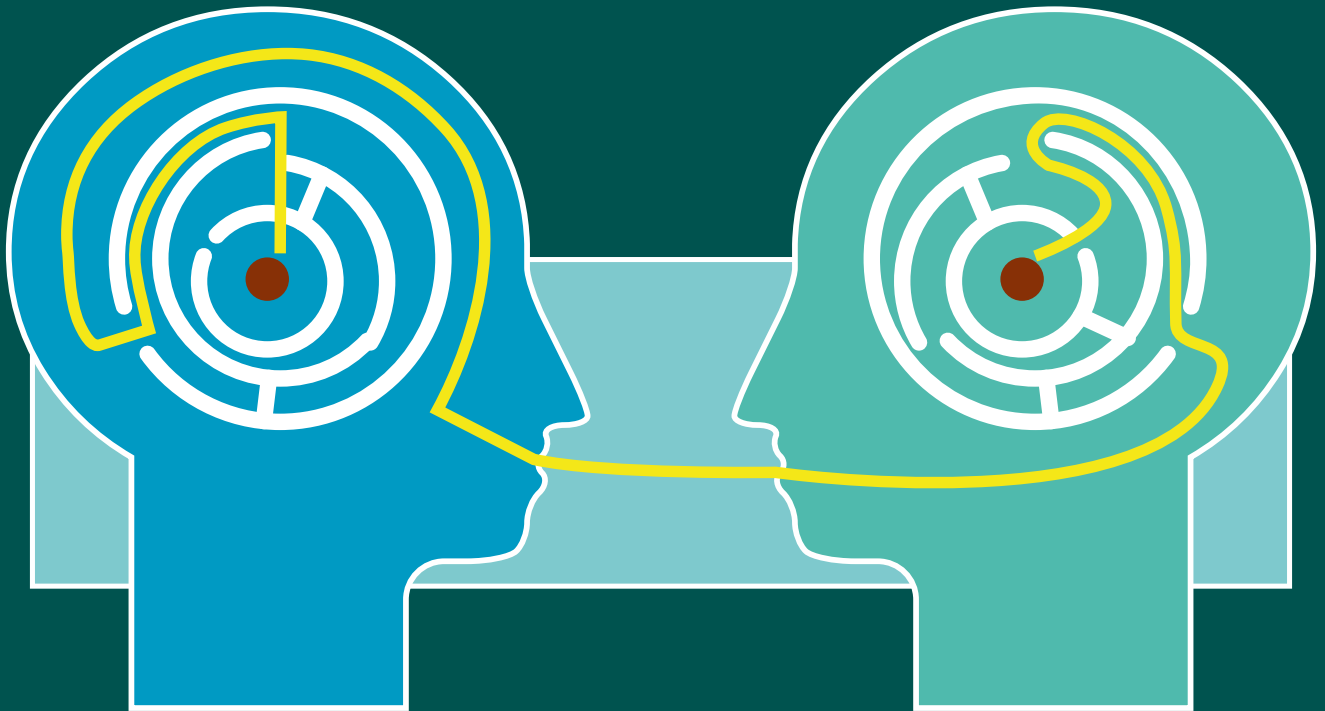


EPA Environmental Science to Policy Seminar 2022

5th October 2022, Dublin



Delivering environmental knowledge effectively
to the policy-making process

Seminar Reflections Paper

ISBN: 978-1-80009-105-4

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FOREWORD

Today's complex and rapidly changing world, is demanding new ways in how governments operate and how policy is made. In the words of the European Commission's Joint Research Centre *'We are at a defining moment for the way our societies are governed. Complexity, wicked problems, the abundance of information, the pace of change, uncertainty, misinformation, populism, polarisation as well as new governance models and digital technologies are creating the need to change how policy is made'*.



In the face of these changes, the need for evidence-informed policy is even more important than ever before. The climate emergency and the wider environmental challenges facing our society, require robust evidence to inform the national debate and assist governments and decisionmakers in responding in ways that are effective and, importantly, equitable. To do this, data and evidence needs to be accessible, timely, relevant and trustworthy. To this end, the EPA has committed in our latest strategy to ensuring our evidence is more easily accessible, that it informs policy and that it meets all our stakeholders' needs.

In organising the EPA Environmental Science to Policy Seminar in October 2022, our key objective was to discuss how we can best deliver environmental evidence and knowledge to the policymaking system. The event brought together policymakers, knowledge transfer practitioners and scientists from right across government and academia to share experiences on the issues, constraints, good practices and ways forward. It was evident from the discussions on the day that a strong willingness exists to work together to build a more effective system, based on mutual respect and an understanding of our respective values, cultures and priorities.

This Seminar Reflections Paper, prepared by Mary Doyle, Member of the Royal Irish Academy on behalf of the EPA, captures the key themes and recommendations that emerged during the seminar. The recommendations centre on how we can enhance Knowledge Management, Knowledge Brokerage and Knowledge Synthesis in the environmental science to policy area. This is work the EPA is fully committed to advancing, in collaboration with our colleagues in the policymaking and scientific fields. This paper is intended to inform and support our collective efforts to better connect science and environmental policy.

A handwritten signature in black ink, appearing to read 'Laura Burke'. The signature is fluid and cursive.

