

Eva Julia Lohse / Margherita Paola Poto (Hg.)

Coproduction of Knowledge in Climate Governance



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Cover illustration:

The cover design is a co-created work between Valentina Russo, aka Mucho Amor (Instagram @mucho_amor) and Camilla Neema Haule (Instagram @camillaneema). The illustration is also part of the logo of Coproknet, the research network coordinated by Eva Lohse and Margherita Paola Poto.

Valentina has drawn:

1. The mole, to represent the land knowledge from all the countries and legal orders involved (from the book: Porrone, Poto, Russo, A Story About knowledge, Aracne, 2021);
2. The bee, as the representative of a case study "Save the Bee" conducted in Germany by Eva Lohse and her team, as well as the UK team members, coordinated by Kate Blackburn – who compare themselves to caring bees – from the Wiltshire Community;
3. The multilayered heart, as the symbol of co-created approaches to emotional and ecological education, and the outline of Follow Your Heart logo (from the book Murray, Russo, Poto, Follow Your Heart. The school for multipotentialites, Aracne La Bussola, 2022);
4. The spider, as the connector of peoples, lands and seas (from the book Porrone, Poto, Russo, A Story About Knowledge. Illustrated Version, Aracne, 2022), representing all the contributions of the book.

Camilla has drawn:

1. The flowers from Maasai Mara (*cynium tubulosum*), are representative of the Eastern African natural environment;
2. A fish from the Tarumã, a Chiquitano River of Mato Grosso, Brazil, to represent the Chiquitano indigenous knowledge (from a project cover realized for ECO_CARE by Matheus Goulart, 2021). The fish back is decorated with the Chiquitano feminine body painting, also used to decorate clay pots and crafts. The belly of the fish is decorated with the Chiquitano masculine body painting, also used in braided mats and shoves. Permission to use the Chiquitano artwork was granted by Silvano Chue Muquissai.

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Eva Julia Lohse and Margherita Paola Poto

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Part I: Co-Production as a Method

CHAPTER I

Introduction – Mapping Co-Production of Knowledge

Margherita Paola Poto / Eva J. Lohse / Omondi R. Owino¹

I. Co-production of knowledge (CoPK) in research, education and practice: origins and state-of-the-art

1. Concept(s) in the current scholarship

Co-production of knowledge as such is not a legal term, and not yet a clearly defined, coherent legal concept. Still, this book offers an overview from a mostly legal perspective of how co-production of knowledge (hereinafter CoPK) is applied to research, practice, and education to tackle complex problems, such as climate governance, through an inclusive and participatory approach. CoPK reconfigures research foci from one that is inherently informed by traditional modes of scientific research to one that is informed by a collective and collaborative approach. It engenders ‘a shift in the knowledge system – from a one-way “push” of scientific information to a two-way collaborative process of knowledge construction known as co-production.’² The scholarship has highlighted the unique CoPK characteristics that make it an innovative approach when compared to traditional approaches to research.³ In particular, CoPK is characterized as ‘the process of producing usable, or actionable science through collaboration between scientists and those who use science to make policy management decisions.’⁴ Its goal is to bring together different knowledge constellations and knowledge bearers to develop a holistic comprehension of a complex problem like climate change. To this end, CoPK reconfigures the traditional top-down unidirectional approach to scientific research. Coproduced knowledge becomes ‘more reflexive and affects at the deepest level what

1 Poto and Lohse equally contributed to the design, drafting and supervision of all the sections of this chapter. Owino provided final reflections and conclusions in sections I 1. and 2.

2 Vincent, Daly, Scannell, Leathes, What can Climate Services Learn from Theory and Practice of Co-production? Climate Services 2018, p. 48–58.

3 Gibbons, *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies* (Reprinted.) 1994; Nowotny, Scott, Gibbons, ‘Mode 2’ Revisited: The New Production of Knowledge. 2003, p. 179–194.

4 Meadow, Ferguson, Guido, Horangic, Owen, & Wall, Moving toward the Deliberate Coproduction of Climate Science Knowledge. *Weather, Climate, and Society* 2015, p. 179–191.

shall count as good science.⁵ The circular relationships that emerge from the process of knowledge coproduction enhance reflexivity.

Increasingly, CoPK is gaining currency as a highly viable approach to producing usable and actionable knowledge in climate change research⁶ and other areas of scientific inquiry. For instance, coproduced knowledge is instrumental in mainstreaming climate change adaptation measures into government policy. This is because knowledge bases relevant to climate change arise from local contexts and natural sciences. The intersection of these public and research domains possesses a high usability for stakeholders and government alike.⁷

2. The two faces of CoPK in law and legal research

Against the foregoing backdrop, CoPK is hereinafter primarily described as a methodological approach within the wide field of participatory research and education in the areas of climate and environmental law. CoPK is also referred to as a practice in the context of administrative, judicial and governmental decision-making. It is perceived to increase transparency, accountability, usability of research output, participation, and equity. The need to delve into the methodological dimension and empirical applications of CoPK is justified by two key arguments.

First, it is fundamental to consolidate and strengthen CoPK as a research practice in climate and environmental law studies to increase the uptake of participation and the durability of the proposed solutions. It has been demonstrated that utilizing CoPK tools substantially increases the likelihood that key knowledge, essential for problem-solving and meeting the stakeholders' needs, is effectively used to address systemic chal-

5 Gibbons (note 3) p. 179–194.

6 Homsy, & Warner, *Climate Change and the Co-Production of Knowledge and Policy in Rural US Communities*. *Sociologia Ruralis*, 2013; *Djenontin, & Meadow, The Art of Co-production of Knowledge in Environmental Sciences and Management: Lessons from International Practice*. *Environmental management* 2018, p. 885–903; *Hegger, Lamers, van Zeijl-Rozema, & Dieperink, Conceptualising Joint Knowledge Production in Regional Climate Change Adaptation Projects: Success Conditions and Levers for Action*. *Environmental Science & Policy* 2012, p. 52–6; *Kirchhoff, Carmen Lemos, & Dessai, Actionable Knowledge for Environmental Decision Making: Broadening the Usability of Climate Science*. *Annual Review of Environment and Resources* 2013, p. 393–414; *Lemos, & Morehouse, The Co-Production of Science and Policy in Integrated Climate Assessments*. *Global Environmental Change* 2005, p. 57–68; *Bremer & Meisch, Co-production in Climate Change Research: Reviewing Different Perspectives*. *Wiley Interdisciplinary Reviews: Climate Change* 2017, p. 482.

7 *Lemos, Kirchhoff, & Ramprasad, Narrowing the Climate Information Usability Gap*. *Nature Climate Change* 2012, p. 789–794.

lenges such as the ones posed by sustainability and climate governance.⁸ A conceptual framework that identifies the steps and key principles of CoPK research and education practices is expected to provide effective tools to co-design sustainability interventions and actionable knowledge that advances climate and environmental decision-making.⁹ While interdisciplinary researchers have identified key principles that support the adoption of a collaborative effort in environmental sciences research,¹⁰ a standardized, replicable approach has not yet been investigated, adhered to, and/or mainstreamed by (environmental) law scholars. Moreover, those studying the field of CoPK struggle with a lack of empirical evidence to support the domain's principles.¹¹ Currently, there is limited general information on how to apply these principles to research efforts. Further, there is little peer-reviewed literature on the implementation of CoPK principles and ambiguous evaluation criteria on the processes and outcomes of collaborative and participatory research in law. Education and teaching are seen as seminal tools to encourage more co-productive techniques to be included in research and decision-making processes and at the same time, they are fields where to apply CoPK.

Second, as a response to the evidence gap, this book provides a mapping, collection, and reporting of CoPK practices in climate governance, relevant to decision-making processes in environmental law. CoPK can be facilitated by law if the law offers a framework for it. Whereas in private law contexts coproduction happens within informal relationships, e.g. between the parties to a contract, coproduction in contexts that – at least in legal orders which differentiate between private and public law – occur in the public law sphere typically need to be based on precise legal provisions. Over the course of the last decades, administrative bodies have developed more informal ways to include information in their decision-making procedures, such as round tables or questionnaires. Therefore, the second part of this book serves as a starting point for further research of these formal and informal ways of coproduction by providing a socio-legal and comparative perspective in some case studies: what kind of tools exist,

8 Lemos, Arnott, Ardoin, Baja, Bednarek, Dewulf, Fieseler, Goodrich, Jagannathan, Klenk, Mach, Meadow, Meyer, Moss, Nichols, Sjoström, Stults, Turnhout, Vaughan, Wong-Parodi, Wyborn. To co-produce or not to co-produce. *Nature Sustainability*, 1 (12), 2018, p. 722–724. Armitage, Berkes, Dale, Kocho-Schellenberg, & Patton, Co-management and the co-production of knowledge: Learning to adapt in Canada's Arctic. *Global environmental change* 2011, p. 995–1004.

9 Kirchhoff, Carmen Lemos, & Dessai, Actionable knowledge for environmental decision making: broadening the usability of climate science. *Annual review of environment and resources* 2013, p. 393–414.

10 Lemos, and Morehouse, The co-production of science and policy in integrated climate assessments. *Global Environ. Change* 2005, p. 57–68; Djenontin, Meadow, The art of co-production of knowledge in environmental sciences and management: lessons from international practice, *Environmental Management* 2018, p. 885–903.

11 Hegger, & Dieperink, Joint knowledge production for climate change adaptation: what is in it for science? *Ecology and Society* 2015.

how they are used, how effective they are, what kind of knowledge and knowledge-bearers do they in- and exclude, how knowledge is included into the decision-making process as prescribed by law, what happens if the provided knowledge is ignored, how administrative bodies enable CoPK, and, finally, what co-production mechanisms can be identified and categorized.

3. State-of-the-art research on CoPK in climate governance

Before discussing the theory and practice of CoPK, it is worth briefly recapping the state-of-the-art research on CoPK in climate governance. This synopsis provides details on the current knowledge gaps thus positioning our corpus of research within the literature review. According to the most recent and complete literature review on CoPK conducted so far,¹² the research, education, and practice of CoPK have two main dimensions.

The first dimension depicts CoPK as the deliberate collaboration between researchers and stakeholders and is therefore defined as *normative*, as it aims to elaborate the guidelines on how different actors should define and co-produce relevant knowledge. The normative dimension of co-production is mainly found in CoPK research practices and appears prominently in three disciplinary traditions: public administration, science and technology studies, and sustainability science.¹³ *Bremer* and *Meisch*¹⁴ observe how *Ostrom* and colleagues first used the term co-production in the 1970s in its normative form, developing their reflections on the need to create inclusive approaches for the administration of the commons.¹⁵ In particular, *Ostrom* and her research group at Indiana University found in CoPK the solution for common pool problems regarding the dynamics between public and private actors in the deliverance and administration of public services.¹⁶ In this regard, the origins of CoPK have strong ties to citizen involvement

12 *Bremer, & Meisch*, Co-production in climate change research: reviewing different perspectives. Wiley Interdisciplinary Reviews: Climate Change 2017, p. 482.

13 Chapter V.

14 *Ibid* 13.

15 *Ostrom E.*, Crossing the great divide: co-production, synergy, and development. World Dev 1996, p. 1073–1087.

16 *Ostrom E.*, Scales, polycentricity, and incentives: designing complexity to govern complexity. In: *Guruswamy, McNeely*, (Eds.), Protection of Global Biodiversity: Converging Strategies, 1998, p. 149–167; *Ostrom, E., Ostrom, V.*, Public economy organization and service delivery. Workshop in Political Theory and Policy Analysis, 1977, p. 1–53; *Ostrom, V., Ostrom, E.*, A theory for institutional analysis of common pool problems. Managing the Commons, p. 157–172; *Ostrom, V., Ostrom, E.*, Public goods and public choices. Workshop in Political Theory and Policy Analysis, 1977, p. 1–42; *Ostrom, E., Whitaker.* Does local community control of police make a difference? Some preliminary findings. Am. J. Polit. Sci., 1973, p. 48–76; *Ostrom, E., Baugh, Guarasci, Parks, Whitaker*, Community Organization and the Provision of Police Services. Sage, Beverly Hills, CA, 1973; *Ostrom E., Parks, Whitaker, Percy*,

in complex governance matters through participatory mechanisms. As will be observed in Chapter V of this book, the original trait of CoPK is to enable participation and collaboration in the governance of the commons, between private and public actors, when inputs and efforts of multiple individuals are needed to achieve common objectives.¹⁷ This analysis brings into question the demarcation of public-private boundaries and demonstrates that citizens are not merely passive clients of services provided by government agencies.¹⁸

Building and attaining equity for all parties, especially citizens, is at the core of the normative dimension of a CoPK framework. As a branch of administrative law, climate law requires a participatory approach aiming to attain equitable outcomes for all parties. Administrative law and thus climate law's focus on equity justifies and substantiates the use of CoPK in climate change law and governance research and practice.

Climate change is a classical wicked problem.¹⁹ A wicked problem refers to a 'class of social system problems which are ill-formulated, where the information is confusing, where there are many clients and decision makers with conflicting values, and where the ramifications in the whole system are thoroughly confusing.'²⁰ Singular disciplinary standpoints are therefore ill-suited for the research of climate change-related challenges as vindicated by the observation that 'there are no experts on these problems, nor can there be.'²¹ Additionally, knowledge produced in silos is bedevilled by a lack of transferability, it meets possible resistance by affected groups, facing implementation bottlenecks and unclear and/or absence of ownership.

Equity in the context of CoPK refers to ensuring that space is provided for all knowledge systems and knowledge holders in the research process to not overlook insights.²²

The public service production process: a framework for analyzing police services. *Policy Stud.* 1978, p. 381–389. Ostrom, E., Parks, Percy, Whitaker, Evaluating police organization. *Public Prod. Rev.*, 1979, p. 3–27. Ostrom, E., Formulating the elements of institutional analysis. *Workshop in Political Theory and Policy Analysis*, 1985.

17 Ostrom E., Polycentric systems: Multilevel governance involving a diversity of organizations. In: Brousseau, Dedeurwaerdere, Jowet, Willinger, *Global environmental commons: Analytical and political challenges in building governance mechanisms*, 2012, p. 105–125.

18 Chapter V.

19 *Incropera*, *Climate Change: A Wicked Problem: Complexity and Uncertainty at the Intersection of Science, Economics, Politics and Human Behavior*, 2016; *Meadow, Ferguson, Guido, Horangic, Owen, & Wall*, *Moving toward the Deliberate Coproduction of Climate Science Knowledge. Weather, Climate, and Society* 2015, p.179–191; *Rittel & Webber*, *Dilemmas in a General Theory of Planning. Policy Science* 1973, p. 155–169.

20 *Churchman*, *Wicked Problems. Management Science* 1967, p. 141–142.

21 *Ludwig*, *The Era of Management is Over. Ecosystems*, 2001, p. 758–764.

22 *Yua, Raymond-Yakoubian, Aluaq, and Behe*, *A framework for co-production of knowledge in the context of Arctic research. Ecology and Society* 2022, p. 34.

For this reason, a significant strand of research on climate change research promotes the coproduction of ecological knowledge between Indigenous peoples and scientists, using Indigenous approaches to address the socio-economic and environmental problems posed by the sustainability challenges. Among the most remarkable initiatives that respond to the normative dimension of CoPK, researchers have elaborated a set of guidelines for considering traditional and Indigenous knowledge sets in climate change research.²³ To facilitate respectful and mutually beneficial research relationships, many Indigenous communities are codifying research protocols and formalizing structures of accountability.²⁴ This book maps some of the CoPK principles and codes adopted in Indigenous contexts, clarifying the theory and providing an analysis of best practices.²⁵

The second dimension is referred to as the descriptive area of CoPK.²⁶ This area is called descriptive because it is the space that studies, interprets, and describes the changing relationships between science, society, and nature. It is critical to note that the descriptive area does not necessarily intervene or seek to change existing dynamics. In this book, we have adopted the term ‘descriptive’ as it closely aligns with the co-production idiom for interpreting the shifting relationships between science, society, and nature – including on the subject of climate change – rather than intervening to actively change these relationships.²⁷

4. Intersection of the normative and the descriptive dimension

Furthermore, it can be observed that the two dimensions, normative and descriptive, often intersect. Often, the descriptive dimension serves as a knowledge base to elaborate a prescriptive approach and subsequently results in the elaboration of protocols and guidelines which is especially helpful to legal scholars with limited experience with this research approach.

An example where it is possible to observe the interaction between the normative and the descriptive dimension of CoPK comes is found Chapter IV.²⁸ This chapter details

23 Chief, Chischilly, Cochran, Durglo, Hardison, Hostler, & Watkins, Guidelines for considering traditional knowledges in climate change initiatives, 2015.

24 Chapter III.

25 *Ibid* 25.

26 Bremer & Meisch, Co-production in climate change research: reviewing different perspectives. Wiley Interdisciplinary Reviews: Climate Change 2017, e482.

27 Among the authors involved in the study of the descriptive area see Miller, & Jasanoff, States of knowledge: the co-production of science and social order, Routledge, London, 2004; Jasanoff, Wynne, Science and decision-making. In: Rayner, Malone, eds. Human Choice and Climate Change: The Societal Framework, 1998, p. 1–87; Wynne, SSK’s identity parade: signing up, off-and-on. Soc Stud Sci 1996, p. 357–391; Latour, We Have Never Been Modern, 1993.

28 See Chapter IV.

a pilot project on the development of a framework for CoPK in emotional and environmental education. In this chapter, the authors analyse the steps that led to the co-creation of educational materials on emotional and ecological education. This novel approach toward a co-created learning toolkit was developed by a legal scholar, an expert in global health, and an illustrator, in collaboration with researchers and teachers, with the aim to raise awareness of the importance of emotional education and nurturing multiple talents.

As elaborated in the book chapter,²⁹ in the process of co-creating the educational materials, three stages were followed: 1) Literature review on the state of the art of emotional education; 2) Evidence review and teachers' consultation; 3) Co-production of activities and book content. The methods used at each stage allowed for the integration of scientific literature with teachers' knowledge and expertise. A variety of consultation methods were offered to groups of teachers to enable them to participate in the way manner that they felt was most appropriate. A semi-structured topic guide was used, consisting of broad open-ended questions relating to participatory task-based activities using information and resources. The result was a book, with a tripartite target audience: children (an illustrated story constitutes the incipit of the book); researchers and teachers. This study offers an example of how the descriptive and normative dimensions of CoPK can be intertwined. The creation of 'Follow Your Heart' required a collaborative approach between researchers, educators and children, and thus can offer guidelines to enhance inclusive education at the policy and practice policy levels. Further, this CoPK approach could be studied for the institutionalization of best practices through working with schools focusing on emotional and ecological education.

In the next section, the original project idea, which inspired this book, will be read in the context of climate and environmental law research.

II. Getting things started: The Strategic Workshop on CoPK in climate governance at the University of Bayreuth and Centre of International Excellence Alexander von Humboldt

This volume is the project result of a collaboration between the research group coordinated by *Eva Julia Lohse* at the University of Bayreuth, and the Centre of International Excellence Alexander von Humboldt and *Margherita Paola Poto*, as well as scholars

from Norway, Italy, Canada, Kenya, Argentina, and Brazil.³⁰ The organization of a two-day workshop at the University of Bayreuth in May 2022 resulted in the establishment of a network of scholars (CoProknet) and the consolidation of the research presented in this book. Our preliminary assumption in the elaboration of the state-of-the-art on CoPK was that climate change requires solutions from multilevel and polycentric perspectives.³¹ Conscientious of the critical considerations that accompany the growing interest in CoPK approaches to find integrated solutions to the climate crisis, we decided to explore its applications in the fields of law and social sciences.³² Building on previously consolidated research on environmental participation and governance,³³ our central assertion was that CoPK could successfully counter the perceived lack of effectiveness of the participatory rules in administrative decision-making processes outlined in many national, regional, and international legal documents. Such provisions are often based on uni-directional decision-making, unilateral knowledge transfer processes, and access rights limited to the procedural realm. In contrast, according to our preliminary observation, further strengthened by the research mapped in this book, CoPK integrates bottom-up perspectives of different knowledge bearers. Our project moved forward from the consideration that an integrated, systematic, and implementable definition of an approach to CoPK was missing in legal research.³⁴

The aim of the workshop was, therefore, to address the research gap by setting a common framework for CoPK in climate governance, relevant for legal scholars and prac-

30 See www.humboldt-centre.uni-bayreuth.de/en/fellows-and-grantees/recently-selected-strategic-scientific-workshops/index.html, last access 27 December 2023.

31 For a full bibliography on the subject matter see *Poto*, *Sustainability Through Participation: Critical Reflections on the Epistemic Adequacy of the Western Legal Approach to Square the Circle and Grant a Common Future for All*, in: *Peters, Lohse* (eds) *Sustainability Through Participation? Legal Perspectives*, Brill, 2022, in press.

32 *Christie*, “Commission on the Future Delivery of Public Services”. Report, APS Group Scotland, UK, 2011; *Thornton, & Scheer*, Collaborative engagement of local and traditional knowledge and science in marine environments: a review. *Ecology and Society* 2012; *Latulippe, Klenk*, Making room and moving over: knowledge co-production, Indigenous knowledge sovereignty and the politics of global environmental change decision-making, *Current Opinion in Environmental Sustainability* 2020, p. 7–14.

33 In particular, the CoPK workshop and research on CoPK as a necessary step forward in the search for effective participation built on three main projects: (1) DAAD Fachkonferenzenprogramm “Deutsch-italienische Dialoge” (2014/15, *Lohse/Poto*). The team established an interdisciplinary PhD-workshop and expert seminar regarding participatory rights in environmental decision-making processes; (2) DAAD Hochschuldialog mit Südeuropa (2016/17; *Lohse/Poto*). Building on the prior research funding, this project narrowed the scope and foci to best practices in the protection of water and participation of the public; (3) DFG ‘SustaiNet – Sustainability through participation’ (2019–2022, *Peters/Lohse/Poto*).

34 *Norström et al.*, Principles for knowledge co-production in sustainability research. *Nature sustainability* 2020, p. 182–190.

tioners, through the mapping and evaluation of existing climate-smart practices from a multilevel and polycentric perspective (primary scientific objective). The academic portion of the workshop, reflected in the structure of this book, had both theoretical and practical components. Drawing from the conceptual framework of the participatory rights in international environmental decision-making (the Århus Convention, and the Escazú Agreement) as well as national (constitutional) provisions on participatory rights in environmental law, the workshop connected the tenets of effective participation with best practices of CoPK. Focus was placed on selected local, traditional, and Indigenous communities, affected by climate change (Germany: Bavarian Forest/Steigerwald/Upper Franconia; Arctic Region: Sápmi; Kenya: Maasai, Ogiek, Endorois, Tana River County, and the northern frontier; Brazil: Mato Grosso). The complex problems from climate change, which impact communities all over the world, were assessed as comparable. It was therefore deemed legitimate to use a comparative approach to find similarities and to develop a common framework of CoPK. The long-term aim of the workshop's inclusive research and learning experience was to consolidate our international network and develop training and capacity-building materials (i. e. database, outreach activities, tailored courses) for researchers as well as representatives of communities on the climate-smart practices of CoPK (long-term objectives).

To address the lack of a systematic and implementable definition, the participants proposed the following research question: How can legal researchers, legislators, policymakers, and communities systematically and effectively define and develop ways to engage with CoPK in environmental decision-making?

The participants inductively approached the research question and the task of describing and defining CoPK from different interconnected angles including water governance, climate change, alternative justice, agricultural and nature conservation law, and biodiversity. Questions that structured the panels of the workshop as well as the subsequent contributions in this book were the following:

1. How do legal research and community-based observations in the field of climate and environmental law regard/disregard CoPK? Are there examples/best practices drawn from water governance, where CoPK led to effective and implementable solutions to the ecological challenges that we are currently facing (environmental threats and population displacement stress)?
2. How does CoPK produce usable knowledge for climate-vulnerable Indigenous communities?
3. How does CoPK combine scientific and traditional knowledge for adaptation and mitigation of climate change?

4. How does CoPK generate usable climate (change) knowledge for policymakers?
5. How do existing legal frameworks include or exclude certain types of knowledge, knowledge producers, and processes of co-production? Is there a difference between small-scale (regional) regulation, like local by-laws, and national legislation, and large-scale (international) regulation, like international treaties or regional conventions?
6. What socio-legal surroundings does effective CoPK in environmental law and policy require? Is there a difference between legal orders as well as between states and the international community?
7. How can CoPK be utilised to influence quality decision-making relating to environmental sustainability at AJS fora, particularly in the context of recurring disputes between pastoralists and farmers over the sharing of water, and grazing land?

Most researchers involved in the workshop contributed a book chapter in this volume; in addition to their contribution, further studies were added, which included: a case study reflecting the co-production of knowledge in the governance of the commons (Chapter IV, V, VIII, IX).

III. Book structure and content

As explained above, the book is divided into two parts: an analysis of CoPK as a methodological approach to research and education (Part I: Chapter I–IV) and a map of case studies where CoPK is adopted to overcome inequalities, guarantee inclusive participation and ultimately contribute to effective climate governance (Part II: Chapter V–IX).

1. Part I – CoPK as a method

In Chapter II, *Margherita P. Poto et al.* observe that while CoPK is a research practice that is well suited to address the complexities of sustainability CoPK remains an underdeveloped field of research and approach, especially within the law domain. The chapter explores the implications of knowledge co-creation from a methodological viewpoint grounded in participatory research. In this context, participatory research is framed as an experiential, relational, and collaborative inquiry process. The preliminary step in establishing participatory approaches, especially within research endeavours that link Western practices and Indigenous research methodologies, is to adopt a critical decolonizing mind-set through transformative community engagement. Participatory research foci include critical appraisal and rethinking of the dominant Western paradigm approach to climate governance research. The result is that research is no longer conceived as an in-

quiry on legal orders and community members, but rather as a collaborative experience with all the participants. This leads to the construction of research as a co-created interpretation of stories, which may be supported through the adoption of visual language that advances participation, inclusion, and interaction among the parties. It is proposed that the adoption of the Delphi and Problem-Based Learning (PBL) methodologies can aid in systematizing and mainstreaming co-creation within legal education and practice. These methods delineate pathways for inclusion, collaboration, and knowledge integration within a legal context. The authors conclude that co-designing participatory approaches to ecological challenges constructively responds to the need of understanding ecology as a relational and integrated system. In concluding remarks, the authors emphasize the need to continue testing the described methods, through empirical and cross-disciplinary research. The analysis of CoPK as a methodological approach to climate and environmental law research continues in Chapter III, where *Giulia Parola et al.* retrace the methodological steps that resulted in the co-creation of the Escazú Agreement in the form of comics, with the aim to make an international agreement on participatory environmental rights accessible and co-owned by its addressees. The participants of the co-created project are community members from the Chiquitano Indigenous people of Mato Grosso, legal scholars and law students from Rio de Janeiro, Brazil. The authors explain how the process of co-creation is realized through two techniques, Legal Design (LD) and Visual Law (VL). These visual techniques help elaborate on clearer and more transparent, adequate legal solutions for the law recipients, the legal entities, and society at large. The objective of the project was to teach students, in practice, an efficient method to create understanding and engagement in environmental law. Simultaneously, the project aimed to support the co-production of education resources with and for the Chiquitano people, which could act as a tool for strengthening environmental participation. This book chapter also outlined the different steps of the project by clarifying the methods used and overarching methodology of co-creation. In Chapter IV, *Emily M. Murray et al.* provide another example of co-creation applied to research and education, through the lens of the ecology of participation. The main argument supporting the adoption of co-created approaches in the field of education is that co-creating educational spaces and curricula contributes to strengthening ecological awareness. In alignment with co-creation, ecological awareness is based on the values of respect, responsibility, and reciprocity. The theorisation of a curriculum built around co-created spaces as an ecology of participation is explored through the empirical example of the co-created book and educational resource *Follow Your Heart: The School for Multipotentialites* (hereinafter: *Follow Your Heart*).³⁵ In their book chapter, the authors demonstrate how a diverse range of educational tools and activities support the

35 *Murray, Poto, Russo, Follow Your Heart. The School for Multipotentialites, 2022, Aracne, Rome.*

development of reciprocal relations, contributing to the strengthening of three spheres: the relationship to oneself, others and the natural environment. The development of the three spheres is demonstrated to have beneficial effects on community well-being and ultimately on environmental sustainability.

2. Part II – CoPK as an innovative tool in decision-making

Chapter V (*Adele Owens et al.*) delves into the analysis of CoPK as a practice for decision-making, tracing the origins of Ostrom's study and the use of CoPK in governance to the present day case study of the Wiltshire Community. Through the chapter's discussion of CoPK origins as a means to achieve good governance of the commons it is argued that the practice is suitable to address environmental and climate issues. The case study on the CoPK practices developed by the Transformation Team of the Wiltshire Council sheds light on the critical importance of reflecting on the steps in CoPK in decision-making, emphasizing the key relevance of trust building during all the phases of the process. A further lesson drawn from this case study is that flexibility is key: the entire CoPK process cannot be thoroughly planned at the start of the project and requires constant adaptation, dialogue, and reciprocal understanding to redress the objectives and identify new challenges and needs.

From Chapter VI onward, the book provides a mapping of regional case studies of CoPK as a practice in climate governance.

In Chapter VI, *Murungi et al.* explore CoPK applied in the context of the alternative justice systems (AJS) in northern Kenya. The chapter argues that one of the ways to strengthen and optimise the AJS policy's value is to consider the most effective means to tackle pastoral violence in northern Kenya. Pastoral violence includes criminal activities such as livestock raiding, cattle rustling and other offenses perpetrators may commit in the course of rustling/raiding. The authors explain how this is, partially, a climate change-related phenomenon. There is a positive correlation between climate change, drought severity and occurrences of pastoral violence in northern Kenya. It is essential that culturally informed research guide how AJS can contribute to successfully tackling pastoral violence. The chapter proposes that the National Steering Committee on the Implementation of AJS Policy utilize CoPK principles to accomplish this. Four principles that academics and practitioners opine are best practices when utilizing CoPK include assessing context, practising pluralism, goal-orientedness, and interactivity. This chapter adapts and applies the principles to determine what it would take to reflect upon the issue of dispute resolution in cases pertaining to pastoral violence in northern Kenya.

Remaining in Kenya, Chapter VII, by *Felix Otieno Odhiambo et al.* focuses on the possibilities of a bottom-up approach to decision-making in Kenya's climate change law. Furthermore, this chapter examines whether participation and bottom-up approaches can be considered equivalent to implementing CoPK or at the least be used to expand the inclusion of stakeholders and knowledge bases in decision-making. The book chapter explores the advantages and challenges of collaborative research. In particular, it is found that collaborative research increases acceptability for stakeholders yet raises questions regarding insufficient funding and time. The role of traditional and Indigenous knowledge and laws in this context is highlighted. Chapter VIII by *Jebby Gonza et al.* focuses on CoPK in Tanzania, where local communities have developed Indigenous knowledge that could potentially address environmental concerns specific to their region, including the problem of climate change. However, the major question is whether there are any prospects offered by the existing Tanzanian legal framework and policies towards recognizing, integrating, and protecting Indigenous knowledge into climate change mitigation and adaptation strategies. Overall, the study asserts that indeed Tanzania does not have specific legislation or policies that aim at integrating and protecting Indigenous knowledge into climate change adaptation and mitigation strategies. While there are various provisions that seek to address general aspects concerning Indigenous knowledge, these provisions are scattered throughout different national laws and policies and further, they do not explicitly provide for the use of Indigenous knowledge to mitigate and adapt to climate change. The authors recommend that the central government should advocate for the use of Indigenous knowledge in climate change mitigation and adaptation by putting in place a legal framework that protects and enshrines it. Chapter IX, written by *Violeta S. Radovich et al.*, focuses on the role of CoPK regarding the new permits in Argentina to explore and exploit hydrocarbons in the sea granted in 2021. The chapter's methodology includes the analysis of laws, public hearings, interdisciplinary scientific articles, and judicial decisions. In Argentina, the right to a healthy environment is guaranteed by the Constitution. Moreover, in regard to the inclusion of participatory processes in environmental matters, the Escazú Agreement has constitutional rank in the country. Results show that in Argentina public hearings shall be carried out prior to authorizing activities that may cause negative effects on the environment; however, the results of these public hearings are not legally binding. This means that public hearings are a mere procedural guarantee, a uni-directional administrative procedure governed by the Argentine State that thus gets the last word on the decision. Social movements and organizations, as well as scientists, oppose these permits and claim that the activities involved in exploration and exploitation of hydrocarbons require a social license, which was not granted in the public hearing because only four percent of the participants voted in favour of granting the permits. One of the most repeated claims in the hearing was that the results of the public hearing should be

binding. Although only four percent voted in favour of granting the permits, six months after the hearing, the permits were in fact granted by the Argentine Ministry of Environment. However, a federal judge suspended these permits after an *amparo* action (action to protect constitutional rights) was filed by the affected citizens.

IV. Conclusions

The knowledge exchange and the subsequent co-production of ideas that occurred throughout the Bayreuth workshop and the writing of this book solidified the authors' belief in the potential of harnessing CoPK approaches in research and education settings, as well as in environmental decision-making. Insights were drawn from different jurisdictions and academic backgrounds to establish innovative, inclusive dialogues and analyses of environmental and climate change laws. Future legal research within these domains will face mounting pressure as climate mitigation and adaptation strategies and legislation will be increasingly needed and adhered to. CoPK enables a creative approach to environmental participation; however, such creativity can only bloom where a structured taxonomic framework exists. With this book, we wish to begin the iterative process of developing a CoPK framework and refining the criteria and taxonomy, in order to put co-production of knowledge into use.

CHAPTER II

Knowledge Co-Creation as a Methodological Approach Participatory Approaches to Environmental Legal Research

Margherita Paola Poto¹ / Arianna Porrone² / Juliana Hayden-Nygren³

I. Introduction

Research and academic institutions are increasingly developing programs to integrate sustainability and environmental studies into research and education curricula. The trend in recent years is to extend partnerships with stakeholders outside of higher education institutes for tackling global and local sustainability challenges.⁴ Core drivers of this trend are increasing calls from scholars and funding institutions for new modes of knowledge production (hereinafter interchangeably referred to as knowledge co-production or co-creation) that can better account for place-specific and stakeholder needs, further societal and economic development, and integrate expertise from diverse disciplines and societal sectors. For this work, knowledge co-creation is defined as an emerging process, especially in the field of Western law, it is important here to note that hereinafter the terms Western, West, and Eurocentric will be used interchangeably.

- 1 Poto wrote sections I–VII and XIII, as a development of Chapter V from the book *Poto*, *Environmental Law and Governance: the helicoidal pathway of participation. A study of a nature-based model inspired by the Arctic, the Ocean, and Indigenous Views*, Giappichelli Editore, 2022, Torino, pp. 134–154. Her research is funded by the project HKDIR UTF-2020/10084: An Exchange Program on Empathy Compassion and Care in Water Governance, from the Perspective of Integral Ecology (ECO_CARE). Website: www.en.uit/project/ecocare.no, last access 27 December 2022.
- 2 *Porrone* wrote section VIII, contributed to the writing of section III, and contributed to the editing of the other sections.
- 3 *Hayden* wrote sections IX–XI and contributed to the editing and revisions of the other sections.
- 4 One example of this trend is represented by the consolidation of the Coproknet team. This publication is a result of such a cooperative effort. In literature, see also *Trencher, Terada, & Yarime*, Student participation in the co-creation of knowledge and social experiments for advancing sustainability: experiences from the University of Tokyo, 2015, *Current Opinion in Environmental Sustainability*, p. 56–63 m. n. 16; *Trencher, Yarime, McCormick, Doll, Kraines*, Beyond the third mission: exploring the emerging university function of co-creation for sustainability, 2014, *Sci Public Pol*, p. 151–179 m. n. 41; *König*, (Ed.) *Regenerative sustainable development of universities and cities: the role of living laboratories*. 2013, Cheltenham UK and Northampton MA US. *Cash, Clark, Alcock, Dickson, Eckley, Guston, Jager, Mitchell*, Knowledge systems for sustainable development, *Proc Natl Acad Sci USA* 2003, p. 8086–8091.

The process of knowledge co-creation requires a plurality of actors to attempt to solve a shared problem, challenge, or task by means of a constructive exchange of different knowledge sets, values, expertise, and competencies.⁵

Knowledge co-creation presents several advantages to addressing sustainability challenges, connected to the failure of Western environmental law to acknowledge the interdependencies of the socio-ecological crises of our time.⁶ The process of co-creating solutions is intended to encourage cross-disciplinary and collaborative approaches to such interdependencies, by triggering a positive process of mutual and transformative collective search for solutions among the plurality of actors engaged in the sustainability discourse, and 'creating a continuous feedback loop of knowledge integration, and drive knowledge integration into a never-ending spiral.'⁷

This book chapter delves into the co-creation of knowledge applied to cross-disciplinary environmental research from a methodological perspective. The concept of cross-disciplinarity within this work has several features: 1. it encompasses interdisciplinarity (law, indigenous studies, health); 2. it involves a co-production of activities with scientists, researchers, and other academic and non-academic actors (such as community members); 3. it aims to produce solutions-oriented outcomes, which include capacity building, consensus building, and role-playing reinforcement. In cross-disciplinary research, the concept of knowledge producers is replaced by process facilitators, knowledge brokers, change agents, experts in learning, reflective scientists, self-reflexive scientists, reflexive facilitators, and project managers.⁸

In the following sections, we describe the methodological steps that have been adopted for the preparation and implementation of the international project ECO_CARE.⁹ The project involves researchers and Indigenous communities from Norway and Brazil, as well as partners from Italy, Tanzania, Canada, Portugal, and aims to develop an education and research platform that rethinks participatory environmental rights through emotions. Utilizing emotions within the context of participatory environmental rights thus acknowledges the relational and integral dimensions of environmental challenges and solutions.

5 *Torfiing, Sørensen, Røiseland*, Transforming the public sector into an arena for co-creation: Barriers, drivers, benefits, and ways forward, Administration & Society 2019, p. 795–825.

6 *Ostrom, Janssen, & Anderies*, Going beyond panaceas, Proceedings of the National Academy of Sciences 2007, p. 15176–15178, to describe systems of human-environment interactions.

7 *Chen, Yang, Leo*, The beginning of value co-creation: understanding dynamics, efforts and betterment, Journal of Service Theory and Practice 2017, p. 1147.

8 *Wibeck, Eliasson, Neset*, Co-creation research for transformative times: Facilitating foresight capacity in view of global sustainability challenges, Environmental Science & Policy 2022, p. 290–298.

9 See fn. 1.

II. Participatory research

This section provides an overview of participatory approaches to environmental legal research, starting with its foundations in Indigenous methodology, then exploring tools and outcomes of legal creativity applied to storytelling and legal documents. Finally, reflections on the relational dimension of participatory research and the role of emotions in the construction of inclusive environmental research are explored.

Participatory research has a long tradition of applying the Indigenous methodology, Indigenous legal traditions, and rights-based approaches to nature, which are intrinsically intertwined.¹⁰ The need to engage with participatory research that contributes to effective environmental governance systems is supported by the emerging voices in the field of law. Thus, this interest has created high-impact research for specific legal and social changes.¹¹ Yet, simultaneously, nature-based approaches are emerging not only as theoretical frameworks but as concrete legal road maps to promote good environmental governance, environmental justice, equality, and an integrated governance system in which both human and non-human needs are taken into consideration. As such, research and environmental law rooted in nature-based approaches are steadily developing into powerful tools of legal and socio-ecological change.¹²

However, the trouble arises in that these two realms, legal and socio-ecological, have not always been significantly interconnected in the field of environmental legal research. In the desire to use a nature-based approach for research leading to legal and social change, this chapter draws on participatory research and Indigenous methodologies to reflect on the role that nature-centred knowledge systems have in informing environmental reforms, also from a methodological viewpoint.

- 10 For similar reflections see *Arstein-Kerslake, Gooding, Mercer, Raymond, & McSherry*, Implementing a Participatory Human Rights-Based Research Methodology: The Unfitness to Plead Project, *Journal of Human Rights Practice* 2019, p. 589–606.
- 11 *Greenwood, Levin*, Introduction to action research: Social research for social change, 2nd edn., 2006, Thousand Oaks CA; *Balazs, Morello-Frosch*, The three Rs: How community-based participatory research strengthens the rigor, relevance, and reach of science, *Environmental Justice* 2013, p. 9–16.
- 12 *Tzoulas, Galan, Venn, Dennis, Pedroli, Mishra, Haase, Pauleit, Niemelä, & James*, A conceptual model of the social-ecological system of nature-based solutions in urban environments, *Ambio* 2021, p. 335–345; *Nesshöver, Assmuth, Irvine, Rusch, Waylen, Delbaere, Haase, Jones-Walters, Keune, Kovacs, Krauze, Külvik, Rey, van Dijk, Vistad, Wilkinson, & Wittmer*, The science, policy and practice of nature-based solutions: An interdisciplinary perspective, *Science of the Total Environment* 2017, p. 1215–1227. *European Commission*, Towards an EU Research and Innovation policy agenda for nature-based solutions & re-naturing cities in *European Commission*, Final Report of the Horizon2020 Expert Group on Nature-Based Solutions and Re-Naturing Cities, 2015.

In this endeavour, it is necessary to briefly define what participatory research entails for this work. Further, how this approach is applied within an Indigenous context must also be respectfully reviewed.

