



Implementation Science and the Environment

Dr John O Neill and
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Implementation Science and the Environment

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Introduction and background to the report

Implementation science focuses on examining the gap between knowledge and action, seeking to systematically close the gap between what we *know* and what we *do*. It is a relatively new field and up to now it has concentrated largely on the health sector, where it looks to identify barriers that slow or hinder interventions and the implementation of evidence-based practices.



This paper represents the output from phase one of the IPA/EPA research programme and aims to provide a review of the relatively new field of implementation science and its relevance to the environmental sector. Applying the additional lens of implementation science provides a unique opportunity for the IPA and the EPA to collaborate on new, innovative and potentially groundbreaking research in the area of Implementation Science and the environment. This could be of significant benefit in helping to inform wider policy further across the environmental agenda.

The paper provides a brief overview of the field of implementation science and its development and evolution, including selected tools and theoretical approaches. It explores the general relevance of implementation science to the environmental sector and its potential role to facilitate more effective ways of implementing environmental policy and assesses the views of key practitioners in terms of realising this potential. The paper then looks forward to phase 2 of this research where a case study approach is proposed, which will include assessing the relevance of implementation science across climate adaptation governance (to date) and how learnings from this discipline might help frame evolving governance for land use.

The EPA's most recent State of the Environment (SOE) report states that 'Ireland needs to improve the implementation and enforcement of existing environmental legislation and policy at all scales, from national to local levels' and 'greater oversight and enforcement is needed to address a lack of implementation and poor compliance in a number of key environmental policy areas' (Wall et al.,2020). In Ireland, the overall approach to how we address environmental challenges is relatively fractured, with different environmental challenges covered by different government departments, public agencies/organisations and local authorities. This results in a complex landscape in terms of how to effectively implement an increasing range of national legislation, policies, plans and programmes. A more integrated solution for Ireland's

environmental policy is required that will join up all these areas and encourage cross sectoral action.

It is clear that effective implementation continues to be problematic for policymakers, in particular in respect of ‘wicked’ problems where a cross-government response is required to address complex policy challenges such as climate that have no single obvious solution. While effective governance and coordination are critical in ensuring optimal implementation of policy, there may also be additional important factors at play, including leadership and organisational culture which could be examined using implementation science to unlock better outcomes across the environmental agenda.

Sections 2 and 3 will provide a definition of implementation science and outline key theoretical approaches that have been developed in the field. Three short vignettes are included which represent theoretical approaches that may be effective in the environmental sector.

Section 4 focuses on examining the relevance of Implementation science to the environmental sector including climate change. **Section 5** provides an overview of recent conferences where the IPA team has presented on this research, and this is further informed by interviews carried out with key practitioners and experts in the areas of implementation science and policy implementation.

Section 6 provides a conclusion and outlines next steps with respect to phase 2 of this programme of research which will take a case study approach in assessing in more detail how implementation science can help inform key policy areas across the climate action agenda; Climate Adaptation and Land Use.



Defining Implementation Science

Implementation science is a relatively new field of study which emerged out of a desire to address challenges associated with the utilisation of research in evidence-based practice (EBP).

Implementation science focuses on examining the gap between knowledge and action, seeking to systematically close the gap between what we know about a particular discipline or policy area and what we do in progressing implementation. To date, much work in the area of implementation science has focused on the health, social care and education settings where it looks to identify barriers that slow or hinder interventions and the implementation of evidence-based practices. It should be noted that the terms 'Implementation science' and 'Implementation Research' are used interchangeably in the literature to describe this field of study.

The inaugural issue of the journal, *Implementation Science*, published in 2006, defines Implementation science as:

"...the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practice into routine practice and, hence, to improve the quality and effectiveness of services."

(Eccles and Mittman, 2006).

Bauer and Kirchner (2020) contend that the goal of implementation science is to look beyond establishing the impact of an intervention, but rather to focus on identifying the key factors that affect its uptake into routine use. They identify two key aims at the core of implementation science:

1. Identification of barriers and facilitators to the uptake of evidence-based interventions (this includes the different layers of context within the unique setting of the intervention - customers/users, providers, organization, and other stakeholder groups)
2. Develop and apply implementation strategies to overcome the identified barriers and enhance the identified facilitators in order to increase the uptake of such interventions.

Importantly, the field of implementation science is broader in scope than traditional research, focusing not just on the end user but also on the service provider, the organisation behind the intervention, and the wider policy implications. It therefore requires multi-disciplinary research teams that include members who are not routinely part of most trials e.g., researchers; economists; sociologists; anthropologists; organizational scientists; and operational partners including administrators, front-line staff, and patients (Bauer et al. (2015)).



Implementation Science: Theoretical Approaches

Early implementation research was empirically driven, dependant on observations and experiences, however, the field has since progressed to the use of theoretical approaches (i.e., theories, models and frameworks) in order to provide a better understanding and explanation of how and why implementation succeeds or fails.

Implementation studies now apply theories borrowed and adopted from disciplines such as psychology, sociology and organisational theory as well as those that have emerged from within the evolution of implementation science itself.

Nilsen (2015)¹ describes the theoretical approaches used in implementation science as having three overarching aims:

1. describing and/or guiding the process of translating research into practice (process models);
2. understanding and/or explaining what influences implementation outcomes (determinant frameworks, classic theories, implementation theories); and
3. evaluating implementation (evaluation frameworks).

Nilsen proposes five categories of theoretical approaches to achieve these overarching aims which are illustrated below in Figure 1. Table 1 expands further on this by providing a summary with some examples listed.

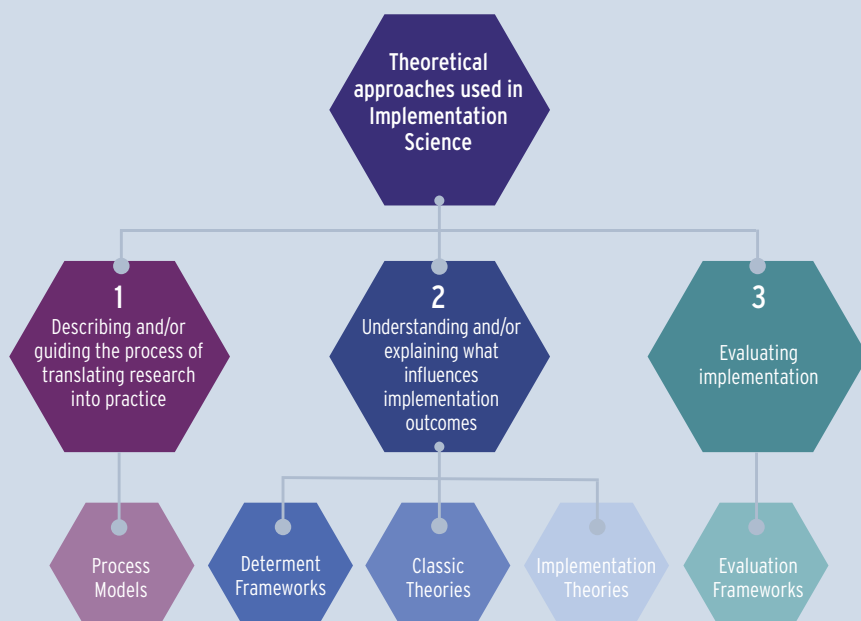


Figure 1: An illustration of Making sense of implementation theories, models and frameworks (adapted from Nilsen et al, 2015)

¹ Making sense of implementation theories and frameworks, Per Nilsen, Implementation Science, 2015

“it is obvious that the menu of potentially useable theories, models and frameworks (within Implementation Science) is extensive”

According to the University Medical Centres in Amsterdam² there are over 170 frameworks and models operational within the world of Implementation Science. As Nilsen (2015) states or perhaps understates, “it is obvious that the menu of potentially useable theories, models and frameworks (within Implementation Science) is extensive”. Indeed, Nilsen’s excellent paper in making sense of the dizzying array of options that are available is an attempt to propose a taxonomy that distinguishes between different categories of theories, models and frameworks in implementation science, in order to facilitate appropriate selection and application of relevant approaches by practitioners.

