INCLUSIVENESS IN NATIONAL CLIMATE CHANGE ADAPTATION POLICIES

HA PHAM

Thesis submitted to the University of Ottawa
in partial Fulfillment of the requirements for the
Doctor of Philosophy in Geography

Department of Geography, Environment, and Geomatics
Faculty of Arts
University of Ottawa

Statement of Contributions

The following dissertation contains six chapters, an introduction, and a conclusion, all of which I authored or co-authored. I am the sole author of the Introduction, Chapter 3, Chapter 4, Chapter 6, and the Conclusion. I am the main contributor to the three other chapters, Chapter 1, Chapter 2, and Chapter 5.

Introduction: Ha Pham is the sole author.

Chapter 1 - A Systematic Literature Review of Inclusive Climate Change Adaptation (published in *Sustainability*): Ha Pham conceived the idea, compiled the datasets, completed the data analysis, and wrote the manuscript. Marc Saner conceptualized the project and contributed to writing and editing the manuscript.

*Chapter 2 - Framework and Proposed Indicators for the Comprehensive Evaluation of Inclusiveness: The Case of Climate Change Adaptation (*published in *FACETS)*: Marc Saner conceptualized the project, carried out the ethical analysis, wrote the first draft and contributed to revising the manuscript. Ha Pham compiled the datasets, completed the data analysis, contributed to writing the first draft, and revised the manuscript.

Chapter 3 - Inclusiveness in Climate Change Adaptation Policies in Canada: Ha Pham is the sole author.

Chapter 4 - Inclusiveness in Climate Change Adaptation Policies in Vietnam: Ha Pham is the sole author.

Chapter 5 - The Practical Paradoxes of a More Inclusive Approach to Climate Change Adaptation: Ha Pham conceived the idea, compiled the datasets, completed the data analysis, and drafted the manuscript. Melissa Marschke and Marc Saner contributed to the conceptualization of the project and provided guidance on the implementation, writing, and editing of the manuscript.

Chapter 6 - A Modified Framework and List of Indicators to Evaluate Inclusiveness in National Climate Change Adaptation Policies: Ha Pham is the sole author.

Conclusion: Ha Pham is the sole author.

Ethics approval was secured for manuscripts included in Chapter 5 (*The Practical Paradoxes of a more Inclusive Approach to Climate Change Adaptation*) and Chapter 6 (*A Modified Framework and List of Indicators to Evaluate Inclusiveness in National Climate Change Adaptation Policies*). The ethics certificate can be found in Appendix 5.

Acknowledgements

First and foremost, I would like to express my deepest gratitude to my supervisor Professor Marc Saner, who was the first to welcome me to the supportive environment in the Department of Geography, Environment and Geomatics and who always provided me with salient, timely advice on matters both large and small. Your guidance and motivation as well as patience and understanding have been extremely valuable at every single stage of this work.

I also greatly appreciate the time, knowledge and wisdom gifted me by my Thesis Advisory Committee members, Professor Jackie Dawson, Professor Melissa Marschke, and Associate Professor Sonia Wesche and external examiner, Professor Graeme Auld. Thank you also to Professor Eric Crighton and Professor Luisa Veronis who used to be on my committee and consistently supported me during the earlier stages of this work.

I am deeply grateful to all practitioners in Canada and Vietnam, who generously gave their time to be interviewed for and engaged in this research. Your discussions, thoughts, and insights have invaluably informed this thesis. I would like to acknowledge Luke Palder and colleagues for editing and proofing my work.

Finally, I would like to thank my family, especially my parents, my husband, and my three wonderful kids for your endless love and support throughout this project. I could not have done this without you.

FUNDING

I would like to acknowledge the financial support I received through the scholarship for students pursuing a doctoral program overseas from Vietnam International Education Development (VIED) under the Ministry of Education and Training of Vietnam (MOET), the International Doctoral Scholarship from the University of Ottawa, as well as financial and material support from the University of Economics, Ho Chi Minh city.

Positionality Statement

At the outset of my thesis, I find it important to outline my own positionality, which significantly shapes my approach to this research. I identify as a middle-aged Asian female researcher with extensive experience studying and working in Vietnam, my home country, and Canada.

Before pursuing my PhD in Canada, I lived in Ho Chi Minh City, Vietnam, where I frequently encountered the impacts of sea level rise and related flooding, often riding my motorcycle to work through flooded streets during the high tide. My neighbors, like many ordinary people in the area, were familiar with the term "climate change" from media sources such as television and radio but often showed little concern or awareness about its implications.

I worked as a policy maker at provincial level in Vietnam for 7 years and was actively involved in the policy making in Vietnam as a researcher after that. In Canada, I have observed the processes of climate change policymaking, including public online consultations for Canada's very first National Adaptation Strategy. Although I was not a frequent participant in these discussions, I reviewed numerous comments that reflected a wide range of interests, knowledge, and values.

While I have never personally experienced feelings of exclusion in either Canada or Vietnam, my perspective is partly shaped by my experience as a mother of a child with mental health challenges. This has made me acutely aware of the social stigmas, lack of resources in schools (including skilled teachers and staff), and the high cost of private therapies, all of which pose barriers to my child's full inclusion at home, school, and in the community.

I recognize that my standpoint has influenced the research questions I have formulated, the methodologies and methods I have chosen, the data I have collected and analyzed, and the way I interpret findings and frame discussions throughout my research.

Furthermore, I acknowledge that this research, particularly through its inclusive lens, has increasingly influenced how I approach both my academic work and my everyday life.

Finally, I acknowledge that I live and work on the unceded and surrendered land of the Anishinabe Algonquin Nation. The inclusion of ancient knowledge in environmental thinking and policy can only be a benefit to us all.

Table of Contents

Statement of Contributions ii

Acknowledgements iii

Positionality Statement iv

List of Tables x

List of Figures xi

Thesis Abstract xii

Introduction: Context Setting and Research Approach 1

1 Context setting 1

2 Research questions 3

3 Research approach and thesis content 4

3.1 Sub-question 1 4

3.2 Sub-question 2 5

3.3 Sub-question 3 5

3.4 Sub-question 4 6

3.5 Sub-question 5 6

3.6 Sub-question 6 7

References 10

Chapter 1: A Systematic Literature Review of Inclusive Climate Change Adaptation 16

Abstract 16

1.1 Introduction 17

1.2 Materials and methods 19

1.2.1 Data selection 19

1.2.2 Data collection and analysis 21

1.3 Usage of inclusiveness in climate change adaptation 23

1.3.1 Growing usage 23

1.3.2 Predominance of practical contexts 24

1.3.3 Predominance of gender issues 25

1.3.4 Predominance of non-Annex 1 countries 26

1.3.5 Inclusiveness at the intersection of development, gender and capacity in national communications 27

1.4 Three core components of inclusive climate change adaptation 28

1.4.1 Inclusion in who or what adapts 28
1.4.2 Motivating inclusive processes 29
1.4.3 Anticipated outcomes of inclusive climate change adaptation 30
1.5 Implications for national climate change adaptation policies 31
1.6 Conclusion 32
References 33
Chapter 2: Framework and Proposed Indicators for the Comprehensive Evaluation of Inclusiveness: The Case of Climate Change Adaptation 44
Abstract 44
2.1 Introduction 45
2.2 Methods 46
2.3 Inclusiveness in related contexts 47
2.4 Moral reasoning for inclusive climate change adaptation 49
2.5 Developing a framework for inclusive climate change adaptation: 9 priorities and 15 indicators 52
Priority #1: Broad approach to moral standing (Moral Foundations I) 53
Priority #2: Respect for all knowledges and concerns (Moral Foundations II) 53
Priority #3: Special considerations of the differences in vulnerabilities, capabilities, and needs and empowering marginalized groups (Stakeholders I) 54
Priority #4: Good EDI practices (for all staff and committees; Stakeholders II) 54
Priority #5: Science and education policy for all: access and representation (including open procurement and inclusive subsidies; Processes I) 55
Priority #6: Transparent, accessible, and collaborative standards, activities, and communications (Processes II) 55
Priority #7: Use of inclusive values to define “success” and to develop performance indicators (Outcomes I) 56
Priority #8: Open access to data and results (Outcomes II) 56
Priority #9: Diversity and representation in evaluation and audit (Outcomes III) 57
Fifteen indicators 57
2.6 Discussion and Conclusion 61
Acknowledgments 64
References 64
Chapter 3: Inclusiveness in Climate Change Adaptation Policies in Canada 72
Abstract 72
3.1 Introduction 73
3.2 Canada and the “whole-of-society” approach to climate change adaptation action 73

3.3 Materials and methods 75
3.3.1 Data collection 75
3.3.2 Data analysis 75
3.4 Findings 77
3.4.1 Inclusiveness priorities in policy documents: A comparison of government levels across different time periods 77
3.4.2 Extent of inclusiveness priorities in policy documents 79
3.4.3 Action plan for inclusive climate change adaptation 80
3.5 Discussion 87
3.5.1 The gap between commitment to inclusion and the implementation of inclusive CCA 87
3.5.2 The opportunities for learning within levels of governments start with consistency in the use and understanding of concepts 88
3.5.3 A new way of thinking and doing to promote inclusiveness in climate change adaptation 88
3.5.4 The inclusion of the natural environment into adaptation for its own sake 89
References 90
Appendix 1: List of policy documents reviewed 94
Chapter 4: Inclusiveness in Climate Change Adaptation Policies in Vietnam 100
Abstract 100
4.1 Introduction 101
4.1.1 Why an inclusive framework to evaluate national climate change adaptation policy? 101
4.1.2 The case of Vietnam 102
4.2 Materials and methods 102
4.2.1 Data collection 102
4.2.2 Data analysis 103
4.3 Findings 104
4.3.1 Inclusiveness priorities in policy documents: A comparison between governance levels and across different time periods 104
4.3.2 Extent of inclusiveness priorities in policy documents 107
4.4 Inclusiveness gaps in climate change adaptation policies in Vietnam and ways forward 108
4.4.1 Moral standing gap 108
4.4.2 Knowledge gap 109
4.4.3 Management gap 110
4.4.4 Social learning gap 111
4.5 Conclusion 112

References 114
Appendix 2: List of polices documents reviewed 122
Chapter 5: The Practical Paradoxes of a More Inclusive Approach to Climate Change Adaptation 126
Abstract 126
5.1 Introduction 127
5.2 Scene-setting: An ethics-based framework and indicators to evaluate inclusive climate change adaptation 128
5.3 Methods 128
5.4 What lies beneath: Four practical paradoxes of a more inclusive approach to climate change adaptation 129
5.4.1 Inclusiveness is an imperative in climate change adaptation yet the way it is understood varies widely among practitioners 129
5.4.2 Idealistic versus realistic versus instrumental approaches to inclusiveness in climate change adaptation policymaking 131
5.4.3 Organizing adaptation practices to target at broad inclusiveness with resource constraints 133
5.4.4 Individual versus systemic changes to promote inclusiveness in climate change adaptation 134
5.5 Moving forward: Situating strategies to act for inclusive climate change adaptation 135
5.5.1 Uncovering paradoxical tensions and reinforcing cycles 135
5.5.2 Two strategies to act for inclusive climate change adaptation 136
5.6 Conclusion 142
References 145
Appendix 3: Summary of the participants' characteristics 153
Appendix 4: Backgrounder for interview and Interview guide 155
Appendix 5: Certificate of research ethics approval 161
Chapter 6: A Modified Framework and List of Indicators to Evaluate Inclusiveness in National Climate Change Adaptation Policies 163
Abstract 163
6.1 The suitability of qualitative indicators 164
6.2 The broad nature of the inclusive climate change adaptation concept and opening spaces for contradiction and change management 164
6.3 Summary of participants' recommendations on our framework and indicators 165
6.4 Modified framework, list of indicators, and a recommended implementation process 166
References 173
Conclusion: Thesis Findings, Contributions, Limitations, and Implications for Future Research 174
1 Main finding and answering research questions 174

2 Contributing to theories and practices 176
2.1 Systematically and comprehensively describing the idea of inclusive climate change adaptation 176
2.2 Providing an ethical analysis of the current conceptualization and scope of inclusive climate change adaptation 177
2.3 Providing insights into the inclusiveness and justice of climate change adaptation policy systems in Canada and Vietnam 178
2.4 Exploring adaptation practitioners' perceptions of inclusive climate change adaptation 180
2.5 Developing and modifying the framework and indicators of inclusive climate change adaptation grounding on ethical analysis and empirical inquiry 181
3 Research limitations and opportunities for future research 182
3.1 Research limitations 182
3.2 Opportunities for future research 183
References 185

List of Tables

Table 1: Inclusion and exclusion criteria for document selection 20

Table 2: Questionnaire for data collection 22

Table 3: Conceptualizations of inclusiveness in related contexts..... 47

Table 4: Checklist of indicators and levels of progress for evaluating inclusiveness in CCA 58

Table 5: Four types of inclusiveness limits and learning opportunities..... 62

Table 6: Inclusive CCA framework with 4 core components and 9 priorities..... 76

Table 7: Levels of inclusiveness for evaluating sampled policy documents 76

Table 8: Actions planned for more inclusive CCA in the sampled policies 82

Table 9: Inclusive CCA framework with 4 core components and 9 priorities..... 103

Table 10: Levels of inclusiveness for evaluating sampled policy documents 104

Table 11: Practical paradoxes of inclusive CCA with underlying tensions and reinforcing cycles..... 136

Table 12: A sample of indicators for evaluating inclusiveness in CCA policies..... 168

Table 13: Main findings and corresponding research questions..... 175

List of Figures

Figure 1: Research Flow Chart 9
Figure 2: Document Triage Process 20
Figure 3: Number of publications by year 24
Figure 4: Theoretical vs. Practical Approaches 24
Figure 5: Cases with Gender or Non-Gender Foci 26
Figure 6: Cases in Annex 1 and Non-Annex 1 Countries 26
Figure 7: Summary chart to illustrate the space for the proposed 9 priorities of inclusive CCA 52
Figure 8: A sample of how to present inclusiveness evaluation results 63
Figure 9: The system of national CCA policies in Canada 74
Figure 10: Statistics of sampled policy documents by government levels and time periods 75
Figure 11: Inclusiveness in sampled policies by government levels 78
Figure 12: Inclusiveness in sampled policies by periods 79
Figure 13: The extent of inclusiveness in sampled policy documents 80
Figure 14: Statistics of sampled policy documents by governance levels and time periods 103
Figure 15: Inclusiveness considered in reviewed policies by governance level 105
Figure 16: Inclusiveness considered in reviewed policies by periods 106
Figure 17: Policy documents mentioning inclusiveness and including them into implementation 107
Figure 18: Strategies for managing practical paradoxes of inclusive CCA 142
Figure 19: A new graphic presentation of the inclusive CCA framework 167

Thesis Abstract

This thesis poses and answers the research questions: *How should we conceive of 'inclusiveness' in the context of climate change adaptation (abbreviated to CCA in this thesis), and how should we evaluate 'inclusiveness' in national CCA policies?* I address these overarching research questions through a series of six sub-questions that are presented in six chapters.

Chapter 1 is a systematic literature review to find out *how the current literature informs the concept and scope of inclusiveness in CCA*. The usage trends, scope, and nature of an inclusive approach to CCA are described to document a growing interest in the idea of inclusiveness in the CCA context. However, there are insufficient efforts to fully understand this concept as well as how to plan for, implement, and evaluate inclusiveness.

Chapter 2 is an ethical analysis to understand *whether the concept and scope found in Chapter 1 is appropriate, or whether we should think about it differently in light of ethics, and how might this concept be translated into a framework of and indicators to evaluate inclusiveness in the context of CCA.* The ethical analysis, drawing upon pluralistic values of climate ethics, organization management and CCA governance and policymaking, identifies four core components of the inclusiveness in CCA framework: good moral foundations, good stakeholders, good processes, and good outcomes. Asserting these four core components into common steps of logic models results in a suite of fifteen indicators for understanding, implementing, and evaluating the level of inclusiveness in CCA.

The framework is then used to evaluate inclusiveness in national CCA policies in Canada (*Chapter 3*) and Vietnam (*Chapter 4*) to solve the third and fourth sub-research questions: *How inclusive are the national CCA policies in Canada and Vietnam, from the vantage point of the framework and indicators developed in previous chapter?* In Canada, the analysis reveals an increasing positive response to inclusiveness priorities but also an urgency to synthesize key terms and concepts, develop consensus on perceptions and knowledge, and facilitate the learning process for collective adaptation purposes, solutions, and priorities. In Vietnam, the analysis highlights four inclusion gaps: moral standing gap, knowledge gap, management gap, and social learning gap.

Chapter 5 investigates *how practitioners' perceptions of inclusive CCA inform the comprehensiveness and applicability of a framework and indicators for evaluating inclusiveness in CCA policies and practices*. The semi-structured interviews with twenty-six practitioners in Canada and Vietnam reveal four practical paradoxes that require insights into these contradictions and the complex interrelationships surrounding them if we are to successfully achieve inclusive adaptation and resilience to climate change. The participants also shared their opinions on the relevance and feasibility of the inclusive CCA framework and indicators.

Chapter 6 synthesizes five chapters to answer the last sub-question: *How can the framework and indicators could be improved, based on the existing policies and practitioners' perceptions?* The final analysis distinguishes the differences between the original framework and indicators (what might occur) and how inclusive the policy system in Canada and Vietnam are and practitioners' view (what is occurring) to improve the inclusive CCA framework and indicators (what should occur). The thesis concludes with a modified framework and a list of indicators which if utilized potentially motivate the CCA policy and practices toward a better informed, complete, and balanced approach to inclusiveness.

Introduction: Context Setting and Research Approach

1 Context setting

This thesis is based on three foundational observations

First, countries *promise big* and deliver comparatively less regarding climate change policy. The best example is probably the delays in implementing climate change mitigation measures. Parties to the United Nations Framework Convention on Climate Change (UNFCCC) agreed that holding the increase in the global average temperature to well below 2°C above preindustrial levels would significantly reduce the risks and impacts of climate change (UNFCCC, 2011, 2015). Nonetheless, the United Nations Environment Program (UNEP, 2023a) reports that predicted greenhouse gas emissions, based on current climate pledges, will be 16% higher in 2030 than that at the time of the agreement's adoption, far from the 28% and 45% reductions for the Paris Agreement pathways to limit warming to 2°C and 1.5°C respectively. With a shift in the attention given to climate change adaptation (*abbreviated to CCA in this thesis*), the struggle to deliver promises continues. As acknowledged by the UNEP's Adaptation Gap Report (AGR) 2023, the gap between implementing adaptation actions and accelerating climate risks is widening globally. The report also revealed that one out of six countries still does not have a national adaptation planning instrument, and most of them are particularly vulnerable to climate impacts (UNEP, 2023b).

One of the major promises is that CCA policies will be non-discriminatory and inclusive of all interests (United Nations, 1992; UNFCCC, 2015). This promise goes hand-in-hand with the greater attention given to EDI (equity, diversity, and inclusion) in countries such as Canada (Government of Canada, 2021). An inclusive approach has also been embedded in CCA policies at both the international and national levels and in developed and developing countries (United Kingdom Climate Impacts Program, 2005; Southern Voices on Adaptation, 2015; Government of Canada, 2023; Intergovernmental Panel on Climate Change [IPCC], 2022a; UNFCCC, 2018). However, these policies could not result in inclusive CCA action. One typical example can be found in the AGR 2022 and 2023. Although nearly 90% of the planning instruments analyzed consider gender and/or historically disadvantaged groups, such as Indigenous peoples, only 20% of these plans have a dedicated budget for gender equality and social inclusiveness integrated activities, and the amount allocated is extremely low at 2% (UNEP, 2022, 2023b).

Second, *climate justice* has emerged as a key issue in international climate change policy and diplomacy. This could be exemplified in the United Nations General Assembly Resolution 77/276 dated 29 March 2023, requesting an advisory opinion of the International Court of Justice on the obligations of States to protect for States and for present and future generations affected by the adverse effects of climate change (UN, 2023). The world faces major challenges, including COVID-19, climate change, rising poverty and inequality, and growing fragility and violence in many countries. Inequality has always been a key issue in international development, and now it manifests even more as a result of environmental change and the COVID-19 pandemic (United Nations Development Program, 2022; Gupta et al. 2021). Inequalities are most apparent in the unequal impact of climate change stimulus, and the imbalance in winner–loser relationships, particularly for people in the poorest countries and also for vulnerable groups in the most developed countries. Inequality, therefore, is a direct challenge to the ideals of justice and inclusiveness. Many international development organizations are advocating for what should

be called the GRID: green, resilient, and inclusive development (World Bank, 2021). Many organizations have identified their own values as JEDI, meaning justice, equality, diversity, and inclusion (CDFW, 2021; Conservation Northwest, 2021; SARP, 2021).

The concept of inclusive CCA is a good starting point because it leads the mind to defining a scope. The selected scope will influence the rest. A case in point: Should climate justice include future humans and all sentient animals? Should the inclusiveness lens be applied to the effect of climate change on all human settlements? Should inclusiveness also be considered in who benefits from research subsidies into CCA? Should an inclusive approach be employed to address climate denial or right- versus left-wing in climate action?

Third*, evaluation of CCA performance* is lacking due to the limited knowledge on climate change impacts, vulnerabilities, and solutions at spatial and temporal scales, as well as the insufficiency of methodologies or assessment so far (New et al., 2022; Leiter and Pringle, 2018). The infamous quotation in modern management "What gets measured gets managed" implies that what gets measured poorly may be managed poorly; however, it also embroiders the utter importance of measuring the right thing in the right way (Ridgway, 1956; Deming, 2018).

In light of the complexity and long-term nature of climate change and its impacts, it is essential that adaptation be designed as a continuous and flexible process subject to periodic review. For example, the Paris Agreement strongly encourages countries and other parties to engage in monitoring, evaluating, and learning from adaptation plans, policies, programs, and actions (UN, 2015). Evaluation is the process of systematically collecting, analyzing, and using information to determine the progress and effects of an adaptation action (IPCC, 2022b). In addition, evaluations may have other purposes, such as monitoring efficiency, assessing equity, presenting accountability, triggering learning, and improving future activities or interventions (New et al., 2022; UNFCCC, 2014). However, the majority of adaptation performance evaluation efforts have focused on aspects prior to implementation, such as assessments of climate vulnerability and risks or appraisals of adaptation options (Sietsma et al., 2021). The assessment of implemented adaptation actions has largely focused on processes and outputs rather than on achieved outcomes and ultimate impacts such as climate risks, vulnerability, well-being, or development (Brooks et al., 2014; Fawcett et al., 2017; Siders et al., 2021; UNEP, 2022). Evaluation is frequently associated with learning, facilitating actions, aiding decision-making under uncertainty, and ensuring more successful future adaptation efforts, but how these actions are supposed to take place is rarely considered (Armitage et al., 2008; Baird et al., 2015; Fisher et al., 2015; Spearman and McGray, 2011; Villanueva, 2012).

Equity, Justice, and Performance Evaluation

Equity is one of the targets that should be covered when evaluating adaptation actions. The Working Group II contribution to the Sixth Assessment Report of the IPCC defines successful adaptation as adaptation toward equitable and effective adaptation with human, ecosystem, and mitigation co-benefits (Ara Begum et al., 2022). This report also highlights equity and justice, as three out of "the four conditions stand out as particularly key to enabling adaptation success" (New et al, 2022, p.2603), including recognitional equity and justice emphasizing the integration of Indigenous and local communities and knowledge, procedural equity and justice, and distributive equity and justice. There is an ordinary understanding that fairness in outcome distribution or in representation, autonomy, or authority during adaptation processes were important elements of effectiveness (Owen, 2020; Singh,

2022). Adaptation literature so far has identified the need to expand equity evaluation in adaptation via the considerations of uneven distributions of climate change impacts and adaptive capacities among different groups and of differing needs for adaptation, diverse representations in decision-making, equitable distributions of outcomes across populations, institutional and governmental policies to manage resource constraints, redness unbalanced and unfair power relations, and legitimate types of expertise to guide adaptation actions (Abid et al., 2016; Diedrich et al., 2017; Ford et al., 2013; Jaja et al., 2017; Lubchenco et al., 2016; Phuong et al., 2018; Schemmel et al., 2016; Schmitt et al., 2013).

However, very few studies, both theoretically and practically, have provided qualitative or quantitative evaluations of justice or equity. Some scholars have employed monetized economic measures such as cost–benefit analysis, social welfare measures, or income, rationalizing that financial indices are strongly correlated with a wide range of indicators of development, social progress, and adaptive capacity (Dasgupta et al., 2018). Others have assessed equitable and effective adaptation by employing the multicriteria concept of well-being, for example, the loss of cultural heritage for future generations versus economic gains for present people (Adger, 2016); the economic value of lost assets versus the fraction of consumption lost in families for different income groups (Markhvida et al., 2020; Ara Begum et al., 2022); and the targeting of equitable risk reduction (applying equal protection standards to all areas) or equitable risk (prioritizing interventions to higher risk areas) (Ciullo et al. 2020).

The main challenge comes from the fact that the criteria of equity and justice are context specific and are grounded in competing values (Adger et al., 2003; Ford et al., 2015; Ford and Berrang-Ford, 2016). The relative importance attached to each criterion varies between actors engaged in adaptation processes depending on their worldviews and perceptions of responsibility and changes over time as attitudes and expectations change (Byskov, 2021; Few et al., 2021). There is an increasing practical focus on finding ways to include diverse perspectives and give voice to all affected people through accountable, transparent, and inclusive decision-making processes (Adger, 2016; Barnett et al., 2014). The revealed gaps in adaptation research and practice call attention to the issues of planning, implementing, and evaluating equity and justice, as well as representations of diverse types of knowledge and expertise, fair distributions of adaptation benefits, and imbalanced power relationships within the adaptation process (Byskov, 2021; New et al. 2022; Owen, 2020). As we argue for the relevance of the inclusive lens in justice and equity considerations, we also argue for an urgent need to develop performance measures for the inclusiveness in the CCA or the inclusive CCA. This requires conceptual work around the idea of inclusiveness in the context at hand, the development of a suite of practical indicators, and the testing of these indicators in the real world.

2 Research questions

The purpose of this thesis was to investigate the concept of inclusive CCA and to explore the ways to evaluate inclusiveness in national CCA policies.

> Foundational questions: How should we conceive of inclusiveness in the context of CCA, and how should we evaluate inclusiveness in national CCA policies?

I addressed these overarching research questions through a series of six sub-questions:

1. How does the current literature inform the concept and scope of inclusiveness in CCA?

2. Is this concept and scope appropriate, or should we think about it differently in light of ethics, and how could this concept be translated into a framework of and indicators to evaluate inclusiveness in the context of CCA?

3. How inclusive are the national CCA policies in Canada, from the vantage point of this framework and indicators?

4. How inclusive are the national CCA policies in Vietnam, from the vantage point of this framework and indicators?

5. How do practitioners' perceptions of inclusive CCA inform the comprehensiveness and applicability of the framework and indicators for evaluating inclusiveness in CCA policies and practices?

6. How could the framework and indicators be improved, based on the existing policies and practitioners' perceptions?

3 Research approach and thesis content

This research is conducted through six main steps, each addressing one of the above six sub-questions and presented in six chapters. Each core chapter was written as a stand-alone publication with its own abstract, introduction, methods, results, discussion, conclusion, and list of references.

3.1 Sub-question 1

Chapter 1 is a systematic literature review addressing the sub-research question 1: How does the current literature inform the concept and scope of inclusiveness in CCA? We conducted the review with three data sources—peer-reviewed literature, gray literature (reports by consultants, governments, and NGOs), and national communications to the UNFCCC and covered the data that were mostly dated from 2010 to the first quarter of 2021. Drawing on 106 peer-reviewed articles, 145 gray literature documents, and 67 national communications to the UNFCCC, we systematically and comprehensively describe the usage trends, scope, and nature of the inclusive approach in CCA.

The result confirms our initial observations that an increase in the usage of inclusive CCA will likely be in line with any increase in the usage of the broader term CCA. The progress made in conceptual work that specifies sequential relationships and provides a framework or structure for researching, analyzing, or modeling inclusive CCA lags far behind that in practical research that substantively reports or discusses how adaptation inclusiveness takes place. This concept is widely used to reflect gender issues and capacity building in the context of non-Annex 1 countries. Qualitatively, the research reveals three core components of inclusive CCA: (1) inclusion in who or what adapts, (2) motivating inclusive processes, and (3) anticipated outcomes of inclusive CCA.

We conclude that the concept of inclusiveness in CCA has been aligned with inclusive education, Equality – Diversity – Inclusion (EDI) in human resources management, inclusive innovation, inclusive governance, and inclusive development, all of which have been recognized and far more advanced both theoretically and practically. Considering the inherent inequality and systemic injustice in climate change responses, we discover the urgent need to sharpen the concept of inclusive CCA and open spaces for it in the CCA discussion, policymaking, and practices.

3.2 Sub-question 2

In Chapter 2, we developed an argument for how the inclusive CCA concept could be conceptualized more comprehensively in light of ethics and how this concept could be translated into a set of indicators that are testable in practice. We conducted a broad ethical analysis that drew upon pluralistic values of global justice, intergenerational justice, and ecological justice in climate ethics; diversity, equity, and inclusion in contemporary organization management; and cooperation, transparency, and accountability in CCA governance and policymaking.

The ethical analysis identifies four core components of inclusive CCA. *Good foundations* of an inclusive approach to CCA should grounded in justice and caring in the broadest sense of these concepts, covering systemically marginalized groups, people in the future, and nonhuman actors while intensifying mutual acknowledgment of diverse cultures, values, and knowledge. Ensuring *good stakeholders* for inclusive CCA requires sufficient support to improve stakeholders' capacities and the implementation of EDI policies throughout organizations and communities involved in CCA. *Good processes* mean developing broad collaboration and ensuring transparency and accountability throughout CCA processes, from ideation to implementation, review, and learning. *Good outcomes* of inclusive CCA could be perceived as the contribution of inclusiveness to the general outcomes of CCA, ensuring that all outcomes of adaptation are truly inclusive by using inclusive value to define success, monitoring, and evaluation as well as improving accessibility to adaptation data and results. We then asserted these four core components of inclusive CCA into six common steps of logic models, which are also key processes of general policymaking and specific adaptation initiatives, to facilitate the selection of the most relevant indicators for each specific domain, perspective, and issue of inclusive CCA without losing sight of the overall picture. Nine priorities were identified, each with one to two qualitative indicators, resulting in a list of fifteen indicators for understanding, implementing, and evaluating inclusive CCA policies and practices.

We also argue that putting these indicators into practice requires considerable effort to test, check, pilot, and modify them. It is also crucial to obtain inputs from the main end-users of monitoring and evaluation tools to ensure this conceptual framework and indicators are aligned with the needs of users and enables them to become more usable knowledge.

3.3 Sub-question 3

In both this and the next steps, I conducted content analysis of policy documents and analyzed the degree of inclusiveness that was integrated into the CCA policies in Canada and Vietnam. Notably, I carried out two separate analyses instead of comparative case studies. The reasons are as follows: (i) Canada and Vietnam are two hugely different cases in terms of economic development, social and political systems, tradition and culture, climate change vulnerabilities, adaptive capacities, and resources. A comparison of these two extremely divergent cases results in obvious differences that are less meaningful and contributive to the literature and practices; (ii) This enables me to be more flexible in choosing the data to collect, the benchmark for analysis (time periods, levels of government). For example, I review policy documents at the federal, provincial, and municipal levels in Canada but at the international, national, and sectorial levels in Vietnam.

Chapter 3 presents a policy analysis in which I applied the resultant framework and indicators of inclusive CCA from Chapter 2 to explore how different inclusiveness components and priorities have

been integrated into national CCA policies in Canada. A search for relevant policy documents on the government websites in Canada was conducted, resulting in the collection containing 84 policy documents of which 25% were from the federal government, 32% were from provincial governments, and 43% were from the municipal governments.

The content analysis of policy documents illustrates an increasingly positive response to inclusiveness priorities, together with a series of detailed actions planned and implemented to promote these priorities in Canadian CCA policies. An urgent need still exists, ideally for the federal government, to synthesize key terms and concepts, achieving consensus on perceptions and knowledge, and facilitate the learning process for collective adaptation purposes, solutions, planning, and action. I also advocate for the natural environment to be included for its own sake in the adaptation policies of Canada.

3.4 Sub-question 4

Chapter 4 is another policy analysis paper using the inclusive CCA framework and indicators developed in Chapter 2 to assess the degree to which inclusiveness has been embedded into CCA policy, identifying the gaps as well as opportunities for an inclusive approach to CCA in Vietnam. I searched for relevant policy documents on government websites in Vietnam. Because this research focused on the national level, the aim was to collect and analyze national documents such as national communications and reports to the UNFCCC, national adaptation programs of action (NAPAs), and strategic planning documents. The analysis was then extended to focus on sectoral adaptation action plans for agriculture and rural development, construction, industry and trade, transportation, education and training, culture, sport, and tourism, and health. I did not include provincial adaptation policies in the scope of this paper because the policymaking process at the provincial level in Vietnam has long been criticized for overreliance on national and sectorial directions and funding, heavy dependence on the expertise of external experts and consultants, and a lack of local initiatives and contributions that limit engagement of vulnerable groups as well as the application of risk assessment (Gilfillan et al., 2017; Phuong et al. 2018; Ylipaa et al., 2019; Phan, 2020; Nguyen et al., 2021). A total of 58 policy documents were collected and analyzed: 50% were published at the national level, 41% were published at the sectoral level, and only 9% were published at the international level.

Content analysis of these policy documents reveals a high level of variation exists in how inclusiveness components and priorities have been integrated and planned for implementation in adaptation policies across the different government levels throughout several periods since 2008 in Vietnam. The analysis uncovers four main inclusion gaps in Vietnamese CCA policies: moral standing gap, knowledge gap, management gap, and social learning gap.

3.5 Sub-question 5

In Chapter 5, we conducted exploratory qualitative research using in-depth semi-structured interviews with adaptation practitioners in Canada and Vietnam (n = 26) to address the sub-research question 5: How do practitioners' perceptions of inclusive CCA inform the comprehensiveness and applicability of the framework and indicators for evaluating inclusiveness in CCA policies and practices? Adaptation practitioners are those who are engaged in developing and applying practical solutions to climate change on the ground. They are policymakers, engineers, ecologists, landscape planners, investors, and other practitioners across sectors and areas. These practitioners play essential roles in CCA that go

beyond interpreting and applying CCA knowledge to initiating and implementing policies, regulations, programs, and projects to address the diverse and dynamic vulnerabilities to climate change impacts.

The ultimate aim is to investigate practitioners' perceptions of inclusive CCA in general and of our framework of inclusive CCA (developed in step 2, Chapter 2) in particular. We believe that incorporating the diverse views, perspectives, skills, and interests of practitioners into understanding of the inclusive CCA concept reveals the complexity and dynamics of inclusiveness in adaptation processes. By exploring adaptation professionals' opinions of and recommendations for our framework, we also provide practitioner-based suggestions that will hopefully improve the comprehensiveness and applicability of a more inclusive approach to CCA.

This chapter reveals several practical paradoxes that require a thoughtful consideration if we are to successfully achieve inclusive adaptation and resilience to climate change: (1) The need for inclusiveness in CCA is obvious, yet the way it is understood varies widely; (2) Idealistic versus realistic versus instrumental approaches exist in regard to inclusiveness in CCA policies; (3) Adaptation practices target at broad inclusiveness with limited resources; and (4) Changes should be incremental or transformative to promote inclusiveness in CCA. Successfully managing these practical paradoxes requires insights into the contradictions and the complex interrelationships surrounding them. Thus, this chapter explores how a bottom-up approach grounded in practitioners' optimism and solidarity needs to be supported by a top-down approach in which laws and regulations enforce inclusiveness and leverage transformational changes for genuine inclusiveness in CCA policies and practices.

The paradoxes identified in this chapter, as well as the two approaches proposed to manage them, have several implications for our inclusive CCA framework and indicators that were developed in Chapter 2. Participants also provided a number of detailed recommendations for this framework. A more comprehensive analysis of these recommendations and how they could inform the modification of our inclusive CCA framework and indicators has been carried out and presented in Chapter 6.

3.6 Sub-question 6

Chapter 6 synthesizes five previous chapters to answer the last sub-question: How the framework and indicators could be improved, based on the existing policies and practitioners' perceptions. In this chapter, I integrated the implications of the two policy analysis papers and the empirical paper as well as interviewees' opinions and recommendations related to the ethical-based inclusive CCA framework and indicators developed in Chapter 2 to propose a modified framework, list of indicators, and a 5-step implementation process.

Two policy analyses (Chapter 3 and Chapter 4) illustrate that qualitative indicators are suitable for the abstract concept of inclusive CCA and its intangible characteristics and properties. A qualitative approach to evaluation is best suited for measuring the progress of complex, multifaceted or multi-dimensional objectives like inclusive CCA. However, the inclusive CCA framework and indicators developed in this research also need to be tailored to match evaluation objectives, data availability, and the feasibility of collecting and analyzing required data in line with given time limits, capacities, and other resources.

The paradoxes identified in Chapter 5, as well as the two approaches proposed to manage them, also have several implications for our inclusive CCA framework and indicators developed in chapter 2. First, a

framework that conceptualizes inclusive CCA should be very broad in nature but still open to considering the social construction of this concept, meaning how perceptions and behaviors related to inclusive CCA could be formulated, sustained, and shaped by specific characteristics of a society's conventions and structures. Second, given that contradictions are inherent and recurring in any attempt to adapt to climate change inclusively, the inclusive CCA framework should recognize and create spaces to manage these contradictions at both individual and collective levels. Third, measuring the progress of inclusiveness in CCA should also reflect the extent to which changes (both incremental and radical) are triggered by individual or collective attempts to resolve the systemic vulnerabilities and exclusion rooted in social norms and institutional arrangements.

Notably, participants also provided a number of detailed recommendations for this framework, such as tailoring the framework to be more specific to CCA, defining a broad approach to moral foundations, adding social capital as one consideration of the inclusive CCA framework, clearly explaining the scale system and supplementing them with examples, clarifying the data needed to do the evaluation, where and how to get them.

The final analysis distinguishes the differences between the original framework and indicators (what might occur) and how inclusive the policy system in Canada and Vietnam are and practitioners' view (what is occurring) to improve the inclusive CCA framework and indicators (what should occur). The thesis concludes with a new graphic for the framework, a sample of indicators to evaluate inclusiveness in national CCA policies, and a 5-step process to apply these indicators in practice.

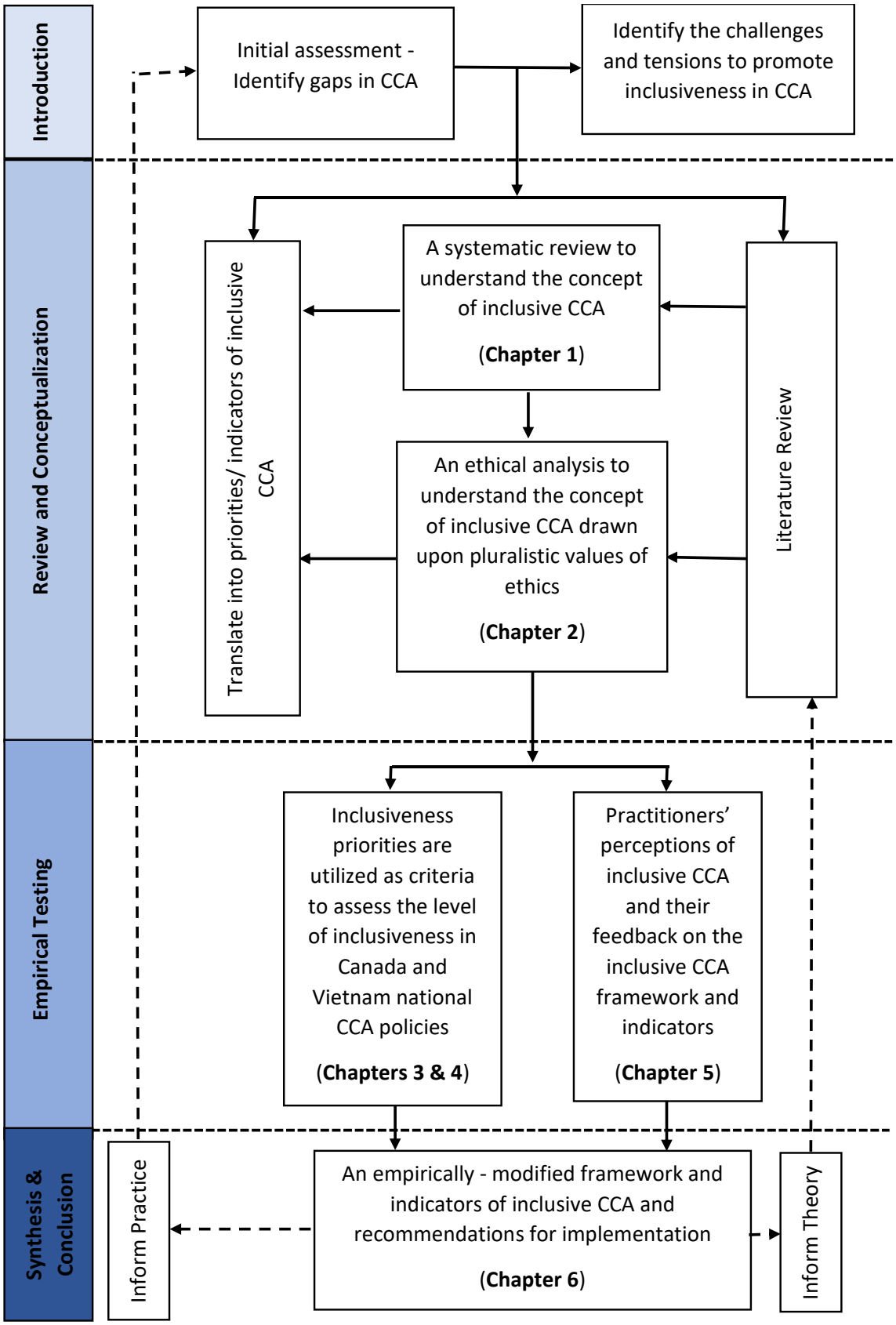


Figure 1: Research Flow Chart

References

Abid, M., Schneider, U., Scheffran, J. (2016). Adaptation to climate change and its impacts on food productivity and crop income: Perspectives of farmers in rural Pakistan. *J. Rural Stud. 47*, 254–266. https://doi.org/10.1016/j.jrurstud.2016.08.005.

Adger, W. N. (2016). Place, well-being, and fairness shape priorities for adaptation to climate change. *Global Environmental Change, 38*, A1–A3. https://doi.org/10.1016/j.gloenvcha.2016.03.009

Adger, W. N., Brown, K., Fairbrass, J., Jordan, A., Paavola, J., Rosendo, S., & Seyfang, G. (2003). Governance for Sustainability: Towards a 'Thick' Analysis of Environmental Decisionmaking. *Environment and Planning. A, 35*(6), 1095–1110. https://doi.org/10.1068/a35289

Ara Begum, R., Lempert, R., Ali, E., Benjaminsen, T.A., Bernauer, T., Cramer, W., Cui, X., Mach, K., Nagy, G., Stenseth, N. C., Sukumar, R., Wester, P. (2022). Point of Departure and Key Concepts. In: *Climate change 2022: impacts, adaptation and vulnerability: Working Group II contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (1st ed.)*. Cambridge University Press. https://doi.org/10.1017/9781009325844

Armitage, D., Marschke, M., & Plummer, R. (2008). Adaptive co-management and the paradox of learning. *Global Environmental Change, 18*(1), 86–98. https://doi.org/10.1016/j.gloenvcha.2007.07.002

Baird, J., Plummer, R., Haug, C., & Huitema, D. (2014). Learning effects of interactive decision-making processes for climate change adaptation. *Global Environmental Change, 27*, 51–63. https://doi.org/10.1016/j.gloenvcha.2014.04.019

Barnett, J., Grahan, S., Mortreux, C., Fincher, R., Waters, E., Hurlimann, A. (2014). A local coastal adaptation pathway. *Nature Climate Change, 4*(12), 1103–1108. https://doi.org/10.1038/NCLIMATE2383

Siders, A. R., Lesnikowski, A., Fischer, A. P., Callaghan, M. W., Haddaway, N. R., Mach, K. J., Araos, M., Shah, M. A. R., Wannewitz, M., Doshi, D., Matavel, C., Musah-Surugu, J. I., Wong-Parodi, G., Antwi-Agyei, P., Ajibade, I., Chauhan, N., Kakenmaster, W., Grady, C., Chalastani, V. I., … Abu, T. Z. (2021). A systematic global stocktake of evidence on human adaptation to climate change. *Nature Climate Change, 11*(11), 989–1000. https://doi.org/10.1038/s41558-021-01170-y

Brooks, N. & Fisher, S. (2014). *Tracking adaptation and measuring development: a step-by-step guide*. International Institute for Environment and Development (IIED), London. https://www.iied.org/sites/default/files/pdfs/migrate/10100IIED.pdf

Byskov, M. F., Hyams, K., Satyal, P., Anguelovski, I., Benjamin, L., Blackburn, S., Borie, M., Caney, S., Chu, E., Edwards, G., Fourie, K., Fraser, A., Heyward, C., Jeans, H., McQuistan, C., Paavola, J., Page, E., Pelling, M., Priest, S., … Venn, A. (2021). An agenda for ethics and justice in adaptation to climate change. *Climate and Development, 13*(1), 1–9. https://doi.org/10.1080/17565529.2019.1700774

Ciullo, A., Kwakkel, J.H., De Bruijn, K.M., Doorn, N., Klijn, F. (2020). Efficient or fair? Operationalizing ethical principles in flood risk management: a case study on the Dutch-German Rhine. *Risk Anal. 40*(9):1844–1862. https://doi.org/10.1111/risa.13527

Conservation Northwest. (2021). *Our commitment to Justice, Equity, Diversity and Inclusion*. https://www.conservationnw.org/about-us/justice-equity-inclusion/

Dasgupta, P., Edenhofer, O., Amezquita, A. M. A., Bento, A., Caney, S., Croix, D. D. la, Fosu, A., Jakob, M., Saam, M., Shrader-Frechette, K., Weyant, J., You, L., Delgado-Ramos, G. C., Dorsch, M. J., Flachsland, C., Klenert, D., Lempert, R., Leroux, J., Lessmann, K., … Strefler, J. (2018). Economic Growth, Human Development, and Welfare. In *Rethinking Society for the 21st Century* (pp. 141–186). Cambridge University Press. https://doi.org/10.1017/9781108399623.005

Deming, W. E. (William E.) (2018). *Out of the crisis* ([Reissue].). The MIT Press.

Diedrich, A., Stoeckl, N., Gurney, G. G., Esparon, M., & Pollnac, R. (2017). Social capital as a key determinant of perceived benefits of community-based marine protected areas. *Conservation Biology, 31*(2), 311–321. http://www.jstor.org/stable/44202373

Fawcett, D., Pearce, T., Ford, J. D., & Archer, L. (2017). Operationalizing longitudinal approaches to climate change vulnerability assessment. *Global Environmental Change, 45*, 79–88. https://doi.org/10.1016/j.gloenvcha.2017.05.002

Few, R., Spear, D., Singh, C., Tebboth, M. G. L., Davies, J. E., & Thompson-Hall, M. C. (2021). Culture as a mediator of climate change adaptation: Neither static nor unidirectional. *Wiley Interdisciplinary Reviews. Climate Change, 12*(1), e687-n/a. https://doi.org/10.1002/wcc.687

Fisher, S., Dinshaw, A., McGray, H., Rai, N., & Schaar, J. (2015). Evaluating Climate Change Adaptation: Learning from Methods in International Development. *New Directions for Evaluation, 2015*(147), 13–35. https://doi.org/10.1002/ev.20128

Ford, J. D., & Berrang-Ford, L. (2016). The 4Cs of adaptation tracking: consistency, comparability, comprehensiveness, coherency. *Mitigation and Adaptation Strategies for Global Change, 21*(6), 839–859. https://doi.org/10.1007/s11027-014-9627-7

Ford, J. D., Berrang-Ford, L., Biesbroek, R., Araos, M., Austin, S. E., & Lesnikowski, A. (2015). Adaptation tracking for a post-2015 climate agreement. *Nature Climate Change, 5*(11), 967–969. https://doi.org/10.1038/nclimate2744

Ford, J. D., McDowell, G., Shirley, J., Pitre, M., Siewierski, R., Gough, W., Duerden, F., Pearce, T., Adams, P., & Statham, S. (2013). The Dynamic Multiscale Nature of Climate Change Vulnerability: An Inuit Harvesting Example. *Annals of the Association of American Geographers*, *103*(5), 1193–1211. https://doi.org/10.1080/00045608.2013.776880

Gilfillan, D., Nguyen, T. T., & Pham, H. T. (2017). Coordination and health sector adaptation to climate change in the Vietnamese Mekong Delta. *Ecology and Society, 22*(3), 14-. https://doi.org/10.5751/ES-09235-220314

Government of Canada. (2021). *Call to Action on Anti-Racism, Equity, and Inclusion in the Federal Public Service.* https://www.canada.ca/content/dam/pco-bcp/images/pco2/misc/Action-eng.pdf

Government of Canada. (2023). *National Adaptation Strategy - Canada's National Adaptation Strategy: Building Resilient Communities and a Strong Economy*. https://publications.gc.ca/collections/collection_2023/eccc/en4/En4-544-2023-eng.pdf

Gupta, J., Bavinck, M., Ros-Tonen, M., Asubonteng, K., Bosch, H., van Ewijk, E., Hordijk, M., Van Leynseele, Y., Lopes Cardozo, M., Miedema, E., Pouw, N., Rammelt, C., Scholtens, J., Vegelin, C., & Verrest, H. (2021). COVID-19, poverty and inclusive development. *World Development, 145*, 105527–105527. https://doi.org/10.1016/j.worlddev.2021.105527

Intergovernmental Panel on Climate Change (2022a). *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press. Cambridge University Press, Cambridge, UK and New York, NY, USA, 3056 pp. https://doi.org/10.1017/9781009325844

Intergovernmental Panel on Climate Change (2022b). Annex II: Glossary [Möller, V, J.B.R. Matthews, R. van Diemen, C. Méndez, S. Semenov, J.S. Fuglestvedt, A. Reisinger (eds.)]. In: *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 2897-2930. https://doi.org/10.1017/9781009325844.029

Jaja, J., Dawson, J., Guadet, J. (2017). Using social network analysis to examine the role that institutional integration plays in community-based adaptive capacity to climate change in Caribbean small island communities. *Local Environ. 22* (4), 424–442. https://doi.org/10.1080/13549839.2016.1213711

Leiter, T. & Pringle, P. (2018). Pitfalls and potential of measuring climate change adaptation through adaptation metrics. In: Christiansen, L., Martinez, G., & Naswa, P. (Eds.): *Adaptation Metrics: Perspectives on measuring, aggregating and comparing adaptation results*, pp.29-47. UNEP DTU Partnership. https://backend.orbit.dtu.dk/ws/files/175846716/UDP_Perspectives_Adaptation_Metrics_WEB.pdf

Lubchenco, J., Cerny-Chipman, E.B., Reimer, J.N., Levin, S.A. (2016). The right incentives enable ocean sustainability successes and provide hope for the future. *Proc. Natl. Acad. Sci. 113* (51), 14507–14514. https://doi.org/10.1073/pnas.1604982113

Markhvida, M., Walsh, B., Hallegatte, S., & Baker, J. (2020). Quantification of disaster impacts through household well-being losses. *Nature Sustainability, 3*(7), 538–547. https://doi.org/10.1038/s41893-020-0508-7

New, M., Reckien, D., Viner, D., Adler, C., Cheong, S.M., Conde, C., Constable, A., Coughlan de Perez, E., Lammel, A., Mechler, R., Orlove, B., Solecki, W. (2022). Decision-Making Options for Managing Risk. In: *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 2539–2654. https://doi.org/10.1017/9781009325844.026

Nguyen, T. A., Huynh, L.H.T, Pannier, E., Nguyen, A., Tessier, O. et al. (2021). Climate Change Adaptation Policies in Viet Nam: from national perspective to local practices. *Climate change in Viet Nam, impacts and adaptation: a COP26 assessment report of the GEMMES Viet Nam project*, pp.501-532. https://horizon.documentation.ird.fr/exl-doc/pleins_textes/2022-05/010084119.pdf

Owen, G. (2020). What makes climate change adaptation effective? A systematic review of the literature. *Global Environmental Change, 62*, 102071–13. https://doi.org/10.1016/j.gloenvcha.2020.102071

Phan, T.T. (2020). *The implementation of climate change adaptation policy in coastal Vietnam*. PhD Dissertations, University of Canterbury, http://dx.doi.org/10.26021/5408

Phuong, L. T. H., Biesbroek, G. R., & Wals, A. E. J. (2018a). Barriers and enablers to climate change adaptation in hierarchical governance systems: the case of Vietnam. *Journal of Environmental Policy & Planning, 20*(4), 518-532. https://doi:10.1080/1523908X.2018.1447366

Phuong, L.T.H., Wals, A., Sen, L.T.H., Hoa, N.Q., Lu, P.V., Biesbroek, R. (2018b). Using a social learning configuration to increase Vietnamese smallholder farmers' adaptive capacity to respond to climate change. *Local Environ. 23* (8), 879–897. https://doi.org/10.1080/13549839.2018.1482859

Ridgway, V. F. (1956). Dysfunctional Consequences of Performance Measurements. *Administrative Science Quarterly, 1*(2), 240–247. https://doi.org/10.2307/2390989

Schemmel, E., Friedlander, A.M., Andrade, P., Keakealani, K., Castro, L.M., Wiggins, C., Wilcox, B., Yasutake, Y., Kittinger, J.N. (2016). The ecodevelopment of coastal fisheries monitoring methods to support local management. *Ecol. Soc. 21* (4), 34–45. https:// doi.org/10.5751/ES-08818-210434

Schmitt, K., Albers, T., Pham, T.T., Dinh, S.C. (2013). Site-specific and integrated adaptation to climate change in the coastal mangrove zone of Soc Trang Province, Viet Nam. *J. Coast. Conserv. 17*, 545–558. https://doi.org/10.1007/s11852-013-0253-4

Sietsma, A. J., Ford, J. D., Callaghan, M. W., & Minx, J. C. (2021). Progress in climate change adaptation research. *Environmental Research Letters, 16*(5), 54038-. https://doi.org/10.1088/1748-9326/abf7f3

Singh, C., Iyer, S., New, M. G., Few, R., Kuchimanchi, B., Segnon, A. C., & Morchain, D. (2022). Interrogating "effectiveness" in climate change adaptation: 11 guiding principles for adaptation research and practice. *Climate and Development, 14*(7), 650–664. https://doi.org/10.1080/17565529.2021.1964937

Southern Voices on Adaptation. (2015). *Joint Principles for Adaptation.* http://southernvoices.net/images/Joint_Principles_for_Adaptation_version_3.pdf

Spearman, M. & McGray, H. (2011). *Making adaptation count: concepts and options for monitoring and evaluation of climate change adaptation*. http://star-www.giz.de/dokumente/bib-2011/giz2011-0219en-monitoring-evaluation-climate-change.pdf.

The California Department of Fish and Wildlife (CDFW). (2021). *California Department of Fish and Wildlife Justice, Equity, Diversity, and Inclusion Action Plan.* https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=189223&inline

The SFU Avalanche Research Program (SARP). (2021). *Positionality Statement on Justice, Equity, Diversity, and Inclusion (JEDI).* http://www.avalancheresearch.ca/jedi/

The United Kingdom Climate Impacts Program (UKCIP). (2005). *Objective Setting for Climate Change.* http://www.ukcip.org.uk/publications/

United Nations Development Program (2022) *Building Forward Together: Towards an inclusive and resilient Asia and the Pacific.* https://www.undp.org/publications/building-forward-together-towards-inclusive-and-resilient-asia-and-pacific

United Nations Environment Program (2022). *Adaptation Gap Report 2022: Too Little, Too Slow – Climate adaptation failure puts world at risk*. Nairobi. https://www.unep.org/adaptation-gap-report-2022

United Nations Environment Program (2023a). *Emissions Gap Report 2023: Broken Record – Temperatures hit new highs, yet world fails to cut emissions (again)*. Nairobi. https://doi.org/10.59117/20.500.11822/43922.

United Nations Environment Program (2023b). *Adaptation Gap Report 2023: Underfinanced. Underprepared. Inadequate investment and planning on climate adaptation leaves world exposed.* Nairobi. https://doi. org/10.59117/20.500.11822/43796

United Nations Framework Convention on Climate Change (2011). *Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010*. Addendum. Part two: Action taken by the Conference of the Parties at its sixteenth session. Geneva, Switzerland: United Nations.

United Nations Framework Convention on Climate Change (2014). *Report on the workshop on the monitoring and evaluation of adaptation. United Nations Framework Convention on Climate Change (UNFCCC)*, Fifth meeting of the Adaptation Committee Bonn, Germany, 5–7 March 2014. https://unfccc.int/documents/41780

United Nations Framework Convention on Climate Change (2015a) *Paris Agreement*. https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf?gclid=Cj0KCQiA7OqrBhD9ARIsAK3UXh1UpmUK3vGfixKmb2RqOVqOcOJMHboOIfn4FeCAGmtX6BLCtyMUtKQaAn4iEALw_wcB

United Nations Framework Convention on Climate Change (2015b). *Synthesis report on the aggregate effect of the intended nationally determined contributions*, FCCC/CP/2015/7. https://unfccc.int/resource/docs/2015/cop21/eng/07.pdf

United Nations Framework Convention on Climate Change (2018). *UN Climate Change Annual Report 2017*. https://unfccc.int/resource/annualreport/

United Nations, general assembly (2015). *Transforming our world: The 2030 Agenda for Sustainable Development*. https://sdgs.un.org/2030agenda.

United Nations, general assembly (2023). *Request for an advisory opinion of the International Court of Justice on the obligations of States in respect of climate change*. Resolution 77/276 dated 29 March 2023. https://www.icj-cij.org/sites/default/files/case-related/187/187-20230412-app-01-00-en.pdf

United Nations (1992). *UN framework convention on climate change.* UNFCCC Secretariat, Bonn. https://unfccc.int/resource/docs/convkp/conveng.pdf

Villanueva, P.S. (2012). *Learning to ADAPT: Monitoring and Evaluation Approaches in Climate Change Adaptation and Disaster Risk Reduction—Challenges, Gaps and Ways Forward*, https://www.ids.ac.uk/files/dmfile/SilvaVillanueva_2012_Learning-to-ADAPTDP92.pdf.

World Bank (2021). *Green, Resilient, and Inclusive Development*. World Bank, Washington, DC. http://hdl.handle.net/10986/36322

Ylipaa, J., Gabrielsson, S., & Jerneck, A. (2019). Climate Change Adaptation and Gender Inequality: Insights from Rural Vietnam. *Sustainability*, *11*(10), 2805-. https://doi.org/10.3390/su11102805

Chapter 1: A Systematic Literature Review of Inclusive Climate Change Adaptation

This manuscript was published in *Sustainability*.

Pham, H. & Saner, M. (2021). A Systematic Literature Review of Inclusive Climate Change Adaption. *Sustainability, 13*(19), 10617-. https://doi.org/10.3390/su131910617

Author Contributions: Ha Pham conceived the idea, compiled the datasets, completed the data analysis, and wrote the manuscript. Marc Saner conceptualized the project and contributed to writing and editing the manuscript. The version presented in this paper has incorporated the comments and suggestions from the reviewers and co-authors.

Abstract

Inclusive approaches have been applied in many areas including human resources, international development, urban planning, and innovation. This paper is a systematic literature review to describe usage trends, scope, and nature of the inclusive approach in the climate change adaptation (CCA) context. We developed search algorithms, explicit selection criteria, and a coding questionnaire, which we used to review a total of 106 peer-reviewed articles, 145 grey literature documents, and 67 national communications to the United Nations Framework Convention on Climate Change, 318 documents in total. Quantitatively, the methodology reveals a slight increase in usage with a focus on non-Annex 1 countries, gender issues, and capacity building. Qualitatively, we arranged key insights into three categories: (1) Inclusion in who or what adapts; (2) Motivating inclusive processes; (3) Anticipated outcomes of inclusive CCA. We conclude with the observation that many issues also apply to Annex 1 countries. We also argue that the common language nature of the word 'inclusive' makes it applicable to other CCA-relevant contexts including government subsidies, science policy, knowledge integration and mobilization, performance measurement, and the breadth of the moral circle a society should adopt.

Keywords: climate change adaptation; climate justice; inclusiveness; national communications; systematic review

1.1 Introduction

Climate change adaptation (CCA) designates the process of adjustment to actual or expected climate effects intended to avoid harm or exploit beneficial opportunities (Intergovernmental Panel on Climate Change [IPCC], 2014). Successful adaptation requires an approach in which all stakeholders are involved to ensure that all needs will be considered, and all outcomes will be just (Dalby & O'Lear, 2016; Lynch & Duke, 2010; Pelling, 2011). The terms "participation", "stakeholder engagement", "public involvement", "bottom-up", and "community-based" have been referred to widely in the discourse of adaptation (Farber et al., 2016; Few et al., 2007). A participatory approach to CCA has been advocated by many international organizations (IPCC, 2014, 2018; COP 21, 2015; United Nations Framework Convention on Climate Change [UNFCCC], 2018) and has been embedded in CCA policies worldwide (GoC, 2016a; Southern Voices on Adaptation, 2015; UKCIP, 2005). The idea of inclusion is firmly embedded in this established debate.

Simply creating spaces for public participation does not ensure the broader involvement of stakeholders (IPCC, 2014; Patnaik, 2021). Pre-existing power asymmetries reinforce the existing privileges of some stakeholders and suppress minority perspectives (Bloomfield et al., 2001; Mittag, 2012; Reed, 2008). In the case of CCA, this situation is particularly problematic because less powerful populations are often harmed more severely by global warming. Adaptation solutions resulting from inequitable processes cannot be responsive to the needs of the weak, and adaptation outcomes often fall short in the criteria of equity, fairness, and justice (Ayers, 2011; Nightingale & Rankin, 2014). In addition, the interests of future generations and of sentient non-human animals are often underrepresented. Scholars have described this situation as "non-inclusive participation", "adverse inclusion", or "limited inclusion" (Buechler, 2016; Singh, 2018; Wilk et al, 2018). Applying the goal of inclusiveness as applied to opportunities, needs, risks, benefits, costs, and profits is even more ambitious than addressing the challenge of participation.

The concept of inclusion was popularized in classical social science research with the ideas of social inclusion and an inclusive society (Sen, 2000; UNDESA, 2009). In recent decades, it has been reconceived by researchers and policy makers to apply to contemporary issues, including inclusive growth or development (Mello & Dutz, 2012; OECD, 2015), inclusive/exclusive governance or decision making (Gilman, 2015; Ison & Wallis, 2017), inclusive cities or urbanization (D'Cruz et al., 2014; Florian & Michael, 2011; Shrestha et al., 2015; World Bank, 2015), and inclusive innovation (Agola & Hunter, 2016; GoC, 2016b; Schillo et al., 2017). In these contexts, it is of the utmost importance to realize that inclusion is a universal value referring to the right of people to access regular things and participate in mainstream society. Besides, inclusion opens a new way of thinking that influences our beliefs and actions. Inclusion is about people gaining social acceptance, having positive interactions with their peers, and being valued for who they are (Sen, 2000; UNDESA, 2009). As such, it must be internally motivated and caused by embracing the belief that all people have both the right to belong and the responsibility to respect the right of others to belong (Sen, 2000). Inclusion values diversity and provides real opportunities for people (both with and without disabilities) to improve their lives (Mello & Dutz, 2012; Ison & Wallis, 2017; World Bank, 2015).