Laura Burke

EPA Director General

June 2023

Delivering Environmental Knowledge Effectively to the Policy-making Process:

Reflections on the EPA Environmental Science to Policy Seminar 2022

Mary Doyle, MSc (Public Sector Strategic Mgt), MRIA

PART 1: SEMINAR OBJECTIVES AND REFLECTIONS ON THE WAY FORWARD

Seminar Objectives

Recent publications by the EPA and many others all point to a growing crisis in the global environment which is gathering pace and increasing at a rate never before witnessed in human history. In Ireland the main indicators and measures are deteriorating sharply. Therefore, a key requirement of Ireland's research and innovation ecosystem is to strengthen the research-policy interface to address the challenges of climate, environment and sustainability using a whole of system approach. In organising this Seminar, the EPA had a number of objectives in mind as follows:

- ▲ Sharing experiences and practices on producing evidence-based knowledge that can support policy creation and implementation
- ▲ Bringing together policy and practice experts - from the EU Commission, European Environment Agency (EEA) and nationally – from whom we can learn how to strengthen and connect science and environmental policy
- ▲ Connect national government, implementation agencies and academia involved in the environment and climate policy areas.

The Programme for the day is set out in [Appendix 1](#), while a list of the organisations participating is provided in [Appendix 2](#).

Main Themes Emerging

During the course of the day a wide range of issues and topics were identified, bringing together multiple perspectives and ideas on where action might best be focused in the future. All agreed that this is a complex and long term agenda. There was acknowledgement that, at this point, posing a range of relevant questions was a useful input to the discussion. A number of important themes emerged strongly from the discussion which are considered below and which should help in laying the foundation for the next phase of work by the EPA. These are set out in the following paragraphs.

Taking a whole of system approach to the environmental research and evidence ecosystem

- ▲ Consideration is needed of how best to source and strengthen the environmental research and evidence for policy from across a range of sources and specifically drawing on the evidence generated by scientific agencies such as EPA and the research data and evidence emerging from the higher education sector. This is not a straightforward issue as, at both an organisational and an individual level, there can be multiple activities within roles and mandates. Very often, individual job descriptions will include a mix of activities, while at

organisation level there will also be a range of objectives. Within organisations, there are few “practitioners” with a dedicated mandate/job role to bridge the gap/transfer knowledge and support and coordinate uptake.

- ▲ There is a need to pay attention also to **assessment and accessibility** of environmental research in order to provide interdisciplinary evidence for the development of integrated and long-term environmental policies. This “translational” element is often overlooked in the design of research projects and programmes.
- ▲ Public sector organisations, such as the EPA, have a particular place in the ecosystem in that they generally have a statutory role and responsibilities to fulfil and are part of the government apparatus to monitor, assess and report on key environmental challenges. Academic research and researchers work in a different context and it would be helpful to scope out the differences and similarities in approaches/considerations required for navigating the science-policy interface from each perspective.
- ▲ Scientists also need to sit firmly within the overall ecosystem and they need to be given the tools and supports to contribute to the formation of policy. Scientists provide the evidence required to inform policy-making but policy is formulated by policy-makers. Science should inform but not prescribe policy. The overall process for doing this requires to be refined, made more efficient and effective and communicated more effectively to all participants.
- ▲ Ireland now has an opportunity to strengthen the ecosystem of science advice and provide a highly visible cross-sectoral platform to connect with the science advice needs of policymakers. In the design of the new Science Advice Mechanism, it will be important to distinguish between the roles of the various contributing organisations. The work of scientific and knowledge based agencies such as the EPA and others in the generation of knowledge for policy is accessed by policymakers in a way that differs from the outputs of the academic research system. Thought needs to be given to how best address these issues in the design of the new structure.

Vision and Mission:

- ▲ There is an urgent requirement to devise a unifying framework to underpin future research and evidence for environmental policy which can be understood across a range of stakeholders, have long term relevance and which can lend itself to the identification of appropriate indicators of trends and directions of travel. There is significant potential for a more strategic national approach to supporting policy development more effectively and to better align with the work of the research and environmental evidence ecosystem.
- ▲ There is an opportunity now also to think about how best to put in place the structures which will bridge the research, evidence and policymaking worlds and which will support co-creation of programmes and projects to achieve these objectives.
- ▲ Investment in the research, evidence and policy ecosystems will be essential to support the journey from the present situation which is based on individual relationships to more sustainable arrangements based on institutional trust.
- ▲ Consideration of “pathways to impact” at project design stage is important to ensure funded projects are fit for purpose and include timely involvement of stakeholders and policy end-users to ensure environmental research is relevant and has a desired impact. This is an arena where the EPA can take a lead role in building out the research for policy framework in relation to environment and sustainability. The importance of monitoring progress and *ex post* evaluation was referenced as an area with considerable potential to ensure knowledge is managed effectively.

Information Provision

- ▲ There are major challenges in relation to the current supply and demand dynamic in respect of data and evidence for policy. There needs to be a more strategic approach to understanding how data and evidence are key enablers and a review and assessment of the present situation from a whole of Government perspective would be a useful input to the discussion. This would include identifying current sources of data and evidence, data needs, possible new approaches to generating data, identification of gaps, and constructing efficient dissemination and knowledge transfer strategies.
- ▲ One helpful approach would be to think about how to more effectively use a three level framework based on the identification of issue, gathering data and evidence and implementation and evaluation. This would help to prioritise issues and to utilise resources more effectively in designing research strategies and informing funding decisions.
- ▲ The generation of data on a longitudinal basis was highlighted on a number of occasions during the seminar and this is certainly an area where a significant focus on reviewing what is already in place, and could be joined up and synthesised, would reap rewards.

Structural issues

- ▲ One major challenge in managing the overall agenda is the multiplicity of stakeholders in this area including a wide range of organisations and individuals. Focusing on building the relationships between science and policy would be a useful way of identifying appropriate actions in the short to medium term. Decisions by Government on the revised Science Advice Mechanism will be relevant in this context.
- ▲ A key question is around who leads in this area, again given the multiplicity of agencies. An important step in this process now is to find new ways to have a conversation with the relevant bodies based around the questions of how best to build the architecture to support research for public policy. This might be part of the efforts currently under way in Government Departments to progress this agenda.
- ▲ What structures could help is an important consideration. It may well be that there is a role for the EPA as a Knowledge Hub within its overall mandate. How might this look and feel?
- ▲ Finally, supporting development of integrated environmental policy is a key priority as is joining up policy silos around key issues e.g. biodiversity is a key priority and again this is an area where the EPA could take an initiative working with sister agencies and with policymakers. There is a need to think through how to ensure that the skills required to do this effectively are positioned in the system.

