoldoende kennis
- e) Anders, namelijk...

De overheid biedt via de WTS enkel compensatie als er sprake is van een ramp (in de zin van de Wet op de Veiligheidsregio's). Het is daarentegen wel mogelijk dat er door politieke druk bepaalde gevallen als ramp worden herkent om zo toch compensatie aan te kunnen bieden. Overstromingen die plaatsvinden in de buitendijkse riviergebieden die niet een "ramp" zijn worden niet gedekt door de WTS, de inwoners wonen in deze zin volledig op eigen risico buitendijks. In deze zin is overstroming ook verzekeraar en heeft de WTS beperkte invloed hierop.

8. In de WTS wordt beschreven dat inwoners niet in aanmerking komen voor overheidscompensatie in het geval dat schade redelijkerwijs verzekeraar is. Echter zijn er op het moment geen overstromingsverzekeringen. Ziet u deze regeling als een kans om bepaalde schade te kunnen verzekeren tegen overstromingen in buitendijkse riviergebieden?

- a) Ja, ik zie hier een kans in
- b) Nee, ik zie hier geen kans in
- c) Onbekend, onvoldoende kennis
- d) **Anders, namelijk...**

Dat kan, maar dit is niet het centrale probleem. Verzekeraars hebben niet genoeg premievolume door enkel buitendijks te verzekeren. Gewenst is een combinatie tussen binnendijkse en buitendijkse verzekeringen. Ook zijn er bepaalde verzekeraars die proberen maatwerk te leveren exclusief voor buitendijkse riviergebieden, Neerlandse is hier een voorbeeld van.

9. In hoeverre is er sprake van contact tussen verzekeraars en de overheid met betrekking tot overstromingsverzekeringen, kunt u hier eventueel wat over vertellen?

- a) Intensief contact
- b) Enigszins contact
- c) Nauwelijks contact
- d) Geen contact
- e) **Onbekend, onvoldoende kennis**
- f) Anders, namelijk...

10. Stel dat u overstromingsverzekeringen wilt aanbieden. Welke aspecten verwacht u dat hinderend kunnen werken of zelfs overstromingsverzekeringen in buitendijkse riviergebieden onmogelijk maakt? Meerdere antwoorden zijn mogelijk.

- a) Overstromingsrisico
- b) Vraag naar overstromingsverzekeringen
- c) Overheidscompensatie via de WTS
- d) Gebrek aan een wettelijk kader
- e) Geen, ik verwacht geen obstakels
- f) **Anders, namelijk...**

Het is een complex probleem dat afhankelijk is van meerdere factoren. Het risico en de vraag spelen beide een belangrijke rol. Echter zie ik als het centrale probleem het gebrek aan premievolume als alleen de buitendijkse riviergebieden verzekerd worden. Hoewel het verzekeraar zou zijn als inwoners bereid zijn hoge premies te betalen, is dit niet waarschijnlijk. Mogelijke oplossing is om het verzekeren van overstromingen in de buitendijkse riviergebieden te koppelen met binnendijkse riviergebieden. Deze gebieden zijn veel groter en zo kan er een hoger premievolume verkregen worden. Ook zou het essentieel zijn dat de overheid financieel bijspringt in het geval van een grote catastrofe. In andere landen is dit al in zekere mate het geval.

Interview 2

Type of organization: government

Date of interview: 14/02/2013

1. Kunt u in het kort wat vertellen over uw werkzaamheden?

Werkzaam geweest bij ingenieurs bureaus waaronder DHV. Nu ben ik zelfstandig en werk ik ook voor Rijkswaterstaat.

2. In hoeverre is er interesse naar de mogelijkheid voor het aanbieden van particuliere verzekeringen voor overstromingen in uw werkveld?

- a) Veel interesse
- b) Weinig interesse**
- c) Geen interesse
- d) Anders, namelijk...

De verzekeraars zelf houden zich er niet veel mee bezig. Herverzekeraars hebben ook nog weinig interesse. Wel neemt de interesse toen. Met name de grote verzekeringsconsulenten Marsh en AON houden zich bezig met het dekken van calamiteiten. Met overstromingen is het ook belangrijk een onderscheid te maken tussen overlast en calamiteit.

3. Is er binnen uw werkveld onderzoek gedaan naar particuliere overstromingsverzekeringen, en kunt u eventueel wat vertellen over de resultaten?

- a) Er is hier onderzoek naar gedaan**
- b) Hier wordt momenteel onderzoek naar gedaan
- c) Er zijn plannen om hier onderzoek naar te doen
- d) Er is geen sprake van onderzoek op dit gebied
- e) Anders, namelijk...

Veel documenten te leen meegekregen.

4. Verwacht u dat het overstromingsrisico in Nederland acceptabel is voor het aanbieden van particuliere overstromingsverzekeringen in buitendijkse riviergebieden, kunt u dit toelichten?

- a) Acceptabel
- b) Onacceptabel**
- c) Onbekend, onvoldoende kennis

d) Anders, namelijk...

Het risico in het algemeen over heel Nederland is nog onacceptabel. Hier kan verandering in komen met publiek private samenwerking. Of maatwerk leveren in specifieke gebieden. Maar hier moet eerst aan gewerkt worden voordat overstromingsverzekeringen mogelijk worden.

5. Verwacht u dat er voldoende vraag zal zijn naar particuliere overstromingsverzekeringen in buitendijkse riviergebieden, kunt u dit toelichten?

- a) Voldoende vraag
- b) Onvoldoende vraag
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Bewoners hebben in het algemeen geen interesse in overstromingsverzekeringen. Ze zouden er zelf voordeel uit moeten kunnen halen. Ze zouden zelf investeringen moeten doen om hun risico te verlagen voordat het verzekerd kan worden. Ook denken vele inwoners in korte termijn en hebben zich afhankelijk gesteld van hulp van de overheid. Ze staan er niet op te wachten om het zelf te betalen.

Overstromingsverzekeringen kunnen eventueel ook in een pakket aangeboden worden, zoals bij de inboedel. Het kan ook in combinatie met bijvoorbeeld een woningbouwcorporatie of energiebedrijven.

6. In 2011 hebben Jeroen Aerts en Wouter Botzen (2011, p.1053) onderzoek gedaan naar wat de mogelijke verzekeringspremies kunnen zijn als er overstromingsverzekeringen waren. Het onderzoek concludeert dat de premies kunnen variëren tussen 1 euro (in dijkkring 14) en 250 euro (in dijkkring 23) per jaar. De gemiddelde premie per huishouden per jaar is ingeschat als 34 euro. Stel we nemen deze gegevens als uitgangspunt, vindt u het aanbieden van overstromingsverzekeringen in buitendijkse riviergebieden in deze situatie realistisch, kunt u dit toelichten?

- a) Realistisch
- b) Onrealistisch
- c) Onvoldoende kennis om hier uitspraken over te kunnen doen
- d) Anders, namelijk...

Als richtlijn wordt het voor 120 per jaar aantrekkelijk. Echter is het belangrijk niet alleen de denken in termen van 'verzekeren'. Er kan ook maatwerk geleverd worden waardoor het in sommige gevallen mogelijk is en in andere gevallen weer niet. In samenwerking met de overheid is er ook veel mogelijk.

7. Particulieren kunnen in geval van een overstroming schadecompensatie van de overheid verwachten. Stel dat verzekeraars nu overstromingsverzekeringen aanbieden. In hoeverre verwacht u in dit geval dat overheidscompensatie via de WTS invloed heeft op de vraag naar privé overstromingsverzekeringen in buitendijkse riviergebieden?