Nilsen also refers to the fact that while the use of implementation science models and frameworks has many advocates there have also been critics who argue that such tools are not necessarily better than common sense for guiding implementation. The authors do point out that common sense could be described as a theory or model albeit an informal one. Perhaps an argument exists for where research can find a middle ground or where a common-sense approach is taken, assessing how and to what extent models and frameworks contributed to more effective implementation and what context might apply in this regard.

In making sense of implementation theories, models and frameworks for the purposes of this research, we needed to address what approaches from Implementation Science we can usefully apply in the real world, and more specifically within an environmental policy context. In that regard we have distilled down to three implementation science approaches which cover the three overarching aims above identified by Nilsen, namely translating research into practice, understanding what influences implementation outcomes and evaluating implementation. The three examples are provided next page in vignette form.

² <https://www.amsterdamumc.org/en/research/institutes/amsterdam-public-health/strengths/aph-implementation-science.htm>

Table 1: Summary of Implementation Science Theoretical Approaches (adapted from Nielsen, 2015)

Category	Summary	Examples
Process Models	Aim to describe/explain the steps in the process of translating research into practice in order to guide the planning and implementation of policy or service initiatives. The terms “model” and “framework” are both used, but the former appears to be the most common.	<ul style="list-style-type: none"> • The knowledge model of knowledge translation • Quality Implementation Framework • Knowledge to action (K2A) framework. (See Vignette 1 for further details)
Determinant Frameworks	Aim to describe/explain the various types of determinants (barriers and enablers) which influence the effective implementation or uptake of an initiative. This will inform the choice of implementation strategy and helps predict/explain outcomes or interpret them retrospectively. Some frameworks also specify relationships between different types of determinants.	<ul style="list-style-type: none"> • The consolidated framework for implementation research (CFIR) (See Vignette 2 for further details) • The Active Implementation Framework, • Promoting Action on Research Implementation in Health Services (PARIHS), • Theoretical Domains Framework
Classic Theories	Originate from fields outside implementation science (e.g., psychology, sociology, and organizational theory) but these theories can be applied to service or practice initiatives in order to provide understanding of aspects of implementation.	<p>Behavioural change theories in psychology:</p> <ul style="list-style-type: none"> • Theory of Interpersonal Behaviour • Theory of Planned Behaviour • Theory of Reasoned Action
Implementation Theories	Theories that have been developed by implementation researchers (from scratch or by adapting existing theories and concepts) to provide understanding and/or explanation of aspects of implementation	<ul style="list-style-type: none"> • Implementation Climate theory • Organisation readiness theory • COM-B theory (Capability, Opportunity, Motivation and Behaviour) • Normalisation Process Theory
Evaluation Frameworks	Specify/Describe aspects of implementation that could be evaluated to determine implementation success. They are very similar to determinant frameworks	<ul style="list-style-type: none"> • RE-AIM (See vignette 4 for further details) • PRECEDE-PROCEED (Predisposing, Reinforcing and Enabling Constructs in Educational Diagnosis and Evaluation- Policy, Regulatory, and Organizational Constructs in Educational and Environmental Development)

Vignette 1:

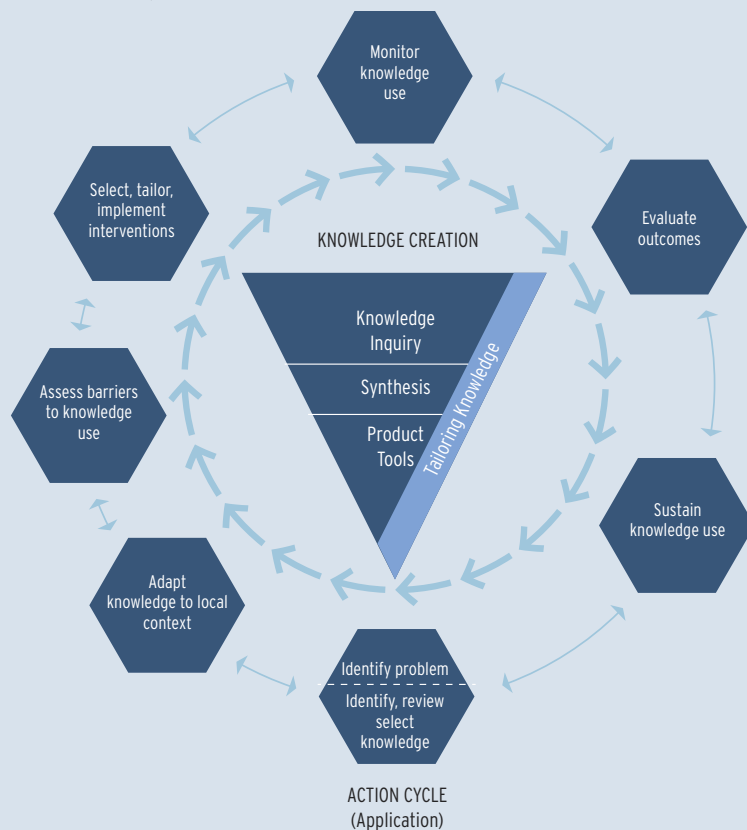
An example of a process model - The Knowledge to Action (KTA) Framework

The knowledge to action (KTA) framework is one of the most frequently cited conceptual frameworks for knowledge translation. It was developed following review of 31 planned action theories about the change process (Graham et al. 2006). This was in response to the multiplicity of terms used to describe the process of converting knowledge into action in health care settings, with projects targeted at patients, the public, and nursing and health professionals.

There are two main components to the KTA framework:

(i) Knowledge Creation Cycle and (ii) the Action Cycle. Both components include several phases which overlap and can be iterative. Action phases may be carried out sequentially or simultaneously and knowledge phases may impact on the action phases. The strength of the KTA framework is in its flexibility and adaptability to specific contexts and needs. It can be used simply to inform or it can be integrated into an implementation project. Not every aspect of the needs to be employed and it can be combined with other conceptual frameworks. It can also facilitate different stakeholders completing different phases at different times (Field et al. 2014).

The Knowledge to Action Framework



Vignette 2:

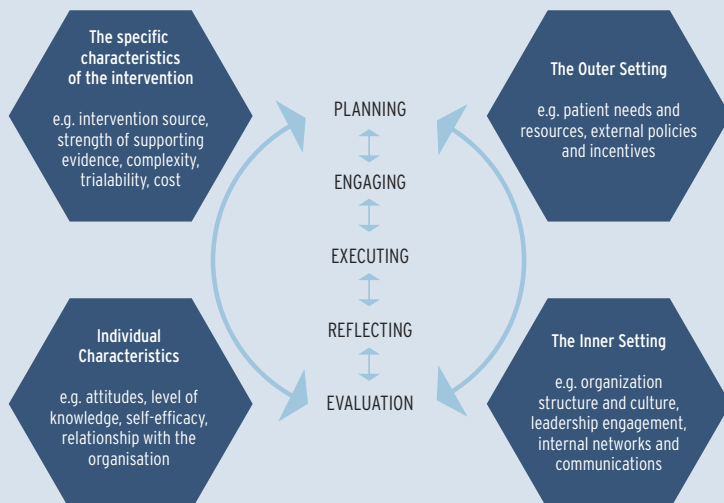
An example of a Determinant Framework - The Consolidated Framework for Implementation Research (CFIR)

The *Consolidated Framework for Implementation Research*, or **CFIR**, aims to provide a comprehensive framework for the implementation of research findings into practice. It draws upon 19 different theories, models, and frameworks. The aim of the CFIR is to provide a practical list of the factors that appear to influence the process of implementation. This can be used for both implementation planning and implementation evaluation. Importantly, the CFIR framework includes factors at organizational and broader societal levels.