Relationship Management

- ▲ Relationships are at the heart of making progress on this agenda. Attention needs to be given to establishing who needs to be talking to whom, not on the basis of individual initiatives but on long term institutional relationships. This will require some rethinking about the engineering of the overall research effort across the system including the role of the Research Offices in HEIs, research funders and across the Governments research agencies.
- ▲ There is also a need to ensure that the policy system communicates its specific evidence needs more clearly, widely and earlier, in order to support development of more effective and impactful research programmes.
- ▲ There is a clear need to consider more deeply how best to communicate with various audiences and to pay attention to the structure of both the language used and the messages. Key to success here is to successfully identify the right policy users (not always easy with frequent changing of roles and remits in government departments) and ensuring that the technical level of the knowledge provided matches the user needs. The knowledge brokers need to match the level to the end user and where necessary “translate” knowledge so that it is easily usable and assimilated by a given target policy user.

Capacity Building

- ▲ Talent and capacity building, succession, absorptive capacity, facilitation, building bridges are all important elements of building capacity in the system. A whole of system approach is needed in order to make progress here, led by the Department of Further and Higher Education Research Innovation and Science. This is a big agenda and it would be important to ensure that the environmental agenda is positioned as a key element.
- ▲ In designing this work it is important to pay attention to values and ethics as core considerations.
- ▲ Academic/ policy exchanges can be one fruitful source for consideration in order build relationships and capacity across both sectors and enhance communication. Case Studies are also a potentially useful tool.
- ▲ On the public service side, it would be important to ensure that this perspective is central to the ongoing work to build capacity throughout the civil service initially through the work of the Irish Government Economic Evaluation Service (IGEES), the establishment of strategic policy units in Departments and the development currently underway with OECD of a strong policy toolkit.

Funding issues

- ▲ A number of important issues arose in relation to funding and in particular how best to take a long term view of using the funding programmes, both to seed talent and to build capacity overall. An important aspect in this context is to support continuity of research efforts in the longer term.
- ▲ Relevant issues here include how best to prioritise efforts to scale up projects and programme and to support the creation of strong strategic partnerships.
- ▲ The same issue applies to individual research projects also. Projects are usually focused on generating knowledge right up until the end, but post-project mechanisms for transferring knowledge may not exist. As the research teams move on, it is important to ensure that mechanisms are in place to support the transfer of the knowledge.
- ▲ The ongoing EPA-ERINN ‘Pathways to Impact’ project could inform a longer-term vision to ensure funded research can be carried through from conception, development, validation, demonstration etc. until it is ready to inform policy. Often the knowledge outputs of a project need that next step before they can actively be used by policy makers.



Looking to the Future – Improving Foresight and Scenario Planning Capacity

The recent OECD report on “Strengthening Policy Development and Foresight in the Irish Public Service” is an important contribution to developing long range policy planning in Ireland. It is clear that the environmental policy area would lend itself very well to taking a practical as well as an ambitious national approach. A 50 year time horizon may be required if Ireland is to get prepared for the changes to come in respect of climate change and from other directions.

The OECD paper provides useful guidance on how best to approach this complex agenda as follows:

- ▶ Identifying the need when developing policy to factor in the impact on other policy domains and to take a more holistic and multi-disciplinary approach.
- ▶ Developing system, standards and protocols to allow for a better leveraging, sharing and understanding of the available data.
- ▶ Responding to the growing need for real-time data to enable prompt decision-making and action.
- ▶ Looking to the future, enhance the strategic foresight capacity by investing in systems to perceive emerging future changes in the present, making sense of them and using them to shape policy.
- ▶ Factor in an implementation perspective at an early stage.

The report highlights the core role of co-operation between Departments and Agencies and points to the need to better organise and structure collaboration between the various organisations. It suggests that collaboration could be enhanced by setting up joint policy objectives, creating budget incentives for joint work and building a broad esprit de corps through staff mobility, communication and public recognition of cross-departmental policy work. All of these points emerged strongly at the seminar and are articulated in the next step recommendations outlined at the end of this paper.

PART 2: SPEAKER CONTRIBUTIONS

Scene Setting by Laura Burke, the Director General of the EPA

In her important introductory remarks ([Appendix 3](#)), Laura Burke, EPA Director General (DG) outlined the ambition for the day and the role which the Agency can play as follows *“The EPA, as an expert organisation, is committed to protecting, improving and restoring our environment through regulation, scientific knowledge and working with others. We commit in our strategy to be a key source of trusted scientific evidence and knowledge, to be a voice for the environment through our leadership and advocacy and to collaborate with others to deliver better environmental outcomes”*. Noting that the world is increasingly characterised by Volatility, Uncertainty, Complexity and Ambiguity – the so called VUCA world – she recalled that scientific advice tends to lead to what is known or foreseeable: the policy environment is uncomfortable with the unknown and finds the concept of foreseeability and the associated uncertainties challenging. She concluded that structures and arrangements are needed where advices for policy can deal with horizon scanning, foresight and uncertainties.

Finding solutions to these questions is not easy. An important guiding principle, however, which the DG set out in her remarks is that we need to better link knowledge with action – requiring the generation, sharing and using of relevant knowledge to the full which in turn will require changes in the knowledge system linking science with policy and action, including developing new skills and institutional structures.

The DG identified some areas which she considered warranted particular effort based on the three themes identified in the Royal Irish Academy Roadmap on Research for Public Policy as follows:

- ▲ Building Bridges, creating trust, offering opportunities
- ▲ Joining up and scaling up what already exists, and
- ▲ Knowledge management and brokerage.