- a) Veel invloed, hierdoor is er geen vraag meer naar overstromingsverzekeringen
- b) Weinig invloed, er is nog wel vraag naar overstromingsverzekeringen

- c) Geen invloed
- d) Onbekend, onvoldoende kennis
- e) Anders, namelijk...

De WTS is een dominante factor, bewoners stellen zich afhankelijk op van deze overheidcompensatie en hebben dan geen behoefte bij verzekeringen.

8. In de WTS wordt beschreven dat inwoners niet in aanmerking komen voor overheidscompensatie in het geval dat schade redelijkerwijs verzekeraar is. Echter zijn er op het moment geen overstromingsverzekeringen. Ziet u deze regeling als een kans om bepaalde schade te kunnen verzekeren tegen overstromingen in buitendijkse riviergebieden?

- a) Ja, ik zie hier een kans in
- b) Nee, ik zie hier geen kans in**
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Verzekeraars kijken alleen maar naar de dekking en niet naar de wet. Ook zijn de verantwoordelijkheden buitendijks onduidelijk. Binnendijks is duidelijk de Waterschap verantwoordelijk. Buitendijks is dit niet duidelijk, Rijkswaterstaat, de provincie en de gemeente nemen niet de verantwoordelijkheid.

9. In hoeverre is er sprake van contact tussen verzekeraars en de overheid met betrekking tot overstromingsverzekeringen, kunt u hier eventueel wat over vertellen?

- a) Intensief contact
- b) Enigszins contact
- c) Nauwelijks contact**
- d) Geen contact
- e) Onbekend, onvoldoende kennis
- f) Anders, namelijk...

Vijf jaar geleden was er een belangrijk overleg hierover. Verzekeraars hebben niet of nauwelijks contact met de overheid hierover. Wel heeft het verbond van verzekeraars contact met de overheid. Maar verzekeraars houden zich niet veel bezig met het verbond van verzekeraars.

10. Stel dat u overstromingsverzekeringen wilt aanbieden. Welke aspecten verwacht u dat hinderend kunnen werken of zelfs overstromingsverzekeringen in buitendijkse riviergebieden onmogelijk maakt? Meerdere antwoorden zijn mogelijk.

- a) Overstromingsrisico
- b) Vraag naar overstromingsverzekeringen**
- c) Overheidscompensatie via de WTS**
- d) Gebrek aan een wettelijk kader
- e) Geen, ik verwacht geen obstakels
- f) Anders, namelijk...

Veertig jaar lang zijn er geen overstromingen mee. Het is niet iets waar mensen zich mee bezig houden, ze voelen zich wel veilig. Ook wordt er vanuit gegaan dat dit een taak is van de overheid, en worden er op individueel niveau geen maatregelen genomen.

Het is belangrijk onderscheid te maken tussen calamiteit en overlast. Overlast zijn kleinere overstromingen die schade aan een woning toebrengen.

In de Waterwet van 2009 staat aangegeven dat een getroffene moet kunnen aantonen al het mogelijke aan preventie gedaan te hebben in geval van overstroming, voordat er sprake is van compensatie vanuit de overheid.

De overheid verschaft burgers geen informatie over de risico's van overstromingen. De gemeente heeft er geen behoefte bij om de risico's te communiceren naar de burger toe. Namelijk verkoopt de gemeente stukken land en als het risico meer bekend is kan dit effect hebben op de waarde van het land.

Ik ben ook bezig met een project op Hijplaat, een wijk in Rotterdam. Hier was er de suggestie om het land op te hogen om zo het risico op overstromingen te verkleinen. Het doel was om het risico te verminderen tot 1/4000 echter was het ophogen te duur. Wel wordt er overwogen het land deels op te hogen (50cm), dit zou het risico terug kunnen brengen van het huidige 1/5 tot aan 1/200).

In de modellen voor overstromingsrisico zitten bepaalde aannames verwerkt die prima toepasbaar zijn op grote schaal. Echter is er grote twijfel of deze goed werken op kleine gebieden. Er kunnen hier specifieke omstandigheden heersen die niet overeenkomen met de modellen.

Ik werk aan een methode om dit uit te werken op microschaal. Het is zo mogelijke maatwerk te leveren door langs elk huis te gaan, een inventarisatie te maken van het risico, en aanbevelingen te doen om het risico te verminderen. De overheid zal hiermee kunnen werken, of verzekeraars. Als inwoners zo het risico verminderen worden overstromingen makkelijker verzekeraar.

Er dient ook een duidelijke scheiding te komen tussen de verantwoordelijkheden van de overheid en de burger. Hoewel de overheid de dijken bouwt zal de burger het risico in eigen huis moeten minderen.

Ook behulpbaar kan zijn een keurmerk, een floodproof woningen (dit de overheid kan stimuleren). De woningcorporatie kan overstromingen ook collectief dekken.

Er is meer economische ontwikkeling in gebieden achter dijken dan buitendijks, binnendijks is de kans op overstroming kleiner en wordt hier meer geïnvesteerd.

Risico= kans * gevolg

Binnendijks is de kans op overstroming heel klein, maar de gevolgen zijn zeer groot

Buitendijks is de kans alsnog klein, maar wel wat groter, en de gevolgen zijn kleiner.

Interview 3

Type of organization: university

Date of interview: 21/02/2013

1. Kunt u in het kort wat vertellen over uw werkzaamheden?

Hoogleraar op het gebied van waterveiligheid, overstromingsverzekeringen. Directeur van het adviesbureau HKV. Onderzoeker.

2. In hoeverre is er interesse naar de mogelijkheid voor het aanbieden van particuliere verzekeringen voor overstromingen in uw werkveld?

- a) Veel interesse
- b) **Weinig interesse**
- c) Geen interesse
- d) Anders, namelijk...

Verzekeraars zijn geïnteresseerd in inkomsten. En hebben geen interesse totdat er voldoende vraag is naar overstromingsverzekeringen.

3. Is er binnen uw werkveld onderzoek gedaan naar particuliere overstromingsverzekeringen, en kunt u eventueel wat vertellen over de resultaten?

- a) **Er is hier onderzoek naar gedaan**
- b) Hier wordt momenteel onderzoek naar gedaan
- c) Er zijn plannen om hier onderzoek naar te doen
- d) Er is geen sprake van onderzoek op dit gebied
- e) Anders, namelijk...

Ja, hier heb ik zelf ook onderzoek naar gedaan (zie www.adviescommissiewater.nl).

4. Verwacht u dat het overstromingsrisico in Nederland acceptabel is voor het aanbieden van particuliere overstromingsverzekeringen in buitendijkse riviergebieden, kunt u dit toelichten?

- a) Acceptabel
- b) Onacceptabel
- c) Onbekend, onvoldoende kennis
- d) **Anders, namelijk..**

Op kleine schaal is het risico wel acceptabel meer het probleem is cumulatierisico. Hierdoor is een volledig privé verzekering moeilijk. In landen waar er overstromingsverzekeringen zijn nemen de verzekeraars niet daadwerkelijk het risico. De overheid heeft hier een fonds voor. Dit in bijvoorbeeld Frankrijk en de Verenigde Staten.

5. Verwacht u dat er voldoende vraag zal zijn naar particuliere overstromingsverzekeringen in buitendijkse riviergebieden, kunt u dit toelichten?

