



# Wild weather of the future - is Denmark ready?

*A climate adaptation initiative from the insurance and pension industry*

# Content

<i>Climate adaptation needs to pick up the pace</i> .....	4
<i>Climate change is costing society dearly</i> .....	5
<i>The role of insurers and the storm surge scheme</i> .....	6
<i>Political task to prioritize climate adaptation</i> .....	10
<b>National level</b> .....	12
National climate adaptation plan 2.0.....	12
Customised climate adaptation legislation.....	13
Increased focus on properties in disadvantaged areas.....	14
Analysis of municipalities' climate adaptation activities .....	14
Sharing cloudburst data.....	15
Give the storm surge scheme a service check.....	16
Establishment of the National Partnership for Climate Adaptation (NPCA) .....	17
PPP+ construction.....	18
Future climate adaptation solutions - a new position of strength for Denmark...	19
Do a neighbourhood check on climate adaptation.....	20
Expand the demolition pool to include climate-impacted homes .....	20
<b>Municipal level</b> .....	22
Requirements for new builds.....	22
Requirements for construction in coastal areas.....	22
Use water more recreationally and as a resource .....	22
Target the cap for climate adaptation .....	23
<b>Civic level</b> .....	24
Scheme for climate adaptation .....	24
National awareness campaign on prevention .....	24





# Climate adaptation needs to pick up the pace

Wild weather with hurricanes, storm surges and flooding are no longer events in distant lands. Climate change is here now, and it's hitting all over Denmark, causing major damage and devastation to homeowners and businesses. 2023 was the wettest year recorded in Denmark since 1874<sup>1</sup>. And it is a fact that climate-related damage to society will increase with climate change.

This means that more Danes are left in unfortunate situations with destroyed homes, incalculable damage and worthless properties. Sandbags and watertubes are no longer enough - and even the most ambitious green transition cannot prevent the climate change and damage which is already a reality.

Therefore, an ambitious national plan for climate adaptation is needed now. And the plan must point to concrete solutions and financing. This proposal contains the insurance industry's proposal for how we can solve this task.







# Climate change is costing society dearly

Between 1980 and 2022, natural disasters have cost EU countries around DKK 4.8 trillion in damage costs according to the European Environment Agency. Of this, DKK 66 billion is damage in Denmark. In terms of damage per capita, Denmark ranks 8th<sup>2</sup>. For Denmark, these damage costs can be attributed to, among other things, flooding from the sea, which occurs due to increased sea levels as a result of storms and water from above.

In addition to natural disasters, annual flood damage costs are expected to increase significantly over the next 100 years if climate adaptation is not implemented<sup>3</sup>. An estimate prepared by COWI for Realdania in 2017 estimates that in 100 years we will be spending DKK 43 billion each year to repair flood damage<sup>4</sup>.



# The role of insurers and the storm surge scheme

The insurance industry works every day to provide peace of mind for its customers. And the expectation is that companies will be able to insure their customers against climate damage both today and in the future and help them get back to everyday life. But this requires that the risk of damage is known and that the risk is not so high that insurance is not an option for all people and companies.

With the increasing level of damage we have experienced in recent years, cloudburst coverage for houses or businesses in particularly vulnerable areas may be a thing of the past in the long term, as the risk (and thus the premium) becomes so high that it is not possible for individuals to take out insurance. As a society, we must do everything we can to avoid this situation.

Both the private insurance market and the storm surge scheme<sup>5</sup>, to which all Danes with fire insurance pay a fee, are based on collective solutions where several people come together to share a potential risk. But in these times of rising costs, few people want to pay dearly for others to continue living in places where the probability of water damage is significantly higher than elsewhere. That's why we need to do more climate-proofing so that it continues to be worthwhile for all homeowners to take out insurance and pay into the storm surge scheme.

If storm surges become more frequent in the future, homeowners will find it increasingly difficult to obtain cover from the scheme. With climate change, the storm surge that today statistically occurs every

20 years will become an event that can happen every year or two going forward. In concrete terms, this means that homeowners will have to cover their own damages during storm surges in the future, because the criteria for coverage of storm surge is not met. The coverage of the storm surge scheme could be changed to, for example, 5-year events, but this would mean far more damage and thus a much more expensive scheme to be financed by the Danes.

## *Consequences and storm surge scheme*

- A storm surge scheme with unchanged coverage criteria, i.e. 20-year events, will not cover the storm surges that occur today - simply because they are not severe enough.
- A storm surge scheme with changed coverage criteria, e.g. 5-year events, would be much more expensive to finance than today.



## Facts about climate damage caused by water

Today, not all climate damage/water damage is covered by insurance. Below, climate damage caused by water is divided into three categories.

### Cloudburst:

Cloudbursts are now covered by most insurance companies. House insurance covers cloudburst damage when at least 15 mm of rain has fallen in a maximum of 30 minutes. In practice, this means that cloudburst damage occurs in situations where water is pushed back through the sewers and into the home through toilets and floor grates, or enters the home through doors and windows as the water cannot be drained away via the sewers.