In essence, participatory research prioritizes local perspectives, values, needs, and knowledge through collaboration with community members throughout the entire research process.¹³ In this approach, research is not conducted *on* community members, but rather *with* them.¹⁴ Also, it is worth highlighting that the borders of such a community extend to include students and learners in general, researchers, and representatives of Indigenous communities.¹⁵

Cooperation within the research community becomes a driver of change with methodological, relational, and environmental implications since academic and community co-researchers ‘implement the results in a way that will raise critical consciousness and promote change in the lives of those involved – changes that are in the direction and control of the participating group or community.’¹⁶

Introducing participatory research into an Indigenous context as a necessary step in nature-centred governance is posed to enrich the critical legal analysis. The subsequent reflections that Indigenous knowledge and leadership bring to the complexity of solving environmental problems result in a multi-perspective, polycentric, approach thus moving away from the dominant Western perspective. The Indigenous context guides participatory research through engagement with legal traditions and adapted Western legal tools, ultimately providing insights on how to transform Western legal research on environmental governance into an effective collaborative and participatory experi-

- 13 Smith, Rosenzweig, & Schmidt, Best practices in the reporting of participatory action research: embracing both the forest and the trees, *The Counseling Psychologist* 2010, p. 1115–1138. For the application of participatory research to the legal realm see Keahey, Sustainable development and participatory action research: a systematic review, *Systemic Practice and Action Research* 2021, p. 291–306; Houh, & Kalsem, It’s critical: Legal participatory action research, *Michigan Journal Race & Law* 2013, p. 287, 19; Greenwood, Whyte, & Harkavy, Participatory action research as a process and as a goal, *Human Relations* 1993, p. 175–192.
- 14 Kindon, Pain, & Kesby, Participatory action research: Origins, approaches and methods in: Participatory action research approaches and methods, 1st edn., Routledge 2007, Oxon and New York, p. 35–44; Brydon-Miller, Education, research, and action theory and methods of participatory in Tolman, & Brydon-Miller (Eds.), *From subjects to subjectivities: A handbook of interpretive and participatory methods*, New York University Press, 2001, p. 76; Brydon-Miller, Participatory action research: Psychology and social change, *Journal of Social Issues* 1997, p. 657–666, 53(4).
- 15 See Hacker, Defining the community and power relationships in Ead., *Community-based participatory research*, SAGE Publications 2013, Thousand Oaks CA, p. 23–40.
- 16 Kidd, & Kral, Practicing participatory action research, *Journal of Counseling Psychology* 2005, p.187. On the community of researchers and learners intended in a broad sense see also Pidgeon, More than a checklist: Meaningful Indigenous inclusion in higher education, *Social Inclusion* 2016, p. 77–91.

ence.¹⁷ The analysis of participatory research opens spaces to discuss the use of such a framework in the field of environmental law, including its relevance to decolonizing approaches and overcoming the marginalization of voices relevant to the environmental discourse.¹⁸

The next sections will analyse the stages of participatory approaches to research applied in the ideation and implementation of activities connected to the project, ECO_CARE (cited above).

III. Stage one: decolonizing the researcher's mindset

There exists a long history of legal research that marginalizes and oppresses nature-centred views and their carriers, especially Indigenous peoples, their knowledge and ways of life.¹⁹

The common denominator of the research conducted in regions characterized by the coexistence of Indigenous and non-Indigenous legal orders (as seen in the example of the ECO_CARE project partners and collaborators: Norway, Italy, Portugal, Brazil, Canada, and Tanzania), is a historical pattern of exploitative and harmful research practices perpetuated by Western researchers against indigenous communities and knowledge.²⁰ This pattern is most clearly expressed by the image of the exploitative effects of 'helicopter' research, conducted by non-Indigenous researchers and academics, clam-

- 17 *Napoleon*, Ngā ture o ngā iwi taketake – Indigenous law Legal pluralism and reconciliation. Māori Law Review Whiringa-ā-rangi 2019, p.1–22; *Napoleon*, What is indigenous law? A small discussion. Indigenous Law Research Unit 2016; *Napoleon & Friedland*, An inside job: Engaging with Indigenous legal traditions through stories, McGill Law Journal/Revue de Droit de McGill 2016, p. 725–754 ; *Friedland & Napoleon*, Gathering the threads: developing a methodology for researching and rebuilding indigenous legal traditions, Lakehead Law Journal 2015; *Snyder, Napoleon, & Borrows*, Gender and violence: drawing on Indigenous legal resources, UBC Law Review 2015, p. 593; *Napoleon & Friedland*, Indigenous legal traditions: Roots to renaissance in: *Dubber, & Hornle* (Eds.), The Oxford handbook of criminal law, Oxford University Press 2014, p. 225–247; *Bell & Napoleon* (Eds.) First Nations cultural heritage and law: Case studies, voices, and perspectives, UBC Press 2009.
- 18 See *Lopez*, Reflections on epistemology and standpoint theories: A response to 'A Māori approach to creating knowledge', International Journal of Qualitative Studies in Education 1998, p. 225–231.
- 19 *Smith*, Decolonizing methodologies: Research and indigenous peoples, 3rd ed., 2021, London. On marginalization of methods see also *Smith*, Disrupting the global discourse of climate change: the case of indigenous voices in: *Pettenger* (Ed.) The social construction of climate change, Routledge, 2016, Oxon and New York, p. 221–240.
- 20 *Guillemin, Gillam, Barnard, Stewart, Walker, & Rosenthal*, 'We're checking them out': Indigenous and non-Indigenous research participants' accounts of deciding to be involved in research, International Journal for Equity in Health 2016.

bering into a helicopter (or other transport) and simply ‘flying away’ after collecting the desired data and information.²¹

Under the guise of scientific colonialism, researchers from the West look into the systems of the colonized lands through the eyes of distant experts, and the communities themselves become objects of research.²² Moreover, the ideology of scientific imperialism and colonization carries with it the belief that researchers are entitled to unlimited rights of access to any data source and information belonging to the population or community they are investigating, and thus they possess the right to exploit and export data for purposes of research.²³ As a result, traditional knowledge systems can be subject to cultural appropriation, often occurring without adequate recognition of the sources of knowledge. Further, traditional knowledge systems may be re-installed in other socio-cultural contexts that would hardly benefit from their highly context-dependent epistemologies. Romanticizing indigenous groups and their traditional knowledge is another common tendency among researchers coming from both academia and communities of activists.²⁴ When romanticization takes place, local knowledge is portrayed ‘as unconditionally positive, wholesome, and the only appropriate route’²⁵ for radical change, notably in sustainability studies. This approach tends to overgeneralize indigenous cultures, and can suggest that indigenous peoples – because they live closer to nature and may pay reverence to natural cycles – have all the answers to address the current socio-ecological crises²⁶.

Therefore, from a critical legal perspective, both scientific imperialism and colonization need to be considered when engaging with a decolonization intellectual process.²⁷ A decolonizing mind-set in research is particularly necessary when adopting research approaches that aim to open the perspective of environmental governance and go beyond the dynamics of dominance, objectification, and exploitation of nature.

- 21 See *Bowechop & Erikson*, Forging Indigenous Methodologies on Cape Flattery: The Makah Museum as a Center of Collaborative. Research, *American Indian Quarterly* 2005, p. 263–273. (Review of *Smith*, *Decolonizing Methodologies*, Zed Books, 1999). at 270: ‘Do you know what the ‘helicopter effect’ is?: You, and the information you gather, get into the helicopter and fly away.’
- 22 *Braun, Browne, Ka ‘opua, Kim, & Mokuau*, Research on indigenous elders: From positivistic to decolonizing methodologies, *The Gerontologist* 2014, p. 117–126.
- 23 *Chilisa*, *Indigenous research methodologies*, 2nd edn., 2019, Thousand Oaks CA.
- 24 *Agrawal*, Dismantling the divide between indigenous and scientific knowledge, *Development and Change* 1995, p. 413–439, 26.
- 25 *Barca & Arenas*, Words of Caution on Indigenous Knowledge and Education in *Zaida* (Ed.) *Educational Practice and Theory*, 2010, p. 5–27.
- 26 *Barca & Arenas*, Words of Caution on Indigenous Knowledge and Education in *Zaida* (Ed.) *Educational Practice and Theory*, James Nicholas Publishers 2010, p. 5–27, 17.
- 27 *Datta*, Decolonizing both researcher and research and its effectiveness in Indigenous research, *Research Ethics* 2018, p. 1–24.

Ultimately, such a critical approach to environmental research that claims to be decolonized and open to participation is expected to involve a reflection on the following questions: ‘What are the steps to follow in a research approach that aims to move towards a participatory approach that emphasizes direct engagement of local and Indigenous priorities and perspectives to nature?’, ‘What are the methods that form such a participatory methodology?’ and, ultimately, ‘Where is the centre of knowledge and information about the research?’²⁸ The following sections will provide a roadmap of ECO_CARE’s project participatory research methodology. This participatory research methodology has been continuously re-assessed and re-developed with the help of the communities of learners, researchers, and Indigenous representatives, towards the modelling of participatory environmental governance.

IV. Stage two: ecological challenges as relational challenges

Environmental and sustainability scholars agree that the divide between human and non-human components of ecology is symptomatic of relational dysfunction.²⁹ Consequently, an innovative strand of environmental research focuses on the need to expand the subject of the investigation to the relational values in ecology, and explore ways to heal them, promoting interconnectedness between human and non-human issues, as well as with culture and experience.³⁰ As *Shrivastava et al.* put it, research and education need to embrace integrative perspectives that recognize ‘the need for critical thinking, reflection, and experience-based learning that leads to action and a sense of agency.’³¹ According to these scholars, one way of integrating different perspectives is through action research.³² In this sense, participatory research based on the collective action and co-creation of knowledge actively contributes to the deep relational transformation necessary in ecology today. In the words of *O’Brien*, the research community needs to move towards ‘changing the behaviours, structures, and systems that contribute to what many consider to be undesirable and potentially dangerous outcomes, including

28 *Datta*, Decolonizing both researcher and research and its effectiveness in Indigenous research, *Research Ethics* 2018, p. 40.

29 *Bai, Van Der Leeuw, O’Brien, Berkhout, Biermann, Brondizio, Cudennec, Dearing, Duraippah, Glaser, Revkin, Steffen, & Syvitski*, Plausible and desirable futures in the Anthropocene: A new research agenda, *Global Environmental Change* 2016, p. 351–362; *O’Brien*, Global environmental change III: Closing the gap between knowledge and action, *Progress in Human Geography* 2013, p. 587–596.

30 *Saxena, Chatti, Overstreet, & Dove*, From moral ecology to diverse ontologies: relational values in human ecological research, past and present, *Current Opinion in Environmental Sustainability* 2018, p. 54–60, 35.

31 *Shrivastava, Smith, O’Brien, & Zsolnai*, Transforming sustainability science to generate positive social and environmental change globally, *One Earth* 2020, p. 329–340.

32 *Shrivastava, Smith, O’Brien, & Zsolnai*, Transforming sustainability science to generate positive social and environmental change globally, *One Earth* 2020, p. 330.

increased temperatures and climate extremes, rising sea levels, food and water insecurity, and other environmental and social impacts.³³ The adoption of participatory approaches within the research context responds to the need for such a commitment and paradigm shift.

A participatory methodology supports the relationship between agents of change and collective needs, for both researchers and communities. Such methodology is intended to stimulate reflection on the dominance of Western research paradigms and the unequal power dynamic between communities and researchers.³⁴ Consequently, and from a methodological viewpoint, a collective effort to build respectful research relationships can effectively respond to socio-ecological challenges.

The subsequent sections will provide examples of the experiential process applied in studies on environmental governance. This process is defined by engaging with the research community work that adheres to relational accountability, respect, reciprocity, and responsibility. The line of investigation has developed within the context of the integral ecology, intended as the integrated framework encompassing visible and non-visible aspects of natural and social systems, and their relationality.³⁵ The hypothesis is that a participatory process that observes the environmental threats of our time through the perspective of integral ecology is more likely to find effective co-created solutions to complex climate challenges since integral ecology unifies life as an intersubjective system.

V. Stage three: Indigenous methodology in co-created research

As described above, understanding participatory approaches and knowledge co-creation in the relational study of ecological challenges are offered through the body of knowledge on Indigenous methodology. The particular model this work refers to has been developed by the Indigenous Law Research Unit (ILRU) in Victoria, British Columbia, Canada since 2012.³⁶ Specifically, the work conducted by *Val Napoleon* and the ILRU on Indigenous legal traditions of the West Coast of Canada is committed

33 *O'Brien*, Climate change and social transformations: is it time for a quantum leap?, Wiley Interdisciplinary Reviews: Climate Change 2016, p. 618–626.

34 See in these terms *Bradbury, Waddell, O'Brien, Apgar, Teehankee, & Fazey*, A call to action research for transformations: The times demand it, Action Research 2019, p. 3–10.

35 *Pope Francis*, *Laudato Si'*: Encyclical letter on care of our common home, Libreria Editrice Vaticana, 2015.

36 Refer to the cited website: www.ilru.ca, last access December 2022; *Friedland & Napoleon*, Gathering the threads: developing a methodology for researching and rebuilding indigenous legal traditions, Lakehead Law Journal 2015.

to the adoption of a rigorous and scientific method when engaging with Indigenous legal traditions.

The construction of the Indigenous methodology is based on different layers (that the research group identifies in the sources of law, resources, and legal applications)³⁷ and combines two different approaches (case studies and adaptation of Western legal categories to the Indigenous reality). The process of engaging with different layers of law can be symbolized by the components of a tree: roots, trunk, and branches.³⁸

The roots are the resources of law and include the sacred law, the positivist law, the natural law, and the deliberative process of law, among others.³⁹

The trunk is constituted by the sources, whose cornerstones are the stories,⁴⁰ the elders' narratives and memories, dreams, songs, and recounts from community members.

Finally, the branches of the tree are represented by the potential applications of the legal frameworks to the case studies (environmental governance, rights protection, collaborative water stewardship, and water management).⁴¹ In particular, participatory research focuses on the interactive analysis and scrutiny of the sources of law and is conducted following a rigorous collaborative process, involving researchers and the community. In phase (1), a specific research question is asked, for example: 'What is the connection that the community establishes with nature?'; 'How is the interaction established between human and non-human beings?'; or 'How did and does this Indigenous group respond to harms that affect nature?'. The research question is formulated through a collaborative process between the researchers and the community to ensure that community needs are being met, as opposed to solely catering to the wants of the researchers. In phase (2), the research question is applied to Indigenous sources and the response is therefore discovered in formal and informal laws that are often recorded in Indigenous stories. The focus on Indigenous stories and the collective interpretation of the legal principles and processes encoded within the story is central and constitutes the core of this three-phased collective approach to the sources.

37 www.ilru.ca/resources, last access 16 September 2022.

38 See for example *Napoleon, & Friedland*, Indigenous legal traditions: Roots to renaissance in *Markus, Dubber & Hornle* (Eds.). *The Oxford handbook of criminal law*, Oxford University Press 2014, p. 225–247; *Napoleon*, Thinking about Indigenous legal orders in *Provost & Sheppard* (Eds.) *Dialogues on human rights and legal pluralism*, Springer, 2013, Dordrecht, p. 229–245.

39 *Snyder, Napoleon, & Borrows*, Gender and violence: drawing on Indigenous legal resources, *UBC Law Review* 2015, p. 593.

40 *Borrows*, Listening for a change: The courts and oral tradition, *Osgoode Hall Law Journal* 2001, p. 417.

41 For a list of areas where the indigenous methodology finds applications see www.ilru.ca/resources-2/ last access 12 August 2022.

As Hadley Friedland and Val Napoleon explain,

*“We can see this as fitting very nicely with Indigenous pedagogies, where stories require astute telling and active listening, and the listener or reader is constantly encouraged to think about what the story means to them and why certain things are happening.”*⁴²

And further:

*“[...] We contend that many Indigenous stories are equally rich and complex sources of normative material. That is, we can bring a variety of questions to Indigenous stories and we will then draw a variety of legal principles, processes, and procedures from them, depending on what we need to learn or argue at a certain point in time. In addition, there can and should be a variety of interpretations of each story. The key here is that interpretation must be part of a collaborative process (as all law is), and must also be transparent and accountable to the legal tradition one is working within. This is not simply about individual engagement or one authority, however thoughtful. Rather, it is the collective enterprise that serves as a legitimizing factor – as is the case with other systems of law. These legal processes of collective engagement comprise individual and collective agencies operating within the form through which law is constituted in each Indigenous society.”*⁴³

The next phase of a participatory methodology involves the process of synthesizing the co-created research to demonstrate patterns of similarities and differences, invite respectful debate, and organize information in the most accessible way.⁴⁴

As mentioned above, the narrative followed in this multi-layered and multi-phase approach combines the adoption of a law case method for substantively exploring the law and drawing parallels between the Western legal paradigms and Indigenous cosmovisions. By synthesizing legal principles from these resources, and using this synthesis to sketch a tentative legal theory, the final result becomes more than the sum of its parts. The result is grounded in critical legal analysis, able to withstand challenge and criticism. Thus, such a result acknowledges interpretative debates and the tensions between legal principles are a vital part of a living Indigenous legal tradition.⁴⁵

It is noteworthy to discuss how obtaining results through a participatory research approach does not conclude the research process. Rather, the results are conceived as a

42 Friedland & Napoleon, *Gathering the threads: developing a methodology for researching and rebuilding indigenous legal traditions*, Lakehead Law Journal 2015, p. 31, 25, 1.

43 Friedland & Napoleon, *Gathering the threads: developing a methodology for researching and rebuilding indigenous legal traditions*, Lakehead Law Journal 2015, p. 25.

44 Friedland & Napoleon, *Gathering the threads: developing a methodology for researching and rebuilding indigenous legal traditions*, Lakehead Law Journal 2015, p. 26.

45 *Ibid* 44.

continuous and reciprocal process of learning and establishing relationships.⁴⁶ As opposed to a positivist research paradigm, the dissemination of co-created results holds researchers accountable to the communities in which they work and ensures that assessments, evaluation, and data analyses reflect the participants' views, experiences, and observations. The overall goal of participatory research goes beyond obtaining results and publishing them, but rather aims to apply the findings at the community level in the hopes to stimulate effective social change. Finally, it is of critical importance to collaborate with Indigenous research partners throughout all phases of the research process, showing the depth and ongoing reciprocity required for meaningful community collaboration.⁴⁷ Participatory research requires both researchers and community partners to be reflexive; in other words, both parties must remain continuously aware of the relationship dynamics to ensure researchers are upholding the promise of accountability and transparency.

In conclusion, the ontological set of values that Indigenous methodology offers to a scientific participatory approach to environmental law is rooted in the notion that a continuously informed environmental awareness should be generated within the community of research participants. Further, the line between the research and the object of research becomes blurred, since participatory research aims to give the community and participants equal if not greater control of the research process. Given that equitable and just research practices should be embedded within participatory research, this ontology's ultimate goal is to further the exploration of how to change and improve the relational flow of the research community.

The following section demonstrates how a participatory methodology has been transposed and adapted to the study and research on nature and water governance through the ECO_CARE research endeavours.

- 46 Toombs, Dawson, Chambers, Bobinski, Dixon, & Mushquash, Moving towards an Indigenous research process: A reflexive approach to empirical work with First Nations communities in Canada, *International Indigenous Policy Journal* 2019, p. 10; Barlo, Boyd, Hughes, Wilson & Pelizzon, Yarning as protected space: Relational accountability in research, *AlterNative: An International Journal of Indigenous Peoples* 2021, p. 40–48, 17; Kovach, Conversation method in Indigenous research, *First Peoples Child & Family Review* 2010, p. 40–48, 5.
- 47 Cochran, Marshall, Garcia-Downing, Kendall, Cook, McCubbin, & Gover, Indigenous ways of knowing: Implications for participatory research and community, *American Journal of Public Health* 2008, p. 22–27; Martin & Mirraoopa, Ways of knowing, being and doing: A theoretical framework and methods for indigenous and indigenist re-search, *Journal of Australian Studies* 2008, p. 203–214, 27.

VI. Stage four: the co-created learning toolkit

Through studying environmental governance within a participatory and community-based context, the teachings from Indigenous methodology have been transposed into the context of environmental law and analysed through critical and decolonial lenses. Keeping in mind the relational aspects of environmental challenges, the ECO_CARE research team has started applying research methodological tools by building a solid collaboration with Indigenous and non-Indigenous partners and communities and adopting such an approach to the knowledge needs of academia.⁴⁸

Thus, participation shifted from a dimension of research objectives to a research method, becoming an indispensable approach for retrieving and analysing the environmental legal framework using empirical, co-generated, and formative research.⁴⁹ From desktop analysis, the research team's research methods evolved from an analysis of secondary sources (doctrine and jurisprudence) to progressively including empirical data. The work has been enriched by data collected with the help of communities, Indigenous observations and stories, and interpretation of stories co-created by researchers and community members.⁵⁰ The ECO_CARE methodological approach has increasingly focused on co-creation as the research results are often published in cooperation with community members and Indigenous participants.⁵¹ Additionally, the research has become more formative and problem-solution oriented, by focusing on the community interests and needs, and the relevant human and non-human environmental challenges.

In relation to the thematic area of integral ecology, this participatory research has developed in the direction of an experiential learning toolkit; a collection of materials

48 Poto & Porrone, Co-creazione della ricerca e del sapere nel sistema dell'ecologia integrale, *Nordicum-Mediterraneum* 2022, Special Issue, 1.

49 The terminology is inspired by the work of *Blackstock, Kelly, & Horsey*, Developing and applying a framework to evaluate participatory research for sustainability, *Ecological Economics* 2007, p. 726–742.

50 For example, an interview-based approach to the regulatory issues of alternative and conventional medicine: Poto & Wang, *Integrated Approach of Conventional Medicine and Complementary Alternative Medicine. Background Information and Future Directions at International, European and National Level*, *European Journal of Health Law* 2016, p. 373–390.

51 Parola & Poto, *The Escazú Agreement in Comics with and for the Chiquitano People. A Co-Created Project of Legal Design and Visual Law* (English version), Giappichelli, 2021, Torino; Parola & Poto, *O Acordo de Escazú Em Quadrinhos Feito Pelo e Para o Povo Chiquitano Um Projeto Co-criado de Legal Design e Visual Law* (Portuguese version). Giappichelli, 2021, Torino; Porrone, Poto, & Russo (Illustrator), *A Story About Knowledge. Illustrated version*, Aracne, 2021; Parola, Poto, Da Costa (Eds.) *Inclusão, Coexistência e Resiliência: Lições a Partir do Direito e da Metodologia Indígena, Multifoco*, 2021, Rio de Janeiro; Parola & Poto (Eds.) *Inclusion, Coexistence and Resilience: Key Lessons Learned from Indigenous Law and Methodology, Multifoco*, 2019, Rio de Janeiro.

and activities for researchers, educators, and communities to promote participatory discussions and co-created results in the context of environmental law research. More specifically, the learning toolkit includes illustrated stories, interactive activities, and creative solutions to explore and develop conversations around integrated governance approaches to ecology. The main goal of the toolkit is to generate transformative change at a research and community level; it is not meant to be adopted as a rigid approach or rule book, but rather as a compilation of insights and knowledge that celebrates the interaction between researchers and communities.

Building on the relevance played by stories and storytelling, the learning toolkit is inspired by the teaching of legal creativity and legal design, two techniques adopted to fill in the language barriers and difficulties that can derive from conversations between different parties. In particular, legal design is a method of participatory research aiming to reform the legal system; one that recognizes the importance of digital technologies (computer-based creativity techniques such as virtual platforms, online whiteboards, and mind-mapping),⁵² but does not privilege such technologies as the only way to innovate. In the words of its creator, *Margaret Hagan*,

“[...] The approach weaves together the design of documents, products, services, spaces, policies, and laws to make systemic changes that still pay close attention to front-line realities. It recognizes the value of having interdisciplinary, inclusive groups build and test new improvements to the system. Legal design draws on the creative exploration and making of design work, along with the systems thinking and analysis of legal work. The wider theory of change for a design-driven approach to law is that cascading layers of efforts are needed for transformative impact.”⁵³

The participatory model allows for the integration of more stakeholders in decision-making processes through ‘collaborative workshops, design camps, community awards, co-design sessions, making and prioritization games, and other methods that allow for a wider variety of people to participate in design. The methods are often dynamic and interactive.’⁵⁴ Overall, incorporating participatory methods into legal design research

52 *Hewett*, Informing the design of computer-based environments to support creativity, *International Journal of Human-Computer Studies* 2005, p. 383–409; *Maiden, Gizikis & Robertson*, Provoking creativity: Imagine what your requirements could be like, *IEEE Software* 2004, p. 68–75.

53 *Hagan*, Legal Design as a Thing: A Theory of Change and a Set of Methods to Craft a Human-Centered Legal System, *Design Issues* 2020, p. 3–15; *Hagan*, Participatory design for innovation in access to justice, *Daedalus* 2019, p. 120–127; *Hagan*, A human-centered design approach to access to justice: generating new prototypes and hypotheses for interventions to make courts user-friendly, *Indiana Journal of Law and Social Equality* 2018, p. 199.

54 *Hagan*, Legal Design as a Thing: A Theory of Change and a Set of Methods to Craft a Human-Centered Legal System, *Design Issues* 2020, p. 13.

brings the needs and values of communities to the forefront of the research agenda and creates space for new concepts and ideas.

Making use of legal creativity and design, the ECO_CARE learning toolkit has been covering the study of participatory approaches applied to environmental governance with a special focus on the power of visual communication to facilitate the conversation on ecological relationality.

One of the benefits of this learning toolkit is its ability to address a wide audience of Indigenous water communities, students, and researchers. Founded on participation, storytelling, collective interpretation, and illustration, the toolkit includes chapters on (1) the conceptualization of the overarching idea (i. e., creating a visualization of a story of stories), represented by a project cover (2019); (2) the development of an illustrated handbook based on an Indigenous story (2020); (3) the illustration and conceptualization of the same story (2021); and (4) the co-creation of illustrated comics on environmental participation in collaboration with the Chiquitano people from Mato Grosso, Brazil⁵⁵.

The concept was launched with the project cover, an illustration to open the toolkit: 'An Illustrated Storybook on Indigenous Stories',⁵⁶ representing the interaction between two shape-shifter feminine spirits who voice Indigenous stories (1). Both stories and storytellers mirror the fluid and immanent governing of water and earth, in such a way that can be understood by students, Indigenous and non-Indigenous researchers, and community members at large. The two spirits of water and earth intend to accompany the overall project as if it was an illustrated story of stories in itself, symbolizing the collection of narratives, ideas, and observations on the symbiotic relationship that governs communities and nature. The idea of building bridges between different legal cultures and orders with the help of illustrations led to a successful and well-received first project outcome with the cover published in 2019 during the international event 'Kjønnsforskning NÅ!' as a final scientific product.⁵⁷ Hence, the inspiration to continue developing the toolkit which aims to open creative venues for legal reflections.

The second element (2) of the learning toolkit developed around the co-creation and publication of the illustrated handbook: 'A Story About Knowledge', inspired by an Arctic

55 For further details on this outcome, see Chapter V.

56 *Poto & Porrone, An illustrated storybook of indigenous stories as a learning tool for scholars and communities.* in *Septentrio Conference Series No. 3* 2019.

57 *Ibid* 56.

story⁵⁸ on the search for knowledge, rooted around an illustrated episode of the story.⁵⁹ The story is chosen for its focus on the search for the best place to find and have custody of knowledge. The story begins with the search for knowledge, which is triggered by Creator's request addressed to a trickster spirit (Nanabozho),⁶⁰ to find that place, and from the trickster spirit, the task is delegated to the animals of the Earth (symbolically represented by a bear, an eagle, a salmon, and a mole). The search becomes an interactive, situated, and yet delocalized thought-provoking process. One of the protagonists of the story is a mole, gifted without apparent eyesight, but with a great vision. Knowledge is found and guarded in the heart of the earth, and it is a mole who, at a first sight, seems to solve the enigma. At a deeper level, though, the audience realizes that the solution is the result of a collective sum of the individual efforts of the other animals. Following the story plot, the handbook develops several lessons around each animal character, aiming to stimulate reflections and debate around their roles, the relational aspects that generate from their search, and their deep interconnectedness with nature, as well as with the community of readers and researchers engaging with the story.

The third element (3) of the learning toolkit consists of a co-created and illustrated book project, based on the same story plot as above, and continuing along with the conceptual idea of the need to engage in conversations around the relational dimension of ecology.⁶¹ The investigation process is situated in geographical and coloured settings (the mountainside, airspace, the waterside, the underground). Numerous art prototypes display the crucial moments of the animals' search for knowledge and consequent full immersion in and interaction with their own environment. This silent section of the toolkit helps readers and learners engage with the search for knowledge by giving them a voice and transforming them into storytellers and interpreters of the story.

The fourth element (4) of the learning toolkit consists of visual and narrative materials on environmental participation, co-created with researchers, students, and the Indigenous community of the Chiquitano People from Mato Grosso (Vila Nova Barbecho, Brazil).⁶²

58 www.thecanadianencyclopedia.ca/en/article/anishinaabe last access 12 August 2022.

59 *Porrone, Poto & Russo, A Story About Knowledge. A Learning Tool to Engage with Illustrated Storytelling in Law and Global Studies*, Aracne, 2021.

60 Story characters and plot belong to the Native American – Anishnaabe – storytelling tradition connected to the myth of Nanabozho, and its relation with water: *Smith, Writing Tricksters, 2020; Perkinson, Water Story Around the Bend: The Windigo Monster and the Nanabozho Trickster in Political Spirituality for a Century of Water Wars*, Palgrave Macmillan, 2019, p. 87–123.

61 *Porrone, Poto & Russo, A Story About Knowledge. A Learning Tool to Engage with Illustrated Storytelling in Law and Global Studies*, Aracne, 2021.

62 *Parola, Ribeiro Da Costa, & Wu, The violations of the Chiquitano Indigenous People rights: a case for protection by the Inter-American System of Human Rights. Revista de Direito Econômico e Socioambiental* 2020, p. 24–47.

The project, entitled ‘Legal Design and Visual Law in International Environmental Law: Conversion of the Escazú Agreement in Visual Materials for the Chiquitano People’, was developed during the related elective course, throughout the year 2020, by the students of the Universidade Federal do Estado do Rio de Janeiro, Postgraduate Law Program and with the active participation of the Chiquitano People from Mato Grosso (Brazil).⁶³ The objective of the project was to teach, in practice, an efficient method to create a knowledge base of participatory environmental law, as well as co-creating instructive materials that could work as a tool for strengthening environmental participation. The project participants were assigned to three thematic areas, corresponding to the three pillars of environmental participation (i. e., the tripartite classification of the access rights: access to information, participation, and access to justice). Ideas were transformed into book in comics,⁶⁴ based on the script that members of the Indigenous community of the Chiquitano people created on their understanding of the Escazú Agreement. Accordingly, the legal provisions on participation of the Escazú Agreement, written in a technical legal language, were translated into an easily accessible dialogue, understandable by everyone. Each sentence in the comic dialogue was paired with an illustrated description from the village, representing places and positions that different individuals could recognize and relate to within the story. The illustrations were translated into cartoons by students and community members and accompanied by corresponding speech bubbles. The final work consisted of two versions, in Portuguese and English, about the collective and visual storytelling of the community’s understanding and interpretation of environmental participation.

The next step in the development of the learning toolkit is to increasingly expand the content to support the reflection on nature-based solutions and their application in diverse real-world settings.⁶⁵

VII. Stage five: testing and validating the learning toolkit

In line with the need to test the participatory research approach with communities of learners, the learning toolkit has been adopted in participatory approaches to teaching and research: in seminars series and academic lectures in environmental law, adminis-

63 <http://www.unirio.br/ppgd/front-page> last access 19 November 2022.

64 *Parola & Poto*, *The Escazú Agreement in Comics with and for the Chiquitano People. A Co-Created Project of Legal Design and Visual Law*, (English version), Giappichelli editore, Torino, 2021.

65 *Davis, Howk, Spurlock, McGinnis, Cohen, & Fagnan*, *A qualitative study of clinic and community member perspectives on intervention toolkits: ‘Unless the toolkit is used it won’t help solve the problem.’ BMC Health Services Research 2017*, p. 1–9; *Chirewa*, *Development of a practical toolkit using participatory action research to address health inequalities through NGOs in the UK: Challenges and lessons learned, Perspectives in Public Health 2012*, p. 228–234.

trative law, and interdisciplinary global studies.⁶⁶ Accordingly, in collaboration with a group of teachers and researchers, research seminars and academic classes⁶⁷ have been designed by our team to deepen the individual and collective awareness of the root causes of the ecological crises⁶⁸ and the role that participatory research and education can play in the wound healing process. A research protocol of respect and mutual understanding is instilled in the development of the learning and investigation experience.⁶⁹ When Indigenous community members are involved, the session is initiated with the support of their representatives, who serve as advisors to the research team.⁷⁰ The community representatives are actively involved in the creation of the learning materials and assist with the work that takes place in the classroom and/or research group. The involvement of the community members is carried on throughout the teaching or research process, which respects their input and acknowledges their full capacity to accept or refuse.⁷¹ As the project takes shape, and components of the learning toolkit are applied to initiate a conversation with the involved parties, the representative(s) of the communities are asked to revise the cultural and language components of the teaching or research program. Before the seminar or class starts, an invitation is sent to all participants to ask for their consent to be actively engaged, informing them of the topics of discussion. This is to enable a form of free prior and informed consent⁷²

66 In particular: elective courses on Administrative Law and the Agenda 2030, as well as on Public Law for Economics; University of Turin, Italy, Department of Management; Academic years: (2019–2022); Master Program on Food Security and Safety, University of Turin, Italy; (2020); Doctoral Program on Global Studies. Justice, Rights, Politics, University of Macerata, Italy, Department of Political Science, Communication and International Relations, Academic year: (2019–2020); Master Program on Global Health, with a specific focus on Arctic Governance McMaster University, Ontario, Canada. (2020); the Universidade Federal do Estado do Rio de Janeiro, Brazil. (2020–2022). Post-graduate Law Program.

67 See fn. 66.

68 *Maathai*, *Replenishing the Earth: Spiritual Values for Healing Ourselves and the World*, The Rivers Press 2010, New York.

69 *Fitzpatrick, Martiniuk, D'Antoine, Oscar, Carter, & Elliott*, Seeking consent for research with indigenous communities: a systematic review. *BMC Medical Ethics* 2016, p. 1–18; *Koster, Baccar, & Lemelin*, Moving from research ON, to research WITH and FOR Indigenous communities: A critical reflection on community-based participatory research, *The Canadian Geographer/Le Géographe Canadien* 2012, p. 195–210.

70 *Baydala, Worrell, Fletcher, Letendre, Letendre, & Ruttan*, 'Making a place of respect': Lessons learned in carrying out consent protocol with First Nations Elders, *Progress in Community Health Partnerships: Research, Education, and Action*, 2013, p.135–143.

71 *Baydala, Worrell, Fletcher, Letendre, Letendre, & Ruttan*, 'Making a place of respect': Lessons learned in carrying out consent protocol with First Nations Elders, *Progress in Community Health Partnerships: Research, Education, and Action* 2013, p.140.

72 For an extended articulation of the free prior informed consent (FPIC) also applied to research settings see *Dalton, Todd and Delborne*, Articulating 'free, prior and informed consent' (FPIC) for engineered gene drives, *Proc. R. Soc. B* 2019, p. 286.

available to all the participants, in a classroom or research setting.⁷³ Consequently, participants come prepared with background knowledge of why their environment is degraded, and the role that community members, society, and themselves play in this process. At the beginning of each session, and following the Indigenous practice to acknowledge traditional territories hosting the human communities, an expression of gratitude to the hosting place is expressed by the session leaders.⁷⁴ At times, the session may begin with story-reading and telling, if a particular story is the object of the work. Reading or telling a story out loud allows for a multisensory connection with the audience.⁷⁵ Afterward, space is dedicated to sharing and reporting back preliminary impressions, before initiating a deeper conversation around the subject matter. Before, during, and after the sessions, participants are encouraged to engage with the learning materials and stories by providing written answers, as well as their visual creativity. Creative answers brought forward through designing and colouring journaling prompts, are highly encouraged and recommended. Engaging with the learning toolkit through journaling exercises and prompts can be construed as a part of a collective therapeutic process that brings awareness to the need to heal the planet by mending our relationships and improving overall human health by creatively engaging with inner and outer conflicts. The personal and community work outside the seminar room contributes to spurring new conversations, allowing us to discuss key issues in greater depth, elevating the richness and complexity of mutual understanding. Through these continued conversations, the key underlying principles forming a common conceptual framework of integral ecology are identified through the relationship with the environment and the affected peoples. Willingness to share and/or listen to traditional narratives, stories, and individual and collective levels is required as per the roles and obligations of all participants. The experience of delving into collaborative educational and research activities, and thus engaging in a reciprocal effort to co-create and look for solutions, shifts the conversation toward purpose, intention, and consciousness of the socio-ecological interdependencies. Discussing concerns for the natural environment including climate change threats, economic and social disparity, and inadequacy of the Western-centric legal approaches to overcome poor environmental governance, led us

73 Hill, Adem, Alangui, Molnár, Aumeeruddy-Thomas, Bridgewater, & Xue, Working with indigenous, local and scientific knowledge in assessments of nature and nature's linkages with people, *Current Opinion in Environmental Sustainability* 2020, p. 8–20.

74 Blenkinsow, Fettes, Land, language and listening: The transformations that can flow from acknowledging indigenous land, *Journal of Philosophy of Education* 2020 p., 1033–1046.

75 Fernández-Llamazares, Cabeza, Rediscovering the potential of indigenous storytelling for conservation practice, *Conservation Letters* 2018.

to reflective questions on the need to develop a sense of relational accountability and a collective search for solutions are understood as part of a ceremony.⁷⁶

VIII. Stage six: testing the toolkit beyond its scope

The primary scope of the learning toolkit is to develop and test a teaching methodology that changes as per the needs of the participants and community of learners, encouraging them to initiate, stimulate, and inspire critical reflections on nature connectivity. Nevertheless, the learning toolkit fits into other educational contexts and fields, prompting creative thinking and out-of-the-box habits. The study of citizenship is a particularly interesting field whereby the learning toolkit has demonstrated its potential to open-up new, creative possibilities for learners. According to *Paula Hildenbrandt and Sybille Peters*,⁷⁷ modern citizenship is intended as a legal and political institution usually based on the nation-state framework of constitutional rights and obligations as enforced by law and related institutions. The concept refers to one's entitlement to certain actions, possible behaviours, and inter/intra-acting with other agents in the public sphere.⁷⁸ It gives an account of one's freedom to self-determine, choose, act, move and be, and thus establishes their capacity and role in the relevant society (typically the nation-state). Since the beginning of the 21st century, the debate on citizenship has gained new momentum in academia. Patterns of mobility and connectivity are indeed changing at a rapid pace. In the last twenty years, migration routes have intensified and changed due to wars, climate change, environmental degradation and the rise of new patriarchal, authoritarian regimes, specifically increasing flight from the global South to the global North. Following *Hildenbrandt and Peter's* ethos, it is possible to conceptualize citizenship as a process, one that can be claimed and enacted in new ways beyond the given subject positions and institutional networks.⁷⁹ Beyond the eligibility requirements to apply for citizenship decided by national laws – such as birth, descent, adoption, nationality, ethnicity, language, naturalization – people can mobilize to demand better and different treatments. *Engin F. Isin* suggests revisiting the concept of citizenship, inevitably connected to the exertion of power over a territory, proposing a concept of 'translocal' and 'social citizenship', a concept that flows across the borders, takes into account social struggles and makes rights claims across social groups and polities.⁸⁰

76 As seen in *Wilson*, *Research is ceremony. Indigenous research methods*, 2008, Winnipeg.

77 *Hildebrandt, Peters*, Introduction. In: *Hildebrandt, Evert, Peters, Schaub, Wildner, Ziemer*, (eds) *Performing Citizenship*. *Performance Philosophy*, 2019, p.1–12.

78 *Hildebrandt, Peters*, Introduction. In: *Hildebrandt, Evert, Peters, Schaub, Wildner, Ziemer*, (eds) *Performing Citizenship*. *Performance Philosophy*, 2019, p. 4.

79 *Butler*, *Notes Toward a Performative Theory of Assembly*, 2015, Cambridge.

80 *Isin*, *Doing Rights with Things: The Art of Becoming Citizens*. In: *Hildebrandt, Evert, Peters, Schaub, Wildner, Ziemer*, (eds) *Performing Citizenship*. *Performance Philosophy*. Palgrave Macmillan 2019, p. 50.

In this sense, the learning toolkit serves as an excellent platform, inspiring creative, experimental activities to assist learners to undertake a process of discovery and reflection on their realities within the public sphere. In order to prompt reflections on the intertwined themes of citizenship and subsequently, participation, a workshop on collective storytelling has been developed in an academic setting, within *The Pluriverse of Eco-social Justice* summer school (CES, Coimbra)⁸¹. This co-creative workshop is a further application of the learning toolkit's unique methodology. The activity was coordinated by women researchers in the field of queer and feminist studies, political ecology and environmental law. The workshop aimed to give the community of learners the tools to experiment and perform different modes of what it means to be a citizen.⁸² This imaginative exercise was only possible through the creation of an open, comfortable space in which participants can work together without fear of judgment, a central tenant in creating and implementing the learning toolkit's activities. To ensure its replicability, the workshop on collective storytelling was divided into four phases. In the first phase, participants are given a short amount of alone-time and requested to think about, draw or paint several words that resonate with them when considering the broad topic of performing citizenship. In the second phase, participants are asked to share the reasons behind their artistic choices. This phase is designed to create social bonds based on shared experiences, to allow participants to identify with the perspectives, feelings and/or memories of the other participants. The result is often a moving session, where very different people from different backgrounds all have the chance to express their emotions, positive and negative alike, while making meaningful social connections and reflecting on their past and present experiences of citizenship. As argued by *Linda Tuhiwai Smith*,⁸³ the story and the storyteller have the power to connect the past with the future, one generation to the other, the land and the people and the people with the story itself, all at the same time. All the participants are involved in a dynamic process of self-reflection and establishing their own narratives, in which their voices, aspirations, and concerns may find inspiration from the others in the workshop's unique experiences. The act of sharing stories and art within the context of citizenship advances participants' awareness and

81 The methodology was co-created by *Arianna Porrone*, *Irina Velicu* (CES, Coimbra), and *Alice Iancu*, in-person and remotely between Romania, Portugal and Italy in 2022. It was tested by *Porrone* and *Iancu* with the participants during *The Pluriverse of Eco-social Justice* summer school (2022), Centro de Estudos Sociais (CES), Coimbra, available at: ces.uc.pt/summerwinterschools/?lang=2&id=37071 last access September 26 2022. See also *Porrone*, Bear, Eagle, Salmon and Mole land in Coimbra, Portugal, https://en.uit.no/project/ecocare/blogg/innlegg?sub_id=786791, last access 27 December 2022.

82 *Hildebrandt, Peters*, Introduction. In: *Hildebrandt, Evert, Peters, Schaub, Wildner, Ziemer*, (eds) *Performing Citizenship*, 5.

83 *Tuhiwai Smith*, *Decolonizing Methodologies: Research and indigenous peoples*, 2nd edn., 2016, London.

sensitivity to each other's realities, misconceptions, socio-cultural representations, prejudices and power.

