



An Roinn Airgeadais
Department of Finance

Public Consultation on Climate Change and Insurance in the context of the '*Climate Action Plan 2019 to Tackle Climate Breakdown*'

July 2019

Prepared by the Funds, Insurance, Markets & Pensions Division,
Department of Finance
finance.gov.ie

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1 Introduction

The purpose of this consultation paper is to seek the views of all interested parties on insurance related matters in a climate change context as part of the overarching *Climate Action Plan to Tackle Climate Breakdown*. A principle enshrined in the *Climate Action Plan* is that of a ‘just transition’. In essence this means that, while the level of impact from climate change cannot be avoided, it is essential that the burdens borne are seen to be fair and that every group is seen to be making an appropriate and fair level of effort.

In particular, the Department is keen to obtain a perspective on the challenges associated with the availability of property insurance (home and business) and possible responses to this issue as well as responses to the prospect of higher cost of and/or greater insurance policy restrictions. We would appreciate the views of all interested parties including from affected consumers and from the insurance industry. The focus of the consultation is primarily on the challenges posed by flooding. However, please highlight any other climate change issues which may impact insurance costs.

The paper provides an overview of what the Government is doing to mitigate flood risk, the current insurance model in Ireland, the risk posed by climate change, and lessons from other countries. A few key areas which we will examine and on which views are sought are as follows:

- (i) Mitigation of flood risk in order to make long-term ‘un-insurability’ less of a problem;
- (ii) Unavailability of cover where flood defences are built to a “1-in-100 year” standard;
- (iii) Greater transparency in relation to flood risk data;
- (iv) Pooling of risk as a solution; and,
- (v) Whether certain areas are uninsurable because of the nature of their flood risk.

A list of questions that we are seeking views on is set out throughout the paper and is also listed in Annex 1.

Submissions on this topic, coupled with the overview this paper provides, will amongst other things assist the Department of Finance to review the potential consequences of climate change on property insurance such as availability, higher costs, greater policy restrictions etc. This will in turn enable the Department to further consider its existing policy in relation to increasing flood insurance coverage as well as evaluate any other proposed alternatives identified during this consultation process. In summary, it should facilitate the continued making of appropriate evidence-based policy recommendations to the Minister and the Government.

How to Respond

This public consultation will run from 23 July to 15 October, 2019.

Please make your submission in writing, preferably electronically as a Word or a PDF document by the 15th of October. Submissions should be marked “Public Consultation on Climate Change and Insurance” and be sent by email to insurance@finance.gov.ie

In the event that you are unable to send your response electronically, please forward it by post to the address below – ensuring that contact details are included – by the 15th of October:

Insurance Policy Section

Department of Finance

Government Buildings

Upper Merrion Street

Dublin 2, D02 R583

Please be aware that responses to this consultation are subject to the provisions of the Freedom of Information Acts.

In addition, please note that the Department reserves the right to publish the responses to the consultation on the Department's website.

Please email insurance@finance.gov.ie should you have any queries.

2 General Background

Communities in this country have directly experienced the devastating impact of flooding which effects the economy, social wellbeing and the environment. For individuals and communities, the impact can be significant in terms of personal suffering and financial loss including damage to property and possessions. Met Éireann projections indicate that continued global warming will result in more extreme weather and an increased chance of river and coastal flooding. With the increased risk of flooding that climate change brings the provision of flood insurance in flood prone areas may become more problematic.

In considering how to ensure that the availability of flood cover does not become a major difficulty in the future as result of climate change, there are a couple of important points to note:

- (i) In any discussion around this issue it is important to remember that problems with the availability of flood insurance, are an indication of the underlying issue that flood risk is increasing as a result of climate change as well as the changing land use demands of society. This was pointed out by Swenja Surminski in her 2017 paper on the future of flood insurance in Ireland. She states that the only truly sustainable response, therefore is a significant increase in efforts to address the underlying risks now and in the future, as this will help to ensure the affordability and availability of insurance. She further indicates that the benefits of such action would also reach far beyond insurance as they would address the wider negative impacts that flooding has such as emotional stress, health issues and declines in economic competitiveness of impacted communities and regions¹.
- (ii) Whilst the Government has been doing what it can to try and increase the level of cover in areas where defences have been built, neither the Department of Finance nor the Central Bank of Ireland can interfere in the provision or pricing of insurance products. This position is reinforced by the EU framework for insurance (the Solvency II Directive).

The above points help explain why the Government's approach to date in addressing the flood insurance coverage issue has been to focus on managing the risk of flooding in order to make areas more insurable.

Finally, while undoubtedly, improvements in insurance flood coverage levels can be made in Ireland, particularly in areas where demountable defences are in place, private flood insurance coverage levels are high in this country compared with most other countries in the EU. In this regard, the European Commission in a report on *Natural Catastrophes: Risk Relevance and Insurance Coverage in the EU*² in 2011 included Ireland along with the UK, Sweden, France and Belgium as having an insurance market that has developed most efficiently, as total losses are not

¹ Fit for the future? The reform of flood insurance in Ireland: resolving the data controversy and supporting climate change adaptation – Swenja Surminski Policy paper – May 2017

² https://ec.europa.eu/info/system/files/jrc-report-on-natural-catastrophes_en.pdf

high and the level of insurance coverage is high. The Commission commented favourably on Ireland's flood insurance model.

Therefore while a focus of this paper will be on what can be done to increase the existing levels of coverage, we have also to be conscious of maintaining these current high levels of coverage in the context of the growing threat of increased flooding as a result of climate change over the next number of decades.

3 Climate Change and Expected Impacts on Ireland

In the latest assessment report of the UN's Intergovernmental Panel on Climate Change (IPCC), changes in climate recorded over the last 100 years are considered unprecedented and as a result of human activities, particularly the burning of fossil fuels which results in increased atmospheric concentrations of Greenhouse Gases (GHGs).³

Continued emissions of greenhouse gases will cause further warming and changes in all components of the climate system. Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions.

In terms of the expected impacts on Ireland, Met Éireann has engaged in global modelling work with partners across Europe. Met Éireann on their website outline recent research on the expected impact of climate change on Ireland's future weather. A summary of its findings is shown below:⁴

- Projections⁵ indicate an increase of 1–1.6 °C in mean annual temperatures, with the largest increases seen in the east of the country.
- Milder winters will, on average, reduce the cold-related mortality rates among the elderly and frail but this may be offset by increases due to heat stress in the warmer summers.
- The simulations show significant projected decreases in mean annual, spring and summer precipitation amounts by mid-century. The projected decreases are largest for summer, with reductions ranging from 0% to 13% and from 3% to 20% for the medium-to-low and high emission scenarios, respectively.
- The frequencies of heavy precipitation events show notable increases of approximately 20% during the winter and autumn months.
- The number of extended dry periods is projected to increase substantially by mid-century during autumn and summer. The projected increases in dry periods are largest for summer, with values ranging from 12% to 40% for both emission scenarios.
- Globally, sea levels have been rising at an average rate of approximately 3 mm per year between 1980 and 2010. Sea level is projected to continue to rise at this rate or greater. All major cities in Ireland are in coastal locations subject to tides, therefore any significant rise in sea levels will have major economic, social and environmental impacts. Rising sea levels around Ireland will result in increased coastal erosion, flooding and damage to property and infrastructure.

Ireland's progress to date, and ambitious future plans, to address and withstand the impact of climate change has been set out in the *Climate Action Plan 2019 to Tackle Climate Breakdown*.

³<https://www.climateireland.ie/#!/aboutAdaptation/climateChange/learnClimateChange>

⁴ <https://www.met.ie/climate/climate-change>

⁵ Projections in all cases include a range from the medium-low to the high emissions scenario. The future period 2041-2060 is compared with the past period 1981-2000.

This Plan was published on 17 June 2019 by the Minister for Communications, Climate Action and Environment, Richard Bruton TD.

The Climate Action Plan sets out over 180 actions, together with hundreds of sub-actions which cross all sectors including energy, enterprise, housing, heating, transport, agriculture, waste and the public sector. The plan identifies how Ireland will achieve its 2030 targets for carbon emissions, and puts Ireland on a trajectory to achieve net zero carbon emissions by 2050.

This plan comes at a time when the warning signs of climate disruption are increasing, and the time for taking action is rapidly reducing.

The plan outlines that Ireland has directly experienced the extreme weather events of flooding, drought and lock down by snow fall. The Department of Communication, Climate Action and Energy quantify that the potential impacts and costs of inaction to the effects of climate change are significant. Indeed the floods of Winter 2015/16 are considered to be the worst floods on record and occurred during what was also the wettest winter on record (with rainfall totals at 189% of normal). The plan includes figures from the Department of Transport Tourism and Sport (DTTAS) that they allocated €106 million for repairs to the rail network, national, regional and local roads and €8 million for national roads in relation to this weather event.

The Climate Action Plan emphasises that we are currently close to a tipping point where these impacts will sharply worsen. And that the most immediate risks to Ireland which can be influenced by climate change are predominantly those associated with changes in extremes, such as floods, precipitation and storms.

In terms of the Department of Finance's remit, flooding has a detrimental impact for property owners and insurers alike, and with the expected increase in flooding events, it is an opportune time to evaluate the current situation of flood insurance in Ireland and how to better equip ourselves for the future.

Public Consultation Questions

1. Have you encountered greater difficulty either getting or renewing flood cover due to weather/climate-related issues?

4 Current Government Policy on Mitigating Flood Risk

4.1 CFRAM Programme

The Catchment Flood Risk Assessment and Management (CFRAM) Programme involved a national study of significant flood risk of '1 in 100' years flood events, undertaken by the Office of Public Works (OPW). It is the largest ever flood risk study in Ireland to date and it is the principal vehicle for implementing national policy on flood risk management and the 2007 EU Floods Directive.

The flood risk in 300 studied communities represents 80% of the risk from rivers and the sea which are the primary causes of flooding in Ireland. The study involved a detailed engineering assessment of these communities that are home to almost two thirds of the Irish population. It was further informed by statutory national consultations at each stage to gain additional local insight to inform the development of flood maps.