- a) Voldoende vraag
- b) Onvoldoende vraag
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Teun Terpstra van HKV heeft hier onderzoek naar gedaan. Hij is er niet zo optimistisch over. Burgers gaan ervan uit dat het een taak is van de overheid op zorg te dragen voor schade bij rampen zoals overstromingen. Er zou hierdoor beperkte vraag zijn naar overstromingsverzekeringen.

6. In 2011 hebben Jeroen Aerts en Wouter Botzen (2011, p.1053) onderzoek gedaan naar wat de mogelijke verzekeringspremies kunnen zijn als er overstromingsverzekeringen waren. Het onderzoek concludeert dat de premies kunnen variëren tussen 1 euro (in dijkkring 14) en 250 euro (in dijkkring 23) per jaar. De gemiddelde premie per huishouden per jaar is ingeschat als 34 euro. Stel we nemen deze gegevens als uitgangspunt, vindt u het aanbieden van overstromingsverzekeringen in buitendijkse riviergebieden in deze situatie realistisch, kunt u dit toelichten?

- a) Realistisch
- b) Onrealistisch
- c) Onvoldoende kennis om hier uitspraken over te kunnen doen
- d) Anders, namelijk..

Dit hangt af van de marketing. Hier ook is de kans niet groot omdat mensen dit beschouwen als overheidstaak.

7. Particulieren kunnen in geval van een overstroming schadecompensatie van de overheid verwachten. Stel dat verzekeraars nu overstromingsverzekeringen aanbieden. In hoeverre verwacht u in dit geval dat overheidscompensatie via de WTS invloed heeft op de vraag naar privé overstromingsverzekeringen in buitendijkse riviergebieden?

- a) Veel invloed, hierdoor is er geen vraag meer naar overstromingsverzekeringen
- b) Weinig invloed, er is nog wel vraag naar overstromingsverzekeringen
- c) Geen invloed
- d) Onbekend, onvoldoende kennis
- e) Anders, namelijk...

Veel invloed ongeacht de WTS, ook zonder de WTS verwachten burgers dat de publieke sector bijspringt. Zelfs zouden er verzekeringen zijn dan kan de overheid bijspringen om de onverzekerde te helpen. Dit heeft meer te maken met de politiek.

8. In de WTS wordt beschreven dat inwoners niet in aanmerking komen voor overheidscompensatie in het geval dat schade redelijkerwijs verzekeraar is. Echter zijn er op het moment geen overstromingsverzekeringen. Ziet u deze regeling als een kans om bepaalde schade te kunnen verzekeren tegen overstromingen in buitendijkse riviergebieden?

- a) Ja, ik zie hier een kans in
- b) Nee, ik zie hier geen kans in
- c) Onbekend, onvoldoende kennis

d) Anders, namelijk...

Verzekeraars zouden zich hier niet populair mee maken als de onverzekerde die zijn eigendom had kunnen verzekeren geen compensatie van de overheid krijgt. Door het politieke klimaat is dit onwaarschijnlijk, er wordt overheidsingrijpen verwacht.

9. In hoeverre is er sprake van contact tussen verzekeraars en de overheid met betrekking tot overstromingsverzekeringen, kunt u hier eventueel wat over vertellen?

- a) Intensief contact
- b) Enigszins contact
- c) Nauwelijks contact
- d) Geen contact
- e) Onbekend, onvoldoende kennis
- f) Anders, namelijk...

Verzekeraars willen verplichte verzekeringen (onthefing van het NMA). Ook kan er een constructie komen vergelijkbaar met het terrorismepool, hier is er een fonds dat tot 1 miljard dekt, meer schade dan dat en de overheid grijpt in.

10. Stel dat u overstromingsverzekeringen wilt aanbieden. Welke aspecten verwacht u dat hinderend kunnen werken of zelfs overstromingsverzekeringen in buitendijkse riviergebieden onmogelijk maakt? Meerdere antwoorden zijn mogelijk.

- a) Overstromingsrisico
- b) Vraag naar overstromingsverzekeringen
- c) Overheidscompensatie via de WTS
- d) Gebrek aan een wettelijk kader
- e) Geen, ik verwacht geen obstakels
- f) Anders, namelijk...

Het grootste probleem is dat er niet genoeg vraag naar zou zijn omdat dit beschouwd wordt als een taak van de overheid. Ten tweede is ook het cumulatierisico een probleem. Overstromingen hebben een kleine kans en een groot gevolg. Ook is er het probleem de relatie tussen verzekerden en de geleden schade, als er niet genoeg verzekerden zal dit hoge premies opleveren.

Een ander probleem is risico communicatie vanuit de overheid, er is hier sprake van spanning omdat de overheid er niet altijd belang bij heeft elk risico te communiceren. Ook kunnen burgers hierdoor onnodig bang gemaakt worden, zoals met terrorisme. Desondanks is risico communicatie van belang want burgers kunnen zich ook onbewust zijn van het risico en veilig voelen terwijl het niet zo veilig is. Ook heeft subjectieve veiligheid invloed.

Ten slotte is het ook van belang af te vragen welke toegevoegde waarde overstromingsverzekeringen hebben. Als door overheidsinterventie de verzekeraars geen risico's hoeven te nemen, dan wijkt het systeem niet veel af van het huidige publieke systeem in Nederland.

Interview 4

Type of organization: insurance

Date of interview: 28/02/2013

1. Kunt u in het kort wat vertellen over uw werkzaamheden?

Ik ben secretaris van de commissie brandverzekeringen, dit betreft inboedel en opstal (ook overstromingen) voor particulier en zakelijk. Er wordt onderscheid gemaakt tussen levensverzekeringen en schadeverzekeringen.

2. In hoeverre is er interesse naar de mogelijkheid voor het aanbieden van particuliere verzekeringen voor overstromingen in uw werkveld?

- a) Veel interesse
- b) Weinig interesse
- c) Geen interesse
- d) Anders, namelijk...

Er is veel interesse bij verzekeraars, maar het probleem van antiselectie voorkomt dat er hier vrijwillig een markt tot stand kan komen. Met antiselectie wordt bedoeld dat inwoners in een gebied met een laag overstromingsrisico geen verzekering hiervoor wilt afsluiten, waardoor de premies in de gebieden met een hoog risico hoger worden, hierdoor willen inwoners in gebieden met een hoog risico ook geen overstromingsverzekering afsluiten. Er is sprake geweest van mogelijkheden tot privaat-publieke samenwerking met betrekking tot overstromingsverzekeringen, maar de overheid ziet er vanaf omdat zij de burgers niet extra wil belasten in tijden van crisis.

Het Verbond van Verzekeraars wil ook samen met verzekeraars tot een overeenkomst komen om overstromingen te dekken bij inboedel en opstalverzekeringen. Dit zal een bindend besluit zijn dat geldt voor alle verzekeraars die aangesloten zijn bij het Verbond van Verzekeraars. Op het moment houdt de Nationale Mededingingsautoriteit (NMA) dit tegen, op grond van dat er afspraken worden gemaakt in prijzen en voorwaarden. Volgens het NMA mag het Verbond van Verzekeraars wel advies uitbrengen over het dekken van overstromingen maar het mag geen bindende beslissing zijn. Op dit moment wordt er gelobbyd om goedkeuring van het NMA te krijgen. NMA kan dit goedkeuren als de voordelen van privé verzekeringen worden belicht, en dat het maatschappelijk nut heeft. Er is nu namelijk helemaal geen markt hiervoor. En dit is een manier om een markt hiervoor te creëren.

3. Is er binnen uw werkveld onderzoek gedaan naar particuliere overstromingsverzekeringen, en kunt u eventueel wat vertellen over de resultaten?