The interest in inclusive approaches to climate change began some time ago (Dalby & O'Lear, 2016, Bloomfield et al., 2001; Tompkins et al., 2002; Archer et al., 2014). However, there has been no coherent understanding of what form this inclusion should take (Few et al., 2007; Chu et al., 2016). There is a

need for both conceptual and empirical work on the issue of inclusive CCA. This literature review contributes to this work. We refer to 'inclusiveness' throughout this text because it is more commonly used than the synonymous 'inclusivity', but the literature search covers all related concepts.

A number of previous systematic literature reviews have specifically focused on CCA, including characterizing adaptation actions (Berrang-Ford et al., 2011, 2015), governance of adaptation (Biesbroek et al., 2015), and adaptation in different locations or sectors (Ford & Pearce, 2010; Lesnikowski et al., 2011). However, there are no reviews focusing on the inclusiveness of CCA. The purpose of this literature review is to systematically chart the usage of 'inclusiveness' in the CCA context. We believe that it is a useful concept that can complement related ideas such as climate justice, equity, participation, respect for diversity, bias, and discrimination.

Multiple perspectives on inclusiveness flow into the issue of climate justice that gained momentum in the late 1990s (Jafry et al., 2018). There are several definitions of climate justice, and they often express the idea of (a lack of) inclusiveness. Hughes (2013, p. 51, our emphasis), for example, proposes these three criteria for climate justice: 1. representation of vulnerable groups in adaptation planning processes; 2. priority setting and framing that recognize the adaptation needs of the vulnerable groups; and 3. impacts of adaptation that enhance the freedoms and assets of vulnerable groups. The Routledge Handbook on Climate Justice has put the need to embrace equity and inclusiveness at the core of the discussions on climate justice and how it can be achieved (Jafry et al., 2018). Many existing studies on issues of inclusiveness in CCA planning and policy-making processes posit that adequate representation and participation of the most marginalized and vulnerable—in both developed and developing countries—will yield more recognition, procedural justice, and distributive justice, which inter alia can define climate justice (Bulkeley et al., 2014; Figueiredo & Perkins, 2013; Jafry, 2016; Nurhidayah & McIlgorm, 2019; Ingle & Mikulewicz, 2020).

To address the climate emergency that has recently entered mainstream debates, scholars are reconceptualizing climate justice in a more inclusive way, advocating for the reemergence of intra-generation justice and multispecies justice. This is a conceptual expansion of the use of the term, decentering the human and recognizing the human relationship with other inter- and intra-generational people and more-than-human beings (Forsyth, 2014; Schlosberg, 2013; Tschakertet al., 2021). More inclusive approaches move the climate justice discourse into multi-temporal and multi-scalar realms. In the context of CCA, this scope delineates what systemic transformations may involve (and with whom), how to adapt to inevitable and possibly intolerable losses, and how to prefigure and enact alternative and just futures.

Our present interest in exploring the inclusiveness concept more deeply is two-fold. First, it is an integral part of EDI (equity, diversity, inclusion), which is increasingly important in various contexts. The integration of EDI into the daily life of public servants, academics, and employees of non-government organizations makes it hard to ignore. Second, and ultimately more important, is the great versatility of the common language concept inclusiveness. It is understood without great theoretical background or metaphysical justification. And it is applicable to a wide and growing range of relevant contexts, as we will show.

We use the methodology of systematic literature reviews because it provides a transparent, reproducible, and rigorous approach to dealing with large information sets (Cooper & Hedge, 1994). This approach provides quantitative results such as trends and numerical comparisons as well as a systematic

input into summaries and analyses (Berrang-Ford et al., 2015; Gough et al., 2012). Because it is systematic it is also constrained. The search algorithms define what may be included and the questionnaire for data collection defines how the analysis is structured (Ford & Pearce, 2010; Lesnikowski et al., 2011). The upside is that the greater transparency and reproducibility of the search render future updates very feasible and improve the disclosure of the value judgments made by us. The downside is that it limits on snowballing and the search for the best references to support the emerging story. We cover the most current peer-reviewed literature, grey literature, and policy documents, 318 documents in total.

In this paper, we deal with two main research questions: (i) How has the concept of inclusive CCA been used in literature? (ii) What are the core components of CCA proposed in literature? In order to answer these questions, we will describe the data selection, collection, and analysis (Section 2), demonstrate the trend of using this concept in literature (Section 3), reveal a framework of inclusive CCA (Section 4), argue for the importance of this concept in the national adaptation climate change policy of both developed and developing countries (Section 5), and conclude our paper by discussing the concept's main contributions, limitations and recommendations for future research.

1.2 Materials and methods

A systematic review refers to a focused review of the literature that seeks to answer (a) specific research question(s) using predefined eligibility criteria for document selection and explicitly outlined and reproducible methods (Berrang-Ford et al., 2015; Cooper & Hedge, 1994; Gough et al., 2012). Systematic reviews have been increasingly used in the environmental change research context (Berrang-Ford et al., 2011, 2015; Biesbroek et al., 2015; Ford & Pearce, 2010; Lesnikowski et al., 2011; Lorenz et al., 2014; McLeman, 2011)

1.2.1 Data selection

The following three data sources were used: the peer-reviewed literature, grey literature (reports by consultants, governments, and NGOs), and national communications (NCs) to the UNFCCC.

For *peer-reviewed articles*, we used the following search query in Scopus (https://www.scopus.com/): TITLE-ABS-KEY (inclusi*AND("climate chang*"OR"changing climate"OR"climate warm*"OR"warm* climate"OR"global warm*"OR"global chang*"OR"environment* chang*"OR"environment* warm*"OR"warm* environment")AND(adapt*"OR"interven*))within these subject areas: environmental science, social science, earth and planetary science, art and humanities, and multidiscipline. A total of 614 articles were retrieved for title and abstract scanning to select papers with clear relevance to CCA and inclusiveness. Based on the inclusion/exclusion criteria (see Table 1 and Figure 2), 106 documents met the final relevance screening criteria and underwent data extraction.

This review also gives an extensive consideration to *grey literature* and policy documents because restricting a review to only peer-reviewed literature can miss key trends and insights with significant implications for biasing the results (Berrang-Ford et al., 2015; Cooper & Hedge, 1994). Relevant grey literature was identified using one focused search in Google: ("climate change" OR "changing climate" OR "global warming" OR "environmental change") AND ("adapt" OR "adaptation" OR "intervene" OR "intervention") AND ("inclusive" OR "inclusion" OR "inclusivity" OR "inclusiveness") filetype:pdf. We restricted included documents to PDF files only to limit hits to a manageable number. The titles and

descriptions provided within the standard Google search engine were reviewed to determine the relevance of each result.

Table 1: Inclusion and exclusion criteria for document selection

Inclusion criteria	**Exclusion criteria**
Text in English	Text in other languages
Full text available	Only abstract or partial text available
Human response to climate change	Biological response to climate change
Adaptive response to climate change	Vulnerability, mitigation only
Refers directly to inclusiveness	Does not refer to inclusiveness
Sufficient detail for data extraction	Insufficient detail for data extraction

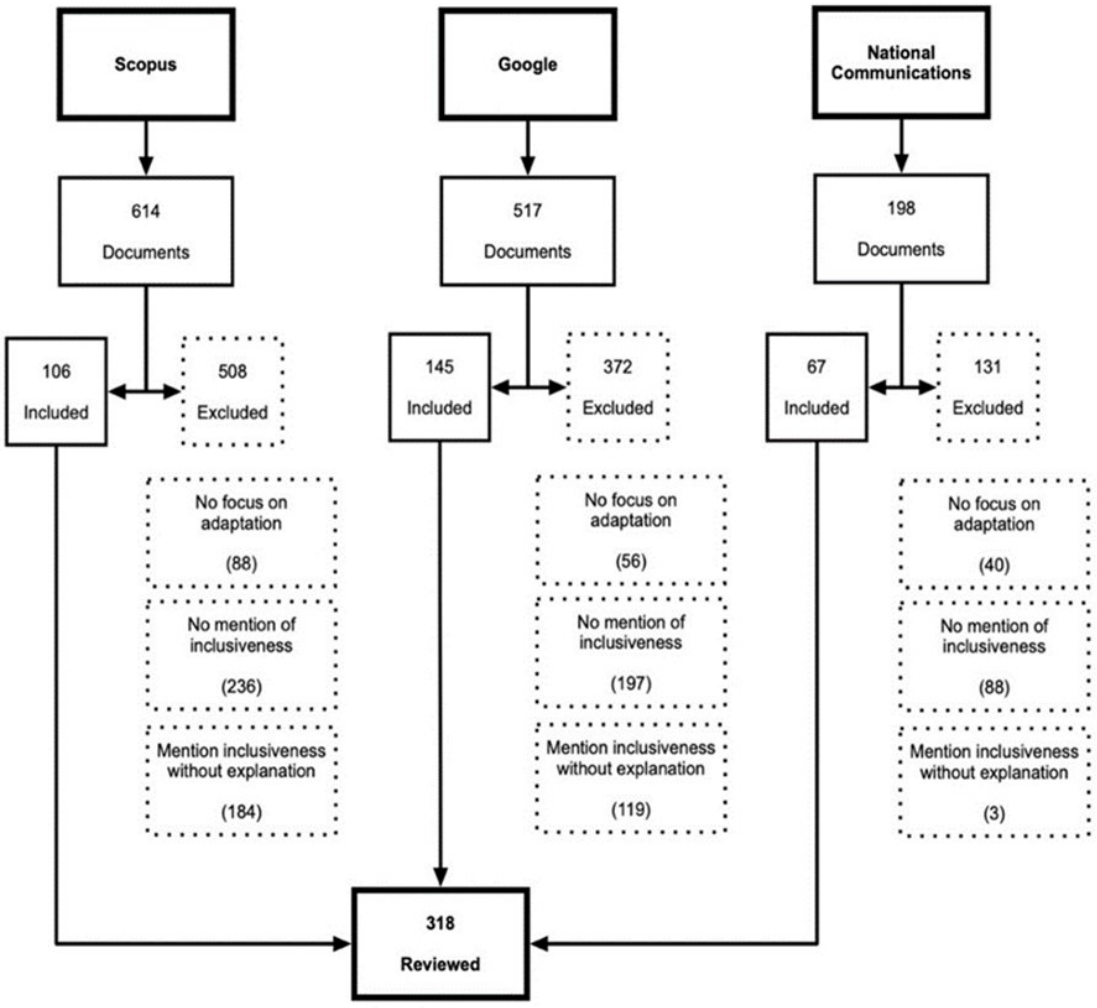


Figure 2: Document Triage Process

A total of 517 search results met the initial screening (Mendeley has been used to remove duplicates). A first page screen, followed by a full text review, was applied to confirm eligibility using inclusion/exclusion criteria, and a total of 145 grey literature documents were retained and included for data extraction.

For *policy documents*, the most recent national communications were selected as the data source for this analysis. The NCs were considered the most appropriate data source for several reasons. First, national governments play key roles in adaptation planning and implementation by protecting vulnerable groups, supporting economic diversification, providing information, creating policy frameworks, making laws, and distributing financial support (IPCC, 2014; Gill, 2003; Meadowcroft, 2009; Oulu, 2015; Pierre & Peters, 2000). Second, NCs constitute a consistent source of English-language information available for many developed and developing countries (Lesnikowski et al., 2011). Third, national governments submit these documents to report their policy priorities and progress, which renders them official records (Cooper & Hedge, 1994).

A total of 198 NCs were extracted from the UNFCCC website, including 44 NCs of Annex 1 countries (NC6 reports of the US and Ukraine and NC7 reports of others), and the 154 most recent available NCs submitted by non-Annex 1 countries (the NC of Libya was not available). Annex 1 of the Convention lists developed countries and economies in transition, whereas non-Annex 1 parties are mostly low-income, developing countries. All the reports were screened based on the inclusion and exclusion criteria, and a total of 67 NCs (22 from Annex 1 countries and 45 from non-Annex 1 countries) underwent data extraction.

1.2.2 Data collection and analysis

Following document screening, 318 articles from all three data sources (peer-reviewed, gray, and NC) were retained for full review (Figure 2). Peer-reviewed and grey literature were reviewed in full, while NCs were reviewed only where they concerned adaptation. To achieve greater consistency, we developed an article review questionnaire (Table 2) documenting how inclusive CCA is understood and occurs in the selected articles (Berrang-Ford et al., 2011; Cooper & Hedge, 1994). The general characteristics of the article in terms of authorship, year published, region of interest, and (conceptual/ practical) approach provided a foundation for the quantitative portion of the systematic literature review. To support the qualitative portion, we structured the analysis of the literature by separating three themes, inspired by the adaptation assessment frameworks proposed by Smit and Pelling (Pelling, 2011; Smit et al., 1999, 2000): (1) who or what adapts; (2) how to adapt (adaptation activities and adaptive capacity required to adapt); and (3) adaptation outcomes. Data were entered into a Microsoft Excel spreadsheet for descriptive statistics on quantitative trends.

Table 2: Questionnaire for data collection

General questions
Lead author?
Year published?
Region of interest:
Annex 1?
Non-Annex 1?
Approach:
Conceptual?
Practical (Example or Case)?
Specific questions
Who or what to include
Scale:
Local and community?
National?
Regional?
International scales?
Necessity to cooperate across scales?
Stakeholders:
A broader spectrum of actors?
Local people and local communities?
Governments, including local and national levels?
The private sector?
Experts and research communities?
NGOs and civil society?
International actors, networks, and agencies?
Vulnerable groups?
The poor?
People with disabilities?

The Indigenous?

Women & girls?

Resource-dependent people?

More than human – others?

Knowledge:

Traditional?

Expert?

Techniques or tools:

Participatory (action) research approaches?

Qualitative scenarios?

A programming model?

Adaptation design tool?

Social ecological inventory (SEI)?

How to include (adaptation activities and capacity required to adapt)

Governance?

Institution?

Social capacity?

Outcomes

Considerations of vulnerable groups?

Adequate participation?

Just results?

A status of resilience, inclusive development, and sustainability?

1.3 Usage of inclusiveness in climate change adaptation

1.3.1 Growing usage

Of 318 reviewed documents, only about 10% (29) date back to 2010 or earlier (see Figure 3). 90% of the reviewed documents are dated 2011-2020 with an increasing trend that may have peaked in 2018. Data for 2021 is incomplete and represents the first quarter only—an extrapolation to the full year would lead to the same number as in the peak year 2018. We should note that an increase in the usage of "inclusive CCA" will likely be in step with any increase in the usage of the broader term "CCA".

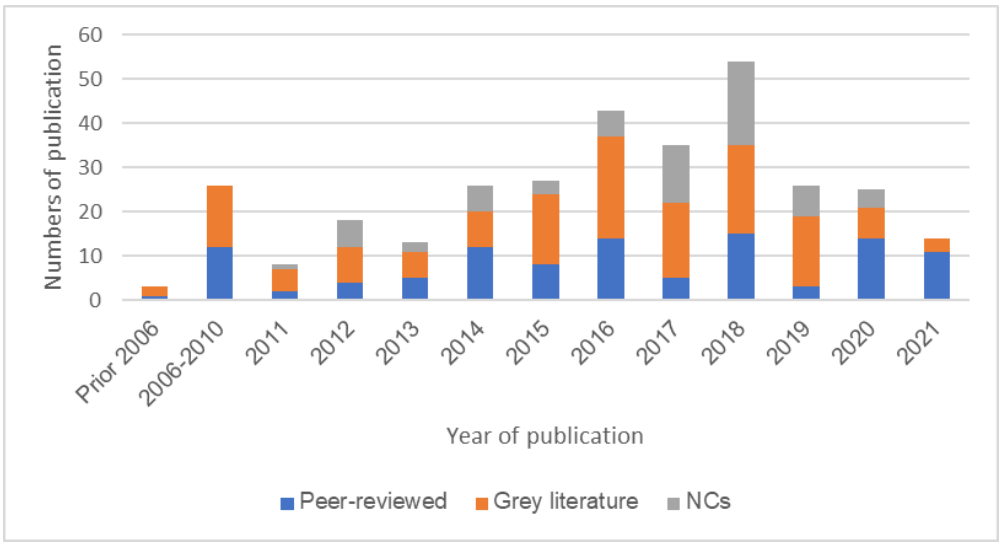


Figure 3: Number of publications by year

1.3.2 Predominance of practical contexts

We used the following definitions to distinguish practical and conceptual contexts. Practical approaches include substantive reporting or discussion of an adaptation activity in place, excluding proposed strategies, empirical testing, and predictive modeling (Berrang-Ford et al., 2011). In contrast, conceptual approaches specify sequential relationships and feedback for adaptation processes in general or for sectors or applications, providing the framework or structure for research, analyses, or modeling (Smit et al., 2000).

As shown in Figure 4, we categorized nearly two thirds (199/318) of the reviewed literature in the practical category. This is agreement with Agrawal (2008) and Oulu (2015) who conclude that CCA is still a relatively new field in which policy and practice tend to precede theory or to advance simultaneously. They also argued that the lack of middle-range adaptation theories and comparative empirical studies is a glaring challenge. The results in Figure 4 may indicate that conceptual work in inclusive climate change adaption is lagging behind progress made in practical research.

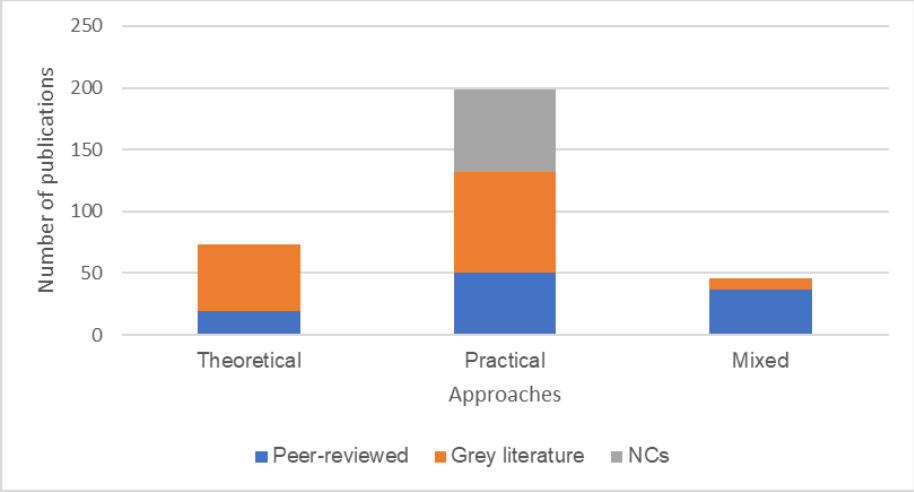


Figure 4: Theoretical vs. Practical Approaches

Practical approaches include substantive reporting or discussion of an adaptation activity in place [39]. In other words, practical approaches describe cases or examples of how adaptation inclusiveness is happening in practice. This study is intended for a wide audience of development and CCA practitioners to support their daily work. Moreover, the findings and good practice principles on inclusive CCA create good opportunities for researchers to test and complete the related theoretical issues that have not been well developed yet and have applications extending well beyond the CCA field. Out of 199 documents using practical approaches, we identify 331 cases and examples. The following part presents some findings when we review the cases and examples on inclusive CCA.

1.3.3 Predominance of gender issues

As shown in Figure 5, more than 43% (144/331) of the cases or examples in the reviewed literature are related to gender issues. Less than 20% referred to other vulnerable groups, such as the poor, people with disabilities, the Indigenous, resource-dependent people, future generations, or non-human actors.

The significance of gender issues in adaptation inclusiveness can be explained in several ways.

First, vulnerability to climate change is not gender neutral. The inequitable distribution of rights, resources, and power, increases the vulnerability of women, as do social rules and norms. Women often find themselves in a vicious cycle in which limited access to resources amplifies their susceptibility to climate change and vice versa (Mittag, 2012; Butcher-Gollach, 2015).

Second, the terms “gender inclusive adaptation” and “gender responsive adaptation” have been used regularly by UN organizations and international donors, including the United Nations Development Program (UNDP), the United Nations Environment Program (UNEP), UNFCCC, the Green Climate Fund (GCF), and the Asian Development Bank (ADB) (Aoyagi et al., 2011; Habtezion, 2013, 2016; Schalatek & Nakhooda, 2013; UNDP, 2009, 2012). These organizations have developed very detailed toolboxes or checklists on how to integrate gender and climate change into policy and practice and have encouraged all countries to integrate gender into national communication reporting (GCF, 2018; NDF & ADB, 2015; UNDP, 2015; UNFCCC, 2015). This approach to CCA directly addresses issues of gender inequality, provides strengthened supports to women, empowers them, and places them in the center of CCA processes. Better support to these groups would help to prevent further depletion of their resilience to climate change and ensure that climate change does not accentuate or perpetuate existing gender inequities (Dulal et al., 2009).

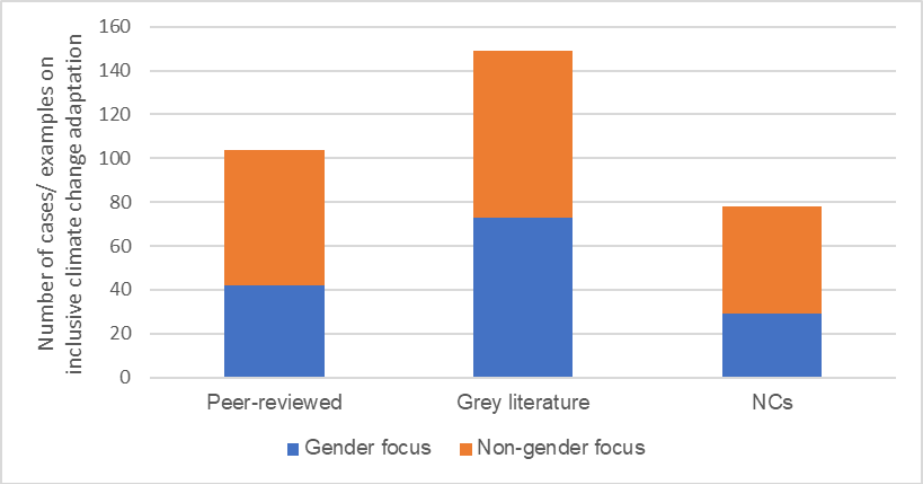


Figure 5: Cases with Gender or Non-Gender Foci

1.3.4 Predominance of non-Annex 1 countries

In the CCA context, it is common to use the UNFCCC's classification of parties as "Annex 1" and "non-Annex 1" countries. As shown in Figure 6, nearly three-fourths (267/331) of the examples and cases originated in non-Annex 1 countries. As clarified by the UNFCCC, non-Annex 1 countries are mostly low-income, developing countries, while Annex 1 lists industrialized countries and economies in transition.

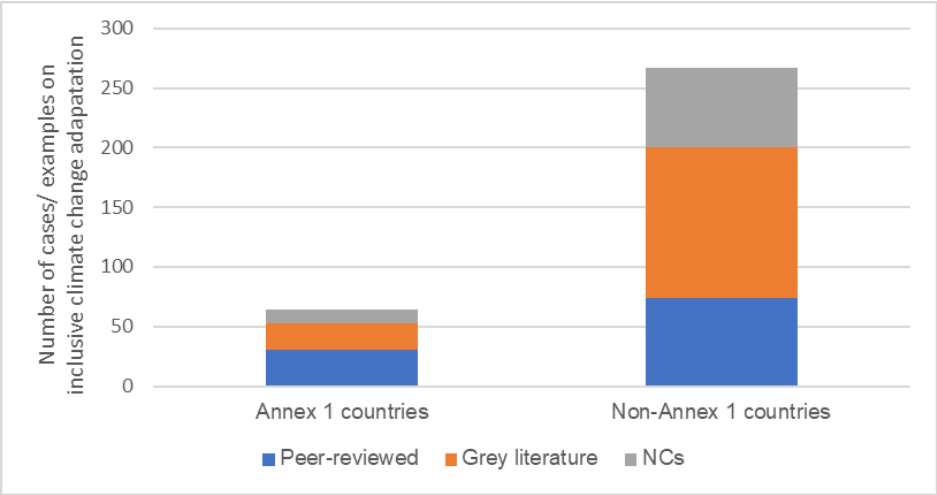


Figure 6: Cases in Annex 1 and non-Annex 1 Countries

Resurrección et al. (2019) found similar results when conducting a review of the relevant peer-reviewed research and grey literature on gender and CCA, leaning more toward adaptation contexts in the Global South due in large part to the availability of the literature. Populations that lack the resources for planned migration experience greater exposure to extreme weather events, particularly in developing countries with low income. Climate change can indirectly increase the risks of violent conflicts by amplifying well-documented drivers of these conflicts, such as poverty and economic shocks (IPCC, 2014).

1.3.5 Inclusiveness at the intersection of development, gender and capacity in national communications

The non-Annex 1 countries considered inclusiveness a target: an aspiration. A group of countries (Bangladesh, Dominica, Belize, Indonesia, Kyrgyzstan, Moldova) referred to inclusiveness in CCA as a broad-based strategy to empower every citizen or all stakeholders to participate fully and benefit from the adaptation process. In contrast, some countries emphasized the inclusion of related stakeholders in the adaptation process, such as local communities (Equatorial Guinea), the private sector (Fiji), multiple government entities (Jamaica), or the most vulnerable segments of the society (Namibia, Pakistan).

Another group of non-Annex 1 countries uses 'inclusiveness' in the context of CCA education. Efforts should be undertaken to develop materials and promote teacher training focused on climate change, linking education and awareness of climate change (Antigua and Barbuda, Bangladesh, Kuwait, Laos, Lesotho, South Africa).

Gender issues are at the center of inclusive CCA in many non-Annex 1 countries (Bosnia and Herzegovina, Jamaica, Nauru, Nigeria, Moldova, Tonga, Uganda). Gender inequalities intersect with climate risks and vulnerabilities, and climate change is likely to magnify existing patterns of gender disadvantage. A meaningful adaptation or resilience-building effort would, therefore, involve the inclusion of a sex-disaggregated data management system, so gender can be mainstreamed into climate change planning and policies. In addition, there are capacity-building initiatives aimed at bridging the gender gap by empowering women in climate change responses.

In NCs from Annex 1 countries, inclusiveness commonly focused on international development activities. According to the principle of forward-looking responsibility that is explicit in the UNFCCC's Article 4, the developed country parties shall support the development and enhancement of endogenous capacities and technologies of developing country parties, as well as assist them in meeting the costs of adaptation to climate change's adverse effects (UNFCCC, 1994; Adger et al., 2006).

Annex 1 countries also recognize the intersectionality of development, gender, and inclusiveness. For example, the US and Australia provide adaptation leadership and training to women in Pacific countries and Peru, increasing their influence in driving solutions for CCA in international negotiations (UNFCCC) or municipal councils. The UK and Canada give funding to protect the poorest, most marginalized people across Bangladesh, Burma, Cuba, Nepal, Kenya, and Rwanda from adverse climate effects through poverty reduction and inclusive economic development. Japan and the UK provide financing to encourage multiple stakeholders' inclusion in CCA action in Vietnam and Nepal.

Italy, the Netherlands, Portugal, Switzerland, and the UK support developing partners in building national, institutional, community, and household capacity to improve inclusiveness in CCA. The UK aims to improve planning, budgeting, human resource management, performance management, and citizen engagement in Kenya. Switzerland and the Netherlands assist North Macedonia and Mozambique in the sustainable management of natural resources through the practical application of conservation measures. The UK supports the capacity and systems development of financial service providers that serve the livelihoods and wellbeing of low-income people in Rwanda.

1.4 Three core components of inclusive climate change adaptation

In the adaptation assessment frameworks proposed by Smit and Pelling (Pelling, 2011; Smit et al., 1999, 2000), four components are commonly distinguished: (1) Adaptation to what? (2) Who or what adapts? (3) How does adaptation occur? and (4) How good is the adaptation? We converted these questions to the following three core components of inclusive CCA: (1) Inclusion in who or what adapts; (2) Motivating inclusive processes; (3) Anticipated outcomes of inclusive CCA.

1.4.1 Inclusion in who or what adapts

The literature on inclusiveness in CCA focuses on local and community scales, but it also recognizes the importance of national, regional, international scales, as well as the necessity to cooperate across scales (Few et al., 2007; Nightingale & Rankin, 2014; Archer et al., 2014; Yoseph-Paulus & Hindmarsh, 2018; Köpsel & Walsh, 2018; Ayers, 2010; Fazey et al., 2010; Dowsley, 2009; Makina & Moyo, 2016; Nagy et al., 2014; Hill et al., 2010; Vij et al., 2018). The implementation of projects conducted in a bottom-up process is normally facilitated by national policy, strategy, and especially financial resources directed by governments to support local-level implementation of adaptation actions. International adaptation commitment and national adaptation strategies must be translated into local adaptation action programs and mostly implemented in the local context (Fenton et al., 2014; Ramirez-Villegas & Khoury, 2013).

Who is included should remain a central question to be addressed in planning processes (Archer et al., 2014). CCA calls for inclusive engagement across a broader spectrum of actors (McNamara & Des Combes, 2015; Neuburger, 2008; Arriagada et al, 2018; Schmid et al., 2016; Sprain, 2016; Ernst & van Riemsdijk, 2013). These stakeholders include, but are not limited to, local people and local communities; governments, including local and national levels; the leaders across administrations, ministries, and departments; experts and research communities; the private sector, NGOs, and civil society; and other international actors, networks, and agencies. Inclusive CCA favors vulnerable groups and strengthened support of the poor, Indigenous people, women, smallholder farmers, members of lower castes, and resource-dependent people (Vij et al., 2018; Neuburger, 2008; Wani & Ariana, 2018; Lee, 2017; Bhatasara, 2017; Abrha & Simhadri, 2015; Regmi & Star, 2014; Regmi et al., 2016; Luo et al., 2017). They must be fully involved in decision making processes for reasons of both justice and efficiency (Few et al., 2007; Dulal et al., 2009). Some authors have considered non-humans and humans as an intimately coupled system within CCA (Polsky et al., 2009; Gupta & Bavinck, 2017; Robin, 2018).

Adaptation should be inclusive of both scientists and local communities to form an integrated response to bridge traditional and expert knowledges, providing critical information that is key to the success of inclusive interventions (Ramirez-Villegas & Khoury, 2013). Local forms of knowledge, including traditional knowledge, traditional ecological knowledge (Dowsley, 2009), Indigenous knowledge (Ford et al., 2016), and experiential knowledge (Abrha & Simhadri, 2015; Hardy et al., 2017), have been highly recommended to bring a distinct and relevant point of view from vulnerable stakeholders to CCA. Conversely, scientific knowledge has many advantages, especially when attempting to understand biophysical processes at broad spatial and temporal scales.

Inclusiveness in CCA also refers to inclusive techniques or tools that range from participatory (action) research (Fazey et al., 2010; Jonsson et al., 2015; Plante et al., 2015) to qualitative scenarios (Wesche & Armitage, 2014), inexact-fuzzy multi-objective programming models, adaptation design tools, social

ecological inventories (SEI), and ecological risk assessments (ERA) (Rodríguez-Romero et al., 2021). These approaches are means to explore the public's perceptions of, knowledges about, and participation in CCA (Pielke et al., 2013; Reed et al., 2014.)

1.4.2 Motivating inclusive processes

Although participation may be encouraged by law, established institutional frameworks might be reluctant to cede decision-making power. Inclusive processes for adaptation require inclusive institutions and can only be facilitated in organizational structures that foster stakeholder involvement in management (Singh, 2018; Dulal et al., 2009; Dowsley, 2009; Regmi & Star, 2014; Regmi et al., 2016; Fischer, 2021). One example of an institution for inclusive CCA is a multilevel and multisector institutional design. The multilevel institutional arrangements consider the local context and require a focus on effective cooperation across levels (Huntjens et al., 2018). Chu et al. (2016, 2017) indicated that more inclusive planning processes correspond to higher climate equity and justice outcomes in the short term, and an emphasis on building multisector governance institutions can enhance long-term program stability while ensuring that diverse civil society actors have an ongoing voice in climate adaptation planning and implementation.

The literature on inclusive CCA also highlights governance as a significant contribution to inclusiveness, equity, and justice (Makina & Moyo, 2016; Fenton et al., 2014). Several models of governance have been recommended to promote inclusiveness in CCA, including polycentric climate governance, collaborative climate governance, networked climate governance, and deliberative climate governance (Arriagada et al, 2018; Bäckstrand, 2008; Hölscher et al., 2019; Pattberg, 2010). Ayers and Huq (2013), Ayers (2011) and Glavovic (2014) argued for the potential contributions of inclusive governance approaches in CCA, including: (i) creating safe arenas for public deliberation to enable participants to explore and develop a shared understanding of adaptation concerns and to engage in different types of knowledge and knowledge claims; (ii) building a common purpose and stimulating participation in community activities; (iii) deepening community problem-solving capacity by improving participants' understanding and involving them constructively in community life on a sustained basis; and (iv) facilitating intercommunity collaboration through cross-scalar and multilevel processes of authentic and inclusive dialogue, visioning, negotiation and cooperation. Addressing risk and adapting to climate change cannot progress meaningfully without being framed in this broader governance milieu (Glavovic, 2014).

Adaptive capacity refers to the ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences (Southern Voices on Adaptation, 2015). While all types of capital (natural, social, and economic) are critical for building resilience and fostering adaptation to environmental stresses, inclusiveness in CCA refers mostly to social capital, defined as the value of relationships that facilitate cooperation and collective action (Ostrom & Ahn, 2003). At its core, social capital describes relations of trust, reciprocity, and exchange; the evolution of common rules; and the role of networks (Patnaik, 2021; Adger, 2003). Social capital can be particularly important for promoting inclusiveness in adaptation processes to climate change threats by enabling people to act collectively.

Lee (2017) identified existing networks among community-based organizations, local groups, households, and individuals, emphasizing how these networks can bolster both farmer willingness and farmer ability to actively participate in CCA programs, provide the added benefit of increasing

smallholder wellbeing and resiliency and adaptive capacity, and potentially contribute to adaptation inclusiveness in terms of both broader inclusion and more just outcomes. Mittag (2012) and Keessen et al. (2016) related the concept of adaptation inclusiveness to social norms of functioning communities, especially a sense of solidarity. Adaptation to climate change can be an inclusive and collective, rather than individual, effort (Chatterton et al., 2013). Solidarity addresses how different actors can constructively work together to promote the resiliency and adaptation of a social system. The other factor of social capital that is strongly linked to inclusiveness in adaptations is place embeddedness or person-place bonds in local contexts (Fresque-Baxter & Armitage, 2012). Place identity contributes to shaping social values at a collective level and opportunities for and/or barriers to collective action based on shared or divergent understandings of place. Person-place bonds can influence individual willingness to become engaged in collective climate change initiatives. The attempt to recognize and incorporate place identity into dialogue and decision making around adaptation will increase public participation and foster trust between those engaging in planning and those impacted by decisions. When place-based meanings and values are incorporated into any planning process, the process and its outcomes become more place appropriate, as well as more relevant and useful to specific communities.

1.4.3 Anticipated outcomes of inclusive climate change adaptation

The literature covered in this review highlights four positive outcomes of inclusive CCA (Jafry, 2016; Huntjens et al., 2018; Chu et al., 2016, 2017; Robinson & Berkes, 2011).

First, the social, economic, and political interests of the poor, underrepresented minorities, and other vulnerable groups are considered in the adaptation process. This is a positive outcome from the perspective of climate justice.

Second, the inclusion of all interests in the adaptation process improves knowledge collection and management by involving the public in framing climate risks, vulnerabilities, and adaptation priorities. This facilitates access to climate information and knowledge and addresses existing class, gender, caste, age, and wealth hierarchies in political decision making.

Third, formal or institutionalized adaptation projects and programs achieve just results benefiting the greatest number of people, especially the most vulnerable people, in these communities.

Fourth, building on the outcomes of inclusive adaptation processes, several authors have considered inclusiveness in CCA an element of resilience, development, and sustainability. Inclusiveness allows local people and communities to improve their resources and capacity, making them more resilient (Makina & Moyo, 2016). Inclusiveness also fosters inclusive development, in which people's wellbeing is enhanced by advancing equality of opportunity for all members of society, with attention to the poor, the vulnerable, and those disadvantaged groups normally excluded from the process of development (Luo et al., 2017). Wamsler and Brink (2014) referred to inclusive adaptation as a status of sustainability in adaptive and social systems. In this case, inclusiveness encourages the use of all potential adaptation measures to ensure that all types of risk factors are addressed. A sustainable system can assist an individual, household, or community in reducing its level of risk, while maintaining or enhancing local adaptive capacities both now and in the future and thus not compromising the ability of future generations to meet their own needs.

1.5 Implications for national climate change adaptation policies

Most of the papers emphasized inclusive CCA in the context of developing or non-industrialized countries. There is a universal belief that developing countries are the most affected areas, and the poor in developing countries are the most vulnerable group to climate change adversity (Southern Voices on Adaptation, 2015; IPCC, 2018, 2019; WMO, 2020). This belief derives from the dependence of that group on climate-sensitive sectors, such as agriculture, tourism, fisheries, and forestry; climate-sensitive infrastructure such as houses, buildings, municipal services, and transportation networks; and limited adaptive capacity to cope with impacts (Ford et al., 2015) (p.801). Global Climate Risk Index 2020 found that all ten of the most affected countries during 1999-2018 were developing countries in the low income or lower-middle income country group. These results emphasize the vulnerability of poor countries to climatic risks (Eckstein et al., 2019). Therefore, inclusive approaches should be utilized to engage and empower smallholders, women, and poor resource-dependent communities in developing countries (Luo et al., 2017).

However, the recent literature on adaptation has called attention to all vulnerable communities and the inequities arising from the uneven distribution of climate impacts, which are likely to be reflective of conditions within developed countries. Adaptation to climate change consists of individual and collective choices undertaken at different levels of decision making in the context of different social concerns and priorities, particularly the existing institutional frameworks for resources, wealth, and power distribution. All adaptation decisions thus compete for attention and resources with other pressing choices in society (Paavola et al., 2006). Adaptation is not a neutral process but instead has equity dimensions that are part of the larger adaptive challenge of climate change and are present in all types of countries and regions, including highly urbanized, developed countries, such as the United States, Canada, and many of the countries of Western Europe (O'Brien, 2012; Vancura & Leichenko, 2015). One highly cited example is Hurricane Katrina, which struck the United States in 2005, and the enduring legacy of racial segregation and poverty. Statistics showed that the storm's impacts weighed more heavily upon racial minorities and the poor, and the recovery of socially and economically vulnerable storm victims continues to lag behind that of mainstream society. Patterns of settlement exposed poor communities to increased damage and erected barriers to disaster precautions and reconstruction. In the other words, social and economic disparities heavily affected the impacts of Katrina on the most vulnerable groups, especially African Americans and the poor. Climate change impacts are expected to exacerbate poverty and create new poverty pockets in countries with increasing inequality, including developed countries (IPCC, 2014).

Inclusive approaches to adaptation address gender inequality (for women), income inequality (for the poor), minority groups (for example, Indigenous people), and underrepresented, disfavored, or marginalized groups (for example, communities of color, refugees, migrants, and the stateless). These groups clearly exist and are even growing in developed countries due to the global economic crisis and recent migrant crisis. Involving less advantaged people properly in adaptation processes has been urgently required, not only to address human rights issues but also to ensure the sustainable prosperity of industrialized nations. Therefore, the necessity of inclusive approaches emerges not only in developing countries but also in industrialized countries (Gupta & Bavinck, 2017). However, inclusive approaches vary significantly in different contexts due to the different characteristics of economic, social, and political systems.

1.6 Conclusion

The purpose of this literature review was to systematically chart the usage of 'inclusiveness' in the CCA context. 'Inclusion' has been gaining in interest and usage in several other contexts, in particular human resources (EDI), as well as urban planning, international development, and innovation. A clear interest is also reflected in this literature review, although our quantitative analysis does not indicate a steep or consistent increase in usage. This review has shown common usage of the term in practical contexts, particularly development, knowledge mobilization, gender issues, marginalization, and poverty.

The common connotation of the word 'inclusion' is very broad and goes beyond public participation and even the idea of justice. Following the typology of CCA provided by Smit et al. (2000), the inclusion lens could be applied to all aspects of climate change and climate change adaption: (1) Inclusive identification of causes of climate change, (2) Inclusive identification of effects of climate change, (3) Inclusive goals and processes of CCA, and (4) Inclusive evaluation of CCA. The word can be used to diagnose both omission (neglect) and commission (discrimination) in a wide array of contexts including subsidies for knowledge creation (science policy), processes during knowledge creation (HR), the translation of knowledge, the availability and accessibility of knowledge, the use of knowledge, the beneficiaries of providing solutions, the measurement of performance, the beneficiaries of providing performance measurement, corrective actions, and so forth.

Inclusion is also a central idea within the circle of moral attention that has historically widened. Over time in Western history, policies have been enacted to include into the moral circle slaves, different races, women, sentient animals, and endangered species. Inclusive approaches to CCA could be used to emphasize the important role of natural environment in adaptation and assessing the potential outcomes of human climate adaptation for the natural environment. Many societies have traditionally treated climate as a background for human activities and climate change as an environmental problem or development issue in which human beings attempt to stimulate, take advantage of, or harmonize with the nonhuman world. Inclusive adaptation, thus, provides a suitable intellectual framework and connotation to include non-anthropocentric viewpoints in debates and policy development.

Possibly the greatest value of 'inclusiveness' lies in the fact that it is a fairly clear, common language word. Compared to words such as 'justice', 'participation', 'equity' or even 'community' and 'democracy', it has relatively little metaphysical content. This makes it suitable for checklists and indicators for all policies and activities associated with CCA: do we live up to the goals and promises of justice, impartiality, non-discrimination, equity, and diversity? If we consider inclusiveness, then we are off to good start.

We conclude this paper by discussing limitations and suggestions for future research. One limitation lies in the data collection. In particular we limit our search to documents in English that excludes the usage and understanding of inclusiveness expressed in non-English documentation. An artefact of the systematic method used here is that the uniformity and clarity of results is lower when compared to literature reviews that rely on cherry-picked sources. Future research will focus on broader conceptual analyses that are based on comparisons with other contexts such as urban planning, innovation, and education. This broader conceptual understanding will then be applied to real world case studies. The ultimate goal is to better understand the conditions and incentives that promote inclusiveness and climate justice.

References

Abrha, MG., Simhadri, S. (2015). Local Climate Trends and Farmers' Perceptions in Southern Tigray, Northern Ethiopia. *American Journal of Environmental Sciences, 11*(4), 262-277. https://doi:10.3844/ajessp.2015.262.277

Adger, N., Paavola, J., Huq, S., Mace, MJ. (eds) (2006). *Fairness in Adaptation to Climate Change*. MIT Press, Cambridge, MA

Adger, W. (2003). Social Capital, Collective Action, and Adaptation to Climate Change. *Economic Geography, 79*(4), 387-404. https://doi.org/10.1111/j.1944-8287.2003.tb00220.x

Agola, N., Hunter., A (2016). *Inclusive Innovation for Sustainable Development: Theory and practice*. Palgrave Macmillan, London

Agrawal, A. (2008). *The role of local institutions in adaptation to climate change*. http://www.icarus.info/wp-content/uploads/2009/11/agrawal-adaptation-institutions-livelihoods.pdf.

Aoyagi, M., Suda, E., Shinada, T. (2011). *Gender inclusion in climate change adaptation*. ADBI Working Paper, No. 309, Asian Development Bank Institute (ADBI), Tokyo. https://www.adb.org/publications/gender-inclusion-climate-change-adaptation

Archer, D., Almansi, F., DiGregorio, M., Roberts, D., Sharma, D., & Syam, D. (2014). Moving towards inclusive urban adaptation: approaches to integrating community-based adaptation to climate change at city and national scale. *Climate and Development, 6*(4), 345–356. https://doi.org/10.1080/17565529.2014.91886

Arriagada, R., Aldunce, P., Blanco, G., Ibarra, C., Moraga, P., Nahuelhual, L., O'Ryan, R., Urquiza, A., & Gallardo, L. (2018). Climate change governance in the anthropocene: emergence of polycentrism in Chile. *Elementa (Washington, D.C.), 6*(1). https://doi.org/10.1525/elementa.329

Ayers, J. (2010). *Understanding the Adaptation Paradox: Can Global Climate Change Adaptation Policy be Locally Inclusive?* Dissertation, London School of Economics. http://etheses.lse.ac.uk/393/1/Ayers_Understanding the Adaptation Paradox.pdf.

Ayers, J. (2011). Resolving the Adaptation Paradox: Exploring the Potential for Deliberative Adaptation Policymaking in Bangladesh. *Global Environmental Politics 11*(1):62-88. https://doi:10.1162/GLEP_a_00043 2011

Ayers, J., Huq, S. (2013). Adaptation, development and the community. In Palutikof, J., Boulter, S., Ash, A., Smith, MS., Parry, M., Waschka, M., Guitart, D. (Eds) *Climate Adaptation Futures*. John Wiley & Sons, Ltd., 203–214

Bäckstrand, K. (2008). Accountability of Networked Climate Governance: The Rise of Transnational Climate Partnerships. *Global Environmental Politics, 8*(3), 74-102. https://doi:10.1162/glep.2008.8.3.74 2008

Berrang-Ford, L., Ford, JD., Patterson, J. (2011). Are we adapting to climate change? *Glob Environ Change, 21*, 25–33. https://doi:10.1016/j. gloenvcha.2010.09.012

Berrang-Ford, L., Pearce, T., Ford, JD. (2015). Systematic review approaches for global environmental change research. *Reg Environ Change, 15*, 755-769. https://doi:10.1007/s10113-014-0708-7

Bhatasara, S. (2017) Rethinking climate change research in Zimbabwe. *Journal of Environmental Studies and Sciences 7*(1):39–52. https://doi:10.1007/s13412-015-0298-999.

Biesbroek, GR.,Termeer, C., Klostermann, JEM., Kabat, P. (2015). Analytical lenses on barriers in the governance of climate change adaptation. *Mitig Adapt Strateg Glob Change, 19*, 1011–1032. https://doi:10.1007/s11027-013-9457-z.

Bloomfield, D., Collins, K., Fry, C., Munton, R. (2001). Deliberation and inclusion: Vehicles for increasing trust in UK public governance? *Environment and Planning C: Government and Policy, 19*(4), 501–513. https://doi:10.1068/c6s

Buechler, S. (2016). Gendered vulnerabilities and grassroots adaptation initiatives in home gardens and small orchards in Northwest Mexico, *AMBIO, 45*(3), 322–334. https://doi:10.1007/s13280-016-0832-3 2016

Bulkeley, H., Gareth, A., Edwards, S., Fuller, S. (2014). Contesting climate justice in the city: Examining politics and practice in urban climate change experiments. *Global Environmental Change, 25*, 31-40. https://doi:10.1016/j.gloenvcha.2014.01.009.

Butcher-Gollach, C. (2015). Planning, the urban poor and climate change in Small Island Developing States (SIDS): unmitigated disaster or inclusive adaptation? *International Development Planning Review, 37*(2), 225–248. https://doi:10.3828/idpr.2015.17

Chatterton, P., Featherstone, D., Routledge, P. (2013). Articulating climate justice in Copenhagen: antagonism, the commons, and solidarity. *Antipode, 45*, 602–620. https://doi:10.1111/j.1467-8330.2012.01025.x

Chu, E., Anguelovski, I., Carmin, J. (2016). Inclusive approaches to urban climate adaptation planning and implemen-tation in the Global South. *Climate Policy, 16*(3), 372–392. https://doi:10.1080/14693062.2015.1019822

Chu, E., Anguelovski, I., Roberts, D. (2017). Climate adaptation as strategic urbanism: assessing opportunities and uncertainties for equity and inclusive development in cities. *Cities, 60*, 378–387. https://doi:10.1016/j.cities.2016.10.016

Cooper, H., Hedge, LV. (eds). (1994). *The handbook of research synthesis*. Sage, New York and Hedge 1994

COP 21 (2015). *Report of the Ad Hoc Working Group on the Durban Platform for Enhanced Action* - Synthesis report on the aggregate effect of the intended nationally determined contributions. Conference of the Parties Twenty-first session Paris, 30 November to 11 December 2015. https://unfccc.int/resource/docs/2015/cop21/eng/07.pdf.

Dalby, S., O'Lear, S. (2016). Towards ecological geopolitics. In Dalby, S., O'Lear, S. (Eds). *Reframing Climate Change: Constructing ecological geopolitics*. Routledge, London & New York,203–216

D'Cruz, C., Cadornigara, SF., Satterthwaite, D. (2014). *Tools for Inclusive Cities: The Roles of Community-Based Engagement and Monitoring in Reducing Poverty* (IIED Working Paper No. 10708). http://pubs.iied.org/pdfs/10708IIED.p

Dowsley, M. (2009). Community clusters in wildlife and environmental management: Using TEK and community involvement to improve comanagement in an era of rapid environmental change. *Polar Research, 28*(1), 43–59. https://doi:10.1111/j.1751-8369.2008.00093.x

Dulal, HB., Shah, KU., Ahmad, N. (2009). Social equity considerations in the implementation of Caribbean climate change adaptation policies. *Sustainability, 1*(3), 363–383. https://doi:10.3390/su1030363

Eckstein, D., Künzel, V., Schäfer, L., Winges, M. (2019). *Global Climate risk index 2020: Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2018 and 1999 to 2018*. Brief Paper, Bonn: Germanwatche.V.

Ernst, KM., van Riemsdijk, M. (2013). Climate change scenario planning in Alaska's National Parks: Stakeholder involvement in the decision-making process. *Applied Geography, 45*, 22-28. https://doi:10.1016/j.apgeog.2013.08.004

Farber, DA., Posner, BEA., Weisbach, D. (2016). Climate justice: climate change, resource conflicts, and social justice. In O'Lear, S., Dalby, S. (Eds). *Reframing Climate Change. Constructing ecological geopolitics.* Routledge, London & New York, 67–82

Fazey, I., Kesby, M., Evely, A., Latham, I., Wagatora, D., Hagasua, J.-E., Reed, M. S., & Christie, M. (2010). A three-tiered approach to participatory vulnerability assessment in the Solomon Islands. *Global Environmental Change, 20*(4), 713–728. https://doi:10.1016/j.gloenvcha.2010.04.011

Fenton, A., Gallagher, D., Wright, H., Huq, S., Nyandiga, C. (2014). Up-scaling finance for community-based adaptation. *Climate and Development, 6*(4), 388–397. https://doi:10.1080/17565529.2014.953902

Few, R., Brown, K., Tompkins, EL. (2007). Public participation and climate change adaptation: avoiding the illusion of inclusion. *Climate Policy, 7*, 46–59. https://doi:10.1080/14693062.2007.9685637

Figueiredo, P., Perkins, PE. (2013). Women and water management in times of climate change: participatory and inclusive processes. *Journal of Cleaner Production, 60*:188–194. https://doi:10.1016/j.jclepro.2012.02.025

Fischer, H. (2021). *Decentralization and the governance of climate adaptation: Situating community-based planning within broader trajectories of political transformation*. World Development Volume 140. https://doi:10.1016/j.worlddev.2020.105335

Florian, S., Michael, L. (2011). *Inclusive Cities. Asian Development Bank - Urban Development Series*. https://www.adb.org/sites/default/files/publication/29053/inclusive-cities.pdf.

Ford, J.D., Berrang-Ford, L., Bunce, A. et al. (2015). The status of climate change adaptation in Africa and Asia. *Reg Environ Change, 15*, 801–814. https://doi:10.1007/s10113-014-0648-2

Ford, JD., Cameron, L., Rubis, J., Maillet, M., Nakashima, D. (2016). Including Indigenous knowledge and experience in IPCC assessment reports. *Nature Climate Change, 6(*4), 349–353. https://doi:10.1038/nclimate2954

Ford, JD., Pearce, T. (2010). What we know, do not know, and need to know about climate change vulnerability in the western Canadian Arctic: a systematic literature review. *Environ Res Lett, 5*(1). https://doi:10.1088/1748-9326/5/1/014008

Forsyth, T. (2014). Climate justice is not just ice. *Geoforum, 54*, 230-232. https://doi:10.1016/j.geoforum.2012.12.008. 2014

Fresque-Baxter, JA., Armitage, D. (2012). Place identity and climate change adaptation: A synthesis and framework for understanding. *Wiley Interdisciplinary Reviews: Climate Change, 3*(3), 251–266. https://doi:10.1002/wcc.164

Gill, G. (2003). *The Nature and Development of the Modern State*. Palgrave

Gilman, HR. (2015). *More inclusive governance in the digital age (Data- Smart City Solutions)*. http://datasmart.ash.harvard.edu/assets/content/InclusiveGovernanceinthe DigitalAge.pdf.

Glavovic, BC. (2014). Adapting to climate change: Lessons from natural hazards planning. Waves of Adversity, Layers of Resilience: Floods, Hurricanes, Oil Spills and Climate Change in the Mississippi Delta. In Glavovic, BC., Smith, GP. (eds). *Adapting to Climate Change: Lessons from Natural Hazards Planning*, Springer, Dordrecht, Heidelberg, New York & London, pp 369-404. https://doi:10.1007/978-94-017-8631-7

Gough, D., Thomas, J., Oliver, S. (2012). Clarifying differences between review designs and methods. *Syst Rev, 1*, 28-37. https://doi:10.1186/20464053-1-28

Government of Canada. (2016a). *Working group on adaptation and climate resilience*. http://www.climatechange.gc.ca/Content/6/4/7/64778DD5-E2D9-4930-BE59-D6DB7DB5CBC0/WG_Report_ACR_e_v5.pdf.

Government of Canada. (2016b). *Canada - A nation of innovators*. https://www.ic.gc.ca/eic/site/062.nsf/vwapj/InnovationNation_Report-EN.pdf/$file/InnovationNation_Report-EN.pdf.

Green Climate Fund. (2018). *GCF Gender Equality and Social Inclusion Policy and Action Plan 2018–2020*. Meeting of the Board 27 February – 1 March 2018 Songdo, Incheon, Republic of Korea Provisional agenda item 16 GCF/B.19/25. https://www.greenclimate.fund/sites/default/files/document/gcf-b19-25.pdf.

Gupta, J., Bavinck, M. (2017). Reprint of Inclusive development and coastal adaptiveness. *Ocean and Coastal Management, 150*, 73–81. https://doi:10.1016/j.ocecoaman.2017.10.020

Habtezion, S. (2013). *Gender and Climate Change Asia and the Pacific. United Nations Development Programme.* http://www.undp.org/content/dam/undp/library/gender/Gender and Environment/PB1-AP-Overview-Gender-and-climate-change.pdf.

Habtezion, S. (2016). *Gender, climate change adaptation and disaster risk reduction*. http://www.undp.org/content/dam/undp/library/gender/Gender and Environment/Training Modules/Gender_Climate_Change_Training Module 2 Adaptation DRR.pdf.

Hardy, RD., Milligan, RA., Heynen, N. (2017). Racial coastal formation: The environmental injustice of colorblind adaptation planning for sea-level rise. *Geoforum, 87*, 62–72. https://doi:10.1016/j.geoforum.2017.10.005

Hill, M., Wallner, A., Furtado, J. (2010). Reducing vulnerability to climate change in the Swiss Alps: A study of adaptive planning. *Climate Policy, 10*(1), 70–86. https://doi:10.3763/cpol.2008.0536

Hölscher, K., Frantzeskaki, N., McPhearson, T., Loorbach, D. (2019). Tales of transforming cities: Transformative climate governance capacities in New York City, U.S. and Rotterdam, Netherlands. *Journal of Environmental Management, 231*, 843–857. https://doi:10.1016/j.jenvman.2018.10.043

Hughes, S. (2013). Justice in urban climate change adaptation: Criteria and application to Delhi. *Ecology and Society, 18(*4). https://doi:10.5751/ES-05929-180448

Huntjens, P., Zhang, T., Nachbar, K. (2018). Climate Change and Implications for Security and Justice: The Need for Equitable, Inclusive, and Adaptive Governance of Climate Action. In Durch, W., Larik, J., Ponzio, R. (eds). *Just Security in an Undergoverned World.* https://doi:10.1093/oso/9780198805373.003.0007

Ingle, H.I., Mikulewicz, M. (2020). Mental health and climate change: tackling invisible injustice. *The Lancet Planetary Health, 4(*4), e128-e130. https://doi:10.1016/S2542-5196(20)30081-4.

Intergovernmental Panel on Climate Change (2014). *Climate Change 2014: Impacts, Adaptation and Vulnerability, Working Group II Contribution to the IPCC Fifth Assessment Report*. Cambridge University Press, Cambridge. https://doi:10.1017/CBO9781107415379

Intergovernmental Panel on Climate Change (2018). *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [Masson-Delmotte, V., Zhai, P., Pörtner, HO., Roberts, D., Skea, J., et al (eds)].

Intergovernmental Panel on Climate Change (2019). *Summary for Policymakers. In: IPCC Special Report on the Ocean and Cryosphere in a Changing Climate.* [Pörtner, HO., Roberts, DC., Masson-Delmotte, V., Zhai, P., Tignor, M., et al (eds)].

Ison, RL., Wallis, PJ. (2017). Mechanisms for Inclusive Governance. In Karar, E. (Ed). *Freshwater Governance for the 21st Century*. Springer, Cham, pp 159–185. https://doi:10.1007/978-3-319-43350-9

Jafry, T. (2016). Making the case for gender sensitive climate policy – lessons from South Asia/IGP. *International Journal of Climate Change Strategies and Management, 8*(4): 559-577. https://doi:10.1108/IJCCSM-04-2015-0049

Jafry, T., Mikulewicz M., Helwig K. (eds.) (2018). *Routledge Handbook of Climate Justice.* Routledge, London. https://doi.org/10.4324/9781315537689.

Jonsson, AC., Rydhagen, B., Wilk, J., Feroz, A., Rani, R. (2015). Climate change adaptation in urban india: The inclusive formulation of local adaptation strategies. *Global NEST. International Journal, 17(*1), 61–71.

Keessen, A., Vink, MJ., Wiering, M., Boezeman, D., Ernst, W. (2016). Solidarity in water management. *Ecology and Society, 21*(4). https://doi:10.5751/ES-08874-210435

Köpsel, V., Walsh, C. (2018). Coastal landscapes for whom? Adaptation challenges and landscape management in Cornwall. *Marine Policy, 97*, 278–286. https://doi:10.1016/j.marpol.2018.05.029

Lee, J. (2017). Farmer participation in a climate-smart future: Evidence from the Kenya agricultural carbon market project. *Land Use Policy, 68*, 72–79. https://doi:10.1016/j.landusepol.2017.07.020

Lesnikowski, AC., Ford, JD., Berrang-Ford, L., Paterson, JA., Barrera, M., Heymann, SJ. (2011). Adapting to health im-pacts of climate change: a study of UNFCCC Annex I parties. *Environ Res Letter, 6*. https://doi:10.1088/1748-9326/6/4/044009

Lorenz, S., Berman, R., Dixon, J., Lebel, S. (2014). Time for a systematic review: a response to Bassett and Fogelman's ''Deja vu or something new? The adaptation concept in the climate change literature''. *Geoforum, 51*, 252–255. https://doi:10.1016/j.geoforum. 2013.10.003

Luo, X., Muleta, D., Hu, Z., Tang, H., Zhao, Z. (2017). Inclusive development and agricultural adaptation to climate change. *Current Opinion in Environmental Sustainability, 24*, 78–83. https://doi:10.1016/j.cosust.2017.02.004

Lynch, P., Duke, S. (2010). Climate Change. In O'Lear, S. (Ed). *Environmental Politics: Scale and Power.* London & New York: Routledge, 27–54. https://doi:10.1080/03071847.2013.807583

Makina, A., Moyo, T. (2016). Mind the gap: institutional considerations for gender-inclusive climate change policy in Sub-Saharan Africa. *Local Environment, 21*(10), 1185–1197. https://doi:10.1080/13549839.2016.1189407

McLeman, RA. (2011). Settlement abandonment in the context of global environmental change. *Glob Environ Chang Hum Policy Dimens, 21*, S108–S120. https://doi:10.1016/j.gloenvcha.2011.08.004

McNamara, KE., Des Combes, HJ. (2015). Planning for Community Relocations Due to Climate Change in Fiji. *International Journal of Disaster Risk Science, 6*(3), 315–319. https://doi:10.1007/s13753-015-0065-2

Meadowcroft, J. (2009). *Climate change governance*. Policy Research working paper no. WPS 4941. World Bank Group, Washington, D.C. http://documents.worldbank.org/curated/en/210731468332049368/Climate-change-governance.

Mello, L., Dutz, MA. (eds). (2012). *Promoting Inclusive Growth: Challenges and Policies*. OECD Publishing. https://doi:10.1787/9789264168305-en

Mittag, J. (2012). Perspectives on civic engagement in national strategies to combat climate change, *Democratization, 19*(5), 994-1013. https://doi:10.1080/13510.

Nagy, GJ., Seijo, L., Verocai, JE., Bidegain, M. (2014) Stakeholders' climate perception and adaptation in coastal Uruguay. *International Journal of Climate Change Strategies and Management, 6*(1), 63–84. https://doi:10.1108/IJCCSM-03-2013-0035

NDF & Asian Development Bank. (2015). *Training manual to support country-driven gender and climate change*. https://pub.iges.or.jp/pub/training-manual-support-country-driven-gender.

Neuburger, M. (2008). Global discourses and the local impacts in Amazonia. Inclusion and exclusion processes in the Rio Negro region. *Erdkunde, 62*(4), 339–356. https://doi:10.3112/erdkunde.2008.04.06

Nightingale, A., Rankin, K. (2014). Politics of Social Marginalization and Inclusion: The Challenges of Adaptation to Climate Change. In Shrestha, K., Ojha, H., McManus, P., Rubbo, A., Dhote, K. (eds). *Inclusive Urbanization: Rethinking Policy, Practice and Research in the Age of Climate Change*. Routledge, New York and London, pp 53-64

Nurhidayah, L., McIlgorm, A. (2019). Coastal adaptation laws and the social justice of policies to address sea level rise: An Indonesian insight. *Ocean and Coastal Management, 171*, 11–18. https://doi:10.1016/j.ocecoaman.2019.01.011

O'Brien, K. (2012). Global environmental change II: From adaptation to deliberate transformation. *Progress in Human Geography, 36*(5), 667–676. https://doi:10.1177/0309132511425767

OECD. (2015). *Policy Shaping and Policy Making: The governance of inclusive growth*. OECD Publishing, Paris.

Ostrom, E., Ahn, TK. (2003), *Foundations of Social Capital*. Edward Elgar Pub., Northampton, MA

Oulu, M. (2015). Climate Change Governance: Emerging Legal and Institutional Frameworks for Developing Countries. In: Leal Filho, W. (eds). *Handbook of Climate Change Adaptation*. Springer, Berlin, Heidelberg. https://doi:10.1007/978-3-642-40455-9_9-1

Paavola, J., Adger, WN., Huq, S. (2006). Multifaceted Justice in Adaptation to Climate Change. In Adger, WN., Paavola, J., Huq, S., Mace, MJ. (Eds). *Fairness in Adaptation to Climate Change*. MIT Press, Cambridge, MA, 263-277.