In the third phase, everyone's written word is collected, shuffled with the others and re-composed in a new order so as to connect every individual story into a group story. The group can brainstorm around the words to see how they flow together and eventually create a collective story. The text of the collective story is seen as a conscientious process, continuously re-drafted and negotiated. In the fourth and final phase, the group is asked to perform the collective story, for instance by reading a written text, a poem, singing, dancing or acting. At the end of the workshop, the participants are asked to share ideas on their experience, specifically to consider the two aspects involved in performing citizenship: the self-making process within a community⁸⁴ (How can one contribute to their community? What is it necessary for one to feel heard and at ease within a community?), and mastering the art of being with others⁸⁵ (What does it mean to be part of a community? How can one support others' voices, visions and struggles? To what end?). From a legal viewpoint, performing citizenship⁸⁶ through an interactive exercise helps critically reflect on the role that citizenship plays on paper 'as an expression of inert or passive rights'⁸⁷. A conclusion drawn from the performing citizenship exercise is that the concept of citizenship in law appears to be formed by two components: citizenship in theory – as developed in theoretical and academic settings: and citizenship in action – valuing social struggles based on real-life needs and sensitivity.⁸⁸ Thus, the concept of citizenship becomes social and translocal⁸⁹ taking into account complex needs and struggles in a fast-changing society. Writing, drawing, and performing citizenship through workshops specifically designed to encourage learners to think beyond any prior assumptions, contributes to re-creating a community of actors on a small-scale who can speak to the complexity of citizenship.

84 Hildebrandt/ Peters, Introduction. In: Hildebrandt, Evert, Peters, Schaub, Wildner, Ziemer, (eds) *Performing Citizenship*, 2019.

85 Isin, *Doing Rights with Things: The Art of Becoming Citizens*. In: Hildebrandt, Evert, Peters, Schaub, Wildner, Ziemer, (eds) *Performing Citizenship*. Performance Philosophy, 2019, Cham, p. 45–56.

86 *Ibid* 86.

87 Isin, *Doing Rights with Things: The Art of Becoming Citizens*. In: Hildebrandt, Evert, Peters, Schaub, Wildner, Ziemer, (eds) *Performing Citizenship*. Performance Philosophy, 2019, Cham, p. 50.

88 Isin, *Doing Rights with Things: The Art of Becoming Citizens*. In: Hildebrandt, Evert, Peters, Schaub, Wildner, Ziemer, (eds) *Performing Citizenship*. Performance Philosophy, 2019, Cham, p. 51–52.

89 *Ibid* 88.

IX. Future applications of participatory co-created approaches to research

Understanding the mechanisms of active participation from a wide range of stakeholders is critical to the instrumentation of best research practices within the domain of international environmental law. In the face of climate and ecological crisis, establishing integrated efforts to increase compliance with international environmental legislation is crucial for the protection of our green and blue ecosystems, biodiversity, and human health. These efforts cannot come to fruition without innovative, interdisciplinary research design. To address this challenge within the theory (research) and practice (legislation and reforms), a growing community of environmental and legal researchers argue for a participation-based approach to decision-making and regulation that is equal measures equitable and sustainable.⁹⁰ It is widely accepted that direct participation of climate-vulnerable communities and civil society organizations is essential to actualizing sustainability strategies and multi-perspective governance.⁹¹ Yet the current state of play within environmental regulatory regimes is top-down, exclusory, and highly defensive of respective jurisdictions. The result of this particular legal architecture is a sectoral, anthropocentric approach to environmental decision-making and regulation which inherently favours the subordination and dominion over natural spaces. Thus, the regulatory regimes intended to protect the health of our environments are at risk of chronically undermining their own efforts to push back environmental degradation.

This section will serve as an exploration of the future applications of co-created approaches to research so as to strengthen international environmental law and governance. It will be argued that it is practical to apply participation-based research methods to the critical legal analysis of environmental law and governance matters. Due to the diversity of actors involved in the field of environmental governance, defining and testing the application of problem-based learning (PBL) and Delphi rounds within co-created legal research is necessary to facilitate the effectiveness of future climate governance efforts. Legal research including critical legal analysis takes the form of studying court cases such as case notes, statutes, and reforms and regulations. The information in these documents is widely accepted as objective evidence. While objective, this information is a secondary source of data that typically excludes first-hand knowledge and lived experiences which could provide pivotal insights into the construction of environmental

90 French, *Rajamani*, Climate Change and International Environmental Law: Musings on a Journey to Somewhere, *Journal of Environmental Law* 2013, p.437–461.

91 *Yamin, Rahman, & Huq*, Vulnerability, adaptation and climate disasters: a conceptual overview, *IDS Bulletin* 2015, p.1–14.

decision-making and regulatory practices.⁹² Incorporating participation-based methodologies in the process of critical legal analysis may allow for the complexities of utilizing participation in environmental decision-making to be reliably, practically, and systematically delineated and implemented.

X. Applying Problem-based learning (PBL) to co-created legal research and action

Problem-based learning (hereinafter: 'PBL') is most commonly defined as, 'A teaching and learning method which puts a problem first, and in which further learning is conducted in the context of that problem.'⁹³ The method is characterized by a set of five attributes including flexible knowledge, effective problem-solving skills, self-directed learning skills, effective collaboration skills, and intrinsic motivation. The method has been primarily applied within the field of medicine, however other disciplines, increasingly including law, have integrated this approach into curriculum and practice.⁹⁴ In medical-related study and practice, smaller groups of students are given a scenario and tasked with deconstructing and analysing the problem at hand, typically a patient with a certain set of symptoms.⁹⁵ Small group members then work together to identify two components, first what they need to know regarding the patient in question and second, how they can uncover this knowledge. This learning experience usually includes patient history, diagnosis, and treatment plan. The goal of PBL is in fact not to focus on solving the problem but rather on developing a strong foundation in problem analysis. Within a legal research context, PBL may be applied by substituting the word 'patient' with 'client' or even 'community.' In legal education, notably within legal clinics, this method can be utilized to explore the case at hand with the communities and theirs affected members (i. e. students, researchers, teachers, and Indigenous representatives). All participants can work together to identify the unique attributes of the case, thus encouraging co-creation in the law. It must be

92 *Wijnen, Loyens, Smeets, Kroeze, & van der Molen*, Students' and teachers' experiences with the implementation of problem-based learning at a university law school, *Interdisciplinary Journal of Problem-Based Learning* 2017.

93 *Tsaoussi*, Using soft skills courses to inspire law teachers: a new methodology for a more humanistic legal education, *The Law Teacher* 2020, p. 1–30.

94 *Gomek-Broc, Hedlund*, Problem-based learning at York Law School: using Medical Law module and the integrated approach. In: *Experimental legal education in a globalized world: the Middle East and beyond*, Cambridge Scholars Publishing, 2016, Newcastle upon Tyne, p. 418–437.

95 *Devine, Harborne, Horsfall, Joseph, Marshall-Andon, Samuels, & Raymond-Taggart*, The analysis of teaching of medical schools (atoms) survey: an analysis of 47,258 timetabled teaching events in 25 UK medical schools relating to timing, duration, teaching formats, teaching content, and problem-based learning, *BMC medicine* 2020, p. 1–22.

noted that while PBL can be applied to the world of law firms and research, the focus of this section is primarily to explore the applicability of PBL to legal research and as a legal educational tool. Applying the PBL methodology to legal clinics may enable a positive feedback loop between the legal representation, legal students, and clients. Further, when working through a problem in a small, collaborative group setting, PBL fosters the acquisition of relevant legal acumen and knowledge sharing which otherwise may be excluded from the client's experience with the law. PBL's facilitation of direct participation encourages the practice of sharing different perceptions regarding the case at hand.

While well suited as a methodology for legal learning environments, such as legal clinics, it is plausible that such an approach could be applied to an attorney client setting in order to clarify and advance all communication concerning the legal matter in question. In both a legal learning environment and client attorney setting, PBL creates the space for feedback between all parties and trial and error throughout the problem-solving process. This space is critical to enhancing legal learning and mutual understanding for all participants. A traditional teaching methodology and/or structure of attorney-client relationships may insufficiently address a collaboration-oriented approach to law. The methodology is notably suited to bridge this lag in collaboration within issues of international law, such as cross-border transactions and disputes. Utilizing a PBL approach in this way allows the parties to examine all angles and interconnections between national and international laws and regulations and reforms. Rather than analysing issues of domestic law, international law, and conflicts of law as separate, distinct domains, a PBL lens should entail the consideration of these issues in tandem. Thus, the discussion of different perceptions of an issue according to various legal lenses provides a more balanced understanding of all parties' conflicts and mutual interests.

It is arguable that such a participatory method can be implemented beyond the legal educational tools and mainstreamed into research projects and legal practice to increase co-creation in international environmental law. Given PBL's central tenants of exploration and investigation, the method creates opportunities for all cooperative parties to learn, exchange, and collaborate throughout their legal process, whether in the context of a court case or simply requesting information on an environmental matter. In the context of international environmental law, the emerging practices of visual law and legal design often require direct input from the affected community. The practices of visual law and legal design are intended to turn complex, opaque legalese into understandable, engaging sources of legal information. With the goal of presenting critical legal information in an effective and user-friendly manner, clients may often be involved in the creation and/or selection of visuals to communicate the

legal information in question⁹⁶. The application of visual, design elements to numerous legal documents including but not limited to contracts, petitions, claims, and laws themselves, inherently lends itself to the adoption of PBL through its participation-based structure.

In sum, co-created legal research and action should always facilitate the contribution of all parties' lived experiences and expertise in legal, local and indigenous knowledge systems. Applied to the conceptualization of knowledge co-creation in environmental law, PBL strengthens all parties' abilities to compare, contrast, and even reframe the issue in question. Through the cooperative, participatory, problem analysing process, PBL propels all participants to learn from one another's diverse lived experiences and research expertise.

XI. Implementing the Delphi Method (DM) to advance knowledge co-creation in Environmental Law

Although the practice of participatory climate governance research has become increasingly commonplace given the anthropogenic demands on finite natural blue and green spaces, in practice, many countries and communities face barriers to compliance. Actors face complex challenges including but not limited to communication lags, poor resource management, ineffective institutional arrangements, insufficient human capacity, and inadequate financial investment. Any of these factors can undermine good climate governance research and implementation efforts at large. To bridge the barriers to effective, equitable climate governance, research must take into consideration the harmonization of policy action, scientific discovery, and community participation. To promote this harmonization, active input, alignment, and collaboration between all stakeholders, especially local communities, in research and decision-making settings must be present. It is presumed that instituting a methodological framework can help advance the process of cooperation through the delineation of research and practice foci and scope. This section argues that in order to determine the most suitable route for ascertaining a community's legal needs, it is possible to use the Delphi Method (DM). The implementation of the DM can help establish the necessary synergies between environmental concerns, community concerns, and natural resource management within legal research and practical settings. The DM is most simply defined as a process used to arrive at a group opinion and/or decision by surveying a panel of experts.⁹⁷

96 *Berger-Walliser, Barton, & Haapio*, From visualization to legal design: a collaborative and creative process. *Am. Bus. LJ* 2017, p. 347.

97 *Okoli, Pawlowski*, The Delphi method as a research tool: an example, design considerations and applications, *Information & management* 2004, p. 15–29.

Through utilization of the DM approach, participants gain unique insight into the expert consensus on which course of action would be most appropriate for the demographics and situation at hand. Their responses are aggregated and anonymously shared with the full panel after each survey round. The panel experts can then adjust their answers after each round as per the group response and discussion. The method's ultimate goal is for the panel to achieve a consensus with regard to what the panel perceives the problem to be and/or determine what is the best course of action.⁹⁸ As per the methodology's central focus on achieving consensus through discussion, Delphi rounds can help pinpoint the realities and needs of all stakeholders, including indigenous and local communities, public and private sector actors in environmental decision-making processes. The active consideration of these diverse needs is an integral function of the establishment and implementation of legitimate, effective, and egalitarian co-created law. Using the DM allows participants to gather expert consensus on which course of action would be most appropriate for the demographics and situation at hand. As a systematic and collaboration-based research technique for procuring the judgment of a panel of experts on a topic, this method is often applied in emerging topics where there is a lack of empirical evidence.⁹⁹ As said above, the panel experts, which can include community representatives, are selected as per predefined guidelines in order to participate in two or more rounds of structured surveys. In a research setting, following each survey, the lead researcher (PI) will deliver an anonymous summary of the results of the previous survey as an integrated part of the next survey round. The method is inherently based on co-creation through its design of survey rounds which require the review of all members' anonymous opinions. Group revision is the key to achieving a co-created response to the problem. Additionally, this method can decrease the variability of the responses and facilitate group consensus, a difficult task in any research and/or legal context.¹⁰⁰

It must be noted that over the course of the past three decades the concept of co-creation has made an impact on environmental rights and governance as seen in the precedents of the Aarhus Convention (1998) and Escazú Agreement (2018). These agreements, in essence, expanded the

98 *Belton, MacDonald, Wright, & Hamlin*, Improving the practical application of the Delphi method in group-based judgment: A six-step prescription for a well-founded and defensible process. *Technological Forecasting and Social Change*, 2019, p. 72–82.

99 *Hallowell, Gambatese*, Qualitative research: Application of the Delphi method to CEM research, *Journal of construction engineering and management* 2009, p.99–107.

100 *Hallowell, Gambatese*, Qualitative research: Application of the Delphi method to CEM research, *Journal of construction engineering and management* 2009, p. 102.

role of participation in environmental decision-making at the international level by including the voices of non-state actors such as NGOs and vulnerable populations. Thus, the agreements have established and strengthened enshrined access rights for the public.¹⁰¹ Yet this progress towards true co-creation in environmental research and decision-making has been repeatedly undermined by misunderstanding and discord between stakeholders to adequately implement the principles and conventions of international governance.¹⁰² Laws and regulations are at risk of falling short of their intended impact if there is no domestic legislation, independent review, financial backing, and critical community support to successfully carry them out. The implementation of the Delphi Method may serve as a mitigation strategy to assuage attrition from climate governance research and action goals. The survey rounds' identification of obstacles, competing perspectives, interests, and overall gaps in understanding of local needs and practices regarding an issue (i. e. research question or case) can streamline and clarify the information needed to determine the best and most sustainable course(s) of action for all concerned parties.

XII. Brief concluding reflections on the potential benefits of PBL and Delphi Method for knowledge co-creation

The overarching goal of applying more rigorous approaches to co-created legal research, governance, and legislation is threefold. First, to create a practice that can document all the information, needs, concerns, and goals of all parties involved in a legal research project and/or legal matter at hand. Secondly, identify when collaboration is feasible, and delineate at which points the project's trajectory may be modified to become more inclusive. And lastly, mainstream the implementation of safe, respectful, and multi-perspective communications in legal research and practice thus supporting greater participation in international environmental law and governance.

XIII. Concluding remarks

This contribution has explored some of the methodological applications of knowledge co-creation. The analysis was prompted by the result of a conscious effort to find the best practices and routes to understanding participation from multiple perspectives: the epistemological (as a grounding element of environmental governance, in its procedural and substantive implications), the ecological (as the fundamental link that re-

101 *Maihold, Reisch*, Environmental rights and conflicts over raw materials in Latin America: the Escazú Agreement is ready to come into force in 2021, SSOAR 2021, p. 1–8.

102 *Stec, Jendroška*, The Escazú Agreement and the regional approach to Rio Principle 10: Process, innovation, and shortcomings, *Journal of Environmental Law*, 2019, p. 533–545.

stores the relationship between all elements of the ecosystem) and the methodological (as the way to inform new approaches to environmental legal research). The trajectory and success of this effort over the coming years will largely depend on the methodological attitude of legal researchers to integrate multiple perspectives when developing environmental solutions.

As illustrated in the previous sections, the process of participatory research applied to law enables pluralism by facilitating the relationship between researchers and participants, encompassing different views and methods, raising critical consciousness, and promoting change in the lives of those involved.

Following the theory of *Richard B. Norgaard*, whose research focused on the expansion of pluralistic approaches to transdisciplinary knowledge, this concluding section argues for ‘conscious methodological pluralism.’¹⁰³ As *Norgaard* points out, there are many arguments in favour of methodological pluralism.

The exploration of multiple insights and corresponding methods, in the context of dialogue between researchers, students, and community members, offers an example of the multiplicity of social and ecological systems and the corresponding difficulties of making meaningful, lasting change. Moreover, methodological pluralism helps to sustain biological and cultural diversity, enhancing participation in environmental decision-making processes.

As *Norgaard* puts it

*“[M]ethodological pluralism promotes participation and decentralization. Any given framework is better understood, appreciated and/or results in answers which are more advantageous to some people than others. [...] The use of a single framework, without modification for regional differences, facilitates conceptual control from a single center of analysis. Thus the use of a single framework disenfranchises or disqualifies the majority, facilitates the tyranny of technocrats, and encourages centralization. Openness to multiple frames of analysis is a prerequisite to democracy and decentralization.”*¹⁰⁴

If a methodological approach that encourages knowledge co-creation can open new avenues to effective participation among all the parties affected by socio-ecological participation, it is plausible that a new level of effectiveness of participation, where all parties are involved in the research process, may course correct the divisive status quo of the law determining the environment.

103 *Norgaard*, The case for methodological pluralism, *Ecological economics* 1989, p. 37–57.

104 *Norgaard*, The case for methodological pluralism, *Ecological economics* 1989, p. 40.

However, the path toward the consolidation of effective co-creation in legal methodology is fraught with challenges. Further research is needed to refine, explore, and test the aforementioned steps of co-created approaches to research. Critical legal approaches and cross-disciplinarity need to be considered within the context of empirical case studies, involving researchers from different legal orders and disciplines. It is, therefore, necessary that researchers from different disciplines join forces to define concepts and test methods, processes, and impacts in comparative studies. Interaction with indigenous and local communities is essential to develop tools and methods, test new creativity techniques, and advance pluralistic perspectives on ecological knowledge and sustainability.

CHAPTER III

A Co-Created Project of Legal Design and Visual Law Applied to International Environmental Law

Transformation of the Escazú Agreement and Environmental Access Rights into Visual Materials for and with the Chiquitano People

Giulia Parola / Silvano Chue Muquissai / Margherita Paola Poto¹

I. Introduction

Ignorance or obscure knowledge about rights, in particular socio-environmental rights, are one of the most unfortunate realities within contemporary society. For this reason, legal scholars and researchers need to find new ways to increase the understanding of the law, especially for those that are most vulnerable and historically marginalized, such as indigenous people. It is also important to create avenues for increasing the integration of knowledge in law that has been predominantly considered unscientific.

Legal Design (LD) and Visual Law (VL) are two instruments that can be used to pave new paths to achieve this goal and stimulate the co-creation of knowledge in the field of law. These tools are used to investigate how creativity can be effectively utilized to formulate legal solutions that are more suitable for the recipients of Law, and society in general. For instance, LD is a creative way of thinking about Law that demystifies legal concepts for individuals who are not part of the legal world. LD is largely predicated on the concept of behaviour change, focusing on transforming thought patterns, thus enabling legal professionals to think in more inclusive ways. Conversely, VL is the manifestation of this paradigm shift in legal thinking and encompasses the production of pieces and documents concerning Law in an explicative and creative way. Currently, these instruments are being developed by large law firms to help clients comprehend the legal processes that affect them. Now, legal scholars may wonder why these relatively instruments should be used in Environmental Law and the academic world? The

1 *Parola* wrote sections I, II and III (c,d,e,f); *Chue Muquissai* contributed with the empirical data research and wrote section III (a, b) and *Poto* supervised the English version of the project co-wrote section I, V and contributed to the literature review. All authors contributed to the research, editing and supervision of the final version.

answer, they rectify a vast knowledge gap. The general public's dearth of awareness about socio-environmental rights is an unfortunate reality. For much of the population, environmental laws are a great mystery, one that only legal experts (jurists) are knowledgeable of. There is an urgent need to create new methods to improve the general public's understanding, not only of Law overall, but in particular Environmental Law and its specificities. The introduction of tools such as environmental participation for its recipients, particularly for those who are most vulnerable, can help bridge the public unfamiliarity with legalese. If brought to the academic world, LD would be an innovative resource that could be further studied and debated so as to be more readily applied to empowering vulnerable and marginalized peoples. For this reason, the project 'Legal Design and Visual Law in International Environmental Law: Conversion of the Escazú Agreement in Visual Materials for the Chiquitano People', coordinated by *Giulia Parola* and *Margherita Paola Poto*, and developed during the related elective course (throughout 2020), by the students of the UNIRIO's Postgraduate Law Program and other researchers included the active participation of the Chiquitano people from Mato Grosso (Brazil). This project significantly relied upon the participation and guidance of *Silvano Chue Muquissai*, an indigenous member of the Chiquitano people and a graduate from the Universidade Federal de Mato Grosso (UFMT), as well as other constituents of the Aldeia Vila Nova Barbecho (Nova Barbecho Village) in Mato Grosso (Brazil)². The objective of the project was to teach students, in practice, an efficient method to create understanding and engagement in Environmental Law. Simultaneously, the project aimed to support the co-production of didactic materials with the Chiquitano people, which could act as a tool for strengthening environmental participation. *Silvano Chue Muquissai* worked as the cultural mediator between the legal world and the Chiquitano reality. Members of the Chiquitano People participated in the step-by-step execution of materials, providing feedback about the choices made by working groups. They provided critical explanatory insights into what were and were not considered appropriate choices for the design and implementation of the legal tools. The integration of interested parties is fundamental to the project design process as it incorporates LD and VL. Active participation from all the involved parties results in a greater sense of inclusion, empathy, and commitment. Hence, this book chapter aims to outline the different steps of the project by clarifying the methods and methodology of co-creation used. In the following sections, we will explore: Definition of LD and VL, the steps involved in the

2 Acknowledgements: We are immensely grateful to the residents of the Chiquitano Village Vila Nova Barbecho and in particular: Adriano Boro Makuda, Alanis Valentina Rodrigues Urupe, Anderson Ferreira Rocha, Edleny Chue Muquissai, Elena Laura Chue, Elza Margarida Chue Akurudodo Arogiareudo, Florencio Urupe Muquissai, Francisco Xaviel Dorado Ferreira, Leiliane Chue Muquissai, Maria Chue Muquissai, Renivaldo Nezoekemae, Samyla Chue Manaca, Silvano C. Muquissai.

creation of the LD and VL and lastly, the steps which apply to the Co-Creative Process with the Chiquitano people for the creation of the comic books.

II. Definition of Legal Design and Visual Law

Before describing the process of comic book co-creation, an overview of the concepts of LD and VL will be provided, as they are both relatively unknown, even amongst legal scholars.

LD was created through an initiative of the Stanford Law School that brought together three areas of design, technology, and law to simplify legal language. As defined by *Margaret Hagan*, creator of the concept and author of the book *Law by Design*³, this instrument is: ‘the way we evaluate and design legal business in a simple, functional, attractive and usable way.’⁴ LD, borrowing from the domain of design thinking⁵, is centered on people and their needs. It shifts the focus from the professional viewpoint (mainly of lawyers and judges) to the recipients of the legal document, such as common citizens, private and public individuals, organizations, and communities. The aim is to create effective solutions following feedback obtained from ongoing interactions with the final recipients. Such feedback is continuously mapped and collected, from the inception of the project until the implementation phase. In other words, in working with LD, the legal world can empathetically examine how to meet the needs of the law recipients and legal entities through a process of hands on communication and active listening. While LD focuses on helping the legal community develop effective communication at the service of the law beneficiaries and creating the foundations for creative legal reasoning, VL is the visual manifestation of this concept thinking. This distinction can be visualized through the imagery of an iceberg⁶, with LD representing the hidden bottom of an iceberg and VL representing the exposed top that can be observed and experienced by all. Essentially, the VL is the external manifestation of the LD and serves to put into practice and make legal documents more explanatory, through a non-conventional format. VL can be developed through features that include, but are not limited to, images, illustrations, videos, infographics, graphics, timelines, QR codes, flowcharts, bullet

3 *Hagan*, *Law by Design*, 2021 Available at: www.lawbydesign.co/en/home/. Last access September 2022.

4 www.lawbydesign.co/en/home/, last access September 2022.

5 Design thinking is an approach that brings together tools, techniques and knowledge to break down a complex problem into stages and design innovative ideas to forward solutions: *Brown*, T., 2020. *Design Thinking: Uma Metodologia Poderosa para Decretar o Fim das Velhas Ideias*, Rio de Janeiro: Alta Books.

6 www.legalhack.com.br/ last access September 2022.

points, pictograms, comics, storytelling, maps, story mapping, links, music, gamification, and podcasts.

While LD and VL have their origins in the world of law firms, as tools to help clients understand the legal processes that affect them, they have been progressively adapted to achieve other goals⁷.

First, as will be further elaborated in the following sections, LD and VL can be developed as legal education resources to help stimulate the mindsets of future legal scholars toward thoroughly understanding community needs. Second, in legal research, the outcomes from LD and VL can be used as practical tools to effectively disseminate and communicate project results. Third, these instruments are innovative strategic tools that can empower society to overcome the challenging and often opaque process of standing up for their rights. Finally, these tools can be applied to support the decolonization of legal mindsets and law itself⁸. This is accomplished, by involving research participants typically outside of the dominant Western legal doctrine of environmental law and further developing techniques for knowledge co-creation. Hereinafter, the expressions West, Western-centric and Eurocentric are used interchangeably to denote those epistemologies founded on the coloniality of knowledge⁹. Coloniality of knowledge is defined as the epistemic violence perpetrated by the settlers at the 'encounter' with the 'other'. This practice is based on the invisibility, denial, silencing, expropriation, and extraction of non-Western knowledge, and largely remains the dominant rationality of Western value-sets¹⁰. Through knowledge co-creation supported by collaborative use of LD and VL tools, it is possible to contribute to the re-emergence of indigenous perspectives and cosmovisions¹¹, weaving them into the scientific method¹². Unfortunately, indigenous knowledge, value-sets, and legal orders are historically considered inferior to the pre-

7 See *Hagan*, 2018 A Human-Centered Design Approach to Access to Justice: Generating New Prototypes and Hypotheses for Interventions to Make Courts User-Friendly, Indiana University. Indiana Journal of Law and Social Equality: Vol. 6: Iss. 2, Article 2; *Hagan, M.*, Law by Design, 2021 Available at: www.lawbydesign.co/en/home/ last access September 2022; *Hagan, M.*, 2020 Legal Design as a Thing: A Theory of Change and a Set of Methods to Craft a Human-Centered Legal System, Design Issues, 36(3), pp. 3–15.

8 *Poto*, Environmental Law and Governance: The Helicoidal Pathway of Participation a study of a nature-based model inspired by the Arctic, the Ocean, and Indigenous Views, 2022, Giappichelli, Torino.

9 See *Fonseca*, 2019. Global IR and Western Dominance: Moving Forward or Eurocentric Entrapment?, Millennium, 48(1), pp. 45–59.

10 *De Sousa Santos*, Para descolonizar Occidente. Más allá del pensamiento abismal 2010. Buenos Aires: CLACSO-Prometeo Libros.

11 Cosmovision 'means the conception that indigenous peoples have, both collectively and individually, of the physical and spiritual world and the environment in which they conduct their lives': <https://www.lawinsider.com/dictionary/cosmovision>, last access September 2022.

12 *Saida*, Weaving the Lore of the Land into the Scientific Method, Nature, Vol 601, 2022, pp. 285–288

dominance of the ‘universalization of law’¹³, which supports a single and universal way to build legal rights and obligations. Ultimately, the objective of using LD and VL is to facilitate effective participation of all parties involved in environmental matters, by making all parties effective co-participants in environmental legal research. This explains the adoption of the expression ‘recipient/participant’, hereinafter to define the actors of our LD and VL co-created legal methodology.

An example of effectiveness of LD and VL as legal tools, is highlighted in the experience of the Escazú Agreement (EA) on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters as transformed into comic books¹⁴. This transformation will be described in greater detail in Section III. In the project ‘*Legal Design and Visual Law in International Environmental Law: Conversion of the Escazú Agreement in Visual Materials for the Chiquitano People*’ our primary goal was to facilitate the Chiquitano understanding of environmental rights, recognized in the EA¹⁵, in tandem with improving Environmental Democracy based on three pillars: access to information¹⁶, participation¹⁷ and access to justice¹⁸ in environmental matters. At the same time, the project sought to promote the co-creation of new knowledge by actively encouraging the Chiquitano participation.

III. Stages of Legal Design and Visual Law

This section illustrates the steps that put LD into practice by applying the techniques of VL. It is important to note that the following stages are based on our interpretation and unique experience using these methods, and thus differ from how LD and VL are typically constructed and applied in the context of a legal firm. Hence, our goal is to advance and expand upon the process involved in the creation of legal material, which includes

- 13 *Colaço*, *Antropologia Jurídica – Uma Perspectiva Decolonial para a América Latina*, 1st ed. 2017 Curitiba: Juruá.
- 14 *Parola, Poto*, *The Escazú Agreement in Comics with and for the Chiquitano People. A Co-Created Project of Legal Design and Visual Law*, Giappichelli, Torino, 2021.
- 15 *Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters*, Aarhus, Denmark, 25 June 1998 Available at: <https://unece.org/environment-policy/public-participation/aarhus-convention/text>. Last access September 2022.
- 16 The right to access to information, which constitutes the first of the three pillars and is the fundamental starting point for any public involvement in decisions. The first pillar includes both the ‘passive’ (when the public access environmental information from public authorities) and ‘active’ aspects (when the government has the obligation to collect and disseminate environmental information).
- 17 Public participation constitutes the second pillar, and serves as an important link between the other two.
- 18 Access to justice, the third pillar, protects/strengthens the other two pillars by providing access to review procedures in relation to information, as well as access to review procedures to challenge decisions, acts, or omissions subject to the public participation provisions.

the recipients as not only the recipients of the legal document, but as active participants in the co-creation of the material.

1. Selection of recipient/participant

As explained above, the first step in LD and VL is to choose the creative project's target audience. The target audience, as in the specific case developed within the ECO_CARE methodology, co-participates throughout the research journey. Thus, the innovative term 'recipient/participant' refers to the active role that all parties play in the process of co-creation. Defining the target audience of recipients/participants is a fundamental step that ensures that the project results are appropriately tailored to the needs in question. We argue that processes and results of LD and VL projects represent community-specific value-sets, and contribute to overcoming Western centrism in research and law¹⁹. The fact that projects results are tailored to the needs of the target audience does not affect the reuse of data, as it allows researchers to analyse and publish findings based on the same data, as well as greatly contribute to the emerging body of literature through generating new discussion and publications on the results.

2. Study of the needs of the recipient/participant: developing empathy

The study of the recipient/participant target audience marks the second stage of the project process. The second stage of the project comprises an in-depth assessment and subsequent analysis of targeted community's characteristics (demographics) and needs (which include cultural legacy, legal values, language, educational system, and access to digital technologies). Such an assessment and analysis process is more typical of health care studies, however, this process provides significant insights and serves as an innovative tool for legal scholars and researchers. The process is quite consolidated in health care studies, while it presents innovative traits for legal scholars and researchers²⁰. The community needs assessment and analysis are fundamental to demarcating the study field. Building a field of study through dialogues and meaningful interactions with participants can help to develop a sense of collective purpose and advance levels of active participation. When the study in question takes shape as a collective endeavour, this structure can contribute to ingratiating empathy in education and re-

19 Quijano, Coloniality of Power, Eurocentrism, and Latin America, *Nepantla* 3, no. 1, 2000, pp. 533–580.

20 Di Lallo, Schoenberger, Graham, Arain, Drobot, 2019. Collaboration to Action: A Children's Health Case Study in Knowledge Co-Creation, Indigenous Peoples and Talking Circles. Alberta Health Services.

search activities²¹. According to widely cited research, even though empathy is an innate quality²², it can be developed by practicing positive social behaviours. In LD and VL, the process of promoting and strengthening empathy unfolds via two steps: first, a unilateral understanding of the needs of the project recipients must be established; second, in tandem with the elaboration of recipients/participants' needs, an effective involvement of the recipients in the co-creation process must be conscientiously facilitated. In both steps, reflexivity and empathetic thinking are practiced and developed by all project participants (be they students, researchers, or community members). In our case, the mutual connections and exchange helped grow empathy among the participants by fostering trust, friendship, and compassion, which took place through an on-going open dialogue.

3. Study of the legal issue

In the third phase, two questions are posed to all the participants: (1) What is the environmental legal problem and/or social/legal need that must be solved? (2) What is the legal problem that the recipient/participant must deal with? Having identified the legal problem, the creation phase can start, with the help of the recipients/participants.

4. Ideation and options

In this project phase, there is no assessment of good and bad ideas, but rather a discussion of all ideas presented and considered by all participants. This open discussion is followed by filtering and refining the ideas presented. Every idea is written down on a physical or virtual sticky note. This technique is meant to encourage the development of unorthodox and unachievable ideas. The second technique requires foresight, specifically, mapping out potential risks and challenges that may undermine the proposed plans of action²³. The aim is to unlock the participants' creative thinking, as it is often easier to criticize and identify gaps in rationale than to outline a strategy for success. As Hagen *et al.* put it:

“Using reverse-brainstorming as an idea generation tool, participants often find that identifying negative elements is easier than identifying positive elements [...], creating an exercise that is cognitively stimulating, interesting, and even somewhat silly [...]. After nega-

21 Berardi, White, Winters, Thorn, Brennan, Dolan, 2020, Local Development & Society, Rebuilding communities with empathy, pp. 57–67.

22 See Sofronieva, Empathy and communication, Rhetoric and Communications E-Journal, 4, 2021, pp. 1–9.

23 Evans, 2012. Destroying collaboration and knowledge sharing in the workplace: a reverse brainstorming approach. Knowl Manage Res Pract 10, pp. 175.

tive elements are identified, [...] instructors can turn the question into a positive, asking students to use the negative elements to provide a clearer solution to the problem, thereby engaging multiple levels of cognition and increasing creativity and idea generation. [I]nstructors may find that using reverse-brainstorming as a tool will engage students in deeper discussions that challenge them to generate ideas and turn those into workable, classroom- and content-appropriate solutions. Because students may find it easier and more engaging to identify negative elements, classroom collaboration and communication can improve.”²⁴.

Once the group has finished compiling the list of bad ideas, they are asked to turn negative ideas into positive ones, by analysing the failed suggestions and coming up with ways to alter the failed idea to result in the opposite effect. In essence, reverse engineering of ideas prompts the group to consider the ‘who, what, why, and how’ behind an idea and what aspects (i. e. why, how) would need to be changed to result in a novel, feasible solutions.²⁵ To conclude this phase, the group selects the best idea based on a set of co-produced implementation criteria. Implementation criteria can include considerations regarding logical consistency and plausibility, generalizability, simplicity, efficiency, effectiveness and accessibility. As previously stated, in the original LD process²⁶, the group does not include the recipients of the final project results. In our approach, since recipients actively participate in all the steps of the co-creation process and therefore are recipients/participants, they provide constant feedback thus, effectively contributing to every step. Notably, in the case of the ECO_CARE project, an indigenous representative of the Chiquitano people worked back-to-back with the LD and VL students, to help select the most appropriate, implementable, and culturally aware project idea.

5. Prototyping

After the selection of the most promising and executable idea, the group starts developing the project prototype²⁷. Prototyping helps the process move forward efficiently. As *Olsen* puts it: ‘Prototyping moves the Design Thinking project forward. By building simple models or drawings sketches before knowing the answer, prototyping helps the innovators to think. The goal of rapid prototyping is to make mistakes

24 *Hagen, Bernard, & Grube*, 2016 Do it all wrong! using reverse-brainstorming to generate ideas, improve discussions, and move students to action, *Management Teaching Review*, 1(2), pp. 85–90.

25 Reverse Brainstorming, A Different Approach to Brainstorming, at https://www.mindtools.com/pages/article/newCT_96.htm, last access September 2022.

26 *Hagan*, Legal Design as a Thing: A Theory of Change and a Set of Methods to Craft a Human-Centered Legal System, *Design Issues*, 36(3), 2020, pp. 3–15.

27 *Meinel, Leifer*, Design thinking research, 2012, Springer, Berlin, Heidelberg, pp. 1–11.

as fast as possible. By making multiple simple models of unsolved problems, the idea is that surprising discovery will be encountered.²⁸ At this stage, the recipients/participants are active co-creators, contributing to the development of the project prototype and therefore transforming the process of LD into a final, tangible VL product.

IV. Steps in the creative process: the creation of the comic book

The steps mentioned in Sections 2 were followed for the creation of the comic book. Throughout the course of the project, extensive research material was used (the references of which are at the end of this article) in coordination with the co-creation stages outlined above. Legal research material was consulted throughout the project's duration concluding with the production of the final comic book.

1. Choice of recipients/participants: the Chiquitano People

As recipients/participants of the project, the group chose to work with the Chiquitano people, from Mato Grosso (Brazil), particularly with members of the Chiquitano community in Vila Nova Barbecho. The Chiquitano territory is not fully demarcated and consequently, the Chiquitano People are facing serious environmental threats and suffering from gross human rights violations by state-sponsored actors (primarily landowners who occupied their territory). As reported by *Silvano Chue Muquissai* and *Loyuá Ribeiro F.M. da Costa*²⁹:

*"Many villages are currently delimited by farms [...] and therefore it is impossible to build school buildings, hospitals, and other infrastructures that could enhance their quality of life. In addition, many indigenous people depend on work and daily allowances on farm owners as their contractors, committing, often informally, to clear the pasture on farms and other services"*³⁰.

The authors make clear that 'the lack of access to their own territory hampers hunt, swidden planting, and access to water, threats that repercuss to a series of violations of human rights that put the existence of the indigenous population at risk'. The researchers raise a critical question for the Chiquitano people's survival in their villages. What

28 Olsen, Design thinking and food innovation, Trends in food science & technology, 41(2), 2015, pp. 182–187.

29 *Muquissai, Da Costa*, Inusuvóriki: Luta por Demarcação das Terras Tradicionais Chiquitano e Aldeia Vila Nova Barbecho, In *Parola, Poto, Da Costa*, Inclusão, Coexistência e Resiliência: Lições a partir do Direito Indígena, Rio de Janeiro: Multifoco, 2021, p. 304.

30 The original quote in Portuguese is translated by *Parola* and *Poto*.

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legal choices do the Chiquitano people have in the face of this existential threat? The Chiquitano face complex socioeconomic and legal issues covering decades of human rights issues and environmental challenges. While this book is not the sole solution to address the plight of the Chiquitano people, the premise that LD explores can effectively imbue the community with necessary legal knowledge. This book establishes a process of affirmation and emancipation, co-creating legal material so that it can be used as a means to voice the struggles the Chiquitano people have been facing since colonization.

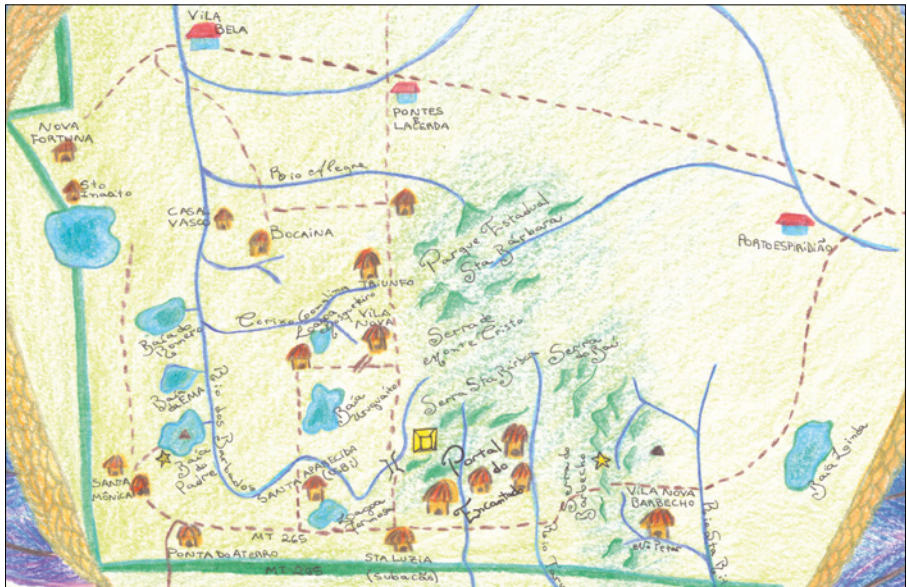


Figure 1: Map of the Chiquitano territory illustrated by Loyuá Ribeiro F. M. da Costa, 2021.

2. Study of the Chiquitano People and their needs

As aforementioned, one of the milestones of the creative process is the development of empathy within the project participants, through the study, assessments and conversations concerning the needs of the recipients/participants. This study helped the members of the working group understand each other’s perspectives, focusing on an empathetic approach to law. As previously noted, before delving into empirical research, the group consulted the primary and secondary legal resources to understand the Chiquitano origins and understand the Chiquitano knowledge system. Moreover, further insights into the Chiquitano People’s value-sets, cosmovisions and legal principles were

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gained via continuous conversation with *Silvano* developed by videoconference. *Silvano* provided essential information on the Chiquitano People through talks and his participation in the course lectures. He thoroughly explained how and why the lack of access to indigenous territories threatens the Chiquitano culture and knowledge system. As he puts it 'Even today, some members of the Chiquitano People do not recognize their identity, because only then they can access jobs in the farms surrounding their land.'³¹ Without secure access to land, and thus secure access to water and raw materials needed for life, health, food security and food safety, the Chiquitano People's self-determination is jeopardized. Hence, as highlighted by the Chiquitano representatives participating in the videoconferences led by *Silvano*, the community's primary need was to gain visibility and advance the legitimacy of the issue in the public's eyes. Visibility is predicted to lessen the likelihood of public authorities colluding with farmers, a common occurrence throughout Mato Grosso. The premise is that with greater visibility the Chiquitano people will see the authorities defend their rights. The study of the urgent need for visibility contributed to developing sentiments of accountability, cultural awareness, and mutual respect. It is important to underline that in our project the path travelled (knowledge exchanges/ sharing) was bilateral, where both sides (university researchers and Chiquitano) could cultivate reciprocal empathy.

