

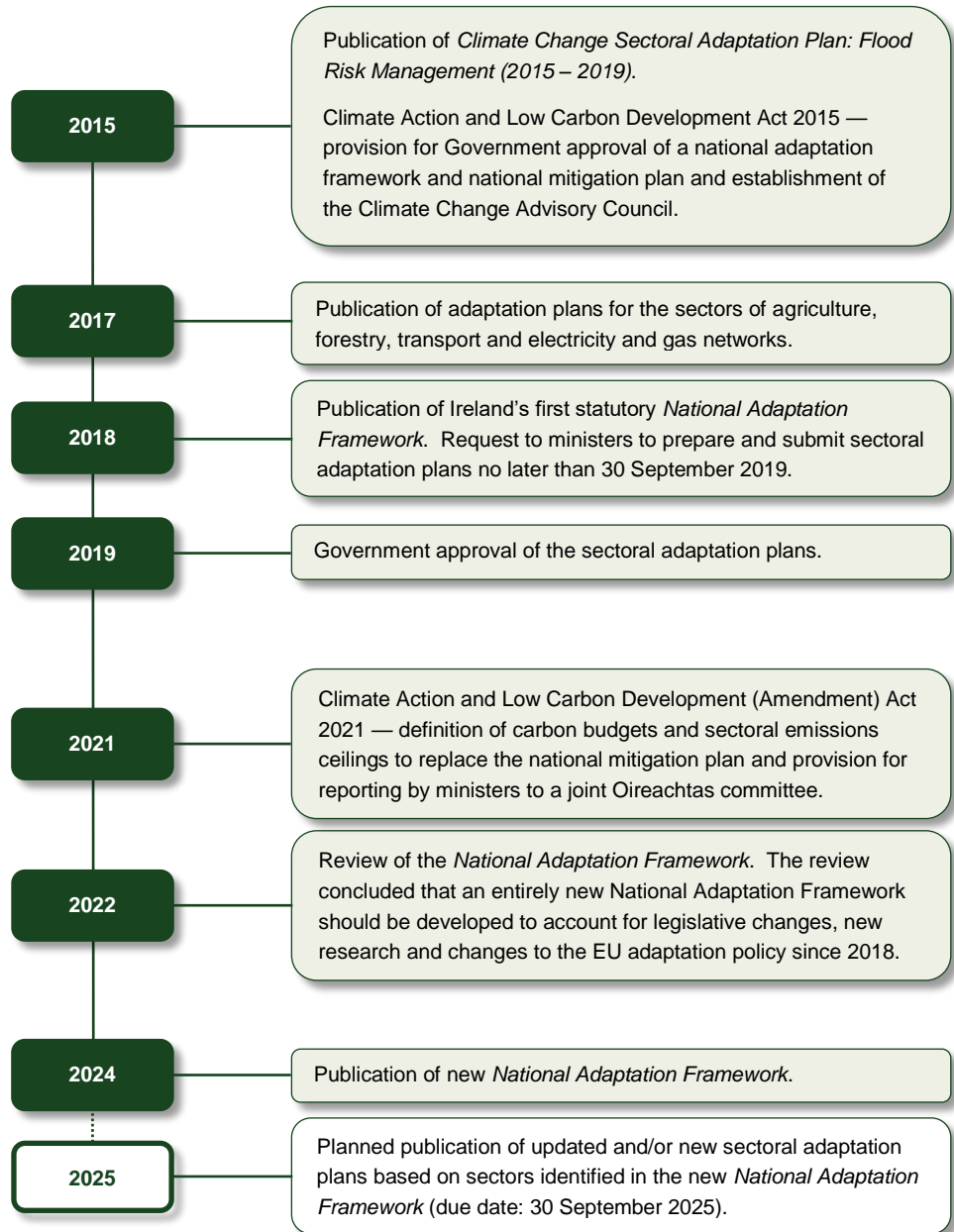
4 Adapting flood risk management to climate change impacts

- 4.1** Climate changes observed in Ireland reflect global trends. The direct impacts of climate change on Ireland include increasing average temperatures, changes in precipitation patterns, sea-level rise and changes in the variability and extremes of storms, flooding, sea surges and flash floods.
- 4.2** Due to the delayed impacts of past and current greenhouse gas emissions, those changes are projected to continue and increase over the coming decades, regardless of how successful efforts to reduce emissions prove to be. This underlines the need to adapt to climate change in addition to mitigating its effects.
- 4.3** As early as 1992, the United Nations Framework Convention on Climate Change (UNFCCC) — to which Ireland is a signatory — set out the commitment to formulate, implement, publish and regularly update national and regional programmes containing measures both to
- mitigate climate change, and
 - facilitate adequate adaptation to climate change.¹
- 4.4** Under Article 7 of the 2015 Paris Agreement, Ireland further committed to contribute to the ‘global goal on adaptation’. Climate change adaptation is the process of adjusting to actual or anticipated changes in climate conditions and their impacts and includes a wide range of actions aimed at
- reducing vulnerabilities
 - enhancing resilience and
 - safeguarding communities and ecosystems against the adverse effects of climate change.
- 4.5** Following Government approval in December 2017, Ireland’s first statutory *National Adaptation Framework* (the Framework) was published and laid before both Houses of the Oireachtas in January 2018 (see Figure 4.1).²
- 4.6** A new *National Adaptation Framework* was published in June 2024. New and/or updated sectoral adaptation plans will have to be prepared and submitted to Government by 30 September 2025.

¹ United Nations Framework Convention on Climate Change, article 4, paragraph 1(b).

² The Minister for the Environment, Climate and Communications was required under section 5 of the Climate Action and Low Carbon Development Act 2015 (the Act) to prepare a national climate change adaptation framework and submit it to Government for approval within 24 months of the passing of the Act.

Figure 4.1 National and sectoral adaptation planning in Ireland, 2015 to 2025^a



Source: *National Adaptation Framework (2018)*; Department of the Environment, Climate and Communications; Office of Public Works

Note: a Ireland's adaptation framework includes the development of local adaptation strategies and plans by local authorities in addition to sectoral adaptation plans. The local adaptation planning process and timeline are not reflected in this graph.

Flood risk management adaptation plan

- 4.7** The Framework identifies 12 priority sectors for which sectoral adaptation plans were to be prepared and submitted to Government for approval (see Annex 4A). The Office of Public Works (OPW) is the lead organisation for the sectoral adaptation plan for flood risk management.
- 4.8** The OPW's *Flood Risk Management Climate Change Sectoral Adaptation Plan* (the Plan) was approved by Government in October 2019 alongside the other sectoral adaptation plans prepared under the Framework.^{1,2}
- 4.9** The Plan defines the long-term goal of 'promoting sustainable communities and supporting our environment through the effective management of the potential impacts of climate change on flooding and flood risk'.