The CFIR is organized into five contextual domains: the characteristics of the intervention itself, the outer setting, the inner setting, the individual and the implementation process. It describes four essential activities of the implementation process, common across organizational change models: planning, engaging, executing, and reflecting and evaluating. (Damschroder, et al., 2009).

Each activity can be refined and re-evaluated throughout the course of implementation. The CFIR considers “theory-building” as an iterative process which is continuously being improved following regular consideration of empirical findings. (Damschroder et al., 2022).

Phases of the Implementation Process



Vignette 3:

An example of an evaluation framework - The RE-AIM framework: Reach, Effectiveness, Adoption, Implementation, Maintenance

RE-AIM is one of the most commonly used planning and evaluation frameworks across the fields of public health, behavioural science, and implementation science. It has been applied in a wide range of settings and populations, across a diverse range of clinical, community, and corporate contexts, including policy and environmental change.

One of the characteristics of the RE-AIM framework is its focus on the external validity of the initiative (e.g., generalizability) in addition to internal validity. There is particular emphasis on transparency in reporting across all REAIM dimensions.

The 5 key dimensions of RE-AIM are (Holtrop, 2021):

Reach (Individual Level): The absolute number, proportion, and representativeness of individuals who are willing to participate in an initiative, and reasons why or why not.

Effectiveness (Individual level): The impact of an intervention on individual outcomes, including potential negative effects and broader impact e.g. quality of life and economic outcomes. Variability across different subgroups must also be considered.

Adoption (multiple settings and staff levels): The absolute number, proportion, and representativeness of settings and intervention agents who are willing to initiate a program, and why.

Implementation (Multiple settings and especially delivery staff level): The level of adherence to the various elements of an intervention's key functions or components, including consistency of delivery as intended and the time and cost of the implementation. It also includes any adaptations made to interventions and implementation strategies and reasons for the above results.

Maintenance (individual and setting levels): The extent to which a program or policy becomes institutionalized or part of the routine organizational practices and policies. At the individual level, maintenance has been defined as the long-term effects of a program on outcomes after a program is completed. The specific time frame for assessment of maintenance or sustainment varies across projects.

It also includes any adaptations made to interventions and implementation strategies and reasons for the above results.

3.1 An assessment of tools and frameworks

Implementation science approaches are concerned with how practitioners can implement better in order to achieve better outcomes for public policy and services. The world of implementation science is however complex encompassing a wide array of frameworks, models, and tools which are designed to facilitate the systematic study and improvement of the implementation of interventions, policies, and programs. The complexity stems from trying to address diverse and intricate challenges. While the level of complexity involved can often be seen as a barrier, it can also represent an opportunity in terms of developing innovative solutions and evidence-based strategies to improve the implementation of interventions, policies, and programs across various contexts and sectors.

Knowledge to Action Model (translating research into practice)

For the most part the use of process models is focused on describing and/or guiding the process of translating research into practice. The Knowledge-to-Action Model (or framework) sets out the various stages of research-to-practice process, from discovery and development of research-based knowledge to implementation and use of research in various settings. The knowledge to action models traditionally tended to depict linear processes in which research was simply transferred from producers to users. More recently the importance of placing more emphasis on the contexts in which research is implemented has become evident. Many of the models, including the K2A, originate from the health sector and the nursing led field of research use and the development of process models such as K2A have relied on literature reviews of theories, models, frameworks, and individual studies to identify key features of successful implementation endeavours (Nilsen, 2015).

The traditional sectors within which implementation science has been applied (healthcare, education, and social services), have unique challenges, contexts, and stakeholders, adding to the complexity of applying implementation science principles effectively. The world of policy across the environmental domain, and in particular with respect to areas such as climate action also has unique contexts and stakeholders, but in addition much more complex challenges around coherent policy and effective implementation. While the process model approach

... it would appear that policymakers could potentially adapt elements of the framework which may assist in dissecting the complexity of environmental policies ...

highlights significant potential in relation to how we translate research into practice, the scope for this potential to inform and enhance implementation could be limited in wider policy areas within a real-world context.

Consolidated Framework for Implementation Research (CFIR) - Understanding what influences implementation outcomes

Implementation science relies on structured frameworks to guide the systematic planning and execution of policy implementation. Frameworks such as the Consolidated Framework for Implementation Research (CFIR) provide a blueprint for identifying and addressing issues impacting policy adoption and implementation.

While CFIR provides a comprehensive framework for understanding the many factors that influence implementation success, including intervention characteristics, and internal and external settings, the framework is also significantly complex. Piat et al (2021)³ developed a CFIR card game as a new approach for working with implementation teams to identify challenges and strategies which seeks to address the density and complexity of CFIR with the aim of making the resource more applicable to implementation outside of academia. In many ways this represents the ultimate challenge of how to successfully make the various implementation science frameworks and tools more accessible, relevant and transferable in the eyes of practitioners in the wider world of public policy.

However, this is not to say that implementation frameworks like CFIR, are not transferable outside current practice. For example, it would appear that policymakers could potentially adapt elements of the framework which may assist in dissecting the complexity of environmental policies to better understand the issues and breaking down policies into more manageable components, where they can be addressed more effectively.

³ The CFIR Card Game: a new approach for working with implementation teams to identify challenges and strategies. Piat et al, Implementation Science Communications, (2021)



Damschroder et al (2022)⁴ referred to the frequency of where many implementation efforts fail despite having highly developed plans for execution. The reason for this is due to the contextual factors which can be powerful forces working against implementation in the real world. The Consolidated Framework for Implementation Research (CFIR) is one of the most commonly used determinant frameworks to assess these contextual factors.

RE-AIM Framework (evaluating implementation)

The RE-AIM framework, again originally developed for the field of public health, provides a structured approach for evaluating the reach, effectiveness, adoption, implementation, and maintenance of interventions and policies helping practitioners evaluate their impact and sustainability. While initially designed for health-related programs, the RE-AIM framework may also have the potential for being a valuable tool in implementing wider and more complex policies in various domains, including environmental policy. Within the field of public health, the implementation piece often refers to *implementation fidelity*, and fidelity in this context refers to whether an intervention or programme is delivered as originally intended. This is a key question to pose within the context of this research in terms of what mechanisms are in place across environmental policy areas (i.e., climate) to track if implementation is happening in line with what was intended. The RE-AIM framework promotes a holistic approach, encouraging policymakers to consider multiple dimensions of policy implementation.

It is interesting to note that Jilcott et al (2007)⁵ had identified that few planning and evaluation models had been applied to health policies, focusing for the most part on health promotion interventions. The authors demonstrated how the RE-AIM framework could be applied to wider policy and can be useful in estimating public health impact, comparing different health policies, planning of policies designed for increased likelihood of success and identifying areas of integration of policies with other health promotion strategies.

⁴ The updated Consolidated Framework for Implementation Research based on user feedback Damschroder et al. *Implementation Science*, 2022.

⁵ Applying the RE-AIM framework to assess public health impact of policy change, Jilcott et al, 2007, *Annals of Behavioral Medicine*.



4

Implementation Science and the Environment

4.1 A whole of Government Challenge

The Public Service Reform plan (2014-16) was noteworthy for the establishment of the Senior Public Service (SPS) leadership development programme.

