



Summary Report

Climate Adaptation Indicator Development Workshop

12th March 2024

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Summary

The Climate Change Advisory Council's Adaptation Committee held its annual workshop at the Aisling Hotel in Dublin on March 12th, 2024, focusing on the topic of adaptation metrics and indicators. The workshop provided an opportunity to discuss visioning and potential indicators for adaptation and resilience, to learn from international and national examples of best practice, and to facilitate conversations about the strengths and limitations of different potential indicators.

The workshop was intended to inform and assist policy makers with a remit for drafting and monitoring the implementation of the new Sectoral Adaptation Plans and Local Authority Climate Action Plans as well as other interested policy makers from across Government and state agencies. The workshop was held in follow up to previous Climate Change Advisory Council recommendations for a set of national adaptation indicators to be established, the need for measurable key performance indicators and timelines in the new sectoral adaptation plans, and the need to regularly monitor and evaluate implementation of these plans.

The workshop included presentations from international experts on global and regional best practice on adaptation indicators as well as a presentation of an Irish case study on adaptation indicator development in the transport sector. The workshop agenda is provided in Appendix 1 and the presentations made at the workshop were shared with the participants. The workshop participants included members of the Adaptation Committee, policy makers, representatives of local government, state agencies as well as researchers from academic institutions (See Appendix 2).

Three break-out sessions according to the thematic groups identified in the National Adaptation Framework. The main focus of the three break-out sessions was to:

- articulate a vision for climate resilience,
- screen and build on a pre-identified potential set of adaptation indicators, and
- identify the strengths and limitations of different potential indicators, as well as the additional information that might be needed, to support an assessment of adaptation progress.

It was considered that the break-out sessions would assist the sectors in their thinking when developing indicators for their new sectoral adaptation plans. The workshop closed with reflections on the group work and broader issues as well as the way forward.

1. Overview of Presentations

Mr George Hussey, Secretariat Manager of the Climate Change Advisory Council, opened the workshop and welcomed all participants.

Dr Stephen Flood, Resilience Team Lead in the Climate Change Advisory Council Secretariat, introduced the objectives of the workshop and set the scene for the day.

Ms Rohini Kohli, Senior Technical Advisor on Adaptation Policy and Planning from the United Nations Development Programme (UNDP), presented on initiatives towards integrating and measuring adaptation. Ms. Kohli outlined the need to mainstream considerations for adapting to climate change into sectoral plans and budgets and presented some approaches on how to do this bearing in mind the global, national, sectoral and local scales. She provided examples of countries such as Moldova, Guinea, Uruguay and Vietnam with effective national monitoring, evaluation and learning (MEL) systems. She concluded by emphasizing the need for monitoring and evaluation of adaptation to be integrated with other reporting frameworks and to build on existing systems. It was recommended for statistical offices, academia and think tanks to be engaged in the monitoring and evaluation process.

Prof Bart van den Hurk, Co-Chair of the Intergovernmental Panel on Climate Change (IPCC) Working Group II, presented on the IPCC commitment to updating its impact and adaptation guidelines from 1994. These guidelines were developed to assist users in assessing the impacts of potential climate change and in evaluating appropriate adaptations and are now being updated by the IPCC. He also provided information on a special report on cities and climate change that is under development through the IPCC. He highlighted that there are multiple enablers and barriers exist along multiple dimensions of feasibility – technological, ecological, economical, institutional, societal and governance. It was noted that many of these actions would require trade-offs between solutions, territories and generations.

Ms Sally Garden, Principal Analyst at the New Zealand Climate Change Commission (NZ CCC), presented the approach of the NZ CCC in reporting on progress of New Zealand's national adaptation plan. The NZ CCC assesses adaptation progress and effectiveness every two years (first report due in August 2024) and measures progress against three streams of analysis (i) the quality of the national adaptation plan (ii) implementation of the plan (action by action) and (iii) observed progress towards desired outcomes. It was noted that key national metrics are being developed for measuring progress towards desired outcomes.