Focus of this examination

- 4.10** This examination was undertaken to
- consider the Plan's compliance with relevant national guidelines and requirements
 - review the governance structure in place in Ireland in the area of climate change adaptation, with a particular focus on the flood risk management sector
 - establish what funding and resources have been made available to support the implementation of the Plan
 - assess the progress made in implementing the Plan since its approval by Government in October 2019.
- 4.11** The examination team reviewed documentation and conducted onsite fieldwork at the OPW and interviews with relevant staff in the OPW and the Department of the Environment, Climate and Communications (the Department).

Compliance

- 4.12** Key requirements and criteria in relation to sectoral adaptation planning in Ireland are set out in the Act and in the Framework. Statutory requirements contained in the Act are listed in Figure 4.2.³ The Plan was assessed by the examination team against these requirements and was found to be compliant.
- 4.13** In addition, the Department published *Sectoral planning guidelines for climate change adaptation* in May 2018 to assist bodies in the development of sectoral adaptation plans under the Framework. The guidelines were originally developed as part of an Environmental Protection Agency research project and informed by international best practice.⁴ The Plan is structured in a way that reflects the process and steps defined in the sectoral planning guidelines.

1 All the sectoral adaptation plans were submitted for approval in a joint memorandum for the Government presented by the Minister for the Environment, Climate and Communications.

2 The OPW had previously developed a sectoral adaptation plan for flood risk management on a non-statutory footing — *Climate Change Sectoral Adaptation Plan: Flood Risk Management (2015 – 2019)*, November 2015. The 2019 Plan updates this earlier sectoral adaptation plan.

3 The Climate Action and Low Carbon Development (Amendment) Act 2021 was not in place when the Framework and sectoral adaptation plans were being developed.

4 Environmental Protection Agency, Research 258: *The Development of an Irish Climate Information Platform (ICIP) — Phase 3 (2015 – 2017)*. The full report can be found [here](#).

Figure 4.2 Key statutory sectoral adaptation planning requirements**Climate Action and Low Carbon Development Act 2015**

Submit a sectoral adaptation plan for Government approval by 30 September 2019

Consult with other ministers as specified by the Minister for the Environment, Climate and Communications

Consult with the Environmental Protection Agency

Consult with the Climate Change Advisory Council

Hold a public consultation on the draft sectoral adaptation plan

Source: Analysis by the Office of the Comptroller and Auditor General

Climate change adaptation actions

4.14 The Plan identifies 21 actions to deliver on the adaptation goal and on the objectives set for the flood risk management sector (see Annex 4B). Responsibility for carrying out climate change adaptation within the sector is established at the level of individual adaptation actions — the Plan identifies one or several stakeholders responsible for the implementation of each action.

4.15 A total of 15 organisations and stakeholder groups are assigned responsibility for implementing the 21 adaptation actions set out in the Plan. The OPW is responsible — solely or jointly — for the highest number of actions (see Figure 4.3).

Figure 4.3 Actions for which identified stakeholders are responsible^{a,b}

Agencies	Enhancing our knowledge and understanding									Adapting practices						Cross-sectoral adaptation					
	1.A	1.B	1.C	1.D	1.E	1.F	1.G	1.H	1.I	2.A	2.B	2.C	2.D	2.E	2.F	3.A	3.B	3.C	3.D	3.E	3.F
Office of Public Works	●	●	●		●	●	●	●	●	●	●		●	●	●	●	●			●	
Local authorities	●			●	●							●			●			●	●	●	●
Uisce Éireann				●	●	●												●	●		
DHLGH																●			●	●	●
Waterways Ireland				●	●													●			
ESB				●	●													●			
Met Éireann						●														●	
EPA	●					●															

● Jointly responsible ● Solely responsible

Source: *Flood Risk Management: Climate Change Sectoral Adaptation Plan (2019)*. Analysis by the Office of the Comptroller and Auditor General.

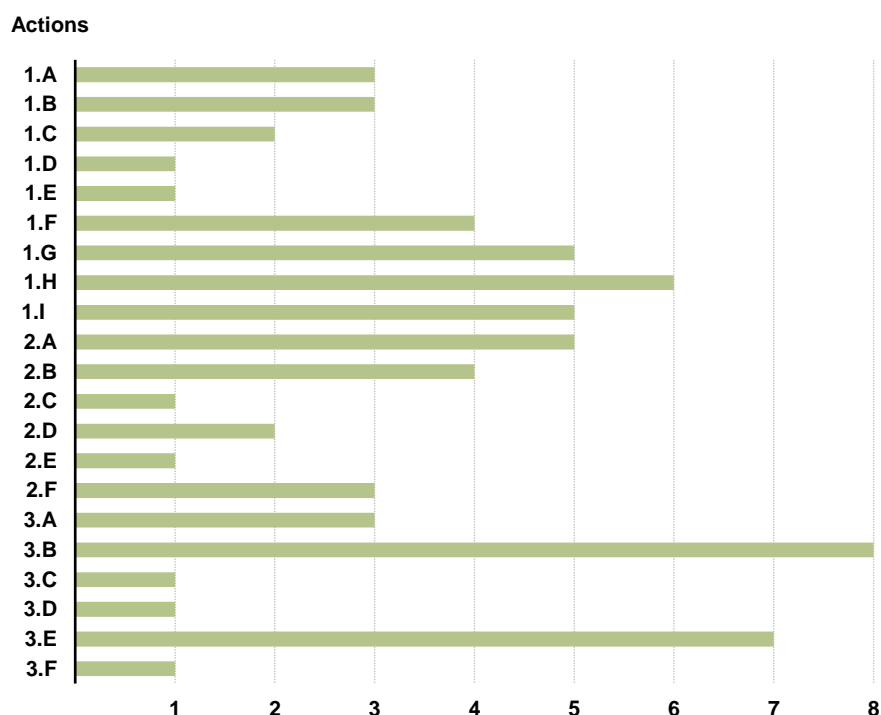
Notes: a Only includes bodies responsible for the implementation of more than one of the adaptation actions set out in the Plan. See Annex 4B for other jointly responsible bodies.

b Acronyms: DHLGH = Department of Housing, Local Government and Heritage; ESB = Electricity Supply Board; EPA = Environmental Protection Agency.