Patnaik, H.A. (2021). Gender and participation in community-based adaptation: Evidence from the decentralized climate funds project in Senegal. *World Development, 142*. https://doi:10.1016/j.worlddev.2021.1054480305-750X

Pattberg, P. (2010). Public-private partnerships in global climate governance. *Wiley Interdisciplinary Reviews: Climate Change, 1(*2), 279–287. https://doi:10.1002/wcc.38

Pelling, M. (2011). *Adaptation to climate change: From resilience to transformation*. Routledge, London and New York

Pielke, RA., Wilby, R., Niyogi, D., Hossain, F., Dairuku, K. (2013). Dealing with Complexity and Extreme Events Using a Bottom-Up, Resource-Based Vulnerability Perspective. *Extreme Events and Natural Hazards: The Complexity Perspective*, 345–359. https://doi:10.1029/2011GM001086

Pierre, J., Peters, G, (2000). *Governance, Politics and the State*. Macmillan Press, London

Plante, S., Vasseur, L., Da Cunha, C. (2015). Engaging Local Communities for Climate Change Adaptation. In Baztan, J., Chouinard, O., Jorgensen, B., Tett, P., Vanderlinden, J., Vasseur, L. (eds). *Coastal Zones: Solutions for the 21st Century*. Elsevier. https://doi:10.1016/b978-0-12-802748-6.00018-8

Polsky, C., Neff, R., Yarnal, B. (2009). Establishing vulnerability observatory networks to coordinate the collection and analysis of comparable data. In Yarnal, B., Polsky, C., O'Brien, J. (eds). *Sustainable communities on a sustainable planet: the human-environment regional observatory project*. Cambridge University Press, Cambridge, UK, 83-106

Ramirez-Villegas, J., Khoury, CK. (2013). Reconciling approaches to climate change adaptation for Colombian agriculture. *Climatic Change, 119*(3–4), 575–583. https://doi:10.1007/s10584-013-0792-6

Reed, MG. (2008). Stakeholder Participation for Environmental Management: A Literature Review. *Biological Conservation, 141*, 2417–2431. https://doi:10.1016/j.biocon.2008.07.014.

Reed, MG., Scott, A., Natcher, D., Johnston, M. (2014). Linking gender, climate change, adaptive capacity, and forest-based communities in Canada. *Canadian Journal of Forest Research, 44*(9), 995–1004. https://doi:10.1139/cjfr-2014-0174

Regmi, BR., Star, C. (2014). Identifying operational mechanisms for mainstreaming community-based adaptation in Nepal. *Climate and Development, 6*(4), 306–317. https://doi:10.1080/17565529.2014.977760

Regmi, BR., Star, C., Leal Filho, W. (2016). An overview of the opportunities and challenges of promoting climate change adaptation at the local level: a case study from a community adaptation planning in Nepal. *Climatic Change, 138*(3–4), 537–550. https://doi:10.1007/s10584-016-1765-3

Resurrección, BP., Bee, BA., Dankelman, I., Park, CMY., Halder, M., McMullen, CP. (2019) *Gender-transformative climate change adaptation: advancing social equity. Background paper to the 2019 report of the Global Commission on Adaptation*. Rotterdam and Washington, DC. https://www.sei.org/publications/gender-transformative-climate-change-adaptation-advancing-social-equity/#:~:text=Power%20and%20gender%20inequalities%20can%20constrain%20and%20undermine%20climate%20change%20adaptation.&text=Unfettering%20the%20agency%20of%20individuals,can%20help%20achieve%20this%20change

Robin, L. (2018). Environmental humanities and climate change: understanding humans geologically and other life forms ethically. *Wiley Interdisciplinary Reviews: Climate Change, 9(*1), 7–9. https://doi:10.1002/wcc.499

Robinson, LW., Berkes, F. (2011). Multi-level participation for building adaptive capacity: Formal agency-community interactions in northern Kenya. *Global Environmental Change, 21*(4), 1185–1194. https://doi:10.1016/j.gloenvcha.2011.07.012

Rodríguez-Romero, A., Viguri, J. R., &Calosi, P. (2021). Acquiring an evolutionary perspective in marine ecotoxicology to tackle emerging concerns in a rapidly changing ocean. *Science of the Total Environment, 764*. https://doi:10.1016/j.scitotenv.2020.142816

Schalatek, L., Nakhooda, S. (2013). *Gender and Climate Finance*. https://www.odi.org/sites/odi.org.uk/files/resource-documents/11046.pdf.

Schillo, RS., Robinson, RM., Sainte-Marie, B. (2017). Inclusive Innovation in Developed Countries: The Who, What, Why, and How. *Technology Innovation Management Review, 7*(7), 34–46. https://timreview.ca/sites/default/files/article_PDF/SchilloRobinson_TIMReview_July2017.pdf.

Schlosberg, D. (2013). Theorizing environmental justice: the expanding sphere of a discourse. *Environmental Politics, 22*:1, 37-55. https://doi:10.1080/09644016.2013.755387

Schmid, JC., Knierim, A., Knuth, U. (2016). Policy-induced innovations networks on climate change adaptation - An ex-post analysis of collaboration success and its influencing factors. *Environmental Science and Policy, 56*, 67–79. https://doi:10.1016/j.envsci.2015.11.003

Sen, A. (2000). *Social Exclusion: Concept, Application, and Scrutiny*. Manila, Philippines: Asian Development Bank (ADB). http://hdl.handle.net/11540/2339.

Shrestha, K., Ojha, H., McManus, P. (2015). *Inclusive Urbanization: Rethinking Policy, Practice and Research in the Age of Climate Change.* Routledge, New York and London

Singh, C. (2018). Is participatory watershed development building local adaptive capacity? Findings from a case study in Rajasthan, India. *Environmental Development, 25*, 43–58. https://doi:10.1016/j.envdev.2017.11.004

Smit, B., Burton, I., Klein, R. (1999). The Science of Adaptation: A Framework for Assessment. *Mitigation and Adaptation Strategies for Global Change, 4*, 199–213. https://doi:10.1023/A:1009652531101

Smit, B., Burton, I., Klein, R., Wandel, J. (2000) An anatomy of adaptation to climate change and variability. *Climatic Change, 45*, 223–251.

Southern Voices on Adaptation. (2015). *Joint Principles for Adaptation*. http://southernvoices.net/images/Joint_Principles_for_Adaptation_version_3.pdf.

Sprain, L. (2016). Paradoxes of Public Participation in Climate Change Governance. *The Good Society, 25*(1), 62-80. https://doi:10.5325/goodsociety.25.1.0062

The United Kingdom Climate Impacts Program (UKCIP). (2005). *Objective Setting for Climate Change*. http://www.ukcip.org.uk/publications/.

The United Nations Department of Economic and Social Affairs (UNDESA). 2009. *Final Report of the Expert Group Meeting on Creating an Inclusive Society: Practical Strategies to Promote Social Integration*. http://www.un.org/esa/socdev/egms/docs/2008/Paris-report.pdf.

Tompkins, E., Adger, WN., Brown, K. (2002). Institutional networks for inclusive coastal management in Trinidad and Tobago. *Environment and Planning A, 34*(6), 1095–1111. https://doi:10.1068/a34213002

Tschakert, P, Schlosberg, D, Celermajer, D, et al. (2021). Multispecies justice: Climate-just futures with, for and beyond humans. *WIREs Climate Change. 12*:e699. https://doi:10.1002/wcc.699

United Nations Development Program (2012). *Gender and adaptation: Africa*. https://www.undp.org/content/undp/en/home/librarypage/womens-empowerment/gender_and_environmentenergy/gender_and_climatechange-africa.html

United Nations Development Program (2015). *Gender Responsive National Communications National Communication*. https://www.undp.org/content/undp/en/home/librarypage/womens-empowerment/gender-responsive-national-communications.html.

United Nations Development Program (2009). *Resource guide on Gender and Climate Change.* https://www.undp.org/content/undp/en/home/librarypage/womens-empowerment/resource-guide-on-gender-and-climate-change.html.

United Nations Framework of Climate Change Convention (1994). *United Nation Framework of Climate Change Convention*. https://unfccc.int/resource/docs/convkp/conveng.pdf.

United Nations Framework Convention on Climate Change (2015). *Strengthening gender considerations in adaptation planning and implementation in the least developed countries.* https://www4.unfccc.int/sites/NAPC/Documents%20NAP/UNFCCC_gender_in_NAPs.pdf.

United Nations Framework Convention on Climate Change (2018). *UN Climate Change Annual Report 2017*. https://unfccc.int/resource/annualreport/

Vancura, P., Leichenko, R. (2015). Emerging Equity and Justice Concerns for Climate Change Adaptation. In O'Brien, K., Selboe, E. (Eds). *The Adaptive Challenge of Climate Change.* Cambridge: Cambridge University Press, pp 98-117. https://doi:10.1017/CBO9781139149389.007

Vij, S., Biesbroek, R., Groot, A., Termeer, K., Parajuli, BP. (2018). Power interplay between actors: using material and ideational resources to shape local adaptation plans of action (LAPAs) in Nepal. *Climate Policy*, 1–14. https://doi:10.1080/14693062.2018.1534723

Wamsler, C., Brink, E. (2014). Moving beyond short-term coping and adaptation. *Environment and Urbanization, 26*(1), 86–111. https://doi:10.1177/0956247813516061

Wani, KA., Ariana, L. (2018). Impact of climate change on Indigenous people and adaptive capacity of bajo tribe, Indonesia. *Environmental Claims Journal, 30*(4):302–313. https://doi:10.1080/10406026.2018.1504380

Wesche, S. D., & Armitage, D. R. (2014). Using qualitative scenarios to understand regional environmental change in the Canadian North. *Regional Environmental Change, 14*(3), 1095–1108. https://doi:10.1007/s10113-013-0537-0

Wilk, J., Jonsson, AC., Rydhagen, B., Callejo, I., Cerruto, N. (2018). Assessing vulnerability in Cochabamba, Bolivia and Kota, India: how do stakeholder processes affect suggested climate adaptation

interventions? *International Journal of Urban Sustainable Development, 10*(1), 32-48. https://doi:10.1080/19463138.2018.1436061

World Bank (2015). *World Bank Inclusive Cities Approach Paper*. Report No: AUS8539. http://documents.worldbank.org/curated/en/402451468169453117/pdf/AUS8539-REVISED-WP-P148654-PUBLIC-Box393236B-Inclusive-Cities-Approach-Paper-w-Annexes-final.pdf

World Meteorological Organization (WMO). (2020). *WMO Statement on the State of the Global Climate in 2019*. https://library.wmo.int/doc_num.php?explnum_id=10211.

Yoseph-Paulus, R., Hindmarsh, R. (2018). Addressing inadequacies of sectoral coordination and local capacity building in Indonesia for effective climate change adaptation. *Climate and Development, 10*(1), 35–48. https://doi:10.1080/17565529.2016.1184609

Chapter 2: Framework and Proposed Indicators for the Comprehensive Evaluation of Inclusiveness: The Case of Climate Change Adaptation

This manuscript has been published in *FACETS*.

Pham, H & Saner, M. (2024). Framework and Proposed Indicators for the Comprehensive Evaluation of Inclusiveness: The Case of Climate Change Adaptation. *Facets, 9*(): 1-15. https://doi.org/10.1139/facets-2023-0017

Author Contributions: Marc Saner conceptualized the project, carried out the ethical analysis, wrote the first draft. and contributed to revising the manuscript. Ha Pham compiled the datasets, completed the data analysis, contributed to writing the first draft, and revised the manuscript. The version presented in this document has incorporated the comments and suggestions from the co-author and reviewers.

Abstract

Inclusion has been gaining increased attention in various domains, including education and the workplace, as well as development, governance, urbanization, and innovation. However, in the context of climate change adaptation (CCA), the concept of "inclusiveness" remains comparatively underexplored, with no overarching framework available. This gap is crucial, given the global scope and multifaceted nature of climate change, which demands a comprehensive and inclusive approach. In this article, we address this deficiency by developing a comprehensive conceptualization of inclusive CCA policy. Grounded in ethical analysis, our framework is presented for discussion and practical testing. We identify 9 specific priority areas and propose one to two qualitative indicators for each, resulting in a suite of 15 indicators for the evaluation of inclusive CCA policies. This research not only highlights the urgency of incorporating inclusiveness into CCA, but it also provides a practical framework by which to guide policymakers, practitioners, and researchers in this critical endeavor. By acknowledging and accommodating diverse value systems and considering the entire policy process, from conception to evaluation, we aim to foster a more inclusive and sustainable approach to CCA.

Key words: Inclusiveness, indicators, evaluation, ethics, climate change adaptation

2.1 Introduction

Promoting inclusion has been an on-going concern in several contexts, including development and growth, decision-making and governance, cities and urbanization, innovation, and education and the workplace. The conceptualization of inclusion and what it constitutes is surprisingly diverse, and no overarching framework exists for evaluating the degree of inclusiveness in broad or diverse contexts. References are commonly made to equity, discrimination, justice, diversity, and inclusion (Environment and Climate Change Canada, 2022; Berry & Schnitter, 2022; Grant, 2019; Norton, 2019; UN Womenwatch, 2009), but the translation of these concepts into practical evaluation tools still requires development.

Climate change adaptation (CCA) is defined as the process of adjusting to actual or expected climate and its effects on natural or human systems (Intergovernmental Panel on Climate Change [IPCC], 2022a). Scholars have long criticized the inequitable participation in CCA planning and implementation that has undermined equitable vulnerability reduction because of the failure to overcome entrenched power relations and ensure the meaningful inclusion of the most marginalized (Eriksen et al., 2021; Hügel & Davies, 2020). A number of scholars have recently argued for a more inclusive approach to stakeholder engagement in CCA (Chu & Cannon, 2021; IPCC, 2022b; Martin et al., 2022; Singh et al., 2022). Martin and colleagues (2022) ranked inclusion as one of ten new insights in climate science 2022, whereas Singh and colleagues (2022) argue that inclusion should be a key principle by which to evaluate the success and effectiveness of CCA.

A recent systematic review of inclusive CCA revealed a growing interest in the idea of "inclusiveness" in the climate change context (Pham & Saner, 2021). The concept of inclusive CCA, however, has neither been fully developed nor used in formal evaluations of public policies or practices. There are also no checklists or indicators for systematically evaluating the inclusiveness of a policy or action plan in the CCA context.

An attempt was recently made to apply the principles of Equity, Diversity, and Inclusion to the CCA context (Hoicka et al., 2022; Tangirala, 2022), but the lens of inclusion was limited to a managerial tool. We must stress that the Equity, Diversity, and Inclusion (EDI) approach used in human resources is insufficient to serve as a model. Other contexts where diversity matters need to be included, such as politics and governance, or even the context of the welfare of non-human sentient creatures. Moreover, the practice of EDI often tends to be too narrow in application. For example, EDI may be focused only on the moment of hiring staff. Thus, using a logical model we will evaluate inclusion across the entire process - from planning to evaluation.

The conceptualization of inclusive CCA should be deeply grounded on the moral reasoning of ethical discussion. All public policy is built on *values*, which are entwined in entire processes, from the identification of priorities in the planning process, through standards setting and implementation, and finally to performance evaluation. The use of such an ethical lens opens the door to conceptual and analytical tools in specialized fields such as environmental ethics, business and workplace ethics, and politics ethics (Light & Rolsten, 2003; Zgheib, 2014; London, 2021). For example, environmental ethics provides convincing arguments for the broadening of the moral circle from the traditional human focus ("anthropocentrism") to the inclusion of sentient animals, other life-forms, biodiversity, and even

habitats ("non-anthropocentric ethics") (Singer, 1981). Finally, our CCA example focuses on the goal of climate *justice* (Robinson, 2018; UN, 2019).

The ethical analysis in this paper provides the conceptual foundations for inclusive CCA indicators. The conceptual foundation includes all the key steps in policymaking, namely initial planning, implementation, and evaluation. We identify nine priority areas and corresponding performance indicators within this scope that result from these contexts and policy steps. We believe that this type of tool is required in climate change contexts. The tool is also useful in other contexts, either to evaluate existing concepts of inclusion or to develop inclusion policies in new contexts. Casting the conceptual scope widely enables us to establish a conceptual basis that will bring us closer to achieving the ambition of thinking inclusively about inclusiveness. The resulting heuristic tools may be applicable to contexts outside of inclusive CCA, where the idea of inclusiveness is also gaining importance.

2.2 Methods

In this paper, we develop an argument (theory) on how inclusion, inclusiveness, or inclusivity—we use these words interchangeably—should be conceptualized, implemented, and assessed in the context of CCA and propose a set of indicators that are testable in practice.

Firstly, we use a comparative approach to examine a broad set of related contexts. Here, the focus is on inclusiveness "in practice", meaning how inclusiveness has been conceived, implemented, and assessed in different contexts, sectors, and locations. We therefore compared international frameworks that have been globally accepted and applied to achieve inclusiveness in development and growth, decision-making and governance, cities and urbanization, innovation, and education and the workplace. We focused on: (i) frameworks that were initiated by an international organization and applied in different countries and (ii) frameworks that included how to monitor and assess performance. The input from these comparisons provides insights regarding inclusiveness evaluation from diverse contexts and can serve as a foundation for developing our framework of inclusive CCA.

Secondly, we carry out a broad ethical analysis that draws upon pluralistic values of climate change ethics, emphasizing global justice, intergenerational justice, ecological justice, and business ethics. We also highlight diversity, equity, and inclusion in contemporary organizational studies as well as political ethics, ensuring cooperation, transparency, and accountability in governance and policymaking. While climate change ethics, with its focus on the concept of climate justice, provides rich resources for the moral reasoning of inclusiveness, we believe that business ethics and political ethics offer valuable insights concerning the practical implementation of a more inclusive approach to CCA.

Lastly, we employ a standard logic model in a systematic and visual way to describe the relationships among the resources of the operation of program, the activities planned, and the changes or results that the program is expected to achieve (W.K. Kellogg Foundation, 2004; Frechtling, 2015). Once a program has been described in terms of how it works and to what end, this logic model can be used as part of an evaluation study as it provides the foundation for looking at implementation and outcomes, as well as defining boundaries and identifying critical measures of performance (Pringle, 2011; Marino-Saum, 2020). In our study, the logic model serves as a conceptual framework by which to facilitate the selection of indicators and identify the most relevant indicators for a specific domain, problem, and location. This will, in turn, yield an indicator set that is at once transparent, efficient, and powerful in its

ability to assess the state of any program or project without losing sight of the overall climate change context.

Based on this argument, we propose a set of 15 indicators, which serves as our hypothesis: We will personally attempt to "falsify" this set of indicators in working with practitioners and invite the academic and practitioner communities to do the same.

2.3 Inclusiveness in related contexts

To better understand the conceptualization and assessment of inclusiveness, we reviewed five sectors in which the term is already firmly established. We found that the prefix "inclusive" is common in the following domains: 1. inclusive *development and growth* (Jahanger, 2023; Gupta & Vegelin, 2016; OECD 2015), 2. inclusive (or exclusive) *governance and decision making* (Mustaniemi-Laakso et al., 2023; OECD, 2020), 3. inclusive *cities and urbanization* (Ramachandran & Di Matteo, 2023; UN-Habitat, 2015; Gerometta et al., 2005), 4. inclusive *innovation* (Illalba Morales et al., 2023; Government of Canada, 2016; Foster & Heeks, 2013), and 5. Inclusive *education and workplace* (Madhesh, 2023; Avramidis & Norwich, 2002).

Table 3: Conceptualizations of inclusiveness in related contexts

Inclusive Frameworks	Focus(es)	Components/ Dimensions/ Principles	Evaluation
Inclusive development and growth (Asian Development Bank, 2010)	Processes, Outcomes	(i) Human capabilities; (ii) Social protection; (iii) Income poverty and equity, including gender equity; and (iv) Growth, productive employment, and economic infrastructure	Quantitative indicators, illustrated by case studies.
Inclusive governance and decision-making (United Nations Development Program, 2007)	Processes	(i) Establishing the human rights normative and legal framework; (ii) Applying and enforcing the human rights normative and legal framework; (iii) Social mobilization around human rights law	Qualitative indicators, supplemented by case studies
Inclusive cities and urbanization (World Bank 2015)	Outcomes	(i) Spatial inclusion to improve access to affordable land, houses, and services for all; (ii) Social inclusion to improve democratic processes, protection of rights, ability to represent needs, interests, and ideas so that individuals and groups can take part in society; and (iii) Economic inclusion that ensures opportunities for all to contribute to and share in rising prosperity	Qualitative indicators, illustrated by case studies.

Inclusive Frameworks	Focus(es)	Components/ Dimensions/ Principles	Evaluation
Inclusive innovation (United Nations Development Program, 2020)	Stakeholders, Processes, Outcomes	(i) Including underrepresented and disadvantaged demographic groups, disadvantaged or lagging regions and districts, low-productivity, traditional or informal sectors, social, economy, community organizations, social enterprises and cooperatives; (ii) Setting priorities for innovation policy and in the regulation of innovation, and identify measures to mitigate the negative impacts of innovation for particular groups and for a more equitable distribution of benefits; (iii) Addressing societal challenges and needs, especially the needs of disadvantaged social groups	Both qualitative and quantitative indicators, illustrated by case studies.
Inclusive education (UNESCO 2017)	Stakeholders, Processes	(i) Inclusion and equity are overarching principles in policy, plan and practices; (ii) Education policy documents strongly emphasize inclusion and equity, and senior staffs provide strong leadership; (iii) All services, institutions, and resources support vulnerable learners; (iv) Schools encourage all learners' participation and achievement while teachers receive training and take part in inclusive practices.	Qualitative indicators, illustrated by case studies.

We illustrate the conceptualization of inclusiveness in these five sectors by briefly reviewing one high-profile and international framework for each sector (Table 3). The key insights from these related contexts are as follows. First, inclusiveness has become an important topic in widely varied contexts but has by no means penetrated all academic literature where one could imagine its prominent use, including that of inclusive CCA. The interpretation of "inclusiveness" and "inclusivity" is highly dependent on context. Some sectors represent a means-to-an-end (development, governance, innovation, education), while others are ends-in-themselves (cities and the SDGs). Some are local (cities), while others are national or global (development and the SDGs). Some sectors fall under the domain of law (governance) or economics (innovation), while others fall under the domain of geography (cities) or development (education, growth). We believe that this fragmentation provides an argument for a broader theory of "inclusive inclusiveness".

Second, in terms of commonality, the frameworks can be parsed into three foci of attention: (a) stakeholders, (b) processes, or (c) outcomes, or mixtures thereof. These three terms are often explicitly used within the above frameworks, and they were also dominant in our systematic literature review on inclusive CCA (Pham and Saner 2021). There is a logic to this choice. The three foci represent foundational ideas in public policy where *stakeholders* engage in *processes* to achieve *outcomes* (Osborne, 2010). They also map onto the three major schools of thought in ethics, where *virtue ethics*

informs the attitudes and behavior of stakeholders, *deontology* informs the duties and rules governing decisions and processes, and *utilitarianism* informs strategies and the interpretation of results (Waluchow, 2003). We note that some frameworks do not cover all three of these foci and, therefore, in that sense may lack inclusiveness.

Third, we observe that *case studies*, rather than theories, which are commonly used to illustrate indicators and ethical perspectives, are normally marginalized in these frameworks. Without taking away from the value of case studies, we argue that there is room for a theoretical approach to add insights to what is already understood from practice. Given that inclusion is heavily linked to ethical considerations, there is clearly a "moral corruption" (Gardiner, 2022). At the same time, this gap in theoretical approach provides an opportunity for improvement by elaborating ethical thinking during the development of inclusion-related frameworks, engaging the perceptions, implementation, and evaluation of inclusiveness with issues in ethics and philosophy more generally.

2.4 Moral reasoning for inclusive climate change adaptation

In this section, we investigate the relevant ethical principles and considerations to answer the question: What are "good stakeholders", "good processes", and "good outcomes" for inclusive CCA? The emphasis of the word "good" in these themes is inspired by G.E. Moore's definition (1903): "Ethics is the inquiry into what is good." We firstly investigate climate change ethics to find the most fundamental principles and considerations that shed light on our analysis. At the heart of climate change ethics are the principles of justice and caring that raise the key moral reasoning aspects of inclusive CCA.

The multifaceted concept of climate justice refers to global justice, inter-generational justice, and ecological justice (Gardiner, 2011, 2022). Global justice deals with vulnerable and affected people in the present whose rights could be violated by the decisions of others (governments, industries, groups, individuals), while they are powerless to block these decisions. This undermines their vital interests. Inter-generational justice concerns the interests of future people who are currently non-existent and powerless, but they will be moral agents in the future and are thus worthy of respect and the granting of universal human rights. Ecological justice emphasizes the responsibilities of human beings to refrain from transferring the burden to the environment and supports the well-beings of non-human actors, animals, plants, ecosystems due not only to their instrumental value but also their intrinsic value. Some authors also argue for the importance of recognition justice, which requires respecting and acknowledging the cultures, values, and situations of all affected parties who should be considered and represented throughout decision-making processes when it comes to distributional, procedural, and compensational justice (Hourdequin, 2016; Schlosberg, 2012).

Indigenous ethics and feminist care ethics provide a care-based approach to justice that has been intensified in climate change ethics. Instead of focusing on rights, duties, or responsibilities, these strands of ethics refer to guidance for ethical decision making about action and policy that are grounded in the virtues, practices, and knowledge associated with appropriate caring and respect of self and others (Gilligan 1982; Held 2006). These theories accelerate inclusive relations of caring within interdependent human and ecological communities, justifying ethical responsibilities for all human and non-human entities (Tschakert et al., 2021; Whyte, 2020). Through these intimate relationships, Indigenous peoples and female groups produce and strengthen crucial ecological and local knowledge that must be respected and included to inform conservation strategies, environmental change

adaptation, and resilience. Moreover, the ethics of caring also advocates for the empowerment of less powerful groups and communities to actively include themselves in these processes and thus caring for the social and ecological communities in which their lives and interests are interwoven (Tschakert & Machado, 2012).

CCA initiates, happens, and manages within a form of organizations, whereas inclusiveness perspectives of CCA are based on the ethical systems that are predominantly influenced by several characteristics of human connection, such as politics and culture. With the efforts to operate inclusiveness in CCA practices, we have extended this concept by supplementing it with organizational, institutional, and political perspectives. From an organizational perspective, inclusiveness emphasizes the importance of respecting differences in culture and values and acknowledging the systemic inequality and vulnerability that prevents certain groups from raising their voices and shaping adaptation processes and outcomes that are just. From an institutional perspective, inclusiveness focuses on the ways in which those who are vulnerable and marginalized seek to address distributional and procedural injustice. From a political perspective, inclusiveness highlights the interaction and deliberation between groups to assert their status in the political community. We supplemented our analysis by looking into organization or business ethics and political ethics to explore principles for what makes “good stakeholders” “good processes,” and “good outcomes.”

Rooted in business ethics, EDI has recently been used as a phrase by organizations to emphasize ongoing efforts to rectify the problems that are linked to the EDI of staff, the focus of which has broadened from gender to include other underrepresented groups (Wolbring & Lillywhite, 2021). Equity aims to ensure that everyone has an equitable chance to succeed. Diversity promotes the active participation of individuals from a wide range of backgrounds, experiences, and perspectives, while inclusion emphasizes the importance of creating environments where all individuals feel valued, respected, and empowered (Garg & Sangwan, 2021; Oswick & Noon, 2014). EDI explicitly acknowledges that different individuals may require different levels of support or accommodations to achieve fairness and contribute their unique perspectives and talents to the development of organizations. EDI serves as the organizational perspective of inclusive CCA. By maximizing opportunities for the full pool of potential participants, EDI helps organizations promote innovation and creativity as well as increase effectiveness and strengthen the relevance and impact of their adaptation actions.

Political ethics revolves around the moral principles, values, and standards that guide the behavior and actions of individuals and institutions in political decision-making and governance (Thompson, 2019). Political ethics acknowledges the social responsibility of political actors, institutions, and citizens to collaborate and contribute positively to the well-being and welfare of the broad society (Mozumder, 2022; Digeser, 2022). Political ethics emphasizes transparency and accountability for public officials and institutions to answer for their actions to the public while also promoting the establishment of mechanisms and institutions that ensure accountability, such as independent oversight bodies (Fox, 2007; Vian, 2020). Government officials are expected to follow ethical principles and to inspire trust, promoting the common good, while citizens are supported to actively participate in the democratic process, raising their voices and shaping political decisions. Government officials and citizens are bound by and accountable to the law and, with careful deliberation, to balance conflicting values and interests.

Collaboration, co-contribution, transparency, and accountability serve as the institutional perspectives of inclusive CCA. Meaningful inclusion explicitly requires collaboration between stakeholders to carry

out collective action for adapting to changing climate while accelerating the values of accountability and transparency to maintain the just and equitable processes and outcomes throughout adaptation practices.

The three-pillar framework informed by climate change ethics, business ethics, and political ethics provides a valuable foundation for moral reasoning in the context of inclusive CCA. Climate change ethics contributes to the principle of justice and caring, business ethics provides insights on equity, diversity, and inclusion, while political ethics highlights the value of collaboration, transparency, and accountability. Together, these principles can guide decision-makers and stakeholders in developing and evaluating inclusive adaptation strategies. Based on the above ethical points: 1) we answered the question: What are "good stakeholders", "good processes", and "good outcomes" for inclusive CCA? and 2) we identified the following four core components of inclusive CCA.

> *1. Good foundations:* An inclusive approach to CCA should promote justice and caring in the broadest sense of these concepts. CCA should ensure justice for different groups in the current world, especially for systemically marginalized groups, people in the future, and non-human actors. CCA should intensify respect for and mutual acknowledgement of different cultures, values, and knowledge and promote meaningful cooperation between them throughout the adaptation circle.
>
> *2. Good stakeholders:* A more inclusive approach to CCA requires the implementation of equity, diversity, and inclusion (EDI) policies throughout organizations and communities involved in CCA. EDI can be considered as the organizational guideline for inclusive CCA. On the other hand, providing good support is a sufficient condition to improve stakeholders' capacities, and contributes to the EDI practice and inclusive CCA in general. Some examples are broad access to research grants, knowledge mobilization (KM) and data, CCA or development support, subsidies and benefits is a key ethical issue. Access issues should be understood in their broadest form (intentional, unintentional, technical, geographical) and to various forms of support (subsidies, compensation, procurement opportunities, research, data).
>
> *3. Good processes:* This means incorporating inclusiveness into the CCA processes, from ideation to implementation. Developing broad collaboration but ensuring transparency and accountability in all matters of governance and the exercise of power is an ethical and democratic priority to ensure that CCA can occur in an inclusive way throughout the processes of stakeholder identification, direction setting, consultation, decision-making, review, and appeal powers.
>
> *4. Good outcomes:* The good outcomes of inclusive CCA could be perceived as the contribution of inclusiveness into the general outcomes of CCA, ensuring all outcomes of adaptation are truly inclusive. Good outcomes are the direct result of the three above-mentioned core components, good foundations, good stakeholders, and good processes. This includes caring for the most vulnerable groups, ensuring justice for future people and more-than-human actors, showing respect for different cultures, values, and knowledge, reinforcing organizational inclusion, developing need-based support policies, and strengthening collaboration and accountability.

We conclude, therefore, that the framework is reasonably inclusive when it covers the moral principles rooted in different ethics theories as well as ethical considerations of organizations and institutions for

adaptation in practice. All four themes must be considered in concert to attain "inclusive inclusiveness" because they interact with each other. A strong emphasis on one theme (for example, the breadth of the moral circle) will impact others (for example, support and process). We will say more about the trade-off between what is theoretically desirable and what is practically achievable in the Discussion and Conclusion section of this paper.

2.5 Developing a framework for inclusive climate change adaptation: 9 priorities and 15 indicators

In public policy, the so-called logic models are commonly used to plan activities and develop indicators of success (W.K. Kellogg Foundation, 2004). The six common steps of logic models are broad enough to cover all of the key processes of general policymaking and specific adaptation initiatives. Inclusive CCA asserts the importance of inclusiveness throughout all steps: (i) planning; (ii) inputs (resource allocation and management); (iii) activities (Implementation); (iv) outputs (results); (v) impacts (success); and (vi) evaluation and learning.

These six steps could be juxtaposed with the four key themes identified in the previous section in a heuristic matrix. Such a 6 by 4 matrix, however, would have an overwhelming, and overlapping, set of possible 24 units of concern. We opted instead to propose nine priorities guided by both the inclusiveness and climate change literature, the gap in adaptation practices, and the potential contribution to adaptation debates. The following section presents a summary chart aimed at giving a broad sense of relationships, followed by a description of each of the nine priorities.

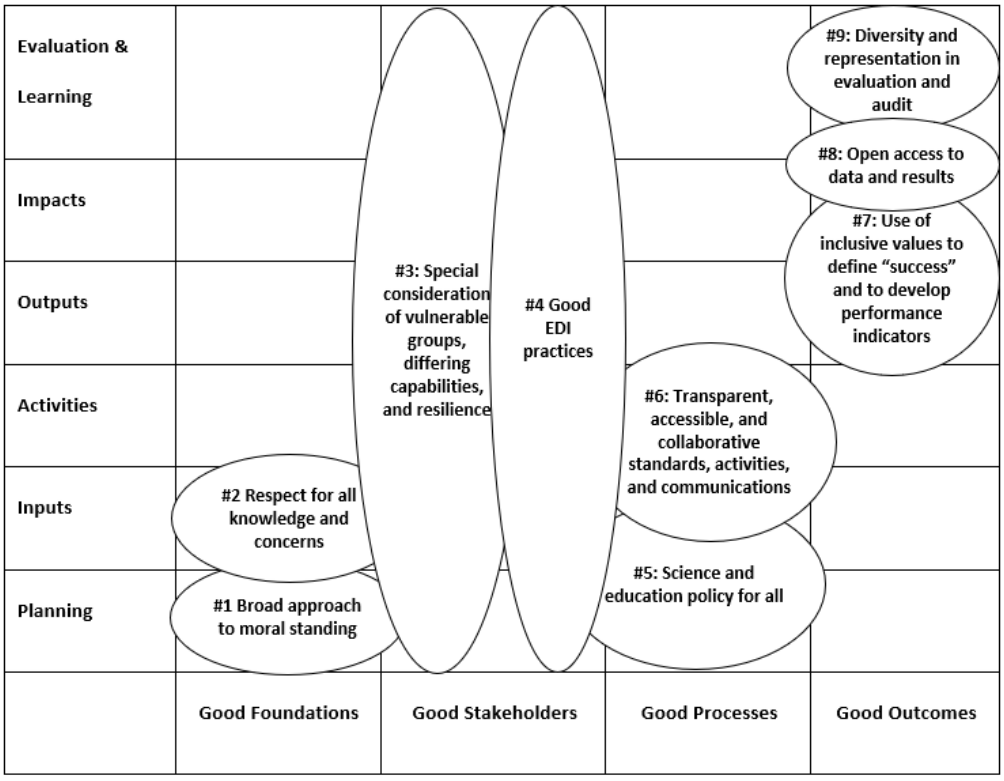


Figure 7: Summary chart to illustrate the space for the proposed 9 priorities of inclusive CCA
Note: The x-axis depicts four core components of inclusive CCA, and the y-axe presents the six standard steps used in public policy logic models.

Priority #1: Broad approach to moral standing (Moral Foundations I)

Priority #1 focuses on establishing a good foundation for inclusive adaptation planning. Foundational to ethics, and in particular environmental ethics, is the identification of entities with moral standing. That is to say, the identification of whose interests, welfare, or fate needs to be considered in deliberations (Schönfeld, 1992; Jaworska & Tannenbaum, 2021). To take inclusiveness seriously, we would argue, requires an explicit debate on who or what has moral standing.

Answering this question is the initial step and will inform the scope of the entire public policy exercise. In an anthropocentric moral system, only human beings have moral standing, meaning humans are ends-in-themselves and should never be viewed as instruments to an end. More extremely, this scope is even further reduced, wherein moral standing is granted only to adults, or adults capable of decision-making, as well as to citizens, consumers, and so forth. Climate change ethics, with its greater focus on intergenerational justice and ecological justice, explicitly argues for a further extension of the moral circle to future people and non-human actors. Future people will be moral agents and are thus worthy of respect and deserve to have universal human rights (Gardiner, 2011, 2022). Any entity capable of pain and pleasure (for example, all mammals and birds) should have their interests considered with the like interests of humans (Bentham, 1789; Singer 1974). The extension, it can be argued, should be taken even further to include endangered species, biodiversity, and even habitat or the land (Callicott, 1989; Taylor 1986; Hayward, 2006).

Inclusiveness indicators within this priority should first track whether a real consideration of moral standing is even taking place. While the essence of considering future people in present adaptation practice has become common, participants may feel that a debate over speciesism is academic, inappropriate, distracting, or unnecessary. We disagree and note that many climate change activists are vegetarians, either to reduce the carbon footprint of food, or to reduce pain and suffering caused to animals, or both (Boucher et al., 2021). Even in the case of the land, the idea of moral considerations (moral standing) is gaining attraction. For example, it has become a practical reality to have political representation of rivers in New Zealand's parliament (Dwyer, 2017).

Priority #2: Respect for all knowledges and concerns (Moral Foundations II)

Priority #2 focuses on establishing a good foundation for inclusive adaptation inputs. The decision of who or what has moral standing should extend to respecting the knowledges and cultures that different actors bring to the table.

The inclusion of diverse cultures, values, and knowledges can certainly be perceived as a moral command and a competitive advantage for adaptation activities (Byskov et al., 2021; Martin et al., 2022). On the one hand, as different actors are influenced by climate change, they, which includes local organizations, vulnerable groups, and Indigenous communities, all have the right to contribute to shaping these adaptation decisions. On the other hand, it is widely acknowledged that they possess crucial cultures, values and knowledges that can enrich and benefit adaptation planning and implementation. Including different actors' value, concerns, and perspectives are key to ensure the relevance and legitimacy of decision-making for CCA (Cash et al., 2002; Adger et al., 2017).

For example, within Indigenous worldviews, non-human entities and ecosystems are agents and have the same equal rights as humans (Charpleix, 2018; Smith, 2017). Since climate change also threatens the

well-being of ecosystems and non-human beings, these worldviews support adaptation policies and action which extend the protections beyond an anthropocentric scope and respect the rights of non-human actors to adaptation and resilience (Ford et al., 2016). Local practices, such as traditional agricultural practices, often lead to better adaptation outcomes (Parraguez-Vergara et al., 2018), and local knowledge, such as Indigenous knowledge on managing wildfire, often leads to more sustainable adaptation (Mistry et al., 2016).

Inclusiveness indicators within this priority should track both intent and delivery and should be deployed early in the policy process, at the earliest steps of the logic model.

Priority #3: Special considerations of the differences in vulnerabilities, capabilities, and needs and empowering marginalized groups (Stakeholders I)

Priority #3 focuses on establishing good stakeholder management throughout inclusive adaptation processes, grounded on the principles of equity and caring for less advantageous groups. Vulnerability and adaptation capacities are useful concepts to emphasize here. Vulnerability, defined as a situation in which "a person or community is not able to cope and adapt to climate-related hazards" (IPCC, 2022b), depends on both exposure to hazardous climate change effects and the ability of the impacted system to adapt (Smit & Wandel, 2006). By supporting adaptive capacity through the provision of a system the furnishes less advantaged people with what they need in order to adapt, the adverse impacts of climate change may be reduced, while the beneficial impacts are enhanced (Smit & Pilifosova, 2001). Unfortunately, neither vulnerabilities nor capacities are uniform as they are characterized by systemic inequalities. Therefore, they require special attention in the context of inclusiveness.

Efforts should be made to understand how to measure and support capability building for groups and communities, especially the vulnerable ones, and how such capabilities will foster their adaptive capacity for climate change. This is one of most effective ways to achieve the inclusion of socially vulnerable populations as full participants who possess the agency to shape the decisions that affect them (Malloy & Ashcraft, 2020). Capabilities that are critical to effectively responding to climate change may include access to education, healthcare, technology, social support, and public services which can directly support adaptation. For example, capacity-building activities such as providing information on the impact of climate change on yields and livelihoods or building cultivation skills and knowledge to combat climate variability have been considered as critical determinants of adaptation in that they actively involve farmers in the processes of minimizing the negative impacts of climate change (Tahiru et al., 2019).

Inclusiveness indicators within this priority should cover how adaptation initiatives recognize differences in the vulnerabilities, adaptation capacities, and needs of various stakeholders as well as their efforts to empower the most vulnerable groups.

Priority #4: Good EDI practices (for all staff and committees; Stakeholders II)

Priority #4 focuses on establishing good stakeholder management for inclusive adaptation processes based on the EDI (Equity, Diversity, and Inclusion) practices. EDI has emerged as a prominent principle in contemporary human resource management (Özbilgin & Chanlat, 2017). Attention to *equity* leads to the consideration of the context and diverging needs. *Diversity* is often portrayed as the "what" of EDI; it describes a desired composition of a team, committee, or workforce. *Inclusion* is often portrayed as the

"how," that is, the means by which diversity is achieved (Burg, 2018). In the case of CCA and climate justice, even if the term "EDI" is not commonly discussed, the interest in diversity and non-discrimination usually exists, and may be expressed in other languages (Jafry et al., 2018).

EDI may address gender, race, disability or any other form of potential discrimination. In any organization, including those that are carrying out adaptation, EDI should be considered not only during the hiring of individual staff but also during the formation of committees as well as in the contexts of working with outsiders, the formulation of public communications, and so forth. EDI should be credible as a moral commitment and should stand as a cultural norm that thoroughly penetrates an organization (Anand 2021).

Inclusiveness indicators within this priority should cover both policies and practices and should evaluate how broadly the EDI principles penetrate the entire organization (beyond the HR department). Depending on the direction that is selected in determining who or what has moral standing, inclusion may require representation, either formal or informal, from those who cannot participate. Examples would be adults living with disabilities, children, future generations, sentient animals, habitats, and so forth. EDI in representation creates special challenges when the moral circle is cast widely. Inclusiveness indicators should cover these considerations as well, for example, who exactly should represent the long-term interests of children in a climate change context?

Priority #5: Science and education policy for all: access and representation (including open procurement and inclusive subsidies; Processes I)

Priority #5 focuses on establishing good processes for inclusive adaptation planning and inputs. Once inclusiveness is taken seriously, many traditions are challenged. One example is scientific research, which is either conducted in-house by governments, subsidized directly through grants, or subsidized indirectly through the financing of universities. The beneficiaries are, for good reasons, the experts who are capable of providing the required services. This is a difficult and touchy issue because the very idea of expertise is non-inclusionary. We cannot have the "select" and the "non-select" at the same time. Similar to political systems where the elected leaders act as representatives for the masses, the experts act to represent knowledge. However, if one is serious about the inclusion of all value-systems and all knowledge, the expert model needs to be reconsidered (Jasanoff, 1998).

Two reasons for a move toward greater inclusion are improved representation and improved access to benefits. If an organization, for instance, actively seeks the inclusion of ITK, it will not only broaden its access to values and knowledge, but it will also provide broader access to procurement (contracts, grants, and employment) and subsidies (for institutions of all kinds).

Therefore, inclusiveness indicators within this priority should evaluate whether subsidies to universities, colleges, and other institutions should be informed by the goal of broad inclusiveness and non-discrimination and how open the access is to contracts, grants and employment.

Priority #6: Transparent, accessible, and collaborative standards, activities, and communications (Processes II)

Priority #6 focuses on establishing good processes for inclusive adaptation activities. Like other policymaking steps, implementation benefits from public input. The implementation should be considered with inclusiveness in mind. Here too, collaborative approaches to include values, interests,

viewpoints, and knowledge should be an ambition toward greater inclusiveness in CCA (Maldonado et al., 2021; Smucker et al., 2020; Tagliari et al., 2021; Walsh, 2019).

Ensuring transparency and accountability is obvious to include a larger group and diversity of interested parties (Berger et al., 2021; Blasiak et al., 2019; Bowen et al., 2017). However, mechanisms to ensure transparency and accountability of implementing, monitoring, and evaluating adaptation are lacking across scales and contexts, for example, in the health sector, water management, forest-based adaptation, and disaster risk management (Schipper et al., 2022).

Simply posting materials to the Internet does not necessarily achieve the goal of transparency. Access hurdles of various types need to be considered: Who is not able to access the Internet? Are the materials broadly comprehensible? Is the necessary filter being applied to what can and what cannot be posted, creating a bias with respect to content and access? (Saner, 2006). Once a good measure of transparency is achieved, meaningful forms of inclusive debate, collaboration, and even partnerships can be developed.

Priority #7: Use of inclusive values to define "success" and to develop performance indicators (Outcomes I)

Priority #7 focuses on establishing good outcomes that inclusiveness can contribute to adaptation success. For example, the discussion of moral standing has a direct effect on the conception of success, especially in an environmental and long-term context such as CCA, where it cannot be taken for granted who gets to define what success is. The conception of adaptation success varies and is even contested between different groups of currently living people, present people verse future people, and human actors verse more-than-human actors.

In practice, interventions aimed at CCA, and vulnerability reduction sometimes inadvertently reinforce, redistribute, or create new sources of vulnerability. A lack of critical engagement with how to define adaptation success has been highlighted as one mechanism driving these maladaptive outcomes (Eriksen et al., 2021). This lack of critical engagement is the failure of results-based management, which seeks to define clear goals and demonstrate evidence of success from the perspective of donors in the context of development aid (Dilling et al., 2019). More importantly, it is the failure of inequitable systems of power and participation processes that marginalizes less-powerful actors and especially vulnerable groups in making normative judgements of what constitutes adaptation success. One example is the National Adaptation Programs of Actions (NAPAs) within which rural residents' needs and the views of local institutions are likely to be obscured (Ayers, 2011).

As a result, the success and the system of performance indicators for adaptation success need to be understood and developed through an inclusive lens. Inclusiveness indicators within this priority would evaluate both the performance indicators and the actual impacts of the activity.

Priority #8: Open access to data and results (Outcomes II)

Priority #8 focuses on establishing a good outcome that inclusiveness can contribute to adaptation impacts. The increasing commitment by many governments to support open access to data and results corresponds to an inclusiveness goal (Swan, 2012; Roche et al., 2020). A wider variety of individuals and local communities can benefit from climate change research and data. More and higher quality climate risk data, for instance, could support local people and communities to lower exposure and mitigate

impact. Information can be used for new goals. This is akin to the patent system that was introduced to promote disclosure with the aim of spurring further innovation. It is noteworthy that the advent of open data represents a new area of transparency and inclusiveness.

However, the Internet, social media, and echo chambers have not led to the democratization of decision-making that many had hoped for (Schirch, 2021). Important access hurdles may still exist (Lund, 2019). For example, public funding research data and results often lack detail, update, and ready-to-use data. Data is normally in large scale like national or regional scale, and sometimes is very scientific that require skill and knowledge to analyze and interpret these data into useful information to enable better decision making for household and communities. Private funding databases require membership fees or access fees.

Inclusiveness indicators within this priority would evaluate both the efforts made toward open access and the remaining hurdles to access.

Priority #9: Diversity and representation in evaluation and audit (Outcomes III)

Priority #9 focuses on establishing another good outcome that inclusiveness could contribute to adaptation monitoring and evaluation. The focus on independence and impartiality of evaluators and auditors from the organization they study that helps reduce conflicts of interest is dominant monitoring and evaluation literature and practice (Adelopo, 2016). However, the question of the equity, diversity and inclusiveness of the audit body and process should not be put in the secondary position.

The individuals or committees that comprise the auditor function may be lacking in diversity and inclusion and if that is the case, it should be noticed and corrected. It is also possible that the written or unwritten standards used to perform the audit will be insufficiently inclusive. This is especially likely if the organization under audit breaks new ground when it comes to the breadth of the moral circle (by including entities that normally would not enjoy moral standing). Organizations may be ahead of professional auditors and thus the question arises as to whether the external auditors are equipped to evaluate the impact on, say, future generations, sentient animals, or the land?

Inclusiveness indicators within this priority would evaluate both the diversity of the audit body as well as their standards and practices.

Fifteen indicators

We propose below, as the basis for discussion and future research, a set of draft indicators to evaluate inclusiveness in CCA. These indicators are non-quantitative and function as checklists. The goal is to encourage the user to “think inclusively about inclusiveness” and to push the boundaries when it comes to stakeholder selection, process design, and the conceptualization and evaluation of outcomes. Indicators follow the same order as the nine priority areas identified in the previous section (with 1–2 indicators per priority).

Table 4: Checklist of indicators and levels of progress for evaluating inclusiveness in CCA

Indicators	Level 1	Level 2	Level 3
Priority #1: Broad approach to moral standing			
Moral Standing: Clarity *To what extent are you clarifying which actors (who or what) should have moral standing?*	There is reliance on current legal standards.	There is explicit debate on the scope of all actors whose welfare could be considered (gender, race, age, ability, …)	There are written organizational standards on the scope of actors under consideration.
Moral Standing: Breadth *To what extent are you broadening which actors (who or what) are given moral standing?*	Traditional anthropocentric approaches apply.	The well-being of future generations is explicitly considered (e.g., not just "lip service").	Non-human actors such as sentient animals (or even habitat) are included.
Priority #2: Respect for all knowledges and concerns			
Knowledges: Policies *To what extent is the principle of respect for all relevant knowledge (e.g., ITK) and concerns embedded in adaptation policies and plans?*	Adaptation policies and plans do not state this principle.	Adaptation policies and plans clearly state that broad knowledges and concerns should be respected.	Adaptation policies and plans clearly show how the broad respect for all knowledge and concerns will be implemented.
Knowledges: Practices *To what extent is the principle of respect for all relevant knowledges (e.g., ITK) and concerns embedded in adaptation practices?*	The principle is implemented in the real world.	The level of implementation is evaluated and enforced; stakeholders are engaged.	The implementation is resulting in measurable change.
Priority #3: Considering differences in capabilities and resilience and empowering vulnerable groups			
Vulnerable Groups: Identification *To what extent do adaptation initiatives specifically target vulnerable groups and their need for empowerment?*	The initiatives do not explicitly identify vulnerable groups or address their needs.	The initiatives tangibly target the needs of vulnerable groups.	There is evidence that the initiatives render vulnerable groups more empowered.

Indicators	Level 1	Level 2	Level 3
Vulnerable Groups: Capacities *To what extent do adaptation initiatives consider differences in adaptation capacities and resilience of various stakeholders?*	The initiatives do not explicitly consider differences in adaptation capacities of various stakeholders.	The initiatives tangibly address differing adaptation capacities of various stakeholders.	There is evidence that the initiatives enhance the adaptation capacities and resilience of various stakeholders.
Priority #4: Good EDI practices throughout (all staff, all committees)			
EDI: Policies *To what extent are EDI principles embedded in human resources policies and plans?*	Human resources policies and plans do not state EDI principles.	Human resources policies and plans include clear EDI principles.	Human resources policies and plans include details on how EDI principles will be implemented.
EDI: Practices *To what extent are EDI principles embedded in human resources practices?*	Human resources staff are fully EDI trained.	All staff are EDI trained and the topic is regularly and openly discussed.	Organization-wide EDI performance is formally assessed by external auditors.
Priority #5: Science and education policy for all: access and representation (including open procurement and inclusive subsidies)			
Science Policy: Procurement *To what extent do major science and education policies aim at open procurement (contracts, grants, and employment)?*	Major science and education policies include components or versions of open, inclusive procurement.	Major science and education policies contain a clear plan on how open, inclusive procurement will be realized.	There is evidence that procurement is becoming more open and inclusive.
Science Policy: Subsidies *To what extent are policies on subsidies informed by the principles of inclusive education and science for all?*	Policies on subsidies include principles of inclusive education and science for all.	Policies on subsidies contain a clear plan on how inclusive education and science for all will be realized.	There is evidence that science and education subsidies are becoming more inclusive.
Priority #6: Transparent, accessible, and collaborative standards, activities, and communications			

Indicators	Level 1	Level 2	Level 3
Implementation: Access *To what extent are adaptation projects and processes transparent and is information accessible to all?*	Policies and processes foster transparency.	Policies and processes are implemented with inclusive accessibility in mind.	There is evidence that inclusive forms of access are achieved.
Implementation: Collaboration *To what extent are adaptation projects collaboratively developed and implemented?*	Projects include components that facilitate collaboration between individuals and organizations.	Projects are collaboratively developed and implemented.	There is evidence of satisfaction with the process (relevant knowledges and values were used).
Priority #7: Use of inclusive values to define "success" and to develop performance indicators			
Outcomes: Success *To what extent are the definition of success and the development of performance and impact indicators informed by inclusive values?*	The conception of success and performance indicators are designed from an inclusiveness perspective.	If performance indicators are changed during implementation, then these changes are evaluated from an inclusiveness perspective.	There is evidence that the performance indicators used for long time series are informed by inclusive values.
Priority #8: Open access to data and results			
Outcomes: Open Access *To what extent are climate change data and adaptation projects data (including results) available to and accessible by everyone?*	Open access policies are designed from an inclusiveness perspective (jargon, format, access).	Open access policies are implemented from an inclusiveness perspective (jargon, format, access).	There is evidence that access and usage by the full diversity of interested parties are improving.
Priority #9: Diversity and representation in evaluation and audit			
Outcomes: Audit *To what extent are evaluation and audit bodies, and the standards they use, inclusive?*	Audit bodies and their standards are designed for inclusiveness.	Audit bodies practice inclusiveness in their training and work.	There is evidence that the audit process and result correspond to principles of inclusiveness.

2.6 Discussion and Conclusion

In this section, we address the issue of trade-offs. We know *a priori* that implementing inclusiveness entails direct or opportunity costs. The most obvious costs are the increased administrative burden, the loss of time, and the loss of focus. One could argue that idealistic versions of inclusiveness run exactly counter to the idea of identifying priorities (*discriminating* what matters most instead of *including* everything). The capacity for identifying priorities is, of course, an important concern during any crisis, including that of climate change. In response, we would argue that thinking inclusively is a better starting point for priority selection and priority sequencing. A broader initial scope does not need to result in loss of focus, and the time spent upfront identifying *good* (justified and sustainable) priorities will save more time later. It is also plausible that inclusive governance will be more effective because it draws from diverse knowledges and will be more sustainable because of the broader acceptance of direction.

A further consideration is the potential clash between inclusiveness and culture and tradition and "moral order". This is a challenging topic given the global scope of climate change. It is a certainty that views on inclusiveness will differ between, say, Afghanistan and New Zealand. In this context, one also needs to expect that a regime will preach inclusiveness and implement something different. We do not have a good solution to this problem. Inclusiveness is a democratic and liberal concept that will not be universally accepted. The question of how elitist or non-elitist a political system ought to be goes back to at least Plato's *Republic*.

Here, we would like to state the obvious point that it is impossible to achieve perfect inclusiveness. Just as extreme reduction leads to the absurd (*reductio ad absurdum*), extreme expansion would be far from convincing or practical. Our selection of nine focal areas was made with this problem in mind. We are attempting a breadth of inclusiveness that is neither exotic (except for the possible point about non-anthropocentric thinking) nor impractical.

We aimed to not only provide an overview of common components, such as discrimination, but to also seek a more complete approach to building an integrative lens. We start very wide when working with ethical and public policy concepts, then we select priorities and indicators and, finally, we will improve and narrow further during interviews with CCA practitioners (on-going and planned research).

The ultimate goal is to promote inclusiveness in a broad way, across themes and across the steps of a policy process. This should improve coordination and efficiency. It should also reduce duplications and counter-purpose initiatives. We seek to achieve organizational learning in several distinct ways that target common inclusiveness limits. To illustrate these limits, we have to distinguish omission and commission as well as involuntary and voluntary acts as illustrated in the matrix below:

Table 5: Four types of inclusiveness limits and learning opportunities

Nature of Act	**Involuntary**	**Voluntary**
Omission	We do not see any lack of inclusiveness: **"Blind spots" > Learn to see**	We see the lack of inclusiveness, but we do not care enough to act: **"Callousness" > Learn to care**
Commission	We see the lack of inclusiveness and we care, but we lack the capacity to overcome it: **"Constraint" > Learn to make it happen**	We see the lack of inclusiveness and we care. We have tried to overcome it and decided to give up: **"Defeat" > Learn to persevere**

Working with the above inclusiveness indicators, we argue, will improve learning against all four limits: blind spots, callousness, constraint, and defeat.

Discussing the questions in Table 5 should take care of the first problem, blind spots. We use blind spots here as a scientific term to express the situation in which people cannot recognize the perpetuation of exclusion and discrimination. This will not be achieved, however, if the indicators are merely part of a bureaucratic exercise. They must be presented as significant issues that deserve the time and attention for debate. The dialogue should involve diverse participants which, if patiently led, should improve understanding and empathy and thus reduce the second limit, callousness. Imagine a conversation on the topic of Indicator 1 (Who has moral standing?). Such a conversation should open everybody's eyes that ignoring the pain or suffering of any sentient being (humans of all kinds and sentient non-humans) is difficult to justify. While it may be likely that participants would disagree on the moral status of animals, the disagreement would nonetheless open a people's eyes to the breadth of values held by a community. Because the suite of 15 indicators also contains many references to implementation and performance measurement, it should be possible to also push boundaries on the "constraint" and "defeat" limits. Based on the awareness created by such dialogue, it ought to become more realistic to achieve "inclusiveness-by-design," which would improve the ability to persevere and succeed.

An important side benefit of such debates about values and ethics is that they build a common understanding and common culture that can benefit the operation in other contexts. A checklist such as that in Table 4 is essential to an evaluation process. However, the answer to these questions can lead to a presentation challenge. A visual picture of results can be helpful. Inspired by the *Korn Ferry Diversity and Inclusion Maturity Model* (Korn Ferry 2021), we produced a sample (Figure 8). In contrast to the elaborate Korn Ferry Model, we selected a basic "Radar Chart" because these charts can be easily generated in standard software packages. Visuals that summarize all 15 indicators in one chart can help one to make comparisons over time and across comparable organizations.

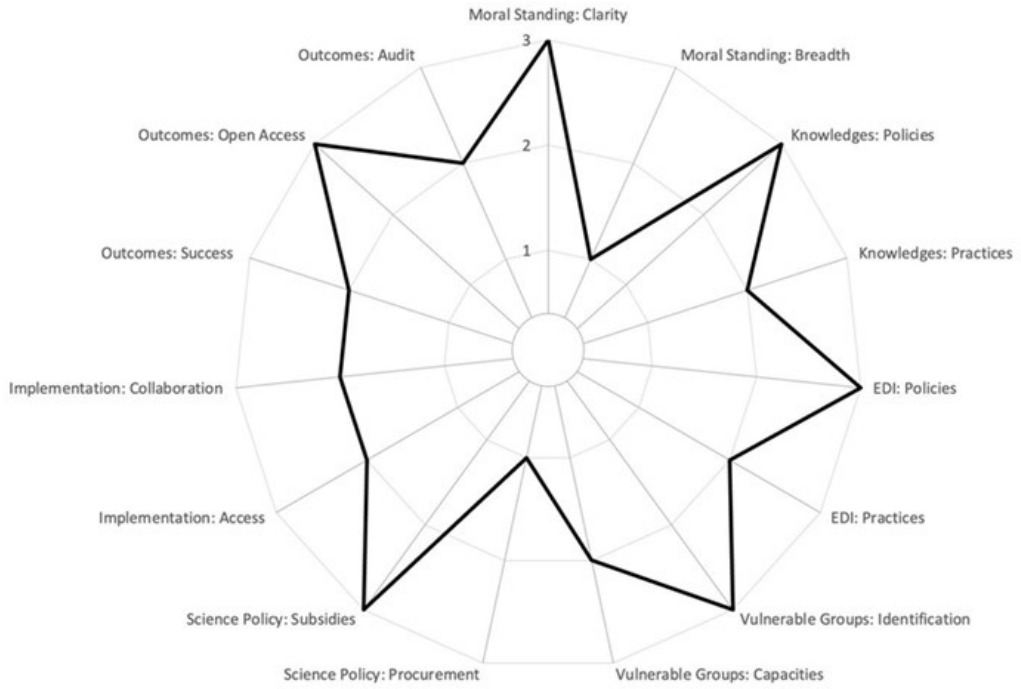


Figure 8: A sample of how to present inclusiveness evaluation results

Note: Visual depiction of the results of an inclusiveness evaluation. The 15 axes on this radar chart are taken from the 15 indicators described in Table 4. The rating of 1-3 follows the standards shown in same table - but this is a fictional data set created for illustrative purposes.

Theory can only provide a framework and a starting point for practical work. To make adaptation more inclusive requires the application of the 9 priorities and 15 indicators to case studies of current efforts. It is also necessary to interview policymakers, researchers, and practitioners on the inclusiveness of adaptation processes, the potential of applying inclusiveness framework in adaptation research, policymaking, and practice, as well as the necessary adjustment of inclusive indicators to be applicable. This work is currently underway.

Acknowledgments

We are grateful to Ozan Gurcan for comments and the suggest the addition of a radar chart. The usual disclaimers apply.

References

Adelopo, I. (2016). *Auditor Independence: Auditing, Corporate Governance and Market Confidence*. Routledge, London.

Adger, W.N., Butler, C. & Walker-Springett, K. (2017). Moral reasoning in adaptation to climate change, *Environmental Politics, 26*(3), 371-390. https://doi.org/10.1080/09644016.2017.1287624

Anand, R. (2021). *Leading Global Diversity, Equity, and Inclusion: A Guide for Systemic Change in Multinational Organizations*. Berrett-Koehler Publishers, Oakland.

Avramidis, E. & Norwich, B. (2002). Teachers' attitudes towards integration / inclusion: a review of the literature. *European Journal of Special Needs Education., 17*(2), 129–147. https://doi.org/10.1080/08856250210129056

Ayers, J. (2011). Resolving the Adaptation Paradox: Exploring the Potential for Deliberative Adaptation Policymaking in Bangladesh. *Global Environmental Politics, 11*(1), 62–88. https://doi.org/10.1162/GLEP_a_00043

Berger, S., Owetschkin, D., Fengler, S., & Sittmann, J. (Eds.). (2021). *Cultures of Transparency: Between Promise and Peril.* Routledge, London.

Berry, P. & Schnitter, R. (Eds.). (2022). *Health of Canadians in a Changing Climate: Advancing our Knowledge for Action*. Ottawa, ON: Government of Canada.

Blasiak, R., Wabnitz, C. C. C., Daw, T., Berger, M., Blandon, A., Carneiro, G., Crona, B., Davidson, M. F., Guggisberg, S., Hills, J., Mallin, F., McManus, E., Karim ould-Chih, Pittman, J., Santos, X., Westlund, L., Wetterstrand, H., & Wiegler, K. (2019). Towards greater transparency and coherence in funding for sustainable marine fisheries and healthy oceans. *Marine Policy, 107*, 103508-. https://doi.org/10.1016/j.marpol.2019.04.012

Boucher, J. L., Kwan, G. T., Ottoboni, G. R., & McCaffrey, M. S. (2021). From the suites to the streets: Examining the range of behaviors and attitudes of international climate activists. *Energy Research & Social Science, 72*, 101866-. https://doi.org/10.1016/j.erss.2020.101866

Bowen, K. J., Cradock-Henry, N. A., Koch, F., Patterson, J., Häyhä, T., Vogt, J., & Barbi, F. (2017). Implementing the "Sustainable Development Goals": towards addressing three key governance challenges—collective action, trade-offs, and accountability. *Current Opinion in Environmental Sustainability, 26–27*, 90–96. https://doi.org/10.1016/j.cosust.2017.05.002

Burg, N. (2018). *Diversity And Inclusion: What's The Difference, And How Can We Ensure Both*? https://www.forbes.com/sites/adp/2018/06/25/diversity-and-inclusion-whats-the-difference-and-how-can-we-ensure-both/#:~:text=Mitjans%3A%20Diversity%20is%20the%20%E2%80%9Cwhat,that%20enables%20diversity%20to%20thrive.