### Groundwater:

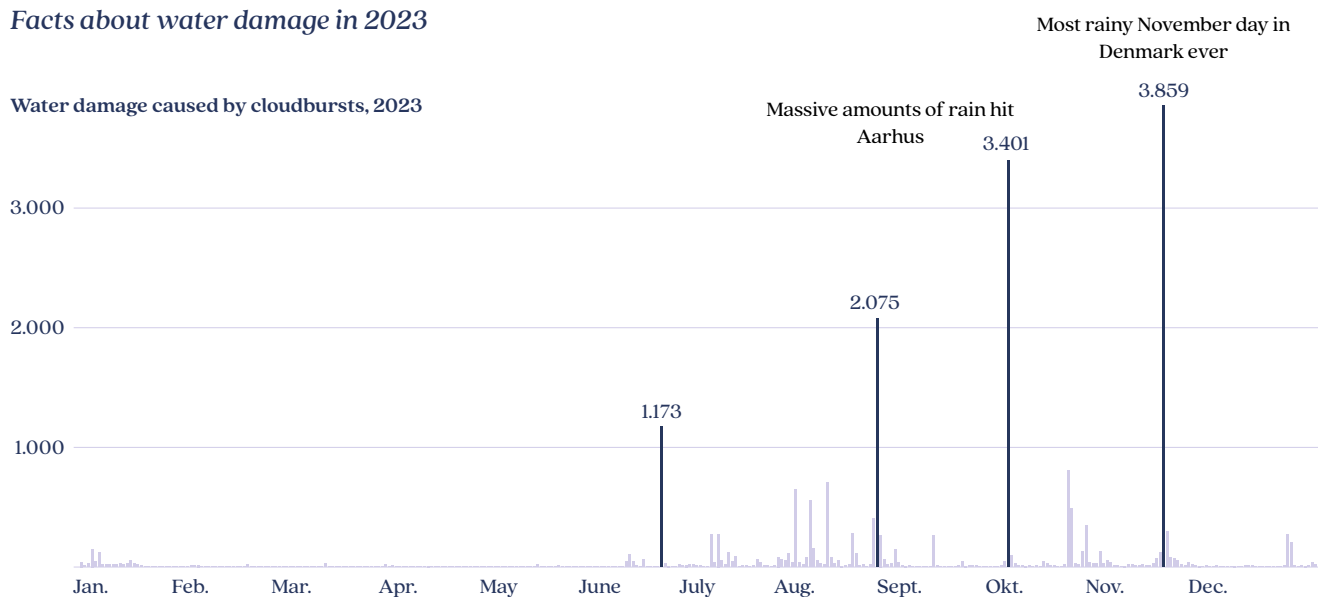
Rising groundwater is rarely covered by insurance. With some companies, it is possible to add additional cover to your home insurance policy, which covers, among other things, damage caused by water entering the house. This could be groundwater that penetrates through basement walls or up through basement floors.

### Storm surge:

Storm surges are covered by a public scheme administered by the Natural Hazards Council<sup>6</sup>. All homeowners with fire insurance pay DKK 40 annually via their insurance to the government scheme. In 2023, the total levy was DKK 193 million. The insurance companies collect the fee on behalf of the state, and the companies also handle the damages on behalf of the Danish Natural Hazards Council when a storm surge is announced.

## Facts about water damage in 2023

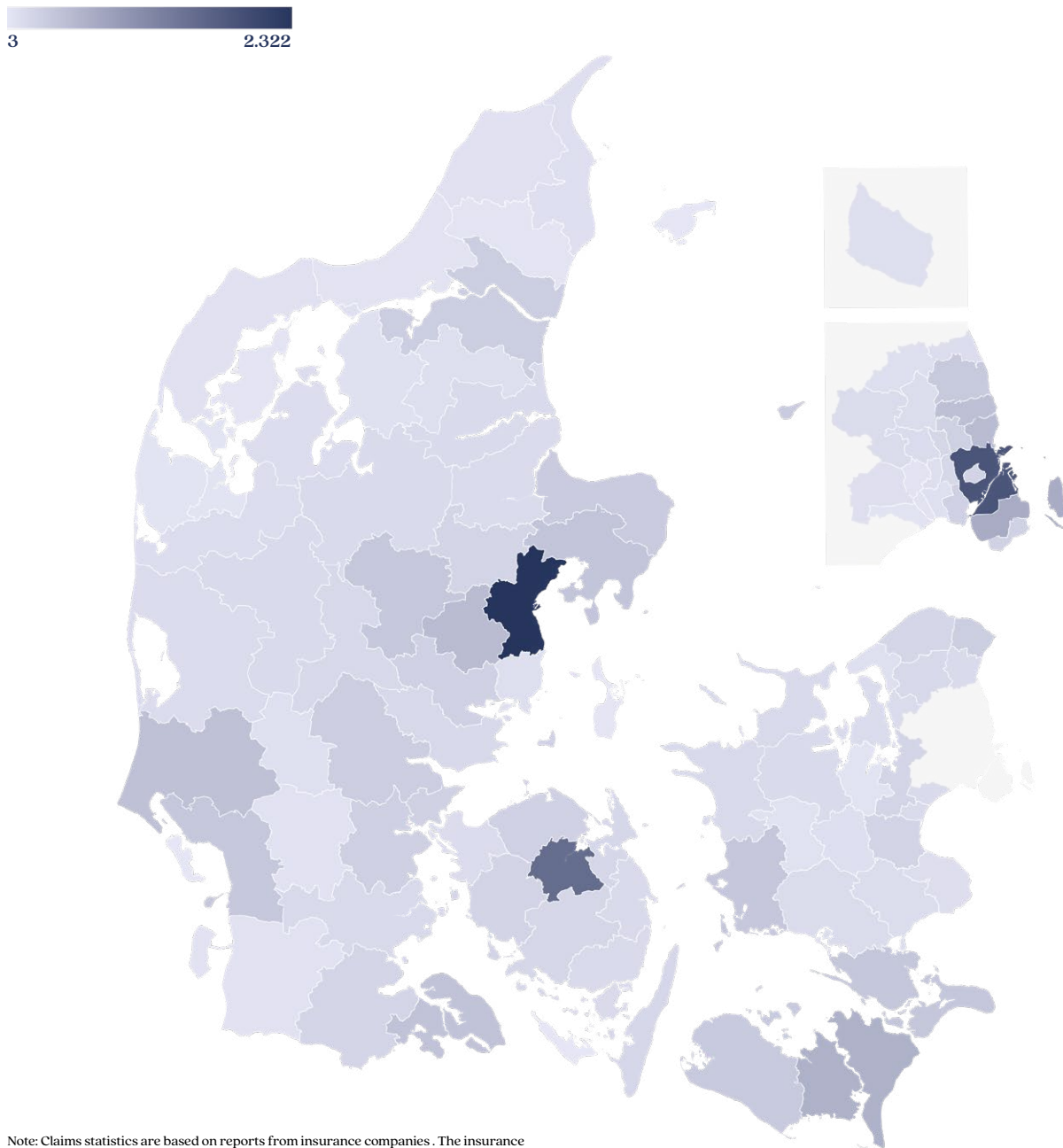
Water damage caused by cloudbursts, 2023