These include reflecting on the practical challenges in how the EPA ensures that the evidence and information which it produces informs policy, is more easily accessible and meets all stakeholders needs. In turn, this will require an understanding that the management of this process is as a reinforcing cycle requiring new approaches and new skills to be developed in both the policy and research communities, a renewed focus on how *ex ante* evaluations are designed and a much strong focus on the use of *ex post* evaluations. All this to be supported by strong learning including from the EPA Research Programme, the EPA knowledge itself and European Environment Agency Eionet network. Finally, at a granular level the DG identified the role of Environmental Agencies to be knowledge intermediaries and brokers: to make sense of things, to connect ideas, to put matters in context, to frame research output in a policy context, to integrate assessments and to maximise the social and environmental benefit.

SESSION 1: MORNING SPEAKERS

The Policymaker's Perspective - Philip Nugent, Assistant Secretary, Department of the Environment, Climate and Communications

In his presentation, Philip Nugent identified a number of important issues in understanding and managing the translation of science into rational and effective policy. This is a complex area from the perspective of the policymaker who must balance many priorities – economic, social, environmental – within rapidly changing timeframes. A core issue is how to achieve an understanding of the research as a basis for advocating internally within the administrative and political systems for policy intervention based on evidence. This requires an appreciation of the difference between science and evidence – science becomes evidence through an interpretive process over time. In other words, moving from “know what” to “know how” and standing by the evidence while moving from strategic to operational to tactical. In doing this, timing is crucial and there is a need to take a very long term view of the architecture required.

From the perspective of the research/science community, there is a major challenge in understanding how policymaking works, knowing who to engage with and when and understanding the decision making cycles. Effectively communicating the complexity and uncertainty of the science, maintaining objectivity and independence and operating in a world of populism, polarisation and post truth are all major challenges confronting the research/scientific community.

Finding ways forward is challenging and the effort must be a shared endeavour between the policymaking community and the scientific community based on openness and mutual respect. Policy can't be made without the data / research / science but science or data alone can't make policy. Nor is this a static process - evidence / science should inform the policy making (and implementation process) on an evolving basis if possible. For this reason, there is a need to think through where the best position on the spectrum between “autocracy” and “scientocracy” might lie. People and relationships are at the heart of this effort and attention needs to be paid to building long term, sustainable capacity on both sides and to effective communications bridges.

Dr Cathy Maguire, European Environment Agency (EEA) on Knowledge for Action – Sustainability challenges and implications for knowledge systems

In her presentation, Dr Maguire discussed the current environmental, climate and sustainability challenges facing Europe and in particular the role of the European Environment Agency in supporting effective policymaking in response. In its flagship Report - SOER 2020 - the Agency sets out clearly the scale of the challenge and the need for urgent, systemic and transformative change to address it. How best to assemble, synthesis and communicate scientific knowledge is at the heart of the work of the EEA, based on a paradigm shift to sustainability.

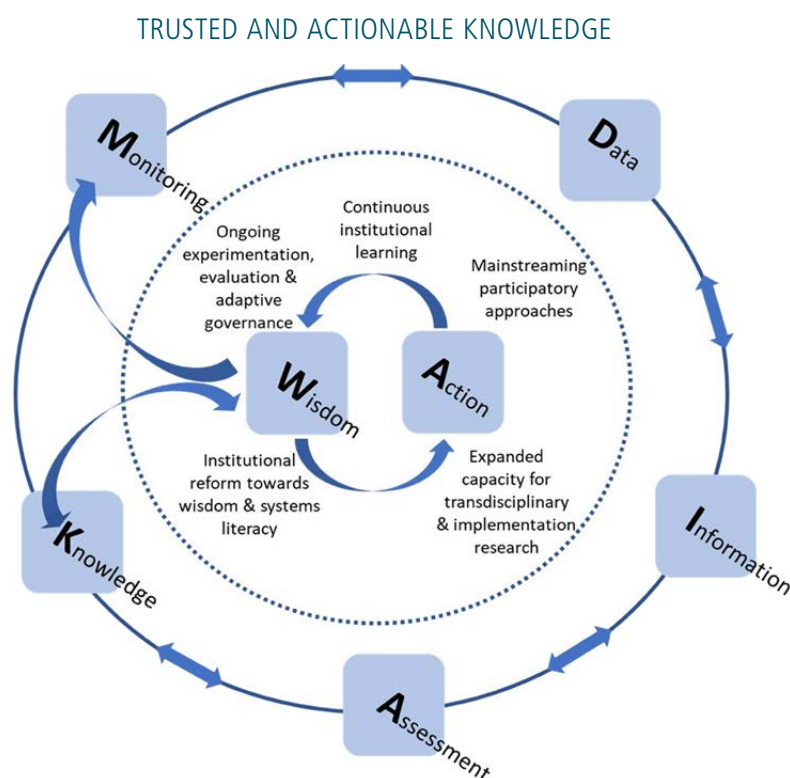
This required a reconceptualisation of the policy landscape – with the European Green Deal moving from a siloed approach to a greater understanding of mutual interactions and interdependencies and noting that “... this *will require intense coordination to exploit the available synergies across all policy areas*”. The EU's 8th Environment Action Programme (EAP) identifies knowledge as a key enabler for achieving its sustainability objectives to ensure that environmental policies and action, at Union, national, regional and local level, are based on the best available scientific knowledge and technologies, and strengthening the environmental knowledge base and its uptake, including by research, innovation, fostering green skills, training and retraining, and further building up environmental and ecosystem accounting. The EEA is now putting in place a programme of actions to move this agenda forward based on thinking on a revised knowledge system.