Monitoring of progress

- 4.16** The OPW is ultimately responsible for preparing and reviewing the Plan as well as for monitoring and reporting on progress made in implementing the adaptation actions. The OPW uses a tracker to monitor the progress of the actions set out in the Plan.
- 4.17** The tracker includes all 21 adaptation actions and is further broken down into sub-actions contributing to the progress of each action (see Figure 4.4). Sub-actions are assigned a delivery date and progress status: complete; on schedule; or behind schedule.
- 4.18** New sub-actions may be identified and added to the tracker when new projects or work programmes commence. Sub-action delivery dates that are not set by external obligations (e.g. the EU Floods Directive six-year cycle) may also be amended to reflect ongoing developments and changing work plans.¹
- 4.19** By March 2024, the OPW had identified 67 sub-actions contributing to the delivery of the Plan's 21 actions. As recorded by the OPW
- 37 of the sub-actions were complete
 - 27 sub-actions were in progress and on schedule
 - three sub-actions were in progress but behind schedule.
- 4.20** No formal reporting mechanism is in place whereby the OPW receives periodic progress reports from the organisations responsible for implementing the adaptation actions. Instead, ad hoc updates are obtained through the flood risk management governance groups, the steering groups/committees of individual projects or work programmes on which the OPW sits, or informal communication with the responsible bodies.

Figure 4.4 Number of sub-actions under each adaptation action as at March 2024



¹ Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks is commonly referred to as the EU Floods Directive.

- 4.21** The tracker is the key information source when briefings and progress reports on the implementation of the Plan are provided by the OPW to external stakeholders. The examination team reviewed the progress updates recorded in the tracker and confirmed that sufficient evidence was in place to support them (see case study).

Case study: embedding climate change adaptation in existing and future flood relief schemes

A number of actions set out in the Plan seek to ensure that the potential future impacts of climate change are taken into consideration in the design and construction of flood relief schemes in Ireland. Activities undertaken by the OPW to progress the implementation of those actions are examples of 'soft' adaptation measures as they aim to embed adaptation within existing flood risk management practices.

In 2019, the OPW amended its tender specification document for flood relief scheme engineering and environmental consultancy services to include requirements to

- assess and consider the potential impacts of climate change in the development and design of the options for a preferred scheme (action 1.H)
- produce a scheme climate change adaptation plan as part of the design of new flood relief schemes (actions 1.H and 2.B)
- produce maps detailing the potential for natural water retention measures and carry out a feasibility assessment of the implementation of specific types of natural water retention measures to provide some degree of flood risk reduction in the area under consideration (action 3.B).

In December 2023, the OPW published technical guidance notes for the development of adaptation plans for both new and existing flood relief schemes (actions 2.A and 2.B). Scheme climate change adaptation plans must identify actions that could be taken to manage flood risk in the future, what should trigger a future decision on these actions and when that decision may be required.

All new flood relief schemes developed under the National Development Plan 2018 – 2027 capital works programme are expected to have a scheme climate change adaptation plan. As at early March 2024, the OPW had received and reviewed such a plan in relation to just one scheme.

In addition, a business case for the preparation of scheme climate change adaptation plans for already existing flood relief schemes was presented to OPW senior management in Q1 2023 (action 2.A). A total budget of €10 million was approved for the development of 41 plans covering all 58 OPW-funded flood relief schemes under construction or completed to date in Ireland.

The business case sets out a five-year programme of works to be completed by the end of 2027. It provides for eight scheme climate change adaptation plans to be developed in-house by the OPW, and 33 scheme climate change adaptation plans, grouped into six bundles, to be developed by external suppliers. The OPW is planning to go to tender to commission the first bundle of scheme adaptation plans in September 2024.

Development of climate change adaptation indicators

- 4.22** In 2018, the Framework identified the development of appropriate national, sectoral and local level climate change adaptation indicators as a priority for Ireland to enable the monitoring and assessment of progress on adaptation. As at June 2024, a set of national adaptation indicators had not been defined.
- 4.23** The Department stated that the optimum approach for any set of national indicators is to be aligned with EU indicators and EU reporting requirements, and that the EU is currently considering an approach to this question.
- 4.24** The Plan states that it is preferable to measure outcomes rather than outputs, but recognises that outcomes in relation to climate change adaptation will often take many years or decades to realise and may be difficult to quantify. In these circumstances, process-based indicators may be used to ensure that planned actions are at least being implemented.
- 4.25** The OPW's Accounting Officer stated that its monitoring of implementation via the progress tracker and subsequent reporting to the Climate Change Advisory Council might be considered as serving the same function as process-based indicators.¹

The OPW's interim adaptation indicators

- 4.26** The Plan notes that pending the adoption of a national set of adaptation indicators, five interim indicators would be used to measure progress in implementing climate change adaptation in flood risk management. Figure 4.5 shows the status of the Plan's five interim adaptation indicators, as assessed by the OPW, at the time of publication of the Plan in 2019 (i.e. baseline) and as at the end of 2023.
- 4.27** Two of the interim indicators relate to flood mapping. By the end of 2023, full implementation of the planned mapping had been achieved. In contrast, the status of two of the interim adaptation indicators, both related to climate change adaptation planning at individual flood management scheme level, reflected very little or no progress between 2019 and 2023.
- 4.28** The OPW's Accounting Officer stated that the necessarily sequential delivery of actions and associated timelines set out in the Plan should be considered when assessing the progress reflected in the interim indicators. For example, in respect of
- Indicator 3: the number and percentage of **completed flood relief schemes** for which appropriate adaptation options have been assessed and/or for which scheme adaptation plans have been prepared — a pilot project to develop an efficient and effective approach to the preparation of scheme adaptation plans for completed flood relief schemes was carried out in 2022. Following this, it was then necessary to identify lessons learned to develop guidance and prepare a brief setting out the required approach, and to then implement a national programme of delivery. The target for completion of this work is 2027, as set out in the Plan.
 - Indicator 4: the number and percentage of **flood relief schemes under construction** for which appropriate adaptation options have been assessed and/or for which scheme adaptation plans have been prepared — the time from initiation of a flood relief scheme project to construction will be in excess of five years. The new schemes for which this action in the Plan would have been included in the project brief would have commenced only since 2019, and construction of these schemes would only start from 2024 onwards at the earliest.

¹ The Climate Change Advisory Council is an independent advisory body tasked with assessing and advising on how Ireland can achieve the transition to a climate-resilient, biodiversity-rich, environmentally sustainable and climate-neutral economy.