Note: Claims statistics are based on reports from insurance companies. The insurance companies report claims data quarterly. Claims reported more than one month later than the date of the claim are not included in the statistics.  
Source: F&P's claims statistics



## Water damage due to cloudbursts, 2023



Note: Claims statistics are based on reports from insurance companies. The insurance companies report claims data quarterly. Claims reported more than one month later than the date of the claim are not included in the statistics.

Source: F&P's claims statistics

### *We need to prevent more effectively*

For around half a million homes in Denmark, water is dangerously close<sup>7</sup>. It comes from above, from the side and from below. A conservative estimate is that in 2023 alone, Danes were affected by climate-related damage totalling over DKK 3 billion, based on figures from insurance companies and the Danish Natural Hazards Council.

If we do nothing, we will in the future offer housing in parts of Denmark where the risk is so high that insurance is not an option for all Danes. In addition, contributions to the storm surge programme will

increase as more storm surges will occur as a result of climate change. The only viable way forward is prevention - but today, as a society, we spend far more resources on repairing than on prevention.

It is therefore F&P's assessment that there is currently an imbalance between preventing and repairing climate damage, and that it would make much better economic sense if we spent more resources on preventing climate damage than we do today.





#### **Facts about the storm surcharge scheme**

- In 2017, there were 478 cases and almost DKK 37 million in storm surge claims
- The Natural Damage Council expects to The Danish Natural Hazards Councils in 2023. 2,186 relate to the storm surge in October 2023. 111 relate to the storm surge after storm Pia in December.
- Damage costs are expected to reach DKK 1.1 billion for the storm surge in October, while the preliminary estimate for December is approximately DKK 20 million.



# Political task to prioritize climate adaptation

Since 2020, the current Minister of the Environment has announced an imminent national climate adaptation plan. However, not much has happened apart from the Danish government in October 2023 immediately presented Climate Adaptation Plan 1.0 after the violent storm surge<sup>8</sup>, which primarily focused on coastal protection initiatives targeting the west coast of Jutland and high groundwater in urban areas. The government has earmarked DKK 1.3 billion for the efforts up to 2027, which is roughly the same amount as the damage from one storm surge.

Danes express a clear expectation that the political level should increase efforts and resources for climate adaptation<sup>9</sup>. This is expressed through a broad desire for the reintroduction of deductions for energy renovations and craftsman deductions with a focus on climate adaptation solutions. In addition, a significant proportion of the population would like to see adjustments to the 'demolition pool' to support the demolition of houses in high-risk areas for climate-related weather damage. This signals a recognition of the need for proactive measures to minimise the impact of climate change on the housing market.

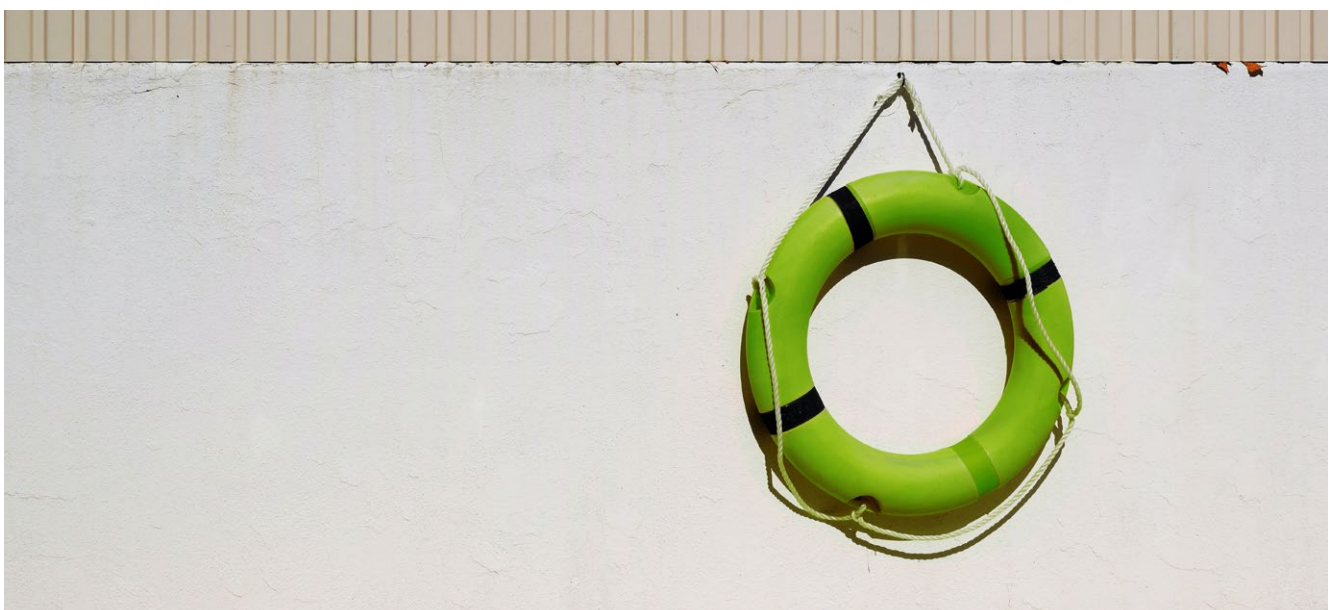
In addition, the Danes' supports a shift towards more stringent building and subdivision regulations in areas exposed to climate-related risks, reflecting an understanding of the need for longterm planning

and certainty. The majority view that municipalities should prioritise climate change adaptation, even in the face of local opposition, shows a broad mandate for policy makers to act decisively and visionarily on climate change. It is against this backdrop that the insurance and pension industry is calling for action.