- a) Er is hier onderzoek naar gedaan
- b) Hier wordt momenteel onderzoek naar gedaan
- c) Er zijn plannen om hier onderzoek naar te doen
- d) Er is geen sprake van onderzoek op dit gebied
- e) Anders, namelijk...

Onderzoek gedaan bij het IVM door Wouter Botzen en Jeroen Aerts, dit wordt vaak gebruikt. De Wereldbank heeft ook onderzoek hiernaar gedaan. Ook heeft het OECD onderzoek gedaan naar watermanagement, en concludeerde dat de burger zich veilig voelt.

4. Verwacht u dat het overstromingsrisico in Nederland acceptabel is voor het aanbieden van particuliere overstromingsverzekeringen in buitendijkse riviergebieden, kunt u dit toelichten?

- a) **Acceptabel**
- b) Onacceptabel
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Onderzoeken tonen aan dat het acceptabel is. Het is moeilijk precies in te schatten omdat er geen ervaring is, geen al bestaande markt in overstromingsverzekeringen. Ook is er het probleem van antiselectie, dus zal het alleen werken als het landelijk door de meeste verzekeraars gedekt wordt.

5. Verwacht u dat er voldoende vraag zal zijn naar particuliere overstromingsverzekeringen in buitendijkse riviergebieden, kunt u dit toelichten?

- a) Voldoende vraag
- b) **Onvoldoende vraag**
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Er is niet voldoende vraag zodat er spontaan een markt ontstaat. Er is wettelijke of semi-wettelijke dwang nodig. De staat kan het direct afdwingen door overstromingsverzekering of dekking te verplichten of door middel van belastingen. Ook kan het via een bindend besluit van het Verbond van Verzekeraars. Als verzekeraars overstromingen gaan dekken nemen ze een deel aan als eigen risico (20%) en een deel wordt herverzekerd (80%). Hiervoor zal een organisatie opgericht moeten worden die de risico's kunnen herverdelen en herverzekeren. Het eigen risico is beperkt, ook controleert de DNB de solvabiliteit van de verzekeraar.

In een beperkte mate worden er al overstromingsverzekeringen aangeboden door vereniging eigen huis (eigenhuis.nl)(neerlandse). De premies worden per huis uitgerekend en kan variëren tussen 15 en 40 euro per maand. Ook Neerlandse heeft onvoldoende eigen reserves, het is herverzekerd door Lloyds uit Engeland.

6. In 2011 hebben Jeroen Aerts en Wouter Botzen (2011, p.1053) onderzoek gedaan naar wat de mogelijke verzekeringspremies kunnen zijn als er overstromingsverzekeringen waren. Het onderzoek concludeert dat de premies kunnen variëren tussen 1 euro (in dijkkring 14) en 250 euro (in dijkkring 23) per jaar. De gemiddelde premie per huishouden per jaar is ingeschat als 34 euro. Stel we nemen deze gegevens als uitgangspunt, vindt u het aanbieden van overstromingsverzekeringen in buitendijkse riviergebieden in deze situatie realistisch, kunt u dit toelichten?

- a) **Realistisch**
- b) Onrealistisch
- c) Onvoldoende kennis om hier uitspraken over te kunnen doen

d) Anders, namelijk...

De vraag blijft of de hoogte van de premium acceptabel is voor de klant. Met een landelijke dekking is het wel realistischer want dan is het makkelijker te dekken. Dan is het ook mogelijk om premies in gebieden met lage risico te verhogen en in gebieden met hoog risico te verlagen, om de verschillen wat te verkleinen. Ook is het wenselijk om risicomodellen te ontwikkelen op detailniveau, hier is nauwelijks aan begonnen, dit komt omdat men hier niet in wil investeren omdat er geen markt voor is en niet zeker of deze zal komen op korte termijn. Ook is dit afhankelijk van meerdere factoren, zoals de premievoorwaarden.

7. Particulieren kunnen in geval van een overstroming schadecompensatie van de overheid verwachten. Stel dat verzekeraars nu overstromingsverzekeringen aanbieden. In hoeverre verwacht u in dit geval dat overheidscompensatie via de WTS invloed heeft op de vraag naar privé overstromingsverzekeringen in buitendijkse riviergebieden?

- a) Veel invloed, hierdoor is er geen vraag meer naar overstromingsverzekeringen
- b) Weinig invloed, er is nog wel vraag naar overstromingsverzekeringen
- c) Geen invloed
- d) Onbekend, onvoldoende kennis
- e) Anders, namelijk...

Dit is afhankelijk van wat de overheid doet. De overheid dient volgens de wts niet te vergoeden als het redelijkerwijs verzekeraar is. Als de overheid toch onverzekerden gaat vergoeden, dan is het moeilijk overstromingsverzekeringen aan te bieden. De WTS zal de vraag niet belemmeren als de overheid zich strict aan de wet houdt en onverzekerden niet vergoed.

8. In de WTS wordt beschreven dat inwoners niet in aanmerking komen voor overheidscompensatie in het geval dat schade redelijkerwijs verzekeraar is. Echter zijn er op het moment geen overstromingsverzekeringen. Ziet u deze regeling als een kans om bepaalde schade te kunnen verzekeren tegen overstromingen in buitendijkse riviergebieden?

- a) Ja, ik zie hier een kans in
- b) Nee, ik zie hier geen kans in
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

De Neerlandse biedt nu verzekeringen aan, maar niet aan iedere burger. Dus de WTS is van toepassing op degene die niet door Neerlandse verzekerd is. Het is wenselijk om verzekeraars het te laten dekken in plaats van de overheid via de wts. Verzekeraars zijn efficiënter, ook zijn de voorwaarden duidelijk en is er zekerheid (contractbasis).

9. In hoeverre is er sprake van contact tussen verzekeraars en de overheid met betrekking tot overstromingsverzekeringen, kunt u hier eventueel wat over vertellen?

- a) Intensief contact
- b) Enigszins contact
- c) Nauwelijks contact
- d) Geen contact

- e) Onbekend, onvoldoende kennis
- f) Anders, namelijk...

Het Verbond heeft regelmatig contact met de overheid zowel met overstromingsverzekeringen als andere branches. Er is recentelijk een brief verzonden naar de vaste kamer commissie van het ministerie van veiligheid & justitie. Hierin worden de voordelen benoemd van privé overstromingsverzekering door middel van een bindende regeling vanuit het Verbond. Ook worden de consequenties van de WTS hierin benoemd, namelijk dat deze niet meer geldt als landelijk overstromingen gedekt kunnen worden.

10. Stel dat u overstromingsverzekeringen wilt aanbieden. Welke aspecten verwacht u dat hinderend kunnen werken of zelfs overstromingsverzekeringen in buitendijkse riviergebieden onmogelijk maakt? Meerdere antwoorden zijn mogelijk.

- a) Overstromingsrisico
- b) Vraag naar overstromingsverzekeringen
- c) Overheidscompensatie via de WTS
- d) Gebrek aan een wettelijk kader
- e) Geen, ik verwacht geen obstakels
- f) Anders, namelijk...

Er zijn verschillende aspect die het aanbieden van overstromingsverzekeringen kunnen hinderen.

- Antiselectie
- Onzekerheid van risico's op detailniveau
- Verzekeraars dekken het niet alleen (prisoners dilemma) en een gezamenlijke dekking vanuit het Verbond mag momenteel niet van het NMA
- Er is geen ervaring, vele jaren is het door de overheid gedaan, privé verzekeren van overstroming moet worden geherintroduceerd.