Figure 4.5 Status of the OPW's flood risk management adaptation indicators, 2019 and 2023

Indicator	2019	2023
1 Length and percentage of coastline for which flood mapping has been prepared and published for two or more future scenarios	Approximately 1,300km 23%	Approximately 5,800km 100%
2 Length and percentage of river reach (with a catchment area greater than 5km ²) for which flood mapping has been prepared and published for two or more future scenarios	Approximately 6,700km 20%	Approximately 33,000km 100%
3 Number and percentage of completed flood relief schemes for which appropriate adaptation options have been assessed and/or for which scheme adaptation plans have been prepared ^a	— 0%	1 flood relief scheme 2%
4 Number and percentage of flood relief schemes under construction for which appropriate adaptation options have been assessed and/or for which scheme adaptation plans have been prepared ^b	— 0%	— 0%
5 Number of properties (residential and commercial) benefiting from a flood relief scheme for which appropriate adaptation options have been assessed and/or for which scheme adaptation plans have been prepared (outcome indicator) ^c	Not available	Not available

Source: Office of Public Works

- Notes:
- a As set out in the Plan (action 2.A) and under the five-year programme of works adopted by the OPW in 2023, the target for completion of this work is 2027.
 - b The OPW stated that construction of these schemes would only start from 2024 onwards at the earliest.
 - c Measurement for this indicator is dependent on the progression of the work under actions 2.A (expected completion 2027) and 2.B (ongoing since 2019) of the Plan. As these actions are not complete, information is not available on this adaptation indicator.

EPA pilot project on indicators for the transport sector

4.29 A research project undertaken by the Environmental Protection Agency (EPA) on selecting and using indicators of climate resilience was in progress when the sectoral adaptation plans were being prepared.¹ The EPA's research project was completed in 2021, and identified a total of 127 potential indicators. The report recommended the selection of an appropriate subset of the indicators, and testing of their implementation in a pilot study.

4.30 The EPA report on the pilot study, which focused on the transport sector, was published in July 2024. It includes a proposed set of indicators for the transport sector, as well as lessons learned and recommendations for the other sectors to help them in the process of identifying and implementing their own climate change adaptation indicators.

¹ Environmental Protection Agency, Research 379: *Policy Coherence in Adaptation Studies: Selecting and Using Indicators of Climate Resilience*. The full report is available [here](#).

- 4.31** The new *National Adaptation Framework* published in June 2024 stipulates that the methodology developed through the EPA project will be included in the revised sectoral adaptation planning guidelines. Under action 1d of the new Framework, sectors will be required to develop and use appropriate climate change adaptation indicators as part of their sectoral adaptation planning process.

Assessment of progress

- 4.32** Since 2021, the Climate Change Advisory Council (the Council) monitors the implementation of sectoral adaptation plans through the use of an adaptation scorecard. The Council's adaptation scorecard assesses the progress made by sectors in the previous 12 months rather than their overall progress since the publication of the sectoral adaptation plans.
- 4.33** The scorecard assesses the degree to which progress is being made in the implementation of climate change adaptation policy and in increasing resilience under three key topics¹
- **risk, prioritisation and adaptive capacity** — assessing whether identified risks are being addressed, adaptive capacity is increasing, knowledge gaps are being addressed and risks are being monitored
 - **resourcing and mainstreaming** — assessing whether appropriate resources are being applied, long term decisions are taking account of future climate and adaptation is being mainstreamed
 - **governance, coordination and cross-cutting issues** — assessing whether systemic coordination is in place and there is good coherence with other policies.
- 4.34** Progress is reported by the lead organisation for each sector in response to a set questionnaire sent by the Council annually. It is not mandatory for lead organisations to respond to the questionnaire, and evidence to support any response provided is not requested. Sectors are scored under each key topic, and given an overall score, based on the Council's qualitative assessment of the information submitted. Participating sectors are also provided with the opportunity to respond to the Council's preliminary assessment of their progress before their adaptation score is finalised.
- 4.35** The scoring system used by the Council includes five levels of progress — no progress/insufficient evidence, limited, moderate, good, and advanced. The flood risk management sector was attributed an overall score of 'good' each year since the adaptation scorecard was created (see Figure 4.6).

Figure 4.6 Adaptation scorecards 2021 – 2023: flood risk management ratings

Key topic	2021	2022	2023
Risk, prioritisation and adaptive capacity	Advanced	Good	Advanced
Resourcing and mainstreaming	Advanced	Good	Good
Governance, coordination and cross-cutting issues	Good	Moderate	Good
Overall	Good	Good	Good

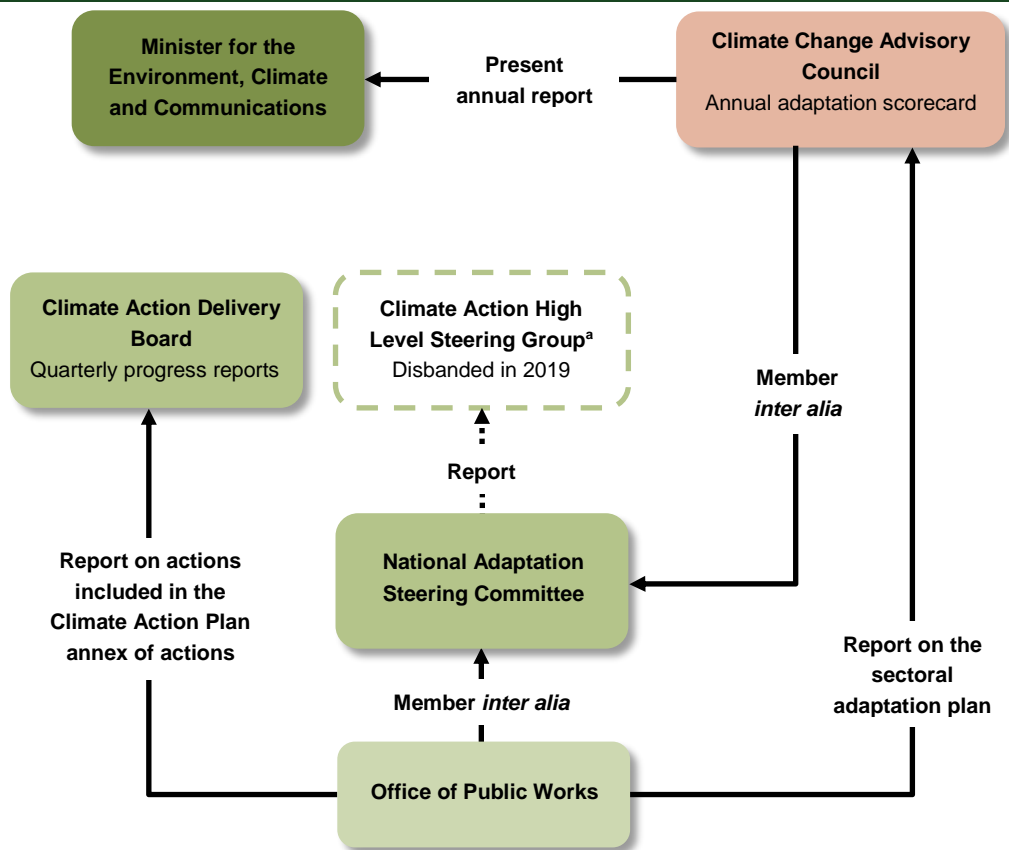
Source: Climate Change Advisory Council's adaptation scorecards, 2021 – 2023

¹ In 2024, the Council adjusted the key topics to be assessed in future scorecards. These topics are now: (i) governance and resourcing, (ii) policy implementation and mainstreaming, and (iii) risk and adaptive management.