F&P is now playing catch-up with the industry's input for a new and comprehensive national climate adaptation plan. The goal is for us as a society to find a responsible socio-economic balance between replacing climate damage and preventing it from happening. At the same time we must avoid building homes in places that we know will be flooded and instead help the citizens and businesses that in the future will be living in places where they shouldn't be living or doing business.

We can't wait any longer if we as a society are to have a chance to adapt Denmark to future climate realities.

F&P proposes that a new national climate adaptation plan includes solutions on three levels: National, municipal - and targeted to the individual citizen.









# National level

## *National climate adaptation plan 2.0*

Based on the extreme weather of 2023, there is an urgent need for a comprehensive national plan that sets goals for how Denmark should develop in the face of climate change.

There is a need for a national climate adaptation plan 2.0 that maps out the most important issues and focus areas in Denmark. The plan should define the level of climate adaptation and set the style of action. What needs to be safeguarded and what should be deprioritised because it is not socio-economically sustainable.

It is also necessary to prioritise which areas need to be adapted to climate change. For example, the cloudburst that hit Copenhagen in 2011 cost DKK 4.85 billion, as many assets are centred in the capital. It is therefore crucial to prioritise preventive efforts where the risk is greatest and where it creates the greatest value for society.

A climate adaptation plan 2.0 must also map environmentally protected areas, such as Natura 2000 areas, to identify whether there are areas where climate-proofing is not allowed. For example, a municipality may not be allowed to build a dike because it goes through a protected area, which Odense<sup>10</sup> and Køge<sup>11</sup> municipalities are challenged by. In line with increasing climate change, it may be necessary to review legislation to ensure climate adaptation and legislation to protect nature, which are currently all too often at odds with each other. In the same areas, we need to be able to both establish climate adaptation and protect nature, even when the two goals conflict with each other.

A climate adaptation plan 2.0 should also discuss whether there are areas in Denmark that should not be used for housing or business in the future if, for example, the areas have been repeatedly flooded after cloudbursts or storm surges. This applies especially when establishing new housing - but also in the question of how we as a society help the citizens and business owners who live and run businesses in vulnerable areas today. For example, there are rules in the storm surge scheme that mean it is not possible to use compensation after storm surge damage for a home on a new plot of land (see more on page 16).

With a national climate adaptation plan 2.0, billions in investments are needed in climate adaptation. F&P proposes that the government and the Danish Parliament establish a climate adaptation fund to secure financing for climate adaptation projects. The fund will ensure that government investments are in line with the costs of dealing with the damage, which with a conservative estimate in 2023 alone was DKK 3 billion. Towards 2023, F&P therefore recommends that DKK 3 billion be set aside annually for national climate adaptation until 2030. The financing of the fund must be done by prioritising the financial leeway.

F&P also recommends that the task be placed in the Ministry of the Environment, which, together with relevant sector ministries, will be responsible for preparing a national action plan and coordinating the efforts, and it must be a prerequisite for the work that there is funding for the efforts.







### *Customised legislation on climate adaptation*

Climate change adaptation legislation needs to be adapted when plans in this area are translated into concrete solutions.

Climate adaptation is currently regulated by several laws and regulations, and they are not coordinated. For example, municipalities and water companies are allowed to help when cloudbursts cause water in the basements of citizens and businesses, but not when the water is instead caused by rising groundwater. The result is confusing and inconsistent legislation.

The Danish Board of Technology Foundation has pointed out that a strategic level is missing between implementation of EU legislation (Water Framework Directive and Floods Directive) and the preparation of municipal and local plans<sup>12</sup>. The Danish Association of Local Authorities also wants a coherent regulatory framework<sup>13</sup>.

Thus, there is a need for consistency between the legislation that describes solutions and the specific legislation that will ensure implementation.

In most of our neighbouring countries, water legislation and regulations have been revised in recent years to integrate climate adaptation challenges in the most optimal way. In the Netherlands, for example, eight different laws have been combined into one new Water Act that safeguards future climate challenges. In the Netherlands, protecting citizens and businesses from flooding is a national responsibility and a national water plan has been adopted that contains the overall national policy for water management<sup>14</sup>.

F&P recommends working towards a coherent, holistic and uniform regulatory framework that can cut across both coastal areas and river basins.



### *Increased focus on properties in disadvantaged areas*

In Denmark, 14 areas have been identified as being at particular risk of future flooding<sup>15</sup>. 12 of these risk areas are located on coasts or fjords in inland Danish waters. It is estimated that 29 per cent of the Danish area, and thus over 440,000 year-round homes and almost 160,000 holiday homes, are already affected by water from various forms of extreme weather – storm surges, cloudbursts and rising groundwater<sup>16</sup>.

Homeowners and businesses in these areas may find it difficult to sell their property, and it may be financially difficult to adapt an existing home to the flood waters it will be exposed to in the future.