Interview 5

Type of organization: research institution

Date of interview: 01/03/2013

1. Kunt u in het kort wat vertellen over uw werkzaamheden?

Ik heb algemene economie gestudeerd. Ik werkt sinds 2004 voor TNO en ik ben geïnteresseerd in klimaatverandering. In 2008 heb ik een rapport geschreven over de economische effecten van klimaatverandering. Onderzoeker bij TNO.

2. In hoeverre is er interesse naar de mogelijkheid voor het aanbieden van particuliere verzekeringen voor overstromingen in uw werkveld?

- a) Veel interesse
- b) Weinig interesse
- c) Geen interesse
- d) Anders, namelijk...

Er is grote academische interesse. Het is een alternatief voor fysieke maatregelen en is goedkoper en flexibeler.

3. Is er binnen uw werkveld onderzoek gedaan naar particuliere overstromingsverzekeringen, en kunt u eventueel wat vertellen over de resultaten?

- a) Er is hier onderzoek naar gedaan
- b) Hier wordt momenteel onderzoek naar gedaan
- c) Er zijn plannen om hier onderzoek naar te doen
- d) Er is geen sprake van onderzoek op dit gebied
- e) Anders, namelijk...

Ja er is onderzoek naar gedaan. Zelf ben ik bezig geweest met DHV en AON met een kosten-baten analyse. AON heeft hier moeite mee vanwege schadeniveaus, en de onbekendheid daarvan.

4. Verwacht u dat het overstromingsrisico in Nederland acceptabel is voor het aanbieden van particuliere overstromingsverzekeringen in buitendijkse riviergebieden, kunt u dit toelichten?

- a) Acceptabel
- b) Onacceptabel
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Verzekeraars gaan altijd uit van een worst-case scenario, en houden dus rekening met situaties waarbij bijvoorbeeld de hele randstad overstroomt. Het zou wel kunnen lukken met een optimale risicoverdediging, en met getrapte verzekeringen. Verzekeraars nemen een eigen risico, en na een bepaalde bovengrens neemt de overheid het op haar rekening.

5. Verwacht u dat er voldoende vraag zal zijn naar particuliere overstromingsverzekeringen in buitendijkse riviergebieden, kunt u dit toelichten?

- a) Voldoende vraag
- b) Onvoldoende vraag
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Onvoldoende vraag, hoewel dit mogelijk kan veranderen als er een overstroming was. Op het moment zijn burgers onwetend en onbewust over de risico's. Ook is er sinds 1953 een groot gevoel van veiligheid.

6. In 2011 hebben Jeroen Aerts en Wouter Botzen (2011, p.1053) onderzoek gedaan naar wat de mogelijke verzekeringspremies kunnen zijn als er overstromingsverzekeringen waren. Het onderzoek concludeert dat de premies kunnen variëren tussen 1 euro (in dijkkring 14) en 250 euro (in dijkkring 23) per jaar. De gemiddelde premie per huishouden per jaar is ingeschat als 34 euro. Stel we nemen deze gegevens als uitgangspunt, vindt u het aanbieden van overstromingsverzekeringen in buitendijkse riviergebieden in deze situatie realistisch, kunt u dit toelichten?

- a) Realistisch

- b) Onrealistisch
- c) Onvoldoende kennis om hier uitspraken over te kunnen doen
- d) Anders, namelijk...

Dit is afhankelijk van of burgers er nut in zien. Bewoners bekommeren zich meer om risico's met een grote kans en een klein gevolg dan risico's met een kleine kans en een groot gevolg.

7. Particulieren kunnen in geval van een overstroming schadecompensatie van de overheid verwachten. Stel dat verzekeraars nu overstromingsverzekeringen aanbieden. In hoeverre verwacht u in dit geval dat overheidscompensatie via de WTS invloed heeft op de vraag naar privé overstromingsverzekeringen in buitendijkse riviergebieden?

- a) Veel invloed, hierdoor is er geen vraag meer naar overstromingsverzekeringen
- b) Weinig invloed, er is nog wel vraag naar overstromingsverzekeringen
- c) Geen invloed
- d) Onbekend, onvoldoende kennis
- e) Anders, namelijk...

Ten eerste is het ook afhankelijk van het risicobewustzijn van burgers. Daarnaast is de WTS erg onduidelijk en weet men niet waar men aan toe is.

8. In de WTS wordt beschreven dat inwoners niet in aanmerking komen voor overheidscompensatie in het geval dat schade redelijkerwijs verzekeraar is. Echter zijn er op het moment geen overstromingsverzekeringen. Ziet u deze regeling als een kans om bepaalde schade te kunnen verzekeren tegen overstromingen in buitendijkse riviergebieden?

- a) Ja, ik zie hier een kans in
- b) Nee, ik zie hier geen kans in
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Het is eerder een belemmering, de WTS kan verzekeraars afschrikken. Het idee dat er geen vraag zal zijn als de overheid het regelt. Nogmaals is helderheid het belangrijks, de WTS is onduidelijk en dit is een groot probleem.

9. In hoeverre is er sprake van contact tussen verzekeraars en de overheid met betrekking tot overstromingsverzekeringen, kunt u hier eventueel wat over vertellen?

- a) Intensief contact
- b) Enigszins contact
- c) Nauwelijks contact
- d) Geen contact
- e) Onbekend, onvoldoende kennis
- f) Anders, namelijk...

Ik heb zelf gesprekken gehad met Wouter Koolmees van het Ministerie van Financiën (Algemene Financiële Economische Politiek). Het Ministerie was negatief over het idee omdat er beleidsmatige moeilijkheden worden verwacht.

10. Stel dat u overstromingsverzekeringen wilt aanbieden. Welke aspecten verwacht u dat hinderend kunnen werken of zelfs overstromingsverzekeringen in buitendijkse riviergebieden onmogelijk maakt? Meerdere antwoorden zijn mogelijk.

- a) Overstromingsrisico
- b) Vraag naar overstromingsverzekeringen
- c) Overheidscompensatie via de WTS
- d) Gebrek aan een wettelijk kader
- e) Geen, ik verwacht geen obstakels
- f) Anders, namelijk...

De grootste obstakels zijn de WTS, onbewustheid van de risico's. En verzekeraars houden rekening met de worst case scenarios (onverzekerbare risico's).

Interview 6

Type of organization: consultancy firm (risk management)

Date of interview: 07/03/2013

1. Kunt u in het kort wat vertellen over uw werkzaamheden?

Ik voer kwantitatieve risicoanalyses uit, gericht op risico's in kustzones. Ook heb ik onderzoek gedaan naar overstromingsverzekeringen in Nederland, bij de London School of Economics.

2. In hoeverre is er interesse naar de mogelijkheid voor het aanbieden van particuliere verzekeringen voor overstromingen in uw werkveld?

- a) Veel interesse
- b) Weinig interesse
- c) Geen interesse
- d) Anders, namelijk...

Het is een belangrijk maatschappelijk thema, er werd eerder ook gesproken over de mogelijkheid van publiek private samenwerking op het gebied van overstromingsverzekeringen. In Nederland is hier de situatie anders dan bijvoorbeeld in Australië of in de VS. Dit komt door de binnendijkse gebieden in Nederland.

3. Is er binnen uw werkveld onderzoek gedaan naar particuliere overstromingsverzekeringen, en kunt u eventueel wat vertellen over de resultaten?