Byskov, M. F., Hyams, K., Satyal, P., Anguelovski, I., Benjamin, L., Blackburn, S., Borie, M., Caney, S., Chu, E., Edwards, G., Fourie, K., Fraser, A., Heyward, C., Jeans, H., McQuistan, C., Paavola, J., Page, E., Pelling, M., Priest, S., … Venn, A. (2021). An agenda for ethics and justice in adaptation to climate change. *Climate and Development*, *13*(1), 1–9. https://doi.org/10.1080/17565529.2019.1700774

Callicott, J.B. (1989). *In defense of the land ethic: essays in environmental philosophy*. State University of New York Press, New York.

Cash, D. et al. (2002). *Salience, credibility, legitimacy and boundaries: linking research, assessment and decision making.* Faculty Research Working Papers Series, November 2002. Cambridge: John F. Kennedy School of Government, Harvard University.

Charpleix, L. (2018). The Whanganui River as Te Awa Tupua: Place-based law in a legally pluralistic society. *The Geographical Journal, 184(*1), 19– 30. https://doi:10.1111/geoj.12238

Chu, E. K., & Cannon, C. E. (2021). Equity, inclusion, and justice as criteria for decision-making on climate adaptation in cities. *Current Opinion in Environmental Sustainability, 51*, 85–94. https://doi.org/10.1016/j.cosust.2021.02.009

Digeser, P. E. (2022). Collaboration and Its Political Functions. *American Political Science Review, 116*(1), 200–212. Cambridge University Press.

Dilling, L., Prakash, A., Zommers, Z., Ahmad, F., Singh, N., de Wit, S., Nalau, J., Daly, M., & Bowman, K. (2019). Is adaptation success a flawed concept? *Nature Climate Change, 9*(8), 572–574. https://doi.org/10.1038/s41558-019-0539-0

Dwyer, C. (2017). *A New Zealand River Now Has The Legal Rights Of A Human*. https://www.npr.org/sections/thetwo-way/2017/03/16/520414763/a-new-zealand-river-now-has-the-legal-rights-of-a-human.

Environment and Climate Change Canada. (2022). 2030 *Emissions Reduction Plan: Canada's Next Steps for Clean Air and a Strong Economy*. https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/erp/Canada-2030-Emissions-Reduction-Plan-eng.pdf.

Eriksen, S., Schipper, E. L. F., Scoville-Simonds, M., Vincent, K., Adam, H. N., Brooks, N., Harding, B., Khatri, D., Lenaerts, L., Liverman, D., Mills-Novoa, M., Mosberg, M., Movik, S., Muok, B., Nightingale, A., Ojha, H., Sygna, L., Taylor, M., Vogel, C., & West, J. J. (2021b). Adaptation interventions and their effect on vulnerability in developing countries: Help, hindrance or irrelevance? *World Development, 141*, 105383-. https://doi.org/10.1016/j.worlddev.2020.105383

Ford, JD., Cameron, L., Rubis, J., Maillet, M., Nakashima, D. (2016). Including Indigenous knowledge and experience in IPCC assessment reports. *Nature Climate Change, 6(*4), 349–353. https://doi:10.1038/nclimate2954

Foster, C., & Heeks, R. (2013). Conceptualising Inclusive Innovation: Modifying Systems of Innovation Frameworks to Understand Diffusion of New Technology to Low-Income Consumers. *The*

European Journal of Development Research., 25(3), 333–355. https://doi.org/10.1057/ejdr.2013.7

Fox, J. (2007). The Uncertain Relationship between Transparency and Accountability. *Development in Practice, 17*(4/5), 663–671. http://www.jstor.org/stable/25548267

Frechtling, J.A. (2015). Logic model. In J.D. Wright (Ed.), *International encyclopedia of the social & behavioral sciences* (2nd ed.), Elsevier, Amsterdam, Netherlands, pp. 299-305

Gardiner, S. M. (2022). Environmentalizing Bioethics: Planetary Health in a Perfect Moral Storm. *Perspectives in Biology and Medicine, 65*(4), 569–585. https://doi.org/10.1353/pbm.2022.0048

Gardiner, S. M. (2011). *A Perfect Moral Storm: The Ethical Tragedy of Climate Change, Environmental Ethics and Science Policy Series*; Oxford Academic. https://doi.org/10.1093/acprof:oso/9780195379440.001.0001.

Garg, S. & Sangwan, S. (2021). Literature Review on Diversity and Inclusion at Workplace, 2010–2017. *Vision, 25*(1), 12–22. https://doi.org/10.1177/0972262920959523

Gerometta, J., Haussermann, H. & Longo, G. (2005). Social Innovation and Civil Society in Urban Governance: Strategies for an Inclusive City. *Urban Studies, 42*(11), 2007–2021. https://doi.org/10.1080/00420980500279851

Gilligan, C. (1982). *In a different voice: Psychological theory and women's development*. Harvard University Press, Cambridge.

Government of Canada. (2016). *An Inclusive Innovation Agenda: The Sate of Play*. https://www.ic.gc.ca/eic/site/062.nsf/eng/00014.html.

Grant, P. (Ed.). (2019). *Minority and Indigenous Trends 2019: Focus on climate justice.* Minority Rights Group International. https://minorityrights.org/wp-content/uploads/2020/08/2019_MR_Report_170x240_V7_WEB.pdf.

Gupta, J. & Vegelin, C. (2016). Sustainable development goals and inclusive development. *International Environmental Agreements: Politics, Law and Economics, 16*(3), 433–448. https://doi.org/10.1007/s10784-016-9323-z

Hayward, T. (2006). Ecological citizenship: Justice, rights and the virtue of resourcefulness. *Environmental Politics, 15*(3), 435–446. https://doi:10.1080/ 09644010600627741

Held, V. (2006). *The Ethics of Care*. New York, NY: Oxford University Press.

Hoicka, C.E., Zhao, Y. & Coutinho, A. (2022*). Philanthropic organisations advancing equity, diversity and inclusion in the net-zero carbon economy in Canada.* McConnell Foundation, Canada. https://mcconnellfoundation.ca/wp-content/uploads/2022/07/EDIA-in-Climate-Action-in-Canada.pdf

Hourdequin, M. (2016). Justice, recognition and climate change. In: Preston, C. J. (Christopher J. (Ed.). (2016). *Climate justice and geoengineering: ethics and policy in the atmospheric Anthropocene.* pp. 33- 48. Rowman & Littlefield International, Ltd.

Hügel, S., & Davies, A. R. (2020). Public participation, engagement, and climate change adaptation: A review of the research literature. *Wiley Interdisciplinary Reviews. Climate Change, 11*(4), e645-n/a. https://doi.org/10.1002/wcc.645

Illalba Morales, M. L., Ruiz Castañeda, W., & Robledo Velásquez, J. (2023). Configuration of inclusive innovation systems: Function, agents and capabilities. *Research Policy, 52*(7). https://doi.org/10.1016/j.respol.2023.104796

Intergovernmental Panel on Climate Change (2022a). *Climate Change 2022: Impacts, Adaptation, and Vulnerability*. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change Edited by HO Pörtner, DC Roberts, M Tignor, ES Poloczanska, K Mintenbeck, A Alegría, M Craig, S Langsdorf, S Löschke, V Möller, A Okem, B Rama. Cambridge University Press. Cambridge University Press, Cambridge, UK and New York, NY, USA, 3056 pp. https://doi:10.1017/9781009325844.

Intergovernmental Panel on Climate Change (2022b): Annex II: Glossary [Möller, V., R. van Diemen, J.B.R. Matthews, C. Méndez, S. Semenov, J.S. Fuglestvedt, A. Reisinger (eds.)]. In: *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 2897–2930. https://doi:10.1017/9781009325844.029.

Jafry, T., Mikulewicz, M. & Helwig, K. (Eds.). (2018). *Routledge Handbook of Climate Justice*. Routledge: London.

Jahanger, A. (2023). Structural transformation and political economy: A new approach to inclusive growth. *PloS One, 18*(8). https://doi.org/10.1371/journal.pone.0283731

Jasanoff, S. (1998). *The Fifth Branch: Science Advisers as Policymakers*. Harvard University Press, Cambridge.

Jaworska, A. & Tannenbaum, J. (2021). *The Grounds of Moral Status.* https://plato.stanford.edu/entries/grounds-moral-status/#toc.

Korn Ferry. (2021). *Diversity, Equity, and Inclusion Diagnostic: Getting it right.* https://www.kornferry.com/content/dam/kornferry-v2/pdf/KornFerry_DEI_Maturity_Model_Factsheet.pdf.

Light, A. & Rolston, III H. (Eds.). (2003). *Environmental Ethics: An Anthology*. Blackwell Publishing, Oxford.

London, A.J. (2021). *For the Common Good: Philosophical Foundations of Research Ethics.* Oxford University Press, Oxford.

Lund, B. (2019). Barriers to ideal transfer of climate change information in developing nations. *IFLA Journal, 45*(4), 334-343. https://doi-org /10.1177/0340035219857751

Madhesh, A. (2023). The concept of inclusive education from the point of view of academics specialising in special education at Saudi universities. *Humanities and Social Sciences Communications*, *10*(1). https://doi.org/10.1057/s41599-023-01802-y

Maldonado, J., Wang, I. F. C., Eningowuk, F., Iaukea, L., Lascurain, A., Lazrus, H., Naquin, C. A., Naquin, J., Nogueras-Vidal, K. M., Peterson, K., Rivera-Collazo, I., Souza, M. K., Stege, M., & Thomas, B. (2021). Addressing the challenges of climate-driven community-led resettlement and site expansion: knowledge sharing, storytelling, healing, and collaborative coalition building. *Journal of Environmental Studies and Sciences, 11*(3), 294–304. https://doi.org/10.1007/s13412-021-00695-0

Malloy, J. T. & Ashcraft, C. M. (2020). A framework for implementing socially just climate adaptation. *Climatic Change, 160*(1), 1–14. https://doi.org/10.1007/s10584-020-02705-6

Merino-Saum, A. (2020). Choosing Appropriate Frameworks for Green Economy Indicators. In book: *Indicators for an Inclusive Green Economy – Manual for Introductory Training* (pp.17-35). Publisher: Partnership for Action on Green Economy (PAGE), Geneva

Martin, M. A., Boakye, E.A., Boyd, E., Broadgate, W., Bustamante, M., Canadell, J.G. et al. (2022). Ten new insights in climate science 2022. *Global Sustainability, 5*. https://doi.org/10.1017/sus.2022.17

Mistry, J., Bilbao, B. A., & Berardi, A. (2016). Community owned solutions for fire management in tropical ecosystems: case studies from Indigenous communities of South America. *Philosophical Transactions of the Royal Society of London. Series B. Biological Sciences, 371*(1696), 20150174–20150174. https://doi.org/10.1098/rstb.2015.0174

Moore, G.E. (1903). *Principia Ethica*. Cambridge University Press, Cambridge.

Mozumder, N. A. (2022). Can Ethical Political Leadership Restore Public Trust in Political Leaders? *Public Organization Review, 22*(3), 821–835. https://doi.org/10.1007/s11115-021-00536-2

Mustaniemi-Laakso, M., Katsui, H., & Heikkilä, M. (2023). Vulnerability, Disability, and Agency: Exploring Structures for Inclusive Decision-Making and Participation in a Responsive State. *International Journal for the Semiotics of Law., 36*(4), 1581–1609. https://doi.org/10.1007/s11196-022-09946-x

Norton, A. (2019). *Climate justice and the IPCC special report on land*. International Institute of Environment and Development (IIED). https://www.iied.org/climate-justice-ipcc-special-report-land.

OECD. (2015). *Innovation Policies for Inclusive Growth*. OECD, Paris.

OECD. (2020). *What does "Inclusive governance" mean? Clarifying theory and practice.* https://www.oecd-ilibrary.org/development/what-does-inclusive-governance-mean_960f5a97-en.

Osborne, S. (Ed.). 2010. *The New Public Governance? Emerging Perspectives on the Theory and Practice of Public Governance*. Routledge: London.

Oswick, C., & Noon, M. (2014). Discourses of Diversity, Equality and Inclusion: Trenchant Formulations or Transient Fashions? *British Journal of Management, 25*(1), 23–39. https://doi.org/10.1111/j.1467-8551.2012.00830.x

Özbilgin, M. & Chanlat, J.F. (Eds.). (2017). *Management and Diversity: Perspectives from Different National Contexts.* Emerald Publishing Limited, Bingley.

Parraguez-Vergara, E., Contreras, B., Clavijo, N., Villegas, V., Paucar, N., & Ther, F. (2018). Does Indigenous and campesino traditional agriculture have anything to contribute to food sovereignty in Latin America? Evidence from Chile, Peru, Ecuador, Colombia, Guatemala and Mexico. *International Journal of Agricultural Sustainability, 16*(4–5), 326–341. https://doi.org/10.1080/14735903.2018.1489361

Pham, H. & Saner, M. (2021). A Systematic Literature Review of Inclusive Climate Change Adaption. *Sustainability*. https://doi.org/10.3390/su131910617

Pringle, P. (2011). *AdaptME Toolkit for monitoring and evaluation of adaptation activities, manual.* United Kingdom Climate Impacts Programme (UKCIP). www.seachangecop.org/node/116

Ramachandran, N. & Di Matteo, C. (2023). Exploring Inclusive Cities for Migrants in the UK and Sweden: A Scoping Review. *Social Inclusion, 11*(3), 162–174. https://doi.org/10.17645/si.v11i3.6858

Robinson, M. (2018). *Climate Justice: Hope, Resilience, and the Fight for a Sustainable Future*. Bloomsbury Publishing, New York.

Roche, D. G., Granados, M., Austin, C. C., Wilson, S., Mitchell, G. M., Smith, P. A., Cooke, S. J., & Bennett, J. R. (2020). Open government data and environmental science: a federal Canadian perspective. *Facets, 5*(1), 942–962. https://doi.org/10.1139/facets-2020-0008

Saner, M. (2006). Citizenship Engagement, Biotechnology and ICTs: Are There Any Inherent Problems? *Techné: Research in Philosophy and Technology, 9*(3):14-22. https://doi.org/10.5840/techne2006932

Schipper, E.L.F., A. Revi, B.L. Preston, E.R. Carr, S.H. Eriksen, L.R. Fernandez-Carril, B.C. Glavovic, N.J.M. Hilmi, D. Ley, R. Mukerji, M.S. Muylaert de Araujo, R. Perez, S.K. Rose, and P.K. Singh, (2022). Climate Resilient Development Pathways. In*: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 2655–2807. https://doi.org/10.1017/9781009325844.027

Schirch, L. (Ed.). (2021). *Social Media Impacts on Conflict and Democracy: The Techtonic Shift*. Routledge: London.

Schlosberg, D. (2012). Climate Justice and Capabilities: A Framework for Adaptation Policy. *Ethics & International Affairs, 26*(4), 445-461. https://doi.org/10.1017/S0892679412000615

Schonfeld, M. (1992). Who or What Has Moral Standing? *American Philosophical Quarterly (Oxford), 29*(4), 353–362. https://www.jstor.org/stable/20014430

Singer, P. (1981). *The Expanding Circle: Ethics and Sociobiology*. Clarendon Press, Oxford.

Singh, C., Iyer, S., New, M.G., Few, R., Kuchimanchi, B., Segnon, A.C., & Morchain, D. (2022). Interrogating "effectiveness" in climate change adaptation: 11 guiding principles for adaptation research and practice. *Climate and Development, 14*(7), 650–664. https://doi.org/10.1080/17565529.2021.1964937

Smit, B. & Pilifosova, O. (2001). Adaptation to Climate Change in the Context of Sustainable Development and Equity. In *Climate Change 2001: Impacts, Adaptation, and Vulnerability - Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge. https://www.ipcc.ch/site/assets/uploads/2018/03/wg2TARchap18.pdf

Smit, B. & Wandel, J. (2006). Adaptation, adaptive capacity and vulnerability. *Global Environmental Change, 16*(3):282-292. https://doi.org/10.1016/j.gloenvcha.2006.03.008.

Smith, J. L. (2017). I, River? New materialism, riparian non-human agency and the scale of democratic reform. *Asia Pacific Viewpoint, 58*(1), 99– 111. https://doi.org/10.1111/apv.12140

Smucker, T. A., Oulu, M., & Nijbroek, R. (2020). Foundations for convergence: Sub-national collaboration at the nexus of climate change adaptation, disaster risk reduction, and land restoration under multi-level governance in Kenya. *International Journal of Disaster Risk Reduction, 51*, 101834-. https://doi.org/10.1016/j.ijdrr.2020.101834

Swan, A. (2012). *Policy Guidelines for the Development and Promotion of Open Access*. https://digital.library.unt.edu/ark:/67531/metadc141806/m2/1/high_res_d/215863e.pdf.

Tagliari, M. M., Levis, C., Flores, B. M., Blanco, G. D., Freitas, C. T., Bogoni, J. A., Vieilledent, G., & Peroni, N. (2021). Collaborative management as a way to enhance Araucaria Forest resilience. *Perspectives in Ecology and Conservation, 19*(2), 131–142. https://doi.org/10.1016/j.pecon.2021.03.002

Tahiru, A., Sackey, B., Owusu, G., & Bawakyillenuo, S. (2019). Building the adaptive capacity for livelihood improvements of Sahel Savannah farmers through NGO-led adaptation interventions. *Climate Risk Management, 26*, 100197–. https://doi.org/10.1016/j.crm.2019.100197

Tangirala, N. (2022). *Integrating equity, diversity, and Inclusion into municipal climate action*. The Partners for Climate Protection program. https://assets-global.website-files.com/6022ab403a6b2126c03ebf95/62e3058d83c7af7982e75f23_pcp-integrating-equity-diversity-and-inclusion-into-municipal-climate-action.pdf

Taylor, P.W. (1986). *Respect for Nature: A theory of Environmental Ethics*. Princeton University Press, Princeton.

Thompson, D. F. (2019). *Political Ethics, International Encyclopedia of Ethics*, Oxford, UK: Blackwell Publishing Ltd. https://doi-org/10.1002/9781444367072.wbiee633.pub2

Tschakert, P. & Machado, M. (2012). Gender Justice and Rights in Climate Change Adaptation: Opportunities and Pitfalls. *Ethics and Social Welfare, 6*(3), 275–289. https://doi.org/10.1080/17496535.2012.704929

Tschakert, P., Schlosberg, D., Celermajer, D., Rickards, L., Winter, C., Thaler, M., Stewart-Harawira, M., & Verlie, B. (2021). Multispecies justice: Climate-just futures with, for and beyond humans. *Wiley Interdisciplinary Reviews. Climate Change, 12*(2), e699-n/a. https://doi.org/10.1002/wcc.699

UN WomenWatch. (2009). *Women, Gender Equality and Climate Change.* https://www.un.org/womenwatch/feature/climate_change/downloads/Women_and_Climate_Change_Factsheet.pdf.

United Nations (UN). (2019). *Climate Justice*. https://www.un.org/sustainabledevelopment/blog/2019/05/climate-justice/.

United Nations Human Settlements Programme (UN-Habitat). (2015). *Habitat-III-Issue-Paper-1_Inclusive-Cities.* https://www.alnap.org/help-library/habitat-iii-issue-papers-1-inclusive-cities.

Vian T. (2020). Anti-corruption, transparency and accountability in health: concepts, frameworks, and approaches. *Global health action, 13*(sup1), 1694744. https://doi.org/10.1080/16549716.2019.1694744

W.K. Kellogg Foundation. (2004). *Logic Model Development Guide*. https://wkkf.issuelab.org/resource/logic-model-development-guide.html.

Walsh, C. (2019). Integration of expertise or collaborative practice: Coastal management and climate adaptation at the Wadden Sea. *Ocean & Coastal Management, 167*, 78–86. https://doi:10.1016/j.ocecoaman.2018.10.004.

Waluchow, W.J. (2003). *The Dimensions of Ethics: An Introduction to Ethical Theory*. Broadview Press, Peterborough.

Whyte, K. (2020). Too late for Indigenous climate justice: Ecological and relational tipping points. *Wiley Interdisciplinary Reviews. Climate Change, 11*(1), e603-n/a. https://doi.org/10.1002/wcc.603

Wing, O.E.J., Lehman, W., Bates, P.D., Sampson, C.C., Quinn, N., Smith, A.M. et al. (2022). Inequitable patterns of US flood risk in the Anthropocene. *Nature Climate Change, 12*(2), 156–162. https://doi.org/10.1038/s41558-021-01265-6

Wolbring, G. & Lillywhite A. (2021). The Case of Disabled People. *Societies 11*(2):1–34. https://doi.org/10.3390/soc11020049

Zgheib, P. (2014). *Business Ethics and Diversity in the Modern Workplace.* IGI Global, Hershey.

Chapter 3: Inclusiveness in Climate Change Adaptation Policies in Canada

Abstract

According to the Intergovernmental Panel on Climate Change Assessment Report 6 (2022), inclusive, equitable and just adaptation pathways are critical to climate-resilient development, and more inclusively designed forms of adaptation are more effective, cost-efficient, and equitable. The concept of inclusive climate change adaptation (CCA) or an inclusive approach to adaptation, however, has never been fully defined in any research or policy. In this paper, I analyze Canadian national CCA policies against a checklist of nine inclusiveness priorities. A total of 84 documents were collected and reviewed. The results reveal that positive response to inclusiveness priorities is increasing and that many detailed actions have been planned and carried out to promote these priorities in Canadian CCA policies. However, an urgent need still exists, ideally for the federal government, to develop consensus on perceptions and knowledge, and facilitate the learning process for collective adaptation purposes, solutions, planning, and actions.

Key words: Inclusiveness, climate change adaptation, Canada, policy analysis

3.1 Introduction

Recent climate change adaptation (CCA) research and practice have highlighted the need for a more inclusive approach to CCA (Chu & Cannon, 2021; IPCC, 2022; Martin et al., 2022; Singh et al., 2022). There is high confidence that inclusive, equitable, and just adaptation pathways are critical to climate resilient development and that the more inclusively designed the forms of adaptation are, the more effective, cost-efficient, and equitable they will be (IPCC, 2022). Martin et al. (2022) listed inclusive and empowering societal choices for climate-resilient development as one of ten new insights in climate science for 2022. They argued that an inclusive approach could inform societal choices about climate change with divergent worldviews, values, and needs, challenge perpetuating exclusivity practices and the embedded ideologies, structures, and interests and thus induce transformative adaptation and change.

The Office of the United Nations High Commissioner for Human Rights (UNHCHR, 2017, 2019, 2020, 2021, 2022), in consultation with Member States, carried out reports on five target topics: the full and effective enjoyment of the rights of the child on climate action, gender-responsive climate action, the promotion and protection of the rights of persons with disabilities in the context of climate change, the promotion and protection of the rights of older persons in the context of climate change, and the impacts of climate change on the human rights of people in vulnerable situations. These reports praised many of the promising measures that states, civil society organizations, and other actors have already taken to promote gender-responsive, disability-inclusive, children's rights- and human rights-based climate action.

Despite these significant international acknowledgement and efforts, the concept of inclusive CCA, or an inclusive approach to adaptation, has not been fully defined in any research or policy. No comprehensive framework exists for understanding this concept, nor is there a list of indicators to instruct the evaluation of inclusiveness in adaptation practices (Pham & Saner, 2021). In response we have developed a framework of inclusive CCA with four core components and nine specific priorities that are theoretically relevant to understanding and evaluating inclusiveness in CCA (see Pham & Saner, in press). In the present paper, we apply this framework comprising four core components and nine priorities to conduct a policy analysis on Canadian national adaptation policies.

The purpose of this paper is to understand and evaluate the extent of inclusiveness in the Canadian national system of adaptation policy. First, we provide an overview of the adaptation policy system in Canada. We then describe the methods used and present the evaluation results of inclusiveness in reviewed policies. Finally, we discuss our findings, provide key recommendations to advance inclusiveness in adaptation policies in Canada, and initially explore the feasibility and applicability of inclusive CCA framework in policy analysis.

3.2 Canada and the "whole-of-society" approach to climate change adaptation action

Located in North America, Canada is the world's second-largest country by total area and belongs to the groups of the largest global economies with highest nominal per capita incomes (IMF 2023). Canada is characterized by a complex physical geography, democratic politics and governance, and a multicultural and diverse society (EIU, 2023, the Constitution Act, 1982). The 2019 Canada's Changing Climate Report (Bush & Lemmen, 2019) showed that Canada's climate warming is irreversible and, on average, about double the global warming rate. The 2021 National Issues Report provided a plenty of evidence that

climate change is already affecting the lives of people living in Canada and that those impacts will persist and, more likely, intensify over time (Warren & Lulham, 2021). Climate change is a significant risk to economic prosperity in Canada in both the short and long terms, for example, Canada is projected to experience $25 billion in losses—equal to 50 percent of projected GDP growth—by 2025, and $391 billion annually by the end of this century based on the most pessimistic stable-climate scenario (NRTEE, 2011, Canadian Climate Institute, 2022).

The federal government of Canada has recognized and made a long-standing commitment to a "whole-of-society" approach for effective climate action (GoC, 2022a). Canada's First National Report on climate change (GoC, 1994) emphasized that every Canadian contributes to the climate change problem, so every Canadian and all sectors of Canadian society must be involved in designing and implementing solutions. These principles are still strongly reflected in Canada's recently released National Adaptation Strategy, which was based on a two-year engagement with all levels of governments, Indigenous People representatives, leading experts, professionals, and stakeholders, and the general public throughout the country (GoC, 2022a). The government has also committed to advancing social equity and using inclusive processes as a guiding principle for developing this strategy (GoC, 2022b).

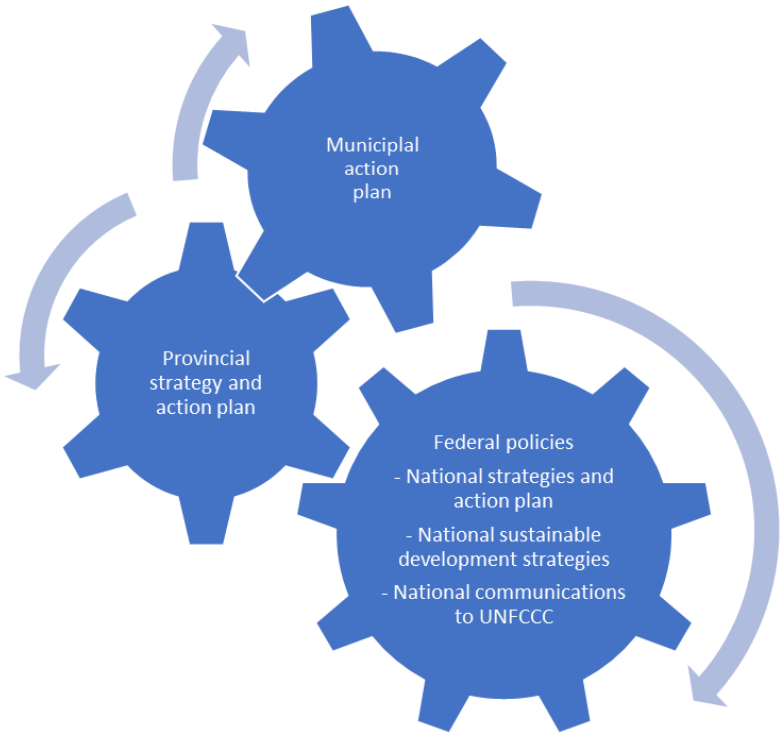


Figure 9: The system of national CCA policies in Canada

In Canada, federal, provincial/territorial, and municipal governments share political authority and jurisdiction over several policy areas relevant to climate change, and adaptation in particular (ECCC, 2019, GoC, 1994, 2020, 2022a, b). At *the federal level*, CCA was first fully and officially considered in the 2005 National CCA Framework approved by Intergovernmental climate change Impacts and Adaptation Working Group (GoC, 2006). Canada recently released its first National Adaptation Strategy - Canada's National Adaptation Strategy: Building Resilient Communities and a Strong Economy (GoC, 2022a), followed by the launching of the Federal Government's Adaptation Action Plan (GoC, 2022b). Climate

change action and adaptation are also a priority within the Federal Sustainable Development Act and Strategy, especially in the two latest strategies for the periods 2016–2019 and 2019–2022. Besides, the Federal Government of Canada has been in charge of submitting national reports and communications on climate change to meet commitments under the United Nations Framework Convention on Climate Change. At *the provincial level*, provinces and territories recognize the urgency of climate change, and have been working to assess vulnerabilities, develop measures and action plan to reduce negative climate impacts (GoC, 2022a, b). A report from the Office of the Auditor General of Canada (2018) found that 8 out of 12 provinces and territories developed high-level CCA strategies. At *the municipal level,* most CCA actions are embedded in existing plans and strategies while there are also several plans, policies, regulations, or programs developed specifically for climate-change adaptation. In some communities. *First Nations, Inuit, and the Métis Nation* organizations, regions, and communities are advancing efforts to monitor, assess, and understand climate change impacts and to identify strategies and action plans to address the unique needs of their communities and natural environments.

3.3 Materials and methods

3.3.1 Data collection

I conducted a search for relevant policy documents in the government websites in Canada, resulting in the collection and review of 84 policy documents in total (See Appendix 1). Figure 10 represents the statistical categories of the sample. In terms of government levels, 26% of the policy documents in the sample are from the federal government level, 33% are from the provincial level, and 41% are from municipal level. In terms of time periods, 44% of the policies belong to the pre-2016 period, 24% of are from the period between 2016 and 2020, and the remaining 32% refer to the post-2020 period. The periods were chosen as statistics because the Canadian government issued *the Pan- Canadian Framework on Clean Growth and Climate Change* in 2016 and *Canada's strengthened climate plan to create jobs and support people, communities, and the planet* in 2020.

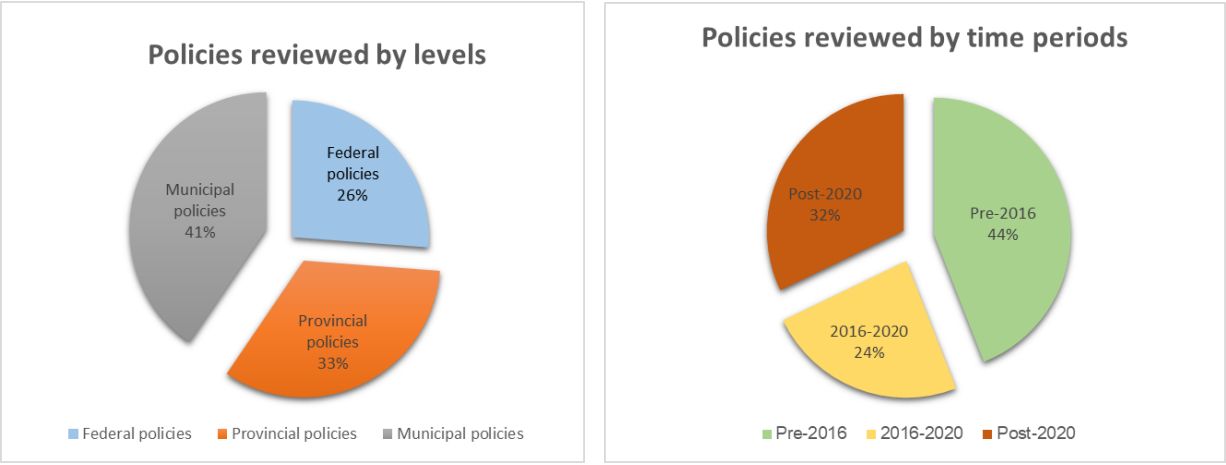


Figure 10: Statistics of sampled policy documents by government levels and time periods

3.3.2 Data analysis

In Chapter 2, a framework of inclusive CCA with 4 core components and 9 priorities was developed (Table 6). This framework has provided a comprehensive viewpoint on CCA inclusiveness that entails stakeholders, processes, and outcomes based on a foundation of moral standing. This framework also

develops a clear and simple set of priorities that are potentially applied in research, policymaking, and practice. In this paper, I applied this framework of inclusive CCA as a conceptual framework to investigate the level of inclusiveness in Canadian policy system on CCA.

Table 6: Inclusive CCA framework with 4 core components and 9 priorities (Pham & Saner, 2024)

Components	Priorities
Inclusive Moral Foundations	1. Moral standing (for minority groups, future people, and non-human actors, taking their interests into account) 2. Knowledge (expert versus traditional and local knowledge)
Inclusive Stakeholders	3. Considerations of climate justice, vulnerable groups, differing capabilities, and resilience 4. Good Equity, Diversity, and Inclusion (EDI) practice in all related organizations
Inclusive Processes	5. Science, education and training for all 6. Transparent, accessible, and collaborative standards, activities, and communications
Inclusive Outcomes	7. Using inclusive value to define and develop evaluation indicators 8. Open access to adaptation data and results 9. Diversity and representation in evaluation/audit in terms of approaches, procedure, and personnel

I limited myself to content analysis of policy documents and analyzed the degree of inclusiveness priorities that were integrated in the policies. Documents that do not refer to a priority of inclusiveness were designated as level 1. Documents that refer to inclusiveness priorities as objectives but without strategies for implementation were designated level 2. Documents were designated as level 3 if they refer to inclusiveness priorities and have a clear implementation strategy of activities and/or both human and financial resources and/or evaluation. In short, the extent to which climate change policies considered inclusive adaptation can be assessed at three levels, as illustrated in Table 7.

Table 7: Levels of inclusiveness for evaluating sampled policy documents

Level	Coding Standard Used
Level 1	No reference to inclusiveness in the document
Level 2	Reference to inclusiveness in the document as objectives without strategies for implementation
Level 3	Referred to inclusiveness in the document with a clear implementation strategy of activities and/ or both human and financial resources and/or evaluation.

I processed the policy analysis through different steps. In step 1, I created an Excel spreadsheet for each policy document to gather the related information to the nine inclusiveness priorities as listed in Table 6. Next, I skimmed each policy to find the information and filled out the Excel spreadsheet with relevant

quotations. I then synthesized them in one Excel spreadsheet. In the next step, I compared documents and quotations and rated them from level 1 to level 3, as described in Table 7. All the findings will be presented in the next section along with the discussion and implications for the CCA policymaking processes in Canada.

3.4 Findings

3.4.1 Inclusiveness priorities in policy documents: A comparison of government levels across different time periods

Nine priorities of inclusiveness are reflected in the sampled policies issued by various levels of governments in Canada (Figure 11) and across different periods of time (Figure 12).

The statistics show that federal government policies are more inclusive in 5 out of 9 priorities of inclusiveness, including moral standing for minority groups, future people, and non-human actors; respect for expert versus traditional and local knowledge; good EDI practice in all related organizations; using inclusive value to define and develop evaluation indicators; and diversity and representation in evaluation and audit in terms of approaches, procedure, and personnel. For example, around 76% of federal government policies specified concerns of or provide action plans to consider moral standing for minority groups, future generations, and more-than-human actors, whereas only 57% of provincial policies and 26% of municipal policies fulfilled that criterion. Similarly, 82%, 75%, and 59% of policies at federal, provincial, and municipal level, respectively, acknowledged the importance of or provided explicit implementation plans to utilise traditional and local knowledge together with scientific knowledge in practice.

However, federal government policies are less inclusive than policies issued by provincial and municipal governments regarding four other inclusiveness priorities: identifying vulnerability, empowering and improving adaptive capacity and livelihood for vulnerable groups; science, education, and training for all; transparent, accessible, and collaborative standards, activities, and communications of policies, programs, and projects; and open access to adaptation data and results. For instance, only 67% of policies at the federal level expressed concerns for science, education, and training for all or presented a clear roadmap for implementation, whereas this concern was found in 100% of provincial policies and 96% of municipal policies. I also found evidence or mention of planning for open access to adaptation data and reports in 97% and 79% of policies issued by municipal and provincial government, respectively, but only in 52% of federal government policies.

The results in Figure 12 shows that there has been increasing positive response to inclusiveness priorities in CCA policies in Canada in the last decade. The level of inclusiveness has improved significantly in 6 out of 9 priorities, including moral standing (for minority groups, future people, and non-human actors), knowledge (expert and traditional and local knowledges), vulnerable groups (identify vulnerability, empower, improve adaptive capacity and livelihood), diversified values to define and develop evaluation indicators, open access to adaptation data and reports, diversity and representation in evaluation/ audit in terms of approaches, procedure, and personnel. The extent of inclusiveness has fluctuated from time to time in three other priorities, good EDI practice in all related organizations; science, education and training for all; and transparent, accessible, and collaborative standards, activities, and communications of policies, programs, and projects.

Figure 11: Inclusiveness in sampled policies by government levels

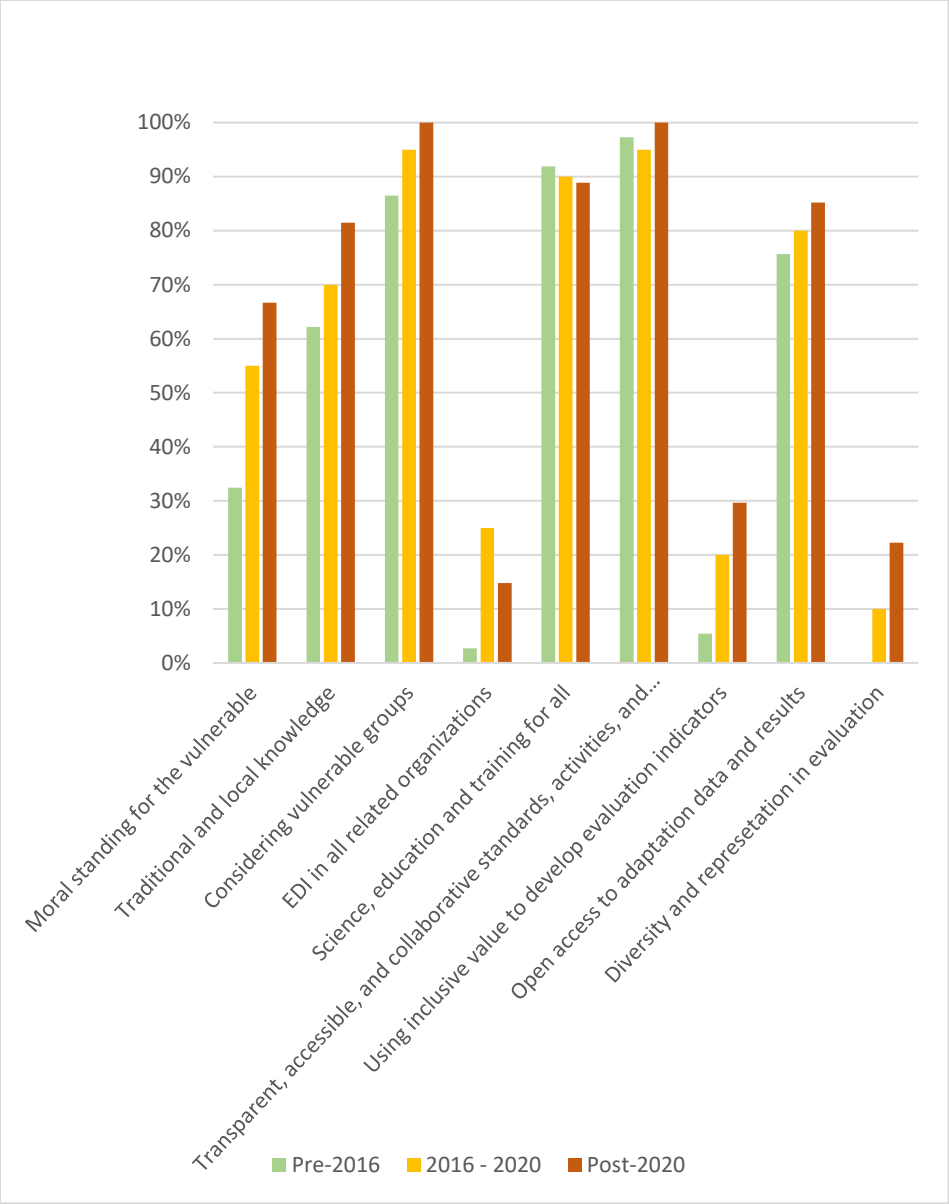


Figure 12: Inclusiveness in sampled policies by time periods

3.4.2 Extent of inclusiveness priorities in policy documents

The reviewed policies vary widely in terms of the extent to which they reflect different priorities of inclusiveness (Figure 13). Almost all policies recognized the importance of transparent, accessible, and collaborative standards, activities, and communications, and 95% of the policies reviewed presented a clear and detailed plan to promote collaboration, transparency, and accessibility in practice. In addition, over 90% of reviewed policies specified concerns with regard to considering vulnerable groups and making science, education, and training available to all, and they developed actions for conducting these two objectives during the implementation processes. Most of the reviewed policies mentioned open access to adaptation data and reports (80%) and traditional and local knowledge (70%), and around 45% of them were supplemented with the detailed actions needed. On the contrary, evidence of diversity and representation in monitoring and evaluation and good EDI practices in related organizations could

only be found in 10% and 12% of policy sample respectively, and only 4% of them included these priorities in strategies or plans for implementation. Moreover, a minority of the reviewed policies focused on inclusive value to develop evaluation indicators for success (17%), of which only 10% provided a plan to carry it out in practice. Although nearly half of the policies reviewed recognized moral standing for vulnerable groups, future people, and non-human actors, only 15% of them provided details on how to accomplish that objective.

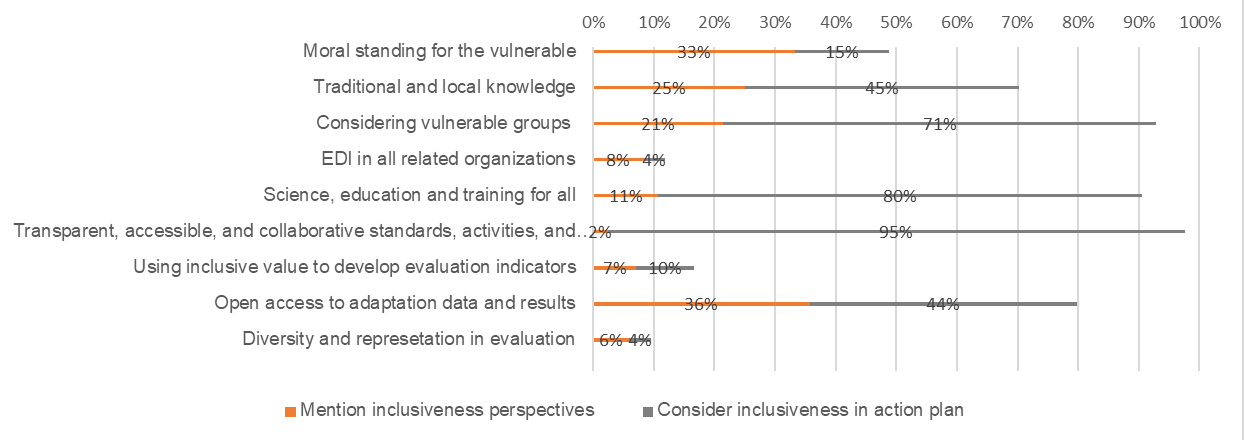


Figure 13: The extent of inclusiveness in sampled policies

3.4.3 Action plan for inclusive climate change adaptation

This section presents my findings on how governments in Canada plan actions to adapt to climate change in an inclusive way, categorized into four core components: moral foundations, stakeholders, processes, and outcomes. Table 8 presents examples of actions planned for more inclusive CCA in the policies reviewed.

Inclusive Moral Foundations: Most efforts to implement action to accelerate inclusive moral standing referred to respecting and upholding Indigenous rights. These commitments are intricately linked to the United Nations Declaration on the Rights of Indigenous Peoples. The intrinsic value of the natural environment has been mentioned in only one policy document, which contains no actions for implementation (GoC, 2022b). I found no evidence of any acknowledgement of the moral standing of future generations in the policies reviewed. Around 70% of the policies recognized the need to equally consider Indigenous knowledge (IK) and Local knowledge (LK) alongside Western science to shape the understanding of climate change impacts and solutions that lead to more resilient and adaptive responses. However, only 45% of the policies presented action for implementation such as understanding, strengthening, protecting, and appropriately and respectfully incorporating Indigenous and local knowledge systems in CCA planning and action.

Inclusive Stakeholders: Only a few policy documents advocated for good EDI practice in CCA. While it was well recognized throughout the reviewed policies that inclusive approaches, such as an equity-informed approach or a gender-based analysis plus (GBA+) tool, needed to be used to identify and address climate change vulnerabilities, no mention was made of the priorities of equity or inclusion, nor were there any actions planned for their attainment. In contrast, more than 70% of the policies reviewed took vulnerable groups into consideration by implementing vulnerability assessments, identifying vulnerable groups, and taking necessary actions to support their adaptation.

Inclusive Processes: Nearly 80% of the policies reviewed presented actions to promote at least one aspect of inclusive science, education, or training. The majority of planned actions focused on public education and outreach to build awareness and understanding among Canadians of climate change science, data, knowledges, and insights, to develop their support for policy changes and actions, and to encourage and motivate Canadians to take personal action to adapt to climate change. Training for professionals in various fields was also mentioned. A few actions were planned to support science, research, or knowledge production activities for all. However, only some policy documents focused on funding and procedures to advance inclusive science, education, and training. The information on funding and procedures was general and we were unable to assess whether the plans were designed in ways that promote inclusiveness. For example, the government of British Columbia planned to invest in collaboration with Indigenous Peoples to increase their climate change capacity and expertise via projects such as climate change governance and decision making, forest landscape planning, a ClimatEx project, and the establishment of an Ecosystem Forecast Centre (GoBC, 2022). In the 2022 BC First Nations Climate Strategy and Action Plan (FNLC, 2022), a BC First Nations Climate Fund was recommended to establish a long-term and stable climate funding for First Nations communities. However, no information existed on how the funding would be allocated, nor was the procedure for accessing the funding described.

More than 90% of the policy sample illustrated actions that target collaboration in standards, activities, and communications. Acknowledging the value of collaboration among governments, provinces, communities, businesses, and other stakeholders in addressing CCA, the various levels of governments in Canada have committed to meaningful collaboration, coordination, and partnership (GoC, 2017, 2021b, d, 2022, 2023b). Mechanisms or frameworks for collaborative efforts have been established. Notably, a collaborative approach has been accelerated throughout adaptation processes, from policy formulation and implementation, to monitoring and evaluation, in almost all policy documents. Accessibility and transparency were more likely to be the result of meaningful collaboration in planning, implementation, communication, and report.

Inclusive Outcomes: A few policy documents recognized the importance of using inclusiveness as a value to define success and develop evaluation indicators. Actions were planned to target that outcome by being open to new partnerships, data collection methods, and ways of knowing and respecting Indigenous values. Over half of the policies reviewed took action to ensure that adaptation data would be available to the public and provided both public and private sectors with foundational support to incorporate these data into their decision-making to adapt and increase resilience to climate change. Wide-ranging climate adaptation data were mentioned including the assessment of climate change impact and vulnerability as well as the methods, models, tools, and information regarding the plans and implementation of adaptation activities. Activities were planned not only for synthesizing and producing CCA data at national, sectoral, and local levels but also for focusing on data delivery and accessibility and establishing climate services organizations to tailor the information for users' purposes and provide training and support for users. I found very little evidence on the diversity and representation in evaluation and audit in terms of approaches, procedure, and personnel, with around 10% of the policies in our sample mentioning actions and only 4% of them presenting actions for achieving that outcome in adaptation practice.

Table 8: Actions planned for more inclusive CCA in the sampled policies

Focus area	Examples of action planned	References
Inclusive Moral Foundations		
1. Moral standing (for minority groups, future people, and non-human actors)		
- Respecting and upholding Indigenous rights	- Supporting Indigenous People to develop, maintain, and implement their own institutions, governing bodies, and political, economic, and social structures to address climate change. - Reviewing all climate-related legislation, policies, programs, and their implementation mechanisms and removing any limitations on assertions of Indigenous People's jurisdiction to manage and care for their territories and resources. - Co-developing climate legislation, policies, programs, and co-managing implementation.	FNLC 2022), ITK (2019)
2. Knowledge (expert and traditional and local knowledge)		
- Understanding and protecting Indigenous and Local knowledge (ILK) systems, and incorporating them in CCA	- Understanding ILK: Training for researchers on ILK; Conducting research projects to examine ILK; Producing and publishing reports on ILK. - Strengthening and protecting ILK: Supporting communities to document their ILK; Facilitating intergenerational knowledge sharing within Indigenous communities; Reporting research results derived from ILK back the communities involved; Integrating ILK into school curricula. - Incorporating ILK into adaptation processes: Using ILK to establish baselines for environmental and climate change trends and identify priorities and responses; Creating opportunities for community participation in generating CCA information; Recruiting Indigenous youth for on-the-land workshops, science camps, and mentorships; Incorporating ILK-based research results in academic, government policy, and other institutional initiatives.	GoC (2017, 2023a); GoBC (2021); GoNS (2021); GoNWT (2018a, b); GoON (2010); City of Dawson (2011); City of Halifax (2020); City of Toronto (2020); Hamlet of Arviat (2010); Town of Inuvik (2010); IRC (2021)
Inclusive Stakeholders		
3. Considerations of climate justice, vulnerable groups, differing capabilities, and resilience		
- Identifying vulnerable groups and	- Identifying vulnerable groups in Canada: Indigenous communities; children, seniors, and people with illnesses, disabilities, low-income, and immigrant; agricultural, fisheries and aquacultural sectors; natural systems in glaciers, boreal	GoC (2001, 2010, 2016a, 2021b,c,d, 2022, 2023a,b); GoBC

Focus area	Examples of action planned	References
planning actions to support them	forest, prairie wetlands, remnant native grasslands, coastal zones, and the Great Lakes, marine and freshwater fisheries, polar, alpine, and cold-water ecosystems. - Supporting Indigenous communities: Developing working groups with Indigenous representatives to ensure that designed and implemented CCA measures respond to their distinct needs and realities; Funding to build awareness and capacity, facilitate access to tools and best practices, grow their strengths, skills, knowledge, competencies, and abilities, to participate and gradually take a lead in CCA. - Supporting other vulnerable groups: The federal investment's up to $284 million to reduce wildfire risks and $164 million to provide public access to up-to-date flood hazard maps; The federal funding encourages proponents to actively address inequality and fully include vulnerable groups; Mapping impacted areas and population, identifying their needs, informing them about climate hazards and responses; Assessing emergency shelters to prepare for disasters; Establishing registry of community humanitarian groups. - Supporting vulnerable economic sectors and ecosystem: Providing grants and support for farmers to pursue innovative agricultural practices, diversify crop selection and choose adaptable varieties, or for the fisheries and aquaculture sector to complete climate change vulnerability assessments and develop sector-specific adaptation plans, or businesses to hire their own climate change coordinators to help develop and implement CCA strategies; Carrying out programs to identify climate-vulnerable species and habitats; Managing landscape connectivity to allow for species migration; Providing training and knowledge-exchange activities to build capacity on nature-based adaption to climate change.	(2022); GoNB (2014, 2016, 2022); GoNL (2019); GoNS (2022); GoNWT (2018a); GoON (2010, 2015a,b); GoQU (2020); GoSA (2017, 2018); GoYU (2020); City of Cape Breton (2014); City of Charlottetown (2019a,b); City of Halifax (2013); City of Montreal (2020); City of Ottawa (2020); City of Saint John (2020); City of Summerside (2019b); City of Surrey (2013); City of Toronto (2020); City of Vancouver (2018); The Town of Conception Bay South (2020)
4. Good Equity, Diversity, and Inclusion (EDI) practice in all related organizations		
- Diversity in organizations	Forming commissions, task forces, committees, or working groups from a wide range of actors including experts, staffs, community stakeholders, industry, community associations, local government, emergency management, representatives from school and care facility, insurance provider.	GoMA (2017); City of Charlottetown (2019); Town of Inuvikn (2010); The Town of Conception Bay South (2020).

Focus area	Examples of action planned	References
Inclusive Processes		
5. Science, Education and Training for all		
- Public education and outreach to build climate change awareness and understanding - Training for professionals - Supporting science, research, and knowledge production activities for all	- Public education: Broadcasting daily environmental-education messages; Organizing community-based workshops on CCA and best practices; Developing tools to help incorporate the issues and concepts of climate change into the primary, secondary, college and university level education programs. - Professional training: Launching building regional adaptation capacity and expertise programs to address the key training and capacity gaps, develop an adaptation competency framework, identify the core elements of adaptation expertise, and create training programs for various sectors; Training engineers with the public infrastructure engineering vulnerability committee; CCA training for employees. - Knowledge production for all: Funding for Indigenous communities to produce knowledge on climate change unique to their communities; Promoting climate change research program based in or driven by Indigenous communities to foster social and technical innovations; Expanding in-place networks of stakeholders to create good database and science for CCA.	GoC (1994, 2010, 2023a,b); GoBC (2021, 2022); GoNB (2016, 2022); GoNS (2009, 2021); GoNWT (2018 a,b); GoON (2015a); GoPEI (2018, 2022); GoQU (2012); City of Charlottetown (2019a); City of Vancouver (2012, 2018), City of Winnipeg (2018); FNLC (2022); ITK (2019)
6. Transparent, accessible, and collaborative standards, activities, and communications		
- Establishing mechanisms for collaboration and accelerating it throughout CCA processes	- Collaboration mechanisms: Governments' collaboration with Indigenous Peoples is based on recognition of their rights, respecting their values, and advancing their self-determination while the Indigenous Peoples' collaboration frameworks guided transformative partnership and action, simultaneously addressing climate change and inequities they are facing; Regional adaptation collaborative programs fostered common adaptation priorities, draw on existing knowledge and expertise to advance adaptation across all regions of Canada; Municipal mechanism of collaboration connect local administrations, municipal services, and local actors for co-construction, resource pooling, and citizen participation. - Accelerating a collaborative approach toward policy formulation, implementation, to monitoring and evaluation:	GoC (2010, 2014, 2016a, 2017, 2019, 2020, 2021a,b,d, 2022, 2023a,b); GoAL (2002); GoBC (2022); GoNB (2022); GoNL (2019); GoNWT (2018a,b); GoON (2015a); GoPEI (2008); City of Calgary (2018); City of Cape Breton (2014); City of Montreal

Focus area	Examples of action planned	References
	Interactive websites, in-person engagement sessions, and independent town halls were organized to collect input from all citizens to inform policy development; Establishing multi-stakeholder CCA working groups or advisory committees to collect input to inform the implementation, to coordinate implementation throughout the administration, or to work with Indigenous People to implement joint climate priorities; Identifying partners such as citizen groups, development communities, community organizations and other orders of government who are interested and capable of contributing to ongoing assessing and monitoring progresses. - Designing programs and actions in a way that maximizes the coordination of CCA actions actually make information more available, accessible, and understandable for decision-makers, and help access funding sources, reach out and engage citizens to ensure their accessibility to potential measures to adapt. Collaboration is necessary for the development of progress and annual public reports to ensure adaptation progress is transparent and accountable.	(2015, 2020); City of Toronto (2020); City of Vancouver (2018); City of Whitehorse (2011); City of Winnipeg (2018); City of Yellow Knife (2020); City of St John (2023); ITK (2019)
Inclusive Outcomes		
7. Using inclusive value to define and develop evaluation indicators		
- Being open for new partnerships, data collection methods, and ways of knowing, respecting Indigenous values while encouraging reporting from diverse levels of government	- Developing a national framework for monitoring and evaluation through ongoing coordination and being open to be adjusted to new partnerships, data collection methods, and ways of knowing. - Including Indigenous values to adaptation monitoring and evaluation: Indigenous organizations develop culturally relevant approaches and specific vulnerability, health, and wellness indicators to inform how different CCA measures works on Indigenous populations. - Opening opportunities for provinces, territories, and municipalities to develop adaptation indicators and metrics to measure climate resilience within their jurisdictions.	GoC (2017, 2022, 2023a, b); GoSA (2018); FNLC (2022); IRC (2021); ITK (2019)
8. Open access to adaptation data and results		
- Ensure that adaptation data is available to	- Synthesizing and producing CCA data: National data such as historical climate data sets, past climate change and variability assessments, climate change projections and downscaled	GoC (2014, 2017, 2023a,b); GoNB (2016); GoNL

Focus area	Examples of action planned	References
the public and provide support to incorporate it into decision-making regarding CCA	scenarios, and assessments of future climate change; Sector-specific information such as permafrost and northern landscapes, coastlines and aquatic ecosystems, agriculture and food production; Local data such as local water resources and weather patterns, flood and wildfire map, wildfire risk mapping, information on government CCA programs, initiatives and best practices, CCA tools and resources for local planning. - Data delivery and accessibility: Website publishing; Conducting nation- or province-wide information or social marketing campaigns; Developing a central repository for climate change information or a climate change information hub; Integrating CCA data into school curriculums; Presenting climate change data and information in public libraries and community resource centers. - Establishing climate services organizations to tailor the information for users' purposes and provide training and support for users: The Canadian Centre for Climate Services operates a Support Desk to answer questions and conducts outreach and training activities to support access and use climate data, information, and tools climate-informed decision making. The Ontario Centre for Climate Impacts and Adaptation Resources develops a web-based Community of Practice to facilitate information exchange among experts to incorporate CCA into provincial and municipal plans and policies.	(2019); GoNS (2009); GoNU 2011); GoNV (2009, 2011); GoON (2010, 2015a,b); GoPEI (2008, 2018, 2022); GoQU (2020); GoYU (2020); City of Dawson (2011); City of Edmonton (2018); City of Halifax (2020); City of Moncton 2013; City of Saint John (2020); City of St John (2023); City of Summerside (2019a,b); The Town of Conception Bay South (2020)
9. Diversity and representation in evaluation/audit in terms of approaches, procedure, and personnel		
- Representation in personnel and more diversified standards	- Create expert advisory commissions including experts and stakeholder's representative of the sustainable development community, namely: business, environment, sectors, Indigenous and other communities, and academe, with an independent mandate to review the progress on the CCA plans. - The commitment of the federal government of Canada to integrate the Convention on Biological Diversity into CCA, the evaluation of CCA needs to assess the ability of and prioritize measures for ecological systems to adapt to climate change.	GoC (2017, 2023a); GoMA (2017)

3.5 Discussion

This section highlights four distinct arguments.

3.5.1 The gap between commitment to inclusion and the implementation of inclusive CCA

This gap links to the current policy context in which the federal government of Canada acknowledges the importance and urgency of fostering greater diversity and inclusion to ensure that public service is truly representative of the population it serves (GoC, 2023). A great deal of work has been planned, including generating and updating data to obtain the most accurate picture possible of representation gaps or publishing interactive tools visualizing human resources demographic and employment equity data across provinces, departments, occupational groups, position, age, and salary range. More efforts are also needed to ensure that public service applies appropriate benchmarks for diversity to guide the development of strategies and strengthen diverse representation throughout the public service and address systemic barriers by reviewing potential amendments to legislation to increase the representation of equity-seeking groups in the public service. One example is the recent Amendments to the Public Service Employment Act in 2021. The Act calls for the establishment or review of qualification standards, the design and application of assessment methods, and the inclusion of evaluation of bias and barriers on the part of investigation and audit authorities to ensure that reasonable efforts are being made to address them.

This research reveals three main gaps in the Canadian system of CCA policies. These gaps include EDI practices in related organizations, the use of inclusiveness as a value to define and develop evaluation indicators, and diversity and representation in evaluation/audit in terms of approaches, procedure, and personnel. These findings, which are contrary to the explicit commitment by the Government of Canada for diversity and inclusion in the public service, raise a number of implications.

On the one hand, this commitment, along with the provision of funding, tools, and resources, is likely to positively influence the diversity and inclusion of all governmental organizations that deliver public service, including those that deal with CCA. A closer and deeper investigation into the human resource management of government agencies who develop CCA policies and implement and monitor CCA actions is necessary to fully understand the inclusiveness in CCA policies in Canada. An analysis of official policy documents alone cannot accurately reflect the efforts to promote inclusiveness in CCA and should be supplemented by a wider assessment of other supporting documents and data including human resources data, funding information, and documents that instruct implementation, management, evaluation, progress, and final reports.

On the other hand, all CCA policies that are in effect need to be reviewed and amended to ensure that all planned actions, their implementation, and their evaluation are well aligned with the government's commitment to diversity and inclusion in all public services. The principles of diversity and inclusion in human resource management should be explicitly mentioned in the any CCA strategies, policies, plans, programs, or projects with detailed actions of how they will be implemented. One recommendation for doing so is by utilizing all the tools, resources, and funding provided by the government. Examples include diversity and inclusion statistics of Canada's public service, Gender-based Analysis Plus training, or the inventory of smart practices in recruitment, retention, talent management, training and development, and career mobility for Indigenous employees.

3.5.2 The opportunities for learning within levels of governments start with consistency in the use and understanding of concepts

Compared with policies issued by provincial, municipal, and Indigenous governments, federal government policies are more inclusive in terms of five of the nine categories of inclusiveness but are less inclusive from four other inclusiveness priorities. To facilitate the learning process, the prerequisite condition is consistency in the use and understanding of concepts.

The *Guide on Equity, Diversity and Inclusion Terminology* issued by the government of Canada provides a definition of inclusion as "the practice of using proactive measures to create an environment where people feel welcomed, respected and valued, and to foster a sense of belonging and engagement" (GoC 2021a). This definition provides a common foundation to which all organizations can refer in developing strategies to strengthen inclusion, and particularly inclusiveness in CCA.

However, more efforts are needed to increase consensus. For example, the reviewed policies lacked consistency with regard to understanding Indigenous knowledges. Different terms were used to refer to Indigenous knowledges, such as traditional knowledge, local knowledge, or Indigenous cultural and ecological knowledge. We also found differing perceptions of Indigenous knowledges, ranging from the understandings, skills, and philosophies developed by Indigenous societies, based on long histories of interaction with their natural surroundings, to specific sets of knowledge such as fire management or traditional hunting, fishing, and food gathering activities. We even found contrasting arguments in which Indigenous knowledge systems were deemed as impossible integrate into Western science (GoBC 2021), while the integration of Inuvialuit knowledge with Western science was promoted to support all future Arctic climate change policies and research (IRC, 2021).

These contradictions indicate an urgent need, ideally from the federal government level, to synthesize and unify important terms and concepts, develop consensus on perceptions and knowledge that facilitate the policymaking as well as the learning processes for collective adaptation purposes, solutions, and priorities.

3.5.3 A new way of thinking and doing to promote inclusiveness in climate change adaptation

The idea of inclusiveness is workable in the context of CCA, and many detailed actions, as listed in the findings, can be taken to promote it. These actions can be targeted to provide either inclusive foundations for CCA, more inclusive considerations of stakeholders in CCA, or more inclusive CCA processes and outcomes. It is not necessary to invent new kinds of adaptation actions that are inclusive. What is needed, instead, is a new way of thinking and doing. Each already-familiar adaptation action can be planned, conducted, and evaluated in a more inclusive way. In other words, an inclusive way of thinking can provide a lens through which adapting to climate change could happen inclusively.