Governance

- 4.36 The governance arrangements set out in the Framework have changed over the last number of years. Ireland’s national governance structure in the area of climate change adaptation includes the Climate Action Delivery Board, the National Adaptation Steering Committee and the Council (see Figure 4.7). The key roles and responsibilities of each entity are described at Annex 4C.
- 4.37 The OPW, in its capacity as lead agency for flood risk management in Ireland, is represented on the National Adaptation Steering Committee. The OPW’s Head of the Risk Management and Climate Adaptation Division currently sits on the Council’s Adaptation Committee in an individual capacity. The OPW is not a member of the Climate Action Delivery Board.

Figure 4.7 National governance bodies in climate change adaptation



Source: Analysis by the Office of the Comptroller and Auditor General

Note: a The Climate Action High Level Steering Group — originally named the National Mitigation Plan High Level Steering Group — was set up in 2017 to drive the implementation of the National Mitigation Plan. Its remit was extended to address both mitigation and adaptation following the approval of the Framework. It disbanded in 2019 when the Climate Action Plan replaced the National Mitigation Plan and the Climate Action Delivery Board was established.

Progress oversight and reporting

- 4.38** The Plan stipulates that the adaptation actions it sets out will be reviewed by
- the Interdepartmental Flood Policy Coordination Group
 - the National EU Floods Directive Coordination Group, and
 - the OPW.
- 4.39** The Plan also envisaged an annual review of progress made on each action to inform the presentation of an annual sectoral adaptation transition statement to the Houses of the Oireachtas in line with the Act. However, reporting mechanisms in relation to climate change adaptation have changed considerably since the publication of the Plan in 2019 (see Figure 4.8).

Figure 4.8 OPW reporting on climate change adaptation in the flood risk management sector, 2019 – 2023

Authority / basis	Reporting mechanism and key developments
Climate Action and Low Carbon Development Act 2015	<ul style="list-style-type: none"> ▪ An annual transition statement to the Houses of the Oireachtas. ▪ An annual sectoral adaptation transition statement, to be included in the annual national transition statement. ▪ The OPW provided a brief summary of its sectoral adaptation plan in the annual transition statements presented for the years 2019 and 2020. ▪ Section 14 removed by the Climate Action and Low Carbon Development (Amendment) Act 2021, and with it reporting through annual sectoral adaptation transition statements. ▪ The Climate Action and Low Carbon Development (Amendment) Act 2021 provides for Government ministers to be required to appear in front of a joint committee of the Oireachtas, including to report on the adaptation policy measures implemented as part of sectoral adaptation plans.
Climate Action Plan (CAP) 2019	<ul style="list-style-type: none"> ▪ Quarterly updates to the Climate Action Delivery Board on the implementation of the sectoral adaptation plans (action 181). ▪ Sectors were requested to provide short updates on the adaptation actions within their plan that were ongoing or due for delivery in the upcoming quarter, as well as on any delayed actions from a previous quarter. ▪ The OPW provided such an update twice upon request, in Q3 2020 and Q2 2021. ▪ Action 181 reporting requirement ceased to exist with the publication of CAP 2021.

Authority / basis	Reporting mechanism and key developments
Climate Action Delivery Board	<ul style="list-style-type: none"> ▪ Sectors are invited to put forward actions or sub-actions from their adaptation plans for inclusion in the annual Climate Action Plan. The definition of the type of actions suitable for inclusion has changed and become more restrictive since the publication of CAP 2019. Actions that can be delivered within the lifespan of the Climate Action Plan and are of a high-level, strategic nature are now preferred. ▪ The Board monitors the implementation of the actions set out in the Climate Action Plan. It publishes quarterly reports detailing progress made on actions due for delivery in that quarter. ▪ The OPW provided progress updates on actions under its responsibility four times over 2022 – 2023. Three updates were in relation to CAP 2021 and one in relation to CAP 2023. ▪ Together, these four updates related to just a third of the actions set out in the sectoral adaptation plan.
Climate Change Advisory Council	<ul style="list-style-type: none"> ▪ Since 2021, the Council produces an annual adaptation scorecard to measure progress of the sectoral and local adaptation plans and the implementation of the National Adaptation Framework. ▪ The scorecard is a qualitative assessment of progress made in the previous year as reported by the individual sectors through a questionnaire issued by the Council. The OPW has engaged with this process every year the scorecard has been produced. ▪ The results and main findings of the adaptation scorecard are included in the Council's annual review which is presented to the Minister for the Environment, Climate and Communications. ▪ The Council scored the flood risk management sector's overall progress on adaptation as 'good' in 2021, 2022 and 2023.
Interdepartmental Flood Policy Coordination Group	<ul style="list-style-type: none"> ▪ The Plan is a recurring item on the agenda for meetings but discussion is limited. The OPW provides a briefing note at every meeting including a high level overview of some of its adaptation activities. ▪ More detailed updates on a small number of the adaptation actions are ordinarily provided as separate items on the agenda e.g. the OPW reports on the status of the National Flood Forecasting Warning Service (action 3.E).
National Floods Directive Coordination Group	<ul style="list-style-type: none"> ▪ The OPW provides detailed updates on progress implementing the relevant cycle of the EU Floods Directive at every group meeting i.e. once or twice a year. These updates relate to five of the Plan's adaptation actions (actions 1.B, 1.C, 1.D, 1.E and 1.G). ▪ An update from Met Éireann on the establishment of the National Flood Forecasting Warning Service (action 3.E) is also a recurring item on the agenda.

Source: Climate Action and Low Carbon Development Acts 2015 and 2021; Office of Public Works; Department of the Environment, Climate and Communications; Climate Change Advisory Council. Analysis by the Office of the Comptroller and Auditor General.