- a) Er is hier onderzoek naar gedaan
- b) Hier wordt momenteel onderzoek naar gedaan
- c) Er zijn plannen om hier onderzoek naar te doen
- d) Er is geen sprake van onderzoek op dit gebied
- e) Anders, namelijk...

Er zijn meerdere onderzoeken hiernaar gedaan. Een voorbeeld is een onderzoek van het Institute for Environmental Management. Ik ben kritisch op onderzoeken als deze omdat er hier geen onderscheid gemaakt wordt tussen binnendijkse- en buitendijkse gebieden in Nederland.

4. Verwacht u dat het overstromingsrisico in Nederland acceptabel is voor het aanbieden van particuliere overstromingsverzekeringen in buitendijkse riviergebieden, kunt u dit toelichten?

- a) **Acceptabel**
- b) Onacceptabel
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Bij de aanbodszijde zie ik geen problemen, het risico is acceptabel om buitendijks te verzekeren. Ook is herverzekeren mogelijk, herverzekeraars werken op internationaal niveau. Ook kan er gehandeld worden in risico op de kapitaalmarkten, met de catastrophe bonds. Waarbij een lening wordt uitgegeven die niet hoeft worden terugbetaald als er een ramp gebeurt, dan mag dit geld gebruikt worden voor geleden schade.

5. Verwacht u dat er voldoende vraag zal zijn naar particuliere overstromingsverzekeringen in buitendijkse riviergebieden, kunt u dit toelichten?

- a) Voldoende vraag
- b) **Onvoldoende vraag**
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Er zijn nu geen overstromingsverzekering omdat er vraag en aanbod niet overeenkomt. Men is niet bereid om hiervoor te betalen, dit kan verschillende redenen hebben. Zo kan men niet bewust zijn van de risico's, of ze kunnen zelf de schade beperken en dienen verzekeringen niet nodig. Of het fenomeen crowding out, er wordt overheidscompensatie verwacht.

6. In 2011 hebben Jeroen Aerts en Wouter Botzen (2011, p.1053) onderzoek gedaan naar wat de mogelijke verzekeringspremies kunnen zijn als er overstromingsverzekeringen waren. Het onderzoek concludeert dat de premies kunnen variëren tussen 1 euro (in dijkkring 14) en 250 euro (in dijkkring 23) per jaar. De gemiddelde premie per huishouden per jaar is ingeschat als 34 euro. Stel we nemen deze gegevens als uitgangspunt, vindt u het aanbieden van overstromingsverzekeringen in buitendijkse riviergebieden in deze situatie realistisch, kunt u dit toelichten?

- a) Realistisch
- b) **Onrealistisch**
- c) Onvoldoende kennis om hier uitspraken over te kunnen doen
- d) Anders, namelijk...

Dit onderzoek concentreert zich vooral op binnendijkse gebieden, het onderzoek is zo niet goed toepasbaar op buitendijkse gebieden. Het onderzoek houdt ook niet rekening met de grote gevallen van een grote catastrofe in binnendijkse gebieden. Er zit een groot verschil tussen binnendijks- en buitendijks. Bij binnendijkse gebieden gaat om een hele kleine kans maar met grote gevolgen.

7. Particulieren kunnen in geval van een overstroming schadecompensatie van de overheid verwachten. Stel dat verzekeraars nu overstromingsverzekeringen aanbieden. In hoeverre verwacht u in dit geval dat overheidscompensatie via de WTS invloed heeft op de vraag naar privé overstromingsverzekeringen in buitendijkse riviergebieden?

- a) Veel invloed, hierdoor is er geen vraag meer naar overstromingsverzekeringen
- b) Weinig invloed, er is nog wel vraag naar overstromingsverzekeringen
- c) Geen invloed
- d) Onbekend, onvoldoende kennis
- e) Anders, namelijk...

De WTS geeft burgers geen recht op compensatie. Het geeft de overheid legaal gezien de gelegenheid om compensatie te verstrekken. Of er daadwerkelijk compensatie komt (en hoeveel) is afhankelijk van het politieke klimaat. Het probleem van 'crowding out' speelt hier ook een grote rol, zodat burgers geen verzekeringen willen betalen omdat ze toch al mogelijk overheidscompensatie krijgen. Ongeacht de WTS kunnen burgers ook verwachtingen hebben van de overheid en kan dit politieke druk opleveren om schade te compenseren. Het aanbieden van overstromingsverzekeringen zal makkelijker zijn als burgers van tevoren er zeker van kunnen zijn dat er geen overheidscompensatie komt in geval van een catastrofe. Een snelle oplossing zou zijn een verplichte verzekering in plaats van overheidscompensatie, zodat de risiconemer betaald. Maar dan zullen mensen die liever geen verzekering wilden niet tevreden zijn.

8. In de WTS wordt beschreven dat inwoners niet in aanmerking komen voor overheidscompensatie in het geval dat schade redelijkerwijs verzekeraar is. Echter zijn er op het moment geen overstromingsverzekeringen. Ziet u deze regeling als een kans om bepaalde schade te kunnen verzekeren tegen overstromingen in buitendijkse riviergebieden?

- a) Ja, ik zie hier een kans in
- b) Nee, ik zie hier geen kans in
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Als mensen onverzekerd zijn zou de overheid het alsnog kunnen compenseren als de politieke druk er is. De commissie Hermans deed ook onderzoek naar de evaluatie van de WTS. Als deze regeling van de WTS de oplossing was had ik nu al overstromingsverzekeringen verwacht.

9. In hoeverre is er sprake van contact tussen verzekeraars en de overheid met betrekking tot overstromingsverzekeringen, kunt u hier eventueel wat over vertellen?

- a) Intensief contact
- b) Enigszins contact
- c) Nauwelijks contact
- d) Geen contact
- e) Onbekend, onvoldoende kennis
- f) Anders, namelijk...

Veel contact, er was ook gekeken of het privaat kan, in 1995 de Raad van State. Eerder heeft het Verbond van Verzekeraars het afgewezen.

10. Stel dat u overstromingsverzekeringen wilt aanbieden. Welke aspecten verwacht u dat hinderend kunnen werken of zelfs overstromingsverzekeringen in buitendijkse riviergebieden onmogelijk maakt? Meerdere antwoorden zijn mogelijk.

- a) Overstromingsrisico
- b) Vraag naar overstromingsverzekeringen**
- c) Overheidscompensatie via de WTS
- d) Gebrek aan een wettelijk kader
- e) Geen, ik verwacht geen obstakels
- f) Anders, namelijk...

Het probleem is dat vraag en aanbod niet bij elkaar komen. Aan de aanbodzijde zie ik geen problemen maar aan de vraagzijde wel, om verschillende redenen die ik heb aangegeven. Dit zijn perceptie van risico, maar ook economische overwegingen. Crowding kan ook invloed.

Tip: bij de voordelen van overstromingsverzekering onderscheid maken tussen binnen- en buitendijks (mitigatie van risico enz)

Ook moral hazard aan de kant van de overheid, als het private verantwoordelijkheid wordt kan de overheid de dijken minder goed onderhouden.

Interview 7

Type of organization: insurance

Date of interview: 25/03/2013

1. Kunt u in het kort wat vertellen over uw werkzaamheden?

AON is niet een (her)verzekeraar maar een makelaar voor assurantiën. AON is een intermediair tussen klant en verzekeraar. Zelf heb ik een technische achtergrond en houdt ik me bezig met technische inspecties en overstromingsverzekeringen (rapportages).

