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Effective Integration of Climate Change into Impact Assessment: The Importance of Meaningful Public Engagement

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Abstract

In this chapter, we consider the role of the public and the benefits of participatory approaches for the effective consideration of climate change in impact assessments in the light of three starting assumptions, which we refer to as 'climate realities'. The first climate reality is the need for full decarbonization within the next 30 years. The second climate reality is that even a 'well below 2 degrees' world will result in fundamental changes to ecological and social systems that will require active management, and it is far from clear whether this well below 2 degrees goal will be met. The third climate reality is that climate change will lead to both reversible and irreversible loss and damage, again, even at well below 2 degrees, and more so if this global collective mitigation target is not met. Given these three climate realities, this chapter explores the important contribution participatory approaches can make to solving the challenges associated with informing sound decision making with respect to climate change in the context of impact assessments. Meaningful participation is particularly relevant to the integration of Climate Change into impact Assessment as it is a site for respect and recognition of rights and interests, transformative learning for all stakeholders, collective and cooperative action, legitimacy of interventions, and adaptive management. Our focus in this chapter is on project assessments, but we also consider the roles of regional and strategic assessments.

1. Introduction

Climate change is a complex, wicked problem that demands the involvement of everyone in framing and implementing solutions. The approach to climate governance is, however, often top-down, high-level, and elitist. Globally, it is governed by an assembly of unequal states who meet annually, and too often seem to cherry-pick from and give expedient political interpretation to the technical and at times inaccessible reports of scientific bodies. This reality remains unchanged even as non-state entities like environmental non-governmental organizations (ENGOs) and corporations have become more involved in climate governance. Rachel Wetts points out that such ENGOs largely insist that climate change is best handled by scientific, political, and economic elites.[1] As a result, in spite of the ravaging impacts of climate change and the increasingly urgent demands for ambitious transformative actions to avoid even worse climate impacts, climate apathy is still prevalent, support for climate actions is tepid, and climate literacy is low.[2] The value of public participation to transformative climate action is

[1] Rachel Wetts, "Models and Morals: Elite-oriented and Value-neutral Discourse Dominates American Organizations' Framings of Climate Change" (2020) 98:3 Social Forces 1339 at 1340.

[2] While people seem to know more than they previously did about climate change, climate literacy is still not where it should be. In its 2021 survey, for example, Abacus reports that only 30% of Canadians believe that there is a moral responsibility to pass on a safe and healthy planet to the next generation and about 20% strongly believe weather disasters have become financial disaster we must do more to avoid. See David Coletto, "What do Canadians Think About Climate Change and Climate Action" Abacus Data (28 October 2021) <https://abacusdata.ca/climate-change-cop26-canada/>. Perlaviciute and Squintani note that although polls show that more people believe in anthropogenic climate change and the need for a sustainable energy transition, "when climate goals turn into policy solutions, they often face public resistance".

established in the literature.[3] The role of public participation in the integration of climate change into impact assessment is, however, largely unexplored.

In this chapter, we consider the role of the public in the effort to integrate the consideration of climate change more effectively into impact assessment processes. As the need to decarbonize at a global level is reaching a state of crisis, the consideration of climate change is becoming increasingly complex, requiring a thorough understanding of the state of knowledge of the problem and possible solutions, as well as the consideration of the values and priorities of those affected. It is our proposition that it is through meaningful public engagement that this complexity can best be managed in the context of impact assessment processes. Using the Canadian *Impact Assessment Act* (IAA) as a case study, this chapter seeks to explore the contribution participatory approaches can make to solving the key challenges associated with informing sound decision making with respect to climate change in the context of impact assessments.[4] We consider the challenges involved in light of three pillars of climate policy, mitigation, adaptation and loss and damage.

Meaningful participation is particularly relevant to the integration of Climate Change into impact Assessment as it is a site for the respect and recognition of rights and interests, transformative learning for all stakeholders, collective and cooperative action, legitimacy of interventions, and adaptive management. Our focus is on project level assessments given its prospect as the most effective level of meaningful engagement.[5] In the section 2 we lay out what we describe as 'climate realities' which constitute the context within which we engage in the discourse in this chapter. Sections 3 and 4 focus public participation and climate mitigation, and public participation, adaptation, and loss and damage, respectively. We conclude in section 5.

2. The Realities of the Climate Challenge

With a view to our focus on the integration of climate change into assessment processes, we consider the need for participatory approaches to impact assessments in the light of three starting assumptions, which we refer to as 'climate realities'. The first climate reality is the need for full decarbonization within the next 30 years to realize the "well below 2 degrees" world the Paris Agreement is aiming for. We use the term decarbonization rather than net zero emissions as it is clearer about the need for the elimination of GHG emissions over the coming decades, and less speculative about the ability to implement negative emissions technologies at a large scale at a reasonable cost without undesired consequences for affected ecosystems. We use a 30-year timeframe as our best estimate based on the current state of knowledge, while recognizing that some countries with the capacity and responsibility

See Goda Perlaviciute & Lorenzo Squintani, "Public Participation in Climate Policy Making: Toward Reconciling Public Preferences and Legal Frameworks" (2020) 2 One Earth 341.

[3] See Massimo Cattino & Diana Reckien, "Does Public Participation Lead to More Ambitious and Transformative Local Climate Change Planning?" 2021 (52) Current Opinion in Environmental Sustainability 100 – 110; Roger Few et al, "Public Participation and Climate Change Adaptation: Avoiding the Illusion of Inclusion" (2007) 7 Climate Policy 46 – 59; Leah Sprain, "Paradoxes of Public Participation in Climate Change Governance" (2016) 25:1 The Good Society 62 – 80; Christina Demski, "Net Zero Public Engagement and Participation: A Research Note" (March 2021) Department for Business, Energy and industrial Strategy (United Kingdom) <https://www.gov.uk/government/publications/net-zero-public-engagement-and-participation>.

[4] The consideration of climate change in IA is increasingly being required in impact assessment laws and allied legislation across the world. See for example The Town and Country Planning (Environmental Impact Assessment) Regulations, 2017 No 571 (UK); Council on Environmental Quality (CEQ), *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews*, (2016) (United States); Climate Change Act, No 11 of 2016, s 20 (Kenya).

[5] Perlaviciute and Squintani find that respondents preferred to be involved in decision making on projects and less so in respect of strategic and regional decision making. See Perlaviciute & Squintani, *supra* note 3 at 343.

to lead will have to decarbonize more quickly, and the precise timeframe will depend on many factors, including intergenerational equity considerations,[6] and evolving science and technologies.