Dr Marta Olazabal, Ikerbasque Research Associate and Head of the Adaptation Research Group at Basque Centre for Climate Change, gave a presentation on indicators and adaptation metrics across local adaptation plans globally and in Europe. This was based on studies undertaken of monitoring and evaluation of local adaptation plans in 59 global cities and 167 European cities. From an assessment of the credibility of the adaptation plans of 59 global cities, it was found that only 11 had listed indicators and metrics and that 92% of indicators were process-oriented compared to 8% that were focused on effect or impact. Dr Olazabal highlighted the need for a process effectiveness approach to monitoring adaptation, i.e., not only through process indicators but also through measuring the effects and outcomes of actions.

Dr Denise McCullagh, postdoctoral scholar at the MaREI Center, University College Cork, presented an Irish case study on adaptation indicators that were developed for Transport Infrastructure Ireland in

collaboration with the Environmental Protection Agency. These indicators, although not yet published, built on the four types of indicators recommended in Flood et al 2021¹, namely climatological, impact, implementation and outcome indicators. Dr McCullagh highlighted the challenges and benefits around the co-development process for indicators and also outlined a series of lessons for Irish stakeholders to consider when considering indicators for adaptation.

2. Summary of Discussions

The following main points were discussed in response to the presentations given by the invited experts.

The **target audience** for adaptation indicators and monitoring progress in adaptation was discussed. It was noted that national policy makers and decision-makers were the main audience for such information. Although the information is often scientific and complex, it was felt that it should also be publicly consumable and should promote action from the general public on adaptation. The importance of storytelling and a compelling narrative for adaptation was also emphasised in this context.

It was noted that there are many different **dimensions of adaptation** that need to be considered in designing a monitoring, evaluation, reporting and learning framework and in thinking about how to capture the adaptation action most effectively. Issues of finance, planning, implementation and scale and verification are all important elements to consider. A paucity of data availability was identified a common challenge encountered in identifying useful adaptation indicators. It was considered that this limitation should not prevent a specific indicator from being identified and that this could lead to a process where information starts to be collected on the indicator through engagement with the Central Statistics Office or another relevant entity.

There was a discussion around the **slow pace of implementation of adaptation actions** and the perceived lack of urgency in addressing the issue of adaptation. The need to investigate and assess what has caused the poor response was noted and it was queried whether there is evidence as to why actions have stalled or not got off the ground. It was discussed that the choice of adaptation options requires careful consideration of science and knowledge and that it is often not clear where and when specific adaptation investments should be planned and channelled. This emphasises the importance and need for threshold-based planning and dynamic adaptive pathways.

The **co-creation process** to develop effective indicators was highlighted by several of the invited experts. The comprehensive engagement needed for such an approach was considered challenging but critical to deliver a full suite of comprehensive indicators. It was noted from the Transport Infrastructure Ireland case study that this approach led to enhanced understanding of the topic among a range of stakeholders and lead to more relevant outputs. The need to engage early and thoroughly with different stakeholders to develop targets and indicators was thus recommended for the sectoral adaptation plans.

In terms of **developing a national framework for monitoring, evaluation, research and learning (MERL)**, the main advice was to keep it simple by measuring progress with a set of 'core indicators' rather than

¹ Flood, S., Gault J. and Dwyer N. (2021) Policy Coherence in Adaptation Studies: Selecting and Using Indicators of Climate Resilience. Available at [Research 379: Policy Coherence in Adaptation Studies: Selecting and Using Indicators of Climate Resilience | Environmental Protection Agency \(epa.ie\)](#).

attempting to identify progress on individual measures. It was suggested to build on existing reporting systems to avoid duplication of reporting burden as far as possible.

The need to **tailor adaptation plans and indicators to risk assessments** and the risks faced was noted.

3. Summary of Break Out Sessions

Three break-out sessions were held with the intention of providing a springboard for indicator development to help support the upcoming Sectoral Adaptation plan development process and the implementation of the Local Authority Climate Action Plans. The break-out sessions were split into 7 groups according to thematic areas identified in the National Adaptation Framework. These included:

1. Agriculture, forestry and seafood
2. Water management, including water supply and flood risk management
3. Critical infrastructure, with focus on transport and built environment
4. Critical infrastructure, with focus on electricity and communications networks
5. Health
6. Tourism and cultural heritage
7. Biodiversity

The three break-out sessions focused on the following three issues:

- articulating a vision for climate resilience
- screening and building on a pre-identified potential set of adaptation indicators and
- identifying the strengths and limitations of different potential indicators, as well as the additional information that might be needed, to support an assessment of adaptation progress.