- 4.40** The National Adaptation Steering Committee is cited as maintaining oversight of implementation of actions by the relevant sectors. However, while it was used as a forum to share knowledge and provide updates on the preparation of the sectoral adaptation plans in the period leading up to their approval in 2019, sectors do not ordinarily report to the Committee on the implementation of their adaptation plans and actions.
- 4.41** The Climate Change Advisory Council is currently the only national body to which the OPW provides an update on progress made implementing the Plan and all 21 adaptation actions.
- 4.42** The new *National Adaptation Framework* states that a sub-group of the Senior Officials' Group on the Environment and Climate Change was established in October 2023 to review the resources and governance arrangements in place in relation to climate adaptation policy.
- 4.43** The Department stated that the Senior Officials' sub-group's recommendations will be taken into account in the implementation of the new *National Adaptation Framework*, including on how to ensure more effective implementation of adaptation actions across Government.

EU and other international reporting obligations

Report to the EU Commission

- 4.44** Under EU Regulation 2018/1999, Ireland must also report to the European Commission on its national adaptation planning and strategies every two years, outlining its implemented and planned actions to facilitate adaptation to climate change.¹
- 4.45** The Department is Ireland's representative in respect of the UNFCCC and is responsible for complying with Ireland's reporting obligations on adaptation at EU level. The Department's most recent report to the European Commission was submitted by 15 March 2023.

Report to the UNFCCC

- 4.46** Under the Paris Agreement, Ireland is also required to submit and update periodically an 'adaptation communication' to the UNFCCC. This can be submitted and updated as part of, or in conjunction with, other communications or documents, including a national adaptation plan or a national communication.
- 4.47** Ireland's latest National Communication to the UNFCCC was due by 31 December 2022, and submitted in February 2023. The communication contains a chapter on adaptation that includes a high level overview of implementation progress at sectoral level.² The OPW wrote the section about its adaptation plan for flood risk management and assisted the Department when the latter presented the adaptation chapter to the UNFCCC delegation in April 2023.

¹ Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, Article 19. The full text can be found [here](#).

² Ireland's 8th National Communication to the United Nations Framework on Climate Change, May 2023. The communication is available on the UNFCCC [website](#).

Reporting on other goals

- 4.48** The OPW stated that it does not monitor or assess the extent to which the Plan is contributing to other sustainability and/or climate goals to which Ireland is committed (e.g. Sustainable Development Goals; Sendai Framework for Disaster Risk Reduction).

Resources and funding

- 4.49** The Plan does not provide an estimate of the level of funding or staffing required to carry out the 21 climate change adaptation actions. However, it does acknowledge that implementation is subject to the availability of resources within the future budgetary provisions of each body responsible for implementation.
- 4.50** Exchequer funding for the OPW's flood risk management services appears under subhead A.5 of the annual Vote estimate. The budgetary process does not include the specific allocation of funding towards climate change adaptation planning or measures.
- 4.51** The examination team determined that all 21 actions set out in the Plan can be categorised as 'soft' adaptation measures as defined by the Framework i.e. measures that involve alteration in behaviour, regulation or system of management.¹ The Plan, therefore, does not specify any particular physical interventions. In particular, the construction of the flood relief schemes supported by the *National Development Plan 2018 – 2027* — and associated funding allocation of €940 million — is not part of the Plan.
- 4.52** The OPW explained that assessing and tracking direct spending on the Plan is difficult to achieve. This is because its aim is to embed climate change adaptation into flood risk management processes and practices across the public sector. As such, expenditure contributing to the implementation of the Plan is integrated into — and mostly cannot be distinguished from — expenditure incurred on other, ongoing work programmes and projects. The OPW stated that total direct expenditure on the Plan amounted to just under €167,000 to the end of 2023.

Conclusions and recommendations

- 4.53** Climate change adaptation actions are adjustments that are intended to counteract the adverse effects of climate change. The *National Adaptation Framework* (the Framework) was published in January 2018. It identified 12 priority sectors for which sectoral adaptation plans are prepared.
- 4.54** A sectoral adaptation plan on flood risk management (the Plan) was prepared and approved by Government in October 2019. The OPW is the lead agency on flood risk management and has been working on adaptation actions as set out in sectoral adaptation plans for ten years.

Compliance

- 4.55** The OPW's sectoral adaptation plan under the Framework was prepared in compliance with the statutory requirements set out in the Climate Action and Low Carbon Development Act 2015. The structure of the Plan reflects the process and steps outlined in the *Sectoral planning guidelines for climate change adaptation* developed by the Environmental Protection Agency (EPA) and informed by international best practice.

Climate change adaptation actions

- 4.56** The Plan identifies 21 climate change adaptation actions to contribute to the goal and objectives set out for the flood risk management sector. Responsibility for implementing these actions is assigned to 15 different organisations and stakeholder groups, with the OPW being responsible — solely or jointly — for the highest number of actions.

¹ Adaptation measures are categorised as 'soft', 'green' or 'grey'. Green measures use nature-based solutions to enhance resilience to the impacts of climate change. Grey measures involve technical or engineering solutions to climate impacts.

- 4.57** The OPW uses a tracker to monitor and inform reports to external stakeholders on progress made in implementing the adaptation actions set out in the Plan.
- 4.58** While the Plan identifies the groups and bodies responsible for implementing each adaptation action, there is no formal reporting mechanism in place for the OPW to receive progress updates from these stakeholders.

Recommendation 4.1

The next iterations of the flood risk management sectoral adaptation plan should establish formal reporting mechanisms for the OPW to receive progress updates from external stakeholders responsible for individual adaptation actions on a regular basis e.g. quarterly.

OPW's Accounting Officer's response

Agreed.

The OPW will agree actions with relevant external stakeholders in the next sectoral adaptation plan for flood risk management. In doing so, the OPW will also seek agreement on appropriate reporting arrangements to enable the OPW to monitor overall progress across actions.

Timeline for implementation

The update of the *Sectoral Adaptation Plan for Flood Risk Management*; September 2025.

Climate change adaptation indicators

- 4.59** The Climate Change Advisory Council rated the flood risk management sector's overall progress in implementing the Plan as 'good' every year since the creation of the adaptation scorecard in 2021. This is a qualitative assessment based on information provided by the OPW itself and extracted from its progress tracker.
- 4.60** Five interim climate change adaptation indicators in respect of flood management are set out in the Plan. Two of the measures related to flood risk mapping. By the end of 2023, full implementation of the planned mapping had been achieved. In contrast, the status of two of the interim adaptation indicators, both related to climate change adaptation planning at individual flood management scheme level, reflected very little or no progress between 2019 and 2023.
- 4.61** The new *National Adaptation Framework* published in June 2024 stipulates that the methodology used by the EPA in developing climate change adaptation indicators for the transport sector will be included in guidelines that will require sectors to develop and use appropriate climate change adaptation indicators as part of the sectoral adaptation planning process.