The second climate reality is that even a 'well below 2 degrees' world will result in fundamental changes to ecological and social systems that will require active management. To add to the complexity, it is far from clear whether the 'well below 2 degrees' goal will be met by the global community. There is still a significant gap between the collective goals of the Paris Agreement and the impact current NDCs would have on global emissions.[7] Of course, Parties to the Paris Agreement have committed to increase the ambition of their NDCs over time to close this gap, and some have started to do so.[8] However, even if NDCs are updated to become adequate to achieve the collective goals of the Paris Agreement, there are still uncertainties about whether individual Parties will meet the goals they have set in their NDCs.[9] It is important to note in this regard that while Parties to the Paris Agreement are obligated to make efforts to achieve their NDCs, the Paris Agreement does not include a legal obligation to meet the NDC targets.[10] In short, project assessments will continue to face uncertainty about the scale of global mitigation action that will take place over the next few decades. This in turn will create uncertainties for the resulting scale of the adaptation and impact management challenge.

The third climate reality is that climate change will lead to both reversible and irreversible loss and damage, even at well below 2 degrees. In other words, even with an increased ambition to meet the collective goals of the Paris Agreement, and with maximum effort to adapt and manage impacts, there will be impacts. The scale and distribution of these impacts is still highly uncertain, but it is clear that the impacts will increase as the mitigation effort falls short of the collective goals of the Paris Agreement. The impacts may be relatively modest in many parts of the world if the global community is able to keep global average temperature increases to within 1.5 degrees. As the global average temperature rises, so do the impacts. Furthermore, the more the global average temperature is allowed to increase, the more of the impacts are likely to become irreversible, and the higher the risk of exceeding important tipping points.

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[6] The German Federal Constitutional Court's position on intergenerational equity and climate change aptly summarizes the mainstream argument on the point. The court held that the German Basic Law "imposes an obligation to safeguard fundamental freedom over time and to spread the opportunities associated with freedom proportionately across generations. As intertemporal guarantees of freedom, fundamental rights afford the complainants protection against the greenhouse gas reduction burdens … being unilaterally offloaded onto the future". See *Neubauer, et al v Germany* ECLI:DE:BVerfG:2021:rs20210324.1bvr265618, para 183.

[7] Different analyses of the commitments and policies of States at the Glasgow Climate Change Conference (COP 26) have reached similar conclusions on the inadequacy of commitments made. While the IEA shows that current targets put the world on a 1.8ºC track, the Climate Action Tracker indicates that 1.8ºC is only possible as a best-case scenario assuming full implementation of all announced targets. In the face of current policies and actions only, the world is on a 2.7ºC pathway, while 2.4ºC is possible when 2030 targets are factored in and 2.1ºC is a possibility when other pledges (e.g., binding long-term targets) are included. See Fatih Birol, "COP26 Climate Pledges could help limit Global Warming to 1.8ºC, but Implementing them will be the Key" IEA (4 November 2021) https://www.iea.org/commentaries/cop26-climate-pledges-could-help-limit-global-warming-to-1-8-c-but-implementing-them-will-be-the-key; Climate Action Tracker (CAT), "Warming Projections Global Update" (November 2021) https://climateactiontracker.org/documents/997/CAT_2021-11-09_Briefing_Global-Update_Glasgow2030CredibilityGap.pdf.

[8] According to the CAT, 124 countries have submitted new NDC targets. 22 of the analyzed targets have stronger NDC targets. CAT, "CAT Climate Target Update Tracker" https://climateactiontracker.org/climate-target-update-tracker/ (data as of December 10, 2021).

[9] The CAT analysis shows that despite the upsurge in net zero commitments by countries, none has sufficient short-term policies in place to meet the targets. See CAT, *supra* note 7.

[10] Benoit Mayer, "Obligations of Conduct in the International Law on Climate Change: A Defence" (2018) 27 Review of European, Comparative & International Environmental Law 130; Lavanya Rajamani, "The 2015 Paris Agreement: Interplay Between Hard, Soft and non-Obligations" (2016) 28 Journal of Environmental Law 337 at 354.

Understanding the impacts of a particular undertaking on decarbonization efforts, in the light of the above realities, will be complex. It will require technical analysis at different scales, from the local to the national and global. It will require the consideration of direct and indirect emissions associated with the undertaking. Direct emissions are often referred to as scope 1 emissions. Indirect emissions are now frequently further separated into scope 2 and 3 emissions, where scope 2 refer to energy related indirect emissions and scope 3 refer to other indirect emissions, including upstream and downstream emissions.[11] Finally, understanding the impact of a proposed undertaking on decarbonization efforts will require the consideration of alternatives, both in terms of what would happen if the undertaking simply did not proceed at all, and what could happen if active steps were taking to pursue a different future. Similarly, understanding the adaptation and loss and damage implications of a proposal will be complicated for all involved parties. It will require the consideration of a range of impacts and adaptation scenarios depending on a range of global mitigation scenarios and associated uncertainties about the resulting local impacts. It will require understanding the implications of the predicted climate related changes for affected natural and social systems and individuals, and how they will interact with impacts of the proposed undertaking. It will also require the determination of preferred adaptation measures which is true to local realities and at the same time correct with expert projections.

Public participation is another layer of complexity in the consideration of climate change in impact assessment. Conventional answers to traditional public participation questions like who participates, when should participation occur, and how should the public be engaged are not easily replicated in the climate change context. To start with, overarching climate objectives are already determined (e.g., the well below 2 degrees objective or the need for adaptation). Decarbonization pathways or adaptation options are also often pre-determined. By implication, the public are more often than not left out of the objective framing phase.[12] Common debates on the role of experts vis-à-vis stakeholders and the appropriate level of participation are also not easily resolved. For example, for objectives like the global climate mitigation goal or the nationally determined contribution, 'informing' which is classified by Arnstein as tokenism might be the more appropriate level of participation.[13] Again, the unique technical and social, global and local dimensions of climate change make both the experts and local stakeholders equally vital to the assessment process. Understanding the dynamics of participation and delineating spaces and levels of engagement for various players in the climate change and impact assessment process is key if the process is to be effective, efficient, and equitable.

Of course, understanding the climate related implications of a proposed undertaking is only part of the challenge. Once the implications are understood, and opportunities to minimize negative effects and risks and to maximize potential benefits are explored, what remains is perhaps the most difficult task in integrating climate change into impact assessments. This task is to take the understanding of the implications of the proposed undertaking from a climate perspective and feed this information into an overall determination about the proposed undertaking. There are many ways to frame this overall determination. Under the Canadian IAA, for example, the key elements are the following:[14]

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[11] For more on scopes 1, 2 and 3 emissions, see World Business Council for Sustainable Development (WBCSD) & World Resources Institute (WRI), *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (WBCSD & WRI, 2004) 26 – 31.

[12] Few et al show how such predetermination informs managerialism and containment of participation. They argue that institutionally predefined goals (e.g., to formulate a climate adaptation strategy for a coastal zone) could prove problematic. "Containment is therefore a risky tactic in itself: public dissatisfaction with illusory participatory exercises can often lead to heightened mistrust, hostility, defiance and opposition". See Few et al, *supra* note 3 at 55.