Key Features of a revised Knowledge System:

- ▲ Knowledge systems include the actors, practices, routines, structures, mindsets, values and cultures affecting what and how knowledge is produced. Knowledge needs to be integrated, spanning policy domains, disciplines, types of knowledge and different ways of framing problems and solutions.
- ▲ Selected areas for action include data, monitoring and indicators, synergies and trade offs and transformation pathways.
- ▲ Key actors are policymakers and public authorities, research and education communities, business, citizens and boundary organisations.
- ▲ Important features of the Knowledge System are that it is innovative and collaborative, open access, single, inter and transdisciplinary and that there is knowledge co production and learning by doing.
- ▲ All leading to outcomes which are innovative and integrated, with an enhanced interface of science-policy-society which is action oriented and builds capacities and skills.

The framework distinguishes between the different phases of knowledge development to support the policy process. What monitoring is needed to deliver the required data, what data are needed, what information is needed, what assessments are needed, what do we need to know?

Leading to:



Oliver, T. et al. 2021. [Knowledge architecture for the wise governance of sustainability transitions](#). *Environmental Science & Policy* 126(3):152-163.

The EEA has a number of roles in supporting sustainability transitions, as follows:

- ▲ **Analyst** of systems and systemic challenges of particular importance for transition processes
- ▲ **Convener** of actors from the different research and governance communities, with the aim of facilitating the integration of different forms of knowledge
- ▲ **Translator** both across disciplines and from complex academic theory into the language of policy
- ▲ **Networker** helping in linking or replicating local innovations, or scaling up local practices to higher institutional or policy levels.



Laura Smillie, European Commission Joint Research Centre - EU Action on Knowledge to Policy and Findings of the JRC Science for Policy Handbook

By way of setting the context, Laura Smillie outlined the structure and mandate of the Joint Research Centre which is the knowledge and science service of the European Commission involving two dimensions – Knowledge Production and Knowledge Management. Its role involves nurturing the science for policy ecosystems and the associated skills and mindset for science for policy. For some time now, the JRC has been grappling with understanding the limits of science for policy as a way of better informing how to achieve impact in this complex arena. Recent work and publications in this area include “Understanding our Political Nature”, 2019 and “Values and Identities” 2021.

The JRC has also recently focused on institutional capacity building and science for policy ecosystems by building a community of science-policy professionals across Europe and supporting them by focused workshops, information gathering and country specific discussion papers. It is useful also to think about how to build scale from single elements in a science to policy network, to national and to the European ecosystem. A major focus of work is capacity building for scientists and policymakers and doing this through developing competency frameworks (focusing on attitudes, knowledge and skills), developing learning tools including the Science to Policy handbook and online learning materials e.g. Introduction to Science for Policy as a 2 day course.

The Science to Policy Handbook is very relevant as it:

- ▲ Covers the vital area of science for policymaking
- ▲ Includes contributions from leading practitioners
- ▲ Based around key skills for practitioners
- ▲ Presents processes of knowledge production.

Finally, it addresses the questions of what is required to be built and approaches to co creation in more detail in addition to giving practical tools to scientists and policymakers to build long term relationships.

Professor Vitor Corado Simões – Science for Policy in Portugal – a case study

Professor Corado Simoes described work undertaken in Portugal exploring if there is a science for policy ecosystem in Portugal. This work was undertaken on the initiative of the EC's Joint Research Centre (JRC) and Portugal's Research Board (Science and Technology Foundation). This built on similar work in Denmark and Greece. The objective was to map the inter-relationships between demand and supply of scientific advice in Portugal. The approach taken was a mixed methods approach – desk research and a survey and interviews.

Key conclusions included the reality of a VUCA (volatility, uncertainty, complexity and ambiguity) world which increases the challenges facing policy makers as well as the need for science advice. There is no "one best way". Each country must design its own system based on local factors including culture, history and the overall political system. In relation to the work in Portugal, the work concluded that there is not a single science for policy ecosystem in Portugal, rather there is a diverse set of organisational mechanisms for scientific advice including research organisations, permanent or ad hoc advisory committees and scientific and consultative councils. There is an uneven assessment of scientific advice objectives and quality with some gaps.

Other important conclusions are:

- ▲ Policy-making bodies do not seem to be fully aware of the importance of Science for Policy
- ▲ International experience and initiatives have an increasing influence
- ▲ The Statute of University career discourages the practice of scientific advice
- ▲ Insufficient formalisation, coordination and transparency of scientific advice procedures.

The main challenges for the system include:

- ▲ Promoting Policymakers' recognition of scientific advice's advantages
- ▲ Improving the Dialogue between Science and Policy-making
- ▲ Moving from Personal trust to Institutional trust
- ▲ Fostering Academic engagement in policymaking
- ▲ Increasing Transparency
- ▲ Ensuring formalisation and coordination of Science for Policy activities.

In responding to these challenges, there are also important opportunities such as the widespread recognition of the importance of science by public opinion and the Recovery and Resilience Plan (RRP) which may provide an opportunity to rejuvenate and improve public administration skills. Finally, there is an important recognition of the need for improved governance arrangements.

Trudy Duffy, Department of Further and Higher Education, Research, Innovation and Science – IMPACT 2030 and Evidence Informed Policymaking

Leading the newly established Evidence to Policy Unit within the Department of Further and Higher Education, Research Innovation and Science, and referencing in particular the research strategy “Impact 2030”, Trudy Duffy discussed the issues arising in relation to the delivery of a national research system which addresses key economic and societal challenges facing Ireland. She set out the Departmental objectives in this area as follows:

- ▲ Maximise impact including through grand challenges and informing better public policymaking
- ▲ Deliver wider tangible societal value to help to solve the biggest challenges of our time
- ▲ Seeking to deliver the best possible experience for researchers and innovators to enable them to make the biggest difference, to reflect all of society, undertaking research and creating innovations that speak to everyone’s needs and hopes.