Recommendation 4.2

A set of process-based indicators should be developed without delay to allow meaningful monitoring of progress on climate change adaptation and to ensure defined climate change adaptation actions are being implemented.

Department's Accounting Officer's response

Agreed.

The new *National Adaptation Framework* includes an action to introduce in guidelines a requirement that sectoral adaptation plans develop and use appropriate adaptation/resilience indicators to create a fit-for-purpose monitoring, evaluation, research and learning (MERL) system to monitor implementation of climate change adaptation actions and objectives.

While outcome indicators are preferred, these are challenging to develop and process-based indicators can be used in the interim. Work on co-creating a methodology for developing climate change adaptation indicators is ongoing in the transport sector. It is envisaged that the finalised methodology will be utilised as a model by other sectors in the development of the next cycle of sectoral adaptation plans to be completed in 2025.

Timeline for implementation

September 2025.

OPW's Accounting Officer's response

Agreed.

The OPW will comply with the forthcoming sectoral planning guidelines for climate change adaptation, noting that the draft guidelines indicate that indicators should be assigned to each action to allow monitoring of progress and can include

- process-based indicators (that track progress in policy processes and actions),
- output-based indicators (that relate to the direct result of adaptation policy or action without assessing whether the action leads to better adaptation outcomes), and
- outcome-based indicators (that measure the success of an adaptation action, for example a reduction in vulnerability or an increase in adaptive capacity).

Such indicators will complement the existing monitoring of progress undertaken through the tracker.

Timeline for implementation

The update of the *Sectoral Adaptation Plan for Flood Risk Management*; September 2025.

- 4.62** The OPW also monitors and reports on climate change adaptation actions included in the Climate Action Plan, but does not measure the Plan's contribution to other sustainable and climate-related goals.

Recommendation 4.3

The next iterations of the flood risk management sectoral adaptation plan should include consideration of how the plan might contribute to the Sustainable Development Goals. The OPW should also consider including indicators relating to disaster risk reduction and resilience in the plan.

OPW's Accounting Officer's response

Agreed.

The OPW will comply with the forthcoming sectoral planning guidelines for climate change adaptation, noting that the draft guidelines require sectors to consider cross-cutting policy issues spanning thematic areas including disaster risk reduction. While the current draft guidelines do not set out requirements with regards to the UN Sustainable Development Goals, these are noted in the *National Adaptation Framework (2024)* in the context of providing an enabling environment to mainstream climate change adaptation, and the OPW can set out how the *Sectoral Adaptation Plan for Flood Risk Management* can contribute towards these goals.

Timeline for implementation

The update of the *Sectoral Adaptation Plan for Flood Risk Management*, September 2025.

Governance

- 4.63** The OPW reports on progress in relation to the implementation of the Plan at sectoral and national level and contributes to meeting Ireland's reporting obligations to the UNFCCC. However, there is a lack of clarity and continuity regarding what those reporting requirements are at national level in the area of climate change adaptation. There is no regular mandatory or statutory reporting required from the OPW on the implementation of the Plan.
- 4.64** The Climate Change Advisory Council is the only body in Ireland to monitor and review the implementation of the Plan and all 21 adaptation actions in detail. Section 13 of the Act grants the Council, as independent advisory body, the authority to conduct a periodic review of the sectoral adaptation plans and of their implementation at any time it considers appropriate. However, there is no obligation placed on the Council to carry out such a review and there is no formal requirement for the entities responsible for sectoral climate change adaptation plans to engage with the Council's adaptation scorecard assessment process.
- 4.65** The new *National Adaptation Framework* published in June 2024 sets out an updated governance structure. The Department stated that a review of the resources and governance arrangements in place in relation to climate adaptation policy is ongoing. The review is being carried out by a sub-group of the Senior Officials' Group on the Environment and Climate Change established in October 2023, and is nearing completion. The Department stated that the sub-group's recommendations will be taken into account in the implementation of the new *National Adaptation Framework*.
- 4.66** The outcome of the review and the updated *National Adaptation Framework* recently published will help improve and provide clarity on the governance structure for the achievement of more effective implementation of climate change adaptation actions.

Resources and funding

- 4.67** There is no available estimate of the funding and resources necessary to implement the 21 actions set out in the Plan. The budgetary process does not include the specific allocation of funding towards climate change adaptation. The OPW explained that direct expenditure on those adaptation measures most often cannot be distinguished from spending on other work programmes in flood risk management. This limits the transparency around the performance of climate change adaptation activity.

Annex 4A Sectors for which adaptation plans had to be prepared under the National Adaptation Framework^a

Theme	Lead organisation	Sector
Natural and cultural capital	Department of Agriculture, Food and the Marine	Seafood
		Agriculture
		Forestry
	Department of Housing, Local Government and Heritage	Biodiversity
		Built and archaeological heritage
Critical infrastructure	Department of Transport	Transport infrastructure
	Department of the Environment, Climate and Communications	Electricity and gas networks
		Communications networks
Water resource and flood risk management	Office of Public Works	Flood risk management
	Department of Housing, Local Government and Heritage	Water quality
		Water services infrastructure
Public health	Department of Health	Health

Source: National Adaptation Framework (2018)

Note: a A total of nine sectoral adaptation plans were prepared to cover all 12 sectors. The seafood, agriculture and forestry sectors are grouped under one plan, as are the water quality and water services infrastructure sectors.