[13] Sherry Arnstein, "A Ladder of Citizen Participation" (1969) 35:4 Journal of the American Planning Organization 216 at 219.

[14] IAA, ss 62, 63.

1. a determination whether the project will help or hinder Canada's efforts to meet its climate commitments,
2. a determination whether the project makes a net contribution to sustainability
3. a determination whether the project is in the public interest

It is our basic proposition that public engagement is critical to both the analysis and the determinations required at the end of the impact assessment process. As we explore in this chapter, elements that demand particular attention through public engagement include priorities given to local, national and global decarbonization, the selection of alternatives, a thorough understanding of the impacts of climate change on affected communities, and determinations about sustainability and the public interest.

3. Dealing with Climate Mitigation in Project IA

Predicting GHG emissions from proposed undertakings can be a complex task. Much of the initial analysis is technical, and involves categorizing emissions geographically, over time, and for indirect emissions, in terms of their connection to the proposed undertaking. It also involves choosing an appropriate baseline for comparison purposes to be able to determine the emissions impact of the proposed undertaking. As we will explore, while much of the analysis is technical, appropriate choices involve important value judgements and at times depend on the priorities and ethical choices of those affected. Our basic proposition is that good decision making in each of these areas would benefit greatly from meaningful, effective engagement of the interested public. At the same time, those affected and interested would benefit greatly from the technical analysis of the various dimensions of the problem to inform the expression of their values and priorities.

With respect to the geographic distribution of the sources of emissions, there are two basic ways to look at emissions. One is to recognize that ultimately, emissions are global, and decarbonization has to be global to be effective. Such an approach would focus on the impact of the proposed undertaking on global decarbonization efforts. The alternative would be to focus on the jurisdiction within which the undertaking is proposed or within which approval for the undertaking is sought under the impact assessment process. In the case of the federal Canadian IA law, the relevant jurisdiction would be Canada, but in case of a subnational impact assessment process, this could extend to a province, territory, state, city, or indigenous self-government area.

With respect to time, the distribution of GHG emission associated with a proposed undertaking can be similarly complex. Some undertakings involve significant emissions during the initial construction phase, while for others the operational phase may involve the most significant emissions, either directly, or indirectly by enabling upstream or downstream emissions. A proposed new manufacturing plant for gasoline cars, for example, would enable indirect emission for the life of each car manufactured, suggesting the need to consider both the life expectancy of the plant and of the cars being manufactured. The ability to convert the plant to manufacture electric cars might also factor into the analysis. A new building designed to be heated with oil or gas would potentially cause indirect emissions for the life of the furnace or the life of the building depending on the design of the building and the furnace. A proposed natural gas pipeline that is planned to be converted to essential green hydrogen infrastructure as green hydrogen production increases will have a much lower downstream emissions profile that a pipeline that is either not likely to be needed in a decarbonized world or difficult to convert.

In terms of the consideration of direct and indirect emissions, and the associated questions about the connection of indirect emissions to the proposed undertaking, many jurisdictions are gravitating

toward an approach of separating GHG emissions into Scope 1, 2, and 3 emissions, where Scope 1 emissions refer to direct emissions, and Scope 2 and 3 emissions refer to two categories of indirect emissions.

Scope 1 emissions essentially include the direct life cycle emissions of an undertaking. Scope 1 emissions would include emissions from construction, operation and decommissioning, but would not include emissions from the manufacture or transportation of the products and materials purchased, or from the use of the products produced. The inclusion of Scope 1 emissions in an assessment of the impacts of a proposed undertaking is generally not controversial, and it does not tend to raise difficulties associated with scale, comparability, or responsibility.

Scope 2 emissions focus on a particular category of indirect emissions, those imbedded in energy procured for the proposed undertaking. Energy related emissions under Scope 2 include those related to construction, operation and decommissioning, but focus on the emissions imbedded in the energy purchased rather than the emissions associated with the use of the energy. For example, in case of natural gas, the emissions of burning natural gas during the operation of an undertaking would be Scope 1 emissions, but the emissions associated with the exploration of the gas and its transportation would be considered Scope 2. The inclusion of Scope 2 emissions is important because the choice of energy source can have tremendous implications for the share of emissions associated with the life cycle of the energy used that is attributed to the proponent of an undertaking under Scope 1. If an undertaking used electricity produced from coal, the emissions from producing the electricity using coal would not be included under Scope 1. If that same undertaking used coal directly, the emissions from burning coal would be included under Scope 1. This has led to a recognition that for any proposed undertaking that includes the purchase of energy with imbedded emissions, it is important to include Scope 2 emissions in the assessment of the undertaking's GHG emissions, even though those emissions are not directly associated with the undertaking.

Scope 3 emissions include all other indirect emissions associated with a proposed undertaking, both upstream and downstream. Scope 3 emissions tend to be the most controversial category of GHG emissions. On the one hand, proponents of undertakings are sometimes offering the GHG emission reductions downstream as a rational for their projects. A typical example would be an LNG facility designed to serve a market where the natural gas will replace coal as a feedstock for the production of electricity. On the other hand, proponents and governments tend to be resistant to including some or all upstream and downstream emissions when accounting for the GHG emissions associated with their project, usually on the basis that other private actors and other governments are responsible for these emissions. Often, some of the Scope 3 emissions take place outside the jurisdiction carrying out the assessment, either because the products used were manufactured outside the jurisdiction, or because the products being produced will be used outside the jurisdiction.

A response to resistance based on the argument that the emissions are the responsibility of private actors beyond the control of the proponent is that proponents exercise considerable control over the supply chain associated with their operations.[15] A response to the argument that some or all of the indirect upstream or downstream emissions are the responsibility of governments in other jurisdictions is that all jurisdictions have committed to cooperating toward the collective goals of the Paris Agreement,[16] which is ultimately to decarbonize the global economy. In this regard, it is important to understand not only whether the proposed undertaking will help or hinder decarbonization efforts

[15] See *Milieudefensie & ors v Royal Dutch Shell PLC*, ECLI:NL:RBDHA:2021:5339, paras 4.4.18 – 4.4.20 (RDS Decision).
[16] Paris Agreement, arts 3, 4(2).

within the jurisdiction, but also whether the proposed undertaking will help or undermine efforts in other jurisdictions.

With respect to establishing an appropriate baseline for comparison, a key element is the selection of appropriate alternatives. Ultimately, an adequate understanding of the GHG emissions implications of a proposed undertaking for good decision making requires the consideration of what would and what could happen if the proposed undertaking did not proceed. We separate what would happen and what could happen intentionally. We consider the former to refer to what would happen without the undertaking and without further intervention. We consider the latter to refer to the possibilities that are identified through the exploration of alternatives that may offer opportunities to do better than what is possible with the proposed undertaking and what will happen if the undertaking does not proceed, and no further action is taken. Accurately assessing the baseline and selecting appropriate alternatives for comparison with the proposed undertaking is a critical and complex task that involves technical analysis as well as important value judgements and choices.