The remit of the programme was to “nurture the collaborative culture needed to tackle the biggest cross cutting social and economic challenges, initially across the civil service but ultimately extending to the wider public service.”⁶ Strengthening leadership and management capacity at an individual level as well as developing leaders as a shared corporate resource for the system as a whole were seen as key objectives.

Within this context, it is interesting to note that the Centre for Effective Services (CES) published a report in 2014⁷, which explored an implementation science perspective on whole of government approaches to policy. In drawing together “whole of government approaches” and implementation science, the report refers to a “Stages and Enablers Framework,” which offered potential for an evidence informed approach to whole of government policy. Figure 2, next page, provides an illustration of this enablers for implementation approach which is adapted from the Introductory Guide to Implementation published by CES in 2012⁸.

The CES report notes that given the increasing complexities of the social and economic landscape, it was increasingly likely that “whole of government” approaches will be a key feature of the policy implementation landscape going forward. It is not surprising that environmental complexities, and climate change considerations specifically, were not referenced in the CES report given that such considerations were not likely as visible on the landscape at the time for both politicians and policymakers (prior to Paris agreement and Climate Act 2015). However, it is instructive to note that the report concludes by stating that the “literature on Implementation Science offers a resource to guide thinking on how the challenges of implementation can be met and that linking theory on whole of government approaches with emerging work on evidence informed policy implementation can inform and guide future developments.”

⁶ Public Service Reform Plan 2014-16, DPER

⁷ A primer on Implementing Whole of Government Approaches, CES, 2014

⁸ Introductory Guide to Implementation, CES, 2012

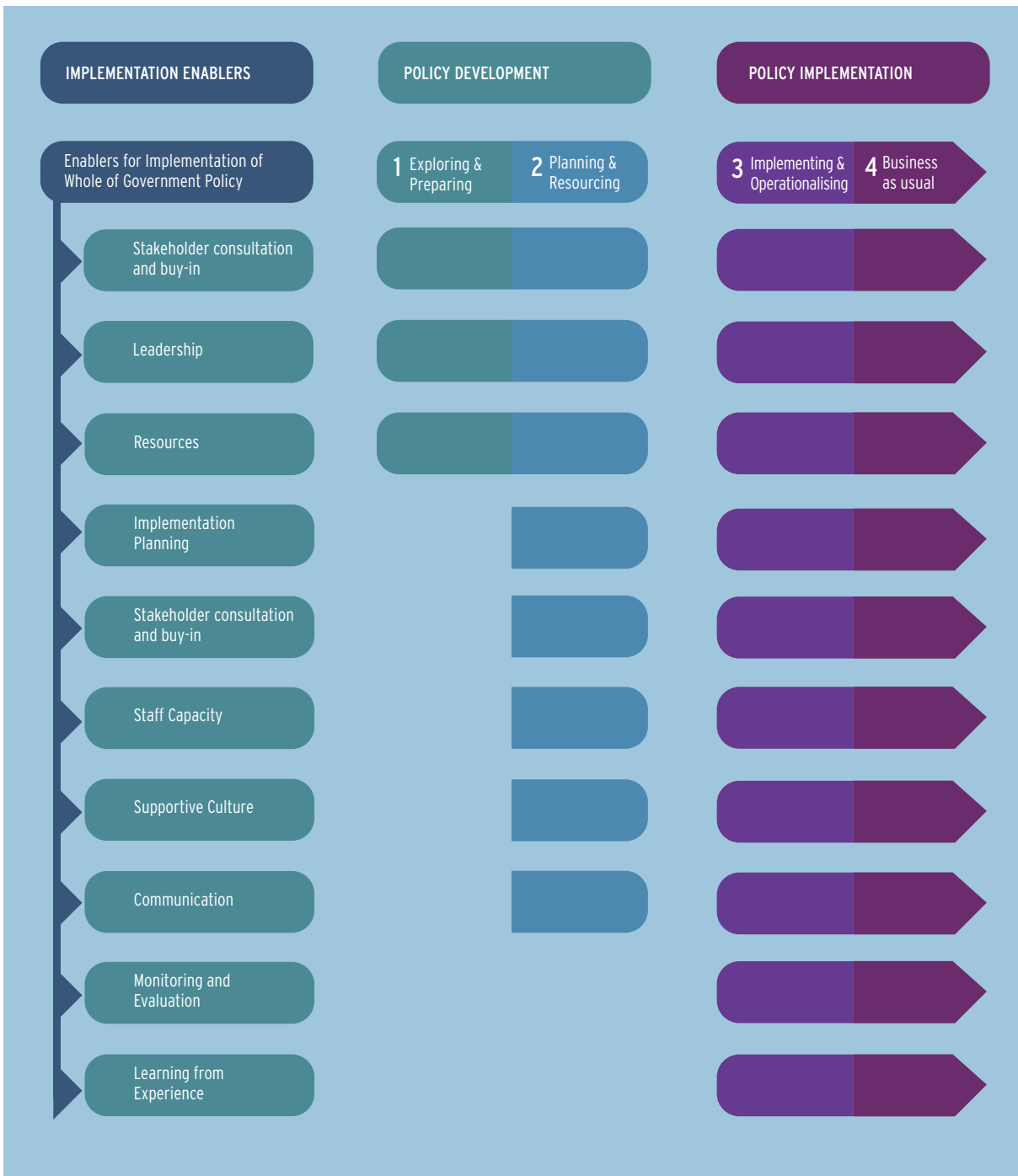


Figure 2: Enablers for implementation of whole of government policy (adapted from CES Introductory Guide to Implementation (2012) and courtesy of CES.

In terms of the potential to apply implementation science to wider policy areas outside of the traditional health care sectors it is important to also note the current work being done by CES, in collaboration with University of Limerick and Queens University, to develop and deliver a thoroughly tested Implementation model that will support the Implementation of policy and new practices within intricate multi-disciplinary contexts. This work, which has significant relevance to IPA/EPA research programme, will include a review of evidence pertaining to Implementation within multi-stakeholder environments while also looking to identify the factors that facilitate or impede successful implementation. The expected outputs of the model include a scoping review of Implementation Science and Policy Theory, an evidence review focusing on Implementation in multi-stakeholder environments, a set of guidelines tailored for such environments, and a comprehensive model outlining best practices for Implementation within multi-stakeholder contexts. The primary audience targeted for these outputs comprises departments and agencies engaged in implementing policy or new practices at both national and local levels, thereby aiming to enhance the effectiveness and efficiency of implementation efforts across various sectors.

4.2 Implementation Science and the Environment

As noted previously, the field of implementation science is concerned with promoting the systematic uptake of research findings and other evidence-based initiatives into routine practice. The field was originally developed to help reduce the time-lag in the adoption of evidence-based practices from health research into routine medical practice. It could be argued that similar time lags and barriers exist within the environmental policy domain and in that regard, it seems quite plausible that potential exists for the effective application of implementation science approaches within the environmental sector.

It could be argued that similar time lags and barriers exist within the environmental policy domain ...

Despite this potential, there has been very little written in the implementation science literature to date on the application of implementation science to the environmental sector. However, a key paper by Hering (2018), did begin to examine the potential applicability of implementation science to the environmental sector. Hering identified several key aspects of implementation science as being potentially beneficial to addressing implementation challenges in the environmental sector. These are outlined below:

- The application of structured models and frameworks to improve implementation of research-based results, i.e., Evidence Based practices (EBP).
- Robust and rigorous monitoring of implementation once it is initiated.
- More adequate consideration of the wider context of an EBP implementation (this includes socio-economic, political, cultural, and organisational/institutional factors that could affect the implementation process).