3. Choosing the legal materials: the Escazú Agreement 2018

On March 4, 2018, in the city of Escazú, Costa Rica, twenty years after the signature of the Aarhus Convention (AC) on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters 1998³², after six years of negotiations, twenty-four countries in Latin America and in the Caribbean adopted the Escazú Agreement (EA) on Access to Information, Participation and Justice in Environmental Matters in Latin America and the Caribbean.³³ The EA is the first legally binding treaty on environmental rights in the region³⁴, the treaty entered into force on 22 April 2021³⁵. The negotiating parties of the EA were inspired by the AC which was the first interna-

31 Interview during the first online meeting, 18 November 2021. Translation by *Parola* and *Poto*.

32 Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, Aarhus, Denmark, 25 June 1998 Available at: <https://unece.org/environment-policy/public-participation/aarhus-convention/text>. Last access September 2022.

33 CEPAL-UN, Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean. 2018 <https://www.cepal.org/en/escazuagreement> last access September 2022.

34 *Parola*, A new Aarhus for Latin-American countries: the Escazú Agreement 2018 – towards an environmental democracy in Latin America and the Caribbean, *Env. Liability*, 2019, p. 102.

35 To date, 24 countries have signed it, and 12 of which have also ratified it: Antigua and Barbuda, Argentina, Bolivia, Ecuador, Guyana, Mexico, Nicaragua, Panama, Saint Vincent and the Grenadines, Saint Kitts and Nevis, Saint Lucia, and Uruguay.

tional treaty that implemented Principle 10 of the Rio Declaration on Environmental Access Rights³⁶. The Convention established a process of assessment that includes individuals and their right to exercise control over acts of government, thereby participating and contributing to decision-making in environmental matters³⁷. AC represents the first international treaty aimed at creating trans-boundary environmental procedural rights of individuals and NGOs (access to information, participation, and access to justice), also referred to as the three pillars towards the construction of an Environmental Democracy³⁸. The EA is also an implementation of Principle 10 that aims to ‘move a step closer towards making equality’³⁹, and to ‘leave no one behind’⁴⁰. In fact, the Agreement was chosen as the legal material for the co-created project of LD and VL, primarily because of its specific focus to improve the rights of access to information and justice, as well as participation regarding environmental matters of people or groups in vulnerable situations, such as Indigenous Peoples or traditional communities. Throughout Latin America and the Caribbean, there are sectors of society that have historically been marginalised from decision-making on environmental issues.⁴¹ To this end, steps have been taken in the EA, both before and during the drafting process, in order to build the capacity of persons that have been underrepresented in participatory processes. The States that negotiated and signed the EA are committed to finding ways to facilitate the three pillars rights. The EA goal is to remove socio-economic barriers that hinder access rights to those groups of people that have traditionally been under-represented in participatory processes and to combat inequality and discrimination. Consequently, the EA focuses on ‘persons or groups in vulnerable situations’ and defines them in the Article 2 as ‘those persons or groups that face particular difficulties in fully exercising the access rights recognized in the present Agreement, because of circumstances or conditions identified within each Party’s national context and in accordance with its international obligations.’ Vulnerable populations are not just recognised as the focus of the Agreement, but the text itself requires governments to take action to ensure that these populations can effectively exercise the three access rights. In particular, Article 4, paragraph 5 states, ‘each party will

36 See Principle X, Rio Declaration on Environment and Development, UN Doc. A/CONF.151/26 (vol. I), 31 ILM 874 (1992).

37 *Parola*, A new Aarhus for Latin-American countries: the Escazú Agreement 2018 – towards an environmental democracy in Latin America and the Caribbean, *Env. Liability*, 2019, p. 102.

38 See *Parola*, Environmental Democracy at the Global Level, De Gruyter Open Poland, Versita London. 2013.

39 *Barcena*, Preface to the Escazú Agreement. Available at: https://repositorio.cepal.org/bitstream/handle/11362/43583/1/S1800428_en.pdf, last access September 2022.

40 AGENDA 2030 UN General Assembly, *Transforming our world: the 2030 Agenda for Sustainable Development*, 21 October 2015, A/RES/70/1.

41 *Médici*, El Acuerdo Escazú: La Implementacion del Principio 10 de Rio en America Latina y el Caribe, *Revista Catalana de Dret Ambiental*. Vol. IX N. 1, 2018, p. 1.

ensure guidance and assistance to the public – especially to the people or groups in vulnerable situations – in a way such that the exercise of their rights to access is facilitated. Moreover, there are specific paragraph(s) for each right outlined in the agreement, access to information⁴², participation⁴³ and access to justice⁴⁴, concerning a corresponding action to help support them.

To conclude, the EA aims to help the people and/or groups in vulnerable situations to exercise their rights to access, and the co-created project of LD and VL sought to achieve this objective within the context of the Chiquitano community of Mato Grosso. By converting the referred rights and legal concepts into visual materials, this project enabled the active participation of the Chiquitano people. Advancing both the understanding of environmental rights and active participation of the Chiquitano people has created different avenues to voice the community's struggle, continue developing co-created legal projects and ultimately, increase empathy between all participants.

4. Creating proposals and requesting feedback: comic book

After studying the Chiquitano people and their needs, and choosing the legal material, the next step was to look for ideas to convert the EA into an easily accessible document. In our project, a collaborative effort that integrated all stakeholders in the creative process generated the final content. Much of the project's value was derived from this cross-cultural learning experience. Hence, *Silvano* participated in each step of the idealization process. Additionally, to support the provision of constant feedback on the proposals made by the group, *Silvano* spearheaded our efforts to understand which choices were most suitable for the Chiquitano people. Towards the end of the idealization process (*brainstorming, reverse brainstorming*), the group came to a consensus to convert the EA into a series of comics.

5. Prototyping and finalizing the proposal

In LD, the first rule for creating an accessible document, essay, or composition that readers can efficiently understand, is to use short sentences. Writing for the final recipient requires translating legalese into common terms that accounts for the target

42 On passive access to information see Article 5 (3, 4). On active access see Article 6 (6). *Parola*, A new Aarhus for Latin-American countries: the Escazú Agreement 2018 – towards an environmental democracy in Latin America and the Caribbean, *Env. Liability*, 2019, p. 102.

43 The agreement essentially follows the AC but adds new aspects in Article 7 (10) and Article 7(11). Finally, concerning the persons and vulnerable groups, see paragraph 14 of Article 7.

44 Superior Tribunal Justiça 2a Turma. Resp 1071741/SP. Rel. Min. Antonio Herman Benjamin, j. 16.12.10. *Cappelli, Born, Ribeiro Goes*, Acordo de Escazú e os direitos de acesso em temas ambientais: o potencial do acordo para o direito ambiental brasileiro. *Revista de Direito Ambiental*, 2018, p. 133.

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population's age range, level of education, profession, experience, and other characteristics, such as, in this case, the appearance of indigenous ethnicity. When writing clearly and limiting the use of complicated language and technical jargon, the chances that the meaning of the legal document will be understood and utilized by the intended party dramatically increase. Accordingly, the first step in creating the comic book was to draft a script about the EA between *Silvano* and other residents of Vila Nova Barbecho. Through this approach, the articles of the agreement, written in technical legal language, were transformed into an easily accessible dialogue, readily understandable by everyone. Furthermore, each sentence in the comic dialogue was paired with an illustrated description from the village, representing places and actions that different individuals could recognize and relate to within the story. Additionally, *Silvano* and *Edmundo Nicolau Chue Muquissai*, another resident of the village and project team member, took several photos following the descriptive dialogue.



Figure 2: Three samples of pictures taken by *Silvano* and *Edmundo Nicolau Chue Muquissai*

The group, then, transformed pictures into cartoons, using the app 'Comica', which converts photographs into cartoons and finalizes the comic book by including the corresponding speech bubbles to each image.



Figure 3: Three samples of pictures converted into cartoons by students

The outcome of the co-creation were two books, one in Portuguese⁴⁵ and one in English⁴⁶, funded by the Norwegian Directorate for Higher Education and Skills (HKDIR Utforsk 2020) through the project An Exchange Program on Empathy, Compassion, and Care in Water Governance, from the Perspective of Integral Ecology – (ECO_CARE, HKDIR UTF n. 2020/10084),⁴⁷ the Faculty of Law UiT The Arctic University of Norway (Strategiske Midler 2021).

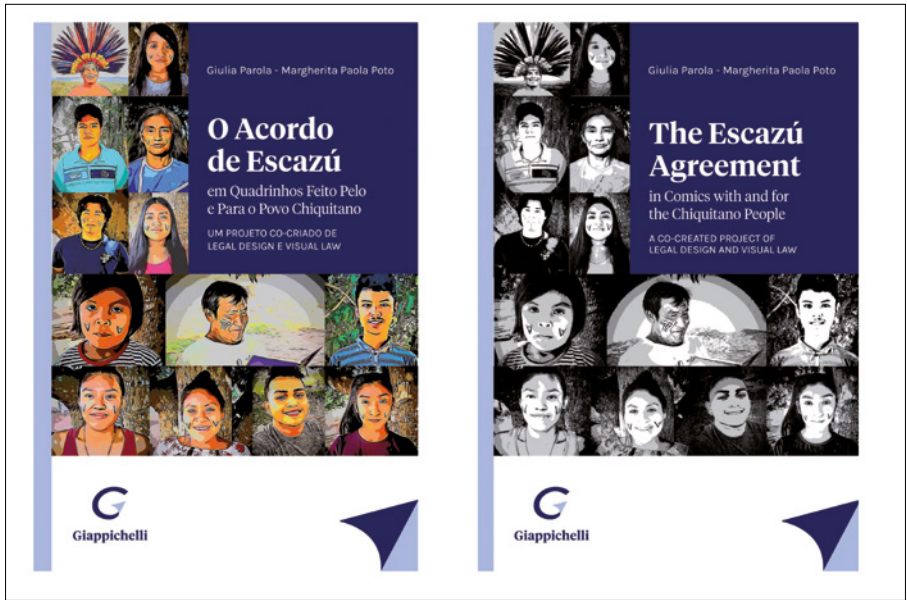


Figure 4: The two covers of the books

The two books were published in 2021, and delivered to the Chiquitano villages on August, 29, 2022 by organizing an event to launch the work in Vila Nova Barbecho. A workshop was held on the same date that contributed to building understanding and consensus on the importance of these tools (books) to strengthen community knowledge of environmental rights and duties. The books were also disseminated to the other Chiquitano communities in the Portao do Encantado.

45 Parola, Poto, O Acordo de Escazú em quadrinhos feito pelo e para o Povo Chiquitano. Um projeto de co-criação de Legal Design e Visual Law Giappichelli, 2021.

46 Parola, Poto, The Escazú Agreement in Comics with and for the Chiquitano People. A Co-Created Project of Legal Design and Visual Law, (English version). Giappichelli, 2021.

47 Official ECOCARE website: <https://en.uit.no/project/ecocare> last access September 2022.



Figure 5: Book launch in Vila Nova Barbecho

V. Conclusion

To conclude, the project experience and results affirm that through knowledge co-creation supported by collaborative use of LD and VL tools, it is possible to contribute to the re-emergence of indigenous perspectives and cosmovisions, combining this knowledge into scientific methodology. The books are the tangible result of the co-creation, and serve two purposes: (1) they can be read and approached as a comic' story, by teachers and anyone interested in sensitizing children towards environmental rights; (2) they provide a frame of reference for academic courses in LD, VL, as well as environmental and indigenous law, helpful to design classroom activities and develop creative group and individual projects.⁴⁸ Finally, through this project, we have been drawing on an inclusive and co-created legal methodology to establish possibilities for participation, plurality and open spaces for transformative engagements in research. Consequently, as we continue engaging in an innovative research and education methodology for academic audiences and community members, we strengthen our responsibility to imbue research processes and the Law with empathy, compassion and care to the people and natural environment with whom we collaborate⁴⁹.

48 For a list of courses where LD and VL have been already integrated into academic curricula, see the ECO-CARE educational platform: <https://en.uit.no/project/ecocare/education>, last access September 2022.

49 <https://en.uit.no/project/ecocare>, last access September 2022

CHAPTER IV

Co-Creation of Educational Spaces and Curricula to Develop an Ecology of Participation

An Example from Follow Your Heart

Emily M. Murray / Margherita Paola Poto¹

I. Introduction

This book chapter brings together the authors' previous work on co-created approaches to emotional and ecological education and the value of participatory systems-based approaches in education. Expanding on the need to co-create educational spaces and curricula that place their focus on collaboration, participation, and respect for every being involved in the learning process, this chapter aims to contribute to the development of what *Carol A. Taylor* and *Catherine Bovill* call an 'ecology of participation.'² The main argument supporting the need to adopt co-created approaches in the field of education is that co-creating educational spaces and curricula contribute to strengthening ecological awareness, which is based on the values of respect, responsibility, and reciprocity.³ The theorisation of a curriculum built around co-created spaces as an ecology of participation is explored through the empirical example of the co-created book and educational resource *Follow Your Heart: The School for Multipotentialites* (hereinafter, *Follow Your Heart*).⁴ This research and educational project shows how a diverse range of educational tools and activities support the development of reciprocal relations, demonstrating how learning to relate to oneself, others and the natural environment can have beneficial effects on community, well-being and ultimately on environmental sustainability. The theoretical framework that introduces the practical case of *Follow Your Heart* is offered

1 *Murray and Poto* co-designed and co-wrote all the sections of the Chapter; *Poto* supervised the original project, *Murray* proof-read and edited the chapter. The illustrations are created by *Russo and Murray*.

2 *Taylor, & Bovill*, Towards an ecology of participation: Process philosophy and co-creation of higher education curricula, *European Educational Research Journal*, 2018, p. 112–128.

3 On these values as the ecological foundational pillars see *Kimmerer*, restoration and reciprocity: the contributions of traditional ecological knowledge. In *Human dimensions of ecological restoration*, 2011, Washington, DC, p. 257–276.

4 *Murray, Russo, Poto*, *Follow Your Heart. The School for Multipotentialites*, 2022, Aracne, Rome.

by the studies of *Alfred North Whitehead*⁵ who formulated a new way of considering co-creation as an educational approach that rethinks the relationship between subject and object in learning exchanges, and among teaching and learning subjects in educational spaces. To understand why the studies of *Whitehead* are so relevant to the ecological discourse, it is necessary to give an account of the increasing focus on relational thinking in sustainability studies.⁶ Relational thinking in ecology and sustainability studies emphasizes the importance of valuing relationships among humans and between humans and nature, calling for the wide participation of all people as makers of knowledge.⁷ Bringing awareness of the relations and interconnectedness between humans and nature into educational spaces by allowing pupils and educators to participate equally in the learning process can foster future generations who are equipped with the skills and mind-set to address the intricately linked social and ecological challenges of our time.⁸

In this context, collaborative, problem-based, innovative and creative educational approaches to knowledge production are developed. As will be further detailed in the text, examples of creative relational approaches to nature include practicing mindfulness, connecting with emotions, and creative gardening and outdoor activities through observation of oneself and their surroundings.⁹ In conclusion, relational thinking and relational approaches to learning contribute to a more integrated understanding, from early childhood, of the human-nature connectivity; providing empirical accounts of the diversity of knowledge systems and values in decision making; and in general, developing approaches for sustainability interventions that nurture relationships in both place and practice.

In sum, this chapter will combine the theoretical and practical approaches to co-creating a relational space where human-nature connectivity is nurtured and where responsible actions, mutual respect, and an orientation to living in harmony with each other and nature are at the centre of everyone's concern. From the initial inspiration to the co-created process that led to the development of the book, *Follow Your Heart* is an example of how participation can be used in the development of learning materials *and* as a learning approach in the classroom setting. Some concluding remarks on the relevance

5 *Whitehead* *Adventures in Ideas*. 1933, London. *Whitehead* *Modes of Thought*. 1968, New York; *Whitehead* *Process and Reality*. 1985, New York.

6 *West, Haider, Stålhammar, & Woroniecki* A relational turn for sustainability science? Relational thinking, leverage points and transformations. *Ecosystems and People*, 2020, p. 304–325.

7 *Fazey et al.*, Transforming knowledge systems for life on Earth: Visions of future systems and how to get there. *Energy Research & Social Science* 2020, p. 1–18.

8 *Ibid* 7.

9 See for example *Harris*, Outdoor learning spaces: the case of forest school, *Area* 2018, p. 222–231. More examples of this creative learning experience are provided in the sections dedicated to the description of *Follow Your Heart*'s approach.

of educational co-creation to the development of an ecological transformation will lead the chapter to an end.

II. An educational approach built around the concept of the ecology of participation

The theoretical background that constitutes the premise for the co-creation of Follow Your Heart develops from a critical analysis of traditional classroom educational approaches, where students and learners sit in isolation from each other with no apparent relationship, being occupied with intellectual analysis rather than focusing on creating an active individual consciousness within a community committed to building upon values and practice.¹⁰

Building a community of inquiry embodies *Whitehead's* philosophy on education where an inclusive space is co-created and helps to situate learners and teachers in a wide social context, providing the experience and feeling of belonging to a community. We believe that using participatory approaches in the learning context can offer similar benefits to community-based participatory research (CBPR) with marginalized communities where power dynamics between researcher and participant are reconsidered, and participants are considered equal partners in the research process.¹¹ For example, when students are equally as involved and engaged in the teaching and learning process (as the teachers), they may feel a greater sense of autonomy, empowerment, and ownership which leads to more accountability over their education. Raising children in an environment that encourages equal participation and idea-sharing with their teachers can translate to more confidence and respect in decision-making spaces in their future careers. The practice of inquiry through open dialogue and active listening is required to fulfil the criteria of critical, creative, and caring thinking. Pupils and teachers, through dialogical, inquisitive and reflective practice, learn to explore and internalize the relationship between subjects of inquiry, the relationships among themselves, and ultimately their relationship to the world around them.¹² The core of *Whitehead's* philosophy is to promote modes of thinking that stimulate a child's ability to self-reflect and internalize their relationships with others and with the surrounding environment. For example, increasing self-awareness can empower children to better understand their role and the value that they play in their community, from the classroom environment to the complex

10 Ugwuozor, Philosophical Education and Global Citizenship: Tapping into the Process Philosophy of Alfred North Whitehead. *NZ J Educ Stud.*, 2019, p. 179–194.

11 Tobias, Richmond, & Luginaah, Community-Based Participatory Research (CBPR) with Indigenous Communities: Producing Respectful and Reciprocal Research. *Journal of Empirical Research on Human Research Ethics* 2013, p. 129–140.

12 Taylor, Bovill, Towards an ecology of participation: Process philosophy and co-creation of higher education curricula. *European Educational Research Journal* 2018, p. 112–128.

ecosystems that compose planet Earth. While we do not have a space for an exhaustive discussion on these modes of thought, it is imperative to at least mention modes of thought that are compatible with ‘process thought’ – also known as ‘process philosophy’ which was originally coined in *Whitehead’s Process and Reality*¹³ and refers to a harmonized reality where everything is interconnected. This includes, but is not limited to, creative thinking, concrete thinking, critical thinking, and holistic thinking. These modes of thought encompass the processes and practices needed to prepare children to become responsible, accountable, and sensitive citizens in the integrated ecosystem that is Planet Earth, our common home. When children and adolescents recognize that their opinion is valued in the co-creation of the learning activities, and therefore they have the potential to be an element in the growth and development of others, they are more likely to feel involved and committed to contributing to the common good. Similarly, as explored in Chapter III,¹⁴ when marginalized communities are given the opportunity to participate in local environmental concerns and co-create solutions for a better future, the sense of making meaningful changes further fuels action and continuing participation. The advantageous outcomes of using participatory approaches in the research environment, – where (1) the relationships between the researcher and participant are rethought and (2) knowledge and solutions are discovered in a co-created manner – translate to the learner-teacher dynamic in the academic environment.

In such a relational space, the questions of social equity, as well as changes in climate and environment, are posed. It is important that both educators and researchers understand the personalities and multiple talents of young children in the context of their local cultural-historical heritage and needs.¹⁵ It is a continuous challenge to create conditions for children to have a sense of local heritage and connection to their immediate surroundings, while also placing expectations on their developing minds and bodies to understand and build connection with the ever-changing world around them and what it means to be a global citizen.¹⁶ Indeed, one can learn from history and the present but it is equally fundamental to develop pedagogies that are relevant for children in their everyday lives as well as for their future.

For this reason, through integrating participatory approaches into the education system, children’s present and future expectations and their interests are constantly as-

13 *Whitehead. Process and Reality: An Essay in Cosmology*, 1985, New York.

14 See Chapter III.

15 *Berti, Cigala, & Sharmahd*, Early childhood education and care physical environment and child development: State of the art and reflections on future orientations and methodologies, *Educational Psychology Review* 2019, p. 991–1021.

16 *Wilson*, Effective approaches to connect children with nature. New Zealand: Department of Conservation, 2011.

sessed, valued and nurtured, in a way that considers every dream and change of mind as relevant and equally valuable. Raising children to believe and understand that their opinions, ideas, and interests are worthy of being heard and included will pave the way for them to enter decision-making spaces with the confidence and courage to make the world around them a better place. As will be further elaborated in the text, this concept has been visually developed through the illustrated story of Cora, the little creative girl with many interests, all worthy of being nurtured and encouraged.¹⁷

The following sections will trace back the steps of the process toward the co-creation of the project *Follow Your Heart*: its origins (sections III and IV), the research question at the core of the work, along with the aim, hypothesis, and participatory target audience (sections V–VI). An entire section is dedicated to the description of the process of co-creation for the design and description of educational activities that *Follow Your Heart* offers to foster a more participatory learning environment (section VII). Then, a reflection on the intersection between the process of co-creation and the development of an ecology of participation will lead the chapter to an end, with some final remarks on the lessons learned from this experience (section VIII).

III. The original idea: envisioning emotional literacy as an essential element of the school curriculum

The book, and the project developed around it, originates from a project plan created by *Valentina Russo*, with the title: ‘*Sigue a tu corazón*.’¹⁸ As explained in the introduction to the book, *Valentina* received her education in a Western school context (Italy), and like many children of her ethnic, socioeconomic, and cultural background, she experienced a substantial inadequacy of support within the school system regarding her emotional well-being and ultimately, a lack of nurturing and support for her multiple inner talents and aspirations. Drawing from *Valentina*’s experiences, which are not isolated and can generally be confirmed by studies on the academic performance of school systems, social and emotional education, in a context that emphasizes relational thinking, is far from being integrated into the Western educational system. As further elaborated in the book, the reason for such a lack of focus on emotional and social education is a reflection of contemporary Western capitalistic values. Drawing from *Valentina*’s experience and moved by the need to develop a more inclusive educational model, *Follow Your Heart*’s approach critically analyses the heavily hierarchized teaching framework, which dominates the Western education system and academic institutions around the world, pro-

17 *Murray, Russo, Poto*, *Follow Your Heart. The School for Multipotentialites*, 2022, Aracne, Rome.

18 More on the original title and its development in the book *Murray, Poto, Russo*, *Follow Your Heart. The School for Multipotentialites*, Aracne, Rome.

posing an alternative that encourages pupils and teachers to work cooperatively toward the co-creation of a safe learning and social space.¹⁹ In this context, a three-dimensional perspective, focusing on the individual and their talents, the relationship with others, and ecological education, open the educational space to participatory, relational and co-created approaches (Figure 1). These three dimensions should be regarded as equally relevant: the sphere of the *self*, where each pupil is supported in their development and is regarded as a multi-talented being with many natural, innate talents whose ideas and opinions deserve to be valued (focus on multiple talents and emotional education). In the second sphere, a *relationship with the group* is fostered by focusing on emotional education in relation to others and strengthening the ability of pupils to recognize social and emotional cues. Through this, children gain a sense of responsibility and care for others. The third dimension involved in a participatory, co-created approach to education is the *relationship with the biophysical environment*. Instilling self-awareness from a young age and teaching pupils to care for others sets the foundation for strong interpersonal and social relations with all beings, including a sense of responsibility and care for the natural environment (ecological education).²⁰



Figure 1: The 3-dimensional focus of Follow Your Heart – the relationship with the self, others, and the natural environment. The illustration, originally realized by *Emily M. Murray*, was brought forth by illustrator and co-author of Follow Your Heart, *Valentina Russo*

19 Denham, & Brown, 'Plays nice with others': Social-emotional learning and academic success. *Early Education and Development* 2010, p. 652–680.
20 Sauvé, Environmental education between modernity and postmodernity: Searching for an integrating educational framework. *Canadian Journal of Environmental Education (CJEE)* 1999, p. 9–35.

For all these reasons, Follow Your Heart proposes a methodology that moves beyond linear thinking and the current education system (built on rationality, logic and rules²¹) by creating spaces that welcome emotional and ecological education while attempting to remove the pressures placed on children to conform to expectations of society. While still holding great value on traditional curriculum (i. e., reading, writing, logical reasoning), Follow Your Heart brings forth a co-created learning environment with the help of educators, researchers, pupils and the wider community to encourage children to keep their developing hearts and minds open to different future possibilities by nurturing their multiple interests and talents.

IV. Bringing the original project forward through co-creation

Treasuring the original idea and continuing the path of creativity for better education and research, ECO_CARE, a research team formed by environmental legal scholars, illustrators and teachers, decided to support and develop the original project plan into a co-created English illustrated book with a multipurpose scope (scientific, educational, and playful).²² ECO_CARE focuses on bringing empathy, compassion, and care into the world of water rights and environmental law, and felt inspired to take on this project.²³ The development of the original idea into a set of co-created and dynamic learning and teaching resources appeared in harmony with ECO_CARE's vision, which aims to create space for the development of emotional education and support present and future generations in their effort to make the world around them a better place. Supported by solid research foundations on the importance to foster co-created approaches for a common future for all,²⁴ which is the ultimate objective of sustainability, the book was co-developed by researchers, teachers, and the illustrator for a broad participatory target audience. Follow Your Heart, as an educational resource, goes beyond the typical classroom environment use and was co-created with three groups of beneficiaries in mind: (1) researchers and university students involved in research, academic courses and interconnected outreach on emotional education, environmental awareness, compassion, ethics of care and human rights; (2) educators (teachers, librarians, educational assistants) who are inspired to design their classroom activities and develop new teaching techniques and stretch the boundaries of school curriculum by including activities that engage student imagination and strengthen learning; and (3) multipotential chil-

21 Vance, Groves, Paik, & Kindler Understanding and measuring linear–nonlinear thinking style for enhanced management education and professional practice, *Academy of Management Learning & Education* 2007, p. 167–185.

22 Murray, Russo, Poto, Follow Your Heart. *The School for Multipotentialites*, 2022, Aracne, Rome.

23 en.uit.no/project/ecocare last access November 2022.

24 Szetey, Moallemi, Ashton, Butcher, Sprunt, & Bryan, Co-creating local socioeconomic pathways for achieving the sustainable development goals. *Sustainability science* 2021, p. 1251–1268.

dren (of all ages and abilities) who want to explore and discover new areas of knowledge and creativity. The unique characteristic of Follow Your Heart is precisely this: it has a participatory target audience that is enriched by also considering its target audience members as participants and co-creators of the educational resources and projects. As mentioned above, this approach draws from the community-based research conducted by the ECO_CARE team members.²⁵ From the experience that we developed as researchers and educators in co-created methodological approaches, within ECO_CARE and beyond, we came to the realization that there is a close connection between participation and a sense of belonging and involvement in one's community. Applying our experience to Follow Your Heart, we ascertained that pupils who actively engage during class and are given the opportunity to shape their learning experiences are more engaged in deeper learning and find the overall learning process more rewarding.²⁶ Moreover, meaningful engagement by teachers and pupils in knowledge and curriculum co-production contributes to feelings of ownership over the subject matter and allows all parties involved to better understand and appreciate the learning outcomes. With the co-created project Follow Your Heart we embraced a process that allows researchers, teachers, and learners to act as co-producers of knowledge and create classroom environments where everyone engages in the dialogue of knowledge creation. The results of this co-created process are reflected in: (1) the contribution to the creation of the book itself, through the inputs of teachers, and their needs and experience on the most valued and preferred activities by their pupils (as further elaborated in the next section, the book originated by listening to a specific need and request of a local school); (2) the involvement of teachers and pupils in the implementation of the suggested activities (e.g. the book has an entire chapter dedicated to the activities suggested by teachers, with further room for applications, suggestions, and implementation); and (3) the encouragement to teachers and pupils to further develop their ideas and recommendations for a classroom environment that encourages participation, emotional education and fostering multiple talents. This last element of co-creation is ongoing and is supported with blank pages throughout the Follow Your Heart book for teachers and pupils to write down ideas and a QR code that grants user-access to free educational resources and feedback forums to further develop the Follow Your Heart community.

25 Poto, *Environmental Law and Governance: The Helicoidal Pathway of Participation a study of a nature-based model inspired by the Arctic, the Ocean, and Indigenous Views* Giappichelli, 2022, Torino, p. 1–241.

26 In similar terms *Billett, & Martin*, *Engaging students in co-creation of sociological knowledge and curriculum design as a form of deep engagement*. *Journal of University Teaching & Learning Practice* 2018.

V. Addressing a specific educational need

The book idea was further developed by listening to the community needs of our ECO_CARE project partners from Tanzania, located in the remote area of the Ruvuma region, in the southern part of the country. In this region, most of the public and independent schools face similar challenges from a lack of basic infrastructure (electricity, water, adequate school facilities) to inadequate educational resources (shortage of learning materials, educational equipment, training for educators, and accessibility options for children with special needs). Responding to the specific request from the Nyerere English Medium Day Care in Songea, an early childhood institution with a lack of resources, such as teaching materials in English, the ECO_CARE team raised funds – first through crowdfunding and progressively through the project Ocean Senses, partly funded by the Faculty of Law at UiT The Arctic University of Norway – to develop research on environmental consciousness, the role of emotions, and the importance of creativity in raising the citizens of tomorrow. The funding supported the acquisition of basic materials for the school (from food for the pupils' meals and bedding sets to stationery and toys), and then the development of the Follow Your Heart book as a joint project and toolkit for educators and children. Learning from the experience of the Nyerere English Medium Day Care, its teachers, and *Agnes Haule* (our project coordinator in Tanzania), ECO_CARE plans to extend the dissemination of Follow Your Heart to the Matimira Secondary School (located in the village of Matimira, Songea District, Ruvuma Region, Tanzania) and the vocational school Veta Herdis Training Center, Ruvuma Region, Nyasa District, Tanzania. In the long term, the philosophy, teaching activities, and vision behind the project Follow Your Heart are expected to be shared with an increasing number of schools, and in line with the ECO_CARE vision, this process will remain mutual, aiming to co-create materials with the collaboration of all pupils, educators, artists, researchers, and scientists involved.

VI. Research question and design

The research question at the core of the Follow your Heart project is the following: what are the teaching techniques that educators, with the support of researchers, need to develop to nurture the emotional well-being of school pupils in a way that encourages the development of their talents and their relational abilities toward each other and the surrounding environment? To answer this research question, we gave a central role to creativity in the support of nurturing emotional well-being, proposing a methodology centred around student autonomy, imagination, and creativity. In our view, within an open-minded, creative classroom environment, educators and pupils can grow as individuals and as a group, developing their emotional capacity to deal with different learning, life, and environmental challenges.

The central hypothesis of the work is that greater recognition of an emotional dimension within learning – developing emotional engagement in school activities, stimulating emotional engagement through appropriate learning contexts, and facilitating activities that engage emotions and creativity – helps to strengthen the pupils’ learning confidence and nurture their talents. As mentioned above, the emotional dimension is considered in three spheres: the individual, their peers, and the environment. A pioneer of this approach and a source of inspiration for Follow Your Heart is *Maria Montessori*, known as the ‘founding mother of experiential education’,²⁷ and one of the most inspirational educational philosophers in the Western world. In *Maria Montessori’s* perspective, nurturing a child’s talents is only possible if educators are also ready to be engaged in a transformative process, where their spirit, more than the mechanical skill of the scientists, is cultivated.²⁸

The development and overall design of Follow Your Heart as a book, as opposed to the teaching philosophy and participatory approach itself, was an iterative process between the authors themselves and with the educators and researchers who were involved in suggesting activities and overall feedback. The book takes a tripartite approach where each of the target audiences (researchers and university students; educators; and children) can relate to a specific section that addresses their needs or interests. Embedded within the first part of Follow Your Heart is an illustrated children’s book ‘The Story of Cora’ created by and for multipotential children. Originally, this first part was intended to be a short comic strip to help teachers and pupils visualize the concept of ‘multipotentiality’ and how it can feel growing up in the Western education system.

27 Swiderski Maria Montessori: Founding Mother of Experiential Education? Sourcebook of experiential education 2011, p. 211–221. On Maria Montessori’s method and philosophy, the literature is immense. See, among the recent works, *Riley, Alison, and Aubrey*, Understanding and Using Educational Theories, 2nd edition 2022, p. 1–100; *MacBlain*, Learning theories for early years practice, 2021; *Livstrom, Szostkowski, & Roehrig*, Integrated STEM in practice: Learning from Montessori philosophies and practices. School Science and Mathematics, 2019, p. 190–202; *Ahlquist, & Gynther* Variation theory and Montessori education. Journal of Montessori Research & Education 2019; *Tharu*, Teaching and learning strategies in Montessori schools. Academic Voices: A Multidisciplinary Journal 2017, p. 43–45; *Faryadi*, The Application of Montessori Method in Learning Mathematics: An Experimental Research. Online Submission, 4 2017, p. 1–14; *Drigas, & Gkeka*, ICTs and Montessori for Learning Disabilities. International Journal of Recent Contributions from Engineering, Science & IT (IJES), 2017, p. 77–84.

28 *Montessori, Hunt, & Valsiner*, The Montessori method, 2017, p. 1–216.



Figure 2: An illustration from 'The Story of Cora' in *Follow Your Heart: The School for Multipotentialites*. Illustrated by *Valentina Russo*.

However, *The Story of Cora* blossomed into a colourful, emotional, thought-provoking narrative that illustrates the uncertainties and anxiety pupils may feel when placed under the expectations of society (Figure 2). The concept of multipotentiality and understanding the importance of nurturing multiple talents and interests, rather than instilling linearity and structure, can foster innovative thinkers who will be equipped to tackle the complex socioecological challenges of the 21st century. The second part of *Follow Your Heart* outlines the co-created approach that shaped the development of the book, followed by the theoretical concept and evidence-based examples that support the proposed teaching philosophy (Figure 3). This section is dedicated to educators and scholars involved in emotional and ecological education research, yet playful enough to also engage pupils.

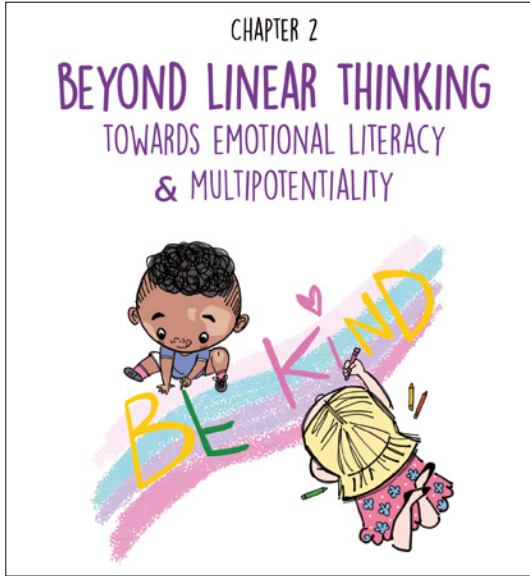


Figure 3: A chapter–title page from *Follow Your Heart: The School for Multipotentialites*. Illustrated by *Valentina Russo*.

The final part of the tripartite educational resource *Follow Your Heart* was designed around participation and co-creation – an activity chapter, for teachers and their pupils, with suggestions for implementing lessons and activities that target emotional literacy, relational thinking, and nurturing multiple talents. The activities were co-created by the authors and educators from Italy and Canada through a participatory process which will be outlined in the following section.

VII. Example of co-created content: educational activities


The strongest element of co-creation and participation in the development of *Follow Your Heart* was the method used for gathering feedback and activity suggestions for the practical implementation of the teaching philosophy. Following completion of the first draft of the manuscript, the authors contacted educators from various academic backgrounds and teaching environments (e.g., private and public school settings, public health) via email in request for feedback on the themes of *Follow Your Heart* and offered the opportunity for educators to propose activities that align with the overall teaching philosophy. Educators were made aware that *Follow Your Heart* aims to be an educational space that brings creativity and imagination into structured, routine Western academic environments, and that activities or lesson planning ideas should foster multiple talents and emotional intelligence. In terms of relational thinking and ecologi-

cal education, the authors worked with educators to ensure the activities chosen for the book were three-dimensional in that they nurtured the relationship to oneself, others, and the environment.

The first segment of the co-created chapter is the ‘original’ Follow Your Heart activity suggestions that focus on mindfulness and imagination, and encourages children to take a deeper look inwards in order to strengthen the relationship with the self (Figure 4). Developing one’s self-awareness and ability to recognize one’s own feelings is a necessary step towards understanding and building relationships with others,²⁹ which is further developed through group activities in the second part of the co-created chapter.



FOLLOW YOUR HEART: SEWING LOVE

This activity follows the theme of Crocs®— the popular rubber sandal that can be personalized with little “charms” to portray your favourite sports, animals, hobbies, etc.⁴⁸ This sewing activity involves a little heart-shaped pillow that, similar to Crocs®, will be decorated with symbols to represent the students’ interests, or whatever it is that makes their hearts happy and full. Traditionally, education systems heavily focus on what is your “favourite” subject or sport, and rarely give children the chance to understand that you can have more than one favourite and you can be good at more than one thing. Additionally, we tend to focus more on logical reasoning and the interests that favour a particular career path and less on the emotional, creative parts of a child’s brain and heart.




Materials Needed:


- Fabric
- Thread
- Needle
- Safety pins or stapler
- Glue/hot glue gun
- Pillow “stuffing”
- Little “tokens”/charms to represent interests/likes/etc.

Guidance: Pupils can trace a heart onto fabric, and then cut out two hearts that are the same shape and size. Use safety pins or a stapler to temporarily fasten the two pieces of heart-shaped fabric together and then have the children stitch two rows of thread around the perimeter of the heart whilst ensuring a 3 cm gap is left so that the heart can be turned inside out and stuffed to create a little pillow. Children can stuff the pillow and then stitch the opening to seal the pillow. Using a thread and needle, or glue depending on the type/shape/materials of the “charms”, children can adhere the charms to decorate their heart. This pillow can stay with children for the year and as they develop new interests and find what speaks to their heart, they can add to their pillow.



Extra-love: before sealing the pillow and after inserting the stuffing, children can write a small note to themselves about what it means to them to follow their heart and put it inside the pillow (similar to “Build-A-Bear” concept).



ECO-tip: we encourage educators and children to use recycled fabric for both the heart and the stuffing—either from a second-hand store or by bringing in materials from home that are no longer needed for their original purpose.

Figure 4: An original Follow Your Heart activity called ‘Mind-Heart Mapping’ taken from Chapter 4: Activities in Follow Your Heart: The School for Multipotentialites. Illustrated by Valentina Russo.

29 Carden, Jones, & Passmore, Defining Self-Awareness in the Context of Adult Development: A Systematic Literature Review. *Journal of Management Education* 2022, p. 140–177.

The second segment of the co-created chapter is formed by a portfolio of suggested activities that teachers and educators are developing with their classes of students and pupils (Figure 5). The proposed activities, developed through the co-created method illustrated above, touch upon the three spheres of: (1) the development of the self and the multi-talents of each pupil; (2) social bonding; and (3) connectivity with the bio-physical environment. Each activity is structured into: title, school level (welcoming adjustments for children of all ages and abilities), materials need, focus, learning objectives, and short guidance on how to conduct the activity. The range of activities includes, but is not limited to:

- Stimulation of children’s curiosity and their senses;
- Development of artistic emotional expressions, to develop emotional observation abilities;
- Development of an inquisitive approach, to develop co-created answers for environmental challenges;
- Strengthening the connection to the Planet by practicing mindful gardening;
- Photographing emotions by listening to oneself and others;
- Reconnecting with the body and the surrounding environment;
- Caring for our inner garden through movement and breath;
- Reconnecting to each other through the experience of silent reading;
- Exploring one’s own emotions by listening to music.

As mentioned above, the final part of the chapter leaves the possibility to teachers and readers to develop and suggest further activities using blank activity templates. Leaving the book open-ended is a very tangible way to give room to experiment with co-creativity.

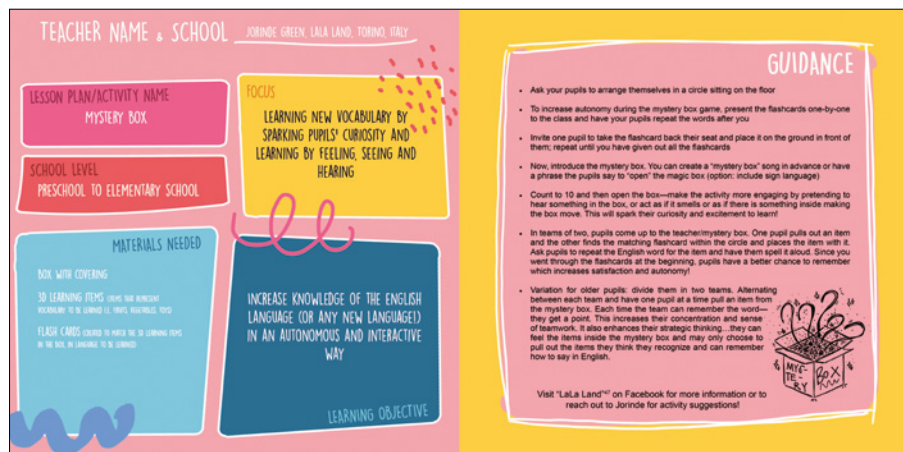


Figure 5: An example of an activity from the co-created *Activities* chapter in *Follow Your Heart: The School for Multipotentialites*. Illustrated by *Valentina Russo*.