In order to support this effort, five pillars have been identified as key:

- ▲ Pillar One - Maximising the impact of research and innovation on the economy, society and the environment
- ▲ Pillar Two - Impact of research and innovation structures on excellence and outcomes
- ▲ Pillar Three - Innovation driving enterprise success
- ▲ Pillar Four - Talent at the centre of the research and innovation ecosystem
- ▲ Pillar Five - All-island, EU and global connectivity.

Trudy then referenced a number of important initiatives which are currently under way and which will have a major bearing on the agenda being discussed, including:

- ▲ A new national research agency to be established supported by a landmark Research Bill
- ▲ The national Grand Challenges Programme which will use mission-oriented challenges to deliver tangible impacts for society in areas such as health, agriculture and climate
- ▲ New science advice structures to be established to connect networks of research capability with Government priorities and needs for expertise.

She concluded by setting out the vision and key next steps in bringing forward this agenda:

- ▲ Delivering a best in class Research and Innovation System
- ▲ Placing research and innovation (R&I) at the heart of addressing Ireland’s social, economic and environmental challenges
- ▲ Supporting increased collaboration between policymakers and the Higher Education (HE) research sector
- ▲ Delivering skills and capacity for enhanced engagement across the system
- ▲ Driving availability of ongoing baseline research activity to inform policy decisions
- ▲ Increased availability of direct access to up to date and timely Science Advice to Departments/ Government
- ▲ Technical Supports and Advice from Government including the Irish Government Economic and Evaluation Service supporting economic evaluation and modelling and data availability and usage to deliver evidence informed decision making.

Finally, Trudy Duffy referenced the Department of the Taoiseach and the Department of the Public Expenditure and Reform’s ongoing work with the OECD on a Policy Development Framework and Strategic Foresight Planning exercise due for publication in 2023.

David Murphy, CEO ERINN Innovation

The final presentation in this session was from David Murphy, CEO of ERINN Innovation whose mission is to guide and accelerate research and innovation to achieve impacts that support a sustainable future for all. ERINN works right across the full research lifecycle from pre project to post project with a focus on Knowledge Transfer, communication and dissemination. For ERINN, an impact is when knowledge is effectively transferred and taken up by an end-user resulting in a measurable marked effect or influence.

David presented from a practitioner point of view, introducing the work ERINN are doing to support the EPA to ensure that outputs from EPA funded research projects are effectively and efficiently transferred to policymakers to assist them in making timely and evidence based decisions. This work also includes a capacity building component for both researchers and policy actors in how to effectively transfer knowledge to policy.

He outlined the ERINN methodology used in this work which is based on **three systematic steps: collection, analysis and transfer** of knowledge. Knowledge is first **collected** via interviews with scientists and described in a structured way using a template. Experts are then used to **analyse** the knowledge and assess its potential to impact policy processes. Finally, knowledge deemed as having high potential is prioritised for **transfer** and individual unique pathways to impact developed to inform customised transfer strategies to maximise the likelihood of uptake and application by end-users.

David Murphy also presented their innovative work related to “Impact Readiness Levels (IRL)”, which is a tool they have developed to help assess the initial maturity and readiness of collected knowledge in relation to policy applications. All knowledge they collect is given an initial IRL, then once transfer is carried out, progress down an impact pathway is measured and a new IRL is assigned so that it is possible to show the outcomes of their efforts as a broker of knowledge.

In closing, David Murphy identified key challenges for the future based on insights from carrying out Knowledge Transfer both within and outside of Ireland concluding there is still a gap between research, knowledge and policy. These include:

- ▲ Lack of clarity of roles - whose responsibility is it to ensure that relevant knowledge is transferred to inform policy?
- ▲ Difficulty in identifying the right policy actor.
- ▲ Ensuring that relevant knowledge is fed into policy processes in a timely manner. In many cases research and policy timelines do not align resulting in missed opportunities for effective transfer.
- ▲ Ensuring an appropriate investment in knowledge transfer activities, both during and post research project timeframes, in order to maximise the policy impact of the significant research investments taking place.

SESSION 2: FOUR IRISH CASE STUDIES

During the afternoon session, four case studies were presented showcasing evidence-to-environmental policy in an Irish context, involving research funded by the EPA spanning air quality, water quality, climate & biodiversity, and radioactivity.

- ▲ Prof John Wenger, UCC presented on *'Irish E2P case study on air quality – the SAPPHIRE project'*
- ▲ Dr Jenny Deakin, EPA presented on *'Evidence to support policy and action from the agricultural sector to improve water quality'*
- ▲ Dr Diarmuid Torney, DCU presented on *'Evidence to policy in climate and biodiversity governance'*
- ▲ Dr Kevin Kelleher, EPA presented on *'Radioactivity in drinking water in Ireland: science and policy'*.

Full recordings of all presentations are available at the link provided in [Appendix 3](#).



CONCLUSIONS

The EPA Seminar on Environmental Science to Policy held in October 2022 was an important inaugural event which brought together policymakers, Knowledge Transfer practitioners and scientists from right across the Irish Government and academic systems to consider the question of how best to deliver environmental knowledge effectively to the policymaking process. It was clear on the day that there was a willingness to work together to build a stronger dialogue based on mutual respect and an understanding of respective values, cultures and preoccupations. Given the complexity of the overall landscape, it is not at all surprising that a wide range of relevant issues and topics was identified during the course of the day. The challenge is to identify those areas which have the greatest potential to support the overall agenda for change and to consider how best to move them forward at pace.

In this Reflections Paper, six key themes have been identified together with a range of actions which will support the overall effort (Box 1). At the heart of this work is a focus on Knowledge Management, Knowledge Brokerage and Knowledge Synthesis – work which the EPA is well placed to lead and develop over the medium to long-term working in collaboration with colleagues in both the policymaking and scientific fields. This paper is designed to support the internal and external dialogue which is now important to making progress on this vital national agenda.