To explore this potential further, Hering suggests that a mapping exercise would be required in order to try and understand which particular aspects of implementation science could be applied in the environmental domain. In suggesting this approach, Hering also noted several important differences between the health and environmental sectors which would need to be considered in terms of what approach policy makers might take when incorporating implementation science into their respective areas. Hering identified five areas which might be seen as unique to the environmental sector, and which would need to be considered in the context of applying implementation science approaches.

These include institutional settings, scale, focus (policy versus practice), diffuse and complex funding landscape and lack of systemic or structured supports for knowledge brokering. Table 2 below provides a brief overview of the five areas identified including the unique characteristics associated with the environmental sector.

Table 2: Unique characteristics of the environmental sector for consideration when applying implementation science approaches (Adapted from Hering, 2018).

Different Individual Actors and unique Institutional Settings	Environmental problems often involve different, conflicting interests between stakeholders or even for individual stakeholders, The institutional settings in which environmental issues are addressed and individuals or communities engage with regulatory authorities can vary a lot. In addition, mandated public engagement on environmental issues occurs more often at the community than at the individual level though individual decision-making can be important for household-based environmental exposure or relevant sectors (transport).
Differences in Scale	In the environmental domain both environmental problems and the associated mitigation measures occur on scales ranging from the global to the local. If not addressed, mismatches in scale can lead to conflicts of interest and ineffective solutions. Focusing on the global scale (e.g., for climate change, biodiversity, or water management) can be useful to highlight parallels as well as opportunities and the urgency of the problem. However, this can be counter-productive if effective solutions can only be identified, agreed upon and implemented at a more local scale.
Differences in focus: policy versus practice	In comparison with the health sector, the environmental domain has a stronger focus on the uptake of research into the policy-making process. This likely reflects the more collective decision-making that is required - some implementation in environmental practices involves regulators or municipal/regional authorities. In addition, some environmental regulations are required to be regularly updated based on the most recent scientific evidence.
Diffuse, diverse engagement from environmental funding agencies	In the environmental domain, strong interests from authorities and funding agencies motivates researcher engagement in knowledge exchange, particularly when accompanied by financial support. The large range of topics that come under the environmental umbrella and the diversity of environmental agency engagement has resulted in a corresponding diversity in the approaches taken to promote implementation of research findings in environmental policy and practice.
The large variety and diversity of approaches taken in the environmental sector	Issues in the environmental domain have resulted in a wide variety of approaches for engaging stakeholders and promoting evidence-based policy and practice. A large number of methods and techniques have now been established within multiple subcommunities. There has been criticism that knowledge exchange in the environmental domain is not sufficiently evidence based and lacks systematic evaluation. There is, however, a common understanding of the need for knowledge brokering. This requires interpersonal and communication skills as well as technical expertise, acting as a mediator between knowledge producers and users. Importantly, these skills are often learned 'on the job' and performed without the type of structured support or the professional community that is offered by implementation science in the health domain.

4.3 Applying implementation science approaches

Hering suggests that with minor modifications, the 2006 definition of implementation science could just as well be applied to the environmental domain, e.g.;

“The scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into policy and practice, and, hence, to improve the quality and effectiveness of the management of the environment and natural resources for the protection of ecosystem services and public health.”

Hering states that it seems equally likely that many of the concepts and tools developed for implementation science could be applied in the environmental domain, and to overcome the fragmentation of approaches that characterize the environmental domain, it could be beneficial to adopt some additional aspects of implementation science.

Hering posits a number of areas that could form the basis of next steps in the area of implementation science and the environment, namely;

- **Mapping** - A more detailed mapping exercise to understand which aspects of implementation science could be applied in the environmental domain either directly or in a modified form. Also, equally important to identify limits to the transferability of concepts, tools, and approaches from the health to the environmental domain.
- **Institutional Embedding** - to contrast the positioning of implementation scientists in the health domain with individuals working at the interface of science with policy and practice on environmental issues and to identify the institutional structures which have been successful in supporting implementation science in the health domain as a basis for determining whether comparable structures and support could be developed in the environmental domain.

- **Training and Professional Development** - to embed environmental implementation science into academic research institutions through programs of education and professional development. Courses or course modules (including online courses) could be developed for different educational stages and needs.
- **Leveraging Knowledge and Experience** - methods and approaches in implementation science are elaborated mainly in the context of medicine and public health in terms of leveraging of knowledge and experience, whereas knowledge brokering tends to be aligned with specific applications in subdomains of environmental science and engineering and natural resource management with cross referencing not common. Data and information sharing and reuse across boundaries is a challenge which could potentially be addressed by learnings from Implementation Science.

Hering concludes that the investments made in implementation science in the health domain have resulted in a portfolio of concepts, approaches and tools that could also be applicable in the environmental domain and that adapting implementation science for the environment could minimise duplication of effort and allow resources to be used more effectively.

4.4 Implementation Science and Climate Change

In addition to Hering's paper, the literature review also identified two specific references where theoretical implementation science was referenced in respect of climate change.

Bikomeye et al. (2021) provides an example of a theoretical (implementation science) approach to addressing environmental issues. The authors present a conceptual framework to guide research on mitigation/adaptation strategies against emerging global health threats caused by climate-change describing the pathway linking climate strategies/interventions to successful climate change outcomes and the resultant public health outcomes (see Figure opposite page). The framework offers a conceptual view of the current state of knowledge in this area and its real-world applicability.