Ultimately, there are many choices to be made in determining what emissions to track, and how to consider the information collected in making key determinations about the proposed undertaking. There are choices to be made about whether to limit the considerations of GHG emissions geographically. There are choices to be made about the consideration of Scope 2 and 3 emissions from a proposed undertaking. There are choices to be made about whether to keep categories of GHG emissions separately or whether the can or should be put together toward one overall assessment of the undertaking's impact on decarbonization efforts. There are choices to be made about an appropriate baseline against which to assess the GHG emissions of a proposed undertaking. There are choices to be made about alternatives to the undertaking that should be considered. All these choices will affect the scope of the assessment of GHG emissions of the proposed undertaking, and the information about the implications of the undertaking that will be available to decision makers.

There are important technical aspects to each of these choices, but all are also inevitably affected by values and priorities. Decisions on these elements that do not take into account the values, priorities and needs of those potentially affected pose a number of risks to the legitimacy and appropriateness of the choices made. Inherent in some choices are priorities between local and global action, between short and long term economic, social and environmental wellbeing. Making such choices without full transparency and an opportunity for interested members of the public to express their views on the appropriate values and priorities to guide these choices risks undermining the legitimacy, not only of the specific choices made, but by implications, of the entire process including the final decision on the proposed undertaking. Beyond support for the final decision, engagement of the interested public can also be critical for adequately understanding and considering the local context. Baseline conditions and reasonable alternatives are difficult to identify at the best of times, without meaningful engagement of the interested public the tasks become even more difficult, as those tasked with making these choices are often too removed from the context to make informed choices.

It is our contention that meaningful public engagement is critical to the efficiency, effectiveness and fairness of the consideration of GHG emissions at critical stages in the assessment process. To start with, meaningful engagement in the planning process (including the important issue of the inclusion of scope 1, 2, and 3 emissions associated with the project) is critical. Without this, one option for planning decision makers is to err on the side of broad scoping, which may be unnecessary in a specific context in light of the views and values of the public and key stake and rights holders. Under this scenario, failure to engage results in an inefficient assessment process, placing unnecessary burdens on proponents and intervenors. An alternative is for planning decision makers to decide to narrow the scope to what appears reasonable to them without meaningful public engagement. This alternative

carries the risk of missing important information and undermining the legitimacy of the process and the ultimate project decision. If, for example, a decision is made at the planning stage to focus on scope 1 emissions, but it turns out that the scope 2 and/or scope 3 emissions that are of greatest concern from a national or global decarbonization perspective, this would undermine the effectiveness and fairness of the process and the ultimate project decision. Meaningful public engagement during the information gathering stage allows for the fine tuning of the scope determination to strike an appropriate balance between ensuring that the information gathered addresses the legitimate concerns of the public (including key stake and rights holders) and ensuring that the effort needed to collect and assess the information is warranted. In the case of Canada, the decision not to consider scope 3 emissions has already been made through the Strategic Assessment of Climate Change (SACC). [17] While the SACC and the guidance it provides benefited from some public input through comments on a draft published online, its conclusions are not adequately reflective of the position of the public on how and what emissions should be considered is questionable. Most importantly, the SACC does not permit important scope determinations to be made on a project by project basis, foreclosing the consideration of Scope 3 emissions even for projects where Scope 3 emissions are critical for good decision making.

The SACC example brings to the surface the key question of the role of various players in the consideration of climate mitigation in IA. It appears that the more strategic and high-level an assessment is, the more expert-centric and managerialist it tends to be. Various reasons could be given for this, including, the technical aspects of the subject matter, such as in the case of the scopes of emissions, and the impracticality of directly engaging everyone given the sheer spatial implication of the decision. These reasons become less tenable, however, the more direct and local the potential implications of a decision become. Furthermore, they suggest different approaches to public engagement, they are not a justification for top down decision making. These observations find support in climate change and public participation scholarship. In their study of the position of the public on participating in sustainable energy transition decisions in Groningen in the Netherlands, Perlaviviute and Squintani find that the respondents expressed a higher preference to be involved in decision making on projects and less in decision making on regional strategies and visions.[18] Rather than concluding that public participation is less relevant at the strategic level, responsible agencies have recognized the duty to communicate strategic assessments and the specific implications for the assessment of particular climate mitigation related projects to affected stakeholders and right-holders, and enhance their efforts to proactively engage key stakeholders and rightsholders.

Effective public engagement is critical at the earliest phases of IA, particularly the screening phase and the scoping phase. Subsequent stages of the assessment process that should attract high levels of public engagement include the setting of terms and conditions and mitigation measures, the project decision, and post approval follow-up, monitoring, adaptive management, and compliance. The nature of engagement will depend on the whether the issues that arise at a particular stage are more purely technical or whether they involve important ethical issues or value judgements. This can often only be determined based on the initial public input at a given stage of the process. At times, however, the

[17] In Canada, the assessment of scope 3 emissions is not required. See Government of Canada, *Strategic Assessment of Climate Change* (Government of Canada: Ottawa, 2020) 6. This is not only inconsistent with scientific consensus on the need to address scope 3 emissions but is also becoming increasingly 'unfashionable'. The US Court of Appeals in Sierra Club et al v Federal Energy Regulatory Commission 867 F.3d 1357,1367 (D.C. Cir. 2017) 19 for example, concluded that downstream emissions should have been considered by respondent agency in respect of a gas pipeline project as it is not only reasonably foreseeable that gas will be burned at the pipeline's destination, but the burning of gas is the project's entire purpose. The Hague District Court in the RDS Decision similarly held that Shell is obligated to account for its scope 3 emissions.

[18] Perlaviviute and Squintani, *supra* note 3 at 343. In the context of climate adaptation, Few et al find that respondents had the perception that climate change requires "planning driven by the strategic, technical and financial capabilities of central government". See Few et al, *supra* note 3 at 52.

need for deep engagement can be predicted at the start of the process. For example, the decision not to proceed with a coal mine expansion project like in the case of the Vista Coal Mine given the implications of the project for Canada's climate commitment necessarily requires greater engagement of the host community which will be most impacted by the closure. In this case, informing or mere consultation will not suffice. The community should be fully engaged in the assessment process and be actively involved in designing and implementing measures to mitigate the social impacts of a decision not to expand. The complexity of climate change is inconsistent with a simplistic one-way approach to participation and rather compels what Leah Sprain describes as a flexible view of participation.[19] It is vital that the realities of climate change vis-à-vis the dynamics of participation they inform be made clear at the beginning of the assessment process.[20]

4. Dealing with Climate Adaptation and Loss and Damage in Project IA

A changing climate has real implications for individuals, communities, and natural systems. Whereas the focus of climate mitigation is on the reduction of GHG emissions, climate change adaptation recognizes that there are already locked-in emissions impacting human and natural systems and these impacts will continue and increase over time. There are some impacts natural and human systems can adapt to depending on the rate and scale of events, and there are impacts for which adaptation is either not a solution at all, or only a partial solution. These latter types of impacts are the focus of loss and damage (L&D). The wide ranging and potentially cataclysmic climate change impacts compel a rethinking and refashioning of socio-economic, demographic, cultural and political systems to adjust to new climate realities. Physical and non-physical structures and measures must be put in place in response to current and potential changes. While some of these responses will be reactive, others will be anticipatory, and proactive measures that are often critical for avoiding costly and damaging impacts. The link between mitigation and adaptation adds to the uncertainty surrounding predictions about adaptation needs and goals. While mitigation targets can be quantitatively measured and pegged to equally measurable global and national emissions reduction goals, adaptation goals are generally framed in qualitative terms.