BOX 1: SUMMARY RECOMMENDATIONS FOR TAKING FORWARD THE SCIENCE-TO-POLICY AGENDA

In delivering environmental knowledge effectively to the policymaking process, the following Priority Areas are proposed for consideration by the EPA and other relevant organisations as next steps to progress the key themes identified at the seminar. They arise from the discussion on the day and from the many positive contributions from across a wide range of organisations and individuals with expertise in this area.

Leadership and Strategic Direction

1. Identify appropriate leadership roles in building out a strong framework within which national environmental research and science activities can be better mobilised and aligned in support of national policy – joining up and scaling up. Do this working within the existing range of Departmental strategies, the new EPA strategy and new national research and innovation strategy landscape. It would be important to specifically connect this work to Theme 1 of the Civil Service Reform Strategy to 2030 – Evidence-informed Policy and Strategy.

Developing Relationships and Enhancing Knowledge Management

2. Building on the very positive contributions at the seminar, put in place the arrangements to develop informal but sustainable networks/communities of practice across organisations, starting perhaps with peer organisations. An initial focus might be on sharing knowledge and building up a strong and connected set of “technical” Agencies (e.g. Marine Institute, GSI, Met Eireann) who are active in the research-evidence policy interface.
3. Identify practical and proactive ways in which to move from the current set of relationships which are built on individual relationships between policymakers and scientists to a system based on institutional trust which values and supports long term, sustainable policymaking and implementation. This would of necessity be focused on building capacity in both sectors including through tailored professional training, secondments in both directions and putting in place stronger bridges to connect the two systems.

Strengthening Multi Stakeholder Approaches to Support Policy Development

4. Develop approaches, including initially with the parent Departments of the Environmental Protection Agency, to devise ways to structure multi-stakeholder approaches to more effectively support policy development. This will involve finding new and innovative ways for policymakers and scientists to work together in support of policy objectives and a greater focus on *ex post evaluation*. A starting point could be to scope out the main similarities and differences between academic research and EPA evidence generated “in house” in informing and supporting policy. This would provide a strong basis for future dialogue and action to progress this important issue.

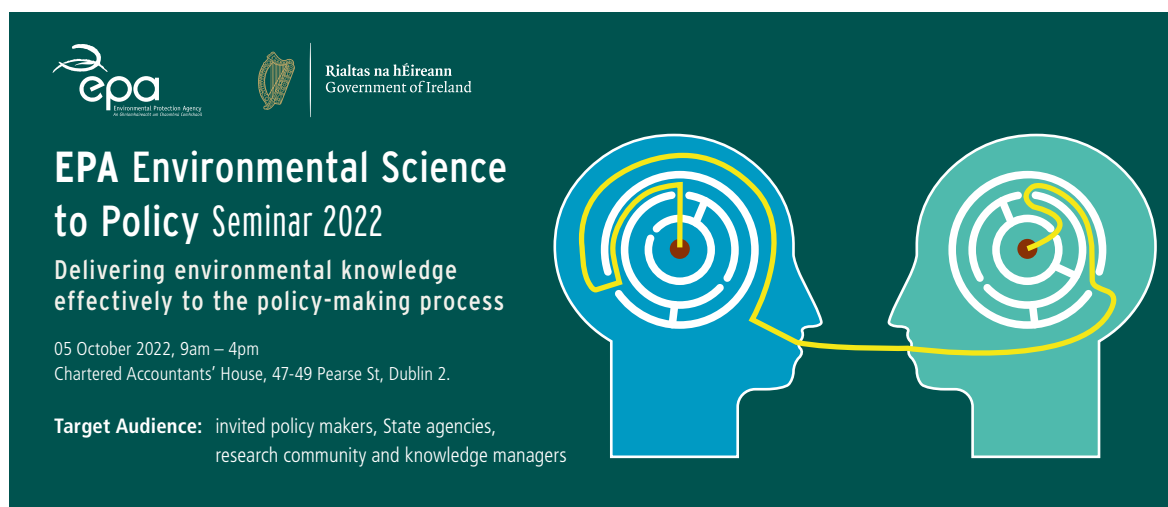
Looking to the Future in a Structured and Systematic way



5. Consider commissioning a “thought piece” which would focus on the role of strategic foresight in supporting more long term policy considerations of environmental issues. This work could tie in nicely with the work arising from the OECD report “Towards a Strategic Foresight System in Ireland” published in May 2021 and the current European Environment Agency (EEA) foresight work. A minimum 50 year time horizon will undoubtedly be required if Ireland is to get prepared for the changes to come in respect of climate change and from other directions.

Developing Capacity for Knowledge Management, Brokerage and Synthesis

6. Finally, the EPA is ideally placed to become a strong resource for knowledge management, knowledge brokerage and knowledge synthesis right across the Government system in relation to the environment. Reviewing existing international models of how this is done in other countries and in the EU would be a practical and useful starting point.

APPENDIX 1: SEMINAR AGENDA





 Rialtas na hÉireann
Government of Ireland

EPA Environmental Science to Policy Seminar 2022

Delivering environmental knowledge effectively to the policy-making process

05 October 2022, 9am – 4pm
Chartered Accountants' House, 47-49 Pearse St, Dublin 2.

Target Audience: invited policy makers, State agencies, research community and knowledge managers

SEMINAR OBJECTIVES

- ▲ Share experiences and practices on producing evidence-based knowledge that can support policy creation and implementation.
- ▲ Bring together policy and practice experts - from the EU Commission, EEA and nationally - from whom we can learn how to strengthen and connect science and environmental policy.
- ▲ Connect national government, implementation agencies and academia involved in the environment and climate policy areas.