The key outputs of the CFRAM Programme are:

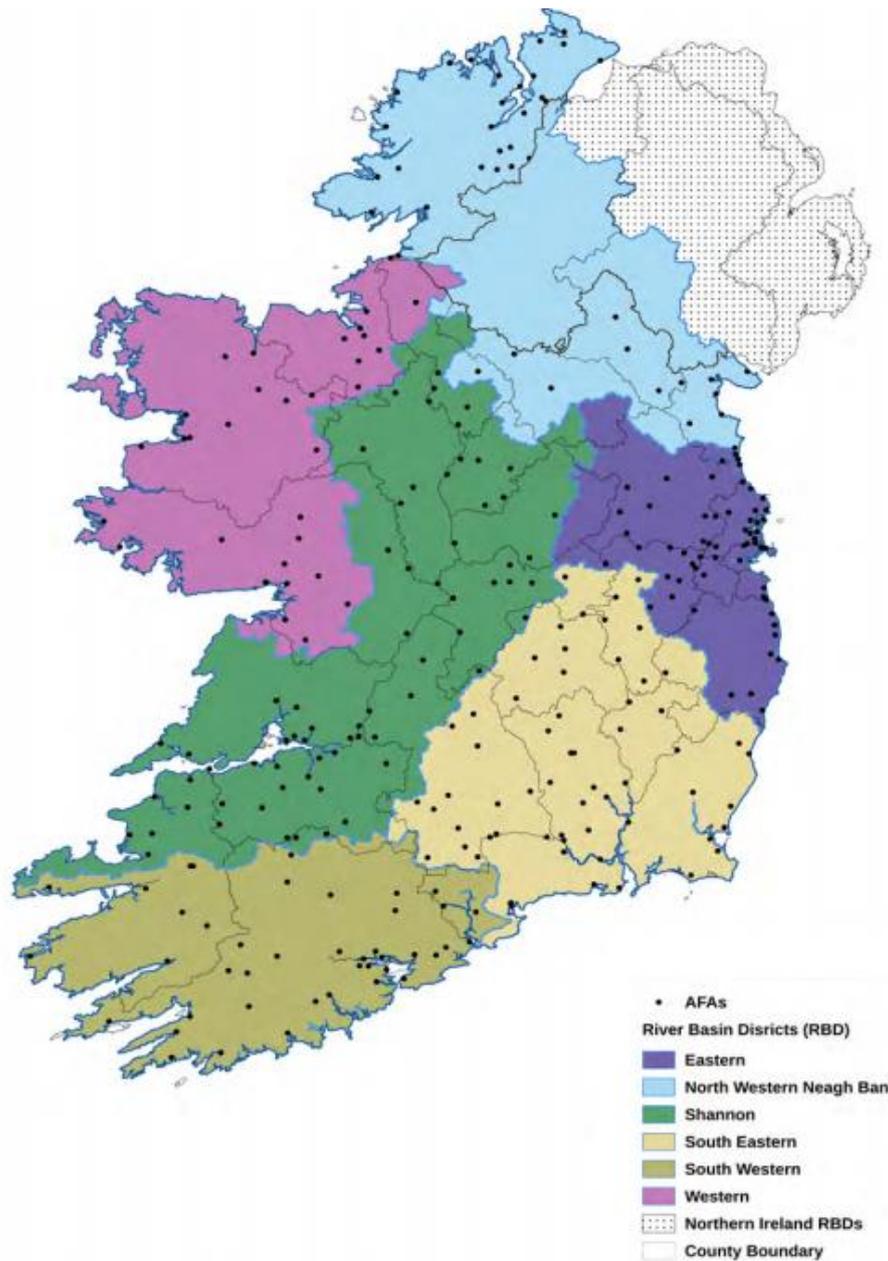
- 40,000 Flood Maps showing the flood risk for 300 communities that support planning decisions and emergency responses.
- 29 Flood Risk Management Plans (FRMPs) to cover the whole country with the proposed flood relief measures – informed by costs, benefits and environmental factors – to address the flood risk in each community and nationwide.
- 118 new schemes identified in the FRMPs.
- 50 flood relief schemes prioritised for delivery (now increased to 57 schemes).

The study identified that 34,500 properties have a 1% chance of experiencing a significant flood event in any year. The evidence highlights that 95% of these properties can be protected by flood relief schemes.

The potential impacts of climate change on flooding in a community were assessed by the CFRAM study, including two climate change assessments on sea level increase. These assessments confirmed that the risks associated with flooding could significantly increase as a result of climate change, although the possible impact varies greatly between communities.

Measures proposed in the FRMPs have considered how adaptable a possible measure might be to cope with the potential impacts of climate change. Taking forward these schemes through project-level detailed design will include a further assessment for the potential impacts of climate change and how the design of the scheme will need to account for such changes.

Figure 1. Six CFRAM Study Areas including 300 Communities Studied



Source: Floodinfo.ie ⁶

4.2 Flood Relief Programme of Investment 2018-2027

The Government has committed almost €1 billion to flood relief measures as part of the National Development Plan 2018-2027. These measures will be implemented through a 10 year programme delivering 118 new flood relief schemes, protecting 11,500 properties. These, in addition to existing

⁶https://www.floodinfo.ie/static/floodmaps/docs/key_messages_page/Implementing_the_Gov_Nat_Flood_Risk_Policy_WEB.pdf

and ongoing schemes, will protect 95% of the 34,500 properties assessed as being at significant risk of flooding.

At the end of 2018, a total of 43 flood relief schemes had been completed, providing protection to approximately 9,500 properties. These completed schemes are also providing an economic benefit to the State in damages and losses avoided estimated at €1.9 billion.

There are 11 flood relief schemes currently at construction stage with 5 of those due to be completed in 2019. It is expected to commence construction on a further 6 schemes in 2019. There are approximately 90 flood relief projects in total at construction, expected to commence construction this year or under active planning and development by the OPW and Local Authorities.

In addition, the OPW will continue to provide minor works funding to local authorities for local flooding solutions. Over 500 projects have been delivered so far, providing local flooding solutions to in excess of 6,500 properties.

Public Consultation Questions

2. Do you agree that managing flood risk is the best way of increasing insurability? If not you might explain why, and also you might set out what additional approaches you think would be more effective.

5 Insurance

5.1 What is Insurance and why do we need Insurance?

Insurance is a critical financial service providing policyholders with protection against financial losses from adverse events.

Insurance markets provide a mechanism for businesses and individuals to transfer risk to firms that specialise in absorbing risk. In doing so, businesses and individuals are better able to undertake certain activities and, in particular, certain economic activities, that they would otherwise be unable to do. In this way, insurance markets facilitate higher levels of economic activity.

According to the *Insurance Ireland 2017 Fact File*⁷ published in June 2019, property is the second largest class of non-life insurance (after motor), making up 24.8% of its member's non-life gross written premiums (GWP) that year. The property insurance market is split between household (55% of gross written premium) and commercial property (45%). Property insurance claims amount to 17.2% of total claims for the non-life insurance market. Insurance Ireland members wrote gross property insurance premium of €869.2m in 2017 (up 3.1% on 2016). The property insurance market recorded a net underwriting profit of €72.6m in 2017 compared with a net underwriting profit of €84m in 2016.

5.2 How do Insurers conduct their business?

It is important to note that there are very significant prudential and regulatory rules imposed on insurers which are monitored on an ongoing basis by the Central Bank of Ireland. The basis for these rules is the EU Solvency II directive. Failure to adhere to such rules, as has happened in the past in Ireland and other member states, can lead to insurers becoming insolvent.

Solvency II provides that an insurer's Solvency Capital Requirement (this is the capital over and above the standard reserves to cater for unexpected losses) shall be determined as the economic capital to be held by insurance and reinsurance undertakings in order to ensure that ruin occurs no more often than once in every 200 cases, or alternatively, that those undertakings will still be in a position, with a probability of at least 99.5% to meet their obligations to policy holders and beneficiaries over the following 12 months. That economic capital is required to be calculated on the basis of the true risk profile of those undertakings, taking account of the impact of possible risk-mitigation techniques, as well as diversification effects. The "one-in-200" standard is designed in such a way as to give insurers sufficient latitude to cover a significant level of risk, whilst at the same time requiring them to operate in a prudentially sound fashion.

A critical factor therefore for insurers is to properly understand their risk exposure. In order to do this Article 44(1) of Solvency II requires insurance and reinsurance undertakings to have in place detailed and effective risk-management systems. There is also a requirement that the risk

⁷ <https://www.insuranceireland.eu/media/Factfile%202017.pdf>

management system be effective and well integrated into the organisational structure and in the decision making process of the undertaking. What this means in practical terms is that the Central Bank of Ireland expects insurers to be very aware of the risks they propose taking on and to price and mitigate them in such a way that they cover their reserves and their capital requirements. Consequently, for example in pricing demountable flood risk, insurers have to take account of the range of possibilities which may occur. These include the risk of overtopping as well as the possibility of the barriers not being installed or incorrectly installed, thus leading to flooding. This latter risk whilst low in probability does have a high impact should it occur, and companies are expected to factor this into their risk management strategy and the corresponding pricing.

One way that insurers will manage this risk management process in the context of demountables is to limit their risk exposure in such areas. This broadly explains why individual companies may be prepared to provide a certain level of cover in these areas, but not commit beyond a certain threshold. This approach also makes sense from a diversification of risk perspective, as insurers are required to manage their risks in such a way as to avoid overly concentrating their risk exposure in particular areas. This is a prudentially sensible approach and is one which the Central Bank of Ireland would expect them to have in place, however it is acknowledged that from a consumer/small business perspective it is not always satisfactory.

It should also be noted that that any state insurer established to cover flood risk would also have to comply with the prudential rules set out in Solvency II.

Public Consultation Questions

3. Do you have any particular comments or views on the above? Aside from flooding are you aware of any other climate-related exclusions in any property insurance policies you hold?
4. Have you had a claim refused arising from weather/climate-related issues?

6 Current Government Policy to Increase Flood Insurance Coverage

Current government policy in relation to increasing flood insurance coverage is focused on the development of a sustainable, planned and risk-based approach to managing flooding problems. This it believes should in turn lead to the increased availability of flood insurance. To achieve this aim there is a focus on:

- (i) Prioritising spending on flood relief measures by the Office of Public Works (OPW) and relevant local authorities; and,
- (ii) Development and implementation of plans by the OPW to implement flood relief schemes.