The urgency, intensity and extensiveness of future adaptation needs depend on the level of ambition and pace at which emission mitigation requirements are fulfilled today. Put simply, the lower the mitigation efforts, the higher the need for adaptation. Given this linkage, there might be the temptation to situate the consideration of adaptation and L&D in the latter phases of the IA process (setting terms and mitigation measures, post-approval follow-up, monitoring, and adaptive management). With locked-in emissions and assured climate impacts, however, adaptation concerns cannot be a mere afterthought in an IA process. Generally, adaptation and L&D should be factored into the earliest phases of IA including the planning, screening, and scoping phases. As in the case of climate mitigation, the participation of the public at every stage of the assessment process in respect of adaptation and L&D is crucial. This is particularly so as adaptation and L&D are, arguably, the most direct levels of public interaction with climate change as these impacts are directly experienced and observable by communities and individuals. Unsurprisingly, climate change and public participation scholarship focus primarily on climate adaptation.

Guaranteeing public participation in the consideration of climate adaptation in IA will play an important role in ensuring that the transition to a green economy is not just respectful of ecological

[19] Sprain, *supra* note 3 at 66.

[20] Similarly, Lee et al caution in the context of wind and carbon capture and sequestration projects that clarity of subjects open to consultation is needed "if cynicism towards publics is not to breed cynicism within publics". See Maria Lee et al, "Public Participation and Climate Change Infrastructure" (2012) Journal of Environmental Law 1 at 29.

integrity but also of equity and fairness.[21] Equity plays an important role in considering the vulnerability and resilience of a community, and the significance of project impacts on the state of resilience and vulnerability. Communities can be less adaptive due to existing inequities or new inequities inflicted by ill-conceived projects. Take for example the location of biomass plants in already racially disadvantaged communities in North Carolina, United States, hence making the communities further prone to illnesses and potentially other climate change induced consequences.[22] The minimum objective of a just transition is to ensure that the most vulnerable do not bear the burden of the green transition. In fact, a just transition approach would seek to allocate benefits of the transition to the most vulnerable. It is in this regard that adaptation IA's focus on projects is vital. There are both natural and social effects of GHG emitting and non-emitting projects that could make such projects inimical to the adaptive capacity of human systems. For example, while renewable energy projects are important mitigation tools, they could further worsen the state of food insecurity in places already bearing the burden of climate induced food shortages. This is a justice issue and considering adaptation in IA could be critical to identifying such possibilities and addressing them early.

Vulnerability and resilience are key terms that summarize what adaptation entails. While vulnerability addresses the susceptibility of systems to be adversely impacted by climate change, resilience deals primarily with the systems' capacity to cope with or recover from adverse climate events. Reducing vulnerability and building/enhancing the resilience of natural and human systems to the consequences of climate change are the primary focus of adaptation and of climate focused IA. Vulnerability and resilience are two sides of the same adaptation coin. Communities with low vulnerability and high resilience are best positioned to confront climate change impacts, while communities with high vulnerability and low resilience are most exposed to the effects of climate change. High resilience and low vulnerability communities are generally constituted by responsible, resourceful, adaptable and knowledgeable stakeholders and actors, managed by proactive, transparent and accountable institutions, with the necessary infrastructural and financial capacity, and situated in ecologically healthy environments.[23]

Adaptation sensitive project IA is an important tool in ensuring that vulnerabilities are not exacerbated, and resilience is not undermined through developmental projects. The Canadian IAA, however, makes explicit reference only to climate change mitigation.[24] While adaptation and mitigation are essential dimensions of climate change, their integration into IA differs in a few key areas. Unlike the mooring of climate change mitigation to international climate obligations which are quantifiable, such linkage is more difficult as there is no such concrete international obligation on adaptation. Further, projects with prospectively substantial direct and indirect emissions are the focus of mitigation-oriented IA,

[21] Cattino and Reckien find that "successful cases of transformative local climate adaptation … show how public participation has the potential to drive decision-making processes, addressing equity, justice, and differentiated social vulnerabilities when considered in all decision-making phases". See Cattino & Reckien, *supra* note 3 at 106.

[22] Enviva is one of the world's largest producers of 'sustainable' wood pellets used as an alternative source of energy in Europe and other countries. Three of its nine plants are in North Carolina, in areas that are already considerably racially disadvantaged. See Majlie de Puy Kamp, "How Marginalized Communities in the South are Paying the Price for 'Green Energy' in Europe" (9 July 2021) CNN https://www.cnn.com/interactive/2021/07/us/american-south-biomass-energy-invs/.

[23] In her study of heat and cold related vulnerability and resilience, for example, Nunes find that better-off participants with low vulnerability and high resilience "overall have the assets and/or the understanding and/or motivation to act in order to reduce the health impacts of heat (and cold)". See Ana Raquel Nunes, "Exploring the Interactions Between Vulnerability, Resilience, and Adaptation to Extreme Temperatures" (2021) 109 Natural Hazards 2261 at 2277. Asset is defined to include human capital, financial assets, physical assets, place-based assets, and social assets.

[24] Again, this is inconsistent with global trends on considering climate change in impact assessment. In the United States, for example, climate change adaptation and resilience are deemed "important considerations for agencies contemplating and planning actions …" See CEQ, *supra* note 4 at 20.

while adaptation sensitive IA applies to every project whether with emissions potential or not. Insofar as a project can be adversely impacted by climate change or has the potential to negatively affect the adaptive capacity of a community or environment, it needs to address adaptation as part of the assessment. Importantly, adaptation often has a more local resonance than mitigation, making it particularly amenable to inclusion in assessments and proactive public engagement.

