Flooding

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Contents

1 Summary and Key Points

The Green Party's flooding policy is one that protects communities from the effects of flooding, while having regard to our duty to protect ecosystems. Achieving this requires adopting a holistic approach to flood management that includes prevention and mitigation through nature based solutions, urban design, and defensive measures for areas already at risk.

Our key objectives are:

- The approach to flooding needs to be on a catchment-wide basis, using upstream land to provide storage of stormwater runoff and adopting nature-based solutions to manage river catchments.

- Adopt Water Sensitive Urban Design principles for public realm projects in towns and cities.

- Use "grey" infrastructure (such as flood walls, pipes, culverts) for flood defences only where necessary.

- Develop a warning system for floods that includes increasing the number of sensors measuring rainfall, river water levels, and localized alert notifications.

- Initiate a programme raise awareness and educate individuals and businesses in flood risk areas about actions they can take in advance of flooding, to mitigate the risk.

- Develop a strategy of "building back better" to improve resilience after a flood occurs.

2 Policy

2.1 Introduction

The prospect of being flood is terrifying for most of us. A flood has the potential to destroy all of our possessions and our livelihoods. More tragically, a severe flood can take lives. The severity of floods around the world is increasing, thanks to climate change and urbanization.

Discussions on flooding frequently become polarized into two points of view. On the one hand, there can be a tendency to only consider “hard engineering”, ie concrete walls, culverts, pipes, dams etc, while ignoring the many natural ways that flood damage can be averted. Advocates of hard engineering solutions often do so as a reaction to an immediate flood risk, which is understandable. However, adopting a reactionary stance can result in a failure to consider the full river catchment and the possible downstream ramifications of constructing flood defences. It also does little to enhance and protect biodiversity.

The other point of view is that nature-based solutions are the only option, and that concrete is to be avoided at all costs. If we had never built on floodplains, then we could take this approach, but the reality is that humans have always settled near rivers, and this sometimes necessitates the construction of walls or other flood defences.

We believe a middle ground needs to be found, which considers the river as a whole, using nature-based solutions where possible, and building walls and similar defences where necessary.

Whole-catchment approach

A catchment is an area where water is collected by the natural landscape and flows from source through river, lakes and groundwater to the sea. It is preferable to consider the catchment as a whole when considering flood risk. The National Catchment-based Flood Risk Assessment and Management (CFRAM) Programme, was designed to take a whole-catchment approach, focusing on managing flood risk, rather than simply implementing flood protection measures. This approach recognizes that measures taken upstream have effects on communities living downstream. [1]

Make room for our rivers

The Netherlands has long been a world leader in flood protection. However, during the 1990s, the country experienced severe flooding. This was the motivation to start its “Room for the River” programme in 2007. The programme consisted of 30 projects, with the aim of managing water levels in rivers by lowering the levels of flood plains, creating water buffers, relocating levees, increasing the depth of side channels, and the construction of flood bypasses. [2]

In July 2021, an acute flood event in Germany, Belgium and the Netherlands resulted in more than 200 fatalities. However, none of these deaths occurred in the Netherlands. It would appear that the Room for the River project was successful in this regard, and there have been recommendations that the programme be extended to river tributaries as a "Room for the Brooks" project. [3]

A project in Somerset to return coastal land to the sea, in the form of salt marshes, has proved to be beneficial for both flooding and wildlife. A possible additional benefit of this type of initiative is carbon sequestration in the salt marsh. [4]

The Green Party believes that current flood protection planning by the OPW must be urgently reviewed to reflect the increasing likelihood of more extreme sea level rise scenarios and more frequent extreme storm surges, including rises of up to or exceeding two meters. Existing assessments may underestimate the long-term risks posed by climate change, particularly to low-lying areas of Dublin. All options - including nature-based solutions and the construction of a moveable barrage to protect the Liffey Basin – require urgent consideration and a coordinated, effective response from all relevant agencies of State. These measures must be part of a nationwide response to sea level rises, and should be included in the State's Infrastructure Plan.

Natural water retention measures

A number of communities in Ireland and in other countries are looking at alternatives to traditional flood defences. The Inishowen Rivers Trust has implemented natural water retention measures such as leaky dams to reduce flood risk downstream. [5]

In the UK, the "Slow the Flow" project at Pickering, Yorkshire was conducted with the expectation that it would reduce the frequency of future floods in Pickering, as well as deliver a range of other benefits to the local environment and community. Research carried out by Forest Research into the December 2015 floods in the area concluded that the Slow the Flow project reduced the flood peak by 15-20%. [6]

A similar approach taken in Gissing, Norfolk is also proving successful. [7]

Where farmers and landowners implement natural water retention measures on their land, they should be fairly compensated for this, through grants.