The third leg in the Government's strategy to increase flood insurance coverage is to convey the details of what it has done from a flood protection perspective to the insurance industry in order for them to have a better understanding about the reduced level of flood risk in what they would have previously considered as flood prone areas. This is being done through a Memorandum of Understanding (MOU) between the OPW and Insurance Ireland, which provides for the exchange of data in relation to flood defence schemes completed to the desired standard. This has been ongoing for a number of years and while it is acknowledged that improvements can always be made, it is in the view of the industry and the Government that it is working reasonably well.

In this regard there has been an increase in the provision of flood insurance cover observed in areas protected by these schemes over the period 2015 to 2019, according to Insurance Ireland Flood Survey Results.

The first return Insurance Ireland provided on 13 January 2015 was from December 2014. The key stats were:

- **91%** of policies in areas benefiting from **fixed flood defences** included flood cover;
- **66%** of policies in areas benefiting from **demountable flood defences** included flood cover; and,
- **77%** of policies in areas benefiting from **(fixed and demountable together)** included flood cover.

The key statistics from Insurance Ireland's flood survey results provided on 29 March 2019

- **95%** of policies in areas benefiting from **fixed flood defences** included flood cover;
- **74%** of policies in areas benefiting from **demountable flood defences** included flood cover; and,
- **84%** of policies in areas benefiting from **(fixed and demountable together)** included flood cover.

In summary therefore the changes in the figures are as follows:

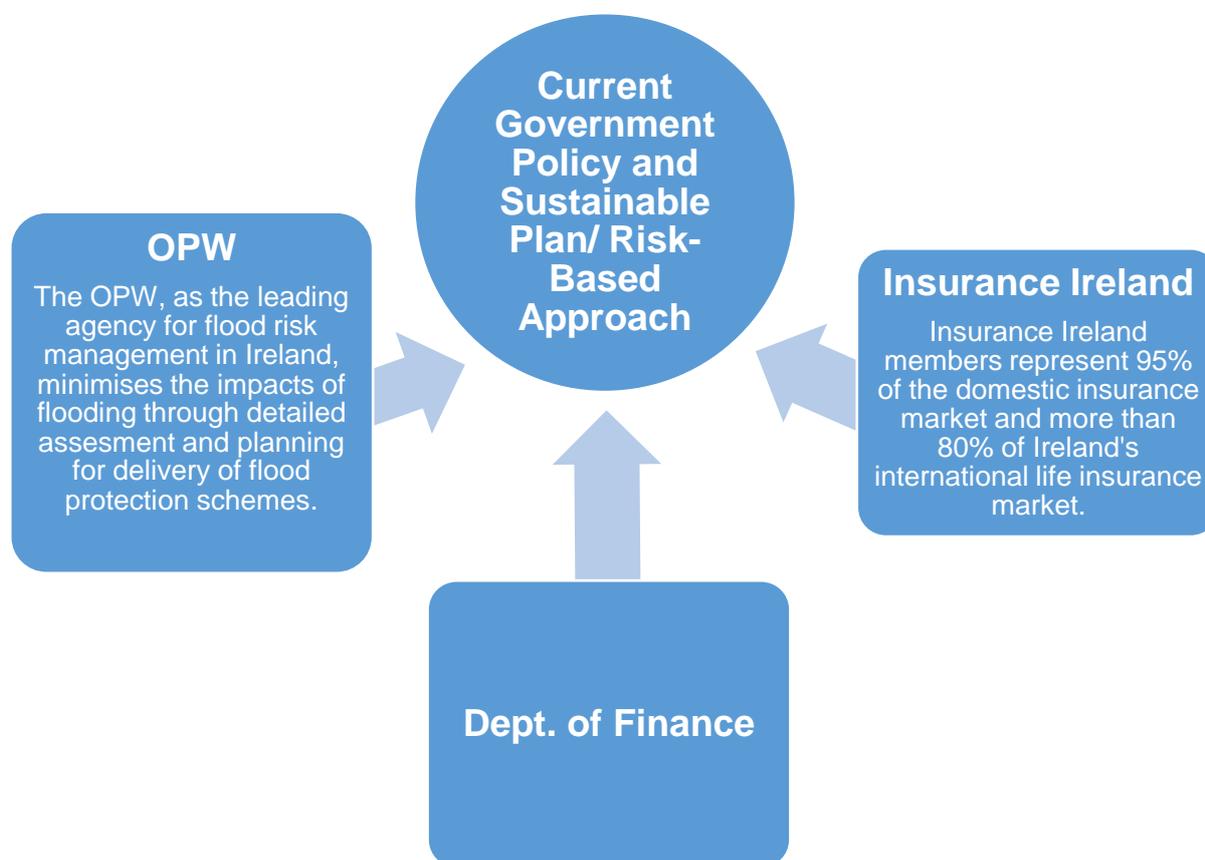
- **4%** increase in policies with flood cover in areas benefiting from **fixed flood defences**;

- **8%** increase in policies with flood cover in areas benefiting from **demountable flood defences**; and,
- **7% overall** increase in **policies with flood cover** in areas benefiting from **fixed and demountable**.

Whilst these statistics are not always comparing like for like due to the increase in the number of areas coming within scope and accordingly a corresponding increase in the number of policies covered, the survey figures do give a sense of the increased overall flood insurance coverage levels, albeit it is acknowledged that there is significant room for improvement in the demountables category.

Oversight of this process is carried out by an Insurance Ireland/OPW working group, which Department of Finance officials attend. Meetings are held on a regular basis to support the information flow and improve the understanding of issues between both parties.

Figure 2. Governance Structure of Flood Insurance in Ireland



Public Consultation Questions

5. Do you agree with the Government's strategy to increase flood insurance coverage?
6. If you disagree, what alternative approaches are available to the Government? In responding to this question you might outline the benefits of such an alternative vis-à-vis the current approach and provide a view on the potential long-term costs of it.

7 Issues around Flood Coverage

7.1 Coverage of Property Insurance and Flood insurance in Ireland

The November 2016 *Interim Report to Government from the Interdepartmental Flood Policy Co-ordination Group*⁸, quoted figures from Insurance Ireland that indicated that nationwide, 98% of policyholders in Ireland have household insurance which includes flood cover. This compares favourably to many of our European counterparts, where rates are closer to 50%. It should be noted, however, that the 98% quoted by Insurance Ireland refers to household policies that include flood cover. These numbers do not provide the full view of flood insurance penetration rates in Ireland, as insurance companies will only have information related to properties that actually have insurance policies of some kind in place. The Household Budget Survey conducted by the Central Statistics Office in 2010 highlights this point as it indicates that up to 33% of households may have no household insurance. The difficulty with this 33% figure is however determining what it means because insurers will provide property cover without the flood element in areas of high risk. Therefore there is likely to be a range of reasons as to why people do not have any cover, some of which may not be related to the absence of flood protection.

7.2 Insurance Coverage Levels where Demountables are Built

A demountable flood protection system is a moveable flood protection system that is fully pre-installed and requires operation during a flood event. In contrast to a permanent system, a demountable system is only functional when the barrier is in a closed position before the water rises to the lowest permanent protection level. Such defences are built in areas, where fixed defences are not considered to be suitable.

It is acknowledged that there continues to be a problem with the level of flood insurance coverage in areas where demountable defences are necessary and have been built. This is because insurers argue that they have a significant uncontrolled exposure in circumstances where demountable defences are either not installed or are installed incorrectly at the time of a flood event (see brief overview of prudential requirements for insurers in Chapter 5). This has manifested itself as follows:

- (i) insurance is not being provided to a significant percentage of households and businesses; or,
- (ii) where it is provided, we understand that significant excesses or restrictions are applied on policies.

The Government believes that this is unsatisfactory, particularly as a considerable amount of money has been invested in such projects and they have been built to a “one-in-100” year standard

⁸ <https://www.opw.ie/en/media/Interim-Report-Interdepartmental-Flood-Policy-Coordination-Group-final.pdf>

(i.e. assessed by the OPW to having a 1 in 100 year flood risk). Consequently, there has been much discussion with the insurance industry on this matter in order to try and find an appropriate solution. As part of this process, at the request of industry, the OPW has provided a significant amount of detailed data in relation to adequacy and resourcing of flood warning systems, and mobilisation, efficacy, maintenance and development of demountable defences to Insurance Ireland. A sub-group has also been set up to explore the technical and administrative arrangements that may allow for the further sharing of data.

One of the outcomes of these discussions to date is that the insurance industry has now acknowledged that they accept that the demountable defences meet the desired “one-in-100” year standard⁹. However industry still maintains the view that while demountable defences are effective where correctly deployed, there are significant interdependencies, including human intervention, which increases the risk of failure. This is subject to ongoing discussions, but it is important as previously indicated to be aware that the Government cannot compel insurers to provide cover, nor can it influence the price levels at which cover is provided. In addition as indicated in Chapter 5 on Insurance, there are solid prudential reasons why insurers will have concerns over extending themselves flood coverage wise in such areas.

7.3 Fianna Fáil Private Members’ Bill on Flood Insurance

The issue of demountables was in effect the driving force behind the Fianna Fáil Private Members’ Bill on flood insurance. The Bill was introduced in Dáil Éireann by Deputy Michael McGrath, on 13 January 2016. Its stated purpose is to provide for fairness in the market for property insurance by prohibiting insurers from discriminating between ‘affected persons’ and ‘unaffected persons’, as defined in the Bill, in offering insurance cover in respect of a residential or commercial property located in an area at a low or medium risk of flooding (following the installation of flood defences to a required minimum standard), and to provide for related matters.

The principal objective of the Bill is to ensure that both residential and commercial property owners can access insurance in locations where the OPW has completed a flood relief scheme to the required EU standard or where the OPW has certified the flood risk to be low or medium (“one-in-100” year risk, or better).