Annex 4B Flood risk management adaptation actions

Ref.	Action	Responsible ^a	Timeline
Objective 1: Enhancing our knowledge and understanding of the potential impacts of climate change for flooding and flood risk management through research and assessment.			
1.A	Engage with findings and recommendations arising from climate change research initiatives such as the Global Climate Observations System National Committee reports (expected in the next two years) and where possible, align hydrometric monitoring objectives and resources with climate change objectives.	OPW, EPA, local authorities	2021 and ongoing
1.B	Through reviews of the Preliminary Flood Risk Assessment and flood maps, informed by the most up-to-date research and projections of climate change, assess the potential impacts on flooding and flood risk across the country.	OPW	2024 and ongoing
1.C	Review the flood risk, including potential impacts of climate change, for areas designated as being at potentially significant flood risk.	OPW	2020 and ongoing
1.D	Through reviews of the Preliminary Flood Risk Assessment, informed by the most up-to-date research and projections of climate change, assess the potential risk of flooding from urban storm-water drainage systems and from water-bearing infrastructure.	Local authorities, Waterways Ireland, ESB, Uisce Éireann	2024 and ongoing
1.E	The OPW will ensure that its six-yearly review of the Flood Risk Management Plans will be informed by the most up-to-date research and projections of climate change on flooding and flood risk, and will include other sector led adaptation measures being implemented under the National Adaptation Framework.	OPW, local authorities, Waterways Ireland, ESB and Uisce Éireann	2021 and ongoing
1.F	Improve, through research, the understanding of the potential impacts of climate change on the climatic parameters that can influence flooding and flood risk management.	EPA, Met Éireann, Uisce Éireann, Geological Survey Ireland and OPW	Ongoing
1.G	Publication of the Preliminary Flood Risk Assessment, as reviewed and updated, and of the most up-to-date flood maps for current and potential future scenarios.	OPW	2019 and ongoing
1.H	The OPW will continue to strengthen its adaptive capacity and further embed adaptation within work processes and decision-making.	OPW	Ongoing
1.I	The OPW will continue to support local authorities, including through their network of Climate Action Regional Offices (CAROs), and other sectors to help further build awareness and capacity in relation to the impacts of climate change on flood risk and possible adaptation opportunities led by other sectors.	OPW, Climate Action Regional Offices	Ongoing
Objective 2: Adapting flood risk management practice to effectively manage the potential impact of climate change on future flood risk.			
2.A	Assessment of appropriate adaptation measures for those existing flood relief schemes, where climate change may in time impact the current standard of protection.	OPW	2027

Ref.	Action	Responsible ^a	Timeline
2.B	The brief for the detailed development of flood relief schemes to include a requirement for a scheme adaptation plan that will set out how climate change has been taken into account during the design and construction, and what adaptation measures might be needed and when, into the future.	OPW	2019 and ongoing
2.C	Proposals submitted under the Minor Works Programme should take account of the potential impacts of climate change to ensure, where possible, that any measures proposed are adaptable to possible future changes.	Local authorities	Ongoing
2.D	The inclusion of potential increases in flood damages as part of the economic cost-benefit analysis for future flood relief schemes will be reviewed.	OPW, Department of Public Expenditure	2021
2.E	Progress a review of the current and future effectiveness of the protection provided by existing arterial drainage scheme embankments to urban developments.	OPW	Ongoing
2.F	Maintain and update on an ongoing basis the national flood event database (www.floodinfo.ie).	OPW, local authorities	Ongoing
Objective 3: Aligning adaptation to the impact of climate change on flood risk and flood risk management across sectors and wider Government policy.			
3.A	Ensure that potential future flood information is obtained and/or generated through a flood risk assessment that is then used to inform suitable adaptation requirements within the planning and development management processes in line with the Guidelines on the Planning System and Flood Risk Management (2009).	DHLGH, OPW, planning authorities and developers	Ongoing
3.B	The OPW, in coordination with other relevant stakeholders, will continue to enhance its knowledge and capacity with regard to natural water retention measures (NWRMs) and will assess the potential for NWRMs as part of the development of the future flood relief schemes.	OPW and other stakeholders in catchment management	Ongoing
3.C	The planning and design of future assets should take into account, and be adaptable to, the potential future impacts of climate change.	Local authorities, Waterways Ireland, ESB, Uisce Éireann	Ongoing
3.D	The requirements for urban storm water drainage systems for new development should take into account the potential future impacts of climate change, including consideration of the use of sustainable drainage systems.	DHLGH, local authorities, Uisce Éireann	Ongoing
3.E	Progress the establishment of the national flood forecasting and flood warning service.	Met Éireann, OPW, DHLGH, local authorities	Ongoing
3.F	Progress research on how community resilience may be advanced within the overall field of emergency management and further develop this aspect as part of the overall review of the Framework of Major Emergency Management.	DHLGH, Department of Rural and Community Development, Department of Defence, local authorities	Ongoing

Source: *Flood Risk Management: Climate Change Sectoral Adaptation Plan (2019)*

Note: a Acronyms: EPA = Environmental Protection Agency; ESB = Electricity Supply Board; DHLGH = Department of Housing, Local Government and Heritage; Department of Public Expenditure = Department of Public Expenditure, National Development Plan Delivery and Reform.

Annex 4C National governance structure in climate change adaptation: key roles and responsibilities

Entity	Key roles and responsibilities in relation to adaptation
National Adaptation Steering Committee	<ul style="list-style-type: none"> ▪ Established in 2014 under the National Climate Change Adaptation Framework (2012). ▪ Chaired by the Department of the Environment, Climate and Communications. Meetings normally held three to six times a year. ▪ Membership includes sectors preparing adaptation plans under the Framework as well as other key stakeholders (e.g. Department of Public Expenditure, National Development Plan Delivery and Reform, local authorities, Environmental Protection Agency, Met Éireann). ▪ Aim is to ensure a coordinated, comprehensive and coherent approach to the implementation of adaptation actions in Ireland under the Framework. ▪ Provides assistance and guidance in relation to the development of sectoral and local adaptation plans.
Climate Change Advisory Council	<ul style="list-style-type: none"> ▪ Established under the Climate Action and Low Carbon Development Act 2015. ▪ Independent advisory body. Members are appointed by Government on the nomination of the Minister for the Environment, Climate and Communications. ▪ Consists of a chairperson and at least eight and not more than 13 ordinary members including, <i>ex officio</i>, the Director General of the Environmental Protection Agency, the Director of Teagasc and the Director of Met Éireann. ▪ Advises and makes recommendations to Ministers and Government in relation to climate change mitigation and adaptation plans and measures and to compliance with any existing obligation of the State under EU law and international agreements. ▪ Established an Adaptation Committee in 2016 to assist and advise in relation to adaptation.^a ▪ Has authority to conduct a periodic review of the most recent approved climate action plan, national adaptation framework and sectoral adaptation plans and their implementation.
Climate Action Delivery Board	<ul style="list-style-type: none"> ▪ Established under the Climate Action Plan 2019. ▪ Jointly chaired by the Department of the Taoiseach and the Department of the Environment, Climate and Communications. ▪ Membership consists of the Secretary Generals of 12 Government departments. ▪ Provides strategic direction and leadership to ensure a coordinated, timely and effective implementation of the Government's climate action agenda. ▪ Oversees and reports to Government on progress made in implementing the actions contained in annual Climate Action Plans. ▪ Reviews key strategic projects and areas of work necessary to ensure achievement of Government's climate objectives.

Source: Analysis by the Office of the Comptroller and Auditor General

Note: a The Adaptation Committee was given statutory footing in the Climate Action and Low Carbon Development (Amendment) Act 2021.