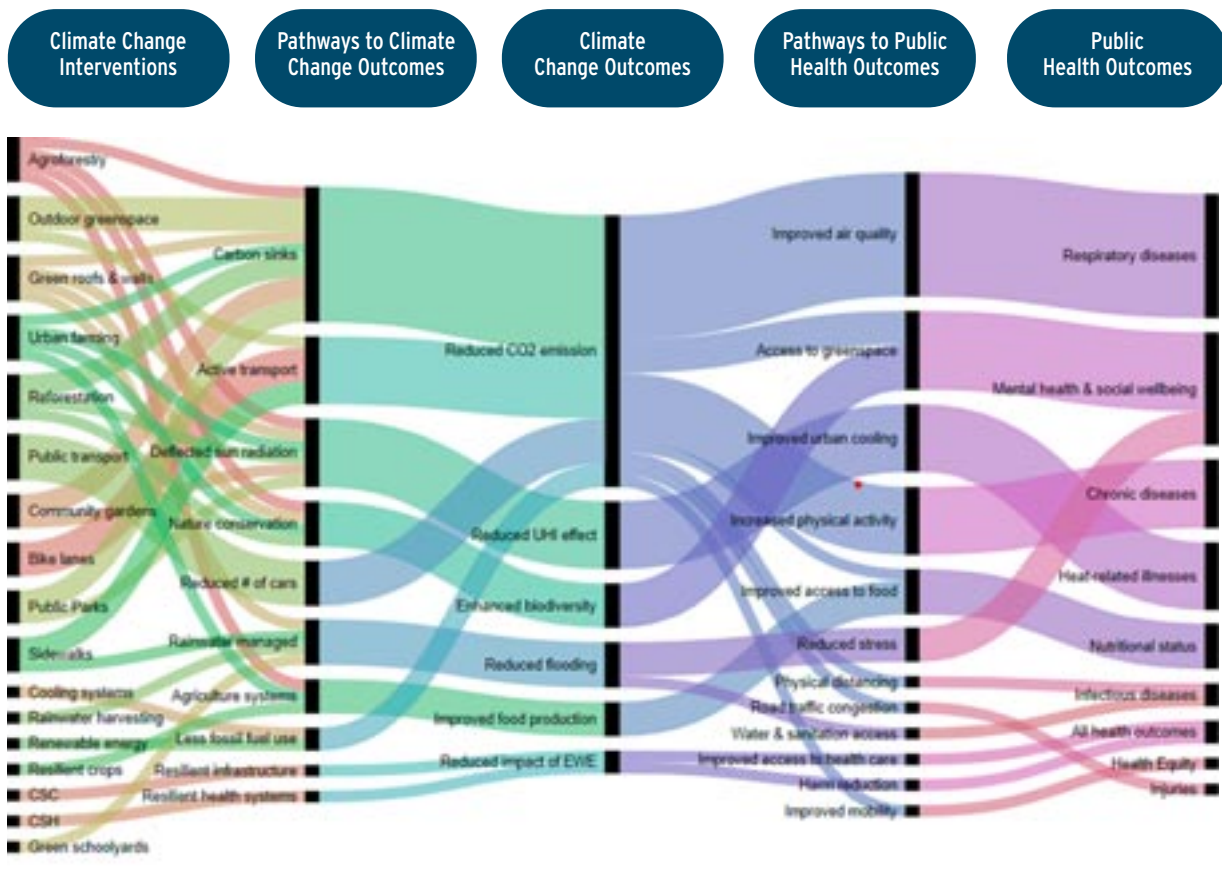


Figure 3: Conceptual framework to guide research on climate change mitigation and adaptation strategies and human health benefits (adapted from Bikomeye et al. 2021)

Boyer et al (2020)⁹ examined how implementation science can address questions related to implementation and help the health sector scale up successful adaptation measures in response to climate change. In the context of a changing climate and with specific reference to the Pacific Islands, the authors propose that implementation science can guide decision makers in introducing and prioritising potential health adaptation and disaster risk management solutions, advancing sustainability initiatives, and evaluating and improving intervention strategies.

⁹ Using Implementation Science For Health Adaptation: Opportunities For Pacific Island Countries, Boyer et al 2020, Env Health

Specific areas identified by Bowyer where implementation science approaches would be useful in guiding health adaptation strategies in response to climate change include:

- The incorporation of iterative approaches into all stages of the implementation process
- The promotion of knowledge sharing among stakeholders
- The scale up of projects and documentation of lessons learned through engagement with public health professionals and communities (i.e., getting context-specific insights which could assist development of specific modifications for health adaptation responses to climate change)

Boyer did reflect however that implementation science is not specifically designed for issues such as climate change and other socioenvironmental changes where the future will be much different than the past and where significant uncertainties will need to be incorporated and managed. The logic being that Implementation Science techniques can struggle to anticipate and account for long-term changes. It is suggested therefore that Implementation Science for climate change and health adaptation should take place within the context of iterative risk management and systems-based approaches as otherwise it may miss opportunities to increase resilience as vulnerabilities shift, better practices develop, and the climate continues to change.

Boyer makes specific reference to the Reach Effectiveness Adoption Implementation Maintenance (RE-AIM) and suggests for example that the framework could be very useful in answering questions related to evaluating a climate and health training program, by asking how to reach those in need of the training (Reach), how to know if the training is feasible (Implementation), or how to ensure long-term institutionalisation (Maintenance). Boyer also references CFIR as having the potential to prove useful in better understanding and organising potential factors that can influence the integration of climate and health forecasted outlooks into health planning. Within this context, the authors note that CFIR contains key factors most likely to affect implementation, such as

... it may miss opportunities to increase resilience as vulnerabilities shift, better practices develop, and the climate continues to change.

stakeholders' perceptions, external policy incentives, belief about an intervention, and leadership engagement. Boyer, (2020) argues that implementation science for climate change and health adaptation should take place within the context of a broad systems-based approach along with regular risk management to ensure that full advantage is taken from any opportunities which arise to increase resilience as vulnerabilities change and better practices develop (Boyer, 2020). A strong emphasis on co-design and good stakeholder engagement and buy-in between researchers, decision makers and other stakeholders is also important as it will foster trust, transparency, and cooperation.

Implementation science may also play a role in supporting monitoring, evaluation, and learning activities to determine whether climate adaptation interventions have achieved their desired outcomes and whether resources were used effectively and efficiently (Boyer et al. 2020). Having a well-designed monitoring, evaluation, and learning system in place with corresponding indicators of success will enable and facilitate proper assessment of the readiness communities and countries to implement evidence based environmental policy. Intervention strategies that prioritise iterative learning and refinement will cultivate a more enabling environment, more successful implementation, and improved performance outcomes (Boyer et al. 2020).

As identified elsewhere in this research, it is interesting to note that Boyer concludes that while implementation science will not resolve all of the challenges associated with identifying and implementing effective interventions, the relevant approaches adopted, which focus on better understanding the gap between knowledge and action, may help researchers and practitioners systematically identify context-specific gaps, determine why they exist, and propose effective solutions.

Dissemination of research and interviews with key stakeholders

5.1 Dissemination

As part of the dissemination and knowledge transfer aspects for this research, the team has presented at two Implementation Science conferences to date;

- The European Implementation Collaborative (EIC) conference in Basel Switzerland (June 2023), and
- The 6th UK and Ireland implementation Science joint research conference hosted by the University of Limerick, (July 2023).

It was interesting to note that the keynote addresses for both conferences had a specific focus on referencing implementation science within the wider context of public policy, including climate and sustainability. Of particular note was the conference in Limerick, where the overarching theme was framed around the role for implementation science in sustaining health and public services in an uncertain future. The conference organisers were particularly interested in research relating to the UN Sustainable Development Goals including health and wellbeing, education, climate change and reducing inequalities.

While both events highlighted or referenced the broader applicability that implementation science might have across wider policy areas including climate change and the environment, it was also evident that this interest or appetite was not yet manifest in respect of the conference sessions themselves which continued to focus for the most part on very detailed case studies around interventions in both health and social care sectors. In other words, there was a clear signal from the implementation science community of a strategic wish to open up the discipline to the real world of wicked problems including those across the environmental domain. While there was no real sense yet of what direction that might take, this high-level messaging is very encouraging in terms of the aims and objectives for this EPA research and this messaging was reinforced by the views expressed during our interviews with key practitioners across implementation science.

5.2 Interviews with key practitioners

As part of this phase 1 research into implementation science and environment and to support the feedback received at the two conferences, the research team carried out a series of interviews with a selection of experts and practitioners across implementation science and wider policy implementation. The interviewing process is not yet complete, however a list of those interviewed to date is provided in Annex One.

One of the contributors to this research, Professor Paul Cairney¹⁰, discusses effective government, within the context of advising Scottish parliament on *public administration and effective decision making*. In referencing the submissions to this process, where Cairney was the Committee advisor, he refers to what he describes as a familiar two-part narrative;

1. There should be clearly defined steps or stages to making decisions, and governments should make use of well-established, rigorous, decision-making tools (the call for *systematic policymaking* in theory)
2. They identify their generally disappointing experiences of unfulfilled reforms and implementation gaps (the absence of *systematic policymaking* in practice)

The interviews carried out for this research often highlighted how complex implementation and governance can be, referencing the need to have a whole range of bodies at different levels of government and NGOs to work together. A wide range of actors are central to policy change. In many ways it is about finding solutions or pathways to help people cooperate and collaborate and building trust based on a common purpose. In this regard it was interesting to note that a high level of centralisation of government (which reflects the situation in Ireland) can often be a barrier to building relationships, cooperation, knowledge sharing and a general whole of government response. The relational aspect of implementation was often highlighted as an important consideration particularly with respect to knowledge sharing, stakeholder engagement, and organisational culture.