The Government considered the Bill and provided their observations on it in a submission to the Joint Committee on Finance, Public Expenditure and Reform, and Taoiseach Scrutiny of the Flood Insurance Bill 2016¹⁰ which was published in June 2019. In summary, the Government while being sympathetic to the broad thrust of the Bill believes that there are a range of legal and practical issues with it including the fact that it potentially contravenes EU rules (the Solvency II Directive) insofar as it would appear to require the State to interfere with the pricing of insurance products. In addition, the Government believes that the Bill if enacted is unlikely to address the underlying problem as many insurers will simply leave this area of the market (as has happened for instance

⁹ The appropriate standard is ‘one-in-100 year’ or for coasts it is a one in 200 year standard.

¹⁰https://data.oireachtas.ie/ie/oireachtas/committee/dail/32/joint_committee_on_finance_public_expenditure_and_reform_and_taoiseach/reports/2019/2019-06-18_report-on-scrutiny-of-the-flood-insurance-bill-2016_en.pdf

in the leisure sector), thus compounding the existing position. The Government however acknowledges the underlying purpose of the Bill that the existing level of flood insurance coverage in areas where flood defences have been built needs to be increased, and is continuing to work towards achieving that objective.

Public Consultation Questions

7. What do you think can be done to increase the level of flood insurance in areas where demountables have been built?
8. What if any reasons have been provided to you by insurers where insurance has been refused where flood defences have been built?
9. Have insurers demonstrated any flexibility when you have engaged with them on this matter; for instance providing cover with an excess?
10. What are your views on the use of policy excesses/ policy exclusions as a risk management tool by insurers?

7.4 Unavailability of Cover in Areas of High Flood Risk

As indicated throughout this paper, the fundamental thrust of Government policy to increase flood insurance coverage is primarily to build flood defences in order to reduce/manage flood risk. In this regard, the Government has committed almost €1 billion to flood relief measures as part of the National Development Plan 2018-2027. This should result in many more people being at a reduced risk of flooding in the future, and thus being able to get flood insurance cover.

However, there are locations where for economic reasons it may be difficult to justify building flood defences. Consequently, due to the vulnerability of such areas to flooding, it is probable that insurers are currently not providing flood coverage and as things stand are unlikely to do so in the future.

In relation to the provision of flood insurance, the Government sees a clear distinction between these very high risk areas and those where for instance demountable defences have been built. In other words, it understands that insurers will have problems offering cover in the former situation. However the Government believes that where it has invested a considerable level of resources in the latter (i.e. demountable defences) , insurers should offer cover at reasonable prices. This distinction is also recognised in the Fianna Fáil private members Bill on flood insurance.

It should be noted that where a person has been unable to obtain flood cover and is subsequently flooded, targeted humanitarian assistance and for businesses is available. The Department of Employment Affairs and Social Protection may activate the Humanitarian Assistance Scheme¹¹. This income-tested scheme provides emergency financial assistance to households who are not able to meet costs for essential needs immediately following flooding. The scheme aims to provide financial support to people who have suffered damage to their home. It is designed to alleviate hardship rather than provide full compensation for damage.

In addition, in December 2018, the Government agreed to the establishment of a Standing Scheme administered by the Department of Business, Enterprise and Innovation (DBEI) to provide humanitarian support for small businesses, community, voluntary and sporting bodies who experience flood damage as a consequence of a severe weather event to their premises and who have been refused flood insurance¹². The scheme would be instigated by DBEI in the event of flooding as a consequence of a severe weather event e.g. where the weather event triggers the implementation of major emergency management structures. The Irish Red Cross will administer applications to the scheme and distribute the funding provided by the DBEI.

Finally a certain level of assistance may also be available from the relevant local authority.

¹¹ <http://www.welfare.ie/en/Pages/Humanitarian-Assistance-Scheme.aspx>

¹² <https://www.opw.ie/en/pressreleases/2018/articleheading,39277,en.html>

Public Consultation Questions

11. Do you agree that from a cost benefit analysis perspective that there may be areas where it will not be possible to manage flood risk sufficiently so as to make them insurable?
12. If you disagree with this statement, please explain why. For instance do you believe flood cover should always be available, even where there is certainty that a location will be flooded regularly?
13. Where insurers have declined to provide flood cover, have they offered cover for other household risks such as fire and theft?

8 The Department's 2016 Review of Possible Alternative Approaches to Flood Insurance

The Department of Finance carried out a review of policy in relation to flood insurance in 2016, which formed part of the *Interdepartmental Flood Policy Coordination Group Interim Report*, as approved by Government in November 2016¹³. As part of the review, three options were examined to address the improved availability of flood insurance cover (i) put in place an insurance pool (ii) expand on current approach (i.e. continuing to prioritise spending on flood relief measures and improving channels of information) and (iii) legislate for compulsory insurance. The analysis from the above report on each of these options is set out in Annex 2 to this document. However the key points under each of the options are as follows:

Option 1. Insurance Pool: The key points in relation to this option were:

- High set-up costs (potentially €25 million) and ongoing running costs.
- Additional 3% to 5% levy on all household insurance policies including households in low and medium-risk areas.
- Potential for State backstop of up to €185 million in a catastrophic flooding event based on 8,547 households covered.
- Potential that demand could push number of houses to be covered up (UK *Flood Re* allows for up to 500,000 houses or 2% of all households) from 0.65% to 2% resulting in a far higher levy and a far higher State backstop.

Option 2. Expand on existing approach: The key points in relation to this option were:

- This approach has already been proven to be working with the incremental increase in flood insurance provision throughout the country and, in particular, where flood defences have been built.
- When accompanied by ongoing capital investment in flood defences and the necessary data exchange between the OPW and the insurance industry, the availability of flood insurance will continue to increase.

This approach is complemented by appropriate Government decisions on the State provision of targeted emergency humanitarian assistance in each flood event which is adaptable and flexible depending on the nature of that flood event and the types of properties affected.

Option 3. Compulsory insurance: The key points in relation to this option were:

- Making provision of flood insurance compulsory will have no effect on making it affordable.
- The obligation option would require the setting up of an agency to maintain the database of all houses to be covered and to ensure individual companies are meeting their obligation.

¹³ <https://www.opw.ie/en/media/Interim-Report-Interdepartmental-Flood-Policy-Coordination-Group.pdf>

- Making it compulsory on a proportionate basis would, more than likely, result in a knock-on effect on the cost of insurance premiums for all policyholders including those in low to medium-risk areas as industry will need to re-calibrate its risk modelling to meet its solvency requirements.
- Potential loss of insurance undertakings to the Irish market.

The review examined the three options in detail. The conclusion of the analysis was that the preferred option was to expand on the Government's existing approach ('Option 2'). The Government's existing policy has yielded effective results insofar as there has been an increase in the availability of flood insurance in the areas where flood defences have been installed. Compulsory flood cover ('Option 3') was not considered feasible as it is likely to have little effect on making such insurance affordable in high risk areas. Finally, there was a significant concern about the potential high cost of any potential pooling arrangements ('Option 1'), and a view that there was likely to be a possible considerable exposure to the Exchequer if it had to provide a backstop to such an arrangement.

Public Consultation Questions

14. Please provide any views you have on options 1 to 3 above.
15. Are there any other options that the Government could consider?
16. Do you agree that if the Government were to put in place an insurance pool arrangement that it would have to manage its long term exposure to such an arrangement? How would it do this? For instance should it exclude businesses, or houses built after a certain date from the pool as has happened in the UK with Flood Re?

9 Insurance and Flooding - International Experience

9.1 Flood Re (UK) and National Flood Insurance Program (USA)

The issue of climate change is, of course, not just confined to Ireland. It is a global issue and it is useful to examine what steps other countries have taken when it comes to attempting to mitigate the impacts climate change could have on the insurance industry.

The November 2016 *Interim Report to Government from the Interdepartmental Flood Policy Co-ordination Group* examined other models for flood insurance. Countries examined included Australia, Denmark, France, Germany, the Netherlands, Norway, the United Kingdom, and the United States. A summary of the various approaches is set out in Annex 3. However, we have outlined in more detail the approaches in the UK and the USA below.

9.1.1 Flood Re (UK)

The UK's *Flood Re*¹⁴ model is often cited as an example that the Government here should follow.

The *Flood Re* scheme commenced in April 2016. The UK insurance industry wanted to have the British Government as the insurer of last resort, however the Government did not agree to this.

Flood Re is a not-for-profit flood fund managed and financed by the insurance industry. It has been developed to provide affordable flood cover to homeowners in high risk areas. It was established to initially support circa 350,000 of the highest risk households in the UK (circa 1.3% of UK households).

Under the *Flood Re* programme, insurers will transfer into the fund those homes at high risk of flooding which they feel they are unable to insure themselves. The premiums charged by *Flood Re* to insurers are capped, based on Council Tax bands. For example, they currently start at £169 for an annual policy for properties in Bands A and B, rising to £1,218 for a Band H home¹⁵. The insurer will price other risks as normal such as fire, accidental damage or theft.

It should be noted that commercial properties are not included, which includes residential rental properties. Properties built on or after 1 January 2009 are also excluded. This is due to a change in planning regulations which means properties can no longer be built in flood-prone zones without being adequately defended.

¹⁴ <https://www.floodre.co.uk/wp-content/uploads/2016/07/Flood-Re-Partners-and-Groups-Presentation.pdf>

¹⁵ <https://www.floodre.co.uk/flood-re-freezes-premiums-for-the-first-time-2/>
<https://www.floodre.co.uk/faq/how-are-the-premiums-set-for-ceded-policies-to-the-scheme/>

Apartment blocks are excluded due to the freehold being owned by a management company resulting in them being considered commercial properties. Residential rental properties are excluded but, private tenants can be included in *Flood Re* for their contents insurance.

Flood Re charges member firms a total annual charge of £180 million. This is passed back to all their customers, resulting in an estimated levy (levy I) of £10.50 on annual household premiums. This levy is used to buy reinsurance, pay claims and fund the running of *Flood Re*. This is equivalent to an additional charge of circa 3.5 to 4% on each home insurance policy.

Under the *Flood Re* pool, the benefit of bringing households at risk of flooding back into the market for insurance, compared with the do-nothing baseline, is ultimately being achieved through cross-subsidy from those at low or no risk who will pay higher insurance premiums as a result.