This lens is complicated, based on ethics and values, but also very specific in the way it is linked to each step in the adaptation and policy-making cycles. An inclusive lens can cover and deal with the complexities and conflicts of adaptation processes. It cares about the consequences of a particular action in its context by considering inclusiveness as goals and assesses actions based on the extent to which they further these goals of inclusiveness. An adaptation activity is regarded as inclusive if it produces resilience to climate impacts while accelerating the equality and justice of vulnerable groups and people living across locations and/or across generations, and/or non-human actors. The morality of

a more inclusive CCA would be simplified to the rights and needs of vulnerable people, distant people, future generations, and non-human species, all of which have little voice in the contemporary adaptation processes.

3.5.4 The inclusion of the natural environment into adaptation for its own sake

Throughout the CCA policies in Canada, the intrinsic value of the natural environment was mentioned in only one policy document, which included no actions for implementation. In other policies, the natural environment was considered as natural capital or natural assets, focusing on the services that natural environments could provide for human adaptation. Such services ranged from basic needs, such as food and clean water, natural buffers to extreme weather events, and recreational, health, and economic benefits, to cultural and social identities.

In contrast with such viewpoints, environmental ethics advocates that human and non-human actors have their own values and rights and that any attempt to adapt to climate change should take all actors of these two systems into full consideration (Smith, 2017; Watene & Yap, 2015). Placing high priority on a particular group of people, or even all human beings over the ecological system, results in an unjust situation in which adaptation benefits some people and causes harm to other living beings without sufficient compensation for them (Charpleix, 2018; Watson & Huntington, 2014). CCA planning should carefully consider the welfare of the impacted ecosystems by minimizing human ecological interference while assisting ecosystems to adapt to climate adversities (Malhi et al., 2020).

Considering all elements of ecological systems seems to be an idealistic task. However, several practical questions could be raised: Have the values and rights of related human groups as well as non-human actors been recognized and seriously placed in the decision making on adaptation? Have the mutual benefits as well as conflicts of interest in human-human and human-nature relationship been fully identified and do they provide rationales for the selection of adaptation measures? Have adaptation measures been selected in careful considerations of systemic and ecological goods by minimizing human interference with the impacted ecosystems?

References

Bush, E. and Lemmen, D.S., (eds) (2019): *Canada's Changing Climate Report*; Government of Canada, Ottawa, ON. 444 p. https://changingclimate.ca/site/assets/uploads/sites/2/2020/06/CCCR_FULLREPORT-EN-FINAL.pdf

Canadian Charter of Rights and Freedoms, *Part 1 of the Constitution Act, 1982*, being Schedule B to the Canada Act 1982 (UK), c 11. https://laws-lois.justice.gc.ca/PDF/CONST_TRD.pdf

Canadian Climate Institute. (2022) *Damage Control: Reducing the costs of climate impacts in Canada.* https://climateinstitute.ca/wp-content/uploads/2022/09/Damage-Control_-EN_0927.pdf

Charpleix, L. (2018). The Whanganui River as Te Awa Tupua: Place-based law in a legally pluralistic society. *The Geographical Journal, 184*(1), 19–30. https://doi.org/10.1111/geoj.12238

Chu, E. K., & Cannon, C. E. (2021). Equity, inclusion, and justice as criteria for decision-making on climate adaptation in cities. *Current Opinion in Environmental Sustainability, 51*, 85–94. https://doi.org/10.1016/j.cosust.2021.02.009

EIU. 2023. *Democracy Index 2022: Frontline democracy and the battle for Ukraine* (PDF). Economist Intelligence Unit. 2023. p. 3. https://pages.eiu.com/rs/753-RIQ-438/images/DI-final-version-report.pdf

ECCC (Environment and Climate Change Canada). (2019), *Corporate Book*. https://www.canada.ca/en/environment-climate-change/corporate/transparency/briefing-materials/corporate-book.html

Government of British Columbia (2021). Climate Preparedness and Adaptation Strategy Draft Strategy and Phase 1 Actions for 2021-2022. https://www2.gov.bc.ca/assets/gov/environment/climate-change/adaptation/cpas_2021.pdf

Government of Canada (1994). *Canada's Frist National Report on Climate Change - Actions to Meet Commitments Under the United Nations Framework Convention on Climate Change*. https://unfccc.int/cop3/fccc/natcom/natc/cannce1.pdf

Government of Canada (2006). *Canada's Fourth National Report on Climate Change - Actions to Meet Commitments Under the United Nations Framework Convention on Climate Change*. https://unfccc.int/resource/docs/natc/cannc4.pdf

Government of Canada (2011). *Federal Adaptation Policy Framework*, Environment Canada, Gatineau, QC. https://www.canada.ca/content/dam/eccc/migration/cc/content/2/b/2/2b2a953e-756b-4e8c-a2ba-3fbdc3324dba/4214_federal-20adaptation-20policy-20framework_en.pdf

Government of Canada (2019). *Achieving a sustainable future: A Federal Sustainable Development Strategy for Canada 2019–2022*. https://publications.gc.ca/collections/collection_2020/eccc/En4-136-2019-1-eng.pdf

Government of Canada (2020). *A Healthy Environment and a Healthy Economy: Canada's strengthened climate plan to create jobs and support people, communities, and the planet.*

https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/healthy-environment-healthy-economy.html

Government of Canada (2021a). *Guide on Equity, Diversity and Inclusion Terminology.* https://www.noslangues-ourlanguages.gc.ca/en/publications/equite-diversite-inclusion-equity-diversity-inclusion-eng#lettre-letter-I

Government of Canada (2021b). *Call to Action on Anti-Racism, Equity, and Inclusion in the Federal Public Service*. https://www.canada.ca/content/dam/pco-bcp/images/pco2/misc/Action-eng.pdf

Government of Canada (2022a). *National Adaptation Strategy - Canada's National Adaptation Strategy: Building Resilient Communities and a Strong Economy.* https://publications.gc.ca/collections/collection_2023/eccc/en4/En4-544-2023-eng.pdf

Government of Canada (2022b). *Government of Canada Adaptation Action Plan.* https://publications.gc.ca/collections/collection_2023/eccc/En4-529-2023-eng.pdf

Government of Canada (2022c). *Canada's 2022-2024 National Action Plan on Open Government*. https://opencanada.blob.core.windows.net/opengovprod/resources/b17b6dab-febb-4bca-8328-2bd19220ee96/en-2022-24-national-action-plan-on-open-government.pdf?sr=b&sp=r&sig=TkfQbN04v2kOh/95YqpqgegI%2BTGlrRJxz5d2v5j1vhQ%3D&sv=2015-07-08&se=2023-04-26T00%3A31%3A32Z

Government of Canada (2023) *Diversity and inclusion in the public service*. https://www.canada.ca/en/government/publicservice/wellness-inclusion-diversity-public-service/diversity-inclusion-public-service2.html

IMF (2023). *World Economic Outlook Database, April 2023*. IMF.org. International Monetary Fund.

Intergovernmental Panel on Climate Change (2022). *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. Cambridge University Press, Cambridge, UK and New York, NY, USA, 3056 pp. http://doi.org/10.1017/9781009325844.

Inuvialuit Regional Corporation (2021). Inuvialuit Settlement Region Climate Change strategy. https://irc.inuvialuit.com/wp-content/uploads/2023/10/ISR_Climate_Change_Strategy.pdf

Malhi, Y., Franklin, J., Seddon, N., Solan, M., Turner, M. G., Field, C. B., & Knowlton, N. (2020). Climate change and ecosystems: threats, opportunities and solutions. *Philosophical Transactions of the Royal Society of London. Series B. Biological Sciences, 375*(1794), 20190104-. https://doi.org/10.1098/rstb.2019.0104

Martin, M. A., Boakye, E. A., Boyd, E., Broadgate, W., Bustamante, M., Canadell, J. G., Carr, E. R., Chu, E. K., Cleugh, H., Csevár, S., Daoudy, M., de Bremond, A., Dhimal, M., Ebi, K. L., Edwards, C., Fuss, S., Girardin, M. P., Glavovic, B., Hebden, S., … Zhao, Z. J. (2022). Ten new insights in climate science 2022. *Global Sustainability, 5*. https://doi.org/10.1017/sus.2022.17

NRTEE [National Round Table on the Environment and the Economy] (2011). *Paying the price: the economic impacts of climate change for Canada*. Ottawa, Ontario, 162 p. http://nrt-trn.ca/wp-content/uploads/2011/09/paying-the-price.pdf

Office of the General Auditor of Canada (2018). *Perspectives on Climate Change Action in Canada—A Collaborative Report from Auditors General*. https://www.oag-bvg.gc.ca/internet/English/parl_otp_201803_e_42883.html

Pham, H. & Saner, M. (2021). A Systematic Literature Review of Inclusive Climate Change Adaptation. *Sustainability*. https://doi.org/10.3390/su131910617

Pham, H & Saner, M. (2024). Framework and Proposed Indicators for the Comprehensive Evaluation of Inclusiveness: The Case of Climate Change Adaptation. *Facets,* 9(): 1-15. https://doi.org/10.1139/facets-2023-0017

Richardson, G. R. A. (2010). *Adapting to Climate Change: An Introduction for Canadian Municipalities*. Ottawa, Ontario. Natural Resources Canada, 40 pp. https://publications.gc.ca/collections/collection_2011/rncan-nrcan/M174-6-2010-eng.pdf

Singh, C., Iyer, S., New, M. G., Few, R., Kuchimanchi, B., Segnon, A. C., & Morchain, D. (2022). Interrogating "effectiveness" in climate change adaptation: 11 guiding principles for adaptation research and practice. *Climate and Development, 14*(7), 650–664. https://doi.org/10.1080/17565529.2021.1964937

Smith, J. L. (2017). I, River? New materialism, riparian non-human agency and the scale of democratic reform. *Asia Pacific Viewpoint, 58*(1), 99–111. https://doi.org/10.1111/apv.12140

United Nations High Commissioner for Human Right (2017). *Analytical study on the relationship between climate change and the full and effective enjoyment of the rights of the child.* https://documents-dds-ny.un.org/doc/UNDOC/GEN/G17/110/91/PDF/G1711091.pdf?OpenElement

United Nations High Commissioner for Human Right (2019). *Analytical study on gender-responsive climate action for the full and effective enjoyment of the rights of women*. https://documents-dds-ny.un.org/doc/UNDOC/GEN/G19/120/13/PDF/G1912013.pdf?OpenElement

United Nations High Commissioner for Human Right (2020). *Analytical study on the promotion and protection of the rights of persons with disabilities in the context of climate change*. https://documents-dds-ny.un.org/doc/UNDOC/GEN/G20/097/56/PDF/G2009756.pdf?OpenElement

United Nations High Commissioner for Human Right (2021). *Analytical study on the promotion and protection of the rights of older persons in the context of climate change*. https://documents-dds-ny.un.org/doc/UNDOC/GEN/G21/099/23/PDF/G2109923.pdf?OpenElement

United Nations High Commissioner for Human Right (2022). *The impacts of climate change on the human rights of people in vulnerable situations*. https://documents-dds-ny.un.org/doc/UNDOC/GEN/G22/336/00/PDF/G2233600.pdf?OpenElement

Warren, F. and Lulham, N., editors (2021). *Canada in a Changing Climate: National Issues Report*; Government of Canada, Ottawa, ON.

Watene, K., & Yap, M. (2015). Culture and sustainable development: Indigenous contributions. *Journal of Global Ethics, 11*(1), 51–55. https://doi.org/10.1080/17449626.2015.1010099

Watson, A., & Huntington, O. (2014). Transgressions of the man on the moon: Climate change, Indigenous expertise, and the post humanist ethics of place and space. *GeoJournal, 79*(6), 721–736. https://doi.org/10.1007/s10708-014-9547-9

Appendix 1: List of policy documents reviewed

#	Level of government	Name of policy document	In-text Citation
1	Government of Canada	Canada's National Report on Climate Change Actions to Meet Commitments Under the United Nations Framework Convention on Climate Change (Chapter 6, 7, 8)	GoC (1994)
2	Government of Canada	Canada's Second National Report on Climate Change Actions to Meet Commitments Under the United Nations Framework Convention on Climate Change (Chapter 7, 9, 10)	GoC (1997)
3	Government of Canada	Canada's Third National Report on Climate Change Actions to Meet Commitments Under the United Nations Framework Convention on Climate Change (Chapter 6, 8, 9)	GoC (2001)
4	Government of Canada	Canada's Fourth National Report on Climate Change Actions to Meet Commitments Under the United Nations Framework Convention on Climate Change (Chapter 6, 8, 9)	GoC (2006)
5	Government of Canada	Fifth National Communication on Climate Change Actions to Meet Commitments Under the United Nations Framework Convention on Climate Change	GoC (2010)
6	Government of Canada	Canada's Sixth National Report on Climate Change Actions to Meet Commitments Under the United Nations Framework Convention on Climate Change	GoC (2014)
7	Government of Canada	Canada's Seventh National Communication on Climate Change and Third Biennial Report—Actions to meet commitments under the United Nations Framework Convention on Climate Change	GoC (2017)
8	Government of Canada	Canada's Eighth National Communication on Climate Change and Fifth Biennial Report—Actions to meet commitments under the United Nations Framework Convention on Climate Change	GoC (2023a)
9	Government of Canada	Canada's 2021 Nationally Determined Contribution under the Paris Agreement	GoC (2021a)
10	Government of Canada	Canada's Adaptation Communication to the United Nations Framework Convention on Climate Change (UNFCCC)	GoC (2021b)

11	Government of Canada	Federal Sustainable Development Act	GoC (2008)
12	Government of Canada	Federal Adaptation Policy Framework	GoC (2011)
13	Government of Canada	Pan- Canadian Framework on Clean Growth and Climate Change Canada's Plan to Address Climate Change and Grow the Economy	GoC (2016a)
14	Government of Canada	Achieving a sustainable future: A Federal Sustainable Development Strategy for Canada 2016–2019	GoC (2016b)
15	Government of Canada	Achieving a sustainable future: A Federal Sustainable Development Strategy for Canada 2019–2022	GoC (2019)
16	Government of Canada	An Act to amend the Federal Sustainable Development Act	GoC (2019)
17	Government of Canada	A healthy environment and a healthy economy Canada’s strengthened climate plan to create jobs and support people, communities and the planet	GoC (2020)
18	Government of Canada	Achieving a sustainable future (Winter 2021 Update): A Federal Sustainable Development Strategy for Canada 2016–2019	GoC (2021c)
19	Government of Canada	Adapting to the Impacts of Climate Change in Canada: an update on the National Adaptation Strategy	GoC (2021d)
20	Government of Canada	Government of Canada Adaptation Action Plan	GoC (2022)
21	Government of Canada	Canada’s National Adaptation Strategy: Building Resilient Communities and a Strong Economy	GoC (2023b)
22	Inuit Tapiriit Kanatami (ITK)	National Inuit Climate Change Strategy	ITK (2019)
23	Government of Alberta	Alberta plan - Albertans & Climate Change: Taking Action	GoAL (2002)
24	Government of British Columbia	Climate Preparedness and Adaptation Strategy and Phase 1 Actions for 2021-2022	GoBC (2021)
25	Government of British Columbia	Climate Preparedness and Adaptation Strategy Actions for 2022-2025	GoBC (2022)
26	Government of Manitoba	A Made-in-Manitoba Climate and Green Plan Hearing from Manitobans Manitoba Sustainable Development 2017	GoMA (2017)

27	Government of New Brunswick	The New Brunswick Climate Change Action Plan 2007-2012	GoNB (2007)
28	Government of New Brunswick	New Brunswick Climate Change Action Plan 2014 – 2020	GoNB (2014)
29	Government of New Brunswick	Transitioning to a Low-Carbon Economy New Brunswick's Climate Change Action Plan	GoNB (2016)
30	Government of New Brunswick	New Brunswick's Climate Change Action Plan 2022-2027	GoNB (2022)
31	Government of Newfoundland and Labrador	Charting Our Course: Climate Change Action Plan 2011	GoNL (2011)
32	Government of Newfoundland and Labrador	The way forward: On Climate Change in Newfoundland and Labrador	GoNL (2019)
33	Government of Northwest Territories	2030 Northwest Territories Climate change strategic Framework	GoNWT (2018a)
34	Government of Northwest Territories	2030 Northwest Territories Climate change strategic Framework 2019-2023 Action Plan	GoNWT (2018b)
35	Government of Nova Scotia	Toward a Greener Future Nova Scotia's Climate Change Action Plan	GoNS (2009)
36	Government of Nova Scotia	Environmental Goals and Climate Change Reduction Act	GoNS (2021)
37	Government of Nova Scotia	Our Climate, Our Future - Nova Scotia's Climate Change Plan for Clean Growth	GoNS (2022)
38	Government of Nunavut	Upagiaqtavut - Setting the future: Climate Change Impacts and Adaptation in Nunavut	GoNU (2011)
39	Government of Ontario	Ontario's climate change strategy	GoON (2015a)
40	Government of Ontario	Ontario's five-year climate change action plan 2016 – 2020	GoON (2015b)
41	Government of Ontario	Climate Ready: Ontario's Adaptation Strategy and Action Plan 2011 – 2014	GoON (2010)
42	Government of Prince Edward Island	Prince Edward Island and Climate Change A Strategy for Reducing the Impacts of Global Warming	GoPEI (2008)

43	Government of Prince Edward Island	Taking action - A Climate Change Action Plan for Prince Edward Island 2018-2023	GoPEI (2018)
44	Government of Prince Edward Island	Building Resilience: Climate Adaptation Plan	GoPEI (2022)
45	Government of Quebec	Quebec and climate change: A Challenge for the Future 2006 - 2012 Action Plan	GoQU (2008)
46	Government of Quebec	2013-2020 Government Strategy for Climate Change Adaptation	GoQU (2012)
47	Government of Quebec	2030 Plan for a Green Economy - the first electrification and climate change policy framework	GoQU (2020)
48	Government of Saskatchewan	Prairie Resilience: A Made-in-Saskatchewan Climate Change Strategy	GoSA (2017)
49	Government of Saskatchewan	Saskatchewan's Climate Resilience Measurement Framework	GoSA (2018)
50	Government of Yukon	Our Clean Future A Yukon strategy for climate change, energy and a green economy	GoYU (2020)
51	The First Nations Leadership Council (FNLC)	The BC First Nations Climate Strategy and Action Plan	FNLC (2022)
52	City of Calgary – Alberta	Climate Resilience Strategy Mitigation & Adaptation Action Plan s 2018	City of Calgary (2018)
53	City of Edmonton – Alberta	Climate Resilient Edmonton: Adaptation Strategy and Action Plan: The City's Climate Change Adaptation Plan under the City Charter	City of Edmonton (2018)
54	City of Surrey - British Columbia	Climate Adaptation Strategy City of Surrey	City of Surrey (2013)
55	City of Vancouver – British Columbia	City of Vancouver Climate Change Adaptation Strategy	City of Vancouver (2012)
56	City of Vancouver – British of Columbia	Climate change adaptation strategy 2018 Update and Action Plan	City of Vancouver (2018)
57	City of Winnipeg – Manitoba	Winnipeg's Climate Action Plan Planning for Climate Change - Acting for People	City of Winnipeg (2018)

58	City of Brandon – Manitoba	Brandon's Environmental Strategic Plan	City of Brandon (2013)
59	City of Saint John – New Brunswick	Climate Change Adaptation Plan for Saint John	City of Saint John (2020)
60	City of Moncton - New Brunswick	Climate Change Adaptation and Flood Management Strategy the City of Moncton	City of Moncton (2013)
61	Town of Conception Bay South – Newfoundland and Labrador	The Town of Conception Bay South - Community Climate Change Adaptation Plan	The Town of Conception Bay South (2020)
62	City of St. John - Newfoundland and Labrador	Resilient St. John's Community Climate Plan	City of St John (2023)
63	City of Halifax - Nova Scotia	Municipal Climate Change Action Planning Halifax Regional Municipality	City of Halifax (2013)
64	City of Halifax - Nova Scotia	HalifACT 2050: Acting on Climate Together	City of Halifax (2020)
65	Cape Breton Regional Municipality - Nova Scotia	Municipal Climate Change Action Plan (MCCAP) For the Cape Breton Regional Municipality	Cape Breton (2014)
66	Hamlet of Arviat – Nunavut	Climate Change Adaptation Plan Building Capacity in Community Planning	Hamlet of Arviat (2010)
67	City of Iqaluit – Nunavut	Iqaluit Adaptation Plan	City of Iqaluit (2010)
68	Town of Inuvik - Northwest Territories	The Inuvik Integrated Community Sustainable Plan	Town of Inuvik (2010)
69	City of Yellowknife - Northwest Territories	Community plan 2020	City of Yellow Knife (2020)
70	City of Ottawa – Ontario	Ottawa Climate Change Master Plan	City of Ottawa (2020)
71	City of Toronto – Ontario	Climate change, clean air and sustainable energy action plan: Moving from framework to action	City of Toronto (2007)
72	City of Toronto – Ontario	Toronto's first Resilience Strategy	City of Toronto (2020)

73	City of Charlottetown – Prince Edward Island	Climate risk and resilience assessment – City of Charlottetown	City of Charlottetown (2019a)
74	City of Charlottetown – Prince Edward Island	Climate risk and resilience recommendations report – City of Charlottetown	City of Charlottetown (2019b)
75	City of Summerside – Prince Edward Island	Climate risk and resilience assessment – City of Summerside	City of Summerside (2019a)
76	City of Summerside - Prince Edward Island	Climate risk and resilience recommendations report – City of Summerside	City of Summerside (2019b)
77	City of Montreal – Quebec	Climate change adaptation plan for Agglomeration of Montreal 2016 - 2020	City of Montreal (2015)
78	City of Montreal – Quebec	Montreal Climate Plan 2020–2030	City of Montreal (2020)
79	City of Quebec – Quebec	Québec City's Environmental Services Adaptation Plan	City of Quebec (2009)
80	City of Regina – Saskatchewan	Design Regina, Official Community Plan	City of Regina (2020)
81	City of Saskatoon – Saskatchewan	Saskatoon's Adaptation Strategy Climate projections and possible impacts corporate climate adaptation strategy	City of Saskatoon (2019)
82	City of Dawson - Yukon	Dawson Climate Change Adaptation Plan 2011	City of Dawson (2011)
83	City of Whitehorse – Yukon	Whitehorse Climate Change Adaptation Plan	City of Whitehorse (2011)
84	Inuvialuit Regional Corporation (IRC)	Inuvialuit Settlement Region Climate Change Strategy	IRC (2021)

Chapter 4: Inclusiveness in Climate Change Adaptation Policies in Vietnam

Abstract

Promoting inclusiveness in climate change adaptation (CCA) is of the utmost importance to ensure that the lives of the many who are traditionally excluded or marginalized and disadvantaged in society, and are the most vulnerable to climate change, are protected and improved. The Vietnamese government recognizes the importance of adapting to climate change in an inclusive way and takes action to achieve diversified stakeholder engagement, open participatory processes, and just outcomes. However, adaptation in Vietnam has been criticized for a lack of meaningful stakeholder engagement by both international developmental organizations and academics. This paper assesses the degree to which inclusiveness has been embedded into CCA policy documents, identifying the gaps as well as opportunities of an inclusive approach to CCA in Vietnam. A total of 58 policy documents consisting of national adaptation plans and sectoral adaptation action plans were collected and analyzed. Content analysis of these policy documents revealed that a high level of variation exits in how inclusiveness priorities have been integrated and planned for implementation in adaptation policies in Vietnam across the different governance levels since 2008. The analysis reveals four inclusion gaps: moral standing gap, knowledge gap, management gap, and social learning gap. This paper contributes to the understandings of inclusiveness in CCA policymaking and practice.

Key words: Inclusiveness, climate change adaptation, Vietnam, policy analysis

4.1 Introduction

4.1.1 Why an inclusive framework to evaluate national climate change adaptation policy?

Climate change adaptation (CCA) refers to the process of adjusting to actual or expected climate effects to moderate or avoid harm, or to exploit beneficial opportunities (Intergovernmental Panel on Climate Change [IPPC], 2022). One approach that has been advocated by many international organizations as an effective way toward CCA (IPCC, 2022; United Nations Framework of Climate Change Convention [UNFCCC], 2022) is the participatory approach, which is embedded in CCA policy throughout the world, in both developed and developing countries (United Kingdom Climate Impacts Program, 2005; Southern Voices on Adaptation, 2015; Government of Canada, 2022). Participatory approaches are widely recognized to identify the most acute climate risks, socio-economic vulnerabilities, and adaptation priorities and to ensure greater accountability and transparency and more just outcomes. However, participatory processes in a range of contexts could be manipulated by the organizations promoting them (Schipper et al., 2021), and pre-existing power asymmetries reinforce the existing privileges of some stakeholders and discourage minority perspectives from being expressed and fairly represented as a result (Huitema et al., 2016; Martyr-Koller et al, 2021). The resulting adaptation solutions fail to be responsive to their needs, and adaptation outcomes seem to fall short of the criteria of equity, fairness, and justice (McDonald & McCormack, 2021; Scoville-Simonds et al., 2020; Taylor & Bhasme, 2020).

Given this context, it is crucial to move beyond the concept of public participation and devise concrete and practical strategies to promote and evaluate inclusiveness in CCA. This will help to ensure that the lives of the many who are traditionally excluded or marginalized and disadvantaged in society, and who are most affected by climate change, are protected and that their lives are further improved. Scholars agree on the importance of a meaningful form of inclusion but there has been no coherent understanding on what this form should be. Inclusive CCA is still a novel concept that is not yet made fully used of in either theory or practice. Thus, both conceptual and empirical work are vitally needed on the issue of inclusive CCA (Pham & Saner, 2021).

An inclusive approach should be embedded in national CCA policy for two main reasons. First, national governments assume to coordinate adaptation actions throughout the subnational and local levels of government. This includes providing information and policy frameworks, creating legal frameworks, taking action to protect vulnerable groups, and, in some cases, providing financial support to other levels of government (Berrang-Ford et al., 2010; Kalame et al., 2011). Second, CCA has become an agenda item for governments globally, and significant attention has therefore been directed at how to develop the ‘right’ policies that can drive adaptation action to effectively address climate change in a fair and progressive manner (McDonald & McCormack, 2021; Wellstead & Stedman, 2014). An analysis of national adaptation policy can reveal the role that a government plays in adaptation by creating a restricting or enabling environment for coordination between formal governmental agencies, administrative agencies, and private sectors and stakeholders to increase efficiency, representation, and support for climate adaptation measures (IPCC, 2014). The willingness of governments to engage diversified stakeholders, even those that have differing or opposing interests, and facilitate their voices in decision making processes can also be highlighted (Cimato & Mullan, 2010).

4.1.2 The case of Vietnam

Located in the Southeast Asia, Vietnam covers an area of around 332,000 square kilometers and has a population of nearly one hundred million people (UN, 2023). The Global Climate Risk Index 2021 ranked Vietnam as the thirteenth country in the world most affected by climate variability and extreme weather events over the period 2000–2019 (Eckstein et al., 2021). The forecasted climate impacts to 2100 will likely include an increase in rainfall during wet season and a decrease in the dry season of around 10% or more, increased intensity and frequency of storms and floods, and a sea level rise of at least one meter (World Bank, 2010). In response, the government of Vietnam has developed policies to address this problem, including the National Target Program Response to Climate Change (NTP-RCC), the National Climate Change Strategy (NCCS), and the National Action Plan Response to Climate Change (NAP-CC) (Government of Vietnam [GoV], 2008, 2011, 2012a, b, 2020, 2022). Ministries and provinces have been active in developing their own action plans accordingly. However, the government-directed adaptation in Vietnam has been evaluated to be "maladaptation" based on official reports from international developmental organizations as well as academic research. According to these analyses, the government of Vietnam's current adaptation strategy reflects and reinforces existing power relations politically and economically (Schmidt-Thomé et al., 2016; Gilfillan et al., 2017; Mishra & Pede, 2017).

There is little understanding of how Vietnamese policies reinforce public participation or the factors underlying their insufficient attempts for meaningful stakeholder engagement in CCA in Vietnam. This paper will assess how inclusiveness has been embedded in CCA policy in Vietnam, identifying the gaps in as well as opportunities for an inclusive approach to CCA in the country. This paper focuses on two main questions: (1) To what extent has inclusiveness been reinforced in Vietnamese CCA policy? and (2) What are the gaps of inclusiveness and how can these gaps be addressed?

4.2 Materials and methods

4.2.1 Data collection

I conducted a search for relevant policy documents in the government websites in Vietnam. Because this research focuses on the national level, the aim was to collect and analyze national documents such as national communications and reports by the government to UNFCCC, national adaptation programs of action (NAPAs), and national strategies to respond to climate change. The analysis was then extended to focus on sectoral adaptation action plans for the initial sectors/areas such as agriculture and rural development, construction, industry and trade, transportation, education and training, culture, sport, tourism, and health. A total of 58 policy documents were collected and analyzed (Appendix 2).

The statistical categories of the sampled policy documents are presented in Figure 14. In terms of governance levels, 50% of policy documents in the sample are at the national level, 41% at the sectoral level, and only 9% come from the international levels. Regarding time periods, 22% are pre-2012 period, 54% of the policies are from 2012 to 2020, and the remaining 24% refer to the post-2020 period. The periods were chosen for the analysis because the Vietnamese government issued its very first national action plan for climate change in 2012 (GoV, 2012), and second Vietnamese national action plan in response to climate change was just issued in 2020 (GoV, 2020).

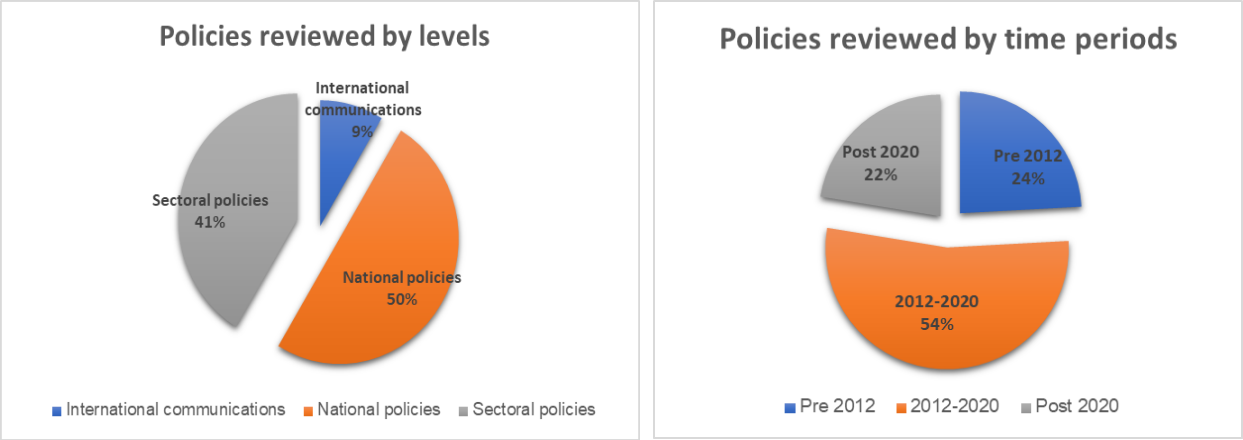


Figure 14: Statistics of sampled policy documents by governance levels and time periods

4.2.2 Data analysis

In this paper, I applied the framework of inclusive CCA developed by Pham and Saner (in press) which includes four core components, and 9 priorities as described in Table 9. This analysis framework was selected for two main reasons. Firstly, it provides a comprehensive viewpoint on CCA inclusiveness, ranging from moral foundations, stakeholders, processes to outcomes. Secondly, this framework develops a clear and simple set of priorities that are potentially and feasibly applied in research, policymaking, and practice.

*Table 9: Inclusive CCA framework with 4 core components and 9 priorities (*Pham & Saner, 2024*)*

Components	Priorities
Moral Foundations	1. Moral standing (for minority groups, future people, and non-human actors) 2. Knowledge (expert vs. traditional and local knowledge)
Stakeholders	3. Good Equity, Diversity, and Inclusion (EDI) practice in all related organizations 4. Considerations of climate justice, vulnerable groups, differing capabilities and resilience
Processes	5. Science, education, and training for all 6. Transparent, accessible, and collaborative standards, activities, and communications
Outcomes	7. Using inclusive values in defining and developing evaluation indicators 8. Open access to adaptation data and results 9. Diversity and representation in evaluation/audit in terms of approaches, procedure, and personnel

I conducted content analysis of policy documents and analyzed the degree that inclusiveness priorities are integrated in the policies. I will assess the extent to which climate change policies considered inclusiveness in CCA at three levels, as shown in Table 10:

Table 10: Levels of inclusiveness for evaluating sampled policy documents

Level	Coding Standard Used
Level 1	No reference in the document
Level 2	Referred to in the document as objectives without strategies for implementation
Level 3	Referred to in the document with a clear implementation strategy of activities and/ or both human and financial resources and/or evaluation.

4.3 Findings

Processes of policymaking and implementation occur in interlinked phases across governance levels. Based on a content analysis of 58 policy documents, the results demonstrate a high level of variation in how inclusiveness priorities are integrated and planned in adaptation policies in Vietnam across different governance levels and throughout a period of 15 years from 2008 to 2023.

4.3.1 Inclusiveness priorities in policy documents: A comparison between governance levels and across different time periods

Policy documents differed widely between various levels of governance regarding the extent to which they integrated inclusiveness priorities (Figure 15). For example, moral standing for the most vulnerable groups, including the present disadvantaged groups, future people, or the non-human actors, have been identified in 100% of policy documents at the international level, but in only 48% of documents at the national level, and 0% at the sectoral level. Another example relates to the priority of traditional and local knowledge, wherein 40% of the policy documents at the international level, 24% at the national level, and 0% at the sectoral level have attempted to integrate this priority into adaptation. EDI was emphasized in 20% of international policy documents and 7% of national policy documents but was completely absent at the sectoral level. One significant difference is that around 30% of policies at the national and sectoral levels encourage open access to the adaptation databases and result reports, but no policies at international level mention it.

The data across a 15-year-period illustrates that policy documents have increasingly focused on inclusiveness (Figure 16). The policy documents of the most current period, the post-2020 phase, appear to be more inclusive in five out of nine priorities of inclusive CCA: considering vulnerable groups (which is represented in 92% of policy documents of the post-2020 period compared to 79% in the 2012–2015 phase, and 74% in the pre-2012 phase); science, education and training for all (100% compared to 93% and 87%); transparent, accessible, and collaborative standards, activities, and communications (100% compared to 86% and 77%); inclusiveness is valued in defining and developing evaluation indicators (28% compared to 7% and 3%); and diversity and representation in evaluation/audit in terms of standards, procedure, and personnel (54% compared to 14% and 16%).

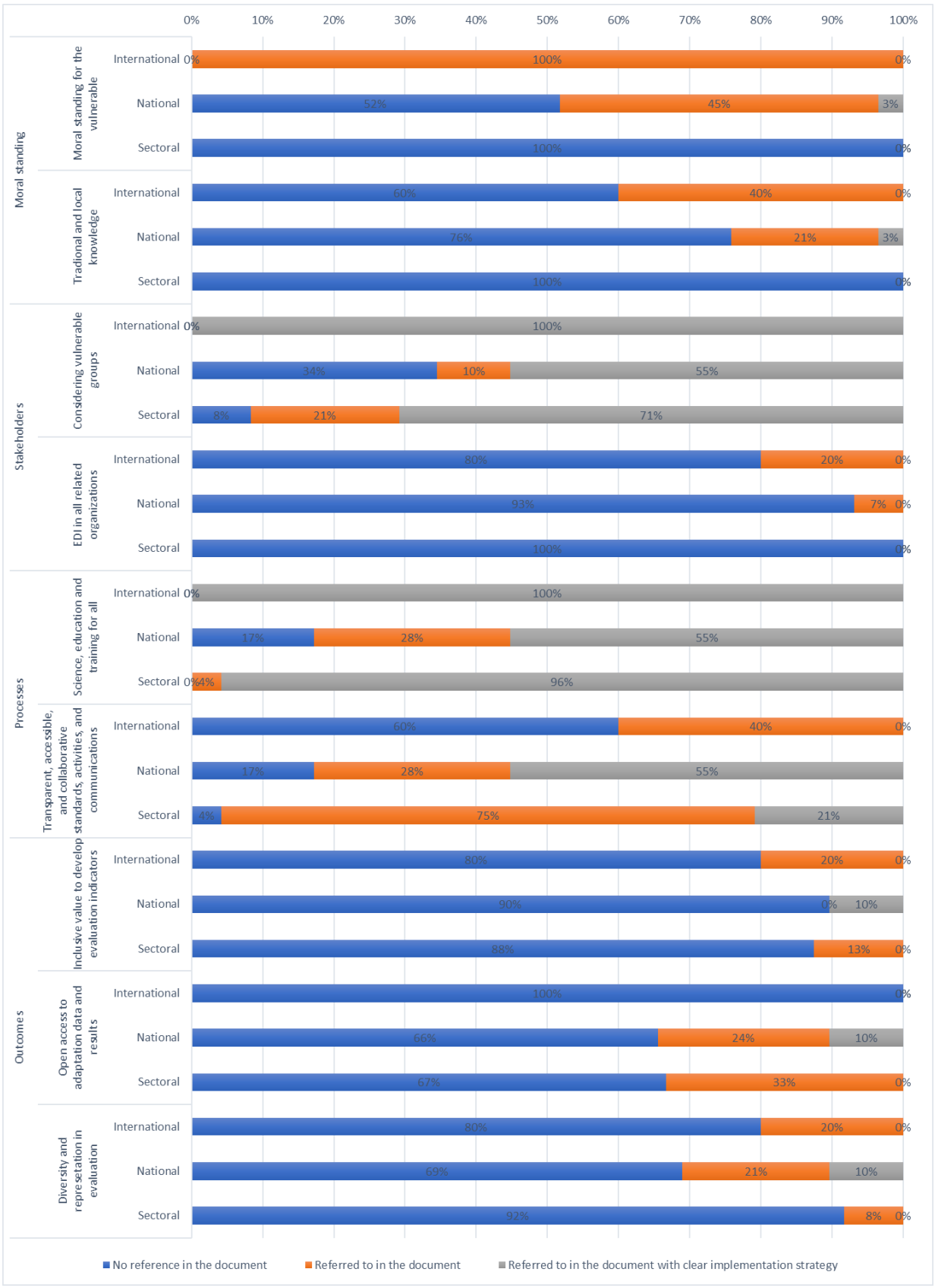


Figure 15: Inclusiveness considered in reviewed policies by government level

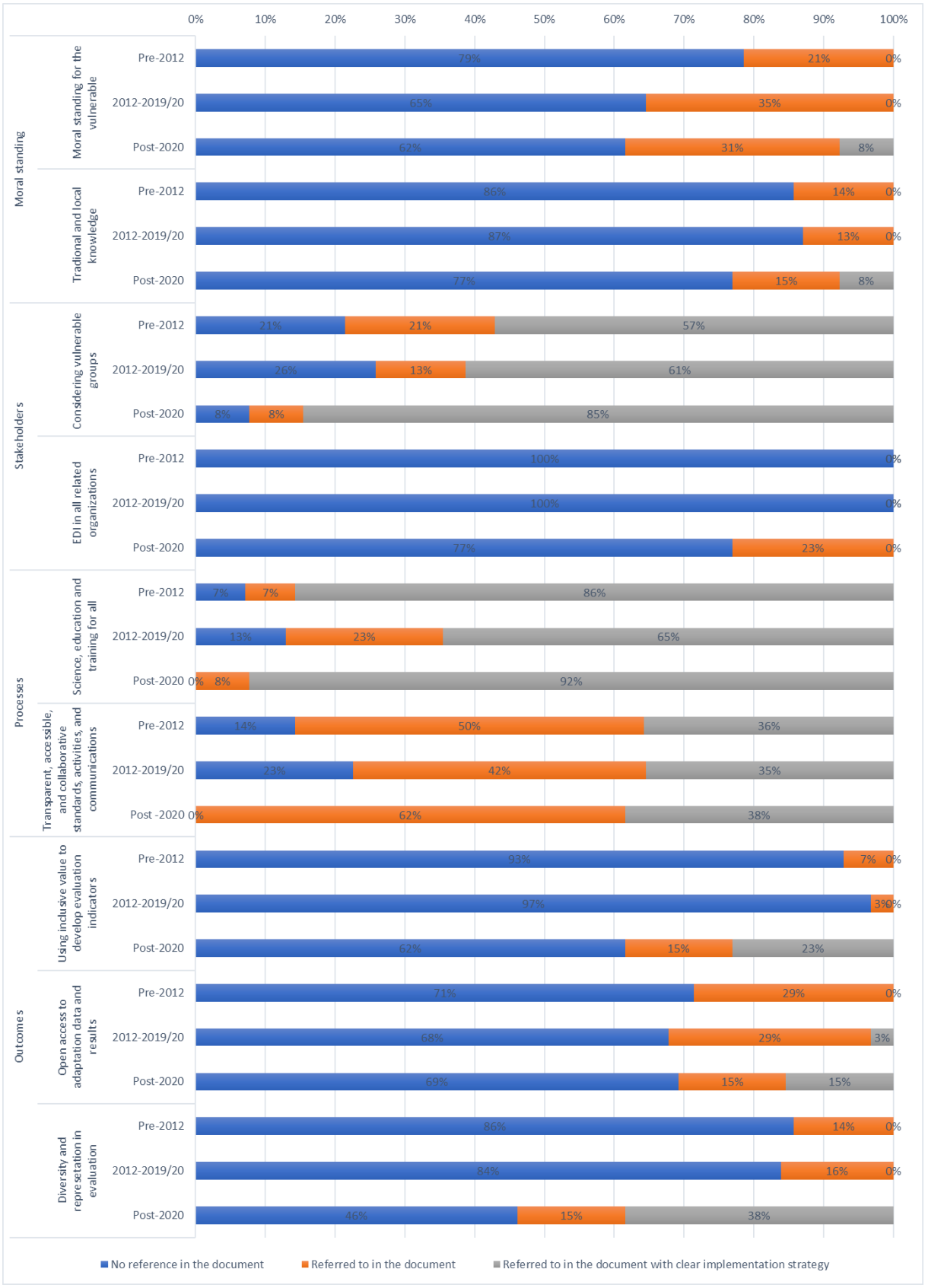


Figure 16: Inclusiveness considered in reviewed policies by periods

4.3.2 Extent of inclusiveness priorities in policy documents

Figure 17 presents the number of policy documents of all governance levels that refer to a particular priority of inclusiveness or provide information on how to take actions to address this priority of inclusive adaptation.

Almost all selected documents recognize the significance of three inclusive priorities: science, education, and training for all; transparent, accessible, and collaborative standards, activities, and communications; and considering vulnerable groups. In addition to 16% of the sampled policies referring to the principle of inclusive education and training and science for all in adaptation, 75% of documents list the necessary activities and resources to implement this principle in adaptation practice. A total of 82% of selected policies include the idea of transparent, accessible, and collaborative standards, activities, and communications in which 48% of reviewed policies refer to it as a goal or objective and 34% of these polices attempt to put these goals into implementation processes. Considering vulnerable groups is mentioned in 14% of the selected documents, whereas the planning to empower them by improving their adaptive capacity and resilience could be observed in 64% of the policy sample, which adds up to 80% of documents supporting this inclusiveness priority in adaptation in Vietnam.

In contrast, none of reviewed policies provide plans to promote EDI in organizations involving in adaptation, and Vietnam's Updated Intended Nationally Determined Contribution (GoV, 2020) is the only one out of the 58 sampled policy documents that refers to EDI in adaptation practice. Only 31%, 26%, 16%, 14%, and 7% of the policy sample mention moral standing for the vulnerable, open access to adaptation data and results, diversity and representation in evaluation, traditional and local knowledge, and inclusiveness as a value to develop evaluation indicators, respectively, and only 2% of selected documents incorporate these five considerations of inclusive adaptation into action plans and resource arrangement.

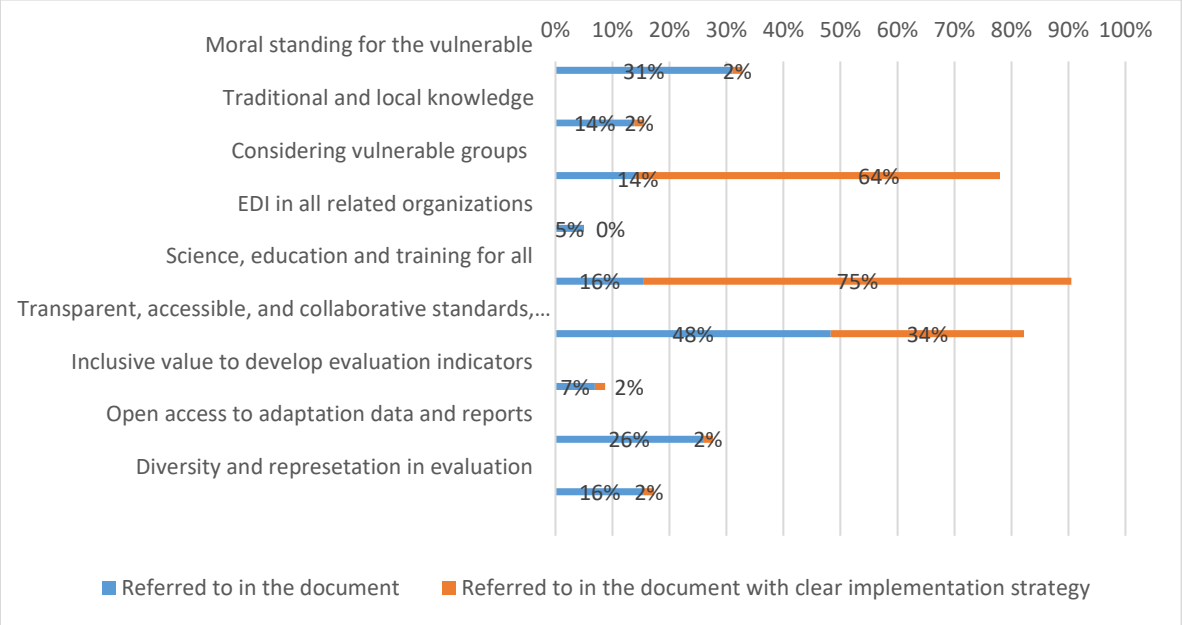


Figure 17: Policy documents mentioning inclusiveness and including them into implementation

4.4 Inclusiveness gaps in climate change adaptation policies in Vietnam and ways forward

The United Nations Environment Program (UNEP) et al. (2021) defined a "adaptation gap" as the difference between the actual adaptation achieved and a societally desirable level of adaptation, determined largely by preferences related to tolerated climate change impacts and reflected by resource limitations and competing priorities. The concept of an adaptation gap is similar to the "adaptation deficit" of Burton (2004), Burton and May (2004) or "adaptation constraints" raised by Chambwera et al. (2015) in the IPCC - Fifth Assessment Report. The content analysis of Vietnamese adaptation policies reveals four inclusion gaps: a moral standing gap, a knowledge gap, a management gap, and a social learning gap.

4.4.1 Moral standing gap

The policy analysis reveals that people in present are at the focus of adaptation processes in Vietnam. Future people and non-human actors are not officially granted a proper standing. Approximately one-fourth of policy samples consider the moral standing of non-human actors in their adaptation processes. However, the National Action Plan on Climate Change (NAP-CC) for the period of 2021–2030 with a vision for 2050 (GoV, 2020) is the only policy that takes action to give non-human actors the moral standing they deserve. This plan advocates for the natural system or ecosystems as vulnerable groups and provides programs for improving their adaptive capacity and resilience.

The practical goal of ethics in governance and policy making is to provide guidance on how we should behave toward other people and the environment in which non-human actors populate. The central question is who or what matters or has moral standing? In other words, the well-being or interests of that entity deserves to be considered by others in moral decision making. Only when we know which things matter, are we able to develop well-justified practice and policy guidance (Sandler, 2017). Regarding climate ethics, scholars are reconceptualizing climate justice in a more inclusive way, advocating for the reemergence of inter-generational justice and multispecies justice in the human relationship with other intra-generational people and more-than-human beings (Forsyth, 2014; Tschakert et al., 2021; Gardiner, 2022). This is a conceptual expansion of the use of the term climate ethics, which argues for the recognition of moral standing for future people and non-human organisms.

The future generation has long been well mentioned in UNFCCC and IPCC documents. In 1992, signatories to the UNFCCC agreed on the following: "Parties should protect the climate system for the benefit of present and future generations of humankind" (UN, 1992, Article 3.1). The IPCC First Assessment Report (1992, p. 144) also underlined the need for "recognition of the need for an environment of a quality that permits a life of dignity and well-being for present and future generations." In contrast, non-human entities have only recently caught the attention of the global community. The IPCC Fifth Assessment Report supplemented the IPCC definition of adaptation by mentioning the natural system, arguing that human intervention may facilitate natural adjustment to expected climate and its effects and that non-human actors have their own value and even rights (Kolstad et al., 2014).

In practice, neither future people nor non-human actors have been appropriately considered in adaptation processes. For instance, Fülöp (2021) found that the impulse of institutions to implement international obligations towards future generations came to a halt after the 1990s, and since then

there has been a significant decline in any mention or effort to deal with future generations in the sources of international law. Another example is the criticism of nature-based solutions to climate change, which have recently been advocated by both the IPCC (2019) and UNFCCC (2021) to enhance nature to help address human societal challenges. However, nature is apparently viewed as a type of resource and is given no moral standing (Hurlbert et al., 2019).

The moral standing gap observed in the sampled Vietnamese policies reflects the lack of global verifiable consensus and commitment, as well as limited practical instruction from leading international entities, such as IPCC or UNFCCC, on how to value future generations and non-human actors in adaptation policymaking processes. A similar gap might exist in other developing countries' adaptation policies whose development has relied heavily on IPCC scientific reports and UNFCCC technical instruction and support.

In seeking an appropriate way to consider future people and non-human organisms in policymaking processes, governments may learn more from success stories that already exist in adaptation practice in other countries. An example from the U.K. is the *Wellbeing of Future Generations Wales Act* 2015 (Future Generations Commissioner for Wales, 2015), which turned the need to protect future generations into legislation. One of its goals is resilient Wales, where assisted migration or managed relocation has been carried out in the interest of non-human actors; the species are removed by people from a threatening environment and given a chance to survive and reproduce in an environment that poses no existential threat to them (McLachlan et al., 2006; van Oppen et al., 2015). Another example may refer to the legal status given to rivers and political representation of rivers by New Zealand's parliament (Dwyer, 2017).

4.4.2 Knowledge gap

The policies reviewed emphasize the importance of science, innovation and technology development and encourage the transfer and application of scientific knowledge to cope with climate change stimuli, resulting in the inherent subjugation of local and traditional knowledge and their potential contributions to adaptation policies and practice. Around 11% of the policy sample mentions traditional and local knowledge, but only 2% of selected documents involve the consideration of this knowledge into action planning and resource arrangements. The policies reflect gaps in knowledge integration, meaning that there are inadequate bridges between various sources of knowledge and efforts to make them available to decision makers so that they can be used more effectively in response to climate change.

In the framework of post-normal science, Funtowicz and Ravetz (1993) argue that the application of routine scientific techniques is insufficient when the uncertainties increase, and the skills and judgement of new participants need to be consulted, and experts may need to share enquiries with local or Indigenous knowledge holders. Indigenous knowledge refers to the understandings, skills and philosophies developed by societies with long histories of interaction with their natural surroundings, while local knowledge refers to the understandings and skills developed by individuals and communities specific to the place where they live (Hurlbert et al., 2019). In the case of adapting to climate change, the factors that determine vulnerability are context-specific, and understanding the local contexts of vulnerability requires a different kind of knowledge and expertise. Thus, designing adaptation interventions requires a knowledge base that is tailored to local settings (Few et al., 2007). These forms of knowledge should be highly context-specific and embedded in local institutions, providing biological

and ecosystem knowledge as well as landscape information. Integration of such unique and specific knowledge systems into other evidence bases of knowledge can be useful in informing sustainable and realistic adaptation policies in the face of uncertain climate change impacts (Maldonado et al., 2016; Etchart, 2017; Makondo & Thomas, 2018).

Adger et al. (2003) propose the concept of a "paradox" in CCA policymaking, implying the clearly existing discrepancy between the inclusion of a global assessment and the experience of societies living with environmental change. One example is the IPCC, the leading international body for the assessment of climate change, and their assessment report. The IPCC Assessment Report 4 recognizes the emerging studies that explore how Indigenous knowledge can become part of a shared learning effort to address climate-change impacts and adaptation, and its links with sustainability (Yohe et al., 2007). However, a study by Ford et al. (2016) on how Indigenous content is covered and framed in the Working Group II portion of the Assessment Report 5 finds that the coverage is general in scope and limited in length and contains little critical engagement with Indigenous knowledge systems. The reasons for this knowledge paradox are twofold: (i) Climate change has long been framed as 'global,' 'scientific,' or 'technical' risks that tend be anchored on Western scientific knowledge and marginalized in Indigenous and local knowledge in the generation of global expertise (Whitfield, 2016; Belfer et al., 2017); (ii) The epistemic communities tend to promote one framing of the climate change issue in order to gain politically powerful consensus rather than being open to unscientific or non-technical knowledge and view the knowledge generated by consulting local and Indigenous peoples as contributory expertise (Ayers, 2010, 2011).

Many scholars, including Ford et al. (2016), Belfer et al. (2017), Ayers (2011), and Makondo and Thomas (2018), have addressed the question of how to deal with this knowledge gap and indicate the need for increased input and leadership from local and Indigenous knowledge holders. The Vietnamese national government needs to develop specific guidelines for accessing local and Indigenous knowledges and integrating it into the adaptation policy and action programs at all levels. There is existing evidence of valuable knowledge generated by on-field research in which researchers from local universities collaborate closely with local communities and minorities to review, document, and maintain local knowledge on sustainable conservation and traditional agricultural experience and practices (Hoang et al., 2017; Huynh et al., 2020 1,2). Public funding for such research is essential to preserving this diverse and highly localized source of wisdom and promoting the adoption of such knowledge and practices to adapt to the negative effects of climate change. The *Vietnamese Fatherland Front and the Committee for Ethnic Minority Affairs* have been involved in adaptation policymaking and implementation in Vietnam for many years (VCP, 2013; NAV, 2015; GoV, 2017). These organizations should take it upon themselves to ensure the sufficient funding of research and adoption of local and Indigenous knowledge and support the credibility and representation of these knowledges on adaptation policies and action plans at all levels.

4.4.3 Management gap

Adaptation in human systems is not autonomous and cannot occur without the organizations that are involved in CCA research, policymaking, funding, operating, evaluating and so on. Pham and Saner (in press) argue here that these organizations only contribute to inclusiveness in CCA when inclusiveness is valued and promoted in their daily practices of organizational management by practicing, for example, inclusion, diversity, and equity (EDI) in human resources management, and inclusive evaluation. This

argument is true in the same way that inclusive innovation only can result from the diversity of researchers in terms of gender, age, geographic location, and ethnicity (Schillo & Robinson, 2017), or that inclusive education embeds inclusive evaluation as one indicator of success, meaning that inclusiveness pertains not only to the people who carry out the evaluation but also to the approaches, procedures, and indicators that are used (Booth & Ainscow, 2002).

Review of the sampled adaptation policies revealed that only 1 in 58 documents refers to the management principle of EDI for organizations involved in adaptation. Specifically, the Second National Communications to UNFCCC on climate change (2010) proposed that raising awareness on climate change and mainstreaming climate change issues into social and economic development strategies should be targeted at female members of parliament and members of the National Assembly's Science and Technology Committee to empower them and ensure that the voices of females in these important organizations are heard. None of the 58 documents in the sample conducts any activities to promote EDI values in organizational management practices. The ISO (International Standard Organization) 30415:2021 on diversity and inclusion for human resource management might be one of solutions that could potentially bridge the EDI gap observed (ISO, 2021). All Vietnamese state-run organizations are familiar with ISO 9001, and there are effective institutions, structures, and mechanisms for instructing, promoting, and operating ISO 9001 nationwide throughout local and provincial and to the national level (GoV, 2014; MOST, 2015; STAMEQ, 2019). Adding ISO 30415-2021 to these mechanisms is feasible and does not require many more resources.

Overall, of the 16% of policy documents that refer to diversity and representation in evaluation approaches and staff, only 7% of these mention developing indicators with full considerations of different values, and only 2% of the sample plan to take action to ensure these priorities of inclusiveness. The hidden reasons for this evaluation gap may come directly from the moral standing gap and the knowledge gap. When future people and non-human actors are denied the moral standings they deserve, the evaluation activities completely ignore their interests and benefit. When Western scientific knowledge dominates adaptation processes, there is no doubt that traditional and Indigenous knowledges will be prevented from contributing their value to evaluation regarding personnel, approaches, or indicators. Effectively solving gaps in moral foundations will significantly improve inclusiveness in adaptation evaluation.

4.4.4 Social learning gap

The potential of social learning to address CCA is receiving increasing attention in research and practice. Social learning in adaptation can be defined as a collective and communicative process that enables stakeholders to arrive at a convergence of solutions, relational capacities, and mutual actions in pursuit of a shared ambition (Nilsson & Swartling, 2009; Ensor & Harvey, 2015). All stakeholders' learning is initiated through participation that entails continuously producing, sharing, and absorbing information that goes beyond individuals and extends to communities, networks, or systems to encourage conditions that are conducive to stakeholder learning (Reed et al., 2010).

In a literature review on variables enabling social learning, Mudombi et al. (2017) found that lack of updated information on adaptation programs, projects, and planning regarding processes, results, and outcomes blocks flows of knowledge between stakeholders and poses a true obstacle to social learning. Many authors have focused on the analysis of case studies to better understand the relationship

between information readiness and social learning, including the Swedish forestry sector (Swardling et al., 2015), water resource management in in Germany, the UK, and Ireland (Muro & Jeffrey, 2012), or multi-actor negotiation for the integrated management and sustainable use of the Drentsche Aa area in the Netherlands (Van Bommel et al., 2009).

In Vietnam's adaptation policy, the thoughtful consideration of participation provides a significant opportunity for social learning but, at the same time, the lack of available adaptation information and accessibility to the public poses a considerable obstacle to these learning activities. Only 27% of sampled documents showed concern about the open access of information on adaptation projects and planning, with only 2% of them engaging in activities to make that happen. According to the World Bank (2022), more than 70% of Vietnamese were using the Internet in 2022. The option to provide open access to information via the Internet is cheap and effective and demonstrates transparency. The Vietnamese government and all ministries should publish all adaptation policies, plans, and programs as well as the updates on implementation, results, and outcomes on their official websites. All online publications should be in two forms: a full version for experts and a summary version for the public. Assessment of the open access to information should be included in the regular adaptation reports, focusing on both the percentage of documents available online and the number of times these documents were accessed during a given period.

4.5 Conclusion

The Vietnamese government has made a strong commitment to promoting broad public participation in CCA over the years, which has improved adaptative capacity of the vulnerable groups and addressed resilience and sustainability throughout the country. Although the extent to which inclusive priorities have been embedded do vary, the general shift is toward a more careful consideration of inclusiveness, and more actions have been taken to achieve inclusiveness. However, substantial work remains to be done to move towards more effective execution of inclusive adaptation in policy and practice. To improve the situation, as discussed above, the Vietnamese government should find ways to address several gaps, namely the moral standing gap, knowledge gap, management gap, and social learning gap.

This paper contributes to the concept of inclusive CCA by testing the concept in the policy system in Vietnam. The results suggest that inclusive CCA can be a promising solution that goes beyond wishful thinking. It is essential to rethink the relationship between adaptation and inclusiveness. I propose to conceive of inclusiveness not so much as a pre-condition without which adaptation cannot be successful, but rather as something to be achieved as part of the adaptation processes themselves. Thus, with strong commitment and cooperation to fulfill parts or all priorities of inclusiveness, an inclusive approach to CCA can become a reality.

Moreover, while understanding the comprehensive picture of inclusiveness priorities is important, the selection and application of these priorities should be based on a theoretical understanding of why adaptation should and how it can become more inclusive in terms of the desired outcomes that result from adapting to climate change. Achieving inclusiveness should not look like a race up a ladder, where people are climbing the ladder at insane speeds to complete as many steps as possible in the shortest amount of time. Rather, understanding why and how adaptation programs or projects are likely to work inclusively or not, in theory, is essential to selecting the most relevant priorities of inclusiveness to target for a given purpose and context. Governments should facilitate the development of multi-actor

adaptation platforms that can be considered the practical application of inclusive approach to a specific situation. Although actors may appear to be self-organizing and allocate climate actions in a mutually beneficial and synergistic way, multi-actor adaptation platforms provide opportunities for deeper coordination that could result in more ambitious action (Acosta et al., 2019; Gannon et al., 2021; Hsu & Rauber, 2021)

Such a logical deduction inspired by a theoretical framework and evaluated against a system of policy documents, however, is not the same as evaluation on a practical level. It is therefore of interest to analyze what happens in practice. The field of adaptation still lacks a solid body of monographs and articles that analyze what occurs in the attempt to make adaptation more inclusive, as opposed to what we normatively would like to see happen. The problems are neither understanding nor consensus, rather are the lack of interest in transparency and costly implementation. The field notably recognizes that each organization is different and that decision makers need to determine the most appropriate approach for incorporating inclusiveness considerations in their adaptation activities, based on the organization's context and any disruptive challenges that may emerge. This calls for interviewing policymakers, researchers, and practitioners on the inclusiveness of adaptation processes, the potential of applying an inclusiveness framework in adaptation research, policymaking, and practice, as well as the necessary adjustment of inclusive indicators to be applicable. Understanding this execution of inclusiveness in adaptation can help improve our understanding of how CCA occurs in practice and advances theoretical debates on CCA.

References

Acosta, M. (2019). *Gender inclusion in the Policies of Agriculture, Climate Change, Food Security and Nutrition in Honduras and Guatemala*. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Adger, W. N. (2003). Social Capital, Collective Action, and Adaptation to Climate Change. *Economic Geography*, *79*(4), 387–404. https://doi.org/10.1111/j.1944-8287.2003.tb00220.x

Ayers, J. (2010). Understanding the adaptation paradox: can global climate change adaptation policy be locally inclusive? *ProQuest Dissertations Publishing.*

Ayers, J. (2011). Resolving the adaptation paradox: Exploring the potential for deliberative adaptation policymaking in Bangladesh. *Global Environmental Politics, 11*(1), 62–88. https://doi.org/10.1162/GLEP_a_00043

Belfer, E., Ford, J. D., & Maillet, M. (2017). Representation of Indigenous peoples in climate change reporting. *Climatic Change, 145*(1–2), 57–70. https://doi.org/10.1007/s10584-017-2076-z

Berrang-Ford, L., Ford, J.D., Patterson, J. (2010) Are we adapting to climate change? *Global Environment Change, 21*, 25–33. https://doi.org/10.1016/j. gloenvcha.2010.09.012

Booth, T. & Ainscow, M. (2002). *Index for Inclusion: Developing learning and participation in schools*. Brisol, CSIE. https://www.eenet.org.uk/resources/docs/Index%20English.pdf

Burton, I. (2004). Climate change and the adaptation deficit. Occasional paper 3. Climate Change: Building the Adaptive Capacity. *International Conference on Adaptation Science, Management and Policy Options*, 25–33. http://projects.upei.ca/climate/files/2012/10/ Book-5_Paper-3.pdf

Burton, I., & May, E. (2004). The adaptation deficit in water resource management. *IDS Bulletin, 35*(3), 31–37. https://doi.org/10.1111/j.1759-5436.2004.tb00131.x

Chambwera, M., Heal, G., Dubeux, C., Hallegatte, S., Leclerc, L., Markandya, A., … Kairiza, T. (2015). Economics of adaptation. *Climate Change 2014 Impacts, Adaptation and Vulnerability: Part A: Global and Sectoral Aspects*, 945–978. https://doi.org/10.1017/CBO9781107415379.022

Cimato, F. and Mullan, M. (2010). Adapting to climate change: Analyzing the role of government. *DEFRA Evidence and Analysis Series Paper 1*. London, UK: Department for Environment, Food and Rural Affairs (DEFRA). https://www.ipcc.ch/apps/njlite/ar5wg2/njlite_download2.php?id=11169

Dwyer, C. (2017). *A New Zealand River Now Has The Legal Rights Of A Human*. https://www.npr.org/sections/thetwo-way/2017/03/16/520414763/a-new-zealand-river-now-has-the-legal-rights-of-a-human.