It was clear from the interviews that implementation science does have an important role to play in complex areas that are cross government; what is the evidence, how does it get into policy and then how does it get into practice. While acknowledged that sectors may be working away happily (and relatively effectively) in scenarios which could be described as siloed, the ability to work across government or within a whole of government approach requires a very different approach. A high level of consistency is desirable to ensure all relevant sectors are on the same path. This is particularly true for a whole of government challenges like climate which is bigger than just the responsibility of one government department or agency.

¹⁰ <https://paulcairney.wordpress.com/2023/03/14/what-is-effective-government/>

A high level of consistency is desirable to ensure all relevant sectors are on the same path.

The interviews reinforced the thinking around the complexity of implementation science given the sheer number of frameworks and tools which exist. This level of complexity is often further complicated by the development of new frameworks and tools rather than using or adapting what is already there. This has led to a lack of coherence in the field regarding terminology and the level of understanding between frameworks leading to difficulties in highlighting which frameworks and tools should be used in a particular context.

In bringing implementation science into the wider world of public policy the interviewees also highlighted where the focus in implementation science can be quite specific, often making it difficult to try and apply it more widely to different policy problems with multiple settings/contexts. While implementation science tools seem quite straightforward (follow some steps and get a benefit) the reality is much more complicated because so much of it is about people coming together and co-creating, and really understanding what each other is doing. As one interview noted; there are no shortcuts.

It is also clear that implementation science on its own might not be the silver bullet required for wider complex policy challenges and will likely have to be used in tandem with classic policy research literature, looking at how policies get passed and how they get implemented. Implementation science may be best used in combination with other management approaches like more traditional implementation strategies. The concept of de-implementation was also highlighted and the value of assessing how do you stop doing something once you decide it is no longer working.

In summary, the interviews carried out to date for this research suggest that there is an increasing convergence between health and environmental work, especially in the public health policy area. There is a clear appetite (also evidenced by the recent conferences referenced above) that the time is right for considering wider policy challenges such as climate and the potential additional value that might be gained from bringing implementation science into the environmental area. More specifically to look at the potential that exists in terms of bringing those stakeholders together at all levels, from the wider strategic piece, to context, and moving down the line to what actually can be done in terms of climate action. To take this next step, the interviews also noted how instructive the RE-AIM and CFIR frameworks might be in this context, where assessing internal and external contexts will be critical in clarifying very complex systems.

Conclusions and Next Steps

The world of implementation science is complex and increasingly so as additional tools and frameworks continue to be developed and where existing tools and frameworks are adapted for specific contexts.



It is clear that the applicability of these tools and frameworks becomes more limited as one moves from the controlled settings associated with the health/social care sectors to wider policy areas and especially so where that policy is cross sectoral or has a whole of government objective. This phase of the EPA-IPA implementation science project has sought to untangle some of these complexities by offering an accessible review of the literature. In doing so, the review has identified implementation approaches which are potentially relevant for key environmental policy areas.

Given the gaps in the existing literature, engagement with practitioners and academics was crucial to gain a clearer understanding of the limitations and possibilities associated with implementation science and its potential use in other policy contexts. There are clear messages and signals from both key practitioners but also the wider implementation networks (national and international) that Implementation Science needs to expand its discipline to work across public policy and this need is very much evident across wicked problems such as climate.

Section 3 of this report provides an overview of models, theories and frameworks and describes an example of each in more detail with a view to assessing what approaches might have the greatest potential to transfer across to wider policy (i.e., environmental). While the Knowledge 2 Action Model has significant potential for translating research into practice, it did not show an obvious wider applicability to more real-world scenarios in implementing complex policy. On the other hand, the CFIR and RE-AIM frameworks respectively, are more comprehensive in terms of scope and offer a wider potential to impact effective implementation and structured evaluation.

It is widely acknowledged that Ireland needs to improve upon its track record of environmental policy implementation and enforcement; it is clear that implementation science may have a role to play in that regard and will be the focus of the next phase of the project. Building on the knowledge gained from phase 1, the second research paper will focus on how frameworks such as CFIR and RE-AIM can help inform future implementation strategies for the areas of land use and climate adaptation.

6.1 CFIR and Land Use

The Consolidated Framework for Implementation Research (CFIR) provides a comprehensive framework for understanding the many factors that influence implementation success, including intervention characteristics, and internal and external settings. The framework is one of the most commonly used to assess these contextual factors and therefore offers significant potential for applicability to a challenging policy area. In particular, the framework is seen as the ideal candidate for the purposes of phase 2 of this research, where a focused assessment will be carried out on the potential to adapt the framework so as to inform and advise on effective approaches for moving forward with an effective implementation strategy for Land Use policy.

The programme for government committed to a land use review to ensure that optimal land use options inform all relevant government decisions. The commitment to carry out the review is outlined in Climate Action Plan 2021 and comprises two phases. The EPA have completed phase 1¹¹ which provides an evidence base to determine environmental, ecological, and economic characteristics of land types across Ireland. Phase 2, which will be initiated in the coming weeks, is to identify policies, measures and actions in the context of the government's wider economic, social and climate objectives. The commencement of Phase 2 for the land use review, where initial policies will be developed, is very timely in coinciding with the initiation of Phase 2 for this research and the assessment of the potential of CFIR or an adaptation thereof, to inform effective implementation approaches.

¹¹ EPA Land Use Synthesis Report, 2023

It is widely acknowledged that Ireland needs to improve upon its track record of environmental policy implementation and enforcement.

6.2 RE-AIM and Climate Adaptation

RE-AIM is one of the most commonly used evaluation frameworks across the fields of public health, behavioural science and implementation science. It is well documented as providing structured approach for evaluating the reach, effectiveness, adoption, implementation and maintenance of interventions and policies, helping practitioners evaluate their impact and sustainability. As such the framework offers significant potential for further investigation in phase 2 of this research with a view to evaluating how climate adaptation policy has been implemented to date.

Governance of adaptation is complex and challenging; it involves coordinating a fragmented landscape of actors, priorities and actions while ensuring consideration of justice and equity; managing varying timelines and levels of risk; bringing together different types of knowledge, and; often acting in absence of defined and measurable goals (Jo-Ellen Parry et al., 2022).

The National Adaptation Framework (NAF) is the statutory overarching policy for adaptation, and it recognises the importance of a whole-of-Government response to climate adaptation. It was introduced in 2018 and is currently being reviewed in line with obligations under the Climate Act 2021.

At international level, the IPCC (2023) has recently stated that strong governance capabilities are a critical enabler of successful adaptation efforts, as they are associated with more ambitious adaptation plans and their effective implementation. At national level, the Climate Change Advisory Council (CCAC) has expressed significant concern regarding the progress and prioritisation of adaptation including the need for urgency of implementation “to deliver meaningful impacts on the resilience of critical infrastructure and systems, communities and ecosystems.” (Annual Report 2023).

Given that the state has seen one policy cycle of Climate Adaptation planning (i.e. under the Climate Act 2015), the timing is again opportune through phase 2 of this research, to evaluate using the RE-AIM framework, how implementation of climate adaptation has worked to date with a view to informing the next round of adaptation planning required under the more recent legislation (Climate Act 2021).