Flood Re is designed to fully deal with flooding events in at least 99.5% of years. Should *Flood Re*'s funds and reinsurance cover be unable to fully meet its outgoings, *Flood Re* will charge each of its member firms an additional amount to make up the shortfall, known as the "top-up levy" (levy II). Prior Parliamentary approval has to be sought by *Flood Re* for each individual top-up levy.

The set-up costs of *Flood Re* in the UK amounted to £21 million. Ongoing running costs are unknown to date but the impact assessment carried out prior to the setting up of *Flood Re* anticipated annual running costs of £6 to 8 million.

Since the Inter-Departmental Report was concluded, the Department has had some discussions with the Irish insurance industry about an equivalent arrangement and they have made it very clear that they do not think it is feasible in an Irish context due to a range of reasons including cost, the smaller market and the likelihood that reinsurance would be considerably more difficult to acquire than is the case in the UK.

9.1.2 National Flood Insurance Program (USA)¹⁶

The United States' National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA) which works closely with nearly 90 private insurance companies to offer flood insurance to property owners and renters. In order to qualify for flood insurance a community must join the NFIP and agree to enforce sound floodplain management standards. A community is defined as an area that has the authority to adopt and enforce flood management ordinances for the area under its jurisdiction (best interpreted as elected officials). The measures are paid for by local taxation systems.

The general purpose of the NFIP is both to offer primary flood insurance to properties with significant flood risk, and to reduce flood risk through the adoption of floodplain management standards. Communities volunteer to participate in the NFIP in order to have access to federal flood insurance, and in return are required to adopt minimum standards.

¹⁶ <https://fas.org/sgp/crs/homesec/R44593.pdf>

As of October 2018, the NFIP had more than 5.1 million flood insurance policies providing over USD 1.3 trillion in coverage. Nationally, as of January 2019, about 22,355 communities in 50 states and six territories participated in the NFIP. According to FEMA, the program saves the nation an estimated USD 1.87 billion annually in flood losses avoided because of the NFIP's building and floodplain management regulations.

Rates are set and do not differ from company to company or agent to agent. These rates depend on many factors which include the date and type of construction of the home along with the building's level of risk.

The NFIP is designed to be financially self-supporting, or close to it, but cannot handle extreme financial catastrophes by itself. In October 2017, Congress cancelled USD 16 billion of NFIP debt, making it possible for the program to pay claims for Hurricanes Harvey, Irma, and Maria. The NFIP currently owes USD 20.525 billion to the U.S. Treasury, leaving USD 9.9 billion in borrowing authority from a USD 30.425 billion limit in law. This debt is serviced by the NFIP and interest is paid through premium revenues.

An individual household cannot get compensation from the NFIP if the community is not participating in the program. Therefore, individuals are highly dependent on their communities. If the community is not participating because they cannot afford the consequential measures, or for any other reason, the individual household cannot get insurance from the NFIP and will face the whole loss in case of flood damages.

In general, the idea of incentivising flood plain measures in local areas appears useful but, in contrast to Ireland, most localities within the United States administer most of their own taxes. Therefore, communities pay for flood plain measures with their own budgets from their local tax.

9.1.3 Individual Property Protection in the UK

The introduction of Individual Property Protection (IPP) as a feasible measure may be used to mitigate flood risk to residential property at locations where traditional flood defence schemes are not feasible and possibly are not likely to be constructed in the foreseeable future. There are a broad range of IPP measures that can be categorised as:

- Flood resistance measures where the benefit of each is location specific. Some of these measures include demountable or automatic flood door, air brick cover/self-closing Air Brick, sewerage bung, toilet pan seat, non-return valve, waterproof external walls and repointing walls; and,
- Flood resilience measures are not location specific and typically more expensive options if retrofitted. Some of these measures include tiled flooring with rugs (as opposed to timber floors and carpets), water resistant wall plaster, uPVC external and internal doors and frames and skirting boards, raised electrical sockets and supply boards.

In the UK, some local authorities¹⁷, as well as the Scottish Government¹⁸ and Northern Ireland Executive¹⁹, run grant schemes to encourage homeowners to install IPP measures (more commonly known as *Property Level Protection* measures in the UK). A 2014 Report into such measures by the UK Department for the Environment, Food and Rural Affairs found mixed results.²⁰ Notably, it found that, “Insurers have been advised about the Property Level Protection measures and they are declared on renewal forms but have not led to a reduction in levels of excess or premiums yet.”

Public Consultation Questions

17. What are your views on the feasibility of a *Flood Re* type approach?
18. If you favour such an approach, what can be done to make it more attractive to industry to develop?
19. Do you agree with the limitations imposed on *Flood Re* in the UK as to who it should apply to?
20. Do you have any views on the US system?
21. What are your views on Individual Property Protection (IPP) as a concept, even though it does not seem to have had any impact from a cost of insurance perspective in the UK yet?

¹⁷ <https://www.floodgate.ltd.uk/grants/>

¹⁸ <https://www.gov.scot/policies/water/managing-flood-risk/>

¹⁹ <https://www.nidirect.gov.uk/articles/homeowner-flood-protection-grant-scheme>

²⁰ http://evidence.environment-agency.gov.uk/FCERM/Libraries/FCERM_Project_Documents/fd2668_final_report.sflb.ashx

10 Data and Flood Cover

10.1 Collection and sharing of data

In assessing and pricing their property insurance risks, insurers in Ireland will use their own maps and data (CFRAM maps are community based maps and are not designed to be used for commercial purposes) to determine what risks they are prepared to insure. The difficulty with this of course is if they have insufficient information available to them, they may refuse to provide cover in certain areas, even though it can be self-evident in many instances such as a house on top of a hill that this makes little sense. The other side of this coin however is that if insurers over time develop a more complete picture of flood risk, then there is a possibility that certain areas which are currently deemed insurable will no longer remain so. That said the availability of data is a critical issue going forward and this is why the Memorandum of Understanding (MOU) between the OPW and the insurance industry in relation to the exchange of information on flood defences is so important.

However a question which can be asked is whether this data exchange can be enhanced over time. Swenja Surminski in her paper titled *“Fit for the future? The reform of flood insurance in Ireland: resolving the data controversy and supporting climate change adaptation”* believes more work needs to be done in this area. She makes the point that access to flood risk data is essential for any flood insurance scheme, but that the quality and use of data can be a matter of dispute between insurers, their customers and the Government. She also highlights the distrust among both consumers and the Government about the behaviour of insurance companies, which she argues is unlikely to change without greater transparency from insurers about their understanding of flood risk, their underwriting practices and how they support flood risk management

Ms. Surminski proposes that the establishment of a data platform would facilitate a collaborative approach to understanding floods risk and resilience. She suggests that a data platform populated with information from and used by a wide range of sectors, groups and institutions could become a powerful tool for flood resilience and climate change adaptation. She argues that its objectives would be twofold:

- (i) Provide more insights to help resolve the current problem with flood insurance (address the symptoms); and
- (ii) Facilitate data sharing across sectors to help them recognise and manage current and future risk levels, enabling different stakeholders to incorporate this into their day-to day decision making (address the causes).

In summary, she believes that a data sharing platform could be used by the public, government and private companies when making decisions on where and how to build, how to protect and how to underwrite. She believes that transparency would be important to this approach as it would create trust.

In May 2018, the OPW launched a new website www.floodinfo.ie that gives access to the flood maps and plans for those 300 communities studied under the CFRAM programme. These maps are community based and the disclaimer with their use states that they cannot be relied upon for commercial purposes. The Insurance Industry has confirmed that they do not use these community maps to inform their models and that they rely on their own data and models to assess risk.

It can be argued that initiatives such as Floodinfo.ie and the MOU are good examples of the collection and sharing of data. However the data flow is very much one way, i.e. from the public sector to the private sector. Insurers will argue that their private information is commercially sensitive and is what gives them on occasions a competitive advantage in the market. However, it is questionable whether this stands up to closer scrutiny as ultimately it seems there are much greater benefits to everybody from a range of perspectives including pricing of cover if there is a complete and objective perspective on flood risk. It would also mean that the unavailability of flood cover would be because there is objective evidence of unaddressed flood risk, rather than the current position, where it appears that sometimes insurers make generalised decisions about flood risks in particular areas based on their sense of the risk rather than on any precise understanding of the real underlying situation.

Public Consultation Questions

22. What do you think can be done to increase flood risk data transparency?
23. Do you accept that greater flood risk data transparency can also have the effect of making flood cover in certain areas more difficult to obtain?

10.2 The use of data and InsurTech innovation as a risk mitigating strategy

One of the benefits of the sharing of data outlined in the preceding section is the analysis and the innovation that such data can facilitate. This in turn can provide insurers with a better understanding of risk, and thus enable them develop new and innovative products to better mitigate that risk in a more cost effective way. In this context *InsurTech* offers some possibilities in the future.

The term *InsurTech* refers to new technologies with the potential to bring innovation to the insurance sector. These technologies have the potential to bring better and more customised insurance coverage to more people. We have seen Insurtech have a positive impact in the motor insurance industry with the use of ‘telematics’ i.e. technology to monitor driving behaviour resulting in lower car insurance premiums in some cases. Could technology and innovation have a positive impact in the property insurance market in Ireland?

There are examples of innovations by insurers in other countries which have begun to address some of the challenges associated with flood insurance and other national catastrophe risks.

Accenture²¹ outline the case of the French Insurer AXA who in 2016 worked with the Préfecture de police de Paris (Paris Prefecture Police) and dozens of other organizations to simulate the effects of a re-run of 1910's Great Flood of Paris, in which the Seine burst its banks and rose eight metres. AXA risk management experts helped reveal that a re-run of this flood would leave up to five million people without electricity, knock out 41 metro stations, cause over €30 billion in damage, and hamstring the local economy by €60 billion for five years afterwards. When the city actually did flood three months after the simulation, AXA's expertise helped to reduce damage.

In California (insurance provision and regulation in the US is done on the state level, not federal level), an InsurTech start-up, *Jumpstart*²², has started providing earthquake insurance to homeowners and renters. The company uses United States Geological Survey data to determine when a sufficiently large earthquake hits a region. After an earthquake occurs - if a policyholder's location experiences the triggering shaking intensity - they are sent a text message that asks if they expect to experience extra expenses. If they respond affirmatively, the company initiates payment. Text messaging is used because it's likely to be the first form of communication to start working after a disaster. Although pay-outs are capped at USD 10,000 (which is quite low by comparison to other traditional earthquake insurers), the model is not without merit and it is possible could be expanded to other forms of insurance before long.