It has been demonstrated that natural water retention measures improve water quality and can be effective at reducing flooding in small catchments for frequent floods, that is, in catchments less than 10km^2 and for floods with a one in ten chance of occurring in any given year. [8]

Trees and woods play a vital role in reducing flooding by slowing down the flow of rainwater, absorbing rainwater and reducing erosion. The role that trees and woods can play in flood mitigation is absent from our national Forestry Strategy 2023-2030 and is peripheral to the OPW's Flood Risk Management Strategy. A coordinated approach between the Department of Agriculture and the OPW is essential to developing tree planting as a Nature Based Solution for Catchment Management.

Water Sensitive Urban Design

In urban areas, we need to move away from the mindset of considering rainwater to be a nuisance to be removed as quickly as possible. Water needs to be taken into account when planning our towns and cities.

Sustainable Drainage Systems (SuDS) are a welcome innovation, as they are more sustainable than traditional rainwater drainage systems. Ideally, SuDS will achieve the following aims:

- Reduction of water quantity entering sewers
- Improvement in water quality
- Amenity benefits
- Biodiversity enhancement

The Green Party would like all buildings as far as practicable to collect and use rainwater (such as for flushing toilets), to be implemented by means of the Building Regulations and City and County Development Plans. This would both reduce the demand for treated water and help alleviate pluvial flooding in urban areas, by increasing rainwater storage capacity.

However, many designers concentrate solely on reduction of water quantity, ignoring the other criteria. This can result in overuse of attenuation tanks, rather than systems with biodiversity or amenity benefits.

In addition, SuDS can be an afterthought in the design process. The Water Sensitive Urban Design Best Practice Interim Guidance Document advises that the aim is to have nature-based solutions to the management of rainwater and surface water runoff in urban areas as an integral part of the overall urban design, rather than as stand-alone features or “SuDS features”. [9]

Traditional “grey” infrastructure

The most common and well-known method of flood protection is “grey” infrastructure, such as flood walls, culverts and bigger pipes. The Green Party acknowledges that these defences are sometimes required, particularly for larger floods. However, they should only be used where other methods are insufficient.

Collecting data and informing the public

The OPW runs a network of hydrometric stations, which record river levels. However, not all rivers have sensors on them, so the data is not as comprehensive as it could be. We would like to see an extension of this network, to include more rivers. [10]

Detailed information about flood risks is being shared with local authorities ahead of heavy rainfall events, but this is not shared with the general public. An early warning system for flooding events should be rolled out to inform the public of possible risk.

Research in Germany by Apel et al (2022) concluded that during the devastating July 2021 flood, lives could have been saved had hydrodynamic modelling been place, since disaster management could have been targeted to the areas most in need. [11]

Building back better
Unfortunately, we need to acknowledge that some floods will happen, regardless of the protection measures that are in place. After the trauma of a flood, households, businesses and communities will need to reconstruct what was destroyed.
After the 2021 flood in Germany, a study by Birkmann et al of the Ahr Valley found that "building back better" strategies needed to be adapted. Some examples were identification of water retention areas on public land and replacement of bridges.

Another measure identified was financial assistance to householders to replace oil-fired heating systems with renewable systems. As well as being a climate mitigation measure, this was identified as risk reduction, since the 2021 flood damaged many household oil tanks, which polluted the flood water. [12]

2.2 Principles

1. The approach to flooding needs to be on a catchment-wide basis

2. Implement a Dutch-style "Room for the River", where rivers' natural flood plains are restored in the least vulnerable areas, in order to protect communities that need defending.

3. Use of natural water retention measures such as leaky dams to manage river catchments in upland areas, as has been done in Inishowen, Co. Donegal.

4. Provide grants for farmers and landowners to improve water retention / catchment of land adjacent to rivers and in natural flood plains.

5. Adopt Water Sensitive Urban Design principles for public realm projects in towns and cities.

6. Traditional "grey" infrastructure (such as flood walls, pipes, culverts) for flood defences should only be used where necessary.

7. Increase the network of sensors measuring rainfall and river water levels.

8. Develop a publicly-accessible warning system for floods.

9. Invest in an education programme for those in at risk areas to educate on actions they can take to help mitigate the risk of and potential damage from floods.

10. Develop a strategy of "building back better" to improve resilience after a flood occurs.

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