F&P therefore proposes a number of measures to help homeowners and businesses in the most vulnerable areas of Denmark:

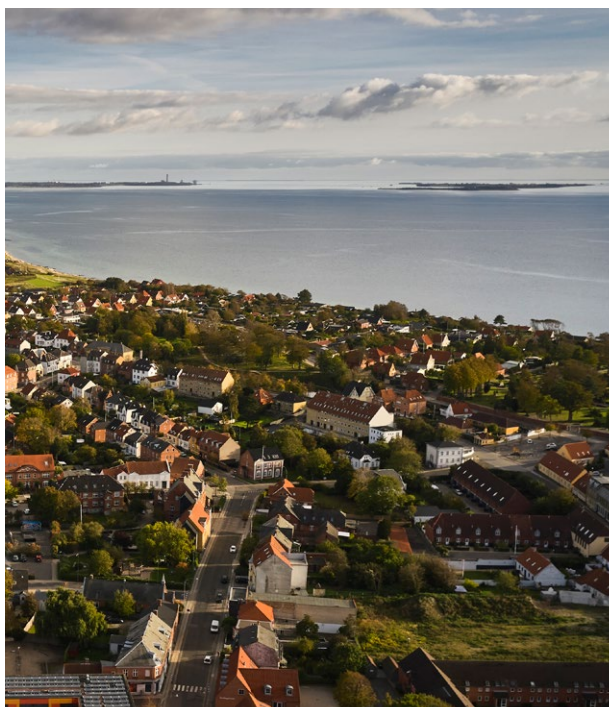
- *Climate proofing support* to help homeowners or businesses that often experience repetitive damage to existing homes. The money should be used to climate-proof the building or, in extreme cases, to rebuild elsewhere on the property. This can be done by remodelling outdoor areas or other measures that can prevent and limit damage to the property.
- *Introducing Blue Loans* for homeowners or businesses to incentivise climate-safe building. Today, there are green loans targeted at energy renovation. Today, many homeowners or businesses are located in very exposed areas of Denmark, where there is often high groundwater, cloudbursts or storm surges, making it difficult or impossible to sell the home or business. Several studies show that the price of a home/business drops significantly when an area is affected by flooding<sup>17</sup>.
- *Blue Loans* can also be combined with compensation from Naturskadeordningen. Today, homeowners who have received money from the Storm Surge Programme can only use the compensation to repair the damage on the property where the damage occurred. It should be possible to move the money to a new property that is safely located in relation to climate damage. The goal is to incentivise moving a property safe from storm surge damage and building climate-proof on a new plot.

### *Analysis of municipalities' climate adaptation activities*

Back in 2013, the government and the Danish Association of Local Authorities signed an economic agreement requiring municipalities to prepare climate adaptation plans by the end of 2013. The requirement came after the major flood damage in (especially) Copenhagen and Frederiksberg in 2011, and in the years that followed, the individual municipalities showed very different levels of ambition in terms of willingness to invest and work on concrete plans.

There is currently no comprehensive overview of how far the individual municipalities have progressed with their climate adaptation plans, nor has anyone followed up on the plans and whether they reflect the actual needs for climate adaptation. For example, Odense Municipality only decided at the end of 2023 that it would invest DKK 3 million in climate protection<sup>18</sup>. It is also unclear whether there are areas in Denmark where municipalities have not initiated activities despite a real need for action having been identified<sup>19</sup>. This is the case in Sønderborg<sup>20</sup>.

F&P recommends creating an overview of municipal initiatives and considering whether action can be required on (parts of) these plans.







### *Sharing cloudburst data*

Every municipality in the country must designate zones where there is a flood risk. In order for municipalities to qualify their risk maps, they need to know where the damage occurs, how much damage is done and how much value is lost. Municipalities want access to relevant and up-to-date data on climate damage - including cloudburst data from the insurance industry.

Insurance companies can provide data on claims paid out for cloudburst damage that can be used to target climate adaptation efforts in Denmark. The companies have data that makes it possible to see exactly where most values are destroyed and whether there are areas that are hit repeatedly, thus clarifying which efforts will have the greatest effect.

As the rules stand today, insurance companies cannot share data with municipalities without the consent of the injured party/customer, and that consent must be revocable at any time. This is due to the current General Data Protection Regulation (GDPR). Insurance company data is personally identifiable information that is linked to the address and cannot, according to GDPR, be passed on to municipalities. Previously the industry has provided information on the address, date and amount of compensation for cloudburst damage, which has contributed to more efficient prioritisation and estimation of the municipalities' efforts.

F&P suggests creating an explicit legal basis in legislation so that insurance companies can share cloudburst data with municipalities without having to deal with consent from the injured party.

### *Give the storm surge scheme a service check*

In recent times, repeated and severe flooding has resulted in the destruction of homes and businesses, leaving citizens in unfortunate situations with destroyed homes and lost property. The storm surge alone, which hit large parts of southern Denmark on 20 and 21 October 2023, was one of the most devastating in the scheme's lifetime.

All future scenarios and calculations show that Denmark must prepare for more and more violent storm surges<sup>21</sup>. At the same time, over 8,000 more private residential buildings have been built between 2009 and 2021 in areas at risk of flooding during future temperature rises compared to areas that will not be at risk of flooding. Thus, the values in future risk areas have increased in recent years. With climate change and the increasing frequency of flooding and the spread of flooding, more construction in the coastal zone will increase the expected annual damage. The location of homes and businesses in vulnerable areas can therefore become even more crucial for the expected storm surge damage in the future<sup>22</sup>.

That's why F&P proposes that the storm surge scheme gets a service check.

Among other things, you should consider whether the redistribution that the scheme was born with is appropriate. Today, everyone pays the same amount of money into the scheme, regardless of whether they own a property close to water or live in a climate-proof area. In this way, citizens at low risk of flooding support those at high risk close to the coast.

Most recently, the Danish Economic Wisemen have suggested that the tax should reflect the actual flood risk so that it will incentivise climate improvements to homes along the coast. However, it is unclear whether a differentiated tax would be effective, and this should be analysed as part of the service check of the storm surge scheme.

It should also be examined whether the rules of the storm surge scheme are up to date and whether they support homeowners' ability and motivation to build new and climate-proof, instead of repeatedly repairing the existing home that has just been flooded<sup>23</sup>.



Today, municipalities have the opportunity to buy up floodprone land. The law was enacted in 2022 and, in F&P's assessment, has not been utilised. F&P proposes that the scheme be expanded so that compensation from the Danish Natural Hazards Council can be used to rebuild a building on a new plot of land.