IA applies to climate change adaptation in two broad aspects. Firstly, the assessment needs to consider the likely impacts of climate change on a project. Secondly, the assessment needs to consider the effect of a project on the adaptive capacity of human and natural systems.[25] The first instance is the most common understanding of the application of impact assessment to climate change adaptation.[26] Climate change could adversely impact a project either through outright damage or reduction in functionality and profitability. While this appears to be a departure from IA's traditional focus on the effect of projects on ecological and social environments, there is a connection between the adverse impact of climate change on a project and the indirect environmental and social consequences of damages and dysfunctionalities. For example, intense flooding from climate induced sea level rise or changes in precipitation patterns could compromise an electricity dam which in turn could lead to the dam's failure and the flooding of downstream localities, threatening lives, destroying biodiversity, and fostering energy poverty.

Projects have the potential to exacerbate the vulnerability and undermining the resilience of their host social or natural environments.[27] Maladaptation – when adaptation measures result in increased vulnerability and reduced resilience – is a prominent example of this form of adaptation related impact. In response to the vulnerability of projects to climate change, IA should identify possible measures to 'climate proof' projects. Some such possible measures could, of course, have unintended and unconsidered effects on people and the environment. For example, measures to protect the hypothetical electricity dam from flooding could in turn result in greater vulnerability of local communities to flooding. More directly, projects could themselves induce greater vulnerability and lower resilience of local natural systems and communities. An often-used example is when a project puts pressure on a community's water supply, making the community further susceptible to climate induced drought.

As elsewhere, ultimately, good decision making requires a mutual learning approach that combines technical analysis with the consideration of the needs of those potentially affected. An effective IA relating to climate adaptation would need to include both the biophysical and project environment baselines, probable climate change scenarios and localized impacts, and the vulnerability and resilience of the project, the environment, and the community. The extensiveness of likely climate impacts compels the involvement of a wide range of stakeholders in the identification of baselines, probable scenarios, localized impacts at the earliest possible time. The involvement of other

[25] According to Sparling et al, assessing projects for climate change effects should include "each project effect assessed to be worsened by climate change" and "each project component assessed to be vulnerable to climate change". See Erik Sparling et al, "Best Practices for Consideration of the Effects of Climate Change in Project-level Environmental Assessments" (September 2017) Ontario Centre for Climate Impacts and Adaptation Resources, http://www.climateontario.ca/doc/reports/BestPracticesForConsiderationOfEffectsOfClimateChangeInProjectEAs2017.pdf, 20.

[26] For example, in Nova Scotia, project proponents are expected to develop an adaptation plan for the project when there is indication that "the project is vulnerable to climate change". See Nova Scotia Environment, "Guide to Considering Climate Change in Environmental Assessments in Nova Scotia" (February 2011) https://novascotia.ca/nse/ea/docs/EA.Climate.Change.Guide.pdf, 10 – 11.

[27] In an ongoing case in the United States, Exxon Mobil has been challenged for failing to take climate change impacts into account in its stormwater pollution prevention plan, spill prevention, control and countermeasures plan, and facility response plan. Hence, putting the claimants in directly in harm's way. See *Conservation Law Foundation Inc. v ExxonMobil Corporation & Ors.*, United States District Court for the District. of Massachusetts (Complaint), para 11.

stakeholders alongside experts becomes even more important considering the uncertainty of climate scenarios and the need for local knowledge of baseline conditions and experienced change. Learning through public participation is not one way (experts educating stakeholders). It also involves the education of proponents, regulators, and scientific experts. On climate adaptation, Hübel and Davies argue for the co-production of knowledge including by admitting the public as experts on their own terms; "experts of their own lived experiences".[28] When this redistribution of expertise occurs, scientists have been found to encounter a new sense of "moral imagination",[29] findings and eventual decisions are enriched, and communities are given a sense of ownership. Specifically, Indigenous knowledge systems have been found to be essential resource for adapting to climate change.[30] This equally applies to climate mitigation. For example, apart from Indigenous cosmological observations over the years which could complement scientific models, Indigenous knowledge will enrich the process of considering alternatives, and the effect of alternative developmental pathways on natural and human systems.[31]

Importantly, the notions of vulnerability and resilience are not merely biophysical concepts discernible and measurable through objective scientific media. They are also social realities. For example, availability resources, information and skills, competent institutions, and overall state of equity in affected societies have been highlighted as central to the adaptive capacity of a community. Knowledge about these essential socio-economic factors and their implications for the climate related impacts of projects can only be acquired through meaningful and inclusive dialogue.[32] A key question here is whether climate change adaptation should always be considered. The answer in our view is a resounding yes. The impacts of climate change are ubiquitous and while the scope and scale might vary, no project can escape the reality of climate change. It is the responsibility of those responsible for carrying out an IA to make all reasonable efforts to predict these impacts and address them. Following the precautionary principle, the inevitable uncertainty dogging climate impact predictions do not excuse inaction. Rather, it underscores the importance of involving diverse voices in predicting impacts and addressing them through efforts to lower vulnerability and increase resilience. The involvement of those potentially affected must be actively sought at the earliest stages of the assessment process.

While involved voices might be pruned later in the IA process for the sake of effectiveness and efficiency, the process must begin with the broadest participation possible.[33] During these early planning and scoping phases, it could indeed be determined that likely impacts apply mostly or most

[28] Stephan Hügel & Anna Davies, "Public Participation, Engagement, and Climate Change Adaptation: A Review of the Research Literature" (2020) WRES Climate Change 1 at 13.
[29] *Ibid.*
[30] In an edited work published in 2019, various adaptation practices and approaches by Indigenous communities across the world were studied. They ranged from the application of traditional environmental knowledge to grassland stewardship in the face of increasing temperature and unseasonable weather in Mongolia to the application of indigenous knowledge for climate resilience in the Ecuadorian Amazonia. See generally Ariell Ahearn et al eds., *Indigenous Peoples and Climate Change: Emerging Research on Traditional Knowledge and Livelihoods* (Geneva: International Labour Organization, 2019). See also IPCC, *Climate Change 2014: Synthesis Report – Summary for Policymakers* (IPCC, 2014) 19.
[31] Chanel Anderson, "What are Indigenous Knowledge Systems – and how can they help fight climate change?" (30 September 2021) tvo, https://www.tvo.org/article/what-are-indigenous-knowledge-systems-and-how-can-they-help-fight-climate-change.
[32] The United States Agency for International Development (USAID) notes that "adaptation planning requires more than legal frameworks and compliance to ensure that decisions are effective in meeting the challenges of vulnerability reduction … Decision making in a changing climate requires new areas of expertise and wider consultation than might typically be involved in traditional "development decision-making"," See USAID, *Stakeholder Participation in Climate Change Adaptation Planning* (USAID, 2013) 2 – 3.
[33] Cattino and Reckien identify the recognition of all actors as the first of four conditions for successful public participation for ambitious and transformative climate planning. See Cattino & Reckien, *supra* note 3 at 106.

gravely to an aspect of project-adaptation impact, which will in turn help explore the continuum between stakeholders with a 'mere' interest and right holders with clearly threatened rights. For example, the scoping phase could establish that while there are likely climate impacts to the project itself, there are little or no direct or indirect effects on the host community or environment. In such a case, investors and workers may have specific associated interests and threatened rights that warrant their involvement in deliberations regarding the adaptive capacity of the project and measures that should be taken. The active involvement of interested and affected persons throughout the assessment process of a project, particularly, when alternatives or mitigation options are being considered, is crucial to climate change adaptation. Take, for example, ENI's construction of embankments and other structures for its Nigerian subsidiary's oil field in Southern Nigeria.[34] The host community took the position that the constructions completely blocked its natural streams with no adequate drainage leading to backed-up stream and flooded farmlands and residential areas during the rainy season. Although the company argued that the low-lying terrain of the community made it particularly prone to all-season flooding, the community had experiential knowledge of the baseline prior to the project and the complications caused by ENI's projects.[35] Actively involving the community while the project was being designed and assessed would have availed ENI of this local knowledge.