2. In hoeverre is er interesse naar de mogelijkheid voor het aanbieden van particuliere verzekeringen voor overstromingen in uw werkveld?

- a) Veel interesse**
- b) Weinig interesse
- c) Geen interesse
- d) Anders, namelijk...

Vanuit de klanten is er grote vraag hiernaar (buitendijks). Probleem is wel dat (her)verzekeraars onbekend zijn met de risico's en daarom uitgaan van een worst-case scenario. Ook is er een moreel risico dat een particulier zelf weinig doet aan het risico en uitgaat dat dit een overheidstaak is (met name binnendijks). Ook zijn velen er niet van bewust dat overstromingen niet gedekt zijn in de verzekering. Voordat verzekeraars overstromingen willen dekken, willen ze eerst weten wat de risico's zijn, de kans op een overstroming, en ook de maatregelen die particulieren kunnen/willen nemen om het risico te beperken.

3. Is er binnen uw werkveld onderzoek gedaan naar particuliere overstromingsverzekeringen, en kunt u eventueel wat vertellen over de resultaten?

- a) Er is hier onderzoek naar gedaan
- b) Hier wordt momenteel onderzoek naar gedaan
- c) Er zijn plannen om hier onderzoek naar te doen
- d) Er is geen sprake van onderzoek op dit gebied
- e) Anders, namelijk...

Er was een onderzoek naar overstromingsverzekeringen vanuit de overheid, het Verbond van Verzekeraars en AON waren hier ook bij betrokken. Dit was rond 2008/2009 gestopt sinds de kabinetswisseling. De nieuwe politieke verhoudingen waren niet gunstig in verhouding met overstromingsverzekeringen. Hoewel wordt er nu weer een nieuwe start mee gemaakt.

4. Verwacht u dat het overstromingsrisico in Nederland acceptabel is voor het aanbieden van particuliere overstromingsverzekeringen in buitendijkse riviergebieden, kunt u dit toelichten?

- a) Acceptabel
- b) Onacceptabel
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Het risico is acceptabel, maar het is wel nodig voor verzekeraars een maximum te stellen aan het uit te keren bedrag in geval van een catastrofe. Het staffelen van een uitkering is hier ook een optie. Dan kunnen klanten kiezen welke premie ze betalen (keuze uit verschillende pakketten). Zo betekent een hogere premie ook een hogere uitkering en vice versa. Ook kunnen overstromingsverzekeringen via Waterschappen geregeld worden.

5. Verwacht u dat er voldoende vraag zal zijn naar particuliere overstromingsverzekeringen in buitendijkse riviergebieden, kunt u dit toelichten?

- a) Voldoende vraag
- b) Onvoldoende vraag
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Vanuit bedrijven is hier meer vraag naar dan van particulieren. Wel is er bij particulieren die wonen in buitendijkse gebieden meer vraag dan particulieren die wonen in binnendijkse gebieden. Binnendijs wordt namelijk gezien als verantwoordelijkheid van de overheid.

6. In 2011 hebben Jeroen Aerts en Wouter Botzen (2011, p.1053) onderzoek gedaan naar wat de mogelijke verzekeringspremies kunnen zijn als er overstromingsverzekeringen waren. Het onderzoek concludeert dat de premies kunnen variëren tussen 1 euro (in dijkkring 14) en 250 euro (in dijkkring 23) per jaar. De gemiddelde premie per huishouden per jaar is ingeschat als 34 euro. Stel we nemen deze gegevens als uitgangspunt, vindt u het aanbieden van overstromingsverzekeringen in buitendijkse riviergebieden in deze situatie realistisch, kunt u dit toelichten?

- a) Realistisch
- b) Onrealistisch
- c) Onvoldoende kennis om hier uitspraken over te kunnen doen
- d) Anders, namelijk...

Deze premies zijn acceptabel voor verzekeraars, maar de vraag is of men dit wel wil betalen. Het is nu niet het juiste moment om overstromingsverzekeringen te introduceren, de lasten worden zwaarder in de crisistijd en mensen zijn minder bereid hiervoor te betalen. Daarnaast is er ook onvoldoende bewustzijn van de risico's.

7. Particulieren kunnen in geval van een overstroming schadecompensatie van de overheid verwachten. Stel dat verzekeraars nu overstromingsverzekeringen aanbieden. In hoeverre verwacht u in dit geval dat overheidscompensatie via de WTS invloed heeft op de vraag naar privé overstromingsverzekeringen in buitendijkse riviergebieden?

- a) Veel invloed, hierdoor is er geen vraag meer naar overstromingsverzekeringen
- b) Weinig invloed, er is nog wel vraag naar overstromingsverzekeringen
- c) Geen invloed
- d) Onbekend, onvoldoende kennis
- e) Anders, namelijk...

Dit probleem kan vermeden worden als de overheid haar beleid afstemt op verzekeraars. Een voorbeeld hiervan is het concept van captive dat grote bedrijven gebruiken. Naam als voorbeeld een groot bedrijf met 300 vestigingen en 5 bedrijfstakken. De 5 bedrijfstakken kunnen een bijdrage leveren zodat er een spaarpot is van bijvoorbeeld 150 miljoen euro. Dit moet ondergebracht worden bij een verzekeringsbureau dat opgericht moet worden. Hiermee kan het bedrijf zichzelf intern verzekeren. Dit bedrag van 150 miljoen euro dient als eigen risico bedrag. Dan kan het bedrijf voor een aanzienlijk lagere premie een verzekering nemen. De overheid zou ook volgens dit model kunnen werken. De overheid staat boven een bepaald bedrag garant, daarbinnen is eigen risico en hierbij kunnen burgers overstromingsverzekeringen afsluiten.

8. In de WTS wordt beschreven dat inwoners niet in aanmerking komen voor overheidscompensatie in het geval dat schade redelijkerwijs verzekeraar is. Echter zijn er op het moment geen overstromingsverzekeringen. Ziet u deze regeling als een kans om bepaalde schade te kunnen verzekeren tegen overstromingen in buitendijkse riviergebieden?

- a) Ja, ik zie hier een kans in
- b) Nee, ik zie hier geen kans in
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Dat kan maar hiervoor is samenwerking met de overheid nodig. Zo kan een schade expert vaststellen in welke categorie een bewoner valt. Vervolgens wordt er beslist of de betreffende persoon in aanmerking komt voor overheidscompensatie of niet.

9. In hoeverre is er sprake van contact tussen verzekeraars en de overheid met betrekking tot overstromingsverzekeringen, kunt u hier eventueel wat over vertellen?

- a) Intensief contact
- b) Enigszins contact
- c) Nauwelijks contact
- d) Geen contact
- e) Onbekend, onvoldoende kennis
- f) Anders, namelijk...

Er is contact, ook vanuit AON, hoewel ben ik hier zelf niet bij betrokken.

10. Stel dat u overstromingsverzekeringen wilt aanbieden. Welke aspecten verwacht u dat hinderend kunnen werken of zelfs overstromingsverzekeringen in buitendijkse riviergebieden onmogelijk maakt? Meerdere antwoorden zijn mogelijk.

- a) Overstromingsrisico
- b) Vraag naar overstromingsverzekeringen
- c) Overheidscompensatie via de WTS
- d) Gebrek aan een wettelijk kader
- e) Geen, ik verwacht geen obstakels
- f) Anders, namelijk...

Het probleem is dat er veel onzekerheid is bij verzekeraars met betrekking tot de risico's. Hierdoor wil niemand het risico op zich nemen, het kan alleen op collectieve wijze geregeld worden. Een soortgelijk probleem speelt er in Nederland omtrent aardbevingen.