VIII. Conclusions

The Follow Your Heart project outcomes have so far laid the foundations for the continuous development of a co-created approach to education, integrating partnerships between researchers, teachers and children from different communities and cultural backgrounds. By sharing our project purpose with educators and researchers, we have found that a co-created approach in all steps of the project, from the development of the book to its implementation and the consequent future applications and adaptation of the suggested activities, extends the understanding of everyone involved. Taking a co-creational, participatory approach to education that fosters emotional intelligence can instil relational thinking from an early age and prepare future generations with the skills and emotions to feel responsible and care for other living and non-living beings. With increasing environmental degradation and the need to find alternative solutions to current systems of climate governance, we believe that a greater focus on relational thinking in both the educational sphere and environmental decision-making spaces will lead to more sustainable, ethical, and nature-centred regulatory approaches. An awareness of the relational connectivity between oneself and all elements of the world around them, starting from a co-created educational model that teaches children to value being accountable for their own learning and development, teaches an ethics of care and responsibility that becomes ingrained in thought processes and actions. Thus, children who grow up in an environment that is participatory, co-created and supports their multiple talents and emotions, are more likely to become more self-aware and inclusive citizens who always take into consideration the voices around them. A child's develop-

ment, as argued by *Urie Bronfenbrenner*, should be viewed as an ecology of complex relationships which include anything from the self and the immediate surroundings (i. e., family and school) to the wider social and ecological contexts like cultural values, laws, and physical environment.³⁰ *Bronfenbrenner's* 'Ecological Systems Theory' aligns with and supports our stance that co-created and participatory approaches in education that foster relationships in every aspects of a child's life are important and beneficial for both the development of a child *and* the future of our Planet. Pupils who build and maintain such relationships and adapt a relational thinking mentality can become ambassadors for sustainable ecosystem action and stewards of the Planet. Applying the co-creation of knowledge and curriculum design offers exciting possibilities in aiding deep engagement, but it is equally important to highlight some of its limitations and propose possible strategies to overcome them:

- Dealing with expectations and time. Time is needed to address unobtainable targets, as the process of change must be one of negotiation. To tackle the problem of time, it is recommended to balance expectations with reality. On the one side, it is important to remember that any co-created approach requires more time and energy than any individual endeavour,³¹ on the other side it is recommended to develop a common understanding, awareness, and assessment of time management.
- Dealing with the possibility that some pupils' wishes and suggestions may be silenced by the voices of stronger, more vocal students, or some students' feelings may be hurt by a belief that an idea was rejected without due consideration.³² The strategy is to develop an ethics of reciprocity by developing awareness through dialogue with all pupils involved, generating ways of discussing and addressing inequities and constructing more equitable classroom approaches, in general.³³
- Risk of the dominance of a certain approach (Western) over a local one. One strategy is to develop educational materials with the help of non-Western educators, validating and assessing each phase of the co-creation; working in different languages and working back-to-back with researchers and experts in the area where the approach is applied.

30 *Bronfenbrenner*, Toward an Experimental Ecology of Human Development. *The American psychologist*, 32(7), 1977, p. 513–531.

31 See Chapter V.

32 *Cook-Sather*, Respecting voices: How the co-creation of teaching and learning can support academic staff, underrepresented students, and equitable practices. *Higher Education*, 2020, p. 885–901.

33 *Ibid* 32.

It is expected that the next phase of this project will see further advancements in the understanding of knowledge and curriculum co-creation as a tool for teacher and student engagement. It is also expected that some of the caveats presented here will be addressed in its subsequent delivery. Meanwhile, these findings suggest that this method can improve teachers' and learners' engagement and satisfaction. The academics learned as much as the teachers in the process of working together in subject co-creation, and we consider that we have found a powerful tool to engage diverse cohorts of teachers, learners and experts in the field of emotional and ecological education. Our primary outcome is that co-creation goes hand-in-hand with the development of an ecology of participation, where the individual, the community and the entire planet are part of the teaching-learning process.

Part II: Co-Production as an Innovative Tool in Decision-Making

CHAPTER V

Co-Creation of Knowledge for the Governance of the Commons

Literature Review and a Case Study on 'Community Conversations', a Wiltshire Council's Project Initiative

Margherita Paola Poto / Juliana Hayden-Nygren / Adele Owens / Andrew Morrison / Kate Blackburn¹

I. Introduction

Despite calls for conceptual frameworks for the co-production of knowledge practices, there are no systematic reviews that connect and derive lessons from knowledge co-production scholarship and case studies. A systematic review of the literature helps develop answers to complex systemic challenges such as the ones posed by sustainability. To provide a knowledge base on the process, application and impacts of co-production practices, and contribute to the catalog of case studies, literature reviews, and co-production conceptual frameworks,² this book chapter analyzes the theory and practice of knowledge co-production in the context of the governance of commons. The definition of commons will be provided later in the text, for now, we anticipate the definition provided by *Margaret Ledwith* and *Jane Springett*: 'By commons we mean not just the common land enclosed against the wishes of local people [...] we mean a wider concept [...], a sense of collective ownership of outcomes, of knowledge, of action.'³

- 1 *Poto* wrote sections I, II, V, VIII, IX, to the editing of the work and the elaboration of the questionnaire; *Hayden* contributed to sections III, IV, VIII, to the editing and elaboration of the questionnaire; *Owens* contributed to sections V, VI and VII and to the design of the infographics; *Morrison* provided answers during the semi-structured interview round that enriched section V, VI, and VII; *Blackburn* provided insights and supervised the interview round. The research was conducted in the months of October and November 2022, during *Poto's* research visit at the University of Bath and University of Bristol and was funded by the Faculty of Law, UiT The Arctic University of Norway.
- 2 *Zurba, Petriello, Madge, McCarney, Bishop, McBeth, & Bailey*, Learning from knowledge co-production research and practice in the twenty-first century: global lessons and what they mean for collaborative research in Nunatsiavut, *Sustainability Science* 2022, p. 449–467.
- 3 *Ledwith, & Springett*, *Participatory Practice. Community-based Action for Transformative Change*, 2nd edn. 2022, Bristol, p. 25.

To achieve the aim of connecting theory and practice, the study addresses three research questions: 1) How does the research conducted on knowledge co-production in the context of the governance of the commons inform the understanding of knowledge co-production as a practice to solve complex problems? 2) Is there a relationship between theory and practice in this field of knowledge co-production? 3) What are the implications of these findings for the design and implementation of a co-production process applicable to climate change governance? To answer these research questions, we conducted a literature review on knowledge co-production in the context of the governance of the commons. We used both deductive and inductive reasoning in order to identify the origins and main structure of the process of co-production of knowledge, then compare its potential application to the case study. The literature review revealed that knowledge co-production studies converge on the foundational principles in the development of co-production practices: 1. a polycentric or multilevel system of governance; 2. the need to govern common goods, whether organized within the human or natural systems; 3. the development of a multi-step process carrying out co-production practices. The literature review helped us build a framework for analysing the Wiltshire Community case study. Based on the principles elaborated from the literature review, we developed a semi-structured interview and engaged in conversations with the Wiltshire Council Transformation Team (WTT), in particular with *Prof. Kate Blackburn*, Director of Public Health, and *Adele Owens* and *Andrew Morrison*, Systems Thinking Practitioners. The case study revealed the multiform ways in which knowledge co-production approaches are developed by the co-production team. The key aspects from the case study were highlighted as critical to the successful implementation of inclusive decision-making processes: trust-building, participatory rounds, and establishing a community of practice. In concluding the case study analysis, we acknowledged the existence of a dyscrasia between the studies conducted on the subject matter and our findings: the process of co-production experienced by the WTT appears to be less structured than expected and is largely focused on the need to develop a solid foundation of trust and connectivity. The core of the experience gained with the WTT could be summed up as this: to develop a sound and effective practice of co-creation, it is necessary to build consensus on what *Ledwith* and *Springett* call ‘the ground rules’⁴ As confirmed by the findings from our case study, when the process is truly participatory, in the sense that there is parity in decision-making, the ground rules comprise agreed-upon rules and principles. As *Ledwith* and *Springett* explain, when the rules are embedded in the values of those who shape them ‘they act as a social bond between people.’⁵

4 *Ledwith, & Springett*, *Participatory Practice. Community-based Action for Transformative Change*, 2nd edn. 2022, Bristol, p. 21.

5 *Ledwith, & Springett*, *Participatory Practice. Community-based Action for Transformative Change*, 2nd edn. 2022, Bristol, p. 21.

Ultimately, this means that ‘the principles of participatory practice form the basis of the most important value of all: we are brained-wired to love, just as we are brained-wired to collaborate.’⁶ Our case study explores how effective collaboration unfolds.

In the sections that follow, we will retrace the steps of the findings from the literature review and the case study on the Wiltshire Community. Conclusions will discuss the lessons learned for co-production practices relevant to the climate governance discourse.

II. Findings from systematic literature review: the importance to develop co-production within the polycentric or multilevel governance of the commons

Introduced as a participatory practice in the institutional arrangements of the governance of the commons,⁷ the concept of co-production of knowledge has developed over the past five decades thanks to the research conducted by *Elinor Ostrom* and her colleagues from Indiana University.⁸ In the definition of commons, *Elinor Ostrom* comprises ‘[the] natural resource systems used by multiple individuals’ generating ‘finite quantities of resource units’ and ‘where the use of one person subtracts the resource units available to others.’⁹ *Ostrom’s* key observation, which led to the development of the co-production of knowledge, is that most common-pool resources, which include natural and human-made systems, are sufficiently large so that multiple actors can simultaneously use the resource system.¹⁰ For this reason, efforts to exclude potential benefits are costly and therefore it is more efficient to develop decentralized and bottom-up governance of the commons.¹¹ Following this logic, commons and their governance represent an alternative to the dominant role of the market in the private sector and of the state in the public sector.¹² Thus, the governance of the commons and the practice of co-production of knowledge among actors reflects the progressive change in the public

6 *Ledwith, & Springett*, Participatory Practice. Community-based Action for Transformative Change, 2nd edn. 2022, Bristol, p.21.

7 *Fugini, Bracci, & Sicilia* (Eds.), Co-production in the public sector: Experiences and challenges, 2006, Cham.

8 *Ostrom, Parks, Whitaker, & Percy*, The Public Service Production Process: A Framework for Analyzing Police Services, *Policy Studies Journal* 1978, p. 381–389; *Alford*, The multiple facets of co-production: Building on the work of Elinor Ostrom, *Public Management Review* 2014, p. 299–316.

9 *Ostrom*, Reformulating the commons, *Ambiente & sociedade* 2002, p. 5–25.

10 *Ostrom*, Reformulating the commons, *Ambiente & sociedade* 2002, p. 5.

11 *Ostrom*, Reformulating the commons, *Ambiente & sociedade* 2002, p. 5.

12 *Brando, Boonen, Cogolati, Hagen, Vanstappen, & Wouters*, Governing as commons or as global public goods: Two tales of power, *International Journal of the Commons* 2019, p. 553–577.

administration dynamics,¹³ from the old top-down model to the privatization of the public administration, to an increasingly more complex system of inter-organizational relationships and polycentric¹⁴ or multi-level¹⁵ policy and decision-making processes.

In essence, polycentric governance is the term often used to define an organizational structure wherein multiple independent actors work together while maintaining a degree of autonomy in order to create and enforce rules and regulations.¹⁶ The relationships between all independent actors operate under a general set of rules. A polycentric governance system is based on a simple proposition: the governance of complex, rapidly changing societies requires multi-level, multisectoral, multi-disciplinary approaches to public problems.¹⁷ As such, this theoretical framework and governance model adheres to the principle that a plurality of ideas is critical for establishing equitable public management.¹⁸ In such a decentralized, collaborative model of multi-level governance, citizens are not merely recipients of services but rather are invited to act as co-producers at the operational stage of the service production process, strategy, and design stages.¹⁹ The focus on citizen contribution to each step of the service production and delivery process thus results in a participatory governance model in which all those involved learn the mechanisms to work in tandem on a public problem.

Three reasons account for the current importance given to the concept of participatory, multi-level governance and thus the act of co-production itself.²⁰ One reason is the increase in demand for complex services for wicked problems i. e. sustainability,

- 13 Stephenson, Twenty years of multi-level governance: 'Where does it come from? What is it? Where is it going?', *Journal of European public policy* 2013, p. 817–837.
- 14 Stephenson, Twenty years of multi-level governance: 'Where does it come from? What is it? Where is it going?', *Journal of European public policy*, 2013, p. 820.
- 15 Cole, 'Advantages of a polycentric approach to climate change policy', *Nature Climate Change* 2015, p. 1145; Newig & Fritsch, 'Environmental governance: participatory, multi-level – and effective?' *Environmental Policy and Governance* 2009, p. 197.
- 16 Ostrom, Common-pool resources and institutions: Toward a revised theory, in: Gardner, & Rauser (Eds.) *Handbook of agricultural economics* 2002, p. 1315–1339.
- 17 Ostrom, A long polycentric journey, *Annual review of political science* 2010, p. 1–23; Stephan, Marshall, & McGinnis, An introduction to polycentricity and governance, in: Thiel, Blomquist, & Garrick (Eds.), *Governing Complexity: Analyzing and Applying Polycentricity*, 2019, p. 21–44.
- 18 Mendenhall, The Three Ps of Liberty: Pragmatism, Pluralism, and Polycentricity, 2020.
- 19 Osborne, & Strokosch, It takes Two to Tango? Understanding the Co-production of Public Services by Integrating the Services Management and Public Administration Perspectives, *British Journal of Management* 2013, p. 31–47.
- 20 Loeffler, & Bovaird, From participation to co-production: widening and deepening the contributions of citizens to public services and outcomes, in: Ongaro, Sandra (Ed.), *The Palgrave handbook of public administration and management in Europe*, 2018, London, p. 403–423.

social equality.²¹ Second, co-production helps to address inequalities and provide more responsive services towards the citizens. Third, there is the challenging need of squeezing budgets in times of austerity in public finance and the related need of cutting costs.²²

Multi-level governance (local, provincial, national, regional, and international) can be a tool to address these three needs, particularly within the contexts of social mobility, environmental law and sustainability matters. The cooperation of different levels of governance is necessary to address different scales of failure, whether it is a market, social, or environmental challenge.²³ The multi-functionality of this governance model allows for integrating the special interests of different sectors (i. e. administrative, fiscal, and urban planning) with the provisions of public goods (law enforcement, defense, and the rule of law).²⁴ Thus, through the analysis of case studies that adopt a polycentric model of governance, we can understand and delineate how autonomous actors in de-centralized, often competitive, environments can effectively cooperate.²⁵

III. Preparing for the case study: analysing the process of co-production

The practices of knowledge co-production in the governance of the commons develop in multiple ways, subsequently it can be challenging to define a common path for all of the routes of co-production of knowledge.²⁶ In preparation for conversations developed

- 21 *Battistoni, Giraldo Nohra, Barbero*, A systemic design method to approach future complex scenarios and research towards sustainability: A holistic diagnosis tool, *Sustainability* 2019, p. 4458; *Lehtonen, Salonen, & Cantell*, Climate change education: A new approach for a world of wicked problems, in: *Cook* (Ed.), *Sustainability, human well-being, and the future of education*, 2019, London, p. 339–374; *Gray, & Gill*, Tackling ‘Wicked’ problems holistically with institutionalist policy making in: *Natarajan, Elsner, & Fullwiler*, *Institutional analysis and praxis. The Social Fabric Matrix Approach*, 2009, New York, p. 87–102.
- 22 *Bracci, Fugini, & Sicilia*, Co-production of public services: meaning and motivations, in: *Fugini, Bracci, & Sicilia*, *Co-production in the Public Sector*, 2016, Cham, p. 1–11.
- 23 *Brix, Krogstrup, & Mortensen*, Evaluating the outcomes of co-production in local government, *Local Government Studies* 2020, p. 169–185.
- 24 *Cosens, Ruhl, Soininen, Gunderson, Belinskij, Blenckner, & Similä*, Governing complexity: Integrating science, governance, and law to manage accelerating change in the globalized commons, *Proceedings of the National Academy of Sciences* 2021, e2102798118.
- 25 As highlighted in Chapter I, there is lack of systematic mapping of co-production of knowledge practices and consequent reflections on their relevance in the law domain and environmental law and governance as per *Hegger, & Dieperink*, *Joint knowledge production for climate change adaptation*, *Ecology and Society* 2015; *Harris, & Lyon*, *Transdisciplinary environmental research: a review of approaches to knowledge co-production*, *Nexus network think piece series*, 2014, paper 2.
- 26 *Steen, Brandsen, & Verschuere*, The dark side of co-creation and co-production: seven evil, in *Brandsen, Steen & Verschuere* (Ed.), *Co-production and co-creation*, 2018, Oxfordshire, p. 284–293.

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with the members of the Wiltshire Community, we formulated the steps of an ideal collaborative process. The steps are based on the 2021 model of co-production in local government established by Northumbria University public health professor *Peter van der Graaf* and colleagues.²⁷ *Van der Graaf et al.*'s model differentiates between the stages of establishing the process, codification, capacity, and outcomes involved in co-production. Using these categories, we defined the different phases in co-production, and developed a questionnaire for our interlocutors, to assess whether these phases have been effectively followed in their co-production practices to date.

- Phase 1: Establishing the collaborative process (3 parts)

Identify the problem/challenges

All participants iterate their perception of the problem and any challenges they foresee in addressing the problem.

Group discussion rounds

Participants take part in a discussion forum, whether that is a round-table or focus group to map how their individual roles and responsibilities can support each other in finding possible solutions.

Developing a system map

The team will draft a system map of all possible interconnections, relationships, feedback loops, actors, and potential barriers pertaining to the matter at hand.

- Phase 2: Codifying the knowledge (2 parts)

Blending perspectives

Following the creation of the system map in Phase 1, the participants will analyse the map's insights from their unique perspective such as their lived experience, academic background, and/or sector, in order to share multiple strategic approaches to the problem.

Developing a common vocabulary

The team will select and create terminology and definitions based on the strategies presented in Part A to combine perspectives and approaches in the problem-solving process. A common vocabulary is a step towards consensus building.

27 *van der Graaf, Cheetham, Redgate, Humble, & Adamson, Co-production in local government: process, codification and capacity building of new knowledge in collective reflection spaces. Workshops findings from a UK mixed methods study, Health research policy and systems 2021, p. 1–13.*

– Phase 3: Building Capacity (2 parts)

Creating a project work package (WP)

Participants will establish the timeline, resources, activities, target audiences, and predicted short-term, medium-term, and long-term impacts of each activity.

Knowledge exchange and transfer

To effectively execute the WP, all participants will discuss which skills and/or knowledge they can share, need to learn, and want to develop in order to best move forward.

– Phase 4: Designing feasible outcomes (2 parts)

Preparing for sustainability

Assessing all project materials co-produced thus far, the participants will hold round table discussions on foreseeable actions and required measures to sustain and grow the project following the completion of the WP activities and duties.

Evaluating project implementation

The group will design realistic evaluation and assessment measures for the predicted project outcomes. The evaluation and assessment should be conducted in two parts. First, requiring an independent external review board and second, a final focus group where participants can review the project's strengths and weaknesses as per the external review's findings. The aim is to translate positive results into policy actions and/or recommendations on new forms of governance.

These recommended steps for the collaborative process are intended to delineate and increase the scope of participation in local governance to help establish public value. For example, the creation of a system map has been included with a view to assisting decision-makers to develop a thorough understanding of exactly why and how insights from public, private, and voluntary sectors are critical for predictive modelling in their communities.²⁸ The suggested co-production phases may allow for greater exploration of a local community's relationships between sectors with a view to exploring alternative pathways to addressing the matter in question. Additionally, establishing a co-production process allows for an interactive inquiry into the current best available governance practices in multiple sectors and how these practices work together to influence public administration at large.²⁹

28 Hillier, Why social work needs mapping, *Journal of social work education*, 2007, p. 205–222.

29 Smith, Budworth, Grindey, Hague, Hamer, Kislov, & et al., Co-production practice and future research priorities in United Kingdom-funded applied health research: a scoping review, *Health research policy and systems* 2022, p. 1–43.

Ultimately, in a diverse, pluralist society there are competing ideals regarding the institutional governance of commons. Increasing demands for the effectiveness of public administrations require in equal measure greater citizen participation and democratic accountability.³⁰ While co-production frameworks are by no means a panacea to flawed or weak governance at any level, outlining the specific phases of co-production can support a transparent accountability process for all participants and generate more opportunities for public engagement.³¹

IV. Why Co-Production in the United Kingdom?

In order to understand the context of and unique circumstances pertaining to the case study, we examined the roots of the increasing popularity of co-production practices in the UK.³² A literature review on the status of public administration practices highlighted that while co-production is utilized globally, whether the participatory mechanism is directly referred to as such, policymakers and civil society organizations in the UK have specifically recognized and championed the emergence of an innovative co-production sector.³³ The practice of co-production in the UK is forging new discussions on localism and mutualism (i.e. a symbiotic relationship between separate organizations) within the provision of public services.³⁴ In order to understand co-production's growing traction in the UK, it is important to take note of its State origins. Since 1997, UK governance has taken on a politically centrist model referred to as the 'third way'.³⁵ This approach became synonymous with the New Labour government of former Prime Minister *Tony Blair* and his predecessor, *Gordon Brown*.³⁶ The New Labour government largely defined British politics from the mid-1990s until 2010.³⁷ Following decades of

30 Porter, Co-production and network structures in public education, in: *Pestoff, Brandsen, & Verschuere* (Eds.), *New public governance, the third sector, and co-production*, 2013, Oxfordshire, p. 163–186.

31 Schommer, Rocha, Spaniol, Dahmer, & Sousa, Accountability and co-production of information and control: social observatories and their relationship with government agencies, *Revista de Administração Pública* 2015, p. 1375–1400.

32 Loeffler, & Bovaird, Co-commissioning of public services and outcomes in the UK: Bringing co-production into the strategic commissioning cycle, *Public Money & Management* 2019, p. 241–252.

33 Osborne, Radnor, & Strokosch, Co-production and the co-creation of value in public services: a suitable case for treatment?, *Public management review* 2016, p. 639–653.

34 Sturzaker, & Nurse, Rescaling urban governance: Planning, localism and institutional change, 2008, Bristol; Voorberg, Bekkers, & Tummers, Embarking on the social innovation journey: a systematic review regarding the potential of co-creation with citizens, 2013.

35 Giddens, *The third way: The renewal of social democracy*, 2013, Hoboken; *Ferguson*, *Neoliberalism, the third way and social work: the UK experience*, *Social Work and Society* 2004, p. 1–92; *Rose*, *Community, citizenship, and the third way*, *American behavioral scientist* 2000, p. 1395–1411.

36 *Needham*, *Realising the potential of co-production: Negotiating improvements in public services*, *Social policy and society* 2008, p. 221–231.

37 *Boyle, & Harris*, *The challenge of co-production*, London: new economics foundation 2009, p. 18.

political division throughout the country, the third way has been intended to bridge societal cleavages.³⁸ This ideologically centrist approach to governance requires higher levels of investment within public services in order to rapidly improve the provision of the targeted services within a short period of time.³⁹ As per the third way, emphasis is placed on the development of skills, capacities, and productive investments as means to increase equality across society rather than looking towards income redistribution.⁴⁰ In fact, a commitment to balanced budgets while aiming to provide equal opportunity for citizens is at the core of the third way's ethos.⁴¹ Proponents of the approach argue for the promotion of public-private partnerships, investment in human development, safeguarding of social capital (including the environment) and improving and thus maintaining the labour supply. Most critically, the third way is a decentralized governance model, which theoretically entails the decentralization of all governance, down to the local level.⁴² In theory, decentralisation can promote the practice of co-production, in turn producing reflective and more equitable policies. However, during the New Labour era and to date, structural inequality persists and demand for UK public services, such as the NHS (National Health System), has continued to rise.⁴³ According to critics, the problem was that the third-way approach failed to address the root cause of the growing public demand, a wide-ranging yet notoriously rigid welfare system resulting in poor public service delivery to the communities.⁴⁴ The organizational structure of public services, such as education and healthcare, offers citizens limited choice and/or method of delivery between service providers (institutions at different levels of government).⁴⁵

Furthermore, limited choice and delivery methods of public service were accompanied by the government's laser focus on the faster delivery of services.⁴⁶ Expedient public services are a good thing for the service user and society at large. However, the welfare system of New Labour focused on efficiency, and in doing so, may have neglected public service organizations' option to explore creative, adaptable flexible service delivery provision and methods. Thus, shortly prior to 2010, co-production in civil organizations and the public sector itself began to surface as an alternative to the *status quo* of pub-

38 Huo, *Third way reforms: Social democracy after the golden age*, 2009, Cambridge.

39 Holmes, *Third way and new liberalism: Responding to globalisation at the domestic/international frontier*, London School of Economics and Political Science, United Kingdom, 2005.

40 Giddens, *The third way and its critics*, 2013, Hoboken.

41 Arestis, & Sawyer, 'The economic analysis underlying the 'third way'', *New Political Economy* 2001, p. 255–278.

42 Rose, 'Community, citizenship, and the third way', *American behavioral scientist* 2000, p. 1395–1411.

43 Newman, 'Modernizing the state: a new style of governance?', in: Lewis, & Surender (Eds.), *Welfare state change: Towards a third way*, 2004, p. 69–88.

44 Giddens, *The third way and its critics*, 2013, p.7 ff.

45 Giddens, *The third way and its critics*, 2013, p.7 ff.

46 Giddens, *The third way and its critics*, 2013, p.13.

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lic management.⁴⁷ By including all autonomous stakeholders in the creation, planning stages, and delivery of public service, it is possible to strengthen the services provided.

In 2006, the London Borough of Camden was the first borough in the UK to formally adopt a co-productive service delivery method.⁴⁸ An experiment was undertaken by the borough's council, commissioners, local providers, and service users (i. e. residents) to re-imagine their commissioning of public services.⁴⁹ Previously, the borough had merely counted the number of service users. Yet as a collaborative team, the participants sought to create a model for analysing public service use, in particular its social and environmental outcomes.⁵⁰ This model was successfully applied to the borough's mental health daycare service and required competitors bidding for the contracts to extensively detail their intended training, physiological well-being, community participation, and social networking strategies.

Critical to Camden's co-production experiment was the team's self-efficacy.⁵¹ To effectively enact a co-produced solution, the organization at hand, in this case, the borough, must have had the capacity to solve its own matters given the institutional resources available.⁵² Camden Borough demonstrated self-efficacy by seeking out and attaining the necessary inputs and skillsets within their own community to change how the Borough assessed public service use.⁵³ The success of any initiative that adopts a co-production approach, is largely dependent on such self-efficacy and subsequent adaptability. Participants in a co-production project must accept the possibility of structural change, even pivoting duties within their respective oversights so as to solve a collective issue.⁵⁴ When the public takes an active role as a governance partner, the roles and duties of commissioners and/or other council members may need to shift to accommodate the public's needs. This chapter argues that local governments in the UK are uniquely primed to adopt co-production to best meet their participants' needs through the example of the case study. It will analyse the following case study of the Wiltshire Com-

47 Boyle, Slay, & Stephens, *Public services inside out. Putting co-production into practice*, 2010, London.

48 Boyle, & Harris, *The challenge of co-production*, new economics foundation, 2009, p. 18, 56.

49 Boyle, Coote, Sherwood, & Slay, *Right Here Right Now*, 2010, London.

50 Boyle, Slay, & Stephens, *Public services inside out*, 2010, London, p. 4.

51 Boyle, Slay, & Stephens, *Public services inside out*, 2010, London, p. 5.

52 Towell, *Camden and Co-production*, in: citizen-network.org/library/camden-and-coproduction.html, last access November 14, 2022.

53 Towell, *Camden and Co-production*, in: citizen-network.org/library/camden-and-coproduction.html, last access November 14, 2022.

54 Josefsson, Nordin, & Kjellström, *Trust and Self-Efficacy as Enablers and Products of Co-Production in Health and Welfare Services*, in: Thomassen, & Jensen (Eds.), *Processual Perspectives on the Co-Production Turn in Public Sector Organizations*, 2020, p. 42–58.

munity Initiative to highlight the ability of local governments in the UK to co-produce knowledge and community solutions.

V. Description of the project 'Community Conversations' within the Wiltshire Community: building trust in times of crisis

The knowledge co-production project 'Community Conversations' has been given priority status by the Wiltshire Council and the council's partners. The Council members and partners are engaged with and committed to working alongside all participants. Within the Wiltshire Council Team, *Adele Owens* and *Andrew Morrison* work as Systems Thinking Practitioners, coordinated by Prof. *Kate Blackburn*, Director of Public Health. The council has conceptualized the project more so as a movement in order to focus on the long-term sustainability of the work. The Council stressed that if Wiltshire organisations want to tackle growing social inequality and encourage social mobility, the duration of projects must be long-term. Critically, the strategy must also address health and social concerns not just within the targeted community areas of Studley Green, Trowbridge, and Bemerton Heath, Salisbury, but within all areas of Wiltshire to bridge the increasing gap between those who have social and economic opportunities and those who do not currently have a clear path towards social mobility.



Figure 1: Logo of the project designed by *Adele Owens*

The project focuses on involving marginalized sectors of the population within Wiltshire in local governance. Its origins stem from a common understanding at the Council level regarding the importance of trust-building through community engagement opportunities. Tracing back the origins of the movement, *Blackburn* argues that the process of community trust-building was ultimately strengthened during the global health emergency of Covid-19. Throughout the pandemic, there was an urgent need for the Wiltshire Council Public Health Team, NHS colleagues, and advocacy groups working with vulnerable, marginalized groups including migrants, to prevent these groups from being left behind in the fight against Covid-19. Similarly to the work conducted in other

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communities,⁵⁵ the Wiltshire Council and healthcare partners launched an information campaign tailored towards the growing numbers of residents who may not be able to access information or services through the standard manner in which they are routinely provided. For example, Wiltshire has population living on boats. Thus, in the context of the pandemic, it was especially critical to support these community members to register with a general practitioner, improving their access to vital healthcare services, as well as enhancing public confidence in the effectiveness and safety of the vaccines. To date, it is estimated that there are many households living permanently on boats within the Wiltshire Community, with many not having a fixed mooring location.⁵⁶

It had been reported by some community members who live on boats that it can be difficult to register with a GP practice as a result of not having a fixed address. Consequently, the public health team have recognized that information needs to be shared with NHS colleagues to find different ways and mechanisms to ensure equity of access for all residents to primary care services.

From the team's demonstration of concern and action, reciprocal trust was built between the community and Council members by creating a solid foundation for cooperation. *Blackburn's* testimony highlights how important it is to refrain from using opaque language, what the Wiltshire team defines as the 'co-production jargon.' When decision-makers and leadership use co-production jargon, the intent of the project will not be readily understood by the targeted participating population. Further, it was found that increasing all participants' sense of self-confidence, self-esteem, self-efficacy, health and well-being fostered higher levels of overall collaboration and thus increased satisfaction with and awareness of public services.

55 See the initiative undertaken by the Oxford City Council: www.oxford.gov.uk/news/article/1232/new_campaign_to_support_boatdwellers_to_access_healthcare_in_oxford, last access November 2022.

56 On the practice of involving vulnerable groups in health care information campaigns see the study by *Bentivegna, Di Meo, Carriero, Capriotti, Barbieri, Martelletti*, Access to COVID-19 Vaccination during the Pandemic in the Informal Settlements of Rome, *International Journal of Environmental Research and Public Health* 2022, p. 719.

VI. 'Community Conversations'



Figure 2: Infographic on Community Conversations by Adele Owens

As part of Wiltshire Council's commitment to improving social mobility and tackling inequalities, the leader of Wiltshire Council, senior officials from a range of public sector organisations and numerous frontline workers took part in community visits to Studley Green, Trowbridge, Bemerton Heath, Salisbury. Conversations were had with the residents of these communities to gain an understanding of their priorities and concerns. These community areas were chosen because they fall within the highest areas of deprivation within Wiltshire. These communities have documented a shorter average life span than those within the least deprived areas of Wiltshire.

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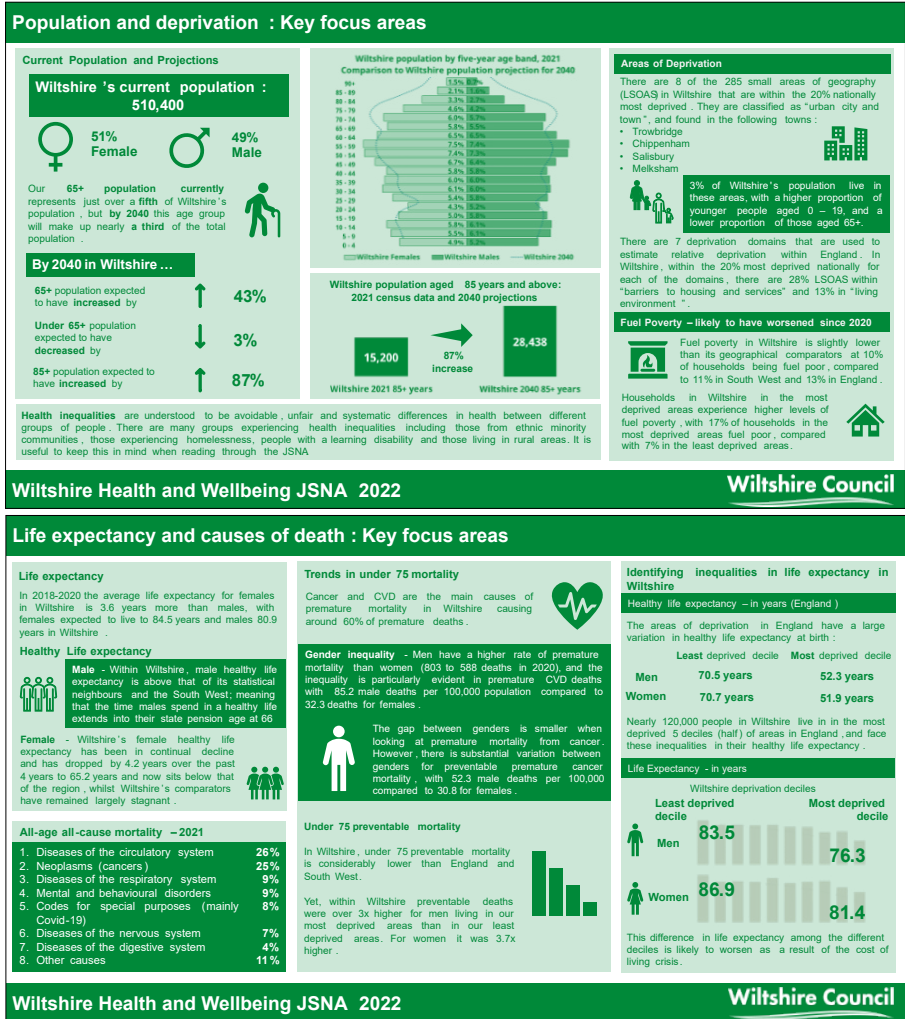


Figure 3 and Figure 4: Wiltshire Health and Wellbeing Joint Strategic Needs Assessment (JSNA) 2022. The first slide is for population and deprivation, and the second one refers to Life expectancy and causes of death.

The Council and project participants' initial visits led to further conversations with residents, resulting in a commitment to listen to the communities and secure the help of additional sectors to work alongside them. The project goal is to use innovative ideas to create community capacity from the ground up, enabling residents to reclaim control of their lives with dignity, purpose, and hope. There is consensus among participants and community members at large about the need to work together. An important point that

arose in the discussion was that in order to effectuate change, community challenges have to be perceived differently by all parties. Community problems have often been depicted as individual issues to be 'fixed' by outside agencies. However, the discussions revealed that the communities want to participate in the interventions to increase levels of satisfaction, awareness, and overall improvement.

The project 'Community Conversations' champions the capacities and abilities of local residents and community organizations. The conversations with residents from Studley Green, Trowbridge, and Bemerton Heath, Salisbury have reinforced the fact that the communities themselves know their needs much better than services and professionals. *Owens* elaborated that the best approach she's witnessed when working with the vulnerable communities throughout the initiative has been, 'to focus on what's strong, not what's wrong.' This focus on the positive aspects within a community can be referred to as an 'asset-based' approach, an asset-based approach further recognizes that community members themselves are a team's strongest asset and should lead dialogue and problem solving. The motivation behind the adoption of the co-production method in the Community Conversations project is to enable, equip, and empower people to create change for themselves.

The first stage of Community Conversations is to listen to residents, understand their lived experiences within these two areas, and what they care so deeply about to act upon.

The Community Conversations approach utilises systems thinking methodology, design thinking, and ABCD-asset-based community development, and will include the following;

- Building relationships: and establishing trust with key community leaders and residents
- Listening to residents: getting to the root causes, understanding what they care deeply about to act upon
- Building social capital and capacity for change
- Co-production: ideas to connect people and services are created with and by communities
- Learning about and understanding communities: being brave and flexible – trying different approaches, understanding why something is or isn't working and not giving up. Learning and sharing widely
- Ongoing evidence and insight: to help improve project delivery and inform future service delivery across the partnership

The groups that have been identified as participants for involvement include residents (advocates/community leaders) and public sectors including Education, Council/NHS/Police, private sector businesses, and the Voluntary Sector.



Figure 5: Infographics realised by Adele Owens

VII. What is happening now?

Two members of the Wiltshire Council Transformation Team are currently spending time within the two community areas to undertake initial scoping activities. The purpose of this observation and assessment period is to:

- Identify assets – identify and build relationships with the key community leaders/connectors. Understand which residents can be identified as community champions
- Develop support for activities – get the leaders/connectors buy-in to support the listening activities/events and influence what the activities should look like
- Understand the most appropriate engagement approaches and methods for specific groups of residents – community listening events, door-to-door, group dis-

cussions, school engagement, etc. Understand the best engagement approach(es) for the groups the community leaders work with/support

- Establish key principles/values – listening, building relationships, nurturing community agency and capacity for change
- Establish a next stage – define practical approaches with community leaders to begin the engagement process

VIII. The co-production journey starts with one single step: trust

When asked which steps the team follows in applying co-production practices, the team unanimously answered that the process is slow and might appear unstructured to outside observers. The main imperative is to build trust and credibility, increase proximity and cultivate relationships, rather than adhere to a fixed agenda with a protocol to closely follow. The team learned that improving outcomes in deprived areas requires developing a shared sense of belonging, pride of place and people, and optimism among local community members and team members. Thus, the question of how to increase a community's resilience and leadership must be touched upon within co-production practices. Further, applying co-production practices entails nurturing community members so that they can fulfil their potential in the immediate and long-term, however, the pace of this progress is ultimately set by the participants themselves. The team acknowledged that the term co-production can be difficult to define and pin down as it reflects a wide range of disciplines from which it emerges and can be applied in numerous ways. The approach followed by the Wiltshire team is that co-production practices are principles-driven rather than taking the form of a fixed set of tools or techniques. The team's experiences to date have shown that when co-production takes shape as a general principle, it requires emphasis placed on valuing and nurturing relationships and making an effort to redress power unbalances and inequalities. Thus, as a general principle, their co-production process acknowledges and incorporates the community members' lived experiences. Their approach is geared toward establishing consensus and trust building, and each team member holds responsibility for the co-production process. Establishing ground rules on inclusive, constructive participation at the beginning of the project can help create an environment in which all voices can be heard and treated with respect. These ground rules, developed by the group, help to clearly set out expectations, in terms of the roles, responsibilities and behaviours of all participants.

Moreover, dialogue needs to be built into the governance of the project. Dialogue and consultation should continue throughout the project as emerging plans, ideas, research tools, and knowledge go through various iterations. Finally, it was found that the 'joint

ownership of key decisions' helps differentiate the act of co-producing from that of collaborating. Co-production does not dictate that everyone must be involved in every decision and aspect of a project. Rather, co-production entails that the group, working together, come to a consensus on who should be involved in what project stage, in what capacity should they be involved, and how will they cooperate, thus demarcating the management, governance, and undertaking of all project activities. It is important to note that to achieve joint ownership of key decisions, it is recommended to have an initial meeting where everyone participates so as to create a collective knowledge base.⁵⁷ Finally, the conversation with the Wiltshire Community team unearthed the importance of shifting narratives about a specific deprived area, through communal understanding, situated learning, and shared stories.⁵⁸

IX. Concluding remarks

This chapter has sought to compare theory and practice in the field of knowledge co-production. The aim of this chapter was to draw lessons for the study of such co-production approaches to be utilised in the field of climate and environmental law. The literature review helped us to identify the main pillars of knowledge co-production (co-production as the approach in multilevel governance, co-production as an approach to governing the commons, and co-production as a multi-step process). Based on these foundational pillars, we structured our exploratory study on the approach adopted by the Wiltshire Community. To improve the understanding of the co-production approaches in the field of public administration in the UK, we conducted an in-depth analysis of the socio-political context in which co-production has taken root and developed. As such, based on theory, we explored an analytical framework to better understand how knowledge co-production promotes the much-needed scrutiny of the encounters between traditional forms of governance and knowledge and locally generated forms of self-organization. The limited empirical scope implies that researchers must be prudent in extrapolating our findings to other domains and/or other national contexts. Moreover, the results show that the approach adopted by the co-production team of the Wiltshire Community has not yet resulted in concrete, measurable outcomes. Our selection of the case study was not based on the level of success, but rather on the evidence that a co-production approach had been fully endorsed by the project managers and the local

57 Jensen, Helby Petersen, Jacobsen, Jessen Hansen, & Maroulis, *Co-producing field experiments in public management research: a guide to enhanced research–practice collaboration*, Public Management Review, 2022, p. 1–20.

58 Miller, Volmert, Rochman, & Aassar, *Talking about poverty: Narratives, counter-narratives, and telling effective stories*, 2021, Washington DC; Carter, & Adkins, *Situated learning, communities of practice, and the social construction of knowledge*, *Theory and practice of adult and higher Education*, 2017, p. 113.

authority. The results to date from the selected case study raise the question of the extent to which co-production truly works for the benefit of the community. Although we took self-reported levels of satisfaction into account, a project success measure would have been more telling if we had systematically assessed perceptions of actors outside the project and further investigated the less direct impacts of knowledge co-production, such as evolving awareness of problems and community narrative building.

Nevertheless, we conclude that there are four lessons to be drawn from co-production approaches to the implementation of climate governance in which scientists and societal actors problem-solve together. First, a unique binding formula for the multi-step process of knowledge co-production does not exist, consequently such steps can be created and defined by the participants. Second, the creation of trust between participants should be at the core of a set of ground rules concerning project participation, these rules should be agreed upon by all parties so as to establish a safe and respectful space at the project's offset. Third, in alignment with the existing literature, we found that the participants in the knowledge co-production project may have different expectations, timeframes, and sensitivities. Developing a narrative around a participatory process based on trust and connectivity can foster opportunities for self-empowerment, and team collaboration, and thus increase a project's legitimacy. However, support for this shared project vision must be embraced by decision-makers and program managers as well.⁵⁹ Lastly, expectations and objectives evolve. Changes in the political environment and/or the emergence of new objectives and priorities can instantaneously change the commitment of participants. Consequently, the entire co-production process cannot be conceived as a completely designed at the start of the project but requires constant adaptation, dialogue, and reciprocal understanding to redress the objectives and identify new challenges and needs.