Eckstein, D., Künzel, V., Schäfer, L. (2021). *Global Climate risk index 2021: Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2019 and 2000-2019*. https://germanwatch.org/sites/default/files/Global%20Climate%20Risk%20Index%202021_1.pdf.

Ensor, J., & Harvey, B. (2015). Social learning and climate change adaptation: Evidence for international development practice. *Wiley Interdisciplinary Reviews: Climate Change, 6*(5), 509–522. https://doi.org/10.1002/wcc.348

Etchart, L. (2017). The role of Indigenous peoples in combating climate change. *Palgrave Communications, 3*(1), 1–4. https://doi.org/10.1057/palcomms.2017.85

Few, R., Brown, K., & Tompkins, E. L. (2007). Public participation and climate change adaptation: avoiding the illusion of inclusion. *Climate Policy*, *7*(1), 46–59. https://doi.org/10.1080/14693062.2007.9685637

Ford, J. D., Cameron, L., Rubis, J., Maillet, M., Nakashima, D., Willox, A. C., & Pearce, T. (2016). Including Indigenous knowledge and experience in IPCC assessment reports. *Nature Climate Change, 6*(4), 349–353. https://doi.org/10.1038/nclimate2954

Forsyth, T. (2014). Climate justice is not just ice. *Geoforum, 54*, 230–232. https://doi.org/10.1016/j.geoforum.2012.12.008

Fülöp, S. (2021). Future Generations Institutions to Implement International Obligations towards Future Generations. In M.-C. Cordonier Segger, M. Szabó, & A. R. Harrington (Eds.), *Intergenerational Justice in Sustainable Development Treaty Implementation: Advancing Future Generations Rights through National Institutions, Treaty Implementation for Sustainable Development* (pp. 137–162). Cambridge: Cambridge University Press.

Funtowicz, S. O., & Ravetz, J. R. (1993). Science for the post-normal age. *Futures: The Journal of Policy, Planning and Futures Studies*, *25*(7), 739–755. https://doi.org/10.1016/0016-3287(93)90022-L

Future Generations Commissioner for Wales. (2015). Well-being of Future Generations (Wales) Act 2015. https://www.futuregenerations.wales/about-us/future-generations-act/

Gannon, K. E., Crick, F., Atela, J., & Conway, D. (2021). What role for multi-stakeholder partnerships in adaptation to climate change? Experiences from private sector adaptation in Kenya. *Climate Risk Management, 32*(May), 100319. https://doi.org/10.1016/j.crm.2021.100319

Gardiner, S. M. (2022). Environmentalizing Bioethics: Planetary Health in a Perfect Moral Storm. *Perspectives in Biology and Medicine, 65*(4), 569–585. https://doi.org/10.1353/pbm.2022.0048

Gilfillan, D., Nguyen, T. T., & Pham, H. T. (2017). Coordination and health sector adaptation to climate change in the Vietnamese Mekong Delta. *Ecology and Society, 22*(3). http://www.jstor.org/stable/26270155

Government of Canada. (2020). *A Healthy Environment and a Healthy Economy.* https://www.canada.ca/en/environment-climate-change/news/2020/12/a-healthy-environment-and-a-healthy-economy.html

Government of Vietnam (2008). *National Target Program to Respond to Climate Change (NTP-RCC)*. https://thuvienphapluat.vn/van-ban/Tai-nguyen-Moi-truong/Quyet-dinh-158-2008-QD-TTg-phe-duyet-Chuong-trinh-muc-tieu-quoc-gia-ung-pho-voi-bien-doi-khi-hau-82256.aspx

Government of Vietnam (2011). *National Climate Change Strategy (NCCS)*. https://thuvienphapluat.vn/van-ban/Tai-nguyen-Moi-truong/Quyet-dinh-2139-QD-TTg-phe-duyet-Chien-luoc-quoc-gia-bien-doi-khi-hau-132631.aspx

Government of Vietnam (2012a). *National Target Program to Respond to Climate Change (NTP-RCC) for the period of 2012 - 2015*. https://thuvienphapluat.vn/van-ban/Tai-nguyen-Moi-truong/Quyet-dinh-1183-QD-TTg-nam-2012-phe-duyet-Chuong-trinh-muc-tieu-quoc-gia-ung-pho-146967.aspx

Government of Vietnam (2012b). *National Action Plan on Climate Change (NAP-CC) for the period of 2012 – 2020*. http://www.dcc.gov.vn/van-ban-phap-luat/995/Quyet-dinh-ve-viec-ban-hanh-Ke-hoach-hanh-dong-quoc-gia-ve-bien-doi-khi-hau-giai-doan-2012---2020.html

Government of Vietnam (2014). *Decision on the application of quality management system according to the national standard of TCVN ISO 9001:2008 on state-run local organization*. https://chinhphu.vn/default.aspx?pageid=27160&docid=172718

Government of Vietnam (2017). *National Action Plan to implement the 2030 Agenda for Sustainable Development.* https://vanban.chinhphu.vn/default.aspx?pageid=27160&docid=189713

Government of Vietnam (2020). *National Action Plan on Climate Change (NAP-CC) for the period of 2021 – 2030 with vision to 2050.* https://vanban.chinhphu.vn/default.aspx?pageid=27160&docid=200561

Government of Vietnam (2022). *Decision No. 896/QD-TTg on approving the National Strategy for Climate Change until 2050.* https://vanban.chinhphu.vn/?pageid=27160&docid=206254

Hoang, T. B. H., Nguyen, H. N., & Tran, T. T. H. (2017). The Role of Traditional Ecological Knowledge in the Disaster Risk Management Strategies of Island Communities in Cat Hai, Vietnam. *Climate, Disaster and Development Journal, 2*(2), 23–32. https://doi.org/10.18783/cddj.v002.i02.a03

Hsu, A., & Rauber, R. (2021). Diverse climate actors show limited coordination in a large-scale text analysis of strategy documents. *Communications Earth & Environment, 2*(1). https://doi.org/10.1038/s43247-021-00098-7

Hurlbert, M., Krishnaswamy, J., Davin, E., Johnson, F. X., Mena, C. F., Morton, J., … Zommers, Z. (2019). Risk Management and Decision making in Relation to Sustainable Development. In: *Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems,* 1–128. https://www.ipcc.ch/srccl/

Huynh, V. C., Pham, T. G., Nguyen, T. Q., Nguyen, L. H. K., Tran, P. T., Le, Q. N. P., & Nguyen, M. T. H. (2020). Understanding Indigenous farming systems in response to climate change: An investigation into soil erosion in the mountainous regions of Central Vietnam. *Applied Sciences (Switzerland), 10*(15). https://doi.org/10.3390/app10155091

Huynh, V. C., Phuong Le, Q. N., Hong Nguyen, M. T., Tran, P. T., Nguyen, T. Q., Pham, T. G., … Trinh, H. N. (2020). Indigenous knowledge in relation to climate change: adaptation practices used by the Xo Dang people of central Vietnam. *Heliyon, 6*(12), e05656. https://doi.org/10.1016/j.heliyon.2020.e05656

International Standard Organization (ISO) (2021). *New ISO Standard Supports Diversity and Inclusion in the Workplace. https://www.ansi.org/standards-news/all-news/2021/05/5-4-21-new-iso-standard-supports-diversity-and-inclusion-in-the-workplace#:~:text=The%20new%20standard%20ISO%2030415,by%20employees%20and%20external%20stakeholders.*

Intergovernmental Panel on Climate Change (1992). *Climate change: The 1990 and 1992 IPCC Assessments - IPCC First Assessment Report, Overview and Policymaker Summaries and 1992 IPPC Supplement*. https://www.ipcc.ch/site/assets/uploads/2018/05/ipcc_90_92_assessments_far_full_report.pdf

Intergovernmental Panel on Climate Change (2014). *Climate Change 2014: Impacts, Adaptation and Vulnerability*, Working Group II Contribution to the IPCC Fifth Assessment Report. Cambridge University Press, Cambridge. https://doi.org/10.1017/CBO9781107415379

Intergovernmental Panel on Climate Change (2015). Social, Economic, and Ethical Concepts and Methods. *Climate Change 2014 Mitigation of Climate Change*, 207–282. https://doi.org/10.1017/cbo9781107415416.009

Intergovernmental Panel on Climate Change (2018). *Global Warming of 1.5°C*. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte V, Zhai P, Pörtner HO, Roberts D, Skea J, et al (eds)]. https://www.ipcc.ch/sr15/

Intergovernmental Panel on Climate Change (2019). *Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems*, 1–864. https://www.ipcc.ch/srccl/

Intergovernmental Panel on Climate Change (2022). *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. Cambridge University Press, Cambridge, UK and New York, NY, USA, 3056 pp. https://doi.org/10.1017/9781009325844

Kalame, F., Aidoo, Nkem, R. et al. (2011). Modified Taungya system in Ghana: a win–win practice for forestry and adaptation to climate change? *Environmental Science & Policy, 14*(5), pp. 519-530. https://doi.org/10.1016/j.envsci.2011.03.011

Kolstad C., K. Urama, J. Broome, A. Bruvoll, M. Cariño Olvera, D. Fullerton, C. Gollier, W.M. Hanemann, R. Hassan, F. Jotzo, M.R. Khan, L. Meyer, and L. Mundaca. (2014). Social, Economic and Ethical Concepts and Methods. In: *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T.

Zwickel and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter3.pdf

Makondo, C. C., & Thomas, D. S. G. (2018). Climate change adaptation: Linking Indigenous knowledge with western science for effective adaptation. *Environmental Science and Policy, 88*(June), 83–91. https://doi.org/10.1016/j.envsci.2018.06.014

Maldonado, J., Bennett, T. M. B., Chief, K., Cochran, P., Cozzetto, K., Gough, B., … Voggesser, G. (2016). Engagement with Indigenous peoples and honoring traditional knowledge systems. *Climatic Change, 135*(1), 111–126. https://doi.org/10.1007/s10584-015-1535-7

Martyr-Koller, R., Thomas, A., Schleussner, C.-F., Nauels, A., & Lissner, T. (2021). Loss and damage implications of sea-level rise on Small Island Developing States. *Current Opinion in Environmental Sustainability*, *50*, 245–259. https://doi.org/10.1016/j.cosust.2021.05.001

McDonald, J., & McCormack, P. C. (2021). Rethinking the role of law in adapting to climate change. *Wiley Interdisciplinary Reviews. Climate Change*, *12*(5), e726-n/a. https://doi.org/10.1002/wcc.726

McLachlan, J. S., Hellmann, J. J., & Schwartz, M. W. (2007). A framework for debate of assisted migration in an era of climate change. *Conservation Biology, 21*(2), 297–302. https://doi.org/10.1111/j.1523-1739.2007.00676.x

MONRE (Ministry of Natural Resources and Environment) - Government of Vietnam. (2010). *The Second National Communications to UNFCCC on climate change*. https://unfccc.int/sites/default/files/resource/Vietnam%20second%20national%20communication.pdf

MOST (Ministry of Science and Technology) - Government of Vietnam. (2019). *Decision on declaring the conceptual model of national quality management system according to TCVN ISO 9001:2015 standard applied for state-run local organization*. https://www.most.gov.vn/vn/pages/ChiTietVanBan.aspx?vID=28925&TypeVB=1

Mishra, A. K., & Pede, V. O. (2017). Perception of climate change and adaptation strategies in Vietnam: Are there intra-household gender differences? *International Journal of Climate Change Strategies and Management, 9*(4), pp. 501–516. https://doi.org/10.1108/IJCCSM-01-2017-0014

Mudombi, S., Fabricius, C., van Zyl-Bulitta, V., & Patt, A. (2017). The use of and obstacles to social learning in climate change adaptation initiatives in South Africa. Jamba. *Journal of Disaster Risk Studies, 9*(1), 1–8. https://doi.org/10.4102/jamba.v9i1.292

Muro, M., & Jeffrey, P. (2012). Time to talk? How the structure of dialog processes shapes stakeholder learning in participatory water resources management. *Ecology and Society, 17*(1). https://doi.org/10.5751/ES-04476-170103

National Assembly of Vietnam. (2015). *Law on Hydrometeorology*. https://economica.vn/Content/files/LAW%20%26%20REG/90_2015_QH13%20Law%20on%20hydrometeorology.pdf

Nilsson, A. E., & Swartling, G.Å. (2012). *Social Learning about Climate Adaptation: Global and Local Perspectives*. SEI Working Paper. https://www.unisdr.org/preventionweb/files/11935_sociallearningwp0911121.pdf

Pham, H. & Saner, M. (2021). A Systematic Literature Review of Inclusive Climate Change Adaptation. *Sustainability*. https://doi.org/10.3390/su131910617

Pham, H & Saner, M. (2024). Framework and Proposed Indicators for the Comprehensive Evaluation of Inclusiveness: The Case of Climate Change Adaptation. *Facets,* 9(): 1-15. https://doi.org/10.1139/facets-2023-0017

Reed, M. G., Evely, A. C., Cundill, G., Fazey, I., Glass, J., Laing, A., … Stringer, L. C. (2010). What is social learning? *Ecology and Society, 15*(4). https://doi.org/10.5751/ES-03564-1504r01

Sandler, R. (2017). Environmental Virtue Ethics: Value, Normativity and Right Action. *The Oxford Handbook of Environmental Ethics,* (March), 223–233. https://doi.org/10.1093/oxfordhb/9780199941339.013.20

Schillo, S. R., & Robinson, R. M. (2017). Inclusive Innovation in Developed Countries: The Who, What, Why, and How. *Technology Innovation Management Review, 7*(7), 34–46. https://doi.org/10.22215/timreview1089

Schipper, E. L. F., Eriksen, S. E., Fernandez Carril, L. R., Glavovic, B. C., & Shawoo, Z. (2021). Turbulent transformation: abrupt societal disruption and climate resilient development. *Climate and Development*, *13*(6), 467–474. https://doi.org/10.1080/17565529.2020.1799738

Schmidt-Thomé, J.C., Knierim, A., Knuth, U. (2016). Policy-induced innovations networks on climate change adaptation - An ex-post analysis of collaboration success and its influencing factors. Environmental Science and Policy, 56, pp. 67–79. https://doi.org/10.1016/j.envsci.2015.11.003

Scoville-Simonds, M., Jamali, H., & Hufty, M. (2020). The Hazards of Mainstreaming: Climate change adaptation politics in three dimensions. *World Development, 125*, https://doi.org/10.1016/j.worlddev. 2019.104683

Southern Voices on Adaptation. (2015). *Joint Principles for Adaptation.* http://southernvoices.net/images/Joint_Principles_for_Adaptation_version_3.pdf. Accessed 2 July 2020

STAMEQ (Directorate for Standards Metrology and Quality - Ministry of Science and Technology of Vietnam. (2015). *Quality management system & Requirements for TCVN ISO 9001:2015* https://isocert.org.vn/tieu-chuan-iso-9001-2015-pdf-ban-goc-song-ngu-anh-viet

Swarting, A. G., Wallgren, O., Klein, R. J. T., Ulmanen, J., & Dahlin, M. (2015). Participation and Learning for Climate Change Adaptation A Case Study of the Swedish Forestry Sector. In K. O'Brien & E. Selboe (Eds.), *The Adaptive Challenge of Climate Change* (1st ed., pp. 252–270). Cambridge University Press.

Taylor, M., & Bhasme, S. (2021). Between deficit rains and surplus populations: The political ecology of a climate-resilient village in South India. *Geoforum*, *126*, 431–440. https://doi.org/10.1016/j.geoforum.2020.01.007

Tschakert, P., Schlosberg, D., Celermajer, D., Rickards, L., Winter, C., Thaler, M., … Verlie, B. (2021). Multispecies justice: Climate-just futures with, for and beyond humans. *Wiley Interdisciplinary Reviews: Climate Change, 12*(2), 1–10. https://doi.org/10.1002/wcc.699

UKCIP (The United Kingdom Climate Impacts Program). (2005). *Objective Setting for Climate Change*. http://www.ukcip.org.uk/publications/.

United Nations. (1992). *United Nations Framework Convention on Climate Change*, 62220. https://unfccc.int/resource/docs/convkp/conveng.pdf

United Nations. (2012). *Resolution adopted by the General Assembly on 27 July 2012* (Vol. A/RED/66/2). https://doi.org/10.1017/S0020818300001806

United Nations, Department of Economic and Social Affairs, Population Division (updated 2023). *World Population Prospects: The 2022 Revision*. https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/undesa_pd_2022_wpp_key-messages.pdf

United Nations Environmental Program, UNEP DTU Partnership, and World Adaptation Science Programme (WASP). (2021). *Adaptation Gap Report 2020*. UNEP, Nairobi, Kenya. https://www.unep.org/resources/adaptation-gap-report-2020#:~:text=The%20UNEP%20Adaptation%20Gap%20Report%202020%20finds%20that%20while%20nations,floods%20and%20sea%2Dlevel%20rise.

United Nations Framework Convention on Climate Change (2022). UN Climate Change Annual Report 2022. https://unfccc.int/sites/default/files/resource/UNClimateChange_AnnualReport_2022.pdf.

United Nations Framework of Climate Change Convention (2018). *UN Climate Change Annual Report 2017*. https://unfccc.int/resource/annualreport/.

United Nations Framework of Climate Change Convention (2019). *Scope of the second periodic review of the long-term global goal under the Convention and of overall progress towards achieving it, CP25, Advance unedited version*. https://unfccc.int/resource/cop25/cop25_auv_LTGG.pdf

United Nations Framework of Climate Change Convention (2021). *Coastal Adaptation and Nature-based solutions for the implementation of NAPS: Considerations for GCF Proposal development*. https://unfccc.int/documents/278047

Van Bommel, S., Röling, N., Aarts, N., & Turnhout, E. (2009). Social learning for solving complex problems: A promising solution or wishful thinking? A case study of multi-actor negotiation for the integrated management and sustainable use of the drentsche aa area in the Netherlands. *Environmental Policy and Governance, 19*(6), 400–412. https://doi.org/10.1002/eet.526

Van Oppen, M. J. H., Oliver, J. K., Putnam, H. M., & Gates, R. D. (2015). *Building coral reef resilience through assisted evolution. Proceedings of the National Academy of Sciences of the United States of America*, 112(8), 2307–2313. https://doi.org/10.1073/pnas.1422301112

VCP (Vietnamese Communist Party). (2013). *Resolution on active response to climate change, improvement of natural resource management and environmental protection.* https://climate-

laws.org/documents/resolution-active-in-response-to-climate-change-improvement-of-natural-resource-management-and-environmental-protection_1684?id=resolution-24-nq-tw-active-response-to-climate-change-improvement-of-natural-resource-management-and-environmental-protection_e369

Wellstead, A. & Stedman, R. (2014). Addressing the Challenges of Adaptation to Climate Change Policy. Integrating Public Administration and Public Policy Studies, *International Journal of Public Administration, 37*(14), pp. 999-1010. https://doi.org/10.1080/01900692.2014.907313

Westerhoff, L., Keskitalo, E. C., & Juhola, S. (2011). Capacities across scales: Local to national adaptation policy in four European countries. *Climate Policy, 11*(4), 1071-1085. https://doi.org/10.1080/14693062.2011.579258

Whitfield, S. (2016). *Pathways to Sustainability: Adapting to Climate Uncertainty in African Agriculture - Narratives and knowledge politics*. London & New York: Routledge.

World Bank (2010). *World Development Report 2010: Development and Climate Change*. Washington, DC. https://openknowledge.worldbank.org/handle/10986/4387

World Bank (2022). Individuals using the Internet (% of population) - Viet Nam https://data.worldbank.org/indicator/IT.NET.USER.ZS?locations=VN

Yohe, G.W., R.D. Lasco, Q.K. Ahmad, N.W. Arnell, S.J. Cohen, C. Hope, A.C. Janetos and R.T. Perez, 2007: Perspectives on climate change and sustainability. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 811-841. https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg2-chapter20-1.pdf

Appendix 2: List of policy documents reviewed

#	Governance level	Name of the policy documents	In-text Citation
1	International	Vietnam Initial National Communication Under the United Nations Framework Convention on Climate Change	(MONRE 2003)
2	International	The Second National Communication of Viet Nam to United Nations Framework of Climate Change Convention	(MONRE 2010)
3	International	The Third National Communication of Viet Nam to United Nations Framework of Climate Change Convention	(MONRE 2019)
4	International	Vietnam's Intended Nationally Determined Contribution (INDC)	(GoV 2015)
5	International	Vietnam's Updated Intended Nationally Determined Contribution	(GoV 2020)
6	National	Law on Environmental Protection	(NAV 2014)
7	National	Law on Hydrometeorology	(NAV 2015)
8	National	Resolution on active response to climate change, improvement of natural resource management and environmental protection	(VCP 2013)
9	National	Conclusion on the implementation of the 7th Central Committee's Resolution (term 11) on proactively responding to climate change, strengthening natural resource management and environmental protection	(VCP 2019)
10	National	National Climate Change Strategy (NCCS)	(GoV 2011)
11	National	National Target Program to Respond to Climate Change (NTP-RCC)	(GoV 2008)
12	National	National Target Program to Respond to Climate Change (NTP-RCC)	(MONRE 2008)
13	National	Decision to promulgate working regulations of the Directory Board of National Target Program to Respond to Climate Change (NTP-RCC)	(GoV 2010)
14	National	National Target Program to Respond to Climate Change (NTP-RCC) for the period of 2012 – 2015	(GoV 2012)
15	National	Decision on the additional projects of National Target Program to Respond to Climate Change (NTP-RCC) for the period of 2012 – 2015	(MONRE 2013)

16	National	National Target Program for Responding to Climate Change and Green Growth for the period of 2016-2020s	(GoV 2017)
17	National	Resolution on investment for National Target Program for the period 2016 – 2020	(GoV 2016)
18	National	National Action Plan on Climate Change (NAP-CC) for the period of 2012 – 2020	(GoV 2012)
19	National	Decision No. 896/QD-TTg on approving the National Strategy for Climate Change until 2050	(GoV 2022)
20	National	National Action Plan on Climate Change (NAP-CC) for the period of 2021 – 2030 with vision to 2050	(GoV 2020)
21	National	Decision on promulgating the national-level climate change adaptation monitoring and evaluation system	(GoV 2022)
22	National	Promulgating an action plan to continue implementing Resolution No. 24-NQ/TW of the 11th Party Central Committee on proactively responding to climate change, strengthening natural resource management and environmental protection in accordance with the law. Conclusion No. 56-KL/TW dated August 23, 2019, of the Politburo	(GoV 2021)
23	National	National Action Plan to implement the 2030 Agenda for Sustainable Development	(GoV 2017)
24	National	Decision on the implementation of Paris Agreement on Climate Change	(GoV 2016)
25	National	Decision on Urban Development for Responding to Climate Change for the period of 2013-2020	(GoV 2013)
26	National	Decision on Urban Development for Responding to Climate Change for the period of 2021-2030	(GoV 2021)
27	National	Decision on Irrigation planning in the Central Region for the period 2012 – 2010 with a vision to 2050 under the circumstance of climate change and sea level rise	(GoV 2012)
28	National	Decision on Irrigation planning in the Mekong Delta for the period 2012 – 2010 with a vision to 2050 under the circumstance of climate change and sea level rise	(GoV 2012)
29	National	Resolution on Monitoring Results and Enhancing Policy Legislation Implementation for Climate Change Response in Mekong Delta	(NAV 2014)

30	National	Government Resolution 120 /NQ-CP on Sustainable and Climate-Resilient Development of the Mekong Delta of Viet Nam	(GoV 2017)
31	National	Directives on implementing the resolution on sustainable and climate-resilient Development of the Mekong Delta	(GoV 2019)
32	National	Policies on sustainable management, protection and development of coastal forests in response to climate change	(GoV 2016)
33	National	Decision on the establishment of National Committee on Climate Change	(GoV 2012)
34	National	Decision to promulgate working regulations of the National Committee on Climate Change	(NCCC 2012)
35	Sectoral	The Action Plan to respond to climate change of the Ministry of Natural Resources and Environmental, period of 2011 - 2015	(MONRE 2010)
36	Sectoral	The Action Plan to respond to climate change of the Ministry of Natural Resources and Environmental, period of 2016 - 2020	(MONRE 2017)
37	Sectoral	Action Plan to Respond to Climate Change in Industry and Trade sector	(MOIT 2010)
38	Sectoral	Action Plan to Respond to Climate Change in Construction sector for the period of 2014-2020	(MOC 2014)
39	Sectoral	Action Plan to Respond to Climate Change in Construction sector for the period of 2016-2020	(MOC 2016)
40	Sectoral	Action Plan to Implement Paris agreement on Climate Change in Construction sector for the period of 2020 – 2030	(MOC 2020)
41	Sectoral	Action Plan to Respond to Climate Change in Health Sector for the period of 2010-2015	(MOH 2010)
42	Sectoral	Action Plan to Respond to Climate Change in Health Sector for the period of 2015 – 2020	(MOH 2015)
43	Sectoral	Action Plan to Respond to Climate Change in Health Sector for the period of 2019-2030 with a vision to 2050	(MOH 2018)
44	Sectoral	Action Plan for Responding to Climate Change and Green Growth of Ministry of Transport for the period of 2011-2015	(MOT 2011)
45	Sectoral	Action Plan for Responding to Climate Change and Green Growth of Ministry of Transport for the period of 2016-2020	(MOT 2016)

46	Sectoral	Action Plan for Responding to Climate Change and Green Growth of Ministry of Transport for the period of 2021-2025	(MOT 2021)
47	Sectoral	Action Plan to Respond to Climate Change of Agriculture and Rural Development sector for the period of 2008 -2020	(MARD 2008)
48	Sectoral	Action Plan to Respond to Climate Change of Agriculture and Rural Development sector for the period of 2011-2015 with vision to 2050	(MARD 2011)
49	Sectoral	Action Plan to Respond to Climate Change of Agriculture and Rural Development sector for the period of 2016-2020 with vision to 2050	(MARD 2016)
50	Sectoral	Action Plan to Implement Paris agreement on Climate Change in Agriculture and Rural Development sector for the period of 2020 – 2030	(MARD 2020)
51	Sectoral	Action Plan to Respond to Climate Change of Culture, Sport, and Tourism sector for the period of 2016 - 2020;	(MOCST 2016)
52	Sectoral	Action Plan to Respond to Climate Change of Culture, Sport, and Tourism sector for the period of 2021-2030 with vision to 2050	(MOCST 2019)
53	Sectoral	Communication Plan on Disaster Protection and Active Response to Climate Change in Communities	(MOIC 2020)
54	Sectoral	Action Plan to Respond to Climate Change of Labor, Invalids and Social Affairs sector for the period of 2011-2015	(MOLISA 2011)
55	Sectoral	Action Plan to Implement Paris agreement on Climate Change in Labor, Invalids and Social Affairs sector for the period of 2019 – 2020 and 2020 – 2030	(MOLISA 2019)
56	Sectoral	National Science and Technology Program to Respond to Climate Change, Natural Resource Management, and Environment for the period of 2016 – 2020	(MOST 2016)
57	Sectoral	Action Plan on Climate Change and Disaster Protection in Education Sector for the period of 2011 – 2020	(MOET 2011)
58	Sectoral	Action Plan on Climate Change and Disaster Protection in Education Sector for the period of 2021 – 2030	(MOET 2020)

Chapter 5: The Practical Paradoxes of a More Inclusive Approach to Climate Change Adaptation

This manuscript will be submitted to (TBA). The version presented below has incorporated the comments and suggestions from two co-authors.

Ha Pham, Melissa Marschke & Marc Saner (Manuscript)

Author contribution: Ha Pham conceived the idea, compiled the datasets, completed the data analysis, and drafted the manuscript. Melissa Marschke and Marc Saner contributed to the conceptualization of the project and provided guidance on the implementation, writing, and editing of the manuscript.

Abstract

A more inclusive approach to climate change adaptation (CCA) that takes into consideration disadvantaged groups in both human and natural systems across temporal and spatial scales is needed. The adaptation literature, however, seldom explicitly defines what is meant by inclusive CCA and little effort has been made to provide sufficient evidence of how inclusive CCA can be operationalised and achieved in practice. To fill this research gap, we conduct exploratory descriptive qualitative research using in-depth semi-structured interviews with adaptation practitioners in Vietnam and Canada (*n* = 26). The ultimate aim of this paper is to investigate practitioners' perceptions of inclusive CCA and to determine how to apply a more inclusive approach to CCA policies and practices. The paper unveils several practical paradoxes that require thoughtful considerations if we are to successfully achieve inclusive adaptation and resilience to climate change: (1) The need for inclusiveness in CCA is obvious, yet the way it is understood varies widely; (2) Idealistic versus realistic versus instrumental approaches exist when it comes to inclusiveness in CCA policies; (3) Organizing adaptation practices to target at broad inclusiveness with resource constraints; (4) Incremental or transformative changes to promote inclusiveness in CCA. Successfully managing these practical paradoxes requires insights into these contradictions and the complex interrelationships surrounding them. Thus, this paper explores how a bottom-up approach grounded on practitioners' optimism and solidarity needs to be supported by a top-down approach in which law and regulations enforce inclusiveness and leverage transformational changes for genuine inclusiveness in CCA policies and practices.

Key words: inclusive, climate change adaptation, practitioner, paradox

5.1 Introduction

Climate change adaptation (CCA) is undertaken on natural or human systems to adjust to both actual and expected effects of changing climate (Intergovernmental Panel on Climate Change [IPCC], 2023). CCA requires action from multiple actors and has potential influence on both human and nature systems at different spatial and temporal scales. Recent work reveals that taking a more inclusive approach to CCA fosters coherent and collective adaptation that advances climate-resilient development with a sufficient consideration for disadvantaged groups (Chakraborty & Sherpa, 2021; Pham & Saner, 2021; Rarai et al., 2022).

Scholars have recently argued for a more inclusive approach to stakeholder engagement in CCA (Chu & Cannon, 2021; IPCC, 2022; Singh et al., 2022), however, given little attention to how this approach should be understood. The 2022 IPCC Assessment Report 6 used the concept of inclusion frequently and has linked inclusion closely to CCA processes. For example, it recommended the inclusion of diverse knowledge systems, nature-based solutions, local leadership, and empowerment for ecosystem-dependent groups. Despite the claims of the inclusive approach being a critical enabling factor on the pathway to climate-resilient development (Martin et al., 2022), no clear explanation or definition of 'inclusion' or 'inclusive' or 'inclusiveness" could not be found throughout this report. Similarly, in the adaptation literature, what is meant by inclusive CCA is seldom explicitly defined, and efforts to fully understand how it can be achieved or to provide sufficient evidence of how it can be operationalised in practice have been limited (Pham & Saner, 2021; Yamineva, 2017).

In this paper, we conduct exploratory qualitative research using in-depth semi-structured interviews with adaptation practitioners (n = 26). Adaptation practitioners are those who are engaged in developing and applying practical solutions to climate change on the ground. This includes policymakers, engineers, ecologists, landscape planners, investors, and other practitioners across disciplines and sectors (Howarth et al., 2017; Viner & Howarth, 2014). These practitioners play essential roles in CCA efforts that go beyond interpreting and applying CCA knowledge to initiating and implementing policies, regulations, programs, and projects to deal with the diverse and dynamic vulnerabilities to climate change impacts (Howarth & Viner, 2022). During these processes, practitioners produce expertise and knowledge that are valuable for effective CCA action (Jasanoff, 2004; Swart et al., 2017; Howarth et al., 2022).

In this chapter, our ultimate aim is to investigate practitioners' perceptions of inclusive CCA in general and of Saner & Pham's framework of inclusive CCA (Appendix 4) in particular. We believe that incorporating the diverse views, perspectives, skills, and interests of practitioners into the understanding of the inclusive CCA concept reveals the complexity and dynamics of inclusiveness in adaptation processes. By exploring adaptation professionals' opinions of and recommendations for the framework of Saner & Pham and also its updated version in Pham & Saner (2024), this paper provides practitioner-based suggestions that will hopefully improve the comprehensiveness and applicability of a more inclusive approach to CCA practices.

5.2 Scene-setting: An ethics-based framework and indicators to evaluate inclusive climate change adaptation

Since inclusion refers to justice, fairness, and recognition, all of which are foundational ethical values, inclusion is ethical by nature (Felder, 2021; Tyler, 2019; Yanco et al., 2021). CCA itself presents several ethical issues embedded in vulnerabilities, inequality, and injustice that prevent (all or some) groups of human and ecology systems from being adaptive and resilient to changing climate (Paavola & Adger, 2006; Hayward, 2012; Byskov et al., 2021). Thus, inclusive CCA can be considered as ethical imperatives that need to be thoughtfully taken into consideration both theoretically (how it is conceptualized) and practically (how it is planned, carried out through action, evaluated, and learned) to promote inclusiveness in adaptation policies, regulations, and programs on the ground. Several authors have highlighted the ethical underpinnings of a more inclusive approach to CCA (Byskov et al., 2021; Eriksen et al., 2021a; Martin et al., 2022; Shi et al. 2016).

Saner & Pham (Appendix 4) have proposed an ethics-based framework on how inclusiveness should be conceptualized, implemented, and assessed in the contexts of CCA. Drawing upon pluralistic values of climate change ethics, business ethics, and political ethics and how these values operate throughout the logic model of (adaptation) policymaking, from planning to evaluation and learning, Saner & Pham proposed a framework of inclusive CCA that contains 4 core components, 9 priorities and 15 performance indicators. However, putting this framework into practice requires considerable effort to test and check, pilot, and modify. Moreover, it is crucial to get inputs from practitioners, who are the main end-users of the monitoring and evaluation tools, to ensure that this conceptual framework is aligned to the needs of users and even enable its content to become more usable knowledge (Gordon et al., 2014; North et al., 2022).

In the case of inclusive CCA, practitioners' viewpoints contribute practice-based knowledge of inclusive CCA that better reflect the evolving approaches and priorities, real-world challenges and opportunities, living evidence and case studies of inclusive adaptation on the ground. More importantly, understanding practitioners' perceptions of inclusive CCA is essential to guiding adaptation practices toward more inclusiveness because their perceptions of ethical issues such as justice, equity, and equality normally motivate them to incorporate these issues in the agenda of planning and implementation (O'Brien 2012). Perception assessments also help identify barriers or misconceptions that may hamper practitioners from shaping adaptation actions toward more inclusiveness and to find solutions to overcome these obstacles (Viner & Howarth, 2014). The perspectives of practitioners can inform the development of inclusive climate adaptation policies and strategies that are relevant to real-world challenges and opportunities while also allowing for tailored support and resources to address specific challenges or gaps in practitioners' efforts, ensuring that they receive the assistance they need and that resources are allocated efficiently (Villamor et al., 2023).

5.3 Methods

A purposive sample of 26 adaptation professionals, 14 are Canada-based and 12 are Vietnam-based, was recruited for one-on-one interviews. The purposive recruitment of participants from different sectors in two distinctive contexts was intended to maximize the diversity among the respondents whose expertise, knowledge, and experience could generate rich and complex insights into the inclusive CCA concept.

The main inclusion criterion for interviewees was that they had at least three years of work experience in the field of CCA and had been involved in national CCA policymaking processes in Canada or Vietnam. The contexts of Canada and Vietnam were selected because each is a typical example of either a developed country with a democratic political system, a Western culture, and relatively abundant resources allocated for CCA (Canada) or a developing country with a one-party-controlled government, Eastern values, and limited investment for responding to a changing climate (Vietnam). The broad differences between the two countries provides a real test of the universality of the inclusive CCA priorities and indicators that were developed based on theoretical ideas (Appendix 4). It is noteworthy that the idea of inclusiveness is rooted in both countries' constitutions, the Canadian Charter of Rights and Freedoms (the Constitution Act 1982) and the Socialist Republic of Vietnam's 2013 Constitution (National Assembly 2013). Both governments have recognized and made a long-standing commitment to more inclusive climate action (GoC, 2022; GoV, 2022).

All participants held upper- or middle-level positions in their organizations, which included government agencies, academic and research organizations, NGOs or other civic society organizations, and businesses. The key characteristics of the participants are presented in Appendix 3. Each participant was assigned a number from 1—26 based on the time sequence of the interviews, for example, the first interviewee was cited as (#1). Data collection was undertaken from February to September 2022. The interviews contained questions about participants' working experience in CCA, their perceptions of inclusive CCA, and their reflections on the inclusive CCA framework of Saner & Pham (Appendix 4), as well as their expert opinions on how to make an inclusive approach to CCA more relevant and feasible. The semi-structured interview guide used can be found in Appendix 4. With the support of NVivo software (QSR International Pty Ltd., Doncaster, Australia), all interview transcripts were analyzed to identify recurring patterns or codes that were organized into themes, and the themes were described and reported as guided by Braun and Clarke (2006) and Bryman (2012).

5.4 What lies beneath: Four practical paradoxes of a more inclusive approach to climate change adaptation

This section discusses four main paradoxes that practitioners in Canada and Vietnam are struggling with in their everyday work to promote a more inclusive approach to CCA. Paradoxes are defined as contradictory yet interrelated demands and perspectives with reinforcing cycles that perpetuate and exacerbate internal tensions (Lewis, 2000; Schad & Miron-Spektor, 2020). Actively managing paradoxes accelerates a shift from ignoring latent tensions or any attempt to eliminate tensions by supporting one or the other choice (either/ or approach) to paradoxical thinking and action that accommodate both the opposing views (both/ and approach) (Miron-Spektor et al., 2018; Smith et al., 2016). This kind of mindset has the potential to leverage opposing forces, rethink current perceptions and practices, and recognize opportunities for learning that foster innovative and creative insights to promote inclusive CCA.

5.4.1 Inclusiveness is an imperative in climate change adaptation yet the way it is understood varies widely among practitioners

An imperative: Many discussions with participants of this study highlighted inclusion as the key and central issue of adaptation. Rather than being an add-on value, inclusiveness is an intrinsic and

inseparable part of any adaptation process. Participants provide several reasons for this viewpoint which we cluster into four topics:

First, inclusiveness refers to the right of human and non-human actors to have concerns during adaptation processes to ensure that they can thrive in a safe and stable climate (#3, #4, #5, #10, #15). Inclusiveness ensures the involvement of communities, groups, and people who are negatively influenced by climate change into assessing, planning, and carrying out action to mitigate climate change impacts. The ideas of considering nature for its intrinsic value or future generations' needs in CCA ensures resilience and justice for natural systems and future generations.

Second, a more inclusive approach directly results in successful adaptation in practice. Inclusion brings about mutual trust and support by motivating collaboration between relevant stakeholders (#4, #23). Promoting inclusiveness also helps ensure that vulnerability assessments can capture a shared understanding and knowledge of climate risk between officials, practitioners, academics, and the vulnerable that can then be integrated into planning CCA action (#1, #15, #21, #24). The inclusive approach enables the accumulation of the knowledge and capacities of all related actors, especially those who are less frequently mainstreamed into adaptation policymaking and practice. To give examples, the Indigenous people in Canada and local farmers in Vietnam were successfully using their valuable practical knowledge to adapt to climate variabilities and extremes by moderating potential damages (#5, #8, #14).

Third, inclusiveness is the basic principle and has long been advocated in most internationally recognized conventions and practices. Some examples are the *Sendai Framework for Disaster Risk Reduction* (UNDRR, 2015), which emphasizes the role of Indigenous knowledge (#5), the "one health" approach, which interconnects human health, animal health, and environmental health (#2, #14), or the GBA+ (Gender-based Analysis Plus) approach, which focuses on gender equity and a broader inclusiveness lens in policymaking and governance (#4, #6).

More importantly, inclusion of more diverse perspectives has become a rational means of meeting the internal demand of organizations for better and more comprehensive solutions to adaptation. Participants in this research have questioned themselves and/or been questioned by their customers and colleagues about how to plan and take actions to promote inclusiveness in CCA as well as how to evaluate it: "I get asked all the time, like how do we actually do it in practice?" (#4) or "How strong are we on social inclusion? Actually, a colleague asked me that last week, we were discussing it and saying, 'Oh we haven't got the language for this'" (#7).

Various understandings: In contrast with the strong consensus on the utmost importance of inclusive CCA, participants presented explicitly different understandings of inclusive CCA.

We observed the social construction of the inclusive CCA concept in which personal experience and occupation have a significant influence on one's perception of inclusive CCA. The participants who experienced exclusion either personally or as members of an excluded group, or who witnessed the systemic exclusion of groups from adaptation planning and practice are more likely to understand inclusive CCA as a series of highly specific actions to include their groups or any marginalized groups into these processes, ensuring the equitable outcomes that they deserve (#2, #5, #6, #10, #17). Participants who work for governments (#7, #12, #14, #19, #21, #26) or NGOs (#13, #15, #16, #17, #25), who often identified themselves as facilitators of inclusive CCA, perceived inclusive CCA as an evolving process of

facilitating inclusion with appropriate timelines, resources, and a great deal of efforts. Participants who had research jobs shared the notion that inclusive CCA can enable adaptation to be carried out in a more appropriate manner by caring for both human and more-than-human worlds and working collaboratively to figure out more appropriate solutions for a climate-changing earth (#4, #8, #15, #23). Notably, participants also well recognized that their personal and professional experiences shaped their thoughts about inclusive CCA, and they openly discussed their biases and conflicting ideas. Participant #8, for example, explained how diversified economics shaped her thinking of inclusive CCA, while acknowledging the counterargument from traditional scientists who "can consider this approach as subjective and somewhat nonsense".

In addition, the idea of inclusiveness is intrinsically subjective and nailed to a person or group's judgement of what and who should be included or how broad and how deep inclusion should be: "There is no one standard ethics so that's really tough because it's very difficult to come to any consensus" (#1). Inclusiveness can easily be perceived and interpreted differently, depending heavily on cultural, political, and social contexts because "inclusivity is also part of the culture and ethics of societies, meaning that different societies lead to different ways of being inclusive" (#26).

5.4.2 Idealistic versus realistic versus instrumental approaches to inclusiveness in climate change adaptation policymaking

Participants expressed highly contradictory opinions on how to approach inclusive CCA. It can be highly idealistic, attempting to include a broad range of actors throughout the ongoing process of adaptation; it can be realistic, considering the feasibility of inclusive attempts that are challenged by prevailing non-inclusive ideologies and practices; or it can be more instrumental, operationalizing inclusiveness attempts or developing the idea of inclusive CCA as a tool for adaptation practices.

An Idealistic approach: Several participants, including #1, #3, #4, #13, and #26, believed that inclusive CCA should be extremely broad in scope by integrating concepts and arguments from various disciplinary literature such as ethics, environmental ethics, or climate justice. For example, participant #3 argued persuasively for the incorporation of future generations' needs into processes to inclusively address climate change issues. Participant #26 emphasized "the intrinsic value of nature" and concluded that considerations of nature for its own value should be placed at the center of the inclusive CCA concept while participant #13 celebrated the recognition of "non-human moral standing and equity" as well as the interests of the most vulnerable disadvantaged people who rely on it.

A small group of participants supported considering perspectives of inclusiveness throughout adaptation processes spanning from the initial planning, resource allocation, and management phases (input) to the implementation of activities, evaluation of results (output), measurement of success (impact), and the subsequent stages of evaluation and learning (#7, #22). Some considered inclusiveness as being an ongoing process, highlighting the interconnectedness of these elements to achieve successful and inclusive CCA (#17, #23).

A more realistic approach: The majority of participants expressed that idealistic thinking in connection with inclusive CCA does not usually work in practice. They cited several case studies and examples that they observed or experienced in which attempts to achieve idealistic inclusiveness in CCA were challenged by prevalent non-inclusive ideologies and practices.

Participant #1 raised the concern that people are highly humancentric in that they limit the range of inclusion surrounding humans, asking the question of who while ignoring the question of what should be included. Several participants have been engaged in research on CCA and disaster risk reduction in rural communities in Canada and Vietnam for over a decade, both identifying a cultural shift towards a strong ideology of individualism: "I can do this on my own, I do not need government. I do not need any support," (#4) or "People now prefer to do what they like for their own interests without considerations for the community's benefit" (#8).

Social norms that reinforce gender inequality constrain inclusive CCA in the context of both developed and developing countries (#4, #9). Participant #9 speculated how gender-based social norms restricted women's participation in local adaptation policymaking and action in the Vietnamese Mekong Delta:

> "Households are invited to community meetings. Husbands, most of the time, will act as the representative, while wives rarely do that. When asked why they did not participate, wives said their husbands always did that kind of job, not them. It's like a very natural thing, [that] the husband, the male is the family representative who participates in all social activities". (#9)

Inclusive CCA is not legally required, and there are no guidelines for its implementation or evaluation. Participant #26 discussed the legislative gap that he found in Canada: "There are no specific guidelines of an inclusive process in Canada, like what that means and how you will or should or could or might implement it". Likewise, participants #15 identified the same gap in the climate legislation in Vietnam: "This is not legally enforced, so it is very much up to them whether they want to involve people or not".

As a result, participants identified cases in which public agencies and public officials have failed to make necessary arrangements to engage non-state actors in public policymaking and implementation to adapt to climate change. Participant #5 provided an example of a policy that was made "thousands of miles from the people" who would be regulated by it, and by policymakers who "don't even know how these people live". Participants #4, #8, and #15 described mandatory public consultations that were distorted to be much less meaningful. For example, policymakers prepared a policy, and only at the final stage, asked relevant actors and communities to comment on it. This approach was problematic because "it was too late to make any comment," and even if feedback had been provided, policymakers still "did what they wanted anyway" (#15). Consequently, the gap between governments and citizens gets broader and citizens' interest in cooperating with governments drops, leading to their neglect or even withdrawal from policymaking spheres (#6, #8, #9).

The private sector has no incentive to be included in collective adaptation action due to conflicts of interest, while the government lacks the necessary capacity and resources to regulate the private sector. For example, some of the most detailed and accurate risk information in Canada is held by private companies, which gives them privileges over other actors. This puts both the public and the government at a disadvantage due to having inadequate and low-quality information and deficient knowledge. As a result, they are unable to fully recognize the risk they are exposed to or make optimal choices for their anticipated adaptation:

> There is no national flood map. Depending on the city, it may be available and there are ways to get that, but it is not easy… We did some work to look at flood risk, and we paid about $40,000 for insurance data about flood risk for the entire country. So that's obviously cost prohibitive.

> People can't pay $40,000 to look at their flood risk… The insurance industry particularly has so much more information than the government does (#6).

A more instrumental approach: Some participants questioned how to transform the idea of inclusive CCA into a tool to promote inclusiveness in adaptation practices. Participants recommended creating an intense sense of practice for inclusive CCA by linking it to existing adaptation practices that have celebrated the different priorities of inclusiveness, such as the adaptation research for impact principles, which was newly released by the Adaptation Research Alliance (2021) or the climate maturity scale developed by the Federation of Canadian Municipalities' climate innovation program (2021).

Some participants suggested that the idea of inclusive CCA should be developed into a short brief, guidelines, lessons, or suggestions as a practical output. At this point, the discussion turned to Saner & Pham's framework of inclusive CCA (Appendix 4). Some participants suggested that all terms, especially those which are not familiar or are normally understood differently, be explicitly defined (#10, #12, #13). Participants emphasized the importance to identify users and to use concepts and terminology that is familiar to them. For example, Canadian participants observed that people from government, NGOs, and businesses "don't ever say we're inclusive; they say we have engaged" (#12) or people who work in public health "use the term equity a lot, and that's something we're familiar with" (#14). Vietnamese participants concerned how to translate the term inclusive CCA into Vietnamese in a manner that is appealing to different audiences and ensuring linguistical correctness (#2, #24). Participants #14, #15, and #20 realized the benefit of combining practical guidelines with case studies and exhibiting the inclusiveness in the complex and dynamic adaptation processes. Participants asserted the need to come up with certain indicators to evaluate an inclusive CCA approach (#4, #15, #16). Moreover, they expressed that the indicators should be feasibly trackable, identifying what kinds of information is needed, and where and how to collect it (#8, #19). Notably, participants underlined the importance of a practical guideline to be developed in collaboration with potential users and a diverse team of experts, and tested through piloting projects (#2, #19).

5.4.3 Organizing adaptation practices to target at broad inclusiveness with resource constraints

Broad inclusiveness versus limited resources: Moving beyond tokenistic participation to involving diverse stakeholders and being attentive to their knowledge, context, and cultures are money and time intensive. Therefore, in the short-term, broader and higher quality inclusiveness is more costly, which puts pressure on a program or project timeframe, human resources, and budget. Within the given objectives, timeframe, and available resources, a decision must be made on who can be included, which communities can be considered, what knowledge can be exploited, or even which voice can be raised (#7, #12, #14, #15, #19, #21, #24, #26). Participant #11 described these drawbacks in detail:

> On the one hand, it takes time to build relationships with people to get meaningful input and engagement during participatory processes. On the other hand, all work is carried out with specified objectives and scope, and a fixed budget and timeline that obviously pose constraints on how wide and how deep the participation could be. (#11)

Adverse selection: Participants pointed out several cases in which CCA, "unfortunately" (#26), could not be as inclusive as they had expected due to resource constraints. Participant #16 recalled one of the projects in which she had been involved where they looked for partners to represent Indigenous knowledges. She shared the trade-offs that were facing them: "A decision that had to be made from

efficiency versus full inclusion, which would have been different representatives of many different Indigenous perspectives and knowledges across Canada, as opposed to one representative trying to bring it all together". Participant #13 spoke about a trade-off of inclusiveness in CCA that he had just experienced when he supported a client with their climate change risk assessment to get federal funding. He recognized the role of local Indigenous groups to provide their perspectives in the assessment. However, "it is not legally required and will cost them extra money, and they want to do their project quickly, [so] they're not going to be open to it". In these two cases, similarly to many others in practice, resource constraints conflict with inclusiveness, preventing the voices of already disadvantaged or under-served groups from being heard and their experienced knowledges from being incorporated into decision making.

5.4.4 Individual versus systemic changes to promote inclusiveness in climate change adaptation

Individual action to deal with symptoms of non-inclusiveness: Most of the actions that practitioners in this study took to promote inclusiveness in CCA came directly from their attempts to resolve the symptoms of non-inclusiveness that they observed in their everyday work. Participant #4, a female researcher on gender and climate change, found herself in rooms where "there is still a lot of denial on both fronts of why gender matters and why climate change matters". She was, therefore, "in a very awkward and challenging position of having to defend why both things are important". Similarly, participants #10 and #7, young activists, involved in climate change action at community and city levels in Canada and Vietnam. Realizing that "these spaces were non-youth spaces that seemed to need more youth voices" (#10) they then set up organizations to enable youth to raise their voices in climate policymaking and finance youth to start their own local projects. Participant #23 began his career as a scientist of water resources management but shifted to co-conducting climate change research with local practitioners and knowledge holders and gradually empowering them to apply research results and skills in their fields of practice.

Dealing with more foundational issues, for example, the ethical imperative to consider non-human actors due to their own intrinsic values, participants expressed their uncertainty on how to make this happen in the given existing circumstances as well as their hesitation to recommend more foundational solutions for this (#3, #8, #11, #12, #13). Participant #3 proposed an improvement of business as usual in which human beings justify the care for non-human counterparts only insofar as they could be exploited for human benefit: "It's probably challenging to ask a government official or public servant to focus on the ethical aspects for non-human actors, but we can give them human reasons to consider those like asking them to focus on non-human actors for human interests".

From individual action to systemic changes: When being asked what could be done to promote inclusiveness in CCA, participants strove to think positively and to act with what they had at hand, starting with small changes in their everyday work. Participant #8, a policymaker in Vietnam, acknowledged that the political system or the top-down management practices could not be changed in a short time to create perfect inclusiveness. However, "doing a little is better than doing nothing", so she made room for stakeholders' participation and traditional knowledge engagement in her daily work. Participant #24, a senior advisor for the most currently drawn up climate and environment policies in Vietnam, expressed his enthusiasm to introduce a new concept of inclusive CCA into Vietnamese legislation. He agreed to apply a lengthier but more feasible approach to mainstream it in policy documents issued by provincial government because "a little of something goes a long way". Similarly,

their Canadian colleagues believed that their work to integrate gender issues and inclusion principles into CCA (#4, #20), synthesize multidisciplinary academic knowledge for policymakers (#6), or provide training on new multidisciplinary skill sets for practitioners (#13) could support inclusive CCA in practice.

Participants argued that what they did contributed to building awareness, perceptions, and knowledges on inclusive CCA for other practitioners, especially decision makers, inspired others to galvanize action for it. More practitioners "reconsider what they are doing to engage stakeholders into policy or decision-making processes" (#4) to "apply a more inclusive lens into steps and procedures to identify who should be included and how to include them" (#6), and "actually use them to design and to assess their processes" (#20). The influence of their actions could scale up from local, ministerial to national levels (#24). These incremental changes are necessary and have the potential to trigger more radical changes at a larger scale and for a longer term, and thus intensify the impact and benefit. inclusive CCA, rather than being the direct and intermediate effect of any single activity, is instead the follow-up effect of multiple and consistent actions from many members and groups in a society to adapt to climate change in more just and inclusive ways.

5.5 Moving forward: Situating strategies to act for inclusive climate change adaptation

Approaches to bring about a genuine kind of inclusive CCA should successfully manage the four practical paradoxes synthesized above. In this section, we will discuss the main tensions and reinforcing cycles hidden within these paradoxes as well as the strategies to navigate them in order to trigger more inclusiveness in CCA practices.

5.5.1 Uncovering paradoxical tensions and reinforcing cycles

Underlying the first paradox, **the paradox of sense-making**, inclusiveness is an imperative in CCA but how it is understood varies widely among practitioners, are the tensions between consensus versus diversity. These tensions have been reinforced by practitioners' cognitive self-reference. That is, they were trying to make sense of the inclusive CCA concept through their existing frames of reference, such as occupational experiences and ethical values. There is explicit evidence of group polarization in which each group, normally an occupational group, maintains a distinctive way of perceiving inclusiveness in CCA with limited sharing of knowledge and values between groups. Some participants recognized their isolated situation but struggled to find a solution to it.

Two paradoxes of organizing emerge when practitioners struggle to approach inclusive CCA and to organize inclusive CCA practices. The conflicts between idealistic versus realistic versus instrumental approaches to inclusiveness in CCA policymaking, or broad inclusiveness versus limited resources in CCA practices have been fueled by the tensions of desire versus reality/practice, or more specifically, idealistic goals versus practical and political feasibility. On the one hand, participants advocated for broad inclusiveness in terms of who and what should be included, throughout adaptation processes, which would result in just outcomes, especially for the most marginalized and underserved groups. On the other hand, they accepted that the notion of inclusive CCA could not work in adaptation practices characterized by limited resources, conflicting interests, or power imbalances. These tensions have been intensified by the performance measurement based on benchmarks of effectiveness and efficiency and adverse selection that impose harm on the already disadvantaged groups, perpetuating the systemic vulnerabilities and injustice.

The paradox of result reflects the uncertainties of practitioners on how their action could bring about changes to advance inclusive CCA, to what extent incremental changes promoted inclusiveness in CCA, when more radical changes might be needed, and how to engender them. These uncertainties are rooted in the contradiction between evolution within individual comfort zones versus revolution throughout more complex, systemic, and disruptive spaces and have been reinforced by individuals' inertial attitudes, capacities, and actions as well as "business-as-usual" collective action. Participants individually acted to deal with symptoms of exclusion in their everyday work while recognizing their attempts for inclusiveness were challenged by "business as usual" on larger scales such as technocratic policymaking and management, benefit maximization in the private sector, and social discrimination against women and other minority groups.

Table 11: Practical paradoxes of inclusive CCA with underlying tensions and reinforcing cycles Synthesized by authors with reference to Smith & Lewis (2011), Lüscher & Lewis (2008), and Lewis (2000).

Paradoxes	Paradox of **sense-making**: Inclusiveness is an imperative in CCA but how it is understood varies widely among practitioners	Two paradoxes of **organizing**: Idealistic versus realistic versus instrumental approaches to inclusiveness in CCA policies Broad inclusiveness versus limited resources in CCA practices	Paradox of **result**: Incremental versus transformative changes to promote inclusiveness in CCA
Underlying tensions	Consensus versus diversity	Idealistic goals versus practical and political feasibility	Evolution versus revolution
Reinforcing cycles	1. Cognitive self-reference reinforced by occupational experience and ethical values 2. Group polarization: limited sharing of knowledge and values between groups	1. Performance measurement based on benchmarks of effectiveness and efficiency 2. Adverse selection that imposes harm on the already disadvantaged groups	1. Individual's inertial competences and actions 2. Business as usual in collective action that perpetuates social and political injustice

Analyzing practitioners' paradoxes provides opportunities to understand the influence of "systemic inequity at the center of risk and response" (Schipper et al., 2021) on practical attempts to foster a more inclusive adaptation to climate change. Participants provided numerous examples in which institutional arrangements together with social norms continue to put certain social groups (women, Indigenous peoples, language minorities) at a disadvantage as well as limit their voice, power, and access to resources, and often reinforce group inequity over time. Systemic inequalities hinder opportunities to meaningfully engage divergent actors in planning and actions to ensure that adaptation practices are responsive to various vulnerabilities and needs, and supported by diversified knowledges and knowing, engendering resilience in an extremely changing climate. While historical and structural discriminations have been long and well mentioned in adaptation and development discourses (Andrijevic et al., 2020;

Islam & Winkel, 2017), the findings of this research, however, shed light on the mechanism in which the unjust and exclusivity of the status quo and established procedures prevent meaningful inclusiveness in the everyday actions and decision-making of CCA practitioners.

5.5.2 Two strategies to act for inclusive climate change adaptation

Ascertaining inclusive adaptation to climate change requires effectively navigating these paradoxical tensions and their reinforcing cycles underlying in unjust and exclusive social norms and structural institutions. Theories of paradox claim that a realistic and more effective pathway to manage paradoxes should include cognitive complexity and emotional equanimity at individual level and dynamic capacities at collective level (groups, organizations, societies) (Smith & Lewis, 2011; Ferdman, 2017). In development and adaptation literature, there has also been a consensus that the processes to deal with systemic vulnerability, discrimination, and inequity often involve struggles at both individual and political levels (Adger et al., 2017; Eriksen et al., 2021b; Martin et al., 2022). Similarly, we suggest below two main strategies to implement inclusive CCA which offer at least a partial response to the practical paradoxes revealed.

5.5.2.1 Individual actions for societal changes: Optimism, solidarity, and caring

The optimism for a more inclusive CCA in the future together with the consistency and willingness to act in its behalf are apparent across all the interviews with practitioners in this research. While recognizing that optimism and sense of responsibility could motivate practitioners to plan and carry out adaptation practices with respect to inclusiveness, we argue that elaborating the solidarity that some practitioners implicitly mentioned could supplement highly useful principles and guide attempts to achieve inclusiveness in CCA practices.

Optimism: Optimism has been advocated by an array of authors (Bury et al., 2020; Goldberg et al., 2018; Gunasiri et al., 2022; Hornsey & Fielding, 2020) to be of utmost importance to motivate action under the uncertainty and disruption caused by changing climate. There is a strong relationship between optimism, hope, and action because hope can prompt people to act and continue striving to achieve what they value (McKinnon, 2014). During the environmental crisis, asserting the close relationship between human judgement on the nature of existence, human action towards the world, and human capacity to act to maintain the best world for themselves and other living counterparts, reflects a type of optimism that can encourage one to practice caring for nature as an essential way to care for oneself (Strickland, 2020). This is especially relevant when we have crossed six of nine planetary boundaries, the benchmarks within which humanity's development and prosperity does not destroy the ecosystem or sacrifice biosphere integrity (Baldin, 2022).

Despite the long-existing systemic inequalities that have perpetuated and negatively influenced CCA practices in both Canada and Vietnam, participants have strived to stay optimistic in a pragmatic and action focused manner. They explicitly acknowledged existing challenges, difficulties, and appropriate attempts to handle the situation. They perceived their responsibility to facilitate broader and more meaningful participation in their everyday tasks, considering divergent vulnerabilities, concerns, interests, and knowledge to facilitate collective resilience and adaptation to CCA. Such an approach can bring about slight changes that together contribute to the broader shift in society (Brown, 2016; Moser & Ekstrom, 2010; Wilson et al., 2020).

Understanding practitioners' optimism for inclusive CCA has several important implications in practice. All CCA policies, programs, or projects should consider optimistic views of practitioners as a strength and one type of capital that needs to be taken advantage of. Practitioners should not be identified as implementors but, instead, activists who creatively initiate ideas to facilitate and realize inclusiveness in CCA and who have the potential to influence and inspire others to act for inclusive CCA. Practitioners should be involved in CCA action from the outset, which includes assessing vulnerabilities, discussing options, and planning, to ensure that they are fully informed and well equipped to deal with challenges and opportunities in adaptation practices.

Solidarity: Emerging research has conceptualized multifaceted solidarity, spanning from global, intergenerational, to more-than-human solidarity. The global perspective calls for mutual responsibilities between groups and communities, and the articulation of their rights and justice, to tackle the climate impacts which fall disproportionately on the poorest people (Massey, 2007). The intergenerational perspective brings together different age groups and generations to deal with present and anticipated influence of changing climate, respecting the challenges and opportunities associated with different generations as well as showing genuine concern for their well-being (Roy & Ayalon, 2022). The other-than-human perspective expands the principle of solidarity to encompass practices intended to foster engagements with (togetherness) and assist (care) non-human others (Tschakert, 2022). The multifaceted climate solidarities have been empirically tested in different contexts of CCA, as an illustration, in public adaptation reasonings (Adger et al., 2017), or climate-resilient development pathways (Eriksen et al., 2021a) and have been proven to be not only a normative goal but also a means to articulate demand for action and change at both public and private actors for the sake of the most vulnerable, such as people with disabilities, and achieving climate-resilient development for all.

Notions of solidarity were revealed in part through participants' discussions on caring for future generations and the role of mutual trust in collective adaptation. The inclusion of youth and future generations into CCA could be simplified as the way a single parent cares for their children and makes almost all their decisions for the benefit of their children. The collaboration between members of a group brings about mutual trust that contributes to resilience and adaptive capacity of this group. The challenging question here is how to make this simple logic of caring and collaboration go beyond family or group boundaries and extend to the community, national, and global level.

The conceptualization of multifaceted solidarity has profound implications to potentially transform practitioners' everyday work to adapt to climate change inclusively. Solidarity should be considered as a normative goal in CCA, as argued by Schipper and colleagues (2021), implying that social choices should be made with the imperative of caring for those on whom harm has been imposed. Improving the well-being and livelihoods of vulnerable groups should be taken for granted over cost optimization or effectiveness/ efficiency considerations predominating decision making processes in both government and non-government organizations (Gardiner, 2022). The multifaceted nature of climate solidarities brings to light the worldview of nature-society interconnectedness and interdependency (Kittay et al., 2005). Therefore, caring for others is also caring for non-human nature, for spaces, and for resources across temporal scales under climate crisis. Moreover, focusing attention on solidarity highlights the need for cooperating practitioners within and between locations, sectors, and disciplines to prevent limited inclusion that only includes those internally and excludes other outsiders (Chatterton et al., 2013; Tschakert, 2022). A partnership built on solidarity respects multiple worldviews and knowledges, rather than singular or hierarchy of knowledge (Schipper et al., 2022).