These two examples demonstrate that, broadly speaking, if insurers are able to simulate the impact of a climate event (Axa), or predict or monitor the chance of it occurring in real time (Jumpstart) they would have more certainty surrounding the cost of an event and the likelihood of the risk occurring. This would result in more accurate risk pricing and lead to the overall uncertainty and level of risk falling, which could lead to reduced premiums or increased coverage for customers.

Other innovations outlined in the Accenture study include insurers working collaboratively to mitigate against the impact of extreme weather events. Intact Financial Corp., the largest property insurer in Canada, launched the Intact Centre on Climate Adaptation in partnership with the University of Waterloo in late 2015. The centre runs home adaptation audits, where inspectors recommend low-cost changes clients can make to their properties to make them more resilient to extreme weather events. Such strategies include sewer backup prevention devices, improved fireproofing, and directing storm water runoff away from a property. Such close collaboration between insurers and policy holders is an admirable concept and one that could be developed further in Ireland.

The use of data, InsurTech, and collaboration in driving the insurance industry forward is a new and developing theme. Exploratory work has been undertaken by EIOPA and the OECD. It will be

²¹ <https://insuranceblog.accenture.com/four-examples-of-climate-change-insurance-innovation>

²² <https://www.reinsurancene.ws/parametric-insurtech-jumpstart-launches-with-text-powered-earthquake-coverage/>

interesting to see how this concept evolves, and how it's potential as a method of reducing some of the challenges associated with flood insurance provision and pricing develops.

Public Consultation Questions

24. What are your views on the role for InsurTech in broadening insurance provision in relation to climate/weather-related events? Please outline any ideas you have as to how this could be done.

11 Conclusion

It is not possible to define clearly what the impact of climate change will be on Ireland over the next 20 years or so. However, it is probable that there will be larger amounts of rainfall during the winter which raises the possibility of increased river flooding. Sea levels are likely to continue to rise and when this is combined with the likelihood of a greater number of storms then coastal flooding is likely to arise more frequently. This changing environment is recognised by the Government in its current policy to mitigate flood risk through the OPW's Catchment Flood Risk Assessment and Management (CFRAM) Programme. This position also represents the starting point for considering the availability and cost of property insurance in the future, as the more that can be done to reduce or better manage the underlying risk of flooding, the less likely there is to be a problem with insurability.

This consultation paper sets out what the Government's current position is in relation to minimising flood risk in the first place and then what it is doing to increase flood insurance coverage. It acknowledges that more work is needed to increase the levels of flood coverage in particular in areas where demountables have been built. It distinguishes such areas from ones where it may not be possible to mitigate or manage flood risk to a level where insurers will ever find it sufficiently attractive to offer cover. The paper provides an overview of the main options considered in the Department's review of insurance coverage issues in 2016, and outlines what has been done in other countries to try and satisfactorily address this issue.

The purpose of this paper is therefore to gather views on current Government efforts to improve flood insurance coverage, and to try and identify where improvements can be made. This is done through a series of questions. In responding to this paper, it should be appreciated that this is a complex issue and that any further development of existing Government policy in this area has potentially very significant costs as the 2016 review indicated.

Every effort has been made to cover all relevant issues in this consultation paper, however it is accepted that there may well be issues which have not been addressed. Therefore, please feel free to highlight any other issues which you feel are relevant to this overall debate.

On receipt of all the submissions, the Department of Finance will prepare a summary paper outlining the range of views gathered and will publish them. It will then prepare a report for Government setting out these views and making recommendations as to whether existing Government policy in relation to the provision of flood insurance coverage needs to be adapted appropriately to take account of the threat posed by climate change.

Annex 1. Public Consultation Questions

1. Have you encountered greater difficulty either getting or renewing flood cover due to weather/climate-related issues?
2. Do you agree that managing flood risk is the best way of increasing insurability? If not you might explain why, and also you might set out what additional approaches you think would be more effective.
3. Do you have any particular comments or views on the above? Aside from flooding are you aware of any other climate-related exclusions in any property insurance policies you hold?
4. Have you had a claim refused arising from weather/climate-related issues?
5. Do you agree with the Government's strategy to increase flood insurance coverage?
6. If you disagree, what alternative approaches are available to the Government? In responding to this question you might outline the benefits of such an alternative vis-a-vis the current approach and provide a view on the potential long-term costs of it.
7. What do you think can be done to increase the level of flood insurance in areas where demountables have been built?
8. What if any reasons have been provided to you by insurers where insurance has been refused where flood defences have been built?
9. Have insurers demonstrated any flexibility when you have engaged with them on this matter; for instance providing cover with an excess?
10. What are your views on the use of policy excesses/ policy exclusions as a risk management tool by insurers?
11. Do you agree that from a cost benefit analysis perspective that there may be areas where it will not be possible to manage flood risk sufficiently so as to make them insurable?
12. If you disagree with this statement, please explain why. For instance do you believe flood cover should always be available, even where there is certainty that a location will be flooded regularly?
13. Where insurers have declined to provide flood cover, have they offered cover for other household risks such as fire and theft?
14. Please provide any views you have on options 1 to 3.
15. Are there any other options that the Government could consider?
16. Do you agree that if the Government were to put in place an insurance pool arrangement that it would have to manage its long term exposure to such an arrangement? How would it do this? For instance should it exclude businesses, or houses built after a certain date from the pool as has happened in the UK with Flood Re?
17. What are your views on the feasibility of a *Flood Re* type approach?
18. If you favour such an approach, what can be done to make it more attractive to industry to develop?
19. Do you agree with the limitations imposed on *Flood Re* in the UK as to who it should apply to?
20. Do you have any views on the US system?
21. What are your views on Individual Property Protection (IPP) as a concept, even though it does not seem to have had any impact from a cost of insurance perspective in the UK yet?
22. What do you think can be done to increase flood risk data transparency?
23. Do you accept that greater flood risk data transparency can also have the effect of making flood cover in certain areas more difficult to obtain?
24. What are your views on the role for InsurTech in broadening insurance provision in relation to climate/weather-related events? Please outline any ideas you have as to how this could be done

Annex 2. Chapter on ‘Analysis of options to address insurability of flood risk’ in *Interdepartmental Flood Policy Coordination Group Interim Report (November 2016)*.

‘Department of Finance Report on Insurance and Flooding’ as included in the ‘Report to Government from the Interdepartmental Flood Policy Co-ordination Group’ (As approved by Government in November 2016).

Part III - Analysis of each of the options in Part II²³

Introduction

- 3.1 The cost of any proposal for any particular year would be difficult to quantify due to difficulty in forecasting severe weather events. However, over a period of time, it is possible to say that the costs would be significant. The insurance industry has paid out approximately €188 million in flood claims since the year 2006.²⁴
- 3.2 These insurance industry costs would be in addition to the normal infrastructure costs which arise from flooding such as repair of roads, bridges etc. Significant monies are also spent or planned to be spent on flood defences that will need to continue to be built under any of the options examined.
- 3.3 Our assessment of the potential costs of the options is based on information on the cost of claims in Ireland and in the UK, along with an assessment of the potential number of houses that would need to be covered.

Number of Households in scope

- 3.4 Based on OPW data from the CFRAM analysis, 8,547 properties have been identified as likely to flood at least once every hundred years. Table 1 in Appendix II provides numbers of properties at risk, split into risk profile. We are taking this number of 8,547 properties as the number that would be covered under the pooling option, as they are high risk and would struggle to obtain affordable, or indeed in many cases any flood insurance.

Average Cost per Claim

- 3.5 The average cost per claim we have used for the purpose of our assessment is a range between €13,300 and €25,000.
- 3.6 The lower number is drawn from figures provided by Insurance Ireland relating to flood claims between 2006 and 2015. These numbers are detailed in Appendix IV. Due to the lack of

²³ The ‘Department of Finance Report on Insurance and Flooding For inclusion in Report to Government from the Interdepartmental Flood Policy Co-ordination Group’ can be found at <https://www.opw.ie/en/media/Interim-Report-Interdepartmental-Flood-Policy-Coordination-Group-final.pdf>. Part II on page 121 provides ‘Outline of alternative flood insurance options’. Part III on page 126 sets out the ‘Analysis of each of the options in Part II’.

²⁴ Insurance Ireland 26 April 2016

granularity in the numbers, these will include a multitude of risks and do not include households that had no household insurance or were unable to obtain flood insurance.

3.7 In the U.K., as part of the impact assessment for Flood Re, the calculation of average claim was based on the economic cost of €25,000 per uninsured property. This included not only damage, but other factors such as the cost of alternative accommodation²⁵ and adverse health impacts related to relate only to flood events.

Potential flood claims for high risk properties

3.8 In calculating the expected annual flood claims bill, it is necessary to account for the fact that within the group of 8,547 properties some properties will flood more often. Based on indicative annual exceedance probabilities, it is expected that on average 15% of such high risk houses would be flooded in any one year. (The analysis behind this assumption is outlined in Appendix II.) The expected annual flood claims bill for high flood-risk properties is calculated to be between €17 million and €31 million, i.e. an average claim of between €13,300 and €25,000 per household multiplied by the expected annual number of flooded properties.

3.9 In a worst case scenario of a 1 in 100 year event occurring, with all of the 8,547 high-risk properties being flooded in one flood event, claims against the insurance pool of between €114 million and €215.5 million²⁶ could arise.

Scope of coverage

3.10 In our analysis we have excluded cover for businesses as is the case in the UK. This also aligns with existing policy in the majority of Irish compensation schemes where only natural persons are covered, such as is the Insurance Compensation Fund, or the case of the Investor Compensation Fund where only retail clients are covered.

Moral Hazard

3.11 Policyholder moral hazard arises in a situation where insurance companies are prepared to quote a risk based premium in one location but not in a neighbouring area, which would then be covered by a pool/indemnification. Thus one household is perhaps faced with a high premium while the other qualifies for indemnification. This can create a policy holder incentive to seek not to be quoted for insurance cover as arguably they will be better off with cheaper premiums under a scheme such as the insurance pool. It may also provide a disincentive on the part of the policyholder to take steps to protect his/her home from flood damage or to mitigate against an expensive level of damage.