X. Appendix: Questionnaire

Background

1. Can you provide a short description of the Wiltshire Area and the Wiltshire Council?
2. How is the relationship between central and local governments in UK? Does the repartition of competencies have an influence on the co-production of knowledge mechanisms? (i.e. the local authorities are relatively independent

⁵⁹ Along the same lines see *Boon, Hessels, & Horlings*, Knowledge co-production in protective spaces: case studies of two climate adaptation projects, *Regional Environmental Change* 2019, p. 1935–1947.

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of the central administration in decision-making and therefore it is easier to develop co-production practices? Or maybe the opposite happens?)

3. Who are the partners in the process of co-creation in the Wiltshire Community?

History

4. Who initiated the movement?
5. When?
6. Is there any regulatory provision at a national level? A framework act?

The process

7. What is the structure of the organizational body/team in charge of the co-production system?
8. What motivates citizens to participate in a co-creation process?
9. Are there any selection criteria for the involvement of citizens?
10. Given the different demographics and challenges of these two areas, how is the team standardizing the co-creation process so that it can be appraised and replicated in other participatory projects, potentially in other fields? (i. e. environment)
11. What steps do you take or foresee taking to build trust *between* all stakeholders? (i. e. community members in areas suffering from long-term inequity may have a hesitancy to work with, or rally behind their local governments. It would be valuable to deconstruct how trust is being built between all community members by learning specifics such as duration and frequency of conversations, conversation openers, setting the agenda for the conversations, and managing expectations within community conversations.)
12. What steps are you taking so that *all* stakeholders (i. e. any participating community member) feel reassured that they are an actual co-creator in their community's solution, not simply a source of information?
13. A co-production of knowledge conceptual framework. Here below are listed the main steps of a process of co-creation involving indigenous peoples and scientists. Based on the description provided in section 2.3, do you recognize/follow any of these steps? Can you explain whether and where the process you follow differs from this one?

- Problem Definition: Experts from all knowledge systems must be involved when defining issues and problems that serve as the basis for research
- Identify Question: Experts from all knowledge systems must work collaboratively in identifying research questions or areas of intervention to address the problem.
- Develop Methods: for seeking, analysing, and validating the information
- Gather Information: information is collected following protocols and methods agreed upon all participants
- Information Analysis: Information is analysed using
 - methodologies agreed upon by all participants.
- Review Results: all participants are given the opportunity to review the results, control the information, and practice reciprocity

Areas/Matters of co-production

14. In which decision-making areas/subjects is co-production more efficient?
15. Are there any cases where co-production is adopted to solve environmental related issues?

Miscellaneous questions (stemming from our research)

16. We read that this mechanism improves the rule of law, do you have any experience in this sense?
17. We read that the mechanism is in place in times of austerity, to squeeze budgets, do you have any experience in this sense?
18. Do you have any virtuous example where the system worked and improved to solve a stagnant situation?

CHAPTER VI

Climate Change Related Disputes in North Kenya

How Kenya's Alternative Justice Systems Could Utilize Co-Production of Knowledge to Curb Pastoral Violence

Jane Enid Ngunzi Murungi / Joyce Nairesia Lesegi / Margherita Paola Poto / Eva Julia Lohse¹

I. Introduction

The Constitution of Kenya, 2010 at Article 159 (2)(c) formally acknowledges Kenyans' most common and preferred ways of resolving disputes.² Since the promulgation of the 2010 Constitution, courts and tribunals are mandated to promote alternative forms of dispute resolution and Alternative Justice Systems (hereafter: AJS).³ AJS are relevant 'to adapt to human right norms; to reduce case backlogs in court; to re-legitimise the State by bringing government closer to the people; by enhancing the role of the State and Citizens as direct actors for their civic autonomy; and to promote a culture which would include viewing the traditional as rational.'⁴ In August 2020, the judiciary launched the AJS Policy. It is documented in the AJS Framework Policy and AJS Baseline Policy. The AJS Policy recommends that Kenya endorses three of four existing AJS typologies: the Autonomous AJS institutions, Autonomous Third-party AJS institutions and Court-Annexed AJS institutions.⁵ The AJS policy is an outcome of comprehensive research, public⁶ and stakeholder participation, guided by the judiciary-led Taskforce on

1 *Murungi* contributed to the research and the drafting of all sections of the chapter, *Lesegi* contributed with the empirical research, *Poto* and *Lohse* supervised and edited the content of the chapter. The authors are grateful to *Juliana Hayden* for the English proofreading and editing.

2 *Hiil Justice Needs Survey Kenya Report* 55–56. Only 8 % of Kenyans seek help or legal problems from court and 7 % from lawyers.

3 The AJS Policy compares and contrasts the terms Alternative Dispute Desolution (ADR) and Alternative Justice Systems (AJS). The latter refers to the 'plural legal systems which exist in Kenya.' AJS Baseline Policy 6.

4 AJS Framework Policy 4.

5 Alternative Justice Systems Framework Policy.

6 Article 232 (1) d of Constitution requires public participation in policy making. For more on Kenya's legal framework on public participation see *Nizam* and *Muriu*, Basic Requirements for Public Participation Kenya. www.openknowledge.worldbank.org/handle/10986/21664 last access November 2022. License: CC BY 3.0 IGO.

Part II: Co-Production as an Innovative Tool in Decision-Making

Traditional, Informal and Other Mechanisms.⁷ The outcome of the AJS policy could be considered a form of co-produced knowledge. Co-production of knowledge holds to the ‘collaboration of diverse stakeholders, diverse knowledge(s) and value systems.’⁸ As of 2022, the AJS policy is in its second year, and its benefits are yet to be attained. Its weaknesses and limits have also yet to be clearly ascertained. However, as of 2020, Kenya’s Chief Justice appointed a National Steering Committee on the implementation of AJS Policy (hereafter referred to as ‘National AJS Steering Committee’). Its terms of reference include

“capacity building of all actors on human rights framework of AJS to ensure AJS thereto conforms; facilitate training, hold dialogues to reverse social structures that perpetuate oppression; rally actors to support the AJS three typologies; develop tools and knowledge forums to strengthen competence of AJS forums and judiciary staff; work with justice actors to eliminate barriers hindering respect, protect, transform AJS policy.”⁹

Bearing in mind that research shows that most Kenyans prefer dispute resolution through AJS, the work of this National AJS Steering Committee is crucial.

This chapter proposes that the National AJS Steering Committee could strengthen implementation of the AJS policy by considering ways in which AJS typologies could tackle climate change related disputes occurring in northern Kenya, particularly pastoral violence. For the purposes of this chapter, pastoral violence pertains to livestock-raiding, cattle rustling and other cattle-related offences. These include malicious damage to property, assault, murder, manslaughter, corruption such as bribery, falsification of documents, and movement permits for livestock. In Kenya, the penalties for these offences, *inter alia*, range from five years to life imprisonment.¹⁰ Yet, the findings of the Kenya National Human Rights Commission public inquiry suggest that a cattle rustler is unlikely to get arrested or prosecuted.¹¹ Community peace initiatives, such as the Modogashe Declaration, also appear inadequate.¹² These observations notwithstanding, thought leaders across the board realise *inter alia* the important role that civic, traditional and community leaders of regions affected by pastoral violence could play to

7 See the Alternative Justice Systems Framework Policy vii for details the tenure of the AJS taskforce

8 Hakkarainen, Mäkinen-Rostedt, Horcea-Milcu, D’amato, Jämsä, & Soini, Transdisciplinary research in natural resources management: Towards an integrative and transformative use of co-concepts. Sustainable Development, 30(2), 2022, 309–325.

9 Kenya Judiciary letter from the Office of the Chief Justice/President of the Supreme Court dated 9 December 2020 by Hon Chief Justice David Maraga (now retired).

10 Anon The Economist 46; Blomfield The Daily Telegraph 13; Anon Daily Nation 1.

11 Kenya National Commission of Human Rights Mending the Rift 6.

12 Kenya National Human Rights Commission Mending the Rift 8, 95–96.

stem the scourge.¹³ Three justifications support the use of co-production of knowledge in this context. Firstly, many key actors called upon to resolve pastoral violence already have representatives in the National AJS Steering Committee.¹⁴ The National AJS Steering Committee would, in view of its experience, be positively predisposed to consider what the imperatives of a co-production of knowledge process entails. Secondly, the topic of how AJS would address pastoral violence should be of concern to the National AJS Steering Committee. Pastoral violence has the propensity to scuttle traditional, community, and government leadership.¹⁵ All are key factors in the three recommended AJS typologies. As such, the trend of pastoral violence threatens to undermine capacity building efforts regarding the use of the three AJS typologies.¹⁶ Thirdly, quality leadership is required to steer a co-production of knowledge process successfully.¹⁷ Pastoral violence is a complex matter involving a multiplicity of stakeholders from diverse knowledge systems and values. It would be valuable for the National AJS Steering Committee to actively capture, transfer and preserve their institutional knowledge and institutional memory for the cause of ending pastoral violence. The AJS has gained credibility in the national and international communities. However, AJS institutions would not be the sole solution to pastoral violence. Similarly, to their predecessor, the AJS taskforce, they are able to bring together a diversity of views through extensive research and consulting. Their terms of reference currently enable them to mobilize necessary funding to facilitate such activities. The issue of pastoral violence has concerned many, whom it would appear, are working in silos. The National AJS Steering Committee could have meetings with researchers, NGOs, international organisations, civil society organisations (CSOs), community-based organisations (CBOs) and any party which has addressed pastoral violence, in turn breaking down information silos.

Utilizing the co-production process requires further elucidation of its key principles. *Norström et al* have extrapolated and synthesized four principles as best practices in co-production of knowledge processes which are: context, pluralism, goal-orientedness, and interactivity. There is also the monitoring and evaluation of each of these aspects.¹⁸

13 Across the board, all recommendations on cattle rustling seek to include the community leaders, elders, and more.

14 For instance, these include the Ministry of Interior and Coordination of National Government, the National Police Service, the Director of Public Prosecutions, civil society representatives, Office of the Attorney General.

15 *Sharamo et al.*, The politics of pastoral violence: a case study of Isiolo County, Northern Kenya. Future Agricultures Consortium Working Paper, 2014, 95.

16 Kenya National Commission on Human Rights Mending the Rift, p. 79, 98.

17 *Adelle et al.*, Making sense together: The role of scientists in the coproduction of knowledge for policy making, Science and Public Policy, 2020, 56–66.

18 *Norström et al.*, Principles for knowledge co-production in sustainability research, Nature sustainability, 2020, p. 182–190.

This chapter will adapt these four principles to align with a proposed co-production of knowledge for the purposes of strengthening AJS typologies to resolve cases relating to pastoral violence in northern Kenya. The analysis is limited to the first four principles and excludes the aspects of monitoring and evaluation. Therefore, the chapter is arranged into four topics corresponding with context, pluralism, goal-orientedness, and interactivity within the context of pastoral violence. Finally, the chapter will also include an interview between researcher *Jane Murungi* and AJS practitioner *Joyce Lesegi* concerning how climate change has impacted AJS.

II. Applying the principle of 'context' to co-production of knowledge to resolve disputes related to pastoral violence in northern Kenya as exacerbated by climate change

1. The concept of 'context' explained

Norström et al. state that 'context' involves examining 'how the "governance challenge" has emerged; who will be impacted or affected by the outcomes?; who has the power to enable or constrain action?; how will policy, regulatory, institutional and cultural factors shape the process and realization of desired outcomes?'.¹⁹ Therefore, this section will describe how the climate-change governance challenge relating to pastoral violence has emerged and why the north of the country faces this violence. Next, focusing on the AJS policy, a discussion of the factors that would shape a co-production of knowledge process will be presented.

2. The governance challenge of pastoral violence and its relation to climate change in northern Kenya

The livestock industry is a key economic activity in the north of Kenya. Ninety percent of the Kenyan population raise animals for meat and milk production.²⁰ Of the six areas in Kenya that mainly supply livestock for the meat market, four are counties in the north.²¹ They are in arid and semi-arid lands.²² Many herders graze their livestock along River Ewaso Ng'iro and its tributaries. River Ewaso Ng'iro is a major source of water for

19 *Norström et al.*, Principles for knowledge co-production in sustainability research, Nature sustainability, 2020, p. 182–190.

20 www.kilimionews.co.ke/general-news/livestock-population-in-kenya/ last access October 2022.

21 USAID End Market Analysis of Kenyan Livestock and Meat 3, 24.

22 These include Tana River (35,376km²), Turkana (68,860 km²), Marsabit (66,923 km²), Isiolo (25,336 km²), Mandera (25,798 km²), Samburu (20,182 km²), Garissa (44,753 km²) and Wajir (55,841 km²).

this region, it is the second longest river in Kenya. However, man-made and climatic changes are threatening this water resource. During the course of 2014–2022, Kenya witnessed severe, chronic droughts. To date, seasonal rainfall in North Kenya has been perennially poor.

In addition to drought and climate change, researchers have attributed pastoral violence to a variety of drivers. These include, *inter alia*, the culture of ethnic groups in the north to value waging cattle rustling as a rite of passage, a show of masculinity, the perception of a justified practice for purposes of re-stocking livestock;²³ opportunistic entrepreneurial crime,²⁴ heightened by easy access to small and light weapons,²⁵ and incitement by politicians.²⁶ Nevertheless, drought has certainly exacerbated the tenuous situation of pastoral violence for the ordinarily nomadic pastoralists.

This situation raises the question of what efforts have authorities taken to address pastoral violence. In some instances, the police have arrested and arraigned alleged perpetrators of pastoral violence through the formal courts. Through community peace initiatives, traditional and community institutions have also tried to intervene. This has been marginally successful with community agreements, such as the Modogashe Declaration, renewed in 2011. This agreement was reached to control and punish unauthorised grazing, and livestock raiding.²⁷ Nevertheless, the complaint remains that much of pastoral violence goes unpunished.²⁸ Furthermore, it seems to be worsening. Mostly, cattle rustlers/livestock raiders appear relatively undeterred from desisting from their deleterious actions.²⁹ Over the past two decades, Kenya has experienced pastoral violence with new and troubling characteristics unknown to the traditionally seen cattle-rustling.³⁰ The distinct characteristics include the rationale, the duration, the violence,

23 *Kimani and Masiga*, A study on the comprehensive comparison between indigenous cattle rustling and modern cattle rustling in West Pokot County, Kenya. *Traektorià Nauki= Path of Science*, 2020, p. 1011–1016.

24 *Kimani and Masiga*, A study on the comprehensive comparison between indigenous cattle rustling and modern cattle rustling in West Pokot County, Kenya. *Traektorià Nauki= Path of Science*, 2020, p. 1011–1016.

25 Regional Centre on Small Arms (RECSA) *Cattle Rustling*, p. 4, 8.

26 *Sharamo*, The politics of pastoral violence: a case study of Isiolo County, Northern Kenya. Future Agricultures Consortium Working Paper, 2014, 95.

27 Modogashe Declaration III www.peaceagreements.org/viewmasterdocument/1945 [www.peaceagreements.org/wvview/1945/Modogashe%20Declaration%20\(III\)](http://www.peaceagreements.org/wvview/1945/Modogashe%20Declaration%20(III)) last access October 2022.

28 Kenya National Commission of Human Rights *Mending the Rift*, p. 6.

29 Uganda is the exception in the East African region. Otherwise, this is the case for Kenya, Ethiopia, South Sudan and Somalia.

30 *Kimani and Masiga*, A study on the comprehensive comparison between indigenous cattle rustling and modern cattle rustling in West Pokot County, Kenya. *Traektorià Nauki= Path of Science*, 2020, p. 1011–1016.

their militia-like and well-organised criminal enterprises and operations, and impacts on State security agents, game and tourism.³¹

These instances have exceeded the capacity of traditional/community institutions. Pastoral violence in North Kenya presents a governance challenge related to climate change. This chapter proposes that the National AJS Steering Committee use a co-production of knowledge process to further understand how to support all AJS typologies to tackle disputes relating to pastoral violence in North Kenya. Accordingly, the next section will discuss who would be impacted or affected by the outcomes of such a co-production of knowledge process.³²

3. Context

Implementing a co-production of knowledge process is intended to enable the three AJS typologies to better resolve disputes related to pastoral violence. Broadly, there are three categories of those who would be impacted by the outcomes of the process. First, all those providing any AJS service, the dispute resolvers. Second, the potential recipients of AJS services. Third, other interested stakeholders such as researchers, academics, and practitioners whose field of work is related directly or indirectly to North Kenya.

a) Dispute resolvers – an overview

The co-production process would impact those institutions, persons, and structures which the AJS policy expects to resolve disputes. Primary are the three AJS typologies: the autonomous AJS institutions, autonomous third-party AJS institutions and court-annexed AJS institutions. However, they are not exclusive dispute resolvers. Moreover, they work with the support of diverse persons and institutions. Secondary are key persons and/or institutions that Kenyans trust to intervene and solve disputes in an AJS manner. Consequently, the discussion that follows will consider the three AJS typologies as they relate to northern Kenya and further examine these dispute resolvers.

aa) Autonomous AJS institutions in Northern Kenya

Northern Kenya is predominantly rural. In Kenya, communities living in rural areas are accustomed to, and prefer, to seek legal redress from their autonomous AJS institutions. The prevalent ethnic groups in the North include the Turkana, Borana, Burji, So-

31 *Sharamo*, The politics of pastoral violence: a case study of Isiolo County, Northern Kenya. Future Agricultures Consortium Working Paper, 2014, 95.

32 *Norström et al.*, Principles for knowledge co-production in sustainability research, *Nature sustainability*, 2020, p. 182–190.

mali, Rendille and Gabra. There are several AJS autonomous institutions in the region in accordance with the aforementioned ethnic groups and thus cultural awareness is embedded within the autonomous AJS.³³ All those charged with decision-making over disputes from the home level to the highest level would be impacted by a co-production of knowledge process.³⁴

bb) Autonomous third-party AJS institutions in Northern Kenya

‘The main characteristic of the autonomous third-party AJS model is that the State and non-State third parties are not part of any State judicial or quasi-judicial mechanisms.’³⁵ Many institutions are involved in peace building, security, law and order in Northern Kenya. As such, people may consult with them to resolve conflicts that arise. Seventeen percent of Kenyans consider the chief to be the most helpful in resolving a legal dispute.³⁶ Concerning a crime, only 36 % of Kenyans consider the police as most helpful. All in all, 18 % of Kenyans prefer to approach elders, clan elders, assistant chiefs, neighbours, colleagues, church leaders, cultural leaders, NGOs, central government organisations, and contact other parties via relatives.³⁷ These individuals and/or organisations would implement the decisions resulting from a co-production of knowledge process.

cc) Court-annexed AJS institutions in Northern Kenya

Court-annexed AJS envisages an interactive collaboration between a court or tribunal and an AJS forum. For instance, a criminal or civil case that is at any stage in the proceedings could be referred to an AJS forum. The AJS forum could be either an autonomous third party AJS institution, or an autonomous AJS institution. The AJS forum could decide about some or all the aspects of the case. Then, their decision would be relayed back to the court. The court would in turn scrutinize the AJS decision, ensuring it meets all constitutional requirements.³⁸ The AJS policy indicates four possible ways a court could interact with the decision from the AJS forum. These are deference, recognition and enforcement, facilitative interaction, and monism.³⁹ To promote AJS, the

33 This information was recorded by *J. Murungi* during a field trip with the AJS Taskforce on 8 February 2018 in Marsabit county.

34 For more perspectives on the Gada system in dispute resolution see *Aliye* 2019 SKHID, p. 45–51; *Asefa, Mengesha and Almaw* 2019 Conservation Science and Practice, p. 1–3; *Hallpike* 1976 Journal of the International African Institute, p. 48–56.

35 AJS Framework Policy, p. 8.

36 HiiL Justice Needs Survey Kenya report, p. 71.

37 HiiL Justice Needs Survey Kenya report 71. Each of these categories garners 3 %, hence cumulatively are 18 %.

38 Article 159 2(d) requires no undue technicalities to get in the way of justice; AJS Baseline Policy xvii.

39 AJS Framework Policy 9.

judiciary's inclination is for deference and recognition and enforcement.⁴⁰ When the AJS Taskforce was conducting its research for the AJS policy, Isiolo court was selected to pilot a court-annexed AJS. To date, the judiciary is expanding opportunities for similar court annexed-AJS courts in the North of Kenya. In 2021, The National AJS Steering Committee visited the Marsabit and Turkana counties to *inter alia* engage with relevant stakeholders on this matter.⁴¹ A co-production of knowledge process might selectively focus on these specific courts in the North, principally, as they are the ones who would hear cases relating to pastoral violence. However, the entire judiciary needs to be engaged in the process. Firstly, it is their constitutional mandate to promote alternative dispute resolution. Secondly, other counties in Kenya, such as Turkana, West-Pokot, Baringo and Elgeyo-Marakwet also face cattle rustling/livestock raiding.⁴² Furthermore, this creates possibilities for peer-to-peer learning from other court-annexed AJS institutions elsewhere.

dd) Court-annexed AJS institutions elsewhere in Kenya for peer-to-peer learning

The National AJS Steering Committee, continually trains the judiciary and champions the roll-out of more court-annexed AJS institutions. Thus, there will be more opportunities for peer-to-peer learning. The latest reports are of court-annexed AJS institutions linked to law courts in Nakuru law, Kajiado, Mombasa, Meru, Uasin Gishu, Baringo and Narok.⁴³ As the court-annexed AJS model continues to be mainstreamed throughout Kenya, so too would a co-production of knowledge process on how AJS typologies can resolve pastoral violence related cases.

ee) The National Council on Administration of Justice

The judiciary works alongside other actors in the administration of justice. Foremost, is the National Council on Administration of Justice (hereafter 'NCAJ'). Section 34 (1) of the *Judicial Service Commission Act* establishes the NCAJ. Their mandate is 'to ensure a co-ordinated, efficient, effective and consultative approach in the administration of justice and reform of the justice system'⁴⁴ The committees and agencies of NCAJ are drawn from diverse sectors. As they work alongside the judiciary to *inter alia* 'formu-

40 AJS Framework Policy 9.

41 State of Judiciary and Administration of Justice 2020/2021 Report.

42 This chapter focuses on counties more towards the north and north-east of Kenya. The counties mentioned here border Uganda. Though lessons are drawn from cattle rustling in that area, the dynamics differ somewhat to those towards the Kenya-Somali border.

43 Update from a member of the National Steering and Implementation Committee of the AJS Policy.

44 Section 35(1) of the Judicial Services Commission, Act No 1 of 2011.

late policies relating to the administration of justice; implement, monitor, evaluate and review strategies for the administration of justice; facilitate the establishment of court user committees at the county level, and mobilize resources for purposes of the efficient administration of justice;⁴⁵ any co-production of knowledge process intended to support AJS typologies to resolve pastoral violence disputes would necessarily involve them. It is foreseeable that the NCAJ could consider co-opting other national agencies and constitutional commissions which directly engage with pastoralists matters, marginalised areas, arid and semi-arid lands and drought. This section now addresses how a co-production of knowledge process for AJS typologies to resolve pastoral violence in northern Kenya involves the political class.

ff) Politicians

Communities that are victims of pastoral violence suffer immense encroachments on their social, economic, political and cultural rights.⁴⁶ Their right to livelihood and ownership of property is truncated as their houses are burnt down, destroyed, and livestock is stolen. Compelled to flee from dangerous environments, many suffer the irony of being internally displaced nomads as their right to peaceful habitations is severed.⁴⁷ Most importantly, their right to life is under threat. Many are killed during pastoral violence incidents.⁴⁸ In such times of crisis, communities seek *inter alia* political support to find practical solutions. Politicians, whether at national, regional or local levels are required to be society's mouth-piece. The Kenya National Commission on Human Rights observed that 'the role of the residents must also be clearly highlighted since they only hold the key to peaceful co-existence; peace cannot be superimposed by external actors'⁴⁹ Therefore, a co-production of knowledge process that seeks to harness AJS typologies must recognize that politicians serve as the link between the different levels of governance: grassroots, county, national and international.

b) Recipients of AJS services

As previously stated, the AJS policy recommends three AJS typologies: Autonomous AJS institutions, Autonomous Third-party AJS institutions and Court-Annexed AJS institutions.⁵⁰ This part will discuss those who would be seeking support from the AJS typologies. Generally, these would be victims of pastoral violence and their witnesses.

45 Section 35 (2)a-d Judicial Services Act No 1 of 2011.

46 See fuller details in part 2.7.1 ad 2.7.2 relating to human rights obligations and violations.

47 Schrepfer and Caterina, On the margin: Kenya's pastoralists, IDMC, 2014, p. 1–40.

48 Appendix 3 of the report at 203–206.

49 Kenya National Commission on Human Rights Mending the Rift: Public Inquiry viii.

50 Alternative Justice Systems Framework Policy 8.

- aa) Pastoralists, Ranchers, Conservancy owners, Small-holders who are attacked⁵¹ and Kenya Wildlife Society, Kenya Forest Service, forest wardens and wildlife park officers

The direct victims of pastoral violence are pastoral communities, ranchers, owners of private conservancies, small-holders that keep livestock. Additionally, wildlife park officers of Kenya Wildlife Society, and forest wardens of Kenya Forest Service who seasonally interact with the migrating pastoralists as the latter traverse the areas under their care.⁵² The Kenya Wildlife Service and Kenya Forest Service officers are required to enforce the laws against trespassers.

Being able to move is a proven strategy for nomadic pastoralists.⁵³ Yet, the risk of being raided inhibits some pastoralists from freely pursuing desired routes and ultimately jeopardises their livestock.⁵⁴ The economic losses resulting from livestock raiding and/or cattle rustling evidence the crime is devastating. From proudly self-reliant livestock keepers, many nomadic pastoralists have now been rendered paupers. Furthermore, taking into consideration that many areas of north Kenya were historically marginalised,⁵⁵ pastoral violence exacerbates what was already a fragile standard of living.

Overall, any aggrieved persons stand to seek justice and solutions from diverse AJS forums. The kind of remedies offered are more appropriate, such as the return of cattle or prompt punishment of perpetrators. A co-production of a knowledge process that seeks to further strengthen AJS typologies to resolve pastoral violence-related disputes would impact them directly.

- bb) Perpetrators and those aiding, abetting and complicit to pastoral violence

Researchers' findings indicate at least four categories of persons perpetrating pastoral violence. First are those doing so as a display of masculinity and/or coming of age rite. To these perpetrators, rustling is not stealing.⁵⁶ Second, are those who feel compelled by economic pressures to access private land, even if it is illegal.⁵⁷ Third, are those who, even if under pressure of drought, are incited by politicians especially during election

51 *Gravesen*, The contested lands of Laikipia: Histories of claims and conflict in a Kenyan landscape. Brill, 2020, p. 181.

52 *Gravesen*, The contested lands of Laikipia: Histories of claims and conflict in a Kenyan landscape. Brill, 2020, p. 181.

53 *Schrepfer and Caterina*, On the margin: Kenya's pastoralists, IDMC, 2014, p. 1–40.

54 *Schrepfer and Caterina*, On the margin: Kenya's pastoralists, IDMC, 2014, p. 1–40.

55 See the report from the Commission of Revenue Allocation.

56 Kenya National Commission of Human Rights Mending the Rift 16.

57 *Schrepfer and Caterina*, On the margin: Kenya's pastoralists, IDMC, 2014, p. 1–40.

campaign periods.⁵⁸ Fourth, are classified as thieves. They aim to steal livestock for onward sale.⁵⁹ Others may masquerade as indigenous cattle rustlers or aid workers, yet instead survey with intention to steal.⁶⁰ All of these perpetrators would be impacted by the outcomes of a comprehensive co-production of knowledge process. The degree to which AJS typologies intervene may vary however, a comprehensive co-production of knowledge process should reveal the gaps in access to justice, and guide how AJS typologies could be strengthened. As it stands, there remains concern over the limits of such institutions as peace committees,⁶¹ with some communities regarding NGOs as incompetent in dealing in peace,⁶² the recalcitrance of unreached raiders,⁶³ and the discouragement of chiefs when their best efforts to stem cattle rustling go unheeded.⁶⁴ Notwithstanding, it is arguable that traditional institutions are integral and solutions are best when established from within.⁶⁵ The key objectives ought to target recovery of livestock, swift punishment of offenders, and sensitivity to avoid counter-productive 'peace-missions'.

c) Other interested stakeholders

aa) Influential key themes by researchers, institutions and practitioners

Many researchers, practitioners, and institutions are interested in diverse topics that would bring useful perspectives to the subject of pastoral violence in Northern Kenya. For instance, the subjects of governance, peace and conflict resolution, security, and law and order directly concern pastoral violence prevention. Other sectors are concerned with issues that may indirectly affect pastoral violence and thus potential AJS interventions. Those working on indirectly related subjects may also participate in a co-production of knowledge process. Thus, the next section will touch upon themes related to land use, holistic perspectives of lives of pastoralists in the north, governance, politics, security, law and order, the Kenyan meat market, and development work by regional and international bodies and organisations working in northern Kenya.

58 *Schrepfer and Caterina*, On the margin: Kenya's pastoralists, IDMC, 2014, p. 1–40.

59 *RECSA Cattle Rustling* 5.

60 *Eaton*, The business of peace: raiding and peace work along the Kenya–Uganda border (Part I). *African Affairs*, 2008, 107.426: 89–110.

61 *Schrepfer and Caterina*, On the margin: Kenya's pastoralists, IDMC, 2014, p. 1–40.

62 Kenya National Human Rights Commission Mending the Rift 8.

63 Kenya National Human Rights Commission Mending the Rift 70.

64 Kenya National Human Rights Commission Mending the Rift 8.

65 Kenya National Human Rights Commission Mending the Rift 8.

bb) Land use, zoning for national parks, wildlife conservancies and sanctuaries, forest use

There are different attitudinal approaches to matters of land use, understanding of land titling and cadastralization of land,⁶⁶ in areas where pastoralists in Kenya have commonly grazed for centuries.⁶⁷ Those against conservancies and registration of private land argue that these practices take away grazing lands from the pastoralists and can compound the pastoralists' pressure to find pasture, particularly during drought. Historically, pastoralists used now privately owned lands, in common. Notably, Kenya's 2009 National Land Policy acknowledges that pastoralists face the difficulty of land access rights.⁶⁸ It has been recommended, *inter alia*, that grazing rights ought to run concurrently with and in privately owned land.⁶⁹ Others also argue that economic interests of wildlife conservancies and game tourism are favoured over pastoralists' interests. Further, those in charge of national parks, wildlife and forests are concerned with the protection of these resources as well as avoiding human-wildlife conflicts.⁷⁰ On occasion, reports allege that cattle rustlers/livestock raiders illegally graze greater numbers of livestock than the forage and foliage there can sustain. In such instances, they disrupt carefully crafted grazing schedules of community grazing committees. At other times, the issue of land access appears to arise from the local politicians over alleged overlapping administrative boundaries, and government's planned land use as part of devolution.⁷¹ It is anticipated that through a co-production of knowledge process, *inter alia* demands would be made of researchers, institutions and practitioners dealing with matters of land use. Institutions could include the National Land Commission, National Environmental Management Authority, State Department on Arid and Semi-Arid Lands, ministries relating to Tourism and Wildlife, Land and Physical Planning, Transport, Water, Agriculture, Livestock and Fisheries, Devolution and Planning, Environment and Natural Resources, Kenya Wildlife Service, Wildlife Research Training Institute, Kenya Forest Service, Kenya Forestry Research Institute,

66 Eaton, The business of peace: raiding and peace work along the Kenya-Uganda border (Part I). African Affairs, 2008, 107.426, p. 89-110.

67 Eaton, The business of peace: raiding and peace work along the Kenya-Uganda border (Part I). African Affairs, 2008, 107.426, p. 89-110.

68 See paragraphs 181 and 183(a-g) of the Sessional Paper No. 3 - National Land Policy 2009, 43. www.landportal.org/library/resources/lex-faoc163862/national-land-policy-sessional-paper-no-3-2009, last access November 2022.

69 Eaton, The business of peace: raiding and peace work along the Kenya-Uganda border (Part I). African Affairs, 2008, 107.426, p. 89-110.

70 See sections 7, 77 and 78 of the Wildlife and Conservation Management Act No. 47 of 2013 on the functions of Kenya Wildlife Service.

71 Kenya National Human Rights Commission, p. 55-59.

and the Independent Electoral Boundaries Commission. The following section addresses holistic perspectives regarding pastoralists in Northern Kenya.

cc) Nomadic pastoralism holistically, from different perspectives

Eaton presents an example of how an NGO's peace mission in northern Kenya went terribly wrong *inter alia* over a misunderstanding of the appropriateness of songs sung by one group seeking peace. One group thought the songs were a positive message, yet another group felt the songs were a provocation of war. Thus, a well-intentioned event got scuttled.⁷² This points to the importance of understanding the norms and cultures of those in northern Kenya. A holistic view of pastoralists' lives' also includes assessing health, women's issues, child development, access to potable water, climate change, animal husbandry, animal diseases, adaptations for pastoralists' livestock, new occupations, impacts of sedentarization for those adapting life-styles other than pastoralism⁷³, and psycho-socio concerns including trauma from violent conflict.⁷⁴ This requisite knowledge base provides unique perspectives on how to approach the key question of how AJS could resolve pastoral violence. There are many stakeholders who hold an in-depth understanding of their field work/research. That said, a co-production of knowledge process should tread with caution. Due care is required to learn about the locals' views of these very institutions, organisations, researchers and practitioners.

dd) Security, law, order and governance

The single-most distinctive characteristic that has changed the nature of pastoral violence is the emergence of illicit transfer and trade of small and light weapons. Nowadays, pastoral violence perpetrators are armed. It is not surprising that pastoralists in the north, who are victims of pastoral violence, now seek to illicitly acquire weapons for self-defence. Access to these small and light weapons is attributed to (i) rogue/corrupt national police reservists who 'lease out' their security weapons; (ii) Al-Shabaab and other terrorists' activities in the north of Kenya, even into neighbouring countries; (iii) inadequate presence of the State in the north of Kenya, thus residents use self-defence; (iv) ineffective disarmament programmes; (v) porous borders and inadequate border control and management, partly from marginalisation; (vi) breakdown of security, law

72 *Eaton*, The business of peace: raiding and peace work along the Kenya-Uganda border (Part I). African Affairs, 2008, 107.426, p. 89-110.

73 *Eaton*, The business of peace: raiding and peace work along the Kenya-Uganda border (Part I). African Affairs, 2008, 107.426, p. 89-110.

74 *Eaton*, The business of peace: raiding and peace work along the Kenya-Uganda border (Part I). African Affairs, 2008, 107.426, p. 89-110.

Part II: Co-Production as an Innovative Tool in Decision-Making

and order in neighbouring countries at times of civil conflict; (vii) inadequate management systems for marking and controlling movement of small and light weapons.⁷⁵

Subsequently, all national state security agents responsible for maintaining law and order in the north of the country would be considered stakeholders in a co-production process pertaining to ending violence.⁷⁶ Such a process requires their insights. Similarly, all suppliers and sources of the weaponry, be they in or out of the country, may be also considered stakeholders.

The AJS typologies experiences in handling pastoral violence related cases would be inextricably linked to the efforts of those who are trying to stem such violence including those in charge of law, order and security.

ee) Kenya Meat Commission, private sector livestock purchasers in Nairobi, Mombasa and in neighbouring countries

Some livestock raiders' aim to resell cattle to those in the meat industry in big cities such as Nairobi, Mombasa and Kampala.⁷⁷ Hence, the livestock industry in Kenya and the neighbouring countries of Uganda, Somalia, South Sudan and Ethiopia are important when considering pastoral violence. Key actors include the Kenya Meat Commission, who procure and purchase livestock. Other actors include individuals and organisations operating within this private sector. The outcomes of a co-production of knowledge process would discuss how livestock are raided and then moved to their final destinations- the butchers. Therefore, the eventual outcomes of such a process would affect all state and non-state actors in Kenya's meat industry and neighbouring countries. Hence, some stakeholders have advised methods of monitoring cattle identification and livestock movement and/or cycle monitoring. These methods involve the use of RFID technologies and GPS.⁷⁸ Decisions requiring such controls would affect all parties involved in livestock purchase, movement and eventual preparation for the meat industry.

ff) Regional and international bodies and organisations that work in northern Kenya

Many international NGOs, organisations and regional institutions have experience in matters relating to pastoral violence in the north of Kenya. The foregoing discus-

75 Regional Centre of Small Arms and Light Weapons (RECSA) Cattle Rustling 1–10.

76 This by implication will include their work through international and regional institutions like INTERPOL, EAPCCO and RECSA.

77 Eaton, *The business of peace: raiding and peace work along the Kenya–Uganda border* (Part I). African Affairs, 2008, 107.426, p. 89–110.

78 Siror, *Huanye and Wang et al* 2009 5th International Joint Conference on INC, IMS and IDC.

sions address the perspectives of those who would be impacted by the adoption of a co-production of knowledge process within AJS typologies, including the aforementioned parties.

4. Context: parties with power to enable or constrain action

This section will highlight parties whose support of implementing a co-production of knowledge process within the AJS would be critical for its success. This includes the political class, the national government, relevant private sectors, community elders, land owners where pastoral communities historically grazed, and extends to small and light weapons dealers.

a) Political will

Political will is necessary to support the potential positive outcomes of a co-production process that aims to address pastoral violence. This chapter adopts Brinkerhoff's component framework that defines and describes 'political will' to this concern.⁷⁹ Brinkerhoff asserts a government must take initiative, rather than initiatives arising from external actors. As demonstrated throughout this chapter, pastoral violence threatens not just the peace and security of northern Kenya, but the entire State and the East African region. Therefore, starting with the president, who heads the Government of Kenya, the Constitution requires that he chair the National Security Council (Art 131 1 d), ensure protection of human rights and fundamental freedoms (Art 131 2 e) and charge the National Security Council with the responsibility to 'integrate domestic, foreign and military policies relating to national security to enable the national security organs co-operate and function effectively Art 240 (3) and (6)(a) and (b). Since addressing the illicit use of small and light weapons is central to stemming pastoral violence, and the periodic disarmament programmes in the north seem to be failing, the government is in charge of taking initiative for further steps. It is the national government that must initiate the requisite steps for the following: land policy that considers pastoralists' views, reviews of current land cadastral regimes, operationalise existing national land use policy where there are gaps; high-level dialogue that coordinates with neighbouring country governments on security, law and order; implementing the Mifugo Protocol and any other appropriate measures; policy on movement and identification of livestock from farm to fork; accelerating development in marginalised areas. Secondly, political will entails choice of policy/programme based on technically sound, balanced consideration and analysis of options, anticipated outcomes and costs/benefits. In the context of this topic, the central role of government would play an active role in a co-production of knowl-

79 Brinkerhoff, Unpacking Political Will, U4 Brief, 2010.

edge process to further support the AJS policy. The participation of the central government would signify meeting this component of political will. Thirdly, political will of the government requires the 'mobilisation of stakeholders.' The attitudes of leaders at all levels, national, county, and elders in local communities, must be considered. Politicians' and community leaders' attitudes determine whether law enforcement is likely to receive support. For example, a current recommendation to deter pastoral violence is to 'name and shame politicians'⁸⁰ who are implicated in cattle rustling. Further, there are numerous allegations attributing pastoral violence to politicians with an agenda to dispossess lands from private ranchers.⁸¹ Some have been arraigned in court. There are also allegations of politicians turning a blind eye to pastoral violence, particularly during pre-election campaign periods. Such entanglements must be addressed and handled delicately. A fourth component of political will is public commitment and allocation of resources. A co-production of knowledge research process requires financing. A willingness from the government to allocate a budget for this matter signals political will. The fifth component of political will is the application of credible sanctions. The processes undertaken by the AJS typologies are intended to bring about knowledge of credible sanctions that could be implemented to stem the problem of pastoral violence. A sixth component of political will is 'continuity of effort'. The national government ought to be willing to continue time and resource allocation in the long-term to fight pastoral violence. A seventh component of political will is 'learning and adaptation'. Continuous monitoring and evaluation are integral to the quality co-production of knowledge process. In the instance that this process would be implemented, the government would require the establishment of, and adherence to, a monitoring and evaluation process. It is important to note that the government's political will is often communicated to the community leadership. Hence, the brief that follows.

b) The community leadership including community elders, Council of Elders, religious leaders, *Nyumba-kumi* leaders that are non-State actors

Researchers in the field of pastoral violence call for strengthening community leadership. There is need to address all aspects which prevent local leadership from tackling the violent nature of pastoral violence, including but not limited to corruption and complicity.

80 IGAD Centre for Pastoral Areas and Livestock Development, 2017.

81 See further details where this Chapter discusses politicians.

- c) Small and Light weapon suppliers, illicit armoury suppliers and the armed militia or entrepreneurial criminals disguising themselves as cattle rustlers

Weapons suppliers and those who disguise themselves as cattle rustlers, likely pose the greatest challenge to addressing pastoral violence. For one, they are economically benefitting from the crime. Secondly, they do so undercover. Thus, a co-production process requires their cooperation so as to cease their operations. Alternatively, the environment has to be such that it is far too difficult for them to successfully rustle cattle. Further, as weapons suppliers need ammunition, the illegal sources of ammunition requires attention.⁸²

- d) Meat market in Kenya and neighbouring countries

Strategies to deter criminals who steal livestock in northern Kenya with the aim of supplying butcheries in Nairobi and Mombasa, or elsewhere, are urgently required. Therefore, all wholesale and retail butcheries in Kenya and in neighbouring countries may be included in a co-production of knowledge process within AJS typologies. Consideration of adopting measures similar to certification measures in the extractives sector may also be required.

- e) National Land Commission Adapting national land policy and other measures to consider pastoralists' access to grazing land in private land during drought

Landowners can support or impede the co-production of knowledge process regarding AJS typologies' resolution of pastoral violence disputes. Land matters in Kenya are sensitive. Therefore, any proposal to formalise access rights for nomadic pastoralists to access privately owned land for pasture (even during drought), could spark controversy. However, there are a few landowners in Kenya who enter into short-term contracts, at a fee, permitting pastoralists access to their private lands.⁸³ The 2009 National Land Policy acknowledges these matters and directs that the government address them.⁸⁴ Considering the sensitivity of the matter, debate is needed to strategize a policy plan.