The service check should also look at whether the storm surge scheme distorts both the incentive to settle and the incentive to adapt to climate change. Should there be incentives for individuals not to build in areas affected by storm surges and/or for individuals to flood-proof their homes or holiday homes? And should there be a maximum number of times you can receive compensation from the storm surge pool to create a motivational structure for citizens who want to stay in their homes despite the prospect of water in their properties?

With the changing climate, what is a 20-year event today will be a 10-year event in a few years. This also speaks in favour of looking at the criteria for compensation, so that there is a limit to how many times you can get compensation.

Finally, the possibility of creating solutions for so-called 'red houses' (houses that cannot obtain insurance) should be looked at in a broader perspective.

At the same time, it should be considered whether funds should be earmarked for national climate adaptation, for example by increasing the contribution to the Natural Damage Pool.





### *Establishment of the National Partnership for Climate Adaptation (NPCA)*

A national partnership for climate adaptation will accelerate Denmark's climate adaptation work (in parallel with the established NEKST to promote green energy). NPCA will solve tasks and coordinate acute climate adaptation challenges across society.

With severe climate change, it is clear that climate adaptation efforts need to be accelerated across Danish municipalities. But it can be difficult to get climate adaptation projects off the ground when, for example, the Gudenå River runs through 8 municipalities, because it means that all municipalities must agree on funding and solutions.

Danes must be clearly informed about what measures the municipality is planning to take to counter rising groundwater, water from above and water from the coasts, so that individual homeowners can implement climate measures on their own property in the best possible way to prevent and, at best, avoid damage.

The partnership must consist of key players with knowledge of climate adaptation both in practice and structurally. The goal will be to identify and remove barriers to climate adaptation so that we can accelerate change, ensure coordination across municipalities and prioritise the most urgent initiatives to protect citizens' homes and businesses from future weather.



### *PPP+- construction*

F&P recommends setting up a working group to explore the possibility of expanding PPP to climate proofing projects - a PPP+. The working group will operate under the auspices of the public sector, but in close collaboration with the private sector, and will be tasked with developing models for an extended PPP model (PPP+) in connection with major climate adaptation projects and facilities. This can be done if climate adaptation projects are realised as PPP in collaboration with, for example, institutional investors.

In PPP+ the developer will be responsible and bear the risk of building a given project and maintaining it for many years to come. In addition, the developer must pay for any damages, so the individual municipality is not left with the responsibility and challenges alone.

A PPP+ project can be, for example, a major construction project, a lock, the establishment of a dike or other coastal protection. PPP+ projects can help

speed up the Danish climate adaptation efforts and should therefore be seen as a natural way to finance preventive construction projects. By involving external parties in large-scale climate adaptation projects, the public sector can gain broader knowledge about technologies and project implementation that can be crucial for future climate adaptation solutions.

The advantage of PPP+ is that operation and maintenance are included in a single project tender. The largest investment is made by the private party, while the public party pays for the task on an ongoing basis, typically over a longer period of time - e.g. 10-30 years. In this case, repairing damage is an essential part of operations.

F&P therefore recommends that the government appointed working group<sup>24</sup> looking at public-private collaboration also focuses on developing models for an expanded PPP+ model that can help prevent climate-related damage.







### *Future climate adaptation solutions - new position of strength for Denmark*

F&P will work to ensure that Denmark develops innovative solutions to prevent climate damage in close collaboration with relevant business organisations, trade unions and other key players. This could help create a broader alliance for a stronger political focus on climate adaptation - just as there has been a strong focus on the development of other green technology.

The new solutions should be highly cross-cutting, so they can tackle many challenges simultaneously, such as improving urban life while managing precipitation and rising groundwater levels. They can also be scalable consultancy services, IT systems or physical products.

Danish companies have the opportunity to deliver climate adaptation solutions on the international market. The challenge of climate adaptation is global, which is why there is an international demand.



### *Do a neighbourhood check at climate adaptation area*

It's a fact that Denmark needs much more climate adaptation. But more climate adaptation means much higher costs, as climate adaptation requires large and long-term funding. In several countries around Denmark - the Netherlands, the UK, Norway, Sweden and Germany - national climate adaptation efforts are financed through taxes and national co-financing of local initiatives where the challenges are greatest.

In the Netherlands, a special tax-financed fund has been set up to cover national investments in climate adaptation and studies. These are initiatives that can be transferred to Danish conditions. The Netherlands spends DKK 9-10 billion on coastal protection, climate adaptation and water management annually. This corresponds to 0.18 per cent of the country's gross domestic product<sup>25</sup>.

F&P proposes to initiate a neighbourhood check for to investigate how other EU countries finance climate adaptation. This is to find inspiration for how we can climate-proof Denmark.

### *Expand the demolition pool to to include climate-sensitive homes*

F&P proposes that the existing demolition pool be expanded for lending in climate-sensitive areas targeting the demolition of vulnerable homes or businesses where financing cannot be obtained on market terms.

The existing demolition pool is targeted at peripheral areas with very cheap houses. In 2023, the pool totalled 98 million DKK. Demolition of climate-affected houses or businesses is likely to be significantly more expensive, as these buildings are often very expensive due to their proximity to water, and there are potentially many properties at risk.









# Municipal level

## *Requirements for new builds*

New buildings of the future must be climate resilient. They must be able to withstand more extreme weather conditions, and this should be factored into the design. More drought, more moisture, water, precipitation and storms will affect building materials and construction.

In the future, there should be a better connection between what we build, where we build and what materials we build with. We need to rethink our building practices if we are to respond to climate change in a responsible way. Many preventive measures are cheaper to incorporate into the house during construction rather than when the house is finished. For example, perimeter drains, high-water gates and a pump well can keep sewage out of basements and drains.