In the **first break-out session**, participants were tasked to discuss a potential vision for climate resilience relevant to their sector. Having a vision that is being worked towards is a key element of any plan and participants were asked to reflect on the elements that could shape an initial vision for climate resilience for their sector. It was noted that participants were not expected to finalise their visions at this point but that the main idea was to stimulate participant's thinking on the issue before the sectoral adaptation plans are developed.

The participants were given three examples of visions for discussion – (i) the national climate objective (ii) national dialogue on climate action and (iii) Apple Corporation. They were asked to discuss the positive and negative aspects of these visions and key elements that should be included in the visions specific to the sectoral adaptation plans under their remit.

In the **second break-out session**, participants were provided with examples of climatological indicators, implementation indicators, impact indicators and outcome indicators relevant to their sector. These were derived from the EPA research report no. 379 on selecting and using indicators of climate resilience (Flood et al 2021²). The participants were tasked to review the indicators provided, consider what may be missing

² Flood, S., Gault J. and Dwyer N. (2021) Policy Coherence in Adaptation Studies: Selecting and Using Indicators of Climate Resilience. Available at [Research 379: Policy Coherence in Adaptation Studies: Selecting and Using Indicators of Climate Resilience | Environmental Protection Agency \(epa.ie\)](https://www.epa.ie/research/379-Policy-Coherence-in-Adaptation-Studies-Selecting-and-Using-Indicators-of-Climate-Resilience).

in the indicators and any barriers to capturing data and to provide examples of any other indicators that may be relevant to their sector.

In the **final break-out session**, participants were tasked to choose a potential indicator and to ground-truth it against an indicator development template³. The indicators development template was provided by the New Zealand Climate Change Commission and contains a checklist of issues that should be considered when deciding on potential indicators of progress in adaptation. The checklist issues include, amongst others, the rationale for the indicator, the aspect of risk it relates to, unit of measurement, the connection of the indicator to adaptation, data sources, scale and frequency of collection and the limitations of the indicator.

The indicators template was completed for the following potential indicators:

- Sea level rise along the Irish coast – details of sea level rise to date and projected sea level rise at multiple locations
- Damage to ports as a result of storms
- Economic costs of damage to overhead power lines impacted by high winds
- Extent of accommodation space for biodiverse coastal ecosystems in intertidal areas
- Change in coastal erosion impacts on built heritage as a result of investment in coastal protection and management measures
- Change in incidences of waterborne diseases such as cryptosporidium and VTEC
- Damage to local authority properties due to flooding

4. Conclusions & Way Forward

Participants were invited to reflect on the workshop at the end of the day before the closure of the workshop.

It was highlighted that a clear, specific, feasible and meaningful vision is needed to unpack what is meant by a climate resilient Ireland by no later than 2050 as per the national climate objective. It was considered that this would improve understanding of climate resilience and adaptation, help provide guidance to resolve trade-offs and that this could inspire greater action from all sectors and the broader population. The need for targets and or desired outcomes to feed into the achievement of the vision was also noted and that these were not included in the first round of sectoral adaptation plans.

One of the key learning outcomes from the workshop was that no single entity has a perfect solution for measuring adaptation, but it was noted that considerable work is ongoing at the international, national and local levels on the issue. There is an opportunity for Irish stakeholders to learn from the body of work that was presented by the invited experts during the workshop and to align Ireland's national targets and indicators with those under development at the global level.

It was noted that this workshop was intended as a springboard for indicator development to help support the upcoming Sectoral Adaptation plan development process. The importance of adaptation indicators was emphasized in the expression “what gets measured gets done”. It was considered that the workshop

³ See appendix 3.

succeeded in terms of sharing information and experiences on adaptation indicators so that a community of practice is developed around the use of these indicators in Ireland. The sectors were encouraged to use the learnings from the workshop and the tools provided such as the indicator development template when setting targets and indicators for their new sectoral adaptation plans.