82 Global Initiative Against Transnational Organised Crime www.riskbulletins.globalinitiative.net/esa-obs-026/02-kenya-theft-ammunition.html, last access December 2022.

83 AJS Framework Policy 7.

84 See paragraph 183(a)-(g) of the National Land Policy 2009, 43.

5. Context: regulatory, institutional and cultural factors shaping the process and realization of desired outcomes

a) The Constitution

First and foremost, the Constitution would shape the co-production of knowledge process. The constitutional values include rule of law, democracy and participation by the people (10(2a)); human dignity, human rights, and protection of the marginalised (10(2b)); good governance, integrity, transparency and accountability (10(2c)). The co-production process and its outcomes must adhere to all the above. Secondly, Article 159(3) constrains traditional dispute resolution mechanisms not to be used in any way which contravenes the Bill of Rights, or is inconsistent with the Constitution or any written law. Thirdly, Article 67 (2) (f) encourages the application of traditional dispute resolution mechanisms in land conflicts. As does Article 60 (1) (g), which encourages communities to settle land disputes through recognised local community initiatives consistent with this Constitution. Critically, Kenya is signatory to important international human rights conventions. These international laws must also be acknowledged in any co-production of knowledge debate.⁸⁵

b) Human Rights Approach of the AJS Policy

A co-production of knowledge process would recognize the extent to which AJS Policy has associated itself with a human rights framework. There are roles for the judiciary relating to the duty to respect, protect, and transform.⁸⁶

c) National Land Policy, Land laws

Article 67 (2) of the Constitution establishes the National Land Commission. It is to *inter alia* (b) recommend a national land policy to the national government and (e) initiate investigations into historical land injustices and recommend redress; (h) monitor and have oversight responsibilities over land use planning throughout the country. This Commission has been identified as a member of the National AJS Steering Committee. The National Land Commission could, in the short-term, facilitate discussions between nomadic pastoralists and land owners concerning creative ways to allow pastoralists land access, particularly during drought.

85 AJS Framework Policy 3.

86 AJS Framework Policy 7.

d) Commission of Revenue Allocation – Focus on addressing marginalisation of northern Kenya

The status of infrastructure, economic and social, has yet to be improved in northern Kenya. Therefore, all the ongoing efforts by the Commission of Revenue Allocation are to be considered by a co-production of knowledge process participants. The Commission of Revenue Allocation's cooperation with the AJS system is necessary for further socioeconomic improvements in Northern Kenya.

e) The Peace-building policy and legal framework⁸⁷

The National Policy on Peacebuilding and Conflict Management (2015) and the following statutes: the National Cohesion and Integration Act⁸⁸, Truth, Justice and Reconciliation Act must be understood and addressed by all participants within a co-production of knowledge process.⁸⁹

6. Applying the principle of 'pluralism' to co-production of knowledge

Pluralism requires attaining diverse perspectives on an issue. In the context of this chapter, it is important to recognize the National AJS Steering Committee's great experience in gathering views from diverse walks of life. There are established processes for utilizing pluralism to secure sound, innovative ideas.⁹⁰ It is then useful to consider the theory and practicalities of innovation including frameworks, such as design thinking. Common elements of design thinking include: problem identification, collaboration through multi-disciplinary team formation, visualization, hands-on-experiments, feedback processes and integrating it into experimentation. Such elements are aligned with *Norström et al* recommendations on governance. In this specific context, the aim of establishing a transformative co-production of knowledge process is ultimately to better understand and democratically manage North Kenya's natural systems.⁹¹

87 For a brief overview see *Odidi*, Peacebuilding Policies and Frameworks in Kenya ACCORD Conflict & Resilience Monitor 2022/1 August 19, 2022 www.accord.org.za/conflict-trends/peacebuilding-policies-and-frameworks-in-kenya/, last access December 2022.

88 No 12 of 2008.

89 No 6 of 2008.

90 *Johnson*, Where Good Ideas Come from: The Natural History of Innovation, Penguin Group New York, 2010.

91 *Mäkinen-Rostedt*, www.blogs.helsinki.fi/human-nature-transformations/2021/06/29/what-do-co-production-of-knowledge-and-transdisciplinarity-mean/, last access December 2022.

7. Applying the principle of 'goal-orientedness' to co-production of knowledge

It would be anticipated that participants have expertise concerning pastoral violence. However, not all participants would possess the same depth of knowledge regarding AJS policy and the existing AJS typologies. Thus, all parties would be required to learn about the AJS typologies. This is first because, understanding AJS typologies' operations is foundational to the outcome. Secondly, all actors in the AJS typologies need to be strengthened so as to resolve pastoral violence. Thirdly, participants must collaborate to best provide a platform that focuses on how the AJS policy could make a difference, while considering its limitations. To work towards the co-production of knowledge, the National Steering Committee on the Implementation of AJS policy should maintain and develop its multi-stakeholder membership. Committee membership will be tasked with problem identification, problem puzzling and problem solving.⁹²

8. Applying the principle of 'interactiveness' to co-production of knowledge to resolve disputes related to pastoral violence in northern Kenya as exacerbated by climate change

Norström et al advise that the quality of interactivity in co-production of knowledge is important.⁹³ Power dynamics should be identified and handled wisely. Where not dealt with wisely, a co-production process can be counter-productive, skewing the outcome of the process to reinforce inequality.^{94,95} Pastoral violence is awash with uncomfortable topics including marginalisation, land rights issues, political corruption, security agents as accessories to illicit sale of ammunition, unemployment, and changing regard for tradition. *Sharamo and Eaton* note that when addressing pastoral violence, the meeting places chosen throughout the co-production of knowledge process matter for the youth and raider.⁹⁶ It is also important to be aware of the norms regulating how the communi-

92 *Adelle, Pereira, Görgens, & Losch*, Making sense together: The role of scientists in the coproduction of knowledge for policy making. *Science and Public Policy*, 47(1), 2020, p. 56–66.

93 *Norström et al*. Principles for knowledge co-production in sustainability research. *Nature sustainability*, 2020, 3.3, p. 182–190.

94 *Turnhout, Metzke, Wyborn, Klenk, & Louder*, The politics of co-production: participation, power, and transformation. *Current Opinion in Environmental Sustainability*, 42, 2020, p. 15–21.

95 *Turnhout, Metzke, Wyborn, Klenk, & Louder*, The politics of co-production: participation, power, and transformation. *Current Opinion in Environmental Sustainability*, 42, 2020, p. 15–21.

96 *Eaton*, The business of peace: raiding and peace work along the Kenya–Uganda border (Part I). *African Affairs*, 107(426), 2008, 89–110.

ties hold meetings amongst themselves.⁹⁷ For a judiciary member, great discernment is also required, never should such meetings appear to compromise their values and ethics.

III. Conclusion

This chapter has demonstrated how a co-production of knowledge process can be applied to address the governance challenge of pastoral violence. It is an enormous yet necessary task. However, it is certainly within the capacity of the National AJS Steering Committee. The momentum gained by launching the AJS policy should be maintained by addressing how AJS typologies can resolve pastoral violence disputes. Utilising a co-production of knowledge process would be best suited for this task, provided the key principles are followed.

IV. Interview

Interview between *Jane Murungi* and *Joyce Lesegi*

This section presents an interview between the co-authors Jane Enid Nganzi Murungi and Joyce Nairesia Lesegi (the chairlady of the Isiolo Elders Council, representative for Samburu community). The original interview was done in Kiswahili and has been translated into English and edited for clarity.

JM: Hello Mrs Joyce Nairesia Lesegi. Thank you for this opportunity to interview you. May you please tell us a bit about yourself.

JNL: By occupation I am an early childhood education (ECDE) teacher at a school in Isiolo. Since 2012 I have also been serving the community as the chairperson of Isiolo Elders Council (Samburu community representative).

JM: Please tell us what the Elders Council is, and what you do as an elder.

JNL: This is a group of leaders throughout the communities in Kenya. Elders are not politicians. Many are retired and respected persons in their communities. People seek their advice and help in diverse circumstances. As an elder I am called upon to resolve disputes. This can happen anywhere: in prisons, under trees, wherever we are called to assist. I also participate in the Court User Committee at Isiolo Law Courts.

JM: In Kenya, it is rather unusual to have a woman serve in such a position. How did you get to this role?

97 Smith, *Origins and spread of pastoralism in Africa. Nomadic Peoples*, 1993, 91–105.

JNL: In 2011, Isiolo was a 'hotspot' of inter-ethnic violence. There are five major ethnic groups in Isiolo county: Gabra, Borana, Somali, Meru, and Rendille. The cattle rustling and war between these ethnic communities was intense. So many people died, property destroyed, livestock killed. It was a massive social upheaval. So, there were private initiatives within the local communities to see how to stop all the violence and then return to peace. I attended all the meetings. Government officials were present. At some point, the recommendation was that each community elect a representative to participate in the Isiolo Elders Council. I was then elected in 2012 to represent the Samburu community.

JM: Could you describe your work as an elder?

JNL: The Isiolo elder's council finds ways to resolve conflicts. Even today, I continue to participate in conflict resolution. This is Alternative Dispute Resolution (ADR). However, my role in ADR has expanded to the prisons as well. At the time, Chief Justice (now retired) Mutunga, called on us to also assist with resolving disputes that were already going through the court process.

JM: Have you seen climate change impacting matters of dispute resolution in northern Kenya?

JNL: Climate change has been very disruptive to AJS! It is magnifying conflicts. We are having to deal with far bigger conflicts, not ordinary ones. For example, when our pastoral herders went to Laikipia county to graze their cattle, there was a big confrontation between the government security and the herders. Some herders lost their livestock. There is pressure for all the herders to keep their stock alive, they must survive. So, against their liking, they have to go to other counties to graze. Meanwhile, there is more instability in our communities from this climate change. In AJS we sit under trees to resolve our disputes. Therefore, when there is unrest, we really cannot hold dispute settlements. This creates more tension.

JM: What are your views of the AJS policy?

JNL: We are very happy that it has finally been launched. However, we need more training. This will help support how we undertake AJS. We look forward to working with others who can assist us. We wish this particularly given the challenge of climate change creating even more disputes.

CHAPTER VII

Co-Production of Knowledge in Kenya's Climate Change Arena

The Case of the MijiKenda Community's Kaya Forest Preservation System

Felix Otieno Odhiambo / Margherita Paola Poto / Eva Julia Lohse¹

I. Introduction

Kenya's legal system has undergone roughly four principal developmental phases. These include the pre-colonial period, the colonial period, the post-colonial period phase spanning up to 2010 and, finally, the post-colonial period spanning from 2010 to the present. Each of these phases was marked with different forms of laws, law-making procedures and even systems. During the pre-colonial period, the prevalent legal system comprised the various systems of indigenous African communities i. e. the customary legal systems which were premised upon the cultural practices of the indigenous ethnic nationalities who lived within what later became the present-day Kenyan territory.² The advent of colonialism during the late 19th century witnessed the introduction and transplantation of foreign legal systems in Kenya, especially, the British legal system and the attendant law-making procedures.³ Foreign laws and legal systems were then forcefully imposed upon the local population.⁴ In the post-colonial period, Kenya chose to maintain the legal infrastructure that it had inherited from the departing colonialists and, as a result, its present legal system has remained modelled alongside the British Common Law and legal system.

This chapter examines the bodywork of Kenya's existing legal framework, especially in regard to climate change, in terms of how they include or exclude certain types of

- 1 *Otieno Odhiambo* wrote the entire chapter, *Poto* and *Lohse* supervised the project and contributed to the final revision.
- 2 See, for instance, *Ojo, & Ekhtor*, Pre-Colonial Legal System in Africa: An Assessment of Indigenous Laws of Benin Kingdom Before 1897, *Journal of Benin and Edo Studies* 2020, p. 40.
- 3 *Joireman*, *The Evolution of the Common Law: Legal Development in Kenya and India*, *Commonwealth and Comparative Politics* 2006, p. 190.
- 4 *Mbaria, & Ogada*, *The Big Conservation Lie*, 2017, Auburn WA USA, p. 29. See also *Joireman*, *The Evolution of the Common Law: Legal Development in Kenya and India*, *Commonwealth and Comparative Politics*, 2006, p. 2.

knowledge, knowledge producers and processes of co-production of knowledge. More importantly, the chapter examines the process of co-production of knowledge among Kenya's Mijikenda Community, especially with respect to their valiant conservation of the *kaya* forests within the country's coastal region, especially in Mombasa, Kwale and Kilifi Counties where members of the Mijikenda communities reside.

II. Co-production of Knowledge

Co-production of knowledge refers to the repetitive and collaborative processes which involve various types of expertise, knowledge as well as actors to produce context-specific knowledge and pathways geared towards the achievement of a sustainable future.⁵ It entails the process of producing usable, or actionable, science through collaboration between scientists, on the one hand, and those who use science to make policy and management decisions, on the other hand.⁶ Within the realm of climate and environmental management, co-production of knowledge is understood to refer to the contribution of multiple knowledge sources and capacities emanating from different stakeholders including science, policy and society with the ultimate goal of co-creating knowledge and information to inform decision-making processes in environmental matters.⁷

Researchers have since singled out a number of elements that may be considered as being the keys to a successful co-production of knowledge process. These include, first, the building of continuous relationships between scientists and stakeholders.⁸ The second element consists in ensuring of the existence of two-way communication between the groups.⁹ The final element in this regard is the maintaining of focus on the production of usable science, i. e. science that is practicable to the circumstances of the users.¹⁰

Thus, the overarching point about co-production of knowledge is that it interfaces knowledge and knowledge sources from different stakeholders in a manner that ensures that the resultant knowledge is the type that becomes applicable to the situation at hand. Indeed, it has been asserted that the process of co-production serves to generate

5 *Schneider et al.*, Co-production of knowledge and sustainability transformations: a strategic compass for global research networks, *Environmental Sustainability* 2021, p. 127–142.

6 *Meadow et al.* Moving toward the Deliberate Coproduction of Climate Science Knowledge, *Weather, Climate & Society* 2015, p. 179.

7 *Djenontin, & Meadow*, The art of co-production of knowledge in environmental sciences and management: lessons from international practice, *Environmental Management* 2018, p. 885–903.

8 *Dilling, & Lemos*, Creating usable science: Opportunities and constraints for climate knowledge use and their implications for science policy, *Global Environmental Change* 2011, p. 680–689.

9 *Lemos, & Morehouse*, The Co-Production of Science and Policy in Integrated Climate Assessments, *Global Environmental Change* 2005, p. 57–68.

10 *Djenontin, & Meadow*, The art of co-production of knowledge in environmental sciences and management: lessons from international practice, *Environmental Management* 2018, p. 885–903.

new knowledge, capacities, networks, social capital as well as joint action, which is, in turn, expected to produce more relevant, agile, inclusive, legitimate, impactful and innovative knowledge action.¹¹ The success rate of this approach is attributed to the direct connection and collaboration that exist between researchers and practitioners.¹² Further, the extent of the degree of interaction between the groups has often been linked to the production of more usable knowledge as well as other tangible project outputs.¹³

It has been further established that knowledge that is co-produced generally has a wider level of acceptability and use by decision-makers.¹⁴ This is because the process of co-production of knowledge stimulates public debate, discussion and persuasion which is context-dependent.¹⁵ In this regard, it offers experts and members of the public the opportunity to bring together their knowledge in a manner that enables problems to remain connected to their social settings in a manner that allows all players to put forth scientifically legitimate as well as publicly accountable decisions.¹⁶ The wide acceptability has been attributed to a number of factors. Such factors include, first, the fact that information obtained through such processes is more transparent to the end users.¹⁷ Secondly, the process is perceived to be more legitimate and accountable.¹⁸ Thirdly, the information is considered to be more likely to be at spatial and temporal scales useful to decision-makers.¹⁹ Fourth, it is also the case that knowledge produced through this process is considered as being easier to integrate with existing information because it fits into the decision framework of the agency or organization.²⁰ Finally, the end users are often considered to gain a greater sense of ownership over the final product because they have contributed towards production of the information.²¹

11 *Schneider et al.*, Co-production of knowledge and sustainability transformations: a strategic compass for global research networks, *Environmental Sustainability* 2021, p. 127–142.

12 *Ibid* 11.

13 *Howarth, & Monasterolo*, Opportunities for knowledge co-production across the energy-food-water nexus: Making interdisciplinary approaches work for better climate decision making, *Environmental Science and Policy* 2017, p. 106.

14 *Howarth et al.*, The 'co' in co-production of climate action: Challenging boundaries within and between science, policy and practice, *Global Environmental Change* 2022, p. 2.

15 *Ibid* 14.

16 *Ibid* 14.

17 *Meadow et al.*, Moving toward the Deliberate Coproduction of Climate Science Knowledge, *Weather, Climate & Society* 2015, p. 179.

18 *Ibid* 17.

19 *Dilling & Lemos*, Creating usable science: Opportunities and constraints for climate knowledge use and their implications for science policy, *Global Environmental Change* 2011, p. 680–689.

20 *Carbone, & Dow*, Water resource management and drought forecasts in South Carolina, *Journal of American Water Resources Association* 2005, p. 145–155.

21 *Robinson, & Tansey*, Co-production, emergent properties and strong interactive social research: the Georgia Basin Futures Project Get access Arrow, *Science and Public Policy* 2006, p. 151–160.

However, there are also various challenges that have been identified as being inherent to the process of co-production of knowledge. The first of these challenges includes, for instance, the inadequate measures of science which do not account for engagement activities.²² A second challenge that has been identified is the lack of organizational support for engagement activities, and insufficient time to conduct engagement activities in addition to other responsibilities.²³ The third challenge is the lack of funding to support engagement activities.²⁴ Finally, it has also been noted that sometimes, the process of co-production of knowledge suffers from the issue of barriers related to the time required for collaborative research as well as mismatches relating to expectations between researchers and practitioners.²⁵

III. Kenya's legal framework on climate change

Kenya's foundational legal framework on climate change is undergirded by the Constitution of Kenya 2010. Pursuant to Chapter 8, the Constitution establishes the Legislature whose principal mandate is to, among others, enact legislation. Pursuant to this mandate, the National Assembly enacted the Climate Change Act 2016 to become the key legislation to deal with matters relating to climate change. Article 2(6) of the Constitution provides that any treaty or convention ratified by Kenya forms part of the law of Kenya. Consequent upon this provision, all international conventions, which Kenya has either ratified or acceded to, become part and parcel of its laws. In line with this, treaties such as The Treaty for the Establishment of the East African Community 1999, the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol to the UNFCCC form part of the Kenyan legal framework on climate change.

IV. Position of Kenya's legal framework on the processes of co-production of knowledge

This part highlights the extent to which Kenya's legal framework either includes or excludes certain types of knowledge, knowledge producers as well as the processes of co-production. This assignment will be undertaken through an examination of how each of the laws identified above deals with the issue of co-production.

22 Polk, Trans-disciplinary co-production: Designing and testing a trans-disciplinary research framework for societal problem solving, *Science Direct* 2015, p. 110–122.

23 *Ibid* 22.

24 *Ibid* 22.

25 *Ibid* 22.

1. Constitution of Kenya 2010

At face value, the Constitution of Kenya 2010 does not seem to have express provisions in regard to the process of co-production of knowledge in matters relating to climate change. However, when examined at a deeper level, it becomes apparent that there are certain salient provisions that may be relied upon as the basis for an enabling framework for co-production of knowledge for climate change. One of the provisions which can be cited in this respect is Article 11 which provides on culture. Article 11(2) (a) obligates the State to promote all forms of national and cultural expression through, among others, cultural heritage. In this respect, the Constitution identifies and includes Kenya's local people as knowledge producers with their respective cultures being useful knowledge production processes.

Within the indigenous Kenyan communities' context, this obligation is particularly important as it should require the State to promote traditional cultural practices such as totemism which is practiced among a number of Kenyan ethnic communities, such as the Kalenjin community. Under this cultural practice, certain animals or plants, i. e. totems, which are thought to have special spiritual connections with particular tribes, are conserved by members of the community.²⁶ In addition to totemism, other cultural practices that enhance the country's conservation, especially of the country's forests, relate to the conservation of the sacred Makaya by the MijiKenda of Kenya's coastal region. The Kaya Forests are regarded as the community's ancestral abodes and considered sacred sites which are maintained by the community's councils of elders. Clearly, the foregoing conservation measures, arising from the cultural heritage of indigenous communities, would if supported by the State, no doubt, enable the country to enhance its ability to ward off the effects of climate change through climate change mitigation.

Further, Article 11(2) (b) also requires the State to recognize the role of science and indigenous technologies in the development of the nation. By identifying science and indigenous technologies as being critical components in the country's development, the Constitution sets apart science and technology as constituting parts of the country's processes of co-production of knowledge. Considering that Kenya is a developing country with the development of its science and technology standards still being nascent, it is significant that the Constitution expressly identifies indigenous technology as being part of its development strategies. Consequently, this thus makes both the western and indigenous technologists as being co-producers of knowledge for the country.

Aside from Article 11, another Article of the Constitution that is relevant to the co-production debate is Article 10 on national values and principles of governance. Quite

26 *Bullon*, (Ed), Longman Dictionary of Contemporary English, 4th edn. 2003, p. 1755.

importantly, Article 10(2) (a) identifies public participation as being one of the national values and principles of governance. Besides, Article 69(1) (b) obligates the State to work to achieve and maintain a tree cover of at least 10 % of the land area of Kenya. Further, Article 69(1) (d) of the Constitution requires the State to encourage public participation in the management, protection and conservation of the environment. Whereas it remains a useful way to invite contributions and feedback from the public as stakeholders in the decision-making process, public participation however connotes a measure of a top-down decision-making approach which does not bode very well with co-production of knowledge. Unlike co-production which requires the engagement of all stakeholders from the very beginning during the decision-making process, public participation makes participation by members of the public to be subservient to that of the State as a principal player.

2. Forest Conservation and Management Act 2016

The preamble of this Act reveals that the Act of Parliament is intended to give effect to Article 69 of the Constitution with regard to forest resources. In this regard, the law provides for the development and sustainable management, including conservation and rational utilization of all forest resources for the socio-economic development of the country and for connected purposes. Section 30 of the Act classifies the country's forests into three principal categories. The three categories include public forests, community forests and private forests.

The Mijikenda's *kaya* forests, to which this writing relates, are part of the community forests. Under section 30(3) of the Act, community forests include various types of forests. The first type of community forests includes those forests which are located on land which is lawfully registered in the name of group representatives. The second type of such forests includes those forests which are on lands that are lawfully transferred to a specific community. The third type of community forests includes those forests which are on any other lands which are declared to be community land by an Act of Parliament. The fourth type of community forests includes those forests which lie on land that is lawfully held, managed or used by specific communities as community forests. The fifth category includes those forests which lie on ancestral lands and lands which are traditionally occupied by hunter-gatherer communities. The final type of community forests is the group of forests that are lawfully held as trust land by the county governments, but not those forests which lie on any public land held in trust by the county governments under Article 62 (2) of the Constitution.

3. Climate Change Act 2016

This Act creates a number of bodies that deal with various aspects of its implementation. These include the Climate Change Council which is established pursuant to Section 5 of the Act. The Council is the highest decision-making organ chaired by the President who is then deputized by the Deputy President. The Council has the responsibility of dealing with climate change policy in the country. Considering its composition, the Council is a key decision-making stakeholder and co-producer of knowledge on climate change in the country.

Arising from the functions of the Council as captured under Section 6, the Act discloses certain key stakeholders and co-producers of knowledge. Key stakeholders among these includes, for instance, the public educators, policy makers of research and training, county and national governments. In fact, under Section 6(e), the Act recognizes even 'the public', as well as 'other stakeholders'. By adopting these sufficiently wide terminologies as being stakeholders, hence co-producers of knowledge, the Act becomes inclusive as opposed to being exclusive. It gives the implementing agencies the power to identify stakeholders on a need basis.

Section 25(8) of the Act also sets out a number of key stakeholders who are supposed to be targeted by the Climate Change Fund. These include industrial researchers, technological researchers, policy formulators, scientific researchers, academic researchers, business people, and civil society people, among others. Consequently, these stakeholders become key target co-producers of knowledge on climate change.

One of the provisions of the Act which becomes very central and critical to the idea of the Mijikenda community's cultural preservation of the *kaya* forests is that of the National Climate Change Action Plans (NCCAP). The Act requires that the country develops NCCAPs to help in addressing the global problem of climate change. Presently, the country is implementing the National Climate Change Action Plan (NCCAP) 2018–2022. This NCCAP obligates the state to increase the country's forest cover to 10%.²⁷

However, there is a possible soft underbelly of the Act that needs to be brought out. Whereas the inclusion of the President and the Deputy President as members of the Council could be considered to have demonstrated Kenya's seriousness in dealing with climate change, there is also a possible downside to this inclusion. The downside arises from the possibility that given the very busy schedules of the two public officers, there is the risk that the programs of the Council might suffer from a lack of time

27 Government of the Republic of Kenya, National Climate Change Action Plan 2018–2022, Ministry of Environment and Forestry 2018, Nairobi, p. 3.

by the two public officers to actually chair the Council meetings. What this risk then portends is that policy oversight intended to be served by the Council may actually be lost in the process.

4. The Treaty for the Establishment of the East African Community

This is the framework treaty that establishes the seven-member States' regional body, i. e. East African Community (EAC) which presently comprises Kenya, Uganda, Tanzania, Rwanda, Burundi, South Sudan and the Democratic Republic of Congo. The treaty has a number of enabling provisions to enhance the region's ability to co-production of knowledge in the area of climate change. One such provision, for instance, is Article 100 which provides Meteorological Services. Article 100(1) (h) requires that Member States cooperate in the area of climate analysis and seasonal forecast. Further, Article 100(2) obligates Member States to cooperate and support each other in all activities of the World Meteorological Organization (WMO) affecting the interests of the Community especially the monitoring of the atmospheric and climatic changes on the planet. The role of meteorological services in dealing with climate change cannot be gainsaid.

In addition to the above provisions, Article 103 of the Treaty on Science & Technology is equally critical. For instance, Article 103(1) (c) requires the Member States to encourage the use and development of indigenous science and technologies. This particular provision aligns very well with the provision of Article 11(2) (b) of the Constitution of Kenya 2010 which has already been examined hereinbefore. Further, Article 103(1) (e) of the Treaty requires the Member States to exchange scientific information, personnel and the promotion and publication of research and scientific findings. This provision becomes important because it makes science and technology to be significant components of co-production of knowledge within the area of climate change.

Aside from the above provisions, Article 112 of the treaty on the Management of Natural Resources is also of great significance. Under Article 112 (2) (f), the treaty requires that Member States promote the use of non-ozone depleting substances and environment-friendly technologies. This provision, if implemented, should assist Member States in dealing with climate change mitigation within them and the region generally.

In conclusion, it is noted that the structural and organizational architecture of the EAC is such that the State is the primordial focal point of action, i. e. it is intergovernmental

in nature.²⁸ Thus, even though the treaty identifies a host of other possible knowledge producers, the Community's point of operational focus remains the Governments of the Member States. This therefore makes the State to become a very dominant player in the affairs of the Community.²⁹ Consequently, other key actors do not have very central roles to play as co-producers of knowledge in the implementation of EAC's programs, including climate change. This, therefore, becomes a significant drawback because it makes the EAC more of an exclusive, as opposed to being inclusive, organization within the realm of co-production of knowledge. In this respect, implementation of the Community's programs either leaves out or diminishes the possible roles of certain key actors who would otherwise be useful co-producers of knowledge.

5. The United Nations Framework Convention on Climate Change (UNFCCC)

Kenya ratified the United Nations Framework Convention on Climate Change (UNFCCC) on 28th November 1994 as a Non-Annex I Party.³⁰ By its design, this treaty sets out roles for various stakeholders as co-producers of knowledge in its implementation. For instance, Article 5 deals with research and systematic observation. In this regard, researchers then become useful stakeholders as co-producers of knowledge. The stakeholders include intergovernmental, regional, international organizations and networks. In addition to research, Article 6 of the treaty also regulates education, training and public awareness. Consequently, trainers and educators then become key stakeholders and co-producers of knowledge on matters relating to climate change.

In addition to the foregoing, Articles 9 and 10 of the treaty are equally pertinent. Article 9 establishes a body known as the Subsidiary Body for Scientific and Technological Advice. Similarly, Article 10 also establishes a body known as the Subsidiary Body for Implementation. These two bodies are critical institutions in the roles that they play in the implementation of the treaty. Thus, these organizations become important stakeholders in dealing with the global climate change agenda. Consequently, they are global co-producers of knowledge.

- 28 *Binda*, The Legal Framework of the EAC, in Ugirashebuja, Ruhangisa, Ottervanger, and Cuyvers, East African Community Law: Institutional, Substantive and Comparative EU Aspects, Leiden: Brill Nijhoff Publishers Ltd, 2017, p. 42.
- 29 *Binda*, The Legal Framework of the EAC, in Ugirashebuja, Ruhangisa, Ottervanger, and Cuyvers, East African Community Law: Institutional, Substantive and Comparative EU Aspects, Leiden: Brill Nijhoff Publishers Ltd, 2017, p. 43.
- 30 *Odhiambo*, & *Mueni*, The Business of Climate Change: An Analysis of Carbon Trading in Kenya, Journal of Conflict Management & Sustainable Development 2022, p. 176.

6. The Mijikenda Kaya Forests

The Mijikenda, also known as the Nine Villages (Tribes), refers to the distinct Bantu groups who speak closely-related languages. The nine Bantu speaking communities which make up the Mijikenda include the Giriama, Chonyi, Jibana, Kambe, Ribe, Kauma, Rabai, Duruma and the Digo.³¹ These communities live in the present day Mombasa County, Kilifi County, and Kwale County, i. e. areas that stretch from the hinterland of the Kenyan Coast all the way to the Kenya-Tanzania border in the South.³² They settled in these regions having migrated from Shungwaya, an area lying to the North of River Tana, within southern Somalia, during the 17th century.³³ When they migrated to Kenya's coastal region, the Mijikenda groups settled into fortified villages which were known as 'Makaya', i. e. plural of *kaya*. Today, there are eleven (11) *makaya* which have been inscribed into the List of UNESCO World Heritage Sites.³⁴

The Mijikenda Kaya Forests are spread over some 200 kilometres along the Kenyan coastal regions.³⁵ Whereas there are up to about 42 Kaya Forests, the main Makaya however include Kaya Giriama (204 ha), Kaya Jibana (140 ha), Kaya Kambe (75 ha), Kaya Kauma (75 ha), Kaya Ribe (36 ha), the Rabai Makaya (580 ha), The Duruma Makaya (398 ha), and Kaya Kinondo (30 ha).³⁶ These forests contain remains of fortified villages, referred to as *Makaya*, which were created during the 16th century but were later on abandoned during the first half of the 20th century.³⁷ The Kaya Forests are now regarded as ancestral abodes which are therefore revered as the community's sacred sites maintained by the councils of elders.³⁸ These forests therefore bear unique testimony to the communities' cultural traditions while also having direct links to living traditions.³⁹

31 *Spear*, Traditions of Origin and Their Interpretation: The Mijikenda of Kenya, 1982, Athens, Ohio, as reviewed by Allen, Shungwaya, the Mijikenda, and the Traditions, The International Journal of African Historical Studies 1983, p. 455–485.

32 *Ibid* 31.

33 *Morton*, New Evidence regarding the Shungwaya Myth of Miji Kenda Origins, The International Journal of African Historical Studies 1977, p. 628–643.

34 See, for instance, *UNESCO World Heritage Convention*, Sacred Mijikenda Kaya Forests, 1992–2002, UNESCO, available online at whc.unesco.org/en/list/1231/multiple=1&unique_number=1589, accessed on 6th November 2022.

35 *UNESCO World Heritage Convention*, Sacred Mijikenda Kaya Forests, 1992–2022, UNESCO, available online at whc.unesco.org/en/list/1231/, last access November 2022

36 *Ibid* 36.

37 *Ibid* 36.

38 *Ibid* 36.

39 *Ibid* 36.

7. Purpose of the *Kaya* Forests

The original principal purpose of the *makaya* was that they provided residential fortresses for the Mijikenda. The villages were located right within the forests so as to protect members of the community against the hostile actions of the neighbouring communities of the area.⁴⁰ The *kaya* forests provided a defensive function to the communities through three main ways. Firstly, the *makaya* villages were sited within thick forests in a manner that ensured that the villages could only be approached through narrow forest paths.⁴¹ Secondly, the *makaya* were surrounded with strong stockades.⁴² Finally, members of the community buried sacred objects, known as *fungo* in local dialects, within the *makaya*.⁴³ The *fungo* were considered to have been essential to the material and spiritual wellbeing of the community.⁴⁴ Therefore, the *kaya* forests became revered by members of the community and, invariably, their conservation became more of a matter of cause within the communities' cultural existence.

However, over time, and especially with the advent of colonialism, the feeling of threats of annihilation by members of the community diminished. Consequently, members of the community began to move out of the *makaya* so members of the community began to settle outside the forests. This was the development that put the *makaya* into complete disuse, in respect of community settlement, by the 1940s.⁴⁵ However, despite the fact that the *kaya* forests ceased to serve the function of settlement for members of the community, conservation of the forests nonetheless continued. The basis for the conservation was, and until now, premised upon the fact that the *kaya* forests are still considered centres of ritual and spiritual significance for members of the *Mijikenda* communities.⁴⁶

Studies have pointed out that the traditional preservation practices of the *kaya* forests have not only been important culturally, but also for the conservation of species of both flora and fauna. This is, more so, in light of the fact that studies on plant biodiversity, in-

40 *Mbugua*, Kenya's Mijikenda people revive sacred homesteads to protect the forest, Mongabay, 1st October 2018. Available online at news.mongabay.com/2018/10/kenyas-mijikenda-people-revive-sacred-homesteads-to-protect-the-forest/, last access November 2022.

41 *Githitho*, Listing the Sacred Mijikenda *kaya* Forests as UNESCO World Heritage Sites: 'The Long Journey', *Journal des Africanistes* 2016, p. 198–217.

42 *Ibid* 41.

43 *Ibid* 41.

44 *Ibid* 41.

45 *Mbugua*, Kenya's Mijikenda people revive sacred homesteads to protect the forest, Mongabay, 1st October 2018, at news.mongabay.com/2018/10/kenyas-mijikenda-people-revive-sacred-homesteads-to-protect-the-forest/, last access November 2022.

46 *Githitho*, Listing the Sacred Mijikenda *kaya* Forests as UNESCO World Heritage Sites: 'The Long Journey', *Journal des Africanistes* 2016, p. 198–217.

cluding species rarity and endemism, have established that of the twenty (20) highest-ranking forested sites, up to seven (7) of these forests are to be found within the *kaya* forests.⁴⁷ Consequently, it becomes apparent that the conservation and or preservation of the *kaya* forests serve to enhance biodiversity conservation of the country's flora and fauna in very significant ways.

Apart from serving the cultural value of the Mijikenda communities, the preservation of the *kaya* forests also serves two other significant constitutional functions for the general Kenyan society. The first function derives from Article 11 of the Constitution which obliges the Kenyan state to recognize the various diverse cultural expressions of the different ethnic nations that constitute the Kenyan polity. In this regard, whereas the community's preservation of the *kaya* forests serves a cultural function on their end, this however then dovetails with the overall statehood purpose which requires the state to promote all forms of national and cultural expressions. On its part, one way through which the state gives effect to the imperatives of Article 11 for the Mijikenda community, with regard to forest conservation, is through the enactment of the Forest Conservation and Management Act 2016.⁴⁸

Through section 30 of this Act, the state establishes the Community Forests which are then managed under section 32 and protected under the Act. Thus, the community's role in the preservation of the *kaya* forests for cultural purposes serves to enhance the Kenyan state's compliance with the country's constitutional imperatives. In that regard, the mutuality of interests between the community's cultural intentions and the state's environmental protection finds a critical forum for co-production of knowledge through forest conservation of the *kaya* forests.

Secondly, the Mijikenda community's preservation of the *kaya* forests also serves to enable the state to meet its obligations in respect of the environment as envisaged pursuant to Article 69 of the Constitution. One such obligation requires the state to work towards achieving and maintaining a tree cover of at least 10% of Kenya's land area.⁴⁹ Deforestation has always been a long running problem for the country. For instance, it is recorded that when Kenya gained independence in 1963, the country's land mass had a 10% forest cover.⁵⁰ So bad was the case of deforestation during the subsequent years that by the year 2009, the country's forest cover had dropped to about only 6%.⁵¹

47 *Ibid* 46.

48 Act No. 34 of 2016.

49 Article 69(1) (b) of the Constitution of Kenya 2010.

50 *Mutuku*, Kenya has lost nearly half its forests – time for the young to act, The Africa Report, 12th August 2019, available online at www.theafricareport.com/16150/kenya-has-lost-nearly-half-its-forests-time-for-the-young-to-act/, last access November 2022.

51 *Ibid* 50.

The deforestation was necessitated by, among other reasons, charcoal burning, timber production, expansion for settlement due to population growth, agricultural extension, logging, and urbanization.⁵² This level of deforestation did, no doubt, push up the country's contribution to climate change, soil erosion, increased flooding and dramatic reduction in the availability of fresh water during droughts.⁵³

As of 2010, Kenya's forest cover assessment indicated that the country's forest cover stood at only 4.18 million hectares.⁵⁴ This figure represented 6.99% of the country's total land area. The issue of the country's dwindling forest cover and the associated problems flowing therefrom, therefore, became causes of concern for the country and the same informed debates around the environment during the country's constitutional review period. This concern, therefore, informed the decision by the reviewers of the Constitution to include express obligations on afforestation into the Constitution which was then being reviewed.

Between 2010 and 2022, the country has managed to increase its tree cover from the 6.99% to the present 12% so as to meet the constitutional imperative of Article 69(1) (b).⁵⁵ There is no doubt that the achievement of this constitutional feat has been facilitated by, among others, the initiatives of the Mijikenda community's cultural practices involving the preservation of the *kaya* forests. In addition, working hand in hand with communities, such as the Mijikenda, to undertake the cultural preservation of the *kaya* forests, has enabled the government to meet one of its constitutional obligations which requires that the government encourages public participation in the management, protection and conservation of the environment.⁵⁶

8. The *Kaya* Forests and their Contribution to Kenya's Climate Change Obligations

Within the climate change discourse, it is understood that trees help stop climate change by removing carbon dioxide from the atmosphere and storing carbon within the trees

52 Njora, & Yilmaz, Analysis of the Effects of Deforestation on the Environment and Agriculture in Kenya, International Journal of Water Management and Diplomacy 2022, p. 5.

53 Mutuku, Kenya has lost nearly half its forests – time for the young to act, The Africa Report, 12th August 2019, available online at www.theafricareport.com/16150/kenya-has-lost-nearly-half-its-forests-time-for-the-young-to-act/, last access November 2022.

54 Ministry of Environment and Forestry, National Strategy for Achieving and Maintaining Over 10% Tree Cover By 2022, Ministry of Environment and Forestry, May 2019.

55 Atieno, Kenya Achieves 10% National Tree Cover Target, Science Africa, 24th May, 2022, available at scienceafrica.co.ke/2022/05/24/kenya-achieves-10-national-tree-cover-target/, last access November 2022.

56 Article 69(1) (d) of the Constitution of Kenya 2010.

and soil while releasing oxygen into the atmosphere. The indispensable role that trees play can be best demonstrated by all the efforts that are being directed towards the planting of trees at the global level. One such effort, for example, is the ambitious campaign launched by the World Economic Forum in Davos in January 2020 which seeks to plant 1 trillion trees by 2030 in support of the United Nation's Decade of Ecosystem Restoration.⁵⁷ The campaign aims to restore, protect or plant 1 trillion trees by the year 2030 for the purposes of combating the effects of climate change. This campaign follows a similar one that had been kicked off in 2018 by nature non-profit organizations, such as the World Wildlife Fund, with the intention to plant 1 trillion trees by the year 2050.⁵⁸ Afforestation programs are intended to not only check against desertification but also the worry of climate change. In Kenya, like the rest of Sub-Saharan Africa, the problem of deforestation generates violations of environmental as well as human rights and social problems.⁵⁹ This is because deforestation deprives the rural communities of their important source of livelihood given that such people depend on the forests for their medicinal value, shelter, as well as food. For instance, it has been established that 10% of the economies of Ghana and Cameroon are reliant on forests.⁶⁰ Within the context of the present discussion of co-production, it is imperative to note that the realities of deforestation are not any different within the Kenyan state. As a result, the Mijikenda community's active involvement with the preservation of the *kaya* forests is significant to the country insofar as it contributes significantly towards the country's amelioration of the effects of climate change. For members of the community, the act of preservation of the forests serves an integral cultural function as it enables them to relive and connect with their past. On the government's part, the preservation of the *kaya* forests enables the state to advance its forest conservation strategy so that it can meet its obligations under, for instance, both the Climate Change Act 2016 and the National Climate Change Action Plan (NCCAP) 2018–2022. The Action Plan specifically requires the country to increase forest cover to 10% of Kenya's total land area.⁶¹

57 Lock, Why Tree Planting Is So Important in the Fight Against Climate Change, 23rd July 2021. Available online at www.globalcitizen.org/en/content/why-planting-trees-helps-fight-climate-change/, last access November 2022.

58 Lock, Why Tree Planting Is So Important in the Fight Against Climate Change, 23rd July 2021. Available online at www.globalcitizen.org/en/content/why-planting-trees-helps-fight-climate-change/, last access November 2022.

59 Njora, & Yilmaz, Analysis of the Effects of Deforestation on the Environment and Agriculture in Kenya, *International Journal of Water Management and Diplomacy* 2022, p. 5.

60 *Ibid* 59.

61 *Government of the Republic of Kenya*, National Climate Change Action Plan 2018–2022, Ministry of Environment and Forestry 2018, Nairobi, p. 3.

V. Conclusion

This chapter has offered highlights regarding co-production of knowledge within Kenya's legal framework relating to climate change. What emerged is that co-production as a concept is not well represented within the country's laws. Rather, the Kenyan laws come out as being stronger on the concept of public participation which is an express constitutional principle and value of governance.