Interview 8

Type of organization: government

Date of interview: 25/04/2013

1. Kunt u in het kort wat vertellen over uw werkzaamheden?

Zelf werk ik aan de normen voor de waterkeringen op provinciaal niveau. Deze normen zijn gebaseerd op de risico's en de investeringen in het betreffende gebied. Ook is er rekening mee gehouden met toekomstige klimatologische ontwikkelingen en ontwikkelingen in toekomstige investeringen. Hierbij dient ook rekening gehouden te worden met het feit dat als de normen voor het bouwen van waterkeringen van tevoren worden vastgesteld, dat dit de economische ontwikkelingen in het betreffende gebied kan beperken, er wordt een plafond gesteld. Door het stellen van deze normen zijn overstromingsrisico's wel in zekere mate geïnventariseerd. Ook was het na de overstroming in Wilnis de bedoeling dat Provincie en Waterschap het probleem van overstromingsrisico zouden op pakken. Maar tot op het heden zijn er onenigheden tussen, gemeente, waterschap en provincie over de verdeling van verantwoordelijkheden.

2. In hoeverre is er interesse naar de mogelijkheid voor het aanbieden van particuliere verzekeringen voor overstromingen in uw werkveld?

- a) Veel interesse

- b) **Weinig interesse**
- c) Geen interesse
- d) Anders, namelijk...

Bij de provincie (en ook waterschappen en gemeenten) ligt de focus op risico's en normeringen van waterkeringen, en niet op het particulier verzekeren van overstromingen. Wel zou het prima zijn dat individuen zich kunnen verzekeren voor overstromingen als zij de bestaande normen onvoldoende vinden, of wonen in onbedijkte buitendijkse gebieden.

3. Is er binnen uw werkveld onderzoek gedaan naar particuliere overstromingsverzekeringen, en kunt u eventueel wat vertellen over de resultaten?

- a) **Er is hier onderzoek naar gedaan**
- b) Hier wordt momenteel onderzoek naar gedaan
- c) Er zijn plannen om hier onderzoek naar te doen
- d) Er is geen sprake van onderzoek op dit gebied
- e) Anders, namelijk...

Andere organisaties hebben hier onderzoek naar gedaan, bij de provincie is dit niet het geval. Wel wordt er veel gediscussieerd over verantwoordelijkheden met betrekking tot overstromingsrisico.

4. Verwacht u dat het overstromingsrisico in Nederland acceptabel is voor het aanbieden van particuliere overstromingsverzekeringen in buitendijkse riviergebieden, kunt u dit toelichten?

- a) **Acceptabel**
- b) Onacceptabel
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Bij de kleinere buitendijkse gebieden is het risico zeker acceptabel, de kans dat alle buitendijkse gebieden overlopen is uitermate klein, dit zal enkel in grootschalige catastrofes plaatsvinden.

5. Verwacht u dat er voldoende vraag zal zijn naar particuliere overstromingsverzekeringen in buitendijkse riviergebieden, kunt u dit toelichten?

- a) Voldoende vraag
- b) **Onvoldoende vraag**
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Burgers zijn zich niet bewust van de risico's en dit is ook deels veroorzaakt door overheidsinvloed. Het kan zijn dat veel burgers die voordelen hebben bij het wonen nabij water ook bereid zijn te betalen voor een overstromingsverzekering, echter is dit meer waarschijnlijk als burgers zich meer bewust zijn van de risico's.

6. In 2011 hebben Jeroen Aerts en Wouter Botzen (2011, p.1053) onderzoek gedaan naar wat de mogelijke verzekeringspremies kunnen zijn als er overstromingsverzekeringen waren. Het onderzoek concludeert dat de premies kunnen variëren tussen 1 euro (in dijkkring 14) en 250 euro (in dijkkring 23) per jaar. De gemiddelde premie per huishouden per jaar is ingeschat als 34 euro. Stel we nemen deze gegevens als uitgangspunt, vindt u het aanbieden van overstromingsverzekeringen in buitendijkse riviergebieden in deze situatie realistisch, kunt u dit toelichten?

- a) Realistisch
- b) Onrealistisch
- c) Onvoldoende kennis om hier uitspraken over te kunnen doen
- d) Anders, namelijk...

Deze premies zijn wel realistisch, ik verwacht dat er wel mensen zijn die dit willen betalen om zich te verzekeren tegen overstromingen.

7. Particulieren kunnen in geval van een overstroming schadecompensatie van de overheid verwachten. Stel dat verzekeraars nu overstromingsverzekeringen aanbieden. In hoeverre verwacht u in dit geval dat overheidscompensatie via de WTS invloed heeft op de vraag naar privé overstromingsverzekeringen in buitendijkse riviergebieden?

- a) Veel invloed, hierdoor is er geen vraag meer naar overstromingsverzekeringen
- b) Weinig invloed, er is nog wel vraag naar overstromingsverzekeringen
- c) Geen invloed
- d) Onbekend, onvoldoende kennis
- e) Anders, namelijk...

Er is veel onzekerheid omtrent de WTS. Het aanbieden van verzekeringen zal makkelijker zijn als de WTS duidelijker is en dat er ook strikt aan gehouden wordt.

8. In de WTS wordt beschreven dat inwoners niet in aanmerking komen voor overheidscompensatie in het geval dat schade redelijkerwijs verzekeraar is. Echter zijn er op het moment geen overstromingsverzekeringen. Ziet u deze regeling als een kans om bepaalde schade te kunnen verzekeren tegen overstromingen in buitendijkse riviergebieden?

- a) Ja, ik zie hier een kans in
- b) Nee, ik zie hier geen kans in
- c) Onbekend, onvoldoende kennis
- d) Anders, namelijk...

Hier is de onduidelijkheid van de WTS ook een probleem. Als er heldere definities zijn en dat er uitgezocht kan worden welke schade veroorzaakt is door overstromingen en wat wel en niet verzekeraar is, dan kan dit een kans zijn voor verzekeraars.

9. In hoeverre is er sprake van contact tussen verzekeraars en de overheid met betrekking tot overstromingsverzekeringen, kunt u hier eventueel wat over vertellen?

- a) Intensief contact

- b) Enigszins contact
- c) Nauwelijks contact
- d) Geen contact
- e) Onbekend, onvoldoende kennis
- f) Anders, namelijk...

Op dit moment ben ik me niet bewust van contact of samenwerking tussen verzekeraars en de overheid. Wel was er de commissie Poelman waar sprake was van samenwerking met verzekeraars. Ook is hier vorig jaar wat over geschreven op de website van vereniging eigen huis (Bas Koolen).

10. Stel dat u overstromingsverzekeringen wilt aanbieden. Welke aspecten verwacht u dat hinderend kunnen werken of zelfs overstromingsverzekeringen in buitendijkse riviergebieden onmogelijk maakt? Meerdere antwoorden zijn mogelijk.

- a) Overstromingsrisico
- b) Vraag naar overstromingsverzekeringen
- c) Overheidscompensatie via de WTS
- d) Gebrek aan een wettelijk kader
- e) Geen, ik verwacht geen obstakels
- f) Anders, namelijk...

Het grote probleem zijn de onduidelijkheden in de wet en over wie verantwoordelijk is voor wat. Nodig is een pakket van afspraken tussen verschillende organisatie om dit te kunnen bewerkstelligen. Ook is een zekere mate van risicobewustzijn onder burgers en ondernemers belangrijk.