The uncertainty and volatility of climate impacts make the existence of a responsive community embedded follow-up structure vital to an adaptation sensitive IA process. IA is not an exact science in relation to impact prediction and ensuring that mitigation measures are put in place to address the potential impacts. There has been a consistent overshoot of climate impacts in intensity and timeline.[36] This compels an iterative and adaptive approach to public participation in respect of climate change adaptation. Like the ENI example, while it could be indeed correct that at the time of design and construction the risk of flooding was not aggravated, it was still possible that the constructions would make the community more vulnerable in the future given increased flooding possibly due to subsequent climate change induced sea level rise. Rather than contesting the claim and its escalation to the OECD Italian National Contact Point (NCP), ENI should have had a structure of engaging the host community, receiving their feedback on the socio-ecological impact of the project more so in a volatile climate, and addressing such quickly. Indeed, the agreement brokered by OECD NCP appointed conciliator supports this conclusion, suggesting that the community should play an active role in appraising the functionality of adaptation measures (culverts/drainages) and should be able to promptly report any malfunction to a company designate.[37]

Under the Paris Agreement, countries recognize the need to avert, minimize, and address loss and damage (L&D) associated with the adverse impacts of climate change, and the usefulness of sustainable development to reduce such risk.[38] This recognition frames L&D response measures as both ex-ante (avert and minimize) and ex-post (address). Incorporating L&D into project impact assessment affects IA analysis in important ways. Impacts that can be 'reversed', 'mitigated', or 'adapted to' are *prima facie* less significant than L&D impacts that cannot be reversed. It is, however, difficult to determine the implications of specific projects for L&D. Two general assumptions could help in this regard: (i.) emissions from projects can make loss and damage more likely even if it might

[34] Italian National Contact Point for the OECD Guidelines, *Specific Instance submitted to the Italian NCP on the 15th December 2017 by Chima Williams & Associate (CWA) and Advocates for Community Alternatives (ACA), on behalf of Egbema Voices of Freedom, versus ENI S.p.A. and ENI International BV – Report on the Agreement by the Parties*, https://pcnitalia.mise.gov.it/attachments/article/2035928/Report%20CWA-ENI%20case%20-%20NCP%20final.pdf.
[35] *Ibid.*
[36] Jeff Tollefson, "Climate Change is Hitting the Planet Faster than Scientists Originally Thought" (28 February 2022) Nature <https://www.nature.com/articles/d41586-022-00585-7>.
[37] *CWA & ACA v. ENI s.p.a.*, Terms of Settlement (Accepted July 8, 2019) https://pcnitalia.mise.gov.it/attachments/article/2035928/ACA%20v.%20ENI%20ToS%20DEF.pdf.
[38] Paris Agreement, art 8(1).

be difficult or impossible to determine where and when those losses and damages will occur;[39] (ii.) projects can trigger or exacerbate loss and damage by undermining the resilience of communities.
The first assumption is related to the increased connection between companies' climate (in)action and human rights in both judicial and non-judicial fora. Increasingly, courts across the world are determining that the failure of private and public actors to take (ambitious) climate action violates various human rights, including the right to life.[40] Previous arguments based on the non-traceability of impacts to emissions are being increasingly rejected.[41] A relevant aspect of this development is the increasingly more liberal approach of courts to standing, recognizing the right of persons affected by climate change, projected to be affected by climate change, or representing those affected or prospectively affected, to sue.[42] It is, therefore, wise that project proponents proactively make room for the involvement of potentially affected persons when assessing the climate implications of their projects. The question should not just be whether a project is carbon intensive or whether it affects international commitments, but also what economic and non-economic losses and damages will be incurred by real people due to climate change. The social cost of carbon (SCC) is,[43] arguably, a practical tool for considering L&D in project IA. There are, of course, non-economic impacts for which the application of SCC will be difficult or completely inapposite, and there is also the issue of the subjective valuation of losses and damages making it difficult to apply generic SCC estimate. The participation of right-holders and stakeholders in determining the social costs of emissions could go a long way in helping to capture subjective estimates and put some value on otherwise inestimable L&D.

The second assumption draws on the discussion on climate adaptation above. However, a slight addition under L&D is the recognition of the right of persons impacted by climate change to 'redress'. Firstly, it should be non-controversial that projects that expose communities and persons to irreversible loss and damage, particularly lives, livelihood, and vital ecosystems, by undermining their resilience should not be allowed to proceed. However, given that it is likely that the full implications of projects on the resilience of communities might not be foreseen, it is important that the public be involved throughout the lifecycle of approved projects. There should be proactive and up-to-date adaptive management strategies jointly designed, updated, and maintained by project proponents and affected communities. A key component of a climate sensitive adaptive management framework is the availability of operational level grievance mechanism to address loss and damage claims, non-contentiously and expeditiously.

Public participation, when climate change is considered in IA, will not automatically achieve the benefits we have explored in this chapter. The IA process must be deliberately designed to achieve these ends, and every phase of the IA process must be applied towards these participation-based goals. In determining the extent to which the effects of a designated project hinder or contribute to a government's ability to meet its climate change commitments as required under the Canadian IAA,

[39] The Supreme Court of Canada, for example, has held that although there is no direct connection between climate change impacts and GHG emission sources, "every province's GHG emissions contribute to climate change, the consequences of which will be borne extra-provincially, across Canada and around the world". *References re Greenhouse Gas Pollution Pricing Act (re GPPA)*, 2021 SCC 11, para 187.
[40] For example, the Hague District Court recently held that businesses' responsibility to respect human rights is a global standard of expected conduct, and Royal Dutch Shell's (RDS) emissions which were contributory to global warming and dangerous climate change have serious and irreversible consequences and risks for human rights. See *the RDS Decision*, supra note 15, paras 4.4.15 - 4.4.16. See also *The State of the Netherlands v Urgenda*, ECLI:NL:HR:2019:2007.
[41] The Dutch Supreme Court held that the fact that Netherland's contribution to the global GHG emissions is minor does not diminish the country's duty of care to take mitigation measures. See *The State of the Netherlands v Urgenda*, para 2.3.1.
[42] *Neubauer, et al v Germany*, *supra* note 6, paras 96 – 137.
[43] SCC monetarily estimates the quantifiable costs and benefits of carbon emissions. See David Wright & Meinhard Doelle, "Social Cost of Carbon in Environmental Impact Assessment" (2019) 52:3 UBC Law Review 1007 at 1020.