High rainfall can also cause the groundwater and water table to be higher than normal. This affects the foundation of the house and whether extra measures need to be taken in the outer walls. Municipalities are responsible for ensuring that newly zoned areas for construction are able to cope with future climate change. This may mean that areas must be kept completely free from new construction.

Future houses and buildings are expected to last more than 100 years. F&P proposes that the building regulations are changed so that all buildings must be climate-proofed to withstand at least a 50-year event.

F&P also proposes to set up an expert committee to make a number of recommendations for future buildings, their design and location. The recommendations can form the basis for adjusting the legislation. The committee should also discuss whether it is possible to organise new buildings so that climate adaptation is incorporated ad hoc as challenges arise in the form of flooding.

## *Requirements for construction in coastal areas*

The regulations for building in coastal areas are not very detailed. They stipulate that developers should consider climate change, where more extreme weather conditions are expected. For example, sea level rise of 0.3-1.2 metres by 2100 is indicated, and 'increased wind contribution' may have an impact on areas by the sea and fjords. It is recommended

that the developer assess the shelf elevation, the need for coastal protection, and other conditions such as waves or localised stowage of the water. At the same time, there is a requirement for level access - which in itself can be a challenge in some coastal settlements because it gives the water unhindered access.

In 2023, the government also amended the Planning Act to allow areas previously zoned for agricultural land on small islands to be developed for housing<sup>26</sup>.

F&P proposes that the building regulations are changed, so all construction in coastal areas must be climate-proofed to withstand at least a 50-year event. At the same time, it should be discussed whether it is sustainable for municipalities to authorise building in low-lying areas that are also vulnerable to flooding.

F&P recommends that coherent legislation is created to avoid focusing on the threat Danish coasts on the one hand, while on the other hand making it possible to build close to the coastline in certain places in Denmark. It is necessary to balance the development of, for example, an island community against the prevention of storm surge damage.

## *Use water more recreationally and as a resource*

Climate change and increasing stormwater volumes with extreme rainfall demand new ways to manage rainwater in cities. In general, innovative thinking is needed in urban and residential areas where a large part of the surface is covered with non-water permeable materials such as tiles and asphalt, and where the increased volume of rainwater will strain existing drainage systems and storm drains.

Recreational solutions can include green walls and roofs as well as more planted urban spaces that can retain rainwater. Cycle paths in Copenhagen, for example, can also act as channels to channel rainwater in the Port of Copenhagen.

F&P suggests that a national climate adaptation plan should focus on creating good motivational structures for municipalities and utility companies to establish water collection points and basins for recreational purposes, especially in cities, so that future water from above creates new urban envi-

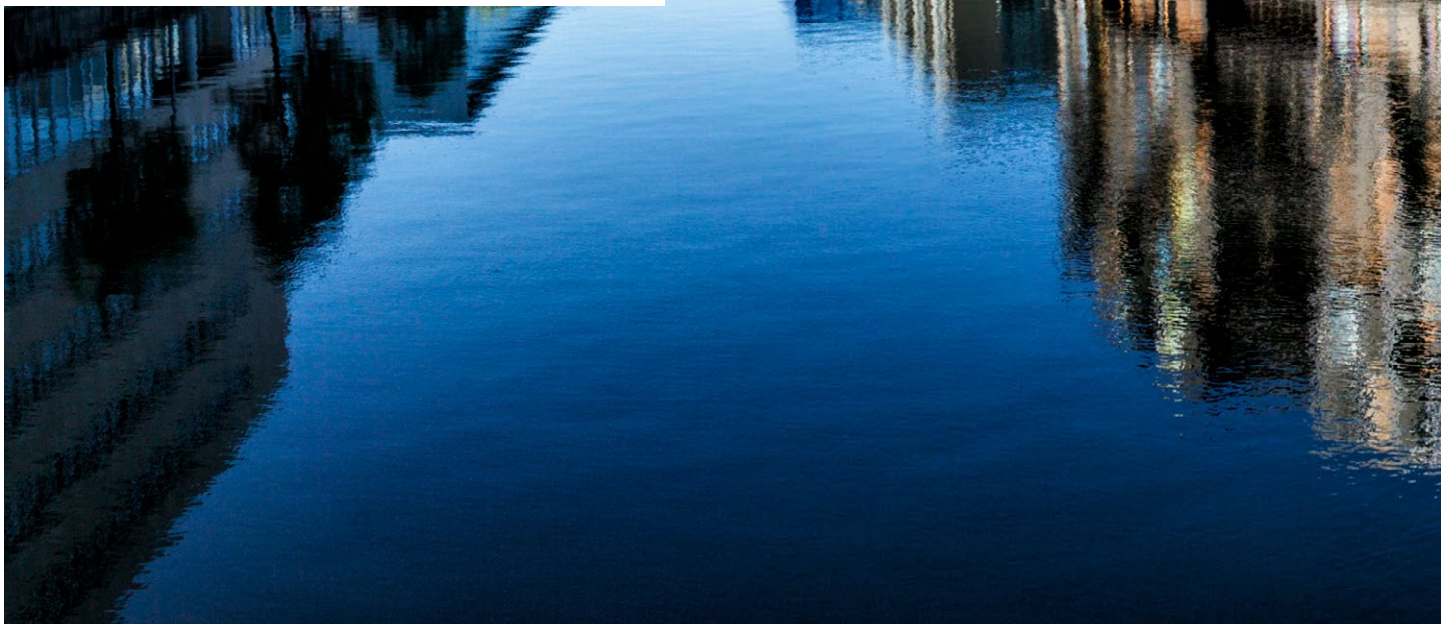


ronments rather than damage. This effort can cover both the efforts of individual building owners (the very near) as well as entire urban and local areas.