²⁵ The UK Department of Environment, Farming and Rural Affairs (Defra) calculated an average cost per household of £8,000 in respect of accommodation. This figure is based on the price of purchasing a new 4-6 berth caravan which is eventually resold for approximately half of the original purchase price. Defra estimated the adverse health impacts and estimate that the average extra cost of health impacts in an uninsured situation would be £12,800. The health and stress impacts included in this assessment relate only to flood events which actually occur, and not any anxiety caused by the perceived threat of flooding.

²⁶ Based on all 8,547 houses being flooded in one event and the average cost per claim in a range of between €13,500 and €25,000.

Option 1: Insurance Pool/Indemnification

- 3.12 The main advantage for the insurance pool option is that it would ensure that all householders would qualify for flood cover. However, the downside is that there would have to be an increase in household premiums for policyholders in low and medium risk areas as well as a capped contribution by the high-risk houses to be covered by the pool.
- 3.13 As pointed out in the previous paragraphs, we have assumed that on average 15% of high risk houses would be flooded in a year. Based on a cost of between €17 million and €31 million for such events, the pool would require an **annual levy of between €13 and €24 per household insurance policy** in order to meet the cost of claims. This range of levy is calculated on the basis of 1.3 million household insurance policies in place in Ireland as per data provided from Insurance Ireland.
- 3.14 In percentage terms a levy of between €13 and €24 would equate to an **extra 3% to 5% on top of each household insurance policy**.²⁷ This would be in addition to 3% Stamp Duty and 2% Insurance Compensation Fund levy currently applied to Non-Life insurance premiums.
- 3.15 Flood Re in the UK has been established to cover up to 500,000 households which is approximately 2% of the 26.7 million households in the UK. If an Irish insurance pool was established and demand led to the percentage of houses covered being pushed up to 2% of households in Ireland, then using the same assumption as above, **the average annual levy would range from €39 to €73.50** which would add an **additional 9% to 16%** on top of each household insurance policy.
- 3.16 The levy calculation **excludes any administrative costs** from handling the claims and any other running costs of managing the pool which would also need to be covered.

Arrangements for Backstop

- 3.17 To ensure that the insurance pool is not overwhelmed by claims arising from an event that would impact greater than 15% of the high risk households in any one year, it will require a form of backstop. The backstop can take two forms, the first is to enter into a reinsurance contract to provide additional cover, and the second would involve a State backstop.

(a) Reinsurance backstop:

Obtaining a back-stop via re-insurance contracts would require premiums to be paid to reinsurance companies. This cost would be in addition to the estimated levies which would not be sufficient to obtain the necessary reinsurance cover in the case of extreme events. For example where close to all high risk households are impacted in one year, there would be an exposure seven times higher than the annual proposed levy contribution.

While Flood Re in the UK²⁸ managed to avail of reinsurance due to the liquidity of the reinsurance market in the UK, it must be borne in mind that Ireland has a smaller market and much more limited reinsurance options. Entering into a reinsurance contract would only provide a set level of cover. Any losses above that set level would have to be covered from another source. In the UK, if losses exceed the level of re-insurance cover Flood Re has obtained, there can be an additional “top-up levy” imposed on industry to cover those losses. In France, the State compensates insurers if losses are above a certain level.

²⁷ This is based on the average cost of a household insurance policy of €468 calculated from the Central Bank of Ireland Insurance Statistics 2014.

²⁸ In the United Kingdom the UK Flood Re model, which began at the start of April 2016, follows a pooling arrangement. Fuller details on this scheme are provided in the next part of this report.

(b) State backstop:

An alternative to entering into reinsurance contracts would be for the State to provide support to the insurance pool if the annual levy and any reserves are insufficient to absorb insurance claims made against the pool.

3.18 The State would then be facing a contingent liability via the backstop it is providing the insurance pool of between €97 million and €185 million at least. This is based on the 8,547 houses (equating to 0.65% of all houses insured) identified as high risk with regard flooding all being impacted by a flood event in one year and taking into account a minimum levy amount of between €17 and €31 million absorbing some of the losses. It is important to note that Flood Re in the UK, while initially covering 350,000 houses (1.3% of all houses) was, in fact, established to cover up to 500,000 houses equating to roughly 2% of all houses. **If the number of houses to be covered by a pool in Ireland was pushed out by demand to cover a similar proportion of insured properties we would be looking at a State exposure of between €339 million and €542 million.**

3.19 Consideration would have to be given to how such support can be provided within State Aid rules and does not impact the budget debt and deficit numbers. This would require any support from the State to be in the form of a loan with set terms and conditions regarding maturity and interest rates. A precedent for this approach is the Exchequer advances to the Insurance Compensation Fund, which is then paid back with interest over a period of time via levies on non-life insurance policies. However, repayment of State funding over time would require higher levies applied to all household insurance policies, which would further increase the cost of insurance to all non-life policyholders.

3.20 In the US the National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA) which works closely with private insurance companies to offer flood insurance to property owners and renters. The NFIP was designed to be financially self-supporting via premiums collected from policyholders but, faces a current indebtedness of the fund amounting to \$23 billion.

Data requirements for insurance pool

3.21 Consultation with both industry and the Central Bank of Ireland has highlighted that significant historical data would be required on flooding experience prior to the implementation of an insurance pool and extensive statistical work would need to be done to justify the level of premium that would need to be paid into the pool in order to cover flooding costs. Thus the insurance pool would require significant specialist background work to be carried out before it could be considered feasible. Information would feed into the calculation of the level of premium to be charged for such a scheme and, to identify what areas should be covered. This would have to be constantly updated to reflect the introduction of new flood defences or other environmental changes.

3.22 The issue of the lack of proper modelling based on historical data as well as detailed mapping would also be an obstacle in sourcing reinsurance cover. Such modelling would be crucial in terms of persuading the reinsurance industry to provide reinsurance to the pool.

3.23 In the case of the State proving a backstop, this detailed information would still need to be calculated in order to determine what potential exposure the State was taking on.

3.24 The level of background work required to set up a flood pooling scheme can be seen in the length of time required to set up Flood Re in the United Kingdom. Discussions between the UK Government and the insurance industry began in 2011 and with a “go live” date of April 2016, there was a gestation period of five years.

Set up costs/planning/moral hazard

- 3.25 The analysis we have undertaken does not take into account the potential set-up costs of an insurance pool. The best indication we could obtain is the experience of the UK. The set-up costs of Flood Re were £21 million and these were initially estimated, during the impact assessment stage as being between £6 and £12 million. Any set up costs would have to either be absorbed by the State, which would require the funds to be sourced from Exchequer funds, or from the levies collected by the insurance pool over time. The latter option would mean a further additional increase in the size of annual levies. The bulk of the Flood Re £21 million set up costs appear to have been fixed costs e.g. legal and consultation fees to meet regulatory requirements, data systems as well as the non-Executive Director requirements and actuarial costs.
- 3.26 A by-product of the insurance pool option is that it may encourage the building of houses in inappropriate areas because insurance cover would be guaranteed no matter what the risk of flooding is. To ensure that the number of houses to be covered by the insurance pool did not continue to rise after set-up, it would be essential to ensure that the number of houses at high risk each year did not continue to increase so this may involve revision of planning laws.
- 3.27 Another problem with this solution is that of “moral hazard” or the lack of incentive for the householder to take steps to further mitigate against flood damage in their home.
- 3.28 The insurance pool has the benefit of providing cover to the high risk households identified under the OPW CFRAM analysis. It does so by imposing costs on low and medium risk households via additional insurance levies. There are also significant set-up costs and running costs that would have to be considered. Also the State may have to provide a backstop to the insurance pool in the case of extreme events. These set-up and running costs, increases on all household insurance policies and backstop or potential contingent liabilities for the State, would be incurred to insure protection against flooding for the target group of 8,547 households or 0.65% of all households.²⁹
- 3.29 As with all of the options we have considered, there will continue to be a need to invest in flood defences across the country even if a flood pooling option was implemented. This would be required in order to reduce the risk of houses being flooded and to reduce the reliance on the insurance pool and any potential State backstop by industry stepping in to provide cover in areas where the risk previously was too high. This is the approach being followed in the UK and Flood Re has been set up as a 25 year scheme with the UK Government continuing to invest in flood defences.

Key Points on Insurance Pool:

- High set-up costs (potentially €25 million) and ongoing running costs.
- Additional 3% to 5% levy on all household insurance policies including households in low and medium-risk areas.
- Potential for State backstop of up to €185 million in a catastrophic flooding event based on 8,547 households covered.
- Potential that demand could push number of houses to be covered up (UK Flood Re allows for up to 500,000 houses or 2% of all households) from 0.65% to 2% resulting in far higher levy and far higher State backstop.

²⁹ Based on permanent private households of 1.65 million from 2011 Census.

Option 2: Expand on Current Approach

3.30 This approach is the continuation of the current Government strategy that has been in place since 2010. This strategy works to improve the availability of flood insurance cover by:

- (a) continuing to prioritise spending on flood relief measures by OPW and relevant local authorities and
- (b) improving channels of communication between OPW and the insurance industry in order to reach better understanding about the provision of flood cover in marginal areas, and how this can allow more effective insurance cover.

This option also has the advantage of being currently in place and benefits both private persons and businesses. Insurance is provided by the private sector, taking account of Government flood protection works.

3.31 This option has resulted in a trend of increasing level of flood insurance availability in areas where the State has invested in flood defences, both fixed and demountable. The continuation of the current policy of prioritising flood defences in areas at risk of flooding will see increasing levels of cover for households based on the exchange of information between OPW and Insurance Ireland. This approach also ensures the provision of targeted emergency humanitarian assistance for households affected in flood events, which has been shown to work in the most recent flood event in December.