PURPOSE

"We are at a defining moment for the way our societies are governed. Complexity, wicked problems, the abundance of information, the pace of change, uncertainty, misinformation, populism, polarisation as well as new governance models and digital technologies are creating the need to change how policy is made."

[EU Joint Research Centre, 2019]

Environmental and climate policy requires sound science and robust evidence. A key requirement of Ireland's research and innovation strategy, **Impact 2030**, is to strengthen the research-policy interface to address complex climate, environment and sustainability challenges using a whole-of-systems approach. EPA's new **Strategic Plan 2022-2026** commits to supporting the policy domain through leveraging its expertise, evidence and research as well as delivering timely and targeted data and information to meet our stakeholders' needs. The use of science and expertise in policymaking has to be advocated in the face of populist opposition to experts. Moreover, new ways of communicating science to the public and engaging with their concerns will need to be developed.

Discussions today will support the implementation of key environmental policy. This includes the Climate Action and Biodiversity plans, the Circular Economy strategy, and ongoing national policy development relating to air, water, chemicals, radiation and noise. We need to move our knowledge contribution from a 'know what' mindset to one more aligned to a synoptic and actionable 'know how' one.

"We are drowning in information, while starving for wisdom. The world henceforth will be run by synthesizers, people able to put together the right information at the right time, think critically about it, and make important choices wisely."

[Wilson, 1998]

Output: Post-event discussion/reflection paper prepared by Mary Doyle (RIA)

AGENDA

Timings	Speaker / Role	Topic
8:30-9:00	Registration. Tea/coffee, cookies and fruit on arrival	
9:00	Chair - Eimear Cotter , Director, Evidence and Assessment, EPA	Opening, safety, rules
9:05	Minister	Opening address
9:20	Laura Burke , Director General Environmental Protection Agency	<i>The Expert Agency Challenge - Evidence, Advocacy, Independence, Policy Support. Ambition for today</i>
9:35	Philip Nugent , Assistant Secretary – Department of the Environment, Climate and Communications	<i>Evidence to Policy - Civil Service needs & challenges</i>
9:55	Cathy Maguire , Sustainability assessments and learning expert, European Environment Agency	<i>Knowledge for action: sustainability challenges and implications for knowledge systems</i>
10:15	Laura Smillie , EU Commission	<i>EU action on knowledge to policy & findings of the JRC Science for Policy Handbook</i>
10:35	Q&A and Discussion (30min)	Led by Eimear Cotter
11:05 - 11:30	Coffee Break	
11:30	Chair – Gerry Clabby , Principal Advisor, Environment & Climate Research and Advisory Unit, Department of Environment, Climate and Communications	
11:30	Vitor Corado Simões , ISEG – Lisbon School of Economics and Management, University of Lisbon	<i>Science for policy in Portugal – Case Study</i>
11:50	Trudy Duffy , Principal Officer - Department of Further and Higher Education, Research, Innovation and Science	<i>Evidence to Policy ambitions in the new national research strategy and in the new Departmental E2P unit</i>
12:10	David Murphy , CEO – ERINN Innovation	<i>K2P - Insights from national applied research and professional practice</i>
12:30	Q&A and Discussion (30min)	Led by Gerry Clabby
13:00-14:00	Lunch	
14:00	Chair – Ruth Freeman , Director Science for Society, Science Foundation Ireland	
14:00	John Wenger , UCC	<i>Irish E2P case study - Air Quality</i>
14:20	Jenny Deakin , EPA	<i>Irish E2P case study - Water</i>
14:40	Diarmuid Torney , Associate Professor, School of Law and Government, Dublin City University	<i>Irish E2P case study - Climate</i>
15:00	Kevin Kelleher , EPA	<i>Irish E2P case study – Radiation</i>
15:20	Panel Discussion – (30min) - common learnings, challenges & solutions	Led by Ruth Freeman
15:50	Closing remarks by Eimear Cotter , EPA	
16:00-16:30	Tea/coffee, networking opportunity	

APPENDIX 2: SEMINAR ATTENDEES

Organisation	
Atlantic Technological University	Irish Farmers Association
Biomarin	Irish Universities Association Campus Engage
Central Statistics Office	Irish Water
Climate Change Advisory Council Secretariat	ISEG – Lisbon School of Economics and Management, University of Lisbon
Department of Agriculture, Food and the Marine	MAREI
Department of Education	Marine Institute
Department of Environment, Climate and Communications	National Parks and Wildlife Service, Department of Housing, Local Government and Heritage
Department of Further and Higher Education, Research, Innovation and Science	National Transport Authority
Department of Housing, Local Government and Heritage	Office of Planning Regulator
Dublin City University	Office of Public Works
Earth Institute, University College Dublin	Royal Irish Academy
EirGrid	Science Foundation Ireland
Environmental Protection Agency	Sustainable Energy Authority Ireland
Environmental Protection Agency Advisory Committee	Teagasc
ERINN Innovation	Technological University, Dublin
EUIPR Unit, Department of Housing, Local Government and Heritage	The Economic and Social Research Institute
European Commission	Trinity College Dublin
European Environment Agency	UK Society for Radiological Protection (SRP) and UKHSA
European Recycling Platform	Ulster University
Geological Survey Ireland	University College Cork
Geoscience Regulation Office, Dept of Environment, Climate and Communications	University of Galway
Health Service Executive	University of Limerick
INFOMAR / Marine Institute	Water Forum
Inland Fisheries Ireland	WEEE Ireland
Institute of Public Administration	

APPENDIX 3: LINK TO SEMINAR RECORDINGS

Recordings of the seminar presentations are available on the EPA's YouTube Channel at:

<https://youtu.be/EMy8lcWuzK4>

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ISBN: 978-1-80009-105-4