References

1. Bauer and Kirchner. (2020) 'Implementation science: What is it and why should I care?', *Psychiatry Research*, (282). DOI: <https://doi.org/10.1016/j.psychres.2019.04.025>
2. Bauer et al. (2015) 'An introduction to implementation science for the non-specialist', *BMC Psychology*, 3(32). DOI: <https://doi.org/10.1186/s40359-015-0089-9>
3. Bikomeye et al. (2021) 'Positive Externalities of Climate Change Mitigation and Adaptation for Human Health: A Review and Conceptual Framework for Public Health Research', *Int. J. Environ. Res. Public Health*, 18(5). DOI: <https://doi.org/10.3390/ijerph18052481>
4. Birken et al. (2017) 'Combined use of the Consolidated Framework for Implementation Research (CFIR) and the Theoretical Domains Framework (TDF): a systematic review', *Implementation Science*, 12(2). DOI: <https://doi.org/10.1186/s13012-016-0534-z>
5. Birken et al. (2018) 'T-CaST: an implementation theory comparison and selection tool.', *Implementation Science*, 13(143). DOI: <https://doi.org/10.1186/s13012-018-0836-4>
6. Boyer et al. (2020) 'Using Implementation Science for Health Adaptation: Opportunities for Pacific Island Countries', *Health Affairs*, 39(12). DOI: <https://doi.org/10.1377/hlthaff.2020.01101>
7. Centre for Effective Services (2012) 'Introductory Guide to Implementation'.
8. Centre for Effective Services (2014) 'A primer on Implementing Whole of Government Approaches'.
9. Damschroder LJ, et al. (2009). 'Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science,' *Implementation Science*, 4(50). DOI: <https://doi.org/10.1186/1748-5908-4-50>
10. Damschroder LJ, et al. (2022) 'The updated Consolidated Framework for Implementation Research based on user feedback', *Implementation Science*, 17(75). DOI: <https://doi.org/10.1186/s13012-022-01245-0>
11. Eccles and Mittman. (2006) 'Welcome to Implementation Science', *Implementation Science*, 1(1). DOI: <https://doi.org/10.1186/1748-5908-1-1>
12. Environmental Protection Agency (2023) 'Land Use Evidence Review Phase 1 Synthesis Report'. Available at: <https://www.gov.ie/pdf/?file=https://assets.gov.ie/246678/989cae78-87c1-49ab-99d7-7e02192de089.pdf#page=null>
13. Feldstein A, Glasgow RE. (2008) 'A practical, robust implementation and sustainability model (PRISM) for integrating research findings into practice', *Joint Commission Journal on Quality and Patient Safety/Joint Commission Resources*, 34(4), pp. 228-243. DOI: [https://doi.org/10.1016/s1553-7250\(08\)34030-6](https://doi.org/10.1016/s1553-7250(08)34030-6)

14. Field et al. (2014) 'Using the Knowledge to Action Framework in practice: a citation analysis and systematic review', *Implementation Science*, 9(172).
DOI: <https://doi.org/10.1186/s13012-014-0172-2>
15. Graham et al. (2006) 'Lost in knowledge translation: Time for a map?', *Journal of Continuing Education in the Health Profession*, 26(1).
DOI: <https://doi.org/10.1002/chp.47>
16. Hering, J.G. (2018) 'Implementation Science for the Environment', *Environment Science Technology*, 52(10), pp. 5555-5560.
DOI: <https://doi.org/10.1021/acs.est.8b00874>
17. Holtrop et al. (2021) 'Understanding and applying the RE-AIM framework: Clarifications and resources', *Journal of Clinical and Translational Science*, 5(1).
DOI: [10.1017/cts.2021.789](https://doi.org/10.1017/cts.2021.789)
18. Jilcott et al. (2007) 'Applying the RE-AIM framework to assess public health impact of policy change', *Annals of Behavioral Medicine*, 34(2), pp. 105-114.
DOI: <https://doi.org/10.1007/bf02872666>
19. Moullin et al. (2019) 'A systematic review of the Exploration, Preparation, Implementation, Sustainment (EPIS) framework', *Implementation Science*, 14(1).
DOI: <https://doi.org/10.1186/s13012-018-0842-6>
20. National Cancer Institute (year) 'Implementation Science at a Glance: a guide for cancer control practitioners. Available at: <https://cancercontrol.cancer.gov/sites/default/files/2020-07/NCI-ISaaG-Workbook.pdf>
21. Nilsen, P. (2015) 'Making sense of implementation theories, models and frameworks', *Implementation Science*, 10(53).
DOI: <https://doi.org/10.1186/s13012-015-0242-0>
22. Nilsen P, Potthoff S and Birken SA. (2022) 'Conceptualising Four Categories of Behaviours: Implications for Implementation Strategies to Achieve Behaviour Change', *Frontiers in Health Services*, Vol (1).
DOI: <https://doi.org/10.3389/frhs.2021.795144>
23. Piat et al. (2021) 'The CFIR Card Game: a new approach for working with implementation teams to identify challenges and strategies', *Implementation Science Communications*, 2(1). DOI: <https://doi.org/10.1186/s43058-020-00099-1>
24. Wall et al. (2020). *Ireland's Environment - An Integrated Assessment 2020*. Dublin: Environmental Protection Agency Ireland. Available at: <https://epawebapp.epa.ie/ebooks/soe2020/6/>

Annex One: List of experts interviewed for this research on Implementation Science and the Environment

The IPA would like to acknowledge the time, expertise and hugely valuable inputs provided to this research from the following contributors.

Professor Paul Cairney
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Paul Cairney is Professor of Politics and Public Policy in the Division of History, Heritage, and Politics at the University of Stirling, Scotland and is a Fellow of the Academy of Social Science. Paul is a specialist in British politics and public policy, often focusing on the ways in which policy studies can explain the use of evidence in politics and policy, and how policymakers translate broad long term aims into evidence-informed objectives.

Dr. BJ Pearce
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BinBin is an assistant professor for policy analysis and design at Delft University in the Netherlands. She is the coordinator of the Horizon 2020 project Energy Citizens for Inclusive Decarbonization (ENCLUDE). Previously, BinBin was a senior researcher at the Transdisciplinary Lab in the Institute of Environmental Decisions at ETH Zürich where she specialised in joint problem framing processes, eliciting cognitive maps and developed a framework for understanding the role of insight discovery in complex problem solving on topics related to sustainable development.

Prof. David Pencheon
(University of Exeter)

David Pencheon was the founder Director of the Sustainable Development Unit for NHS England and Public Health England, established in 2007. He is now an Honorary Professor and an Associate at the Medical and Health School at the University of Exeter, UK, an Advisory Group member and associate with the *Wellcome Centre for Cultures and Environments of Health*, a trans-disciplinary centre, and a collaborator with the *European Centre for Environment and Health* and the *Global Systems Institute*, all at the University of Exeter.

Niamh O Rourke
(HIQA)

Niamh O Rourke is head of National Standards at the Health Information and Quality Authority (HIQA) where she leads work on improving the quality and safety of health and social care services by setting national standards, publishing guidance and promoting practice that is up to date, evidence based, effective and consistent to implement the standards into practice.

Andrew Bray
(CES)

Andy is a senior project specialist in the Centre for Effective Services (CES), where he works on implementation, practice and service development. Andy joined CES with a vision to improve the use of implementation practice to improve outcomes across a range of service areas. With a background in youth justice, Andy has worked in both statutory and voluntary sector organisations where he was involved with service management and service/practice development.

Katie Burke
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Katie is Chief Operating Officer at The Corporate Governance Institute where she leads the Product Development, Operations and Talent Development teams. Prior to this, Katie was a senior manager at the Centre for Effective Services where she played a lead role in scaling the organisation, building the team and developing partnerships. Katie is an author of many guides on implementation, used in policy and services in Ireland and internationally.

Professor Alice Coffey
(University of Limerick)

Professor Coffey is Chair of Nursing and Midwifery at the Department of Nursing and Midwifery in University of Limerick. Professor Coffey's research interests are in the areas of transitional care, gerontology, Dementia, Palliative Care, and Implementation Science. Alice is currently Principal Investigator on a number of research grants including Health Implementation Science and Technology Research Cluster award funded by the HRI at UL and a Higher Education Authority (HEA) North South Research award.



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