Appendix 1: Workshop Agenda

Agenda: Climate Adaptation Indicator Development Workshop

Time and Date: 9.30am-4.15pm, Tuesday March 12th, 2024

Venue: Aishling Hotel, Dublin

| Time | Item | Speaker/s | Time (mins) |
|---------|---|---|-------------|
| 9:30am | Tea and Coffee | | |
| 10:00am | Welcome & housekeeping | Mr George Hussey, Climate Change Advisory Council Secretariat Manager | 5 |
| 10:10am | Setting the scene and introducing objectives | Dr Stephen Flood, Resilience Team Lead, Climate Change Advisory Council Secretariat | 15 |
| 10:25am | Towards integrating and measuring adaptation | Ms Rohini Kohli, Senior Technical Advisor, Adaptation Policy and Planning, United Nations Development Programme (UNDP) | 20 |
| 10:45am | IPCC commitment to update impact and adaptation guidelines | Prof Bart van den Hurk, Co-Chair Intergovernmental Panel on Climate Change (IPCC) Working Group II: Impacts, Adaptation and Vulnerability | 15 |
| 11:00am | Questions and discussion | Ms Rohini Kohli & Prof Bart van den Hurk | 25 |
| 11:25am | Indicator development experience (New Zealand Case Study) | Ms Sally Garden, Principal Analyst, He Pou a Rangī – New Zealand Climate Change Commission | 20 |
| 11:45am | Breakout session I | Vision articulation | 40 |
| 12:25pm | Lunch | | 55 |
| 1:20pm | Indicators and metrics across local adaptation plans globally | Dr Marta Olazabal, Ikerbasque Research Associate and Head of the Adaptation Research Group at Basque Centre for Climate Change | 15 |
| 1:35pm | Indicator development experience (Irish Case Study) | Dr Denise McCullagh, Postdoctoral Scholar, MaREI Centre, University College Cork | 15 |
| 1:50pm | Questions and discussion | Dr Marta Olazabal & Dr Denise McCullagh | 25 |
| 2:15pm | Breakout session II | Indicator screening and articulation | 40 |
| 2:55pm | Coffee | | 15 |
| 3:10pm | Breakout session III | Indicator ground truthing | 40 |
| 3:50pm | Summary of breakout discussions and overview of key common issues | Dr Stephen Flood | 20 |
| 4:10pm | Next steps and close | The secretariat will produce a workshop report to feed into the sectoral adaptation plans and adaptation planning in general. | 5 |

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|---------------|-------|---|
| 4:15pm | Close | - |
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Appendix 2: Workshop Participants

| | Name | Organisation |
|-----|------------------------|--|
| 1. | Andrew Moran | Department of the Taoiseach |
| 2. | Aobh Hyland | Department of Housing, Local Government and Heritage |
| 3. | Aoife Delaney | National Parks and Wildlife Service |
| 4. | Barry Coonan | Met Éireann |
| 5. | Barry Mulligan | Department of the Environment, Climate and Communications |
| 6. | Bart van den Hurk* | Co-Chair of Working Group II of the Inter-Governmental Panel on Climate Change |
| 7. | Brian Batt | Department of the Environment, Climate and Communications |
| 8. | Conor Galvin | Office of Public Works |
| 9. | Conor Quinlan | Environmental Protection Agency |
| 10. | Denise McCullagh* | University College Cork MaREI Research Centre |
| 11. | Dervla McAuley | Environmental Protection Agency |
| 12. | Elaine Fitzpatrick | Department of the Environment, Climate and Communications |
| 13. | Emma Guerin | Department of Agriculture, Forestry and Marine |
| 14. | Emma Jane Joyce | National Treasury Management Agency |
| 15. | Eoin Fahey | Department of the Environment, Climate and Communications |
| 16. | Fergal Dalton | Department of Agriculture, Forestry and Marine |
| 17. | Fintan McGrath | Department of Transport |
| 18. | Glenn Nolan | Marine Institute |
| 19. | Ina Kelly | Adaptation Committee Member |
| 20. | Irene O' Byrne Maguire | National Treasury Management Agency |
| 21. | Iris Möller | Trinity College Dublin |
| 22. | Jillian Mahon | Climate Change Advisory Council and Adaptation Committee member |
| 23. | John Spink | Teagasc |
| 24. | John Uhlemann | Department of the Environment, Climate and Communication (Communications Networks) |
| 25. | Josh Lernihan | Department of Public Expenditure, NDP Delivery and Reform |
| 26. | Julie Clarke | Adaptation Committee Member |
| 27. | Kevin McCormick | Department of the Environment, Climate and Communication |
| 28. | Kevin Motherway | Climate Action Regional Office |
| 29. | Lara Connaughton | Commission for Communications Regulation |
| 30. | Mairín Ní Cheallaigh | Department of Transport |
| 31. | Margaret Power | Department of Housing, Local Government and Heritage |
| 32. | Mark Adamson | Office of Public Works and Adaptation Committee Member |