5.5.2.2 Law and regulations to enforce and instruct a more inclusive approach to CCA

Previous research has highlighted the insufficient efforts of governments, even their failure, to address the root causes of systemic vulnerabilities and injustice. Institutions set up to administer justice may end up exacerbating misery (Huitema et al., 2016; Kollers, 2016; Schipper et al., 2021) while climate change policies justified by vulnerability reduction for the most vulnerable can lead to actions favoring existing vested interests of elites (McDonald & McCormack, 2021; Scoville-Simonds et al., 2020; Taylor & Bhasme, 2021). As a result, public trust in governments falls down that also reduces public support for government policies and action (Chanley et al., 2000; Cheema, 2011; Mansoor, 2021).

The finding of this study is both consistent with and divergent from previous research. Similarly, practitioners' experiences and stories underlined the insufficient attempts and actions of both the Canadian and Vietnamese governments to promote inclusive CCA, for instance, policy-making processes that partially or totally excluded the vulnerable, their concerns, and benefit or lacking capacities to regulate private sectors' participation in collective adaptation. Differently, this failure has not resulted in negative attitudes or behaviors toward governments, such as the illusion of trust in governments or the disengagement in government policies and strategies. Participants appreciated the legitimacy of adaptation decisions and actions taken by governments and emphasized the role of governments to act in a consistent and heuristic manner for genuine inclusiveness in CCA.

We argue here that there are opportunities for governments to carefully integrate inclusiveness into adaptation legislation designed to effectively involve and empower the most vulnerable groups and address equity dimensions of climate change. Below, we will further discuss some implications for legislative and policy shifts to support genuine inclusiveness in CCA.

Institutionalizing inclusiveness in CCA, opening spaces for divergent worldviews, ideologies, values, interests, needs and experiences of CC: Inclusiveness refers to the right, well-being, and flourishing of human, both present and future, and more-than-human counterparts. For present people, it refers to the political rights to recognition as agents who are capable of being decisive concerning their own lives, and to actively participate in societal choices, raising voices, opinions, and interests, and to the sense of connectedness and meaningfulness to the society. For the future people and non-human actors, inclusiveness stresses their rights to thrive in a safe and stable climate. Institutionalizing inclusiveness as human and nature rights and wellbeing issues could be the very first and most important step to shifting from them being included to them being a natural part in public decision-making arenas. This entails an opening up of space to insert diverse and contesting worldviews, ideologies, values, interests, needs, and experiences into public deliberation and decision-making to adapt to climate change (Taylor Aiken et al., 2017; Barclay et al., 2019; Howitt, 2020).

The environmental legislation in both Vietnam and Canada is far more succinct in requirements for inclusiveness during decision-making processes than in climate change related laws and regulations. The Impact Assessment Act respects a Canadian federal process for impact assessments with the prevention of significant adverse environmental effects. This act has been supplemented with a practitioner's guide (GoC, 2019), which includes templates and detailed policy guidance on public participation and Indigenous participation and engagement. The Vietnamese law on Environmental Protection (NAV, 2014) clearly sets requirements to conduct the environmental impact assessment, and, in this process, those who are involved or impacted by the environmental impact then must be involved in this

environmental impact assessment. Climate legislation could learn from these good practices to ensure that adaptation measures will be enforced by law so that they are developed and implemented in a more inclusive way.

Mitigating trade-offs: The choices made in inclusion are always challenging in terms of what are deemed desirable or acceptably negative outcomes for whom/what and at what time scales and who decide (Schipper et al., 2021). Practitioners in this research also found themselves struggling with the idea of how "wide and deep" inclusiveness should be achieved in the adaptation practices they were leading or involved in.

In many cases, as pointed out by participants, also thoroughly discussed in the literature, adverse selections were made, leading to adaptation policies and practices being set at the expense of the most visible and vulnerable actors. For instance, the notion of time and money efficiency constrained the efforts to include diverse voices in decision-making processes and other aspects of the public spheres (Mikulewicz, 2020; Niewohner et al., 2020; Nightingale et al., 2020). The traditional epistemological assumption legitimizes knowledge produced objectively and delegitimizes lay knowledges of local communities, Indigenous knowledges, or embodied knowledges based on experiences of the most vulnerable groups (Hulme, 2018; Byskov & Hyams, 2022). Even worse, practitioners seeking to fight for poverty elimination for the current generation "may be tricked (or tempted) into accepting short-term gains for those most vulnerable now, at the expense of future generations and the rest of nature" (Gardiner, 2022, p.582).

Therefore, law and regulation at the national level are crucial to supporting trade-off management in practice, for example, by providing transparent and consistent mechanisms to determine priorities across competing actors, knowledge, and interests. This call especially resonates in the context that most official public policy, including the 2030 United Agenda for Sustainable Development or environmental and climate polices at EU level, tends to avoid acknowledging trade-offs (Galafassi et al., 2017; Nilsson & Weitz, 2019). To govern trade-offs calls for a more desirable adaptation legislation that allows democratic and parliamentary processes to determine the hierarchy of priorities for any given community, supplemented by an executive system to guide and interpret trade-offs across legal regimes and scales (McDonald & McCormack, 2021). Organizational theories recently contributed the both/and mindset as a tool to deal with choice making in trade-off or dilemma situations (Smith et al., 2022). Reframing trade-off as opportunities, separating options to understand pros and cons and reconnecting them, and rethinking the outcomes in a way that maximizes the benefit of both options could be the essential steps to embrace more creative adaptation action, achieving broad inclusiveness despite of resource constrains.

Leading transformational changes: Participants have repeatedly mentioned the perpetuating mechanisms that exclude disadvantaged groups from discussions about climate-related policy and practice. These mechanisms include prevailing ideologies of individualism and human-centrism, historical colonization, gender discrimination, and technocratic participation in public policymaking. Incremental changes triggered by individual attempts are not sufficient to deal with the root causes of exacerbated injustice and non-inclusiveness underlying these problems in CCA. Transformation at the system level is required to deal with hidden power imbalances in representation, interest, and value (Schipper et al., 2021; Wilson et al., 2020). It is apparently the role of governments to carry out tougher measures such as law and regulation to enforce inclusiveness, facilitating deliberative institutions and

procedures for decision making and knowledge production (Kett & Cole, 2018; Eriksen et al., 2021a; Martin et al., 2022).

Development discourses were observed by practitioners in this research as arenas where exclusion and marginalization mostly occur and perpetuate the mechanism through which CCA interventions often favor the views of the majority and ignore minorities' perspectives, authority, and benefit. It is essential for governments to reconsider development discourses that focus on a maximum return rate on loans, increasing GDP, or other quantitative development metrics. Development should be done with the meaningful involvement and support of local agencies, institutions, and vulnerable groups, fully recognized their culture, specificities, and socio-economic dynamics, carried out equitable procedures, and resulted in just outcomes for people, present and future, and beyond-human actors such as environment, ecosystems, and animals (Gupta & Vegelin, 2016; Patterson et al., 2017; Rammelt & Gupta, 2021). What we propose here matches the apparent implication of the 2030 Agenda for Sustainable Development (United Nations, 2015) to change the foundational content of development based on its pledge to leave no one behind and its aim of living within ecological limits so that sustainable development also embeds inclusive and transformative works (Gupta & Vegelin, 2023).

Law and regulations are needed to challenge the decision-making authority's assumptions that legitimize and rely on a narrow range of experts and particular types of knowledge. Vulnerable groups and local communities should be recognized as experts on their situation and their vulnerabilities, as well as the social processes that produce their vulnerabilities. A shift is needed in law and regulations on legitimate knowledge production across all levels, from national to grass-roots levels, and across contexts, from formal ones at universities or research institutions to informal ones at community centers or other public places. A new model of knowledge co-production, such as transdisciplinary methods, which involves local people and the traditionally disadvantaged and marginalized groups including people with disabilities, 2SLGBTQI+, Indigenous people, women, youth and children, should be incentivized, regulated, and sustained by government funding or mandatory requirements. Such an understanding that is promoted by valuing knowledge diversity, especially experiential knowledge of the lived reality, could inform socially contextualized types of measures addressing not only climate risks but also underlying systemic inequality and historic injustice (Goldman, 2018; Schneider et al., 2019; Shi et al., 2016; Shi & Moser, 2021). Moreover, a policy shift could facilitate the processes of knowledge co-production and support competence building for community and marginalized groups, empowering them to meaningfully inform, implement, and influence adaptation responses, thus building collective power that can potentially lead to structural change in support of more inclusive and just adaptation (Eriksen et al., 2021b; Vogebyskovl & O'Brien, 2022; Ziervogel et al., 2022).

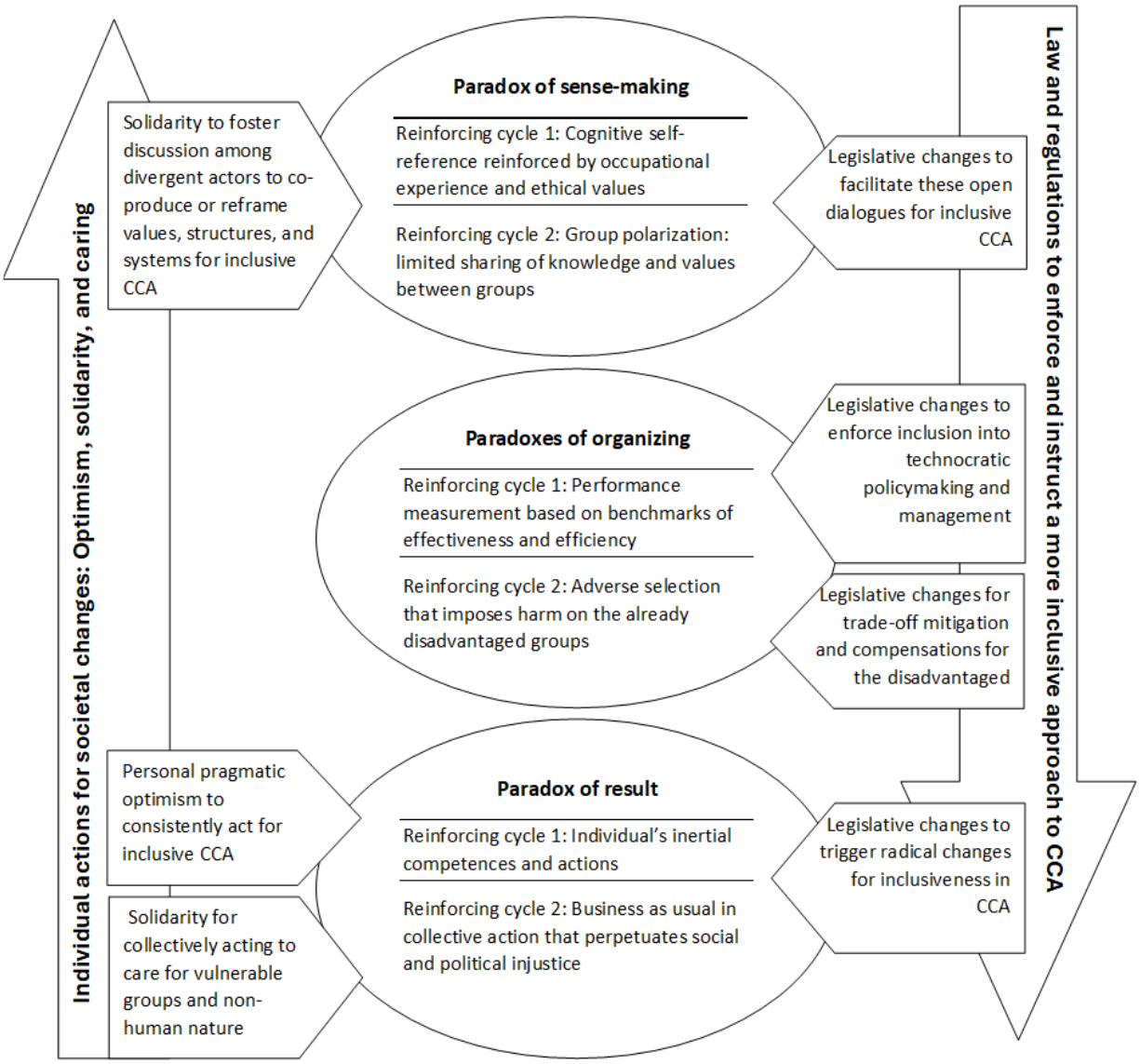


Figure 18: Strategies for managing practical paradoxes of inclusive CCA

5.6 Conclusion

Inclusive CCA concepts and actions embed many challenges and tensions. Paradox theory may provide a lens to investigate these tensions, enriching our understandings of the interconnected and interdependent nature of opposing forces (ideas, actions, goals) as well as the hidden or revealed dynamic reinforcing them persistently in inclusiveness work within adaptation practices. Considering these tensions from a paradoxical perspective is also a key to promote inclusiveness more thoroughly and systemically in adaptation plans and actions. Practitioners who are seeking to foster inclusive CCA should be well-equipped with a paradoxical mindset to consider opposing forces not as resistance, controversies, or disputes, but as inherent manifestations of diversity dynamics in CCA and the pluralistic nature of inclusion itself. The realistic and effective approaches to managing these tensions are unlikely to eliminate them by choosing one over others or synthesizing them into one consensus. A paradoxical framework should be developed that encourages these contradictory but interdependent

elements to counteract creatively and productively, thus increasing the likelihood of a more inclusive CCA. Recognizing, accepting, and appreciating the recurring and inherent contradicting forces in inclusion and adaptation practices would better prepare practitioners to engage and address diversity dynamics in adaptation actions as well as the pluralistic nature of inclusiveness for expanding social just and equity.

The two approaches we proposed have resulted from analyzing the perceptions of practitioners of inclusive CCA in Canada and Vietnam, focusing on the four practical paradoxes that they have struggled with in their everyday efforts to achieve more inclusiveness in CCA. Are these approaches robust or specific to the contexts of Canada and Vietnam? We argue that these approaches could be salient and relevant elsewhere, where practitioners maintain their pragmatic optimism for inclusive CCA and sufficiently acknowledge the urgent need to break the systemic and structural barriers that are preventing societal changes, especially transformational changes, for inclusive CCA.

The approaches proposed in this paper are complementary and potentially operate as a constructive mechanism to support both the slight and radical changes necessary for inclusive CCA. Practitioners foster inclusiveness in CCA everyday practice, rooted in their optimism and by means of solidarity and caring for the human and more-than-human world. Legislative and executive systems impose laws and regulations that guide systemic changes for inclusive CCA. Granted, such changes potentially disrupt stability and interfere with established procedures, which can threaten government authorities and cause strong resistance within public agencies. Law, regulation, and policy should predict and include measures to confront potential conflicts and disputes. Practitioners, on the one hand, are instructed by these legal documents. They, on the other hand, could deliberatively participate in these legislative processes, making sure laws and regulations acknowledge inclusive CCA barriers and obstructions, and being responsive to the solutions for more inclusiveness in CCA practices. Furthermore, practitioners could carry out ongoing evaluation to report progress and recommend legislative changes if there is any evidence that laws and regulations are not favoring inclusiveness but, to the contrary, are reinforcing entrenched inequalities and unjust in CCA practices.

The paradoxes identified in this paper as well as two approaches proposed to manage them also have several implications for the original inclusive CCA framework and indicators of Saner & Pham (Appendix 4), also the updated version in Pham & Saner (in press). First, a framework that conceptualizes inclusive CCA should be broad in nature but still open to consider the social construction of this concept meaning how perceptions and behaviors related to inclusive CCA could be formulated, sustained, and shaped by specific characteristics of a society's conventions and structures. Second, granted that contradictions are inherent and recurring in any attempt for adapting to climate change inclusively, an inclusive CCA framework should recognize and create spaces to manage these contradictions at both individual and collective levels. Third, measuring the progress of inclusiveness in CCA should also reflect the extent that changes (both incremental and radical) are triggered by individual or collective attempts to resolve the systemic vulnerabilities and exclusion rooted in social norm and institutional arrangements that put certain social groups (women, Indigenous peoples, language minorities) at a disadvantage, limit their voice, power, and access to resources, and often hinder their opportunities to meaningfully engage in adaptation planning and actions.

Notably, participants also give a number of detailed recommendations for this framework that we summarized partly in the instrumental approach to inclusive CCA under the description of the second

paradox: Idealistic verse realistic verse instrumental approaches. A more comprehensive analysis of these recommendations and how they could inform the modification of Pham & Saner's inclusive CCA framework and indicators (Pham & Saner, in press) is carried out and presented in another paper in progress.

References

Adaptation Research Alliance. (2021). *Adaptation Research for Impact Principles*. https://www.adaptationresearchalliance.org/fileadmin/uploads/ara/Documents/Adaptation_Research_for_Impact_Principles_28.10.21.pdf

Adger, W. N., Butler, C., & Walker-Springett, K. (2017). Moral reasoning in adaptation to climate change. *Environmental Politics, 26*(3), 371–390. https://doi.org/10.1080/09644016.2017.1287624

Andrijevic, M., Crespo Cuaresma, J., Lissner, T., Thomas, A., & Schleussner, C.-F. (2020). Overcoming gender inequality for climate resilient development. *Nature Communications*, *11*(1), 6261–6268. https://doi.org/10.1038/s41467-020-19856-w

Baldin, S. (2022). How to inhabit the best of all possible worlds? Leibniz's philosophical optimism in the age of environmental crises. In Abe, H., Fritsch, M., & Wenning, M. (Eds.). *Environmental Philosophy and East Asia: Nature, Time, Responsibility (1st ed.)*. Routledge. https://doi-org/10.4324/9781003217305

Barclay, J., Wilkinson, E., White, C. S., Shelton, C., Forster, J., Few, R., Lorenzoni, I., Woolhouse, G., Jowitt, C., Stone, H., & Honychurch, L. (2019). Historical Trajectories of Disaster Risk in Dominica. *International Journal of Disaster Risk Science*, *10*(2), 149–165. https://doi.org/10.1007/s13753-019-0215-z

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Brown, K. (2016). *Resilience, Development and Global Change*. Routledge, Abingdon, Oxon and New York

Bryman, A. (2012). *Social research methods (4th ed)*. Oxford University Press, Oxford; New York.

Bury, S. M., Wenzel, M., & Woodyatt, L. (2020). Against the odds: Hope as an antecedent of support for climate change action. *British Journal of Social Psychology, 59*(2), 289–310. https://doi.org/10.1111/bjso.12343

Byskov, M. F., Hyams, K., Satyal, P., Anguelovski, I., Benjamin, L., Blackburn, S., Borie, M., Caney, S., Chu, E., Edwards, G., Fourie, K., Fraser, A., Heyward, C., Jeans, H., McQuistan, C., Paavola, J., Page, E., Pelling, M., Priest, S., … Venn, A. (2021). An agenda for ethics and justice in adaptation to climate change. *Climate and Development*, *13*(1), 1–9. https://doi.org/10.1080/17565529.2019.1700774

Byskov, M. F., & Hyams, K. (2022). Epistemic injustice in Climate Adaptation. *Ethical Theory and Moral Practice, 25*(4), 613–634. https://doi.org/10.1007/s10677-022-10301-z

Canadian Charter of Rights and Freedoms, *Part 1 of the Constitution Act*, 1982, being Schedule B to the Canada Act 1982 (UK), c 11. https://laws-lois.justice.gc.ca/PDF/CONST_TRD.pdf

Chakraborty, R., & Sherpa, P. Y. (2021). From climate adaptation to climate justice: Critical reflections on the IPCC and Himalayan climate knowledges. *Climatic change*, *167*(3-4), 49. https://doi-org/10.1007/s10584-021-03158-1

Chanley, V. A., Rudolph, T. J., & Rahn, W. M. (2000). The Origins and Consequences of Public Trust in Government: A Time Series Analysis. *The Public Opinion Quarterly*, *64*(3), 239–256. http://www.jstor.org/stable/3078718

Chatterton, P., Featherstone, D., & Routledge, P. (2013). Articulating Climate Justice in Copenhagen: Antagonism, the Commons, and Solidarity. *Antipode*, *45*(3), 602–620. https://doi.org/10.1111/j.1467-8330.2012.01025.x

Cheema, G. S. (2011). Engaging civil society to promote democratic local governance: Emerging trends and policy implications in Asia. Working Paper No. 7, *Swedish International Centre for local Democracy*. https://icld.se/wp-content/uploads/media/working-paper/icld-wp7-printerfriendly.pdf

Chu, E. K., & Cannon, C. E. (2021). Equity, inclusion, and justice as criteria for decision-making on climate adaptation in cities. *Current Opinion in Environmental Sustainability*, *51*, 85–94. https://doi.org/10.1016/j.cosust.2021.02.009

Eriksen, S. H., Grøndahl, R., & Sæbønes, A.-M. (2021a). On CRDPs and CRPD: why the rights of people with disabilities are crucial for understanding climate-resilient development pathways. *The Lancet. Planetary Health*, *5*(12), e929–e939. https://doi.org/10.1016/S2542-5196(21)00233-3

Eriksen, S., Schipper, E. L. F., Scoville-Simonds, M., Vincent, K., Adam, H. N., Brooks, N., Harding, B., Khatri, D., Lenaerts, L., Liverman, D., Mills-Novoa, M., Mosberg, M., Movik, S., Muok, B., Nightingale, A., Ojha, H., Sygna, L., Taylor, M., Vogel, C., & West, J. J. (2021b). Adaptation interventions and their effect on vulnerability in developing countries: Help, hindrance or irrelevance? *World Development, 141*, 105383-. https://doi.org/10.1016/j.worlddev.2020.105383

Federation of Canada Municipalities (FCM). *Climate adaptation maturity scale*. https://fcm.ca/sites/default/files/documents/resources/tool/mcip-av-climate-adaptation-maturity-scale.pdf

Felder, F. (2022). *The ethics of inclusive education: presenting a new theoretical framework*. Routledge.

Ferdman, B. M. (2017). Paradoxes of Inclusion: Understanding and Managing the Tensions of Diversity and Multiculturalism. *The Journal of Applied Behavioral Science, 53*(2), 235–263. https://doi.org/10.1177/0021886317702608

Galafassi, D., Daw, T. M., Munyi, L., Brown, K., Barnaud, C., & Fazey, I. (2017). Learning about social-ecological trade-offs. *Ecology and Society*, *22*(1), 2-. https://doi.org/10.5751/ES-08920-220102

Gardiner, S. M. (2022). Environmentalizing Bioethics: Planetary Health in a Perfect Moral Storm. *Perspectives in Biology and Medicine*, *65*(4), 569–585. https://doi.org/10.1353/pbm.2022.0048

Goldberg, J. A., Marshall, N. A., Birtles, A., Case, P., Curnock, M. I., & Gurney, G. G. (2018). On the relationship between attitudes and environmental behaviors of key Great Barrier Reef user groups. *Ecology and Society: A Journal of Integrative Science for Resilience and Sustainability, 23*(2). https://doi.org/10.5751/ES-10048-230219

Goldman, M. J., Turner, M. D., & Daly, M. (2018). A critical ecology of human dimensions of climate change: Epistemology, ontology, and ethics. *Climate Change, 9*(4). https://doi.org/10.1002/wcc.526 e526

Gordon, I. J., Evans, D. M., Garner, T. W. J., Katzner, T., Gompper, M. E., Altwegg, R., Branch, T. A., Johnson, J. A., & Pettorelli, N. (2014). Enhancing communication between conservation biologists and conservation practitioners: Letter from the Conservation Front Line. *Animal Conservation*, *17*(1), 1–2. https://doi.org/10.1111/acv.12097

Government of Canada (2022). *National Adaptation Strategy-Canada's National Adaptation Strategy: Building Resilient Communities and a Strong Economy. https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/national-adaptation-strategy/full-strategy.html*

Government of Canada (2019). *Practitioner's Guide to Federal Impact Assessments*. https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act.html

Government of Vietnam (2022). *Decision No. 896/QD-TTg on approving the National Strategy for Climate Change until 2050.* https://vanban.chinhphu.vn/?pageid=27160&docid=206254

Gunasiri, H., Wang, Y., Watkins, E.-M., Capetola, T., Henderson-Wilson, C., & Patrick, R. (2022). Hope, Coping and Eco-Anxiety: Young People's Mental Health in a Climate-Impacted Australia. *International Journal of Environmental Research and Public Health, 19*(9). https://doi.org/10.3390/ijerph19095528

Gupta, J., & Vegelin, C. (2023). Inclusive development, leaving no one behind, justice and the sustainable development goals. *International Environmental Agreements: Politics, Law and Economics, 23*(2), 115–121. https://doi.org/10.1007/s10784-023-09612-y

Gupta, J., & Vegelin, C. (2016). Sustainable development goals and inclusive development. *International Environmental Agreements: Politics, Law and Economics, 16*(3), 433–448. https://doi.org/10.1007/s10784-016-9323-z

Hayward, T. (2012). Climate change and ethics. *Nature Climate Change*, *2*(12), 843–848. https://doi.org/10.1038/nclimate1615

Hornsey, M. J., & Fielding, K. S. (2020). Understanding (and Reducing) Inaction on Climate Change. *Social Issues and Policy Review, 14*(1), 3–35. https://doi.org/10.1111/sipr.12058

Howarth, C., Lane, M., Morse-Jones, S., Brooks, K., & Viner, D. (2022). The 'co' in co-production of climate action: Challenging boundaries within and between science, policy and practice. *Global Environmental Change*, *72*, 102445-. https://doi.org/10.1016/j.gloenvcha.2021.102445

Howarth, C., & Viner, D. (2022). Integrating adaptation practice in assessments of climate change science: The case of IPCC Working Group II reports. *Environmental Science & Policy*, *135*, 1–5. https://doi.org/10.1016/j.envsci.2022.04.009

Howarth, C., Viner, D., Dessai, S., Rapley, C., & Jones, A. (2017). Enhancing the contribution and role of practitioner knowledge in the Intergovernmental Panel on Climate Change (IPCC) Working

Group (WG) II process: Insights from UK workshops. *Climate Services*, *5*(C), 3–10. https://doi.org/10.1016/j.cliser.2017.04.003

Howitt, R. (2020). Decolonizing People, Place and Country: Nurturing Resilience across Time and Space. *Sustainability (Basel, Switzerland)*, *12*(15), 5882-. https://doi.org/10.3390/su12155882

Huitema, D., Adger, W. N., Berkhout, F., Massey, E., Mazmanian, D., Munaretto, S., Plummer, R., & Termeer, C. C. J. A. M. (2016). The governance of adaptation: choices, reasons, and effects. Introduction to the Special Feature. *Ecology and Society*, *21*(3). http://www.jstor.org/stable/26269946

Hulme, M. (2018). "Gaps" in Climate Change Knowledge: Do They Exist? Can They Be Filled? *Environmental Humanities*, *10*(1), 330–337. https://doi.org/10.1215/22011919-4385599

Intergovernmental Panel on Climate Change (2023). Annex I: Glossary [Reisinger, A., D. Cammarano, A. Fischlin, J.S. Fuglestvedt, G. Hansen, Y. Jung, C. Ludden, V. Masson-Delmotte, R. Matthews, J.B.K Mintenbeck, D.J. Orendain, A. Pirani, E. Poloczanska, and J. Romero (eds.)]. In: *Climate Change 2023: Synthesis Report*. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 119-130. https://doi.org/10.59327/IPCC/AR6-9789291691647.002.

Intergovernmental Panel on Climate Change (2022). *Climate Change 2022: Impacts, Adaptation, and Vulnerability.* Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. Cambridge University Press, Cambridge, UK and New York, NY, USA, 3056 pp. https//doi.org/10.1017/9781009325844.

Islam, S. & Winkel, J. (2017). *Climate Change and Social Inequality*. Department of Economic & Social Affairs DESA Working Paper No. 152 ST/ESA/2017/DWP/152. https://www.un.org/esa/desa/papers/2017/wp152_2017.pdf

Jasanoff, Sheila. (2004). *States of knowledge: the co-production of science and social order*. Routledge. https://doi.org/10.4324/9780203413845

Kett, M. & Cole, E. (2018). Disability and climate resilience research project. London: Leonard Cheshire.

Kittay, E. F., Jennings, B., & Wasunna, A. A. (2005). Dependency, Difference and the Global Ethic of Longterm Care. *The Journal of Political Philosophy*, *13*(4), 443–469. https://doi.org/10.1111/j.1467-9760.2005.00232.x

Kollers, A. (2016). *A moral theory of solidarity*. Oxford University Press.

Lewis, M. W. (2000). Exploring Paradox: Toward a More Comprehensive Guide. *The Academy of Management Review, 25*(4), 760–776. https://doi.org/10.2307/259204

Lüscher, L. S., & Lewis, M. W. (2008). Organizational change and managerial sensemaking: Working through paradox. *Academy of Management Journal, 51*(2), 221–240. https://doi.org/10.5465/amj.2008.31767217

Mansoor M. (2021). Citizens' trust in government as a function of good governance and government agency's provision of quality information on social media during COVID-19. *Government information quarterly, 38*(4), 101597. https://doi-org/10.1016/j.giq.2021.101597

Martin, M. A., Boakye, E. A., Boyd, E., Broadgate, W., Bustamante, M., Canadell, J. G., Carr, E. R., Chu, E. K., Cleugh, H., Csevár, S., Daoudy, M., de Bremond, A., Dhimal, M., Ebi, K. L., Edwards, C., Fuss, S., Girardin, M. P., Glavovic, B., Hebden, S., … Zhao, Z. J. (2022). Ten new insights in climate science 2022. *Global Sustainability*, *5*. https://doi.org/10.1017/sus.2022.17

Massey, D. (2007). *World City*. Cambridge: Polity

McDonald, J., & McCormack, P. C. (2021). Rethinking the role of law in adapting to climate change. *Wiley Interdisciplinary Reviews. Climate Change, 12*(5), e726–n/a. https://doi.org/10.1002/wcc.726

McKinnon, C. (2014). Climate change: Against despair. *Ethics and the Environment, 19*(1), 31–48. https://doi.org/10.2979/ethicsenviro.19.1.31

Mikulewicz, M. (2020). The discursive politics of adaptation to climate change. *Annals of the American Association of Geographers, 110*(6), 1807–1830. https://doi.org/10.1080/24694452.2020.1736981

Miron-Spektor, E., Ingram, A., Keller, J., Smith, W. K., & Lewis, M. W. (2018). Microfoundations of organizational paradox: The problem is how we think about the problem. *Academy of Management Journal, 61*(1), 26–45. https://doi.org/10.5465/amj.2016.0594.

Moser, S.C. & Ekstrom, J.A. (2010) A framework to diagnose barriers to climate change adaptation. *Proceedings of the National Academy of Sciences 107*(51):22026–22031. https//doi.org/10.1073/ pnas.1007887107

National Assembly of Vietnam (NAV). (2014). *Law on Environmental Protection*. https://english.luatvietnam.vn/law-no-55-2014-qh13-of-the-national-assembly-on-environmental-protection-87933-doc1.html

National Assembly of Vietnam (NAV). (2013). The Socialist Republic of Vietnam's 2013 Constitution. https://constitutionnet.org/sites/default/files/tranlation_of_vietnams_new_constitution_enuk_2.pdf

Niewohner, J., Pierson, S., & Meyers, S. J. (2020). "Leave no one behind"? The exclusion of persons with disabilities by development NGOs. *Disability & Society*, *35*(7), 1171–1176. https://doi.org/10.1080/09687599.2019.1664053

Nightingale, A. J., Eriksen, S., Taylor, M., Forsyth, T., Pelling, M., Newsham, A., Boyd, E., Brown, K., Harvey, B., Jones, L., Bezner Kerr, R., Mehta, L., Naess, L. O., Ockwell, D., Scoones, I., Tanner, T., & Whitfield, S. (2020). Beyond Technical Fixes: climate solutions and the great derangement. *Climate and Development, 12*(4), 343– 352. https://doi.org/10.1080/17565529.2019.1624495

Nilsson, M., & Weitz, N. (2019). Governing Trade-Offs and Building Coherence in Policymaking for the 2030 Agenda. *Politics and Governance, 7*(4), 254–263. https://doi.org/10.17645/pag.v7i4.2229

North, M. A., Hunter, N. B., Roberts, D. C., & Slotow, R. (2022). Science for implementation: the roles, experiences, and perceptions of practitioners involved in the Intergovernmental Panel on Climate Change. *Climate Action, 1*(1). https://doi.org/10.1007/s44168-022-00025-2

O'Brien, K. (2012). Global environmental change II: From adaptation to deliberate transformation. *Progress in Human Geography 36*(5):667–676. https://doi.org/10.1177/0309132511425767

Paavola, J., & Adger, W. N. (2006). Fair adaptation to climate change. *Ecological Economics, 56*(4), 594–609. https://doi.org/10.1016/j.ecolecon.2005.03.015

Patterson, J., Schulz, K., Vervoort, J., van der Hel, S., Widerberg, O., Adler, C., Hurlbert, M., Anderton, K., Sethi, M., & Barau, A. (2017). Exploring the governance and politics of transformations towards sustainability. *Environmental Innovation and Societal Transitions, 24*, 1–16. https://doi.org/10.1016/j.eist.2016.09.001

Pham, H. & Saner, M. (2021). A Systematic Literature Review of Inclusive Climate Change Adaptation. *Sustainability*. https://doi.org/10.3390/su131910617

Pham, H & Saner, M. (2024). Framework and Proposed Indicators for the Comprehensive Evaluation of Inclusiveness: The Case of Climate Change Adaptation. *Facets,* 9(): 1-15. https://doi.org/10.1139/facets-2023-0017

Rammelt, C., & Gupta, J. (2021). Inclusive is not an adjective, it transforms development: A post-growth interpretation of inclusive development. *Environmental Science and Policy, 124*, 144–155. https://doi.org/10.1016/j.envsci.2021.06.012

Rarai, A., Parsons, M., Nursey-Bray, M., & Crease, R. (2022). Situating climate change adaptation within plural worlds: The role of Indigenous and local knowledge in Pentecost Island, Vanuatu. *Environment and Planning E: Nature and Space, 5*(4), 2240–2282. https://doi.org/10.1177/25148486211047739

Roy, S., & Ayalon, L. (2022). Intergenerational Relations in the Climate Movement: Bridging the Gap toward a Common Goal. *International journal of environmental research and public health, 20*(1), 233. https://doi-org/10.3390/ijerph20010233

Schad, J., Miron-Spektor, E. (2020). Lewis, Marianne W.: Paradoxes of Change and Changing through Paradox. In: Szabla, D. (eds) *The Palgrave Handbook of Organizational Change Thinkers*. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-319-49820-1_114-1

Schipper, E.L.F., A. Revi, B.L. Preston, E.R. Carr, S.H. Eriksen, L.R. Fernandez-Carril, B.C. Glavovic, N.J.M. Hilmi, D. Ley, R. Mukerji, M.S. Muylaert de Araujo, R. Perez, S.K. Rose, and P.K. Singh, 2022: Climate Resilient Development Pathways. In: *Climate Change 2022: Impacts, Adaptation and Vulnerability*. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 2655–2807. https://doi.org/10.1017/9781009325844.027

Schipper, E. L. F., Eriksen, S. E., Fernandez Carril, L. R., Glavovic, B. C., & Shawoo, Z. (2021). Turbulent transformation: abrupt societal disruption and climate resilient development. *Climate and Development*, *13*(6), 467–474. https://doi.org/10.1080/17565529.2020.1799738

Schneider, F., Giger, M., Harari, N., Moser, S., Oberlack, C., Providoli, I., Schmid, L., Tribaldos, T., & Zimmermann, A. (2019). Transdisciplinary co-production of knowledge and sustainability transformations: Three generic mechanisms of impact generation. *Environmental Science and Policy, 102*(July), 26–35. https://doi.org/10.1016/j.envsci.2019.08.017

Scoville-Simonds, M., Jamali, H., & Hufty, M. (2020). The Hazards of Mainstreaming: Climate change adaptation politics in three dimensions. *World Development, 125*, https://doi.org/10.1016/j.worlddev. 2019.104683

Shi, L., & Moser, S. (2021). Transformative climate adaptation in the United States: Trends and prospects. *Science (American Association for the Advancement of Science), 372*(6549), 1408-. https://doi.org/10.1126/science.abc8054

Shi, L., Chu, E., Anguelovski, I., Aylett, A., Debats, J., Goh, K., Schenk, T., Seto, K. C., Dodman, D., Roberts, D., Roberts, J. T., & VanDeveer, S. D. (2016). Roadmap towards justice in urban climate adaptation research. *Nature Climate Change, 6*(2), 131–137. https://doi.org/10.1038/nclimate2841

Singh, C., Iyer, S., New, M. G., Few, R., Kuchimanchi, B., Segnon, A. C., & Morchain, D. (2022). Interrogating "effectiveness" in climate change adaptation: 11 guiding principles for adaptation research and practice. *Climate and Development*, *14*(7), 650–664. https://doi.org/10.1080/17565529.2021.1964937

Smith, W. K., Lewis, M. W., & Edmondson, A. C. (2022). *Both/and thinking: embracing creative tensions to solve your toughest problems*. Harvard Business Review Press.

Smith, W. K., Lewis, M. W., & Tushman, M. L. (2016). "Both/And" Leadership. In Harvard business review (pp. 1-). Harvard Business Review. https://hbr.org/2016/05/both-and-leadership

Smith, W. K., & Lewis, M. W. (2011). Toward a theory of paradox: A dynamic equilibrium model of organizing. *Academy of Management Review, 36*(2), 381–403. https://doi.org/10.5465/AMR.2011.59330958.

Strickland, L. (2020). Staying Optimistic: The Trials and Tribulations of Leibnizian Optimism. In *Leibniz's Legacy and Impact* (1st ed., pp. 53–86). Routledge. https://doi.org/10.4324/9781315103570-3

Swart, R. J., de Bruin, K., Dhenain, S., Dubois, G., Groot, A., & von der Forst, E. (2017). Developing climate information portals with users: Promises and pitfalls. *Climate Services*, *6*(C), 12–22. https://doi.org/10.1016/j.cliser.2017.06.008

Taylor, M., & Bhasme, S. (2021). Between deficit rains and surplus populations: The political ecology of a climate-resilient village in South India. *Geoforum*, *126*, 431–440. https://doi.org/10.1016/j.geoforum.2020.01.007

Taylor Aiken, G., Middlemiss, L., Sallu, S., & Hauxwell-Baldwin, R. (2017). Researching climate change and community in neoliberal contexts: an emerging critical approach. *Wiley Interdisciplinary Reviews. Climate Change, 8*(4), e463-n/a. https://doi.org/10.1002/wcc.463

Tschakert, P. (2022). More-than-human solidarity and multispecies justice in the climate crisis. *Environmental Politics*, *31*(2), 277–296. https://doi.org/10.1080/09644016.2020.1853448

Tyler, M. (2019). Reassembling difference? Rethinking inclusion through/as embodied ethics. *Human Relations (New York)*, *72*(1), 48–68. https://doi.org/10.1177/0018726718764264

United Nations, general assembly (2015). *Transforming our world: The 2030 Agenda for Sustainable Development*. https://sdgs.un.org/2030agenda.

United Nations Office of Disaster Risk Reduction (UNDRR). (2015). *Sendai Framework for Disaster Risk Reduction 2015-2030*. https://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf?_gl=1*d68ocg*_ga*Nzg0NDY1NjYyLjE3MDEyNzE2MDk.*_ga_D8G5WXP6YM*MTcwMTI3MTY2MC4xLjAuMTcwMTI3MTY2MC4wLjAuMA.

Villamor, G. B., Wakelin, S. J., & Clinton, P. W. (2023). Climate change, risk perceptions and barriers to adaptation among forest growers in New Zealand. *Journal of the Royal Society of New Zealand*, ahead-of-print(ahead-of-print), 1–16. https://doi.org/10.1080/03036758.2023.2218103

Viner, D. & Howarth, C. (2014). Practitioners' work and evidence in IPCC reports. *Nat Clim Chang 4*:848. https://doi.org/10.1038/nclimate2362

Vogel, C., & O'Brien, K. (2022). Getting to the heart of transformation. *Sustainability Science*, *17*(2), 653–659. https://doi.org/10.1007/s11625-021-01016-8

Wilson, R. S., Atar, H., Hamilton, M., & Brooks, J. S. (2020). From incremental to transformative adaptation in individual responses to climate-exacerbated hazards. *Nature Climate Change, 10*(3), 200–208. https://doi.org/10.1038/s41558-020-0691-6

Yamineva, Y. (2017). Lessons from the Intergovernmental Panel on Climate Change on inclusiveness across geographies and stakeholders. *Environmental Science & Policy, 77*, 244–251. https://doi.org/10.1016/j.envsci.2017.04.005

Yanco, E., Batavia, C., & Ramp, D. (2021). Compassion and moral inclusion as cornerstones for conservation education and coexistence. *Biological Conservation, 261*, 109253–. https://doi.org/10.1016/j.biocon.2021.109253

Ziervogel, G., Enqvist, J., Metelerkamp, L., & van Breda, J. (2022). Supporting transformative climate adaptation: Community-level capacity building and knowledge co-creation in South Africa. *Climate Policy, 22*(5), 607–622. https://doi.org/10.1080/14693062.2020.1863180

Appendix 3: Summary of the participants' characteristics

Each participant was assigned a number from 1—26 based on the time sequence of the interviews, for example, the first interviewee was cited as (#1). One exception was the participant #20 who preferred to reveal her identity.

ID No.	Gender	Context	Sector	Qualification	Working experience in CCA (years)
#1	Female	Canada	Private	Master	9
#2	Female	Vietnam	Academic/ Research	Ph.D.	13
#3	Male	Vietnam	NGO/ Civic Society	Ph.D.	8
#4	Female	Canada	Academic/ Research	Ph.D.	13
#5	Male	Canada	NGO/ Civic Society	Bachelor	12
#6	Male	Canada	NGO/ Civic Society	Master	8
#7	Female	Canada	Government	PHD	10
#8	Female	Vietnam	Government	PHD	14
#9	Female	Vietnam	Academic/ Research	PHD	10
#10	Female	Canada	NGO/ Civic Society	Master	9
#11	Female	Canada	Private	Master	16
#12	Female	Canada	Government	Bachelor	16
#13	Male	Canada	NGO/ Civic Society	Master	16
#14	Female	Canada	Government	Master	5
#15	Male	Vietnam	NGO/ Civic Society	PhD	15
#16	Female	Canada	NGO/ Civic Society	Bachelor	13
#17	Male	Vietnam	NGO/ Civic Society	Bachelor	8
#18	Male	Vietnam	Academic/ Research	Ph. D	14
#19	Male	Vietnam	Government	Ph.D.	11
#20 Nikasha Tangirala	Female	Canada	Academic/ Research	Master	3
#21	Female	Vietnam	Government	Master	5
#22	Male	Vietnam	Academic/ Research	Ph.D.	13

#23	Male	Canada	Academic/ Research	Ph.D.	35
#24	Male	Vietnam	Private	Ph.D.	13
#25	Female	Vietnam	NGO/ Civic Society	Ph.D.	3
#26	Male	Canada	Government	Master	12

Appendix 4: Backgrounder for interview and Interview guide

(Participants were provided with this backgrounder right after they expressed their interest to participate into the research, normally 2 to 4 weeks ahead the interviews).

Background information

(Prepared for the interviews to collect data for a PhD research project)

Project: Inclusiveness in national climate change adaptation policies

Researcher: Ha Pham, PhD Candidate, Department of Geography, Environment and Geomatics, University of Ottawa, Canada

Supervisor: Marc Saner, Full Professor and Chair, Department of Geography, Environment and Geomatics, University of Ottawa

Under the additional supervision of the committee of: Prof Eric J. Crighton, Prof. Jackie Dawson, Prof. Luisa Veronis, Department of Geography, Environment and Geomatics, and Prof. Melissa Marschke, The School of International Development and Global Studies, University of Ottawa.

Objectives

The purpose of my thesis is threefold: i) Defining the concept of "inclusive climate change adaptation"; ii) Developing a framework and a set of indicators to measure and promote inclusiveness in national policies on climate change adaptation; iii) Testing and calibrating this framework by interviewing the researchers, policymakers, and practitioners involving in climate change adaptation in Canada and Vietnam. This thesis will help improving inclusiveness in climate change adaptation, especially in the context of national adaptation policy making and implementation processes.

Background

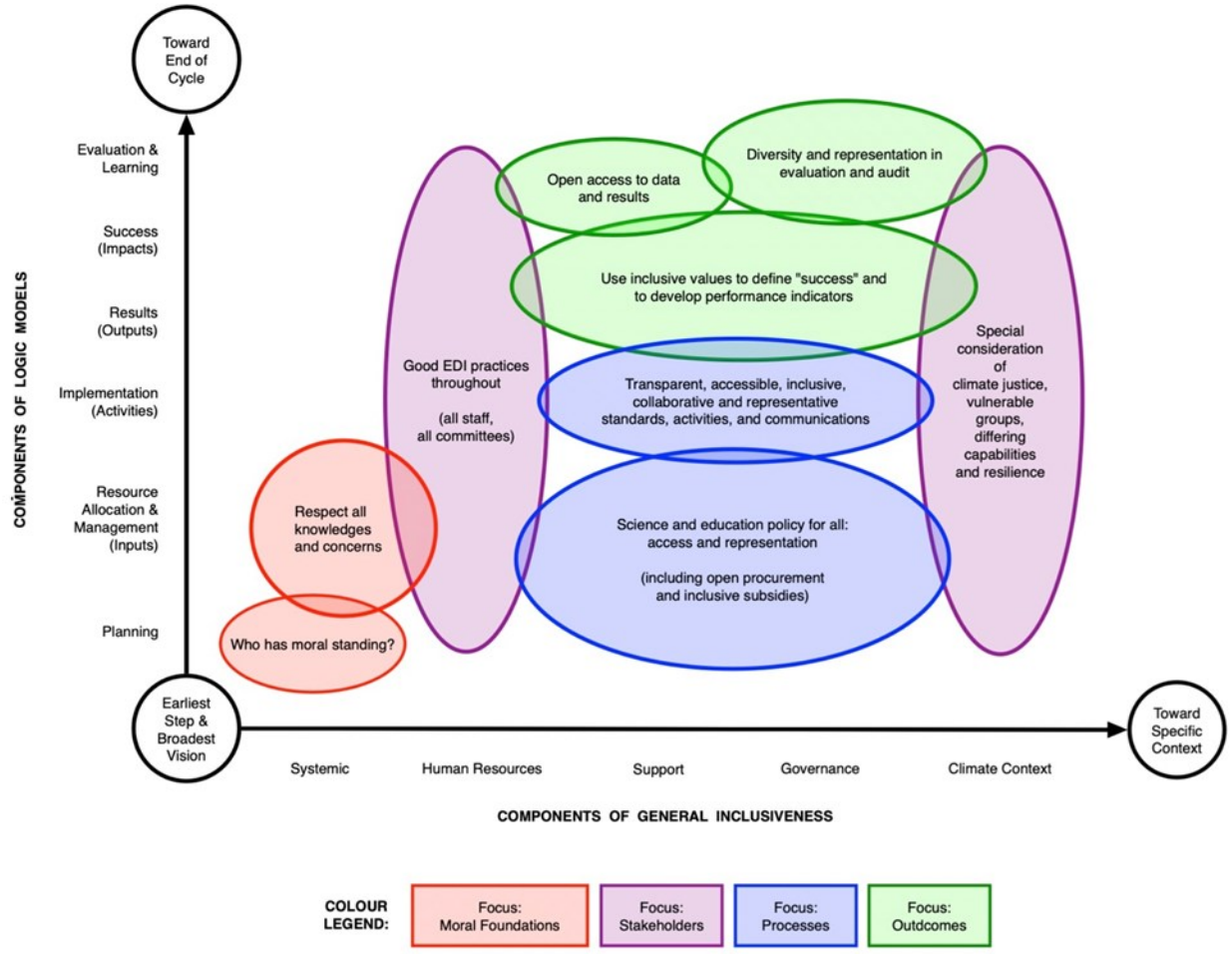
Step 1: A Systematic Literature Review of Inclusive Climate Change Adaption

This systematic review a total of 106 peer-reviewed articles, 145 gray literature documents, and 67 national communications to the United Nations Framework Convention on Climate Change, 318 documents in total, resulted in these key findings: Inclusiveness is a new concept in CCA literature but is increasingly used in adaptation research, policy, and practice; Although this literature revealed an only limited focus on the theory of inclusiveness, it did provide three core components of inclusive CCA: (1) Inclusion in who or what adapts; (2) Motivating Inclusive Processes; (3) Anticipated Outcomes of Inclusive CCA; The common language nature of the word 'inclusive' makes it applicable to other CCA-relevant contexts including government subsidies, science policy, knowledge integration and mobilization, performance measurement, and the breadth of the moral circle a society should adopt.

(Published in Sustainability in September 2021. https://doi.org/10.3390/su131910617)

Step 2: Developing indicators for Inclusiveness in Climate Change Adaptation

A 4-core-components and 9-priorities framework



List of indicators and levels for assessment:

Inclusiveness of Moral Foundations (4 Indicators)

Priority and Indicators	**Level of Progress**		
	1	**2**	**3**
Broad approach to moral standing			
1. To what extent are you clarifying which actors (who or what) should have moral standing?	There is reliance on current legal standards.	There is explicit debate on the scope of all actors whose welfare could be considered (gender, race, age, ability, …)	There are written organizational standards on the scope of actors under consideration.
2. To what extent are you broadening which actors (who	Traditional anthropocentric approaches apply.	The well-being of future generations is explicitly	Non-human actors such as sentient animals (or

or what) are given moral standing?		considered (not just "lip service").	even habitat) are included.
Respect all knowledges and concerns			
3. To what extent is the principle of respect for all relevant knowledges (e.g., ITK) and concerns embedded in adaptation policies and plans?	Adaptation policies and plans do not state this principle.	Adaptation policies and plans clearly state that broad knowledges and concerns should be respected.	Adaptation policies and plans clearly show how the broad respect for all knowledges and concerns will be implemented.
4. To what extent is the principle of respect for all relevant knowledges (e.g., ITK) and concerns embedded in adaptation practices?	The principle is implemented in the real world.	The level of implementation is evaluated and enforced; stakeholders are engaged.	The implementation is resulting in measurable change.

Inclusiveness of Stakeholders (4 Indicators)

Priority and Indicators	**Level of Progress**		
	1	**2**	**3**
Good EDI practices throughout (all staff, all committees)			
5. To what extent are EDI principles embedded in human resources policies and plans?	Human resources policies and plans do not state EDI principles.	Human resources policies and plans include clear EDI principles.	Human resources policies and plans include details on how EDI principles will be implemented.
6. To what extent are EDI principles embedded in human resources practices?	Human resources staff are fully EDI trained.	All staff are EDI trained and the topic is regularly and openly discussed.	Organization-wide EDI performance is formally assessed by external auditors.
Considerations of climate justice, vulnerable groups, differing capabilities, and resilience			
7. To what extent do adaptation initiatives specifically target vulnerable groups and their need for empowerment?	The initiatives do not explicitly identify vulnerable groups or address their needs.	The initiatives tangibly target the needs of vulnerable groups.	There is evidence that the initiatives render vulnerable groups more empowered.
8. To what extent do adaptation initiatives consider differences in adaptation capacities and resilience of various stakeholders?	The initiatives do not explicitly consider differences in adaptation capacities of various stakeholders.	The initiatives tangibly address differing adaptation capacities of various stakeholders.	There is evidence that the initiatives enhance the adaptation capacities and resilience of various stakeholders.

Inclusiveness of Processes (4 Indicators)

Priority and Indicators	**Level of Progress**

	1	2	3
Science and education policy for all: access and representation (including open procurement and inclusive subsidies)			
9. To what extent do major science and education policies aim at open procurement (contracts, grants, and employment)?	Major science and education policies include components or versions of open procurement.	Major science and education policies contain a clear plan on how open procurement will be realized.	There is evidence that procurement is becoming more open and inclusive.
10. To what extent are policies on subsidies informed by the principles of inclusive education and science for all?	Policies on subsidies include principles of inclusive education and science for all.	Policies on subsidies contain a clear plan on how inclusive education and science for all will be realized.	There is evidence that science and education subsidies are becoming more inclusive.
Transparent, accessible, inclusive, collaborative, and representative standards, activities, and communications			
11. To what extent are adaptation projects and processes transparent, information accessible to all?	Policies and processes foster transparency.	Policies and processes are implemented with inclusive accessibility in mind.	There is evidence that inclusive forms of access are achieved.
12. To what extent are adaptation projects collaboratively developed and implemented?	Projects include components that facilitate collaboration by individuals and organizations.	Projects are collaboratively developed and implemented.	There is evidence of satisfaction with the process (relevant knowledges and values were used).

Inclusiveness of Outcomes (3 Indicators)

Priority and Indicators	**Level of Progress**		
	1	**2**	**3**
Use inclusive values to define "success" and to develop performance indicators			
13. To what extent are the definition of success and the development of performance and impact indicators informed by inclusive values?	The conception of success and performance indicators are designed from an inclusiveness perspective.	If performance indicators are changed during implementation, then these changes are evaluated from an inclusiveness perspective.	There is evidence that the performance indicators used for long time-series are informed by inclusive values.
Open access to data and results			
14. To what extent are climate change data and adaptation projects data (including results) available to and accessible by everyone?	Open access policies are designed from an inclusiveness perspective (jargon, format, access).	Open access policies are implemented from an inclusiveness perspective (jargon, format, access).	There is evidence that access and usage by the full diversity of interested parties is improving.

Diversity and representation in evaluation and audit			
15. To what extent are evaluation and audit bodies, and the standards they use, inclusive?	Audit bodies and their standards are designed for inclusiveness.	Audit bodies practice inclusiveness in their training and work.	There is evidence that the audit process and result correspond to principles of inclusiveness.

Step 3: Interviewing for a modified set of indicators that is potentially applicable in practice

You are here in this final step and are significantly contribute to our research by sharing your viewpoints on our set of inclusiveness indicators and how to make these indicators more applicable in research, policy making, and practice. Together we propose a framework of inclusive climate change adaptation with strong theoretical and empirical background.

How does the interview look like?

Our expectations during the interview are: (1) share our comprehensive framework of inclusiveness in climate change adaptation; and (2) collect your insights on this framework by inviting you to share your views on how to make inclusiveness indicators more applicable in research, policy making, and practice.

This research will involve an individual semi-structured interview, designed to take one hour (and not more than 90 minutes). The interviews will be carried out virtually (via phone/ zoom) or in-person (if you prefer), will be note-taken and/ or recorded using a digital voice recorder with your permission. The interviews will then be transcribed and returned to you to check for accuracy if requested.

The transcripts will be coded using NVivo. This coding process will make the main categories emerged which will be interrelated to answer the research questions and forming main findings of the study. The information collected will be anonymized, stored securely, and used for research purposes only.

Participation in this study is totally voluntary and you are free to withdraw at any point before or during the study (More information could be found in the Consent form)

What are the main questions for discussion?

1. Could you please tell me about your work/ experience in climate change adaptation?

- For example: Which sectors are you working in: Academic, Government, Non-government/ International development organizations, Community leaders, Private sectors, Others (Please specify)?
- Your work mostly is Research, Policy making, Practices, Others (Please specify) and for how long?

2. How importance of inclusiveness, do you think, in climate change adaptation? Why should or shouldn't we put the discourse of inclusiveness into the debate of climate change adaptation that have been long predominated by the discourses of vulnerabilities, climate justice and public participation?

3. Could you please give me one or some example(s) and/ or case studi(es) that you have involved and/ or experienced and/or observed and you think they are (it is) (an) example(s) of inclusiveness or non-

inclusiveness in climate change adaptation? What are the aspects of inclusiveness and non-inclusiveness?

4. What do you think about this inclusive climate change adaptation framework and 4 core components, 9 priorities, 15 indicators, and 3 levels of assessment?

- (Strengths/ Weaknesses; What do and/or don't you like? Why?)

5. Are there any existing components/ priorities/ indicators/ levels of assessment that should be removed or rearranged? And is there any new one that should be added? Why?

6. How do you think the framework and indicators could be applied in adaptation policy making, practice and evaluation? Who should use them? For what purpose? At what scale?

- For example: Policy makers in Adaptation Policy making processes; Management officers (both public and other sectors) in Managing adaptation Program, project during its life-circle; Communities/ Households/ Individuals-Self-empowerment and evaluation; Others.

7. What are the strengths and weaknesses of this model in terms of applying in different contexts by different actors for different purposes?

8. How do you assess the possibilities or opportunities that you will apply this framework and indicators in your everyday work?

9. Do you have any comments/ suggestions/ recommendations for us so that we can improve the comprehensiveness of the framework and its indicators as well as improve the chance to be applied in policy making processes and adaptation practices?

Thank you so much for your time!

Please don't hesitate to contact me with any concerns, comments, or questions!

Ha Pham, PhD Candidate, Dept. of Geography, Environment & Geomatics, University of Ottawa

Marc Saner, PhD, Full Professor and Chair, Dept. of Geography, Environment & Geomatics, University of Ottawa

Appendix 5: Certificate of research ethics approval

CERTIFICAT D'APPROBATION ÉTHIQUE | CERTIFICATE OF ETHICS APPROVAL

Numéro du dossier / Ethics File Number	S-02-20-5023
Titre du projet / Project Title	Inclusiveness in National Climate Change Adaptation Policies
Type de projet / Project Type	Thèse de doctorat / Doctoral thesis
Statut du projet / Project Status	Approuvé / Approved
Date d'approbation (jj/mm/aaaa) / Approval Date (dd/mm/yyyy)	09/03/2020
Date d'expiration (jj/mm/aaaa) / Expiry Date (dd/mm/yyyy)	08/03/2021

Équipe de recherche / Research Team

Chercheur / Researcher	Affiliation	Role
Ha PHAM	Département de géographie / Department of Geography	Chercheur Principal / Principal Investigator
Marc SANER	Département de géographie / Department of Geography	Superviseur / Supervisor

Conditions spéciales ou commentaires / Special conditions or comments

550, rue Cumberland, pièce 154 Ottawa (Ontario) K1N 6N5 Canada
550 Cumberland Street, Room 154 Ottawa, Ontario K1N 6N5 Canada

613-562-5387 • 613-562-5338 • ethique@uOttawa.ca / ethics@uOttawa.ca
www.recherche.uottawa.ca/deontologie | www.recherche.uottawa.ca/ethics

Le Comité d'éthique de la recherche (CÉR) de l'Université d'Ottawa, opérant conformément à l'*Énoncé de politique des Trois conseils* (2014) et toutes autres lois et tous règlements applicables, a examiné et approuvé la demande d'éthique du projet de recherche ci-nommé.

L'approbation est valide pour la durée indiquée plus haut et est sujette aux conditions énumérées dans la section intitulée "Conditions Spéciales ou Commentaires". Le formulaire « Renouvellement ou Fermeture de Projet » doit être complété quatre semaines avant la date d'échéance indiquée ci-haut afin de demander un renouvellement de cette approbation éthique ou afin de fermer le dossier.

Toutes modifications apportées au projet doivent être approuvées par le CÉR avant leur mise en place, sauf si le participant doit être retiré en raison d'un danger immédiat ou s'il s'agit d'un changement ayant trait à des éléments administratifs ou logistiques du projet. Les chercheurs doivent aviser le CÉR dans les plus brefs délais de tout changement pouvant augmenter le niveau de risque aux participants ou pouvant affecter considérablement le déroulement du projet, rapporter tout évènement imprévu ou indésirable et soumettre toute nouvelle information pouvant nuire à la conduite du projet ou à la sécurité des participants.

The University of Ottawa Research Ethics Board, which operates in accordance with the *Tri-Council Policy Statement* (2014) and other applicable laws and regulations, has examined and approved the ethics application for the above-named research project.

Ethics approval is valid for the period indicated above and is subject to the conditions listed in the section entitled "Special Conditions or Comments". The "Renewal/Project Closure" form must be completedfour weeks before the above-referenced expiry date to request a renewal of this ethics approval or closure of the file.

Any changes made to the project must be approved by the REB before being implemented, except when necessary to remove participants from immediate endangerment or when the modification(s) only pertain to administrative or logistical components of the project. Investigators must also promptly alert the REB of any changes that increase the risk to participant(s), any changes that considerably affect the conduct of the project, all unanticipated and harmful events that occur, and new information that may negatively affect the conduct of the project or the safety of the participant(s).

Kim THOMPSON
Responsable d'éthique en recherche / Protocol Officer
Pour/For **Barbara GRAVES** Président(e) du/ Chair of the **Comité d'éthique de la recherche en sciences sociales et humanités / Social Sciences and Humanities Research Ethics Board**

550, rue Cumberland, pièce 154 Ottawa (Ontario) K1N 6N5 Canada
550 Cumberland Street, Room 154 Ottawa, Ontario K1N 6N5 Canada

613-562-5387 • 613-562-5338 • ethique@uOttawa.ca / ethics@uOttawa.ca
www.recherche.uottawa.ca/deontologie | www.recherche.uottawa.ca/ethics

Chapter 6: A Modified Framework and List of Indicators to Evaluate Inclusiveness in National Climate Change Adaptation Policies

(I plan to rewrite this chapter into an op-ed to submit to *Policy Options*)

Abstract

In this synthesis, I integrate the implications of two policy analysis papers (Chapter 3 and 4) and the empirical paper (Chapter 5) as well as practitioners' opinions and recommendations to modify the ethical-based inclusive climate change adaptation (CCA) framework and indicators developed in Chapter 2. The policy analyses in Chapter 3 and 4 illustrate that qualitative indicators are suitable for the abstract concept of inclusive CCA and its intangible characteristics and properties. The empirical research in Chapter 5 explicitly confirms that a framework to conceptualize inclusive CCA should be broad in nature, recognize and create spaces to manage conflicts at both the individual and collective levels, and measure the extent to which changes (both incremental and radical) are triggered by individual or collective attempts to resolve the systemic vulnerabilities and exclusion rooted in social norms and institutional arrangements. Practitioners who participated in this research also contributed their thoughts on how to improve framework core components, priorities, and some specific indicators. I concluded this chapter with a new graphic for the original framework, a sample of indicators to evaluate inclusiveness in national CCA policies, and a 5-step process to apply these indicators to motivate the CCA policy and practices toward better informed, complete, and balanced approach to inclusiveness.

Key words: Inclusiveness, indicators, evaluation, climate change adaptation, application

6.1 The suitability of qualitative indicators

The policy analyses in Chapter 3 and 4 illustrate that qualitative indicators are suitable for the abstract concept of inclusive CCA and its intangible characteristics and properties. A qualitative approach to evaluation and performance measurement is best suited for measuring the progress of complex, multifaceted or multi-dimensional objectives like inclusive CCA that are not easily tracked by quantitative methods alone. Qualitative indicators and data can capture not only actors, activities, procedures, and results but also the dynamics between them, the values underlying decisions, behaviors, and interactions. Moreover, qualitative measurements have been used in monitoring and evaluating comparable topics such as inclusive growth, inclusive governance, inclusive education (Pham & Saner, in press), empowerment, social capital, and social exclusion (Garbarino & Holland, 2009).