### *Target the construction cap to climate adaptation*

The investment ceiling in municipalities should be raised to target local climate adaptation initiatives. The capital expenditure ceiling covers the total amount that Denmark's 98 municipalities are allowed to spend annually to renovate and build new buildings, among other things. The cap is governed by the annual financial agreements with the Ministry of Finance and was introduced to control activity and thus inflationary pressures in the economy. Several municipalities have billions of kroner at their disposal that they are not allowed to bring into play due to the cap, and this should be changed in relation to climate adaptation, which can be done without creating inflationary pressures.

F&P believes it is better to build dykes or create larger areas for recreational water collection areas than to spend even more money on repairing damage caused by the lack of dykes. Preventive public investments are covered by the cap, but not private claims expenditure. A targeted extension of the cap will therefore not contribute to overheating the construction industry or create further inflation - as it will "merely" shift money and labour from repairing.





# Civic level

## *Scheme for climate adaptation*

In the wake of climate change and the prospect of more water, more Danes will be left in unfortunate situations with destroyed homes, incalculable damage and worthless property. And even more will live in enormous uncertainty and fear of climate damage.

Therefore, F&P proposes to expand the service deduction as a financial incentive to finance climate adaptation. Homeowners can thus receive a tax deduction for climate-proofing their own homes, just as deductions have previously been introduced for energy-saving measures such as replacing windows or investing in insulation.

With an expansion of the home-job scheme, F&P proposes that it will be possible to claim deductions for climate adaptation solutions such as flood gates, drainage systems and perimeter drains.

## *National awareness campaign on prevention*

Most municipalities work with the principle that the responsibility for preventing damage from flooding lies with the individual landowner (the utility principle)<sup>27</sup>. It is important to disseminate good advice on how landowners can fulfil this responsibility and learn more about how to prevent damage caused by water.

F&P therefore proposes an annual campaign focusing on what individual landowners can do to minimise the risk of damage on their own property<sup>28</sup>. This can be done in collaboration with the Danish Emergency Management Agency and Bolius Knowledge Centre, which has extensive experience with information campaigns for homeowners. There is only so much that individuals can do once DMI announces a storm surge or cloudburst. At the same time, it is often only after the damage has been done that homeowners are responsive and motivated to take action. The information campaign should be annual and can be followed up by current push messages to citizens in vulnerable areas. Based on data from DMI (e.g. before storm surge warnings) a message is sent out to homeowners who are expected to be affected. Once the storm has subsided, a news message is followed up with instructions for concrete action.

Good advice on climate adaptation should be communicated by all stakeholders in the field who are in contact with homeowners. This could be the municipality, the utility company, the insurance company or the builders merchant. In the time between forecast storms, there is time for homeowners to carry out climate protection that works to avoid damage. The advice should be easy to follow, provide information about the cost of installation, who will carry out the work, and provide information about possible financing.









# Endnotes

- <sup>1</sup> [Summary of the year 2023 \(dmi.dk\)](#)
- <sup>2</sup> [European Climate Risk Assessment - European Environment Agency \(europa.eu\)](#)
- <sup>3</sup> [Economy and Environment, 2023 \(dors.dk\)](#)
- <sup>4</sup> [Urban challenges with sea level rise and storm surges - Report](#)
- <sup>5</sup> The natural perils scheme covers storm surge, flooding, drought and windfall. The Danish Natural Hazards Council Council is an independent council that determines whether there has been a storm surge, flooding from rivers and lakes and drought.
- <sup>6</sup> [Danishnaturalhazardscouncil.dk](#)
- <sup>7</sup> [The impact of climate change on future land use.pdf \(concito.dk\)](#)
- <sup>8</sup> [appendix-3-factsheet.pdf \(mst.dk\)](#)
- <sup>9</sup> [Epinion for F&P 2024](#)
- <sup>10</sup> [Natura project puts an end to desire for dyke in Odense | TV 2 Fyn](#)
- <sup>11</sup> [With 26.6 million in government grants, work on Køge Dige continues \(koege.dk\)](#)
- <sup>12</sup> [Climate adaptation for the future](#)
- <sup>13</sup> [Local government initiative: Climate adaptation for the future](#)
- <sup>14</sup> [Northern European experiences with climate adaptation.pdf \(concito.dk\)](#)
- <sup>15</sup> [More municipalities need to prepare for wilder weather and flooding - Kystdirektoratet](#)
- <sup>16</sup> [The impact of climate change on future land use.pdf \(concito.dk\)](#)
- <sup>17</sup> [70,000 homes threatened by the floods: Banks accused of ignoring the problems \(finans.dk\)](#)
- <sup>18</sup> [After criticism: Odense goes from zero kroner for climate protection to three million - klimamoni-tor.dk](#)
- <sup>19</sup> [Climate adaptation in Danish municipalities' climate action plans | CONCITO](#)
- <sup>20</sup> [Housing estates flooded during storm surge: "Deeply frustrating" \(fagbladetboligen.dk\)](#)
- <sup>21</sup> [Changes in sea level \(klimatilpasning.dk\)](#)
- <sup>22</sup> [Microsoft Word - M23\\_Disk\\_Chapter II.docx \(dors.dk\)](#)
- <sup>23</sup> [Executive Order on compensation for damage caused by storm surges, flooding from watercourses and lakes and drought \(retsinformation.dk\)](#)
- <sup>24</sup> [decision-minutes-of-3-moede-i-fops.pdf \(kfst.dk\)](#)
- <sup>25</sup> [IGN Rapport Bidragsmodeller Klimatilpasning Marts2021.pdf \(ku.dk\)](#)
- <sup>26</sup> [Bill no. L 62 A, Folketinget 2023-24, Bill to amend the Danish Planning Act and various other acts \(Follow-up on evaluation of the Planning Act etc.\) \(ft.dk\)](#)
- <sup>27</sup> See for example information from Slagelse Municipality: [Climate and sustainability - Slagelse Municipality](#)
- <sup>28</sup> See inspiration here: [See Klimaklar Bolig \(klimatilpasning.dk\)](#)









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