3.32 This option also includes the possibility, subject to Government decisions, of continued provision of emergency humanitarian assistance by the State in certain cases where households and small businesses have been flooded and they have no flood insurance, such as in December of 2015. This cost came to just over €4 million. The State emergency humanitarian assistance system is flexible, within certain legal constraints, and can be targeted depending on the areas/sectors impacted. For example emergency assistance has also been provided to farmers for damage to fodder and to agricultural buildings. This provides the potential to target emergency humanitarian assistance to the areas worst affected.

3.33 From a cost perspective, the building of flood defences will have to continue in all options. The cost of these defences are not imposed on insurance policyholders as they come from Exchequer funds as part of the capital expenditure programme. The level of capital expenditure is known, with €430m in total spent or planned to be spent.

3.34 This option ensures the provision of insurance in Ireland remains in the main a service provided by private industry. This is the model seen as preferred in the European Commission report on Natural Catastrophes: Risk relevance and Insurance Coverage in the EU.

3.35 This option will also benefit from the work of the OPW Inter-Departmental Group on Flooding. The final report, of which this paper is part, will provide for policy recommendations from the Departments that are members of the group in order to mitigate the impacts of flood events, resulting in a whole of Government approach to the issue of flooding in Ireland. At Appendix III to this report is the letter dated January 2016 from Insurance Ireland to Department of the Taoiseach setting out the up to date position on flood insurance availability and showing a clear improvement on previous updates.

The OPW / Insurance Ireland MOU

3.36 The 2014 MoU has to date resulted in data being provided from Insurance Ireland three times, January and November 2015 and January 2016. The data received in January 2016, has shown an increase in the level of cover in areas with both fixed and demountable flood defences.

3.37 The existing process of engagement via the OPW and the Department of Finance should continue, with the issue of sharing and granularity of information an area which requires

improvement. There are issues with regard to the provision of data from industry via the MoU and while the provision of flood insurance in areas where the State has spent significant money putting in place flood defences has increased, the rises are small. The full picture of flood availability is as yet less than clear.

3.38 The information provided to date is not very detailed and does not provide the full view of flood insurance penetration rates in Ireland. The returns by the insurance companies only relate to properties that actually have insurance policies of some kind in place. Based on data available from the Household Budget Survey 2010, up to a third of Irish households have no insurance. This is similar to numbers seen in the UK.

3.39 The provision of flood defences is based on mapping undertaken by OPW and constructed on a prioritised basis. However, there is no formal mechanism for transfer of the information that OPW collects during and after flood events which shows the effectiveness of defences, in particular de-mountable flood defences. Information such as this would be valuable to industry in order to feed into their models, allowing them to determine risk and the appropriate price for insuring that risk.

3.40 Also there is a lack of analysis undertaken on the level of flood insurance cover in place prior to flood defences being built. There is reliance, once the defences are built, on numbers provided by industry. This is a gap in information which makes it difficult to determine the benefit accruing to homeowners and the State from the investment in flood defences.

Key Points on the current approach:

- This approach has already been proven to be working with the incremental increase in flood insurance provision throughout the country and, in particular, where flood defences have been built.
- When accompanied by ongoing capital investment in flood defences and the necessary data exchange between the OPW and the insurance industry, the availability of flood insurance will continue to increase.
- This approach is accompanied by appropriate Government decisions on the State provision of targeted emergency humanitarian assistance in each flood event which is adaptable and flexible depending on the nature of that flood event and the types of properties affected.

Option 3: Legislate for Compulsory Insurance

3.41 Legislative options making flood insurance compulsory for all household policies already exist in France and Norway. Two legislative options are considered. Under the first option there is compulsory flood insurance for all and under the second option all policies must include flood insurance, but a number of high risk households are allocated to the insurance sector on a proportionate basis depending on the market share each insurance company has. An obligation target would be set under option two which would be the minimum number of high flood risk households within this group that must be insured at any one time. It is important to note that the pricing, terms and conditions of these policies cannot be set by government or the competent authority as required in Solvency II.

Compulsory provision of flood insurance

3.42 The effect of requiring all household policies to include flood insurance is likely to be minimal as insurance companies under Solvency II must price cover in line with the probability

of a residence or business being flooded. This would mean that where the risk was high, the premiums would have to be expensive. Therefore it is likely the premiums insurance companies would have to charge to insure high risk households could be unaffordable for the majority of the high risk homeowners with the result that the level of flood insurance provision would remain unchanged.

Compulsory provision of flood insurance on a proportionate basis

3.43 Compulsory provision of flood insurance in all household policies on a proportionate basis has the benefit of potentially a less onerous cost of insurance for some high risk households as insurance companies compete with one another to attract high risk households. Insurance companies could price aggressively in order to attract their quota of high risk households. In order to ensure the insurance company is pricing risk on all its policies in a way that it can meet the potential claims, this approach could mean low and medium risk households experience increases in their premiums to compensate for the high risk policies each insurance company would have to take on. This would mean that low and medium risk households would be subsidising high risk households to a degree. The size of this increase would be uncertain, it could change each year and would be determined by the insurance companies.

3.44 The calibration of the obligation target would be very important in ensuring this option would meet the objective of increasing the provision of household flood insurance. A target that is too high would result in an unachievable target for industry. If too low, it will not be achieving the objective of increasing the provision of flood insurance.

3.45 This option of an obligation on insurance companies would result in large administrative costs. It would involve setting up a register of high risk households and establishing a mechanism, which is fair and transparent, to allow homeowners to apply to be added or deleted from the register on production of appropriate documentation. This register, which would have to be based on risk modelling, would also be used in determining the obligation target and an assessment would also be required on what level below 100% to set the obligation at. In order to take account of the high risk households that will refuse or not seek flood insurance.

3.46 In the UK when this option was considered prior to the introduction of Flood Re the estimated one off set up costs were £12-21m with an additional £5-9 million per annum in respect of ongoing administrative costs. These costs were 8% higher than the estimated costs of Flood Re.

Impact on insurance sector from legislative options

3.47 In Ireland the household insurance sector is dominated by six players, all excluding one are part of foreign groups. As outlined earlier, all the major players made underwriting losses in 2015 and imposing a legislative obligation to provide insurance would be an additional pressure on the sector that could have significant unintended consequences.³⁰

3.48 The imposition of compulsory flood insurance could make the Irish market unattractive to market participants. If a company exited the market, there would be fewer firms to share the high risk households under the proportionate option. This could make the provision of flood insurance to high risk households even more expensive, while also increasing the costs on the low and medium risk households, who would be subsidising the high risk households under the option to a degree.

³⁰ The Central Bank of Ireland Macro-Financial Review 2016:I outlines some of the challenges facing the domestic non-life sector such as low investment returns, competition for market share and increasing cost claims.

3.49 Both legislative options are unlikely to achieve the aim of increasing the provision of flood insurance significantly and have the potential to add further pressure onto a sector that is facing a significant number of challenges.

Key points on compulsory insurance:

- Making provision of flood insurance compulsory will have no effect on making it affordable.
- The obligation option would require the setting up of an agency to maintain the database of all houses to be covered and to ensure individual companies are meeting their obligation.
- Making it compulsory on a proportionate basis would, more than likely, result in a knock-on effect on the cost of insurance premiums for those in low to medium-risk areas as industry will need to re-calibrate its risk modelling to meet its solvency requirements.
- Potential loss of insurance undertakings to the Irish market.

Annex 3. Summary by Country 2016

<u>Country</u>	<u>Status in 2016</u>
Australia	<p><u>Commercial Provision / Memorandum of Understanding</u></p> <p>Flood insurance is provided on a commercial basis with no direct state involvement – coverage has traditionally been very low, with only 3% of home insurance policies in 2006 having flood cover. Following major floods in 2011 (cost AUD 2.4 billion), it was proposed to make flood insurance mandatory. However, insurers began working closely with local/state governments to share flood hazard information and create a risk database fully funded by industry. By 2013, 83% of home insurance policies included flood cover.</p>
Denmark	<p><u>Government Scheme</u></p> <p>There is a national flood insurance scheme for <u>coastal flooding</u> that is funded by a levy on fire insurance policies. A storm council decides whether or not compensation will be paid after each coastal flood event.</p>
France	<p><u>Mandatory Insurance / Government Guarantee</u></p> <p>Insurance against flooding and other natural hazards is mandatory in building and home contents insurance. It is a public-private partnership model with almost 100% penetration, and an unlimited government guarantee to insurers. The system is underpinned by a Central Reinsurance Fund. It is responsible for designing implementing and managing instruments to meet the coverage of exceptional risk including reinsurance for natural disasters</p>
Germany	<p><u>Commercial Provision</u></p> <p>There is no nationwide compulsory insurance for floods and it is usually excluded from normal policies. Penetration varies widely by state, with rates between 27% (Bayern) and 95% (Baden-Württemberg). After large flood events in 2002 and 2013, damages were mostly paid by the government from general taxation.</p>
Netherlands	<p><u>Commercial Provision</u></p> <p>Most of the country is considered uninsurable (as it is located below sea level), though there are considerable flood defences built to a 1-in-8,000 year standard. In 2012, a subsidiary of Lloyds began offering flood insurance</p>

	<p>– though generally the Government provides compensation for flooding on an ad hoc basis.</p>
Norway	<p><u>Mandatory Insurance / Government Guarantee</u></p> <p>Natural disaster (including flood) cover is mandatory for property insurance. The government has a fund to compensate insurers for losses from flood events. Premiums across Norway are equal, so there is no disincentive for the building of properties in flood risk areas.</p>
United Kingdom	<p><u>Insurance Pool / Government Scheme</u></p> <p><i>Flood Re</i> is a not-for-profit fund managed and financed by the insurance industry (via a levy on policyholders). It is being developed to provide affordable flood cover to homeowners in high risk areas. The scheme does not include commercial properties, apartments or homes built after 2009. <i>Flood Re</i> is due to run until 2039, when it envisioned benefitting homeowners will have to buy insurance at market rates. The model is examined further, in detail, below.</p>
United States	<p><u>Government Scheme</u></p> <p>The National Flood Insurance Program works with private insurers and local communities (which agree to enforce sound floodplain management standards). Rates are set and do not differ by company – only individuals living in participating communities can purchase flood cover. The scheme is designed to be financially self-sufficient but in 2016 had a debt of USD 23 billion. The model is examined further, in detail, below.</p>



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