A qualitative approach is also more adaptable to specific situations. The inclusive CCA framework and indicators could be tailored to match potential users, their needs, and available resources if they have the character of guiding principles and discussion starters. This suggestion is consistent with the emerging literature highlighting that there is no consensus on the conceptualization of inclusion, or the methodologies used to measure social inclusion (United Nations, 2018) and that there is no one-size-fits-all metric for assessing the effectiveness of adaptation actions, which are highly context specific (Brooks et al., 2011). Together, they raised the necessity of setting up metrics, indices, or indicators to measure inclusive CCA by collaborating closely with potential users, considering their needs, capacities, and resources in a particular period and context. Similarly, the inclusive CCA framework and indicators developed in this research also need to be tailored to match evaluation objectives, data availability, and the feasibility of collecting and analyzing required data in line with given time limits, capacities, and other resources.

6.2 The broad nature of the inclusive climate change adaptation concept and opening spaces for contradiction and change management

The practical paradoxes and two approaches proposed to manage them in the empirical research (Chapter 5) have several implications for our ethics based inclusive CCA framework and indicators.

First, a framework that conceptualizes inclusive CCA should be broad in nature. Although participants' perceptions of inclusive CCA is normally incomprehensive and narrowed down to the perspectives that are most relevant to their personal experience and occupation, almost all participants agreed that the framework of inclusive CCA should be as broad as we developed it. Compared to our framework of the inclusive CCA, which includes considerations covering moral foundations, stakeholders, processes, and outcomes, participants' original views on inclusiveness were limited in scope. However, they thoughtfully reconsidered their original perceptions, broadened their understanding, and accepted the comprehensiveness of our framework. This illustrates that a broad framework functions as a heuristic tool. It appears compelling to participants to perceive inclusiveness in CCA as inclusive foundations and inclusive actors and inclusive processes, all resulting in inclusive outcomes. Similarly, it appears compelling that all sequential steps of the logic model should convey the idea of inclusiveness: planning, resource allocation and management (input), implementation (activities), results (output), success (impact), and evaluation and learning. The basic design presented in Chapter 2, thus, can be conserved, but a number of improvements are possible.

Second, given that contradictions ("paradoxes") are inherent and recurring in any attempt to adapt to climate change inclusively, the inclusive CCA framework should recognize and create spaces to manage these contradictions at both individual and collective levels, for example, by developing mechanisms to manage trade-offs and conflict. The Intergovernmental Panel on Climate Change Sixth Assessment Report highlighted the need to consider trade-offs between adaptation, mitigation, poverty, equity, and sustainable development as well as the trade-offs between efficiency, effectiveness, and feasibility of climate policies (Birkmann et al., 2022). Recent research has shown that idealistic thinking to maximize benefit for everyone or a "win–win solution" is unachievable in practice and hides underlying trade-offs or goal conflicts from decision-making processes (Schoemaker & Tetlock, 2012; Daw et al., 2015). Organizational theories recently contributed both/and mindset as a tool to deal with choice making in trade-off or dilemma situations (Smith et al., 2022). Reframing trade-off as opportunities, separating options to understand pros and cons and reconnecting them, and rethinking the outcomes in a way that maximizes the benefit of both options could be the essential steps to embrace more creative adaptation action, achieving broad inclusiveness despite of resource constraints.

Third, measuring the progress of inclusiveness in CCA should also reflect the extent to which changes (both incremental and radical) are triggered by individual or collective attempts to resolve the systemic vulnerabilities and exclusion rooted in social norms and institutional arrangements. These structural discriminations often put certain social groups (women, Indigenous peoples, and language minorities) at a disadvantage; limit their voice, power, and access to resources; and hinder their opportunities to meaningfully engage in adaptation planning and actions that result in disproportionate impacts from the changing climate being shouldering them.

6.3 Summary of participants' recommendations on our framework and indicators

Recommendations on the framework, core components, and priorities:

(i) Tailoring to be more specific to CCA;

(ii) Moral foundations: Define a broad approach to moral foundations, add examples, explanation texts or subcategorizes; Adding considerations of how a broad approach to moral standing makes a difference and has influence on decision-making processes;

(iii) Processes: Adding social capital as one consideration of the inclusive CCA framework. The indicators to measure should be both quantitative and qualitative indicators;

(iv) Graphical presentation: New graphic representations of the framework should be added to summarize the framework content (such as circles, four components, and nine priorities).

Recommendations on the specific indicators:

(i) Clearly, explaining the scale system and supplementing them with examples;

(ii) Provide definition and explanation text: EDI (Priority 4), vulnerable groups (Priority 3);

(iii) Adding indicator to measure: Guidance in the case of diverging perspectives (Priority 2); public education and incentives for government integrate EDI into their work (Priority 4); the translation of data and information to consumable knowledge (Priority 6, indicator 11); how people access that information (Priority 8, indicator 14);

(iv) The levels of progress should clarify the data needed to do the evaluation and where and how to get them, for example, indicator 1, level 2, 3 "There is explicit debate" clarifying where to find the debate while level 3 "There are written organizational standards" make clear what organizations are and what kind of standard;

(v) Leaving out academic jargon like "sentient animals" or "anthropocentric approach", "lip service", and Indigenous People are rightsholders.

Some participants suggested changing moral concepts to globally accepted conventions, legal requirements, or cultural values that cover moral values but are more objective, trustworthy, and accessible. We acknowledge that replacement helps people deal with cultural and psychological barriers, as people are uncomfortable talking about moral concepts due to their subjectiveness and sensibility. However, we argue against these replacements. The use of moral foundations and moral standing is most accurate in this case. We cannot make sense of decisions about what is problematic about climate change and what should be done to adapt without drawing on the language of ethics or invoking moral considerations of what matters or whose interests count (Gardiner 2022; O'Brien et al. 2010; Williston 2018). Attempts to avoid moral terms could narrow down the framework and make it less consistent. The fact that participants are very open-minded about learning the latest ideas, are optimistic and are ready to act for more inclusive CCA makes us strongly believe that moral approach and concepts cannot be barriers to conducting inclusive CCA in practice.

6.4 Modified framework, list of indicators, and a recommended implementation process

First, I created a new graphic for the original framework that was presented in Chapter 2. Figure 19 is a circle with 4 core components, emphasizing inclusive CCA is repeated process starting with setting up inclusive moral foundations, stakeholder inclusion, elaborating inclusive processes, and ensuring inclusive outcomes. The figure supports people in grasping the main ideas of the inclusive CCA frameworks, 4 core components and 9 priorities and linking the priorities with their indicators, which are listed below. The figure shown in Chapter 2 (Figure 7) remains a useful academic input that rationalizes our framework, its origin, and the relationships between components.

Second, I tailored the list of indicators and provided a sample of indicators to evaluate inclusiveness in national CCA policies, as shown in Table 12. I followed the definition of Kraft & Furlong (2018), in which public policy refers to any purposive course of government action or inaction that responds to public problems. National CCA policies can be a national adaptation strategy, policy, plan, program, or project—hereafter called "the policy". Each indicator includes one evaluation question and three levels of achievement with a detailed description of the information or data needed as well as how to determine which level is most appropriate. Most of the information and data for evaluation can be found in policy documents and other supporting documents, such as theoretical backgrounds, policy reviews, vulnerability assessments, communication products, instructions for implementation, or policy evaluation reports. All indicators and achievement levels are evaluated qualitatively and grade- or point-based. An evaluator needs to carefully read the descriptions of the indicators and three levels of achievement; find one level that is most appropriate for the policy that is evaluated and put the grade/point corresponding to this level in the right column. Level 1 equals 1 point, level 2 equals 2 points, and level 3 equals 3 points; none of them equals 0 point. The total points reflect the level of inclusiveness of the policy.

Third, I recommended a 5-step process to apply these indicators in practice:

Step 1: Set up an inclusive evaluation team with representatives from relevant stakeholders. The evaluation team members work together on the indicators and identify all the data and documents needed to perform the evaluation, which are available, which are not and how to collect.

Step 2: Data collection processes: All the data are collected and categorized according to the core components, priorities, and indicators that can support evaluation.

Step 3: Each evaluator works independently on the data and grades each indicator. The team works together to grade each indicator as a team.

Step 4: (Optional but highly recommended step) Interview people related to the policy to understand what they think about the inclusiveness of the policy, how they are included, and how they are satisfied with their inclusion in the policy.

Step 5: Analyze the results to determine the underlying reasons for the low or high grades and to determine how to improve the inclusiveness of the policy. Preparing the final report and communication products.

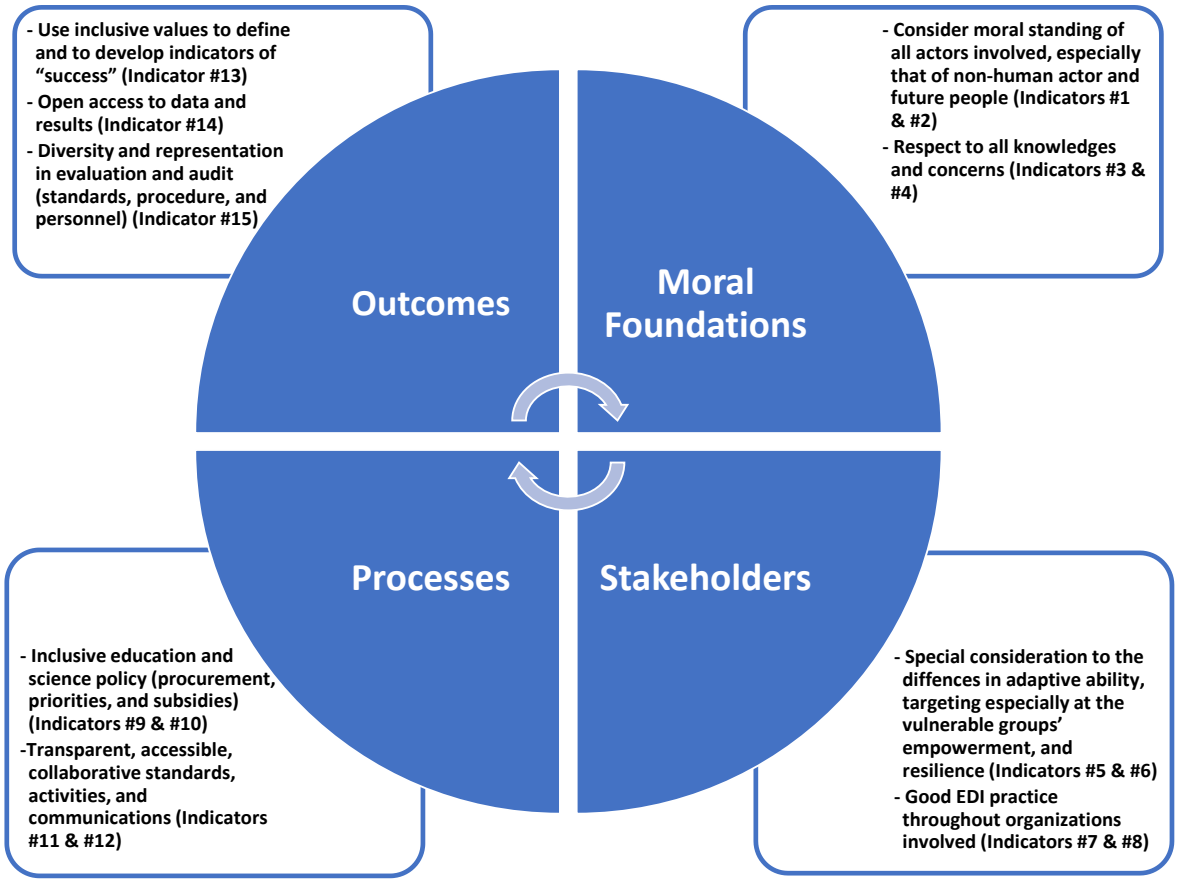


Figure 19: A new graphic presentation of the inclusive CCA framework

Table 12: A sample of indicators for evaluating inclusiveness in CCA policies

Description of indicators and levels of achievement	Point
MORAL FOUNDATIONS	
Priority #1: Broad approach to moral standing	
Indicator #1 - Clarity: To what extent are you clarifying which actors (who or what) should be considered (Meaning their need and concerns will be solved, the benefit they got, and what or how they can contribute)? 1. The policy documents do not mention actors (who or what) should be considered with a clear explanation of why. 2. There was a study/ research/ discussion on background documents to provide evidence on actors (who or what) should be considered. 3. The policy documents mention actors (who or what) should be considered in detail with clear explanation of why.	
Indicator #2 - Breadth: To what extent are you broadening which actors (who or what) are considered? 1. In the policy document, only present people were considered. 2. In the policy document, future people and non-human actors were also considered without detailed action plans on how to consider them. 3. In the policy document or its instruction documents, there were detail action plans to consider actors (Instruction on how to do, list of programs, projects focusing on each or a group of actors, who in charge, timeline, estimated resources allocation) AND when the policy has already been implemented, all planned programs and projects were implemented, resources were allocated as planned.	
Priority #2: Respect all knowledges	
Indicator #3 - Policies. To what extent is the principle of respect for all relevant knowledges (e.g., ITK) embedded in adaptation policies and plans? 1. The policy document does not state this principle. 2. The policy document clearly states that broad knowledges and concerns should be respected. 3. The policy document clearly identifies what kinds of knowledge should be considered and applied in the policy and rationale for that, as well as action plan to implement that (List of actors, activities, expected outcome)	
Indicator #4 - Practices. To what extent is the principle of respect for all relevant knowledges (e.g., ITK) embedded in adaptation practices? 1. The action plan listed in the policy document to include diverse kinds of knowledge and make use of them was implemented. 2. There were evaluation reports/ documents to track how that was implemented.	

Description of indicators and levels of achievement	Point
3. There was evidence that the consideration of diverse kinds of knowledge has contributed to reach the policy objectives.	
STAKEHOLDERS	
Priority #3: Vulnerable groups, differing capabilities, resilience, and justice	
Indicator #5 - Identification. To what extent do adaptation initiatives specifically target vulnerable groups and their needs? 1. The policy document does not identify vulnerable groups and address their needs. 2. A vulnerability assessment was conducted and the policy document, based on that assessment, identifies the vulnerable groups and their needs for CCA. 3. The policy document and/or its instruction documents develop action plans (Instruction on implementation, list of programs, projects, or activities, who in charge, timeline, estimated resources allocation) to target vulnerable groups' needs for adaptation AND when the policy has already been implemented, all planned programs and projects were carried out, resources were allocated as planned.	
Indicator #6 - Capacities. To what extent do adaptation initiatives consider differences in adaptative capacities and resilience of various stakeholders? 1. The policy document does not explicitly mention the differences in adaptative capacities of relevant stakeholders. 2. A vulnerability assessment was conducted and the policy document, based on that assessment, identifies differing adaptative capacities of relevant stakeholders. 3. The policy document and/or its instruction documents develop action plans that reflects the differences in adaptive capacities of relevant stakeholders, for example, there are more programs, projects, or activities targeted at groups with weaker capacities and more resources allocated for them. AND when the policy has already been implemented, there are more programs, projects, or activities for less advantageous groups and more resources allocated for them during an evaluation period.	
Priority #4: EDI (Equity – Diversity – Inclusion)	
Indicator #7 - Policies. To what extent are the EDI principles embedded in human resources management requirement? 1. There is no requirement to target the EDI principle in any legal documents that give instruction on how to make the policy. 2. There is a clear requirement to target the EDI principle in legal documents that give instruction on how to make policy. 3. There is clear instruction to maximize the EDI principle during the policy making processes.	

Description of indicators and levels of achievement	Point
Indicator #8 - Practices. To what extent are EDI principles embedded in human resource management practices of organizations, committees, or groups that carry out the formulation, implementation, evaluation of the policy)? 1. The EDI principle was not mentioned or only briefly mentioned without action plans to implement in official documents of related actors during the policy making processes. 2. The EDI principle was mentioned with detain activities to implement in official documents of related actors during the policy making processes. 3. Planned activities were implemented and there were written evidence on an organization/ a committee/ or a group that is more diverse and inclusive (For example, representatives of gender, age, occupation, geographic location, government institutions etc.)	
PROCESSES	
Priority #5: Knowledge production and education for all	
Indicator #9 - Procurement. To what extent do the policy and its instruction documents aim at open procurement for resources allocation, contract, grants, and employment, etc., to support knowledge production and education/ training related to CCA? 1. The policy and its instruction documents mention the procurement without detail. 2. The policy and its instruction documents include some details of the procurement. 3. The policy and its instruction documents include all details of the procurement such as timeline, all steps, who in charge and how to contact, where to find information on requirement, forms, applications, estimated amount of money. AND when the policy has been implemented, the procurement clarified in the policy documents has happened appropriately in reality. Any changes have been made clear on an instruction document.	
Indicator #10 - Support. To what extent does the policy provide support (for example, financial, human, facility) to improve people's opportunities to carry out research and produce knowledge or get educated/ trained related to CCA? 1. The policy and its instruction documents do not mention any kind of support or mention them generally without detail. 2. The policy and its instruction documents mention kinds of support in detail with rationale why particular support is needed to a particular group, for example based on adaptative capacity assessment and required to fulfill their role in adaptation action plan. 3. The policy and its instruction documents develop a support plan with all details of timeline, who in charge, who will be supported, different steps or programs, projects, activities included, estimated resources allocated. AND when the policy has already been implemented, the support plan was implemented, resulting in more people and groups can contribute to knowledge production or get educated/ training on CCA.	

Description of indicators and levels of achievement	Point
For example, more professionals in different disciplines, sectors, and industries have educated on CCA and how to integrate it into their work; more kids learn about CCA at school; more local and Indigenous knowledge holders have chance to practice their traditional ways of knowledge production and/ or join in projects or activities with modern scientists to produce new knowledge.	
Priority #6: Transparent, accessible, and collaborative policy process	
Indicator #11 - Access. To what extent are the policy documents (background, instruction, communication) and their processes (agenda setting, formulation, implementation, monitoring, and evaluation) made transparent and accessible? 1. Only the policy is made available to the public. People are not informed where and how to access other supporting documents and information on policy processes. 2. People are informed where and how to access other supporting documents and information on policy processes. Part of documents and information are open and easy to access, for example, on a website. 3. All documents and information are open and easy to access, for example, on a website and there is increasing number of access and view.	
Indicator #12 - Collaboration. To what extent is the policy collaboratively developed and implemented? 1. The policy does not mention the collaboration between individuals, groups, and organizations. 2. The policy was collaboratively developed, for example via stakeholder consultation or stakeholder committees and the policy document includes components that facilitate collaboration without detailed information on implementation. 3. The policy document shows detail on how to collaborate throughout the policy processes, for example, different individuals, groups, organization take separate roles in a program, project, activities, and there is mechanism for collaboration described. AND when the policy has already been implemented and evaluated, the collaboration plan was implemented and resulted in positive influence, for example relevant needed and concerns were considered, diverse knowledges and values were used, more unions, clubs, groups on CCA were established, people feel more included and more reliable on collaboration to improve their adaptative capacity.	
OUTCOMES	
Priority #7: Use inclusive values to define "success" and performance indicators	
Indicator #13 - Success: To what extent are policy success defined and the policy performance and impact indicators developed being well-informed by inclusive values? 1. In the policy document and supporting documents, the conception of success and performance indicators are designed without detail on consulting stakeholders and considering their perspectives. 2. In the policy document and supporting documents, there were consultations with relevant stakeholders and notes taken on their perceptions of success and their thoughts on what the performance indicators should be designed.	

Description of indicators and levels of achievement	Point
3. In the policy document and supporting documents, relevant stakeholders' perspectives were considered in the conception of success and the development of performance indicators. For example, how the related youth, women, or Indigenous People think the success of the policy should look like and what kind of indicators should be used to measure that success. AND when the policy has already been implemented, the conception of success and the development of performance indicators were use for the policy evaluation.	
Priority #8: Open access to results and data	
Indicator #14 - Open Access: To what extent are the policy results and data available to, accessible, and consumable by the policy stakeholders and public? 1. The policy results and data were designed and delivered without considerations of improving their availability to, accessibility and consumption by the policy's stakeholders and public. 2. In the policy documents, there were research/ studies/ surveys made to find out the method of results and data delivery that most convenient for relevant stakeholders and public, as well as how different groups of people could make use of that, any modification or interpretation needed to make it easier for them. 3. The policy results and data were designed and delivered with considerations of improving their availability to, accessibility and consumption by the policy's stakeholders and public, for example, no jargon, format sensitive for visual-impaired people, communication products for different groups, summary of result and data for different groups. AND when the policy has already been implemented and evaluated, there is increasing number of people access and make use of the policy result and data.	
Priority #9: Diversity and representation in monitoring and evaluation (M&E)	
Indicator #15 - Evaluation: To what extent are M&E bodies and the standards they use inclusive? 1. The policy documents do not mention the principle of inclusiveness in building M&E bodies and designing M&E standards 2. The policy documents mention the principle of inclusiveness in building M&E bodies and designing M&E standards. 3. The policy documents contain steps to build inclusive M&E bodies and design inclusive M&E principles. For example, a M&E body should include representatives of relevant stakeholders, M&E principles should consider qualitative and qualitative indicators, process-based, result-based, and impact-based approaches. AND when the policy has already been implemented and evaluated, the M&E bodies and their standard are as required in the policy.	
TOTAL POINTS	

References

Birkmann, J., E. Liwenga, R. Pandey, E. Boyd, R. Djalante, F. Gemenne et al. 2022: Poverty, Livelihoods and Sustainable Development. In: *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 1171–1274, doi:10.1017/9781009325844.010.

Brooks, N et al. (2011) *Tracking Adaptation and Measuring Development*. IIED Climate Change working paper No. 1. http://pubs.iied.org/10031IIED

Daw, T. M., S. Coulthard, W. W. L. Cheung, K. Brown, C. Abunge, D. Galafassi, G. D. Peterson, T. R. McClanahan, J. O. Omukoto, and L. Munyi. (2015). Evaluating taboo trade-offs in ecosystems services and human well-being. *Proceedings of the National Academy of Sciences* 112(22):6949–6954. http://dx.doi. org/10.1073/pnas.1414900112

Garbarino, S. & Holland, J. (2009). *Quantitative and qualitative methods in impact evaluation and measuring results.* The Governance and Social Development Resource Centre (GRDRC). http://epapers.bham.ac.uk/646/1/eirs4.pdf

Gardiner, S. M. (2022). Environmentalizing Bioethics: Planetary Health in a Perfect Moral Storm. *Perspectives in Biology and Medicine, 65*(4), 569–585. https://doi.org/10.1353/pbm.2022.0048

Kraft, M. E., & Furlong, S. R. (2018). *Public policy: politics, analysis, and alternatives (Sixth edition)*. CQ Press, an imprint of SAGE Publications.

O'Brien, K. L, St Clair, A. L. & Kristoffersen, B. (2010) Towards a new science on climate change. In O'Brien K, St Clair AL, and Kristoffersen B (eds), *Climate Change, Ethics, and Human Security.* Cambridge: Cambridge University Press, 215-227

Pham, H & Saner, M. (2024). Framework and Proposed Indicators for the Comprehensive Evaluation of Inclusiveness: The Case of Climate Change Adaptation. *Facets,* 9(): 1-15. https://doi.org/10.1139/facets-2023-0017

Schoemaker, P. J. H., & Tetlock, P. E. (2012). Taboo Scenarios: How to Think About the Unthinkable. *California Management Review, 54*(2), 5–24. https://doi.org/10.1525/cmr.2012.54.2.5

Smith, W. K., Lewis, M. W., & Edmondson, A. C. (2022). *Both/and thinking: embracing creative tensions to solve your toughest problems*. Harvard Business Review Press.

United Nations. (2018). *In-depth review of measuring social exclusion*. Conference of European Statisticians (Economic Commission for Europe), Geneva, June 18 to 10, 2018. https://www.unece.org/fileadmin/DAM/stats/documents/ece/ces/2018/CES_18_E_Agenda_item_12_Social_exclusion.pdf

Williston, B. (2018). *The Ethics of Climate Change: An Introduction*. 1st Edition. Routledge: London & New York. 198 p.

Conclusion: Thesis Findings, Contributions, Limitations, and Implications for Future Research

1 Main finding and answering research questions

Table 13 below summarizes the main findings of the six chapters in my thesis as well as the contributions of these chapters to answering the six supporting research questions (RQ):

- RQ 1: How does the current literature inform the concept and scope of 'inclusiveness' in CCA?
- RQ 2: Is this concept and scope appropriate, or should we think about it differently in light of ethics, and how could this concept be translated into a framework and indicators of inclusive CCA?
- RQ 3: How inclusive are the national CCA policies in Canada, from the vantage point of this framework and indicators?
- RQ 4: How inclusive are the national CCA policies in Vietnam, from the vantage point of this framework and indicators?
- RQ 5. How do practitioners' perceptions of the inclusive CCA inform the comprehensiveness and applicability of a framework and indicators for evaluating inclusiveness in CCA policies and practices?
- RQ 6. How can the framework and indicators be improved, based on the existing policies and practitioners' perceptions?

Table 13: Main findings and corresponding research questions

Chapter	Main findings and research question answered	
Introduction	(1) Context setting; (2) Research questions and approaches; (3) Organization of the thesis	
Chapter 1: A Systematic Literature Review of inclusive CCA	(1) Quantitatively, the methodology reveals a slight increase in usage of "inclusiveness" over time periods with a focus on practical cases, gender issues and capacity building, and non-Annex 1 countries. (2) Qualitatively, we identified that the idea of inclusion in climate change adaptation refers to three categories: (1) Inclusion in who or what adapts; (2) Motivating inclusive processes; (3) Anticipated outcomes of inclusive CCA.	RQ 1
Chapter 2: Framework and proposed indicators for the comprehensive evaluation of inclusiveness: The Case of CCA	(1) Through and ethical analysis, we identified four core components of inclusive CCA: Good foundations grounded on justice and caring, respect for and mutual acknowledgment of different cultures, values, and knowledge; Good stakeholders to improve stakeholders' capacities and the implementation of equity, diversity, and inclusion (EDI) policies throughout organizations and communities involved in CCA; Good processes mean developing broad collaboration and ensuring transparency and accountability; Good outcomes to ensure all outcomes of adaptation are truly inclusive by using inclusive value to define success, monitoring, and evaluation as well as improving accessibility to adaptation data and results. (2) By asserting these core components of inclusive CCA into the six common steps of logic models, we identify and propose nine specific priority areas. For each of these nine areas we propose one or two qualitative performance indicators. The resulting suite of fifteen indicators could be useful (we argue and propose) for understanding, implementing, and evaluating of inclusive CCA policies and practices.	RQ 2
Chapter 3: Inclusiveness in CCA policy in Vietnam	(1) The results presented demonstrate a prominent level of variation in how inclusiveness perspectives are integrated and planned for implementation in adaptation policies in Vietnam across different governance levels and throughout a time periods of 15 years from 2008 up to present. (2) The analysis reveals four main kinds of inclusiveness gaps: moral, knowledge, management, and social learning.	RQ 3

Chapter	Main findings and research question answered	
Chapter 4: Inclusiveness in CCA policy in Canada	(1) In the last decade, there has been increasing positive response to inclusiveness perspectives with many detailed actions planned and taken to promote them in Canadian CCA policies. (2) I identify an urgent need, ideally for the federal government, to synthesize key terms and concepts, develop consensus perceptions and knowledge, facilitate the learning process for collective adaptation purposes, solutions, and priorities. (3) I advocate for the inclusion of the value of the natural environment into adaptation for its own sake (and not only for its value for humans).	RQ 4
Chapter 5: The practical paradoxes of a more inclusive approach to CCA	(1) Through a series of interviews, we identify four practical paradoxes of a more inclusive approach to CCA: (1) The need for inclusiveness in CCA is obvious, yet the way it is understood varies widely; (2) Idealistic versus realistic versus instrumental approaches exist in regard to inclusiveness in CCA policies; (3) Organizing adaptation practices to achieve broad inclusiveness with limited resources; (4) Incremental versus transformative approaches to promote inclusiveness in CCA. (2) We propose two approaches to manage these paradoxes: a bottom-up approach grounded on practitioners' optimism and solidarity and a top-down approach in which law and regulations enforce inclusiveness and leverage transformational changes for genuine inclusiveness in CCA policies and practices.	RQ 5
Chapter 6: A modified framework and list of indicators	(1) I synthesize the knowledge gained from the policy analyses (Chapter 3 and 4) and the practitioner's insights (Chapter 5) and discuss how the original framework and indicators developed in Chapter 2 could be improved. (2) I propose a modified framework, list of indicators, and a recommended process to apply.	RQ 6
Conclusion	Answering research questions, claiming contributions to theories and practices, discussing study limitations and opportunities for future research.	

2 Contributing to theories and practices

To my knowledge, my thesis is novel and innovative and contributes to literature and practice in five different ways. I will describe these contributions in the five separate sections below.

2.1 Systematically and comprehensively describing the idea of inclusive climate change adaptation

Inclusive approaches have been applied in many areas by researchers and development practitioners, popularizing related terms such as inclusive growth, inclusive governance, inclusive urbanization, and

inclusive innovation worldwide. Scholars have recently argued for a more inclusive approach to stakeholder engagement in CCA (Chu & Cannon, 2021; IPCC, 2022; Singh et al., 2022) given the limited efforts to define it. The 2022 Intergovernmental Panel on Climate Change Assessment Report 6 used the concept of inclusion frequently and linked it closely to CCA processes. For example, the inclusion of diverse knowledge systems, nature-based solutions, local leadership, and empowerment is recommended for ecosystem-dependent groups. Despite the claims of the inclusive approach being a critical enabling factor in the pathway to climate-resilient development (Martin et al., 2022), no clear explanation or definition of 'inclusion', 'inclusive' or 'inclusiveness' could be found throughout this report. Similarly, in the adaptation literature, inclusive CCA is seldom explicitly defined, and efforts to fully understand how it can be achieved or to provide sufficient evidence of how it can be operationalized in practice have been limited (Pham & Saner, 2021; Yamineva, 2017). My thesis systematically investigates the literature to provide a description of inclusive CCA, significantly improving the coherence of this concept and encouraging its utilization in adaptation research and practice.

2.2 Providing an ethical analysis of the current conceptualization and scope of inclusive climate change adaptation

My thesis provides an ethical analysis of the current conceptualization and scope of inclusive CCA based on pluralistic values of global justice, intergenerational justice, and ecological justice in climate ethics, diversity, equity, and inclusion in contemporary organization management, as well as cooperation, transparency, and accountability in CCA governance and policymaking.

Since inclusion refers to justice, fairness, and recognition, all of which are foundational ethical principles, values, and reasoning, inclusion is ethical by nature (Felder, 2021; Tyler, 2019; Yanco et al., 2021). CCA itself presents several ethical issues embedded in vulnerabilities, inequality, and injustice that prevent (all or some) groups of human and ecology systems from being adaptive and resilient to changing climate (Paavola & Adger, 2006; Hayward, 2012; Byskov et al., 2021). Thus, inclusive CCA can be considered an ethical imperative that needs to be thoughtfully considered both theoretically (how it is conceptualized) and practically (how it is planned, conducted through action, evaluated, and learned) to promote inclusiveness in adaptation policies, regulations, and programs on the ground. Several authors have investigated the ethical underpinnings of a more inclusive approach to CCA (Byskov et al., 2021; Eriksen et al., 2021a; Martin et al., 2022; Shi et al. 2016). Several attempts have recently made to apply the principles of Equity, Diversity, and Inclusion to the CCA context (Hoicka et al., 2022; Tangirala, 2022), but the lens of inclusion was limited to a managerial tool.

The conceptualization of the inclusive CCA should be grounded in moral reasoning. All decisions are built on values, which are entwined in the entire decision-making cycle, from the identification of priorities in the planning process through standard setting and implementation and, ultimately, to performance evaluation. The use of an ethical lens opens the door to conceptual and analytical tools in specialized fields such as environmental ethics, business and workplace ethics, and political ethics (Light & Rolsten, 2003; Zgheib, 2014; London, 2021). For example, environmental ethics provides convincing arguments for the broadening of the moral circle from the traditional human focus ("anthropocentrism") to the inclusion of sentient animals, other life forms, biodiversity, and even habitats ("non-anthropocentric ethics") (Singer, 1981). Finally, ethical considerations are especially relevant in the case of CCA, which exemplars climate justice theory and practices (Robinson, 2018; UN, 2019).

The ethical analysis in this paper provides a broad conceptual foundation for the inclusive CCA. The breadth we use as the starting point is rarely attempted—which is somewhat ironic, considering that the "inclusiveness" is the subject matter. We identified four core components of the inclusive CCA. Good foundations of an inclusive approach to CCA should be grounded in justice and caring in the broadest sense of these concepts covering systemically marginalized groups, people in the future, and non-human actors while intensifying respect for and mutual acknowledgment of diverse cultures, values, and knowledge. Good stakeholders for inclusive CCA require sufficient support to improve stakeholders' capacities and the implementation of equity, diversity, and inclusion (EDI) policies throughout organizations and communities involved in CCA. Good processes mean developing broad collaboration and ensuring transparency and accountability throughout CCA processes, from ideation to implementation, review, and learning. Good outcomes of inclusive CCA could be perceived as the contribution of inclusiveness to the general outcomes of CCA, ensuring that all outcomes of adaptation are truly inclusive by using inclusive value to define success, monitoring, and evaluation as well as improving accessibility to adaptation data and results. Four core components of the inclusive CCA were then asserted into the six common steps of logic models, which are also key processes of general policymaking and specific adaptation initiatives. Logic models are widely used and very accessible to public policy practitioners. The provides a bridge from this highly theoretical and broad starting point into a more practical realm.

The breadth should help practitioners to improve coordination and efficiency among sectors or contexts. It should also reduce duplications and counter-purpose initiatives. An important benefit of such debates about values and ethics is that they build a collective understanding and common culture that can benefit the operation of CCA. Importantly, our approach does not rest on a broad starting point but "drills down" to a list of 15 testable performance indicators. Checklists such as the one we proposed are essential to an evaluation process.

2.3 Providing insights into the inclusiveness and justice of climate change adaptation policy systems in Canada and Vietnam

My thesis evaluates national climate change policies in these two contexts and synthesizes a careful description of what and how governments are doing to address the challenges of global warming to pursue sustainable development while improving the wellbeing of people in present and future generations.

The Global Climate Risk Index 2021 ranked Vietnam as the thirteenth country in the world most affected by climate variability and extreme weather events over the period 2000–2019 (Eckstein et al., 2021). In response, the Vietnamese government has developed policies to solve this problem, including the National Target Program Response to Climate Change (NTP-RCC), the National Climate Change Strategy (NCCS), and the National Action Plan Response to Climate Change. Ministries and provinces have been active in developing their own action plans. However, adaptation in Vietnam has been evaluated as maladaptation based on official reports from international developmental organizations as well as academic research. According to their analyses, the Vietnam government's current adaptation strategy reflects and reinforces existing power relations in both politics and production (Schmidt-Thomé et al., 2016; Gilfillan et al., 2017; Mishra & Pede, 2017). There is little understanding of how Vietnamese policies reinforce public participation or the factors underlying their unsuccessful attempt at meaningful stakeholder engagement in the CCA in Vietnam.

Using the inclusive CCA framework as an analytical tool to assess how inclusiveness has been embedded in CCA policy in Vietnam, my research contributes to this gap. The Vietnamese government has made a strong commitment to promoting broad public participation in CCA over the years; this commitment has improved the adaptative capacity of vulnerable groups and addressed resilience and sustainability throughout the country. Although the extent to which inclusive priorities have been considered and included varies, the general shift is toward a higher level of consideration of inclusiveness, and more actions have been taken to achieve inclusiveness. However, substantial work remains to be done to move toward more effective execution of inclusive adaptation in policy and practice. This research identifies the gaps in and opportunities for an inclusive approach to CCA in Vietnam. To improve the situation, the Vietnamese government should find ways to address several gaps, namely, the moral standing gap, knowledge gap, management gap, and social learning gap.

As highlighted in Canada's Changing Climate Report published by the Government of Canada in 2019 (Bush & Lemmen, 2019), there is high confidence that Canada's climate warming is irreversible and, on average, about double the global warming rate. The Canadian government has recognized and made a long-standing commitment to a "whole-of-society" approach for effective climate action (GoC 2023b). Applying the inclusive CCA framework to analyze Canadian national CCA policies reveals that the positive response to inclusiveness priorities is increasing and that many detailed actions have been planned and conducted to promote these perspectives in Canadian CCA policies. However, the findings reveal three main gaps in Canadian CCA policies, including EDI practices in related organizations, the use of inclusiveness as a value for defining and developing evaluation indicators, and diversity and representation in evaluations/audits in terms of approaches, procedures, and personnel. These findings are contrary to the explicit commitment of the Government of Canada to diversity and inclusion in public services (GoC, 2023a).

The policy analysis results in several recommendations. First, there is an urgent need to review and amend CCA policies to ensure that all planned actions, their implementation, and their evaluation are well aligned with the government's commitment to diversity and inclusion in all public services. Second, facilitating learning processes to achieve adaptation inclusively within various levels of government requires more consistency in the use and understanding of concepts. Third, CCA planning should carefully consider the welfare of impacted ecosystems by minimizing human ecological interference while assisting ecosystems in adapting to climate adversities (Malhi et al., 2020; Smith, 2017; Watene & Yap, 2015). Placing high priority on a particular group of people, or even all human beings, over the ecological system results in an unjust situation in which adaptation benefits some people and causes harm to other living beings without sufficient compensation for them (Charpleix, 2018; Watson & Huntington, 2014).

Policy analysis in Canada and Vietnam suggested that inclusive CCA could be a promising solution that goes beyond a "dream." The idea of inclusiveness is workable in the context of CCA, and many detailed actions, as listed in the findings, can be taken to promote it. These actions can be targeted to provide inclusive foundations for CCA, more inclusive considerations of stakeholders in CCA, or more inclusive CCA processes and outcomes. It is not necessary to invent new kinds of adaptation actions that are inclusive. What is needed, instead, is a new way of thinking and doing. Inclusiveness should not be conceived of as a precondition without which adaptation cannot be successful but rather as something to be achieved as part of the adaptation processes themselves. Thus, with strong commitment and

cooperation to fulfill parts or all priorities of inclusiveness, an inclusive approach to CCA can become a reality.

2.4 Exploring adaptation practitioners' perceptions of inclusive climate change adaptation

This thesis explores adaptation practitioners' perceptions on inclusive CCA guided by a version of the framework and indicators we developed. Practitioners in Canada and Vietnam were interviewed with an aim to compare very different contexts. Adaptation practitioners, including policymakers, engineers, ecologists, landscape planners, investors, and other practitioners across disciplines and sectors, are those on the ground who are engaged in developing and applying practical solutions to climate change (Howarth et al., 2017; Viner & Howarth, 2014). These practitioners play essential roles in CCA efforts that go beyond interpreting and applying CCA knowledge to initiating and implementing policies, regulations, programs, and projects and produce expertise and knowledge that are valuable for effective CCA action (Howarth & Viner, 2022; Jasanoff, 2004; Swart et al., 2017; Howarth et al., 2022).

Practitioners' viewpoints in inclusive C CA that I discovered contribute practice-based knowledge of inclusive CCA that better reflect evolving approaches and priorities, real-world challenges and opportunities, living evidence and case studies of inclusive adaptation on the ground. The perspectives of practitioners could inform the development of inclusive climate adaptation policies and strategies that are relevant to real-world challenges and opportunities while also allowing for tailored support and resources to address specific challenges or gaps in practitioners' efforts, ensuring that they receive the assistance they need and that resources are allocated efficiently (O'Brien 2012; Viner & Howarth, 2014; Villamor et al., 2023).

Paradoxes are defined as contradictory yet interrelated demands and perspectives with reinforcing cycles that perpetuate and exacerbate internal tensions (Lewis, 2000; Schad & Miron-Spektor, 2020). Several authors have conducted research on the paradoxes in CCA (Adger et al., 2003; Ayer, 2010, 2011). They noted a paradox in CCA policymaking, implying a clear discrepancy between the conclusions of a global assessment and the experience of societies living with environmental change.

Inclusive CCA concepts and actions involve many challenges and tensions. Considering these tensions from a paradox perspective is also key to promoting inclusiveness more thoroughly and systemically in adaptation plans and actions. My research reveals four main paradoxes that practitioners in Canada and Vietnam are struggling with in their everyday work to promote a more inclusive approach to CCA: (1) The need for inclusiveness in CCA is obvious, yet the way it is understood varies widely; (2) Idealistic versus realistic versus instrumental approaches exist in regard to inclusiveness in CCA policies; (3) Organizing adaptation practices to achieve broad inclusiveness with resource constraints; and (4) Incremental verse transformative changes to promote inclusiveness in CCA.

Analyzing practitioners' paradoxes provides opportunities to understand the influence of "systemic inequity at the center of risk and response" (Schipper et al., 2021) on practical attempts to foster a more inclusive adaptation to climate change. Although historical and structural discriminations have long been mentioned in adaptation and development discourses (Andrijevic et al., 2020; Islam & Winkel, 2017), the findings of this research shed light on the mechanism through which the unjust and exclusivity of the status quo and established procedures prevent meaningful inclusiveness in the everyday actions and decision-making of CCA practitioners.

Theories of paradox claim that a realistic and more effective pathway to managing paradoxes should include cognitive complexity and emotional equanimity at the individual level and dynamic capacities at the collective level (groups, organizations, societies) (Smith & Lewis, 2011; Ferdman, 2017). In the development and adaptation literature, there has also been a consensus that the processes involved in dealing with systemic vulnerability, discrimination, and inequity often involve struggles at both the individual and political levels (Adger et al., 2017; Eriksen et al., 2021b; Martin et al., 2022). My research illustrates two approaches to successfully managing these practical paradoxes, the contradictions and interrelationships within them. A bottom-up approach grounded in practitioners' optimism and solidarity needs to be supported by a top-down approach in which laws and regulations enforce inclusiveness and leverage transformational changes for genuine inclusiveness in CCA policies and practices. These approaches could be salient and relevant elsewhere, where practitioners maintain pragmatic optimism for inclusive CCA and sufficiently acknowledge the urgent need to overcome the systemic and structural barriers that prevent societal changes, especially transformational changes, in inclusive CCA.

2.5 Developing and modifying the framework and indicators of inclusive climate change adaptation grounding on ethical analysis and empirical inquiry

This research integrates ethical analysis and empirical inquiry to develop and modify the framework and indicators of inclusive CCA so that they can be used as instructions for the implementation and evaluation of this concept in adaptation practice. We started very wide when working with ethical and public policy concepts (Chapter 2); then, we selected priorities and indicators, next I applied them in two policy analyses, and finally improved and narrowed them further during interviews with CCA practitioners.

Two policy analyses (Chapters 3 and 4) illustrate that qualitative indicators are suitable for the abstract concept of the inclusive CCA and its intangible characteristics and properties. Notably, qualitative measurements have been used in monitoring and evaluating comparable topics such as inclusive growth, inclusive governance, inclusive education (Pham & Saner, in press), empowerment, social capital, and social exclusion (Garbarino & Holland, 2009). It is also feasible to collect and analyze qualitative data as long as we are able to identify the sources of the data, the methods for collection, and the capacity and resources required for data collection and analysis. This raises the necessity of setting up metrics, indices, or indicators to measure inclusive CCA by collaborating closely with potential users, considering their needs, capacities, and resources in a particular period and context. The inclusive CCA framework and indicators developed in this research also need to be tailored to match evaluation objectives, data availability, and the feasibility of collecting and analyzing required data in line with given time limits, capacities, and other resources.

An empirical paper on practitioners' perceptions of a more inclusive approach in the CCA (Chapter 5) confirms the broad nature of the inclusive CCA concept and opens space for contradiction and change management. Although participants' perceptions of inclusive CCA are normally incomprehensive and narrow down to the perspectives that are most relevant to their personal experience and occupation, almost all participants agreed that the framework of inclusive CCA should be as broad as we developed it. Second, given that contradictions are inherent and recurring in any attempt to adapt to climate change inclusively, the inclusive CCA framework should recognize and create spaces to manage these contradictions at both the individual and collective levels. For example, the mechanisms used to manage

conflicts and contradictions should be at the center of this framework. Third, measuring the progress of inclusiveness in CCA should also reflect the extent to which changes (both incremental and radical) are triggered by individual or collective attempts to resolve the systemic vulnerabilities and exclusion rooted in social norms and institutional arrangements.

Practitioners also provided a number of very detailed recommendations for our framework and indicators of inclusive CCA; for example, all the terms should be explicitly defined, the importance of identifying users and using their familiar concepts and terminology, the feasibly trackable indicators by identifying what kinds of information are needed, and where and how to collect it. These practitioner-based suggestions hopefully improve the comprehensiveness and applicability of a more inclusive approach to CCA practices.

I developed an improved graphic and framework. I also tailored the list of indicators and provide a sample of indicators to evaluate inclusiveness in national CCA policies. Finally, I recommend a 5-step process to apply these indicators in practice. The use of the modified framework and indicators potentially improves public participation and engagement during the adaptation process, ensuring just outcomes for related stakeholders, especially more vulnerable groups, and contributing to the resilience and development of communities in the context of a changing climate. Therefore, our research could contribute to resolving the gaps in adaptation research and practice that call attention to the issues of planning, implementing, and assessing equity and justice, as well as the representation of diverse types of knowledge and expertise, fair distribution of adaptation benefits, and imbalanced power relationships within the adaptation process (Byskov, 2022; New et al. 2022; Owen, 2020).

3 Research limitations and opportunities for future research

3.1 Research limitations

My thesis employs a purely qualitative research design, utilizing various qualitative methods such as ethical analysis, policy analysis, and empirical inquiry through in-depth semi-structured interviews. These methods were used to develop and validate a framework and a set of indicators for evaluating inclusiveness in CCA. The qualitative approach enabled us to capture the nuanced and abstract, yet crucial, considerations of inclusiveness based on diverse values, knowledge, and interests. We tested our framework and indicators against a collection of policy documents currently governing CCA, as well as the lived experiences of practitioners working on CCA in Canada and Vietnam. While the qualitative approach was effective in exploring these in-depth perspectives, it is important to acknowledge that a quantitative research design and methods could also be applied to this topic, potentially yielding relevant and meaningful findings that complement our qualitative insights.

This thesis provides an ethical analysis of the current conceptualization and scope of inclusive CCA, drawing on pluralistic values such as global justice, intergenerational justice, and ecological justice within climate ethics. It also incorporates principles of diversity, equity, and inclusion from contemporary organizational management, alongside values of cooperation, transparency, and accountability in CCA governance and policymaking. The ethical analysis offers a broad conceptual foundation for understanding inclusive CCA. We integrated the main components and considerations identified into the six common steps of logic models, which align with key processes in general policymaking, to generate a set of testable qualitative performance indicators. While this approach allows for a broad understanding that can enhance coordination and efficiency across sectors or

contexts and reduce duplications and counterproductive initiatives, our framework and indicators were only tested within the policy systems and professional experiences of Vietnam and Canada. Applying this framework and these indicators to different countries and scales beyond the national level would further improve their validity, reliability, and feasibility, and could uncover richer findings and implications for CCA research and practice.

For the policy analysis and empirical research components, we collected and analyzed data in both English and Vietnamese, synthesizing the findings in English for research publications. Ensuring that translations are not only linguistically accurate but also sufficiently interpret the underlying constructed meanings presents a significant challenge for researchers conducting bilingual studies. For example, "inclusiveness" is a relatively new concept in Vietnamese, and there is no official translation that captures its full meaning in English. Vietnamese practitioners I interviewed, and I myself, struggled to find a single Vietnamese word equivalent to "inclusiveness." As a result, we used several Vietnamese words to represent different principles that constitute inclusiveness.

To enhance transparency, validity, and trustworthiness of the research materials and results, I translated the interview guide, background paper, and consent form into Vietnamese and provided them alongside the original English versions to the Vietnamese participants. I transcribed all interviews in Vietnamese but did not translate them. I analyzed data in Vietnamese (both policy documents and interview transcripts) using the same coding system developed in English, with only quotations being translated. Despite these efforts, I acknowledge that the potential loss of meaning during the translation process could be minimized but not entirely eliminated.

3.2 Opportunities for future research

Based on participants' recommendations, I tailored the list of indicators to evaluate a CCA policy at the national level, specifying the data or information needed as well as how to determine the level of inclusion achieved. This is one example of how to tailor the indicator list developed in our conceptual work to evaluate a specific issue in adaptation practice. I believe that additional efforts should be made together with additional experiments and piloting to assess how these indicators work as well as how to modify them to evaluate other matters in CCA, e.g., an organization, sector, community, and at other scales rather than at the national level.

Future research should be conducted to improve the reliability and feasibility of the inclusive CCA qualitative indicators developed and modified in this research. Delphi methods or expert consultation methods could be used to conduct research in which a group of experts is invited to rate the relevance and importance of each indicator.

It would be useful to carry out a pilot test to understand under which conditions the set of indicators would be workable. For example, a pilot could help determine if the data needed to evaluate each indicator is available; if not, what the solution is to gather these data, ensuring that the set of indicators works well in practice?

Future research could focus on specific case studies based on the inclusive CCA framework and indicators to illustrate what this whole framework might look like and how the set of indicators might work in complex and dynamic adaptation practices. This approach also helps to develop a collection of good practices to inspire and guide practitioners to apply a mo re inclusive approach in CCA.

A in important element of future research is the collaboration with practitioners, including potential users and a diverse team of experts, to convert the inclusive CCA framework and indicators into practical guidelines. It is especially important to translate the framework and its indicators into users' language, using familiar concepts and terminologies. The failure to achieve user-aligned language could prevent users from considering applying the framework or using it as effectively as they should be able to. It is highly essential to collaborate with experts to ensure up-to-date and inclusive language; for example, for the inclusion of Indigenous groups and knowledge, Indigenous experts need to consult with up-to-date and appropriate terms because language is culture intensive and evolving. Indicators and scaling systems could also be customized to match given goals, periods, and resources and supplemented with real-life examples. These practical guidelines could be used to plan, implement, manage, and assess inclusive CCA in a particular context (organizations, sectors, locations, scales, targets, and activities).

References

Adger, W. N. (2003). Social Capital, Collective Action, and Adaptation to Climate Change. *Economic Geography, 79*(4), 387–404. https://doi.org/10.1111/j.1944-8287.2003.tb00220.x

Adger, W. N., Butler, C., & Walker-Springett, K. (2017). Moral reasoning in adaptation to climate change. *Environmental Politics, 26*(3), 371–390. https://doi.org/10.1080/09644016.2017.1287624

Andrijevic, M., Crespo Cuaresma, J., Lissner, T., Thomas, A., & Schleussner, C.-F. (2020). Overcoming gender inequality for climate resilient development. *Nature Communications, 11*(1), 6261–6268. https://doi.org/10.1038/s41467-020-19856-w

Ayers, J. (2010). *Understanding the Adaptation Paradox: Can Global Climate Change Adaptation Policy be Locally Inclusive?* The London School of Economics and Political Science Understanding.

Ayers, J. (2011). Resolving the adaptation paradox: Exploring the potential for deliberative adaptation policymaking in Bangladesh. *Global Environmental Politics, 11*(1), 62–88. https://doi.org/10.1162/GLEP_a_00043

Bush, E. and Lemmen, D.S. (eds) (2019): *Canada's Changing Climate Report*. Government of Canada, Ottawa, ON. 444 p. https://changingclimate.ca/site/assets/uploads/sites/2/2020/06/CCCR_FULLREPORT-EN-FINAL.pdf

Byskov, M. F., Hyams, K., Satyal, P., Anguelovski, I., Benjamin, L., Blackburn, S., Borie, M., Caney, S., Chu, E., Edwards, G., Fourie, K., Fraser, A., Heyward, C., Jeans, H., McQuistan, C., Paavola, J., Page, E., Pelling, M., Priest, S., … Venn, A. (2021). An agenda for ethics and justice in adaptation to climate change. *Climate and Development, 13*(1), 1–9. https://doi.org/10.1080/17565529.2019.1700774

Byskov, M. F., & Hyams, K. (2022). Epistemic injustice in Climate Adaptation. *Ethical Theory and Moral Practice, 25*(4), 613–634. https://doi.org/10.1007/s10677-022-10301-z

Charpleix, L. (2018). The Whanganui River as Te Awa Tupua: Place-based law in a legally pluralistic society. *The Geographical Journal, 184*(1), 19–30. https://doi.org/10.1111/geoj.12238

Chu, E. K., & Cannon, C. E. (2021). Equity, inclusion, and justice as criteria for decision-making on climate adaptation in cities. *Current Opinion in Environmental Sustainability, 51*, 85–94. https://doi.org/10.1016/j.cosust.2021.02.009

Eriksen, S. H., Grøndahl, R., & Sæbønes, A.-M. (2021a). On CRDPs and CRPD: why the rights of people with disabilities are crucial for understanding climate-resilient development pathways. *The Lancet. Planetary Health, 5*(12), e929–e939. https://doi.org/10.1016/S2542-5196(21)00233-3

Eriksen, S., Schipper, E. L. F., Scoville-Simonds, M., Vincent, K., Adam, H. N., Brooks, N., Harding, B., Khatri, D., Lenaerts, L., Liverman, D., Mills-Novoa, M., Mosberg, M., Movik, S., Muok, B., Nightingale, A., Ojha, H., Sygna, L., Taylor, M., Vogel, C., & West, J. J. (2021b). Adaptation interventions and their effect on vulnerability in developing countries: Help, hindrance or

irrelevance? *World Development, 141*, 105383-. https://doi.org/10.1016/j.worlddev.2020.105383

Gilfillan, D., Nguyen, T. T., & Pham, H. T. (2017). Coordination and health sector adaptation to climate change in the Vietnamese Mekong Delta. *Ecology and Society, 22*(3). http://www.jstor.org/stable/26270155

Government of Canada. (2023a). *National Adaptation Strategy-Canada's National Adaptation Strategy: Building Resilient Communities and a Strong Economy*. https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/national-adaptation-strategy/full-strategy.html

Government of Canada. (2023b) *Diversity and inclusion in the public service*. https://www.canada.ca/en/government/publicservice/wellness-inclusion-diversity-public-service/diversity-inclusion-public-service2.html

Hayward, T. (2012). Climate change and ethics. *Nature Climate Change, 2*(12), 843–848. https://doi.org/10.1038/nclimate1615

Hoicka, C.E., Zhao, Y. & Coutinho, A. (2022). *Philanthropic organisations advancing equity, diversity and inclusion in the net-zero carbon economy in Canada.* McConnell Foundation, Canada. https://mcconnellfoundation.ca/wp-content/uploads/2022/07/EDIA-in-Climate-Action-in-Canada.pdf

Howarth, C., Lane, M., Morse-Jones, S., Brooks, K., & Viner, D. (2022). The 'co' in co-production of climate action: Challenging boundaries within and between science, policy and practice. *Global Environmental Change, 72*, 102445-. https://doi.org/10.1016/j.gloenvcha.2021.102445

Howarth, C., & Viner, D. (2022). Integrating adaptation practice in assessments of climate change science: The case of IPCC Working Group II reports. *Environmental Science & Policy, 135*, 1–5. https://doi.org/10.1016/j.envsci.2022.04.009

Howarth, C., Viner, D., Dessai, S., Rapley, C., & Jones, A. (2017). Enhancing the contribution and role of practitioner knowledge in the Intergovernmental Panel on Climate Change (IPCC) Working Group (WG) II process: Insights from UK workshops. *Climate Services, 5*(C), 3–10. https://doi.org/10.1016/j.cliser.2017.04.003

Intergovernmental Panel on Climate Change (2022). *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. Cambridge University Press, Cambridge, UK and New York, NY, USA, 3056 pp. https://doi.org/10.1017/9781009325844.

Islam, S. & Winkel, J. (2017). *Climate Change and Social Inequality*. Department of Economic & Social Affairs DESA Working Paper No. 152 ST/ESA/2017/DWP/152. https://www.un.org/esa/desa/papers/2017/wp152_2017.pdf

Jasanoff, Sheila. (2004). *States of knowledge: the co-production of science and social order*. Routledge. https://doi.org/10.4324/9780203413845

Lewis, M. W. (2000). Exploring Paradox: Toward a More Comprehensive Guide. *The Academy of Management Review, 25*(4), 760–776. https://doi.org/10.2307/259204

Light, A. & Rolston, III H. (Eds.). 2003. Environmental Ethics: An Anthology. Blackwell Publishing, Oxford.

London, A.J. (2021). *For the Common Good: Philosophical Foundations of Research Ethics*. Oxford University Press, Oxford.

Malhi, Y., Franklin, J., Seddon, N., Solan, M., Turner, M. G., Field, C. B., & Knowlton, N. (2020). Climate change and ecosystems: threats, opportunities and solutions. *Philosophical Transactions of the Royal Society of London. Series B. Biological Sciences, 375*(1794), 20190104-. https://doi.org/10.1098/rstb.2019.0104

Martin, M. A., Boakye, E. A., Boyd, E., Broadgate, W., Bustamante, M., Canadell, J. G., Carr, E. R., Chu, E. K., Cleugh, H., Csevár, S., Daoudy, M., de Bremond, A., Dhimal, M., Ebi, K. L., Edwards, C., Fuss, S., Girardin, M. P., Glavovic, B., Hebden, S., … Zhao, Z. J. (2022). Ten new insights in climate science 2022. *Global Sustainability, 5*. https://doi.org/10.1017/sus.2022.17

Mishra, A. K., & Pede, V. O. (2017). Perception of climate change and adaptation strategies in Vietnam: Are there intra-household gender differences? *International Journal of Climate Change Strategies and Management, 9*(4), pp. 501–516. https://doi.org/10.1108/IJCCSM-01-2017-0014

New, M., Reckien, D., Viner, D., Adler, C., Cheong, S.M., Conde, C., Constable, A., Coughlan de Perez, E., Lammel, A., Mechler, R., Orlove, B., Solecki, W. (2022). Decision-Making Options for Managing Risk. In: *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 2539–2654. https://doi.org/10.1017/9781009325844.026

O'Brien, K. (2012). Global environmental change II: From adaptation to deliberate transformation. *Progress in Human Geography 36*(5):667–676. https://doi.org/10.1177/0309132511425767

Owen, D. (2020). What makes climate change adaptation effective? A systematic review of the literature. *Global Environmental Change, 62*. https://doi.org/10.1016/j.gloenvcha.2020.102071

Paavola, J., & Adger, W. N. (2006). Fair adaptation to climate change. *Ecological Economics, 56*(4), 594–609. https://doi.org/10.1016/j.ecolecon.2005.03.015

Pham, H. & Saner, M. (2021). A Systematic Literature Review of Inclusive Climate Change Adaptation. *Sustainability*. https://doi.org/10.3390/su131910617

Pham, H & Saner, M. (2024). Framework and Proposed Indicators for the Comprehensive Evaluation of Inclusiveness: The Case of Climate Change Adaptation. *Facets,* 9(): 1-15. https://doi.org/10.1139/facets-2023-0017

Robinson, M. (2018). *Climate Justice: Hope, Resilience, and the Fight for a Sustainable Future*. Bloomsbury Publishing, New York.

Schad, J., Miron-Spektor, E. (2020). Lewis, Marianne W.: Paradoxes of Change and Changing through Paradox. In: Szabla, D. (eds) *The Palgrave Handbook of Organizational Change Thinkers*. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-319-49820-1_114-1

Schipper, E. L. F., Eriksen, S. E., Fernandez Carril, L. R., Glavovic, B. C., & Shawoo, Z. (2021). Turbulent transformation: abrupt societal disruption and climate resilient development. *Climate and Development, 13*(6), 467–474. https://doi.org/10.1080/17565529.2020.1799738

Schmidt-Thomé, J.C., Knierim, A., Knuth, U. (2016). Policy-induced innovations networks on climate change adaptation - An ex-post analysis of collaboration success and its influencing factors. *Environmental Science and Policy, 56*, pp. 67–79. https://doi.org/10.1016/j.envsci.2015.11.003

Shi, L., Chu, E., Anguelovski, I., Aylett, A., Debats, J., Goh, K., Schenk, T., Seto, K. C., Dodman, D., Roberts, D., Roberts, J. T., & VanDeveer, S. D. (2016). Roadmap towards justice in urban climate adaptation research. *Nature Climate Change, 6*(2), 131–137. https://doi.org/10.1038/nclimate2841

Singer, P. (1981). *The Expanding Circle: Ethics and Sociobiology*. Clarendon Press, Oxford.

Singh, C., Iyer, S., New, M. G., Few, R., Kuchimanchi, B., Segnon, A. C., & Morchain, D. (2022). Interrogating "effectiveness" in climate change adaptation: 11 guiding principles for adaptation research and practice. *Climate and Development, 14*(7), 650–664. https://doi.org/10.1080/17565529.2021.1964937

Smith, W. K., & Lewis, M. W. (2011). Toward a theory of paradox: A dynamic equilibrium model of organizing. *Academy of Management Review, 36*(2), 381–403. https://doi.org/10.5465/AMR.2011.59330958.

Smith, J. L. (2017). I, River? New materialism, riparian non-human agency and the scale of democratic reform. *Asia Pacific Viewpoint, 58*(1), 99–111. https://doi.org/10.1111/apv.12140

Swart, R. J., de Bruin, K., Dhenain, S., Dubois, G., Groot, A., & von der Forst, E. (2017). Developing climate information portals with users: Promises and pitfalls. *Climate Services, 6*(C), 12–22. https://doi.org/10.1016/j.cliser.2017.06.008

Tangirala, N. (2022). *Integrating equity, diversity, and Inclusion into municipal climate action*. The Partners for Climate Protection program. https://assets-global.website-files.com/6022ab403a6b2126c03ebf95/62e3058d83c7af7982e75f23_pcp-integrating-equity-diversity-and-inclusion-into-municipal-climate-action.pdf

Tyler, M. (2019). Reassembling difference? Rethinking inclusion through/as embodied ethics. *Human Relations (New York), 72*(1), 48–68. https://doi.org/10.1177/0018726718764264

United Nations. (2019). *Climate Justice [online]*: https://www.un.org/sustainabledevelopment/blog/2019/05/climate-justice/.

Villamor, G. B., Wakelin, S. J., & Clinton, P. W. (2023). Climate change, risk perceptions and barriers to adaptation among forest growers in New Zealand. *Journal of the Royal Society of New Zealand, ahead-of-print(ahead-of-print),* 1–16. https://doi.org/10.1080/03036758.2023.2218103

Viner, D. & Howarth, C. (2014). Practitioners' work and evidence in IPCC reports. *Natural Climate Change, 4*(848). https://doi.org/10.1038/nclimate2362

Watene, K., & Yap, M. (2015). Culture and sustainable development: Indigenous contributions. *Journal of Global Ethics, 11*(1), 51–55. https://doi.org/10.1080/17449626.2015.1010099

Watson, A., & Huntington, O. (2014). Transgressions of the man on the moon: Climate change, Indigenous expertise, and the post humanist ethics of place and space. *GeoJournal, 79*(6), 721–736. https://doi.org/10.1007/s10708-014-9547-9

Yamineva, Y. (2017). Lessons from the Intergovernmental Panel on Climate Change on inclusiveness across geographies and stakeholders. *Environmental Science & Policy, 77*, 244–251. https://doi.org/10.1016/j.envsci.2017.04.005

Yanco, E., Batavia, C., & Ramp, D. (2021). Compassion and moral inclusion as cornerstones for conservation education and coexistence. *Biological Conservation, 261*, 109253–. https://doi.org/10.1016/j.biocon.2021.109253

Zgheib, P. (2014). *Business Ethics and Diversity in the Modern Workplace*. IGI Global, Hershey.