* Online participant / presenter

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|-----|------------------|---|
| 33. | Marta Olazabal* | Adaptation Research Group at Basque Centre for Climate Change |
| 34. | Michael Keegan | Department of the Environment, Climate and Communications |
| 35. | Olga Grant | Department of Tourism, Culture, Arts, Gaeltacht, Sports and Media |
| 36. | Paul Nolan | Irish Center for High-End Computing and University of Galway |
| 37. | Robert Devoy | Adaptation Committee Member |
| 38. | Rohini Kohli* | United Nations Development Programme |
| 39. | Sally Garden* | New Zealand Climate Change Commission |
| 40. | Sean Judge | Department of Finance |
| 41. | Seosamh O' Laoi | Department of the Environment, Climate and Communications |
| 42. | Theresa Doyle | National Treasury Management Agency |
| 43. | George Hussey | CCAC Secretariat Manager |
| 44. | Stephen Flood | CCAC Secretariat |
| 45. | Gina Kelly | CCAC Secretariat |
| 46. | Kieran Craven | CCAC Secretariat |
| 47. | Jodie Colgan | CCAC Secretariat |
| 48. | Bryn Canniffe | CCAC Secretariat |
| 49. | Claire Camilleri | CCAC Secretariat |

* Online participant / speaker

Appendix 3: Indicator Development Template

This template is being used with kind permission from the New Zealand Climate Change Commission. It was designed to help support their August 9th, 2023, indicator workshop, to guide the identification of potential indicators of progress within a range of identified thematic areas.

| | |
|---|--|
| Outcome area | |
| Name of indicator <i>+ short description</i> | |
| Rationale <i>What does the indicator aim to measure?</i> <i>How does it relate to understanding risk/resilience in this domain, and whether risk/resilience is changing?</i> | |
| Aspect of risk <i>What aspect of risk does the indicator relate to? E.g., exposure, sensitivity, adaptive capacity</i> | |
| Connection to adaptation <i>Is this an adaptation effectiveness measure? Does it help us understand if adaptation policy or action is driving change? How?</i> | |
| Direction of change <i>If the measure increases, what does this mean/show?</i> <i>If it decreases? Stays the same?</i> | |
| Type of indicator <i>What type of indicator is it? E.g., does it aim to measure process/output, impact or outcome? Short, medium, long-</i> | |

| | |
|--|--|
| <p><i>term? Is it quantitative or qualitative?</i></p> | |
| <p>Unit of measurement</p> <p><i>E.g., raw number, %, proportion, km</i></p> | |
| <p>Linkages</p> <p><i>Would this indicator relate to any other thematic areas? Are there any other important linkages?</i></p> | |
| <p>Limitations</p> <p><i>Are there limitations for this indicator? What would it not be able to tell us?</i></p> <p><i>Any potential adverse effects from measuring this? E.g., could focus on this leading to maladaptation (including reducing mitigation efforts)?</i></p> | |
| <p>Data sources</p> <p><i>Are you aware of any potential sources for this data?</i></p> <p><i>Are there any potential issues collecting data to support this indicator?</i></p> <p><i>Are there any potential proxies?</i></p> | |
| <p>Scale and frequency</p> <p><i>At what scale would this data need to be collected (e.g., national, regional)? How often?</i></p> | |
| <p>Anything else to note?</p> | |