the responsible agency is expected to consider comments from Indigenous groups and other participants during the planning phase, and representations by proponents in the impact statement are to be reviewed by stakeholders including Indigenous groups and other participants.[44] The expectation of participation at these early IA phases is laudable, although there is no such explicitly stated expectation in respect of the decision-making phase. To achieve the objectives above, participation must not be an add-on to existing inequitable structures of power which could lead to the quelling of dissenting voices and the entrenchment of inequalities.[45] Specifically, the peculiar gendered implications of climate change must be paid attention to and deliberately designed into efforts at ensuring that the consideration of climate change in IA is participatory. Participation will not always entail stakeholders' positions considered to be adaptation (or climate change) friendly. In fact, Few et al have found that community participants in a study supported short term reactive adaptation measures rather than long term anticipatory measures.[46] There is no easy answer to how public participation should be managed in the face of *prima facie* pro-climate decisions. As a general rule, however, public participation must be viewed as being normatively valuable in itself and does not derive its worth from its arrival at a pre-conceived 'positive' outcome. Ultimately, an appropriate assessment process is one that is designed to ensure that those interested and potentially affected are encouraged to actively participate, and the process is designed to drive the outcome rather than justify an outcome arrived at outside the assessment process.

5. **Conclusion**

In sum, while there are important technical dimensions to the consideration of climate change in IA, the meaningful involvement of the public yields a broad range of benefits including the protection of rights; the legitimacy of decisions; education, awareness, and information gathering; and the consideration and integration of local and Indigenous knowledge. These benefits can only be achieved through meaningful public participation in the consideration of climate change in IA. Human rights are being increasingly implicated in decarbonization decisions. Take for example projects or project alternatives justified during IA processes, in part, for their low carbon emissions (e.g., hydroelectricity dams or wind farms). While determining the emission potential of such projects is in part a technical expertise, such considerations cannot be determinative. The implications of such projects or alternatives on human rights must be considered, and the involvement of right holders in such determination is essential. As the urgency to decarbonize ratchets up, there is a real risk for the non-consideration or trading-off of both individual and collective rights. Such tendency is not only indefensible from the perspective of the inherence and essentiality of rights, but also inefficient as decisions which run afoul of human rights stand the risk of being challenged in court.[47]

The meaningful engagement of the public when considering climate change in impact assessment is important in conferring legitimacy on eventual decisions, particularly decisions against projects inconsistent with a jurisdiction's decarbonization pathway. These types of decisions are bound to

[44] Impact Assessment Agency of Canada, "Policy Context: Considering Environmental Obligations and Commitments in Respect of Climate Change under the Impact Assessment Act" in *The practitioner's Guide to Federal Impact Assessments under the Impact Assessment Act* (IAAC, 2020) 5, 7.
[45] Hügel & Davies *supra* note 28 at 12.
[46] Few et al, *supra* note 3 at 51 – 52.
[47] A recent example is the decision of the Supreme Court of Norway invalidating the decisions on licensing and expropriation for wind power development. While weighing the necessity of the green transition and the cultural rights of the Sami reindeer herders, the court concluded that other less intrusive development alternatives could have been chosen. On the importance of consultation, the court held that while it is essential that the minority is consulted, consultation does not prevent violation of cultural rights if the violation is sufficiently serious. However, the participation of the community in the decision-making process may be essential in the overall assessment of violation. See *Statnett SF v Sør-Forsen Sijte & ors* (2021) HR-2021-1975-S, (case no. 20-143891SIV-HRET).

increase as the urgent race to global decarbonization continues. Such decisions are bound to conflict with other interests such as concerns about the socio-economic viability of places where carbon intensive projects would have been established and the employment they could create. These arguments are already commonplace. Public buy-in of pro-climate decisions is critical to the decarbonization effort. While there are instances where governments must take bold decisions given the urgency of the moment, making concerted effort to gain public acceptance of decision is key to the durability and scalability of such decisions, and the IA process provides such an opportunity. Such acceptance demands a mutual learning approach to impact assessment, where those affected and decision makers both learn and jointly shape solutions in the public interest.

Climate education and awareness is vital to urgent and ambitious decarbonization and attending to adaptation and loss and damage concerns. Scientific research and publications on climate change like the IPCC reports are generally high level, technical, and can be inaccessible. Public participation in IA can serve as an avenue to make accessible and localize otherwise complex climate change information. Education has, for example, been found to be essential for effective climate change adaptation.[48] Climate education is also important to combating the growing climate misinformation which is in turn a major barrier to urgent and ambitious climate action.[49] Again, climate education through the IA process can influence individual and household behavioural changes which have been found to be essential to actualizing global climate goals.[50] Adapting Diduck and Sinclair's perspectives on IA as a domain for learning,[51] considering climate change in IA must be premised on learning if the process is to be more than a hoop for proponents to jump through.

Our conclusion is that climate change is a complex problem, that requires consideration of natural and applied sciences as well as an understanding of the social, cultural, economic and health implications of proposed activities that may contribute to or hinder decarbonizations efforts. A critical element to working through this complexity are the values, priorities, and rights of rightsholders, stakeholders, and the interested public. Given this complexity, making good decisions requires public engagement, including for the following:

1. Ideas on how to achieve decarbonization and sustainability in affected communities, and how the project fits with local decarbonization plans.
2. Local and indigenous knowledge on how climate change will affect biophysical and social systems, how to manage these impacts, and how the management of project impacts and benefits fit into the sustainability of affected communities.
3. A better understanding of who will be disproportionally affected by climate change, and how this affects fairness issues, particularly with respect to the distribution of impacts, benefits, risks, and uncertainties associated with proposed projects.

[48] N.W. Feinstein & K.J. Mach, "Three Roles for Education in Climate Change Adaptation" (2019) Climate Policy 1 – 6.
[49] Stop Funding Heat, *In Denial – Facebook's Growing Friendship with Climate Misinformation* (Stop Funding Heat, 2021); John Cook, "Understanding and Countering Misinformation about Climate Change" in I. Chiluwa & S. Samoilenko eds, *Handbook of Research on Deception, Fake News, and Misinformation Online* (Hershey, PA: IGI-Globa,l 2019) 281 – 306.
[50] Maria Martin et al, "Ten New Insights in Climate Science 2021: A Horizon Scan" (2021) 4 Global Sustainability 8.
[51] Alan Diduck & A. John Sinclair, "A Learning-Focused Analysis of Canada's Impact Assessment Act" in Doelle & Sinclair eds., 491 at 492.