CHAPTER VIII

Missing the Mark in Law

Creating a Sustainable Legal and Policy Framework for Indigenous Knowledge on Climate Change Mitigation and Adaptation in Tanzania

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I. Introduction

The need to create a sustainable legal framework for indigenous knowledge on climate change mitigation is hinged upon the extent to which indigenous communities and their resource rights are recognized and accepted by the governing state. The doctrine of ‘justice recognition’ in climate justice may be observed in the light of whose knowledge, interests, priorities, and livelihoods within particular social constructs, politics and practice are respected and considered worthy of recognition.² Recognition justice requires governments to recognize marginalized (indigenous communities) knowledge or values.³ Certainly, legal misrecognition of climate change results in policies, laws and practices on climate mitigation and adaptation that are non-inclusive of the knowledge or interests of indigenous communities.⁴ In the last decade of the twentieth century, research on ecological knowledge started to acknowledge the necessity of incorporating indigenous people as active agents in providing solutions to climate change mitigation and adaptation. Such scholarships have found roots in the theme that, indigenous communities depend on natural resources for their biological and economic survival, and thus have a ‘symbiotic’ relationship with their surround-

1 *Mwanga and Gonza* contributed to the research and the drafting of all sections of the chapter, *Poto and Lohse* supervised and edited the content of the chapter. The authors are grateful to *Juliana Hayden* for the English proofreading and editing.

2 *Tor A Benjaminsen, Hanne Svarstad and Iselin Shaw of Tordarroch*, *Recognising Recognition in Climate Justice*, Institute of Development Studies (IDS) 2021 <https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/16912> last access December 2022.

3 *Meg Parsons, Karen Fisher and Roa Petra Crease*, *Decolonising Blue Spaces in the Anthropocene: Freshwater Management in Aotearoa New Zealand*, 2021 <<https://link.springer.com/10.1007/978-3-030-61071-5>> last access December 2022.

4 *Brian J Preston*, *The Adequacy of the Law in Achieving Climate Change Justice – Some Preliminary Comments*, 34 *Journal of Energy & Natural Resources Law* 2006, p. 1.

ing environment.⁵ As a result of such a relationship, they have accumulated a body of comprehensive knowledge to cope with climate change. In its 2007, 2010 and 2022 reports, the Intergovernmental Panel on Climate Change (IPCC) confirms the scholarship that indigenous and traditional knowledge can offer an invaluable basis for establishing adaptation and natural resources management techniques with respect to the environment and climate change.⁶ Indigenous communities' knowledge is based on their traditional, folklore, cultural beliefs and practices and is passed through generations by cultural transmissions.⁷

The recognition and integration of indigenous knowledge are of utmost importance as climate change is one of the most threatening global hazards confronting the world today. Thus, there have been calls for nations around the world to address the problem of climate change by utilising all available solutions.⁸ Such concerns suggest that approaches to climate change mitigation and adaptation should take on polycentric and/or multifaceted dimensions. A polycentric approach to mitigate and adapt to the adverse impact of climate change necessitates the incorporation of indigenous knowledge systems to supplement scientific knowledge.⁹ For purposes of clarity and comprehensive understanding, it is hereby pertinent to define two key phrases used in this chapter; 'indigenous communities' and 'indigenous knowledge'. Defining the phrase 'indigenous communities' is complex because the phrase carries legal, political, and cultural implications.¹⁰ Communities identify themselves as indigenous for the specific purpose of establishing and protecting their rights and interests.¹¹ Tanzania does not recognise the existence of indigenous communities in its territories. But interestingly, the African Commission on Human and Peoples Rights recognises Hadzabe, Maasai and Barbaig to

5 *International Labour Organization*, *Indigenous Peoples and Climate Change: From Victims to Change Agents through Decent Work* 2016, p. 1 <https://www.ilo.org/wcmsp5/groups/public/---dgreports/---gender/documents/publication/wcms_534346.pdf> last access December 2022.

6 See Intergovernmental Panel on Climate Change, 'IPCC Press Release' 2022/08/PR, 28th February 2022 p. 2.

7 *Paramu L. Mafongoya and Oluyede OC Ajayi*, 'Indigenous Knowledge Systems: Their History, Development Over Time and Role in Sustainable Development and Climate Change Management', in *Paramu L. Mafongoya and Oluyede OC Ajayi*, *Indigenous Knowledge Systems and Climate Change Management in Africa*, Wageningen 2017, p. 30.

8 *Intergovernmental Panel on Climate Change*, IPCC Press Release, 2022/08/PR, 28th February 2022 p. 2.

9 *George C Homsy and Mildred Warner*, *Climate Change and the Co-Production of Knowledge and Policy in Rural US Communities*, 53 *SociologiaRuralis* 2013, p. 291.

10 *Ellen, Parkes Pand Bicker*, *Indigenous Environmental Knowledge and It's Transformations: Critical Anthropological Perspectives*, 2000, p. 3.

11 *Peter*, *Human Rights of Indigenous Minorities in Tanzania and the Courts of Law*, 14 *International Journal on Minority and Group Rights* 2007, p. 10.

be among the indigenous communities found in Tanzania.¹² However, for the purposes of this study, the expressions indigenous community or indigenous people refers to a group of people who have established residence in particular geographical vicinity, developed connectivity to ancestral territories and their natural resources, maintained cultural and social identities and unique distinct traditional habits.¹³ The expression local communities is also used interchangeably with the expressions indigenous people and indigenous communities. The expression indigenous knowledge simply connotes the knowledge of the indigenous communities or indigenous people. It covers the knowledge, beliefs, rituals, norms, culture, rites experiences, innovations, arts, and other practices of the indigenous communities.¹⁴ Indigenous knowledge is a result of a long period of the interaction between the indigenous communities with their environment and it is passed down from one generation to another. It is developed by the indigenous communities over generations of living within a particular environment.¹⁵ Other terminologies that are used to refer to indigenous knowledge include traditional knowledge, and local knowledge.¹⁶ In the context of this study, the term indigenous knowledge includes knowledge and all practices of the indigenous people that are relevant to environmental governance. Furthermore, the expression traditional knowledge is used interchangeably with the term indigenous knowledge.

It is worth noting that, at the international level, recognition of the significance of traditional knowledge in enhancing solutions for environmental problems began during the 1990s. Before the 1990s, indigenous knowledge was ignored and undervalued due to greater emphasis being placed on contemporary science and technology.¹⁷ The Convention on Biological Diversity (CBD), that came into force in 1993 started to recognise indigenous communities as 'active agents' in bringing meaningful solu-

- 12 *African Commission on Human and Peoples' Rights and International Work Group for Indigenous Affairs* (eds), Report of the African Commission's Working Group of Experts on Indigenous Populations/Communities (African Commission on Human and Peoples' Rights ; International Work Group for Indigenous Affairs, p. 15.
- 13 *Rajendra K Pachauri*, Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change 2007, p. 15.
- 14 *Brewer and Warner*, Protecting Indigenous Knowledge in the Age of Climate Change, 27 *The Georgetown International Environmental Law Review* 2015, p. 590.
- 15 *Theodory*, Understanding the Relevance of Indigenous Knowledge on Climate Change Adaptation Among Mixed Farmers in the Ngoni River Basin, Tanzania, 13 *African Journal of Science, Technology, Innovation and Development* 2021, p. 2.
- 16 *Theodory*, Understanding the Relevance of Indigenous Knowledge on Climate Change Adaptation Among Mixed Farmers in the Ngoni River Basin, Tanzania, 13 *African Journal of Science, Technology, Innovation and Development* 2021, p. 2.
- 17 *Theodory*, Understanding the Relevance of Indigenous Knowledge on Climate Change Adaptation Among Mixed Farmers in the Ngoni River Basin, Tanzania, 13 *African Journal of Science, Technology, Innovation and Development* 2021, p.3.

tions to environmental problems. Article 8(j) of the Convention urges contracting parties to respect and preserve knowledge, innovations and practices of the indigenous communities that are relevant for the conservation and sustainable use of biological diversity and promote their wider application. Equally, the Paris Agreement of 2015 gives considerable attention to traditional knowledge as an important factor in enhancing climate change action. The Agreement further acknowledges, in its preamble, the need to respect and promote the rights of indigenous and local communities when implementing actions intended to address climate change.¹⁸ Furthermore, Article 7(5) of the Agreement stipulates that adapted measures by contracting states should take into consideration 'vulnerable groups, communities'. Such considerations should be guided by, as appropriate, 'traditional knowledge, knowledge of indigenous people and local knowledge'. The Paris Agreement also urges contracting states to integrate indigenous knowledge into relevant socioeconomic and environmental policies and actions where appropriate.¹⁹ Tanzania is a signatory state of many environmental treaties and conventions with provisions that stipulate the necessity to recognise and integrate indigenous knowledge in climate change mitigation and adaptation. For instance, Tanzania the United Nations Framework Convention on Climate Change and the Paris Agreement in 1996 and 2018 respectively. It is worth noting that, despite such efforts regarding environmental matters at the international law level, much remains to be desired on the appropriate actions taken by contracting states in order to comply with international agreements. This chapter puts forward the thesis that effective utilization of indigenous knowledge on climate change mitigation and adaptation practices is feasible if Tanzania enacts a sustainable and comprehensive legal framework that recognizes, supports, and integrates this knowledge. Thus, this chapter examines the scope to which the legal framework has recognized and incorporated indigenous knowledge, in particular to mitigate and adapt to climate change in Tanzania and the challenges hampering the use of indigenous knowledge to mitigate and adapt to climate change.

II. Potential for Indigenous Knowledge in Adapting and Mitigating to Climate Change in Tanzania

A correlation between indigenous people and climate change adaptation can be observed from two sides of the same coin. First, indigenous people are regarded as the most vulnerable victims of climate change due to the fact that their economic activities

18 See 11th preambular paragraph of the Paris Agreement, 2015.

19 Paris Agreement, 2015, Art. 7(5).

are overly dependent upon and sensitive to the climate.²⁰ Second, indigenous people are regarded as agents of change in climate change mitigation and adaptation. Particularly, indigenous people are known to have developed special interconnectedness with their environment: this relationship extends to the spiritual and ancestral realm. Thus, as change agents, indigenous people's accumulated knowledge can serve as a centre of providing solutions to environmental protection and sustainability. The acknowledgement of indigenous knowledge as an adaptation response to climate risks is reinforced by the fact that its strategies are cost effective, participatory, and sustainable.²¹ In essence, indigenous knowledge assists in promoting the acceptance of strategies aimed at responding to climate change by the community.²²

In Tanzania, local communities have developed various knowledge practices that have the potential to provide solutions for adverse impacts of climate change within their territories. This knowledge is rich in cultural and traditional context and is particular to the indigenous community that developed it. In fact, indigenous knowledge as developed by a particular local community is meant to serve as a distinct adaptation measure to a specific challenge in that particular geographical environment.²³ Moreover, the developed knowledge may also provide measures to mitigate the problem of climate change. For instance, the Sukuma local community in the Shinyanga Region (Northwestern Tanzania) has developed the 'ngitiri' system to overcome environmental degradation due to overgrazing and deforestation. This is an agro-silvopastoral system whereby the indigenous pastoralists leave an area of standing vegetation (grasses, shrubs, trees) during the entire duration of the rainy season while exposing it to grazing at the peak of the dry season.²⁴ This way the land is left to fallow and the vegetation to regenerate. The Chagga community in the Kilimanjaro region (Northern Tanzania), practices the 'kihamba' system as a traditional land management technique.²⁵ Farmers maintain a systematic way of mixed cropping. Thus, crops include surface plants such as coco yams,

20 *Theodory*, Understanding the Relevance of Indigenous Knowledge on Climate Change Adaptation Among Mixed Farmers in the Ngoni River Basin, Tanzania, 13 African Journal of Science, Technology, Innovation and Development, 2021, p. 1.

21 *Theodory*, Understanding the Relevance of Indigenous Knowledge on Climate Change Adaptation Among Mixed Farmers in the Ngoni River Basin, Tanzania, 13 African Journal of Science, Technology, Innovation and Development 2021, p. 4.

22 *Mwanga*, The Role of By-Laws in Enhancing the Integration of Indigenous Knowledge, 13 Carbon & Climate Law Review 2019, p. 20.

23 *Ibid* 22.

24 *Otsyina, Essaim and Asenga*, Traditional Grassland and Fodder Management Systems in Tanzania and Potential for Improvement, p. 3 <<http://www.internationalgrasslands.org/files/igc/publications/1997/2-28-003.pdf>> last access December 2022.

25 *Mbeyale and Mcharo*, Institutional and Land Use Dynamics of Chagga Homegardens in Kilimanjaro Region, Tanzania, 91 Tanzania Journal of Forestry and Nature Conservation 2002, p. 101.

potatoes, or leaf vegetables at the bottom layer on the land surface; followed by Arabica coffee, banana trees or traditional medicine (herbs) at a higher layer of land. Then the top layer is covered by large trees for timber or fuel.²⁶ Furthermore, the Chagga farmers use banana leaves, and other tree remains to spread them on the soil to retain soil moisture and control weeds on the fields.

Moreover, many *Hehe* people in Iringa (Southwestern Tanzania), cultivate trees for timber on large hectares of land.²⁷ To prevent the outbreak of huge fires that could consume masses of forests, they dig trenches/boundaries on the land that separate one forest plot from the other. Other indigenous communities have used folklore to protect and conserve the natural resources around them. At Mgoobe village in Mombo, Korogwe,²⁸ the Zigua community has sought to conserve their water source, the Pangani, via a myth that dictates that anyone who attempts to come near or cross it will drown. The myth's roots are from a story whose happenings took place about 200 years ago.²⁹ The Chief of the Zigua, called Mbega, was coming from another region, called Kilindi, with his dogs. The Wakwavi (a Masai ethnic group) wanted to hurt or kill him. It is alleged that when he came to the Pangani, he used spiritual powers that enabled him to cross the Pangani River to another region, the Lushoto in Tanga.³⁰ It is believed that the Chief stored these spirits in the earth around the river, and thus, no one ever goes near that part of the river nor tries to cross it due to the belief that they will be drowned. The people of Korogwe point out that, four other Maasai tried to cross the River and drowned.³¹ Given that the Zigua's water source is precious, indigenous people developed such stories in order to conserve and protect the river from any threats of pollution.

Indeed, indigenous communities in Tanzania have developed many practices including but not limited to rainwater harvesting, agroforestry, use of organic manure, terracing, mixed farming, mulching, inter-cropping, agro-pastoralism, cultivation of cover

26 *Mbeyale and Mcharo*, Institutional and Land Use Dynamics of Chagga Homegardens in Kilimanjaro Region, Tanzania, 91 Tanzania Journal of Forestry and Nature Conservation 2002, p. 102.

27 Information submitted from personal experience/observation of one of the authors, whose origins are in the Southwestern Tanzania.

28 Korogwe is a district in Tanga region, Northern of Tanzania.

29 View a narration of the folklore in Swahili at; Millard Ayo, 'Mto wa Ajabu Hakuna Mtu Anaeweza Kuvuka: Waliolazimisha Wamefariki' <<https://youtu.be/Tk1B0jpMAD4>> last access November 2022.

30 Ayo, 'Mto wa Ajabu Hakuna Mtu Anaeweza Kuvuka: Waliolazimisha Wamefariki' <<https://youtu.be/Tk1B0jpMAD4>> last access 2022.

31 View a narration of the folklore in Kiswahili at: Millard Ayo, 'Mto wa Ajabu Hakuna Mtu Anaeweza Kuvuka: Waliolazimisha Wamefariki' <<https://youtu.be/Tk1B0jpMAD4>> last access November 2022.

crops, and crop rotations.³² In terms of climate change, these developed practices provide efficient and cost-effective measures to adapt to climate change. The indigenous community's practices further contribute to mitigating climate change by reducing the emission of greenhouse gases resulting from deforestation but also by sequestering greenhouse gases from the atmosphere. Thus, indigenous knowledge has the potential to significantly contribute to climate change mitigation and adaptation efforts. As such it is necessary to protect it and promote its usage. However sound protection and use of indigenous knowledge, among others, entails the existence of an effective policy and legal regime. A policy and legal framework that oversees the protection and use of indigenous knowledge is beneficial for not only laying down regulations for protection and use but also enhancing the codification of various categories of indigenous knowledge for future generations.

III. Policy and Legal Framework for Indigenous Knowledge in Tanzania

As noted earlier in this chapter, the role of policy and legal framework in integrating indigenous knowledge into climate change is vital. The existence of a sound legal and policy framework ensures the consistent application of indigenous knowledge and reduces or eradicates legal and practical challenges that may undermine the application of indigenous knowledge. This section provides a brief yet precise examination of the current policy and legal framework for the use of indigenous knowledge in Tanzania. In so doing, this study demonstrates the effectiveness of the Tanzania policy and legal framework in promoting the integration of indigenous knowledge into climate change mitigation and adaptation strategies. Most of the policies and the laws discussed do not provide directly for the use of indigenous knowledge to mitigate and adapt to the impacts caused by the problem of climate change. However, promoting the use of indigenous knowledge to manage natural resources and the environment may have significance in promoting the knowledge to address climate change.

1. Policy Framework

Certainly, it is impossible to examine the Tanzanian legal framework in isolation from its policy framework.³³ Simply stated, the two work in tandem. Policies are statements promulgated by the government to achieve a specific objective – usually to solve an

32 *URT*, Climate – Smart Agriculture Guideline, Dar es Salaam 2017, p. 25–38.

33 *Mapunda*, 'Policy formulation Process in Tanzania' <http://hdl.handle.net/2010> last access December 2022.

existing social challenge.³⁴ Thus, a policy serves as the government's guideline tool in ensuring that specific objectives are achieved and members of society are offered better services.³⁵ It is worth noting that, while policies are mere political statements that are legally non-binding, a law is promulgated to act in accordance with a policy to ensure the bindingness and legal effectiveness of the objectives stated under the latter. The main environmental policy in Tanzania was developed in 1997. This Policy was revised in 2021 to address new issues that were not earlier contemplated in its 1997 iteration. Among other problems, the revised Policy recognizes climate change as one of the major environmental problems that require 'concerted attention'.³⁶ The Policy also points out that the adverse impacts of climate change including draughts, floods, and an increase in the country's average temperature 'are already evident in almost all sectors of the economy in the country'.³⁷ These impacts have resulted in the loss of life, properties, human capital, displacement of people, destruction of infrastructure, and intrusion of seawater into water wells along the coastal areas.³⁸ The Policy projects further impacts by the year 2050 including the loss of coral reefs and the rise of temperature by 3 centigrade, from the 1980 average.³⁹ Therefore, the adoption and implementation of adaptation measures by Tanzania are inevitable due to the fast-approaching adverse impacts of climate change. In order to address the problem of climate change, the Policy requires the provision of specific policy guidance to address climate change, enhance national climate change resilience, promote public awareness of climate change adaptation and mitigation, and collaboration between Government and the private sector.⁴⁰ The policy does not make any direct reference to the use of indigenous knowledge to address climate change. However, it recognizes the role played by some indigenous knowledge systems such as *Ngitiri*, *Alalili* and *Millaga*,⁴¹ particularly in the management of forests in Tanzania.⁴² The Policy also recognizes the need to involve local communities in 'environmental conservation and management in their respective geographical areas', in order to ensure the broad commitment of these communities to environmental initia-

34 *Mukangara*, 'Information Resources Management for Policy Formulation, Implementation and Programme Decision Making in Government Ministries in Tanzania' University of Dar es Salaam Library Journal Vol. 9 No. 2, 2007, p. 42.

35 *Mapunda, A R*, 'Policy formulation Process in Tanzania' <http://hdl.handle.net/2010> last access December 2022.

36 URT, National Environmental Policy 2021, Dodoma 2021, p. 3.

37 *Ibid* 36.

38 *Ibid* 36.

39 URT, National Environmental Policy 2021, Dodoma 2021, p. 27.

40 URT, National Environmental Policy 2021, Dodoma 2021 p. 30.

41 *Ngitiri, alalili and millaga* are indigenous ways of preserving pasture for future use, especially during dry seasons.

42 URT, National Environmental Policy 2021, Dodoma 2021, p. 18.

tives'.⁴³ Alongside the National Environment Policy, there are sectoral policies that also address the use of indigenous knowledge. These policies include the Wildlife Policy of 2007, the Forest Policy of 1998, the National Agriculture Policy of 2013, and the National Livestock Policy of 2006. Some of these policies make direct reference to indigenous knowledge and require the use of indigenous knowledge in the management of natural resources, while other policies, as per the Forest Policy, do not make direct reference to indigenous knowledge but instead call for the active involvement of local communities in the management of natural resources.⁴⁴ By requiring the participation of local communities, these policies indirectly allow the use of indigenous knowledge in the management of natural resources. The Wildlife Policy makes direct reference to indigenous knowledge in its acknowledgement of the significant role of traditional knowledge and practices in the management, conservation and utilization of wildlife and wetland resources.⁴⁵ The Policy, therefore, calls the government to enhance and promote the use of traditional knowledge to manage and conserve wildlife and wetland resources through the establishment of Wildlife Management Areas (WMAs).⁴⁶ On the other hand, the Agriculture Policy requires the undertaking of scientific research that will enable the integration of indigenous knowledge into the agriculture sector.⁴⁷ The current National Climate Change Response Strategy (2021–2026) emphasizes the promotion and enhancement of 'the production, dissemination and use of conventional and indigenous knowledge on climate services' as one of the strategies for enhancing 'resilience of agriculture sector to climate change for sustainable Livelihoods'.⁴⁸ The National Livestock Policy is one of the sectoral policies which has extensive articulations concerning the use of indigenous knowledge. The Policy defines indigenous knowledge as the sum of knowledge and skills of a particular community in a given geographical area. These sets of knowledge and skills are passed from one generation to another.⁴⁹ In the case of livestock production, indigenous knowledge involves 'traditional skills on ethno-veterinary medicine, animal husbandry practices, management of rangelands and environmental aspects'.⁵⁰ The Policy further acknowledges the existence of a wide range of indigenous knowledge systems that has the potential to contribute to the development of the livestock sector. However, most of these knowledge systems are not properly used.⁵¹ The National Livestock Policy also underscores the fact that most live-

43 URT, National Environmental Policy 2021, Dodoma 2021 p. 59.

44 URT, National Forest Policy, Dar es Salaam 1998, p. 17.

45 URT, Wildlife Policy of Tanzania, Dar es Salaam 2007, p. 27.

46 *Ibid* 45.

47 URT, National Agriculture Policy, Dar es Salaam 2013, p. 11.

48 URT, National Climate Change Response Strategy (2021–2026), Dodoma, p. 80.

49 URT, National Livestock Policy, Dar es Salaam 2006, p. 35.

50 *Ibid* 49.

51 *Ibid* 49.

stock farmers in rural areas depend on indigenous knowledge to control animal diseases and to improve livestock productivity.⁵² Thus, one of the objectives of the Policy is to promote the use of indigenous knowledge in the livestock sector. To achieve this objective, the Policy calls for the strengthening of technical support services on indigenous knowledge; raising awareness about indigenous knowledge; strengthening infrastructure and facilities for indigenous knowledge development and collaborations between the government and indigenous communities.⁵³

2. Legal Framework

The mere existence of policies is not by itself enough to achieve an effective utilization of indigenous knowledge in addressing environmental problems. Having in place binding documents with real legal force is necessary. The Environmental Management Act of 2004 (EMA) is the principal legislation as far as the management of the environment in Tanzania is concerned. The Act takes precedence over all other laws on environmental issues.⁵⁴ Yet, the Act doesn't comprehensively cover the issue of climate change mitigation and adaptation. In section 75, the Act gives wide powers relating to climate change mitigation and adaptation to the minister responsible for the environment. However, the powers are discretionary and consequently do not guarantee that the minister will exercise them.

Moreover, EMA lacks comprehensive provisions about the use of indigenous knowledge to manage the environment. Instead of providing clear guidelines on the integration of indigenous knowledge into environmental management, the Act gives the minister responsible for the environment the power to make regulations that may cover guidelines on the use of indigenous knowledge in Tanzania.⁵⁵ Generally, most of the laws that address the use of indigenous knowledge fall in line with the approach taken by EMA. The Fisheries Act also gives power to the minister responsible for fishing to identify conditions that, among others, protect the traditional practices of the indigenous communities who depend on fisheries resources for their livelihood.⁵⁶ However, most of these discretionary powers are rarely exercised. To date, there are no such regulations made under the above mentioned laws to regulate the use of indigenous knowledge.

Unlike EMA and the Fisheries Act, the Wildlife Conservation Act and the Forest Act have comprehensive provisions that significantly promote the use of indigenous knowl-

52 URT, National Livestock Policy, Dar es Salaam 2006 p. 35.

53 *Ibid* 42.

54 Environmental Management Act 2004, section 231.

55 Environmental Management Act 2004, Section 67(j).

56 Environmental Management Act 2004, Section 17(p).

edge. While the Wildlife Conservation Act promotes the use of indigenous knowledge relevant to wildlife conservation, the Forest Act promotes indigenous knowledge relevant to forest management. Both Acts call for the active involvement of the indigenous communities in the management of wildlife and forest resources respectively, as a method of harnessing their knowledge. In particular, the Wildlife Act defines indigenous knowledge to mean ‘the systems of norms, cultures, rites, rituals and other wildlife conservation and management related practices of traditional communities which have been proved to enable the communities to interact with, and utilize wildlife resources in a sustainable manner.’⁵⁷ The Act allows local communities to participate in the management of wildlife resources through wildlife management areas (WMAs). To date, there are 38 WMAs in Tanzania⁵⁸ which give local communities an opportunity to participate directly in the ownership, management, and conservation of wildlife resources and to derive direct benefits from the use of the resource.⁵⁹ These WMAs are managed through the knowledge of the local communities.

The Forest Act does not mention either indigenous knowledge or traditional knowledge. However, the Act requires local communities to be actively involved in the management of forest resources through participatory forest management (PFM). Two forms of PFM are envisaged; community-based forest management (CBFM)⁶⁰ and joint forest management (JFM).⁶¹ While the latter allows local communities living adjacent to national or local government forests to enter into joint agreements with the government for the management and sharing of benefits arising from these forests,⁶² the former allows local communities to manage their village forests.⁶³ Both CBFM and JFM give the local communities an opportunity to use their traditional knowledge to manage the forests in their local environments.

The general observation from this study’s analysis of the policy and legal framework for the use of indigenous knowledge is that there are a number of policies and laws in Tanzania that directly or indirectly provide an opportunity to use indigenous knowledge in the management of the environment and natural resources. However, the policies and laws do not necessarily address specifically the use of indigenous knowledge in particular to mitigate and adapt to climate change. Nevertheless, these policies and laws

57 Environmental Management Act 2004, section 231.

58 URT, National Environmental Policy 2021, Dodoma 2021 p. 12.

59 Wildlife Conservation Act 2009, section 31.

60 Forest Act 2002, section 42.

61 Forest Act 2002, section 16.

62 Forest Act 2002, section 16.

63 URT, Community Based Forest Management Guidelines For the Establishment of Village Land Forest Reserves and Community Forest Reserves 2017, p. 7; see also the Forest Act, sections 42 to 48.

are still relevant to the discussion of participatory climate governance in Tanzania as they may be construed to allow the utilization of indigenous knowledge to mitigate and adapt to climate change. The fact that the policies and laws require active participation of local communities and further recognize their knowledge, provides an opportunity for implementing this knowledge base in environmental and climate matters. For instance, WMAs and PFM projects provide effective measures to reduce the emission of greenhouse gases by reducing forest degradation. Increasing forest cover also helps to absorb greenhouse gases from the atmosphere and store them in the bark of the trees. Moreover, the increase in forest cover may help local communities to adapt to climate change by protecting water sources and enhancing the availability of various forest resource products such as fruits and others.

IV. Challenges that limit the use of Indigenous Knowledge to mitigate and adapt to Climate Change in Tanzania

There are several challenges that require legal attention in order to promote the effective use of indigenous knowledge to mitigate and adapt to climate change. These challenges include the following:

1. Scattered laws with no comprehensive provisions or regulations on the use of Indigenous Knowledge

A number of laws provide the opportunity to use indigenous knowledge for management of the environment and natural resources in Tanzania. However, these laws are scattered throughout various sectors with no coordination. This situation leads to, among others, a lack of consistency in the use of indigenous knowledge across the country. Indigenous knowledge is thus significantly promoted in one sector and yet denounced in another. For instance, the use of indigenous knowledge to manage wildlife and forest resources is significant. The implementation of WMAs and PFM has significantly increased the use of indigenous knowledge in Tanzania, especially in the forest and wildlife sectors. But in other sectors, including formal education, industry and energy, the use of indigenous knowledge is not significant.⁶⁴ Studies show that the use of indigenous knowledge is also addressed in by-laws made by local government authorities including District, Town, and Village Councils.⁶⁵ However, most of these by-laws lack comprehensive guidelines on the use of indigenous knowledge. Furthermore, the

64 *Mascarenhas*, Discussion Paper: Indigenous Knowledge, Livelihood and Development, Dar es Salaam 2003, pp. 2–3.

65 *Mwanga*, The Role of By-Laws in Enhancing the Integration of Indigenous Knowledge, 13 *Carbon & Climate Law Review* 2019, p. 29.

majority of the by-laws provide few aspects of indigenous knowledge.⁶⁶ As such, the largest part of indigenous knowledge remains untapped. The weaknesses in the District, Town and Village Councils may be associated with a lack of clear regulations at the national level that provide for coordination and the integration of indigenous knowledge in Tanzania.

2. Insecurity of land tenure and dispossession of Indigenous People's lands

The development of indigenous knowledge involves long, multi-generational histories of interactions between the indigenous/local communities and the environments surrounding them.⁶⁷ This implies that land tenure is an important prerequisite for the application of indigenous knowledge. Land tenure, among others, gives the members of the local communities the right to use their land in the manner that they want.⁶⁸ From pre-colonial to post-colonial era, local communities in Tanzania have depended on natural resources for their livelihoods.⁶⁹ Local communities are mostly engaged in farming, animal keeping, hunting, and gathering. It is also worth noting that, territories inhabited by indigenous (local) communities in Tanzania are rich in fertile land, flora, fauna, and water resources.⁷⁰ Local communities are entitled to customary rights of occupancy as granted under section 27 of the Village Land Act.⁷¹ This is a tenure granted to people living in rural areas under the land system in Tanzania. However, many indigenous and local communities do not have legal titles over the land they possess. Practically, many indigenous communities live in unregistered villages. Under the law, their land is subsequently considered unoccupied or unused. While it is possible to acquire legal titles to their village land via the local government, this process is notoriously slow.⁷² Shortage of funds is the main constraint that prevents indigenous communities from engaging in the process of acquiring legal titles.⁷³ The fact that indigenous people do not possess a secure tenure to their lands has placed them in a disadvantaged position.

66 *Ibid* 65.

67 *Nakashima DJ and others*, *Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation*, Paris 2012, p. 9.

68 *Mbeyale and Mcharo*, *Institutional and Land Use Dynamics of Chagga Homegardens in Kilimanjaro Region, Tanzania*, 91 *Tanzania Journal of Forestry and Nature Conservation* 2002, p. 110.

69 *Kalafatic C*, *Indigenous Peoples' Sustainable Livelihoods*, *FAO Livelihood Support Program* 2004, p. 1.

70 *ElifurahaLaltaika and Kelly M Askew*, *Modes of Dispossession of Indigenous Lands and Territories in Africa* 2018, p. 14.

71 Cap 114 [R. E. 2002].

72 *Kweka et al.*, *The Context of REDD+ in Tanzania: Drivers, Agents and Institutions* 2015, p.20 <<http://www.cifor.org/library/5744/the-context-of-redd-in-tanzania-drivers-agents-and-institutions/>> last access December 2022.

73 *Ibid* 72.

Indigenous and local communities have been dispossessed from their traditional areas for various economic and development projects such as urban expansion, the declaration of national parks and game reserves,⁷⁴ and tourism.⁷⁵ The grabbed land is granted to large scale farmers who engage in commercial plantations to produce cash crops.⁷⁶ These incidents have resulted in litigation at different courts of law between indigenous villages and the government of Tanzania.⁷⁷ Concerningly, some of the climate change mitigation strategies by the Tanzanian government have posed threats to indigenous people by disposing them of their land.⁷⁸ The current trend in land grabbing is that indigenous and local communities have been evicted from their lands to enable the government to enlarge its protected areas/conservation areas.⁷⁹ A case that came before the East African Court of Justice, *Ololosakwan Village Council & 3 Others vs Attorney General of Tanzania*,⁸⁰ is another scenario that demonstrates this aspect of land grabbing of indigenous communities. The Maasai indigenous community belonging to four legally registered villages, bordering the Serengeti National Park, were forcefully evicted from their traditional areas. Their livestock was confiscated, and their homesteads were burnt down.⁸¹ The eviction of the indigenous communities followed the Government's intention, predominantly the Minister for Natural Resources and Tourism, to review the laws regarding land and wildlife conservation areas and the conservation of 1,500 sq. km of land which included areas belonging to the four villages. In September 2022, the Maasai local communities lost their case when the first instance of the EACJ ruled that the government of Tanzania's decision to cordon off land for conservation was legal

74 Haleem, East Africa and the Horn, in *Grant P* (ed), State of the World's Minorities and Indigenous Peoples 2016: Events of 2015, London 2016, p. 79.

75 Girard, Minority and Indigenous Women's Right to Culture: Identity, Gender and Opportunities for Empowerment, in *Grant* (ed), State of the World's Minorities and Indigenous Peoples 2016: Events of 2015 ; Focus on Culture and Heritage, London 2016, p. 40.

76 Haleem, East Africa and the Horn, in *Grant P* (ed), State of the World's Minorities and Indigenous Peoples 2016: Events of 2015, London 2016, p.80; *Elifuraha Laltaika and Kelly M Askew, Modes of Dispossession of Indigenous Lands and Territories in Africa* 2008, p. 4.

77 See land alienation and forceful eviction of indigenous and local communities' cases *Soitsambu Village Council v. Tanzania Breweries (TB) and Tanzania Conservation Ltd (TC)*, Civil case, 2010 at HC, Land Division; plaintiffs challenge forceful eviction from their ancestral land. Meatu case: *Jingulu Bwandi on behalf of 4000 Residents of Seven Villages in Meatu District v. Meatu District Executive Director, Ms Upendo Sanga*. Miscellaneous Land Case No. 19 of 2011 HC (Land Division) at Tabora.

78 *PINGO Forum et al., Climate Change Mitigation Strategies and Eviction of Indigenous People's from their Ancestral Lands: The Case of Tanzania' Indigenous People's Policy Brief*, <<http://www.iwgia.org>> last access November 2022.

79 *Laltaika and Askew, Modes of Dispossession of Indigenous Lands and Territories in Africa* 2018 p. 17.

80 Reference No. 10 of 2017. Also see EACJ Application No. 15 of 2017, *Ololosakwan Village Council & 3 Others vs Attorney General of Tanzania*.

81 EACJ Application No. 15 of 2017, *Ololosakwan Village Council & 3 Others vs Attorney General of Tanzania* paragraph 1.

and that the applicants had failed to provide sufficient evidence to their claim of breach of fundamental principles under Articles 6(d) and 7(2) of the East African Community Treaty, 1999.⁸² The emphasis of the trial is that indigenous people are good stewards of the natural resources that surround them. Thus, the alienation of local communities from their traditional land, forces them to abandon their traditional economic activities such as farming or pastoralism due to the shortage of land.⁸³ Dispossession of land puts communities at risk of losing the traditional knowledge of their environments and related natural resource management and conservation practices, including climate change mitigation and adaptation.⁸⁴ Thus, land tenure security can be regarded as a prerequisite for the effective use of indigenous knowledge since indigenous and local communities knowledge systems and practices are attached to the land they possess.⁸⁵

3. Indigenous Knowledge is ignored or perceived as primitive

There is a perception that the traditional ways of life adhered to within indigenous communities in Tanzania are primitive and old-fashioned.⁸⁶ This negative perception adversely affects the reception of traditional knowledge for mitigating and adapting to climate change by indigenous communities. The perception that indigenous knowledge is primitive is attributed to (i) prioritization given to scientific solutions to climate change (ii) western ideologies that advocate for advanced methods in tackling socio-economic problems that face humankind (iii) the phrases ‘local’ and ‘traditional’ knowledge brings about negative connotations in the sense that it is local or primitive. For instance, the government of Tanzania has sought to implement strategies to place pressure upon some indigenous and local communities to abandon their traditional economy and traditional way of life.⁸⁷ Particularly, the government of Tanzania has been putting pressure

82 EACJ Application No. 15 of 2017, *Ololosakwan Village Council & 3 Others vs Attorney General of Tanzania* paragraph 14.

83 *Olungurumwa PO*, An Assessment of the Tanzania Livestock Policy of 2006 and Its Impact on the Livelihoods of Pastoral Communities in Tanzania, Master of Research and Public Policy, University of Dar es Salaam 2016, p. 51.

84 *Langton, Rhea and Palmer*, Community-Oriented Protected Areas for Indigenous Peoples and Local Communities, 12 *Journal of Political Ecology* 2005, p. 28.

85 *Claridge and Xanthaki*, Protecting the Right to Culture for Minorities and Indigenous Peoples: An Overview of International Case Law, in *Grant* (ed.), *State of the World's Minorities and Indigenous Peoples 2016: Events of 2015; Focus on Culture and Heritage*, London 2016, p. 67.

86 *Theodory*, Understanding the Relevance of Indigenous Knowledge on Climate Change Adaptation Among Mixed Farmers in the Ngoni River Basin, Tanzania, 13 *African Journal of Science, Technology, Innovation and Development* 2021, p. 3.

87 *Peter*, Human Rights of Indigenous Minorities in Tanzania and the Courts of Law, 14 *International Journal on Minority and Group Rights* 2007, p. 15.

on the Barbaig⁸⁸ so that they cease their nomadic way of life and establish a permanent settlement.⁸⁹ The foregoing is based on the perception that these communities are backward, hence a need to develop them so that they live a modern life.⁹⁰ Indeed, the perception that indigenous people live primitive life results in negative perceptions by the population and the government regarding their knowledge of climate change mitigation. As a result, indigenous knowledge is not only ignored by the government but also efforts towards the creation of a sustainable framework to support it face obstacles or may be delayed.

4. Lack of research and inventory on existing Indigenous Knowledge in Tanzania

The majority of the population of Tanzania lives in rural areas. For many years, the lives of these rural communities have been depending, to a large extent, on their environment. As noted earlier in this chapter, rural communities have extensive body of knowledge relevant to environmental management, including addressing the problem of climate change.⁹¹ The problem is that there is limited research substantiating the wealth of the body of indigenous knowledge in Tanzania. Indeed, lacking research activities on the relevance of indigenous knowledge to climate change adaptation culminates in a situation whereby indigenous knowledge is perceived as naïve knowledge. Inadequate scientific elaboration on the use of indigenous knowledge in climate change adaptation strategy puts this body of knowledge at a disadvantage wherein it is perceived as lacking academic validation and scientific legitimacy. The development and support of an inventory of the available indigenous knowledge in Tanzania, relevant to environmental and natural resources management, is necessary to ensure effective planning in relation to the use of indigenous knowledge. Furthermore, the inventory would provide decision-makers with an opportunity to determine relevant indigenous knowledge to be promoted and its use to be enhanced in order to address particular environmental and societal problems. This lack of inventory of available indigenous knowledge in Tanzania, could be one of the reasons why most government actors mostly promote the use of scientific knowledge to address environmental problems. Therefore, having an in-

88 The Barbaig originate from an ethnic group called the Datog and are mainly pastoralists but also conduct hunting activities.

89 Peter, Human Rights of Indigenous Minorities in Tanzania and the Courts of Law, 14 International Journal on Minority and Group Rights 2007, p. 20.

90 Peter, Human Rights of Indigenous Minorities in Tanzania and the Courts of Law, 14 International Journal on Minority and Group Rights 2007, p. 14.

91 Nakashima et al., Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation, Paris 2012, p. 9.

ventory may assist decision-makers in effectively utilizing the most efficient indigenous knowledge to be implemented at the national level.

5. Indigenous Knowledge is not documented

Indigenous knowledge is largely oral.⁹² It is traditionally preserved through storytelling, and it is transferred from one generation to another through various methods including demonstration and practical learning.⁹³ The elders are the main custodians of indigenous knowledge. If the elder does not transfer the knowledge to the young generation, the death of the elder implies the death of a source of indigenous knowledge.⁹⁴ Furthermore, imparting indigenous knowledge from the old generation to the younger generations is challenging given that the younger generations spend a significant amount of time pursuing their formal education.⁹⁵ The current trend is in contrast to the pre-colonial colonial era (prior to the 1880s), whereby all Tanzanian societies were based on the informal mode of education. This informal mode of education was less reliant upon documentation. Indeed, the lack of documentation of indigenous knowledge affects its use as it is difficult to evaluate the knowledge through a peer review process. Documentation of indigenous knowledge can ensure the continuity of indigenous knowledge for future generations. Given the rapid change of lifestyle seen in many African rural communities including in Tanzania, where a pattern of youths leaving for towns and at the same time abandoning their traditional life, is placing traditional lifestyles and knowledge at risk. Documentation of indigenous knowledge is the best way to ensure its preservation and existence. This can be achieved by furthering research on indigenous communities and their unique knowledge bases and skill sets. If this is not done, in a few years to come, this body of knowledge is under threat of erasure. The risk of indigenous knowledge disappearing is very high.⁹⁶

92 Yunnus, Preservation of Indigenous Knowledge (IK) by Public Libraries in Westcliff, Chatsworth, Durban, Masters in Library and Information Studies, University of the Western Cape 2017, p. 3 <https://etd.uwc.ac.za/bitstream/handle/11394/5839/Yunnus_Mlis_ARTS_2017.pdf?sequence=1> last access December 2022.

93 Vinyeta and Lynn, Exploring the Role of Traditional Ecological Knowledge in Climate Change Initiatives, Portland 2013, p.29 <<http://www.treeseearch.fs.fed.us/pubs/43431>> last access December 2022.

94 Maina, Traditional Knowledge Management and Preservation: Intersections with Library and Information Science, 44 International Information & Library Review 2012, p. 13.

95 Theodory, Understanding the Relevance of Indigenous Knowledge on Climate Change Adaptation Among Mixed Farmers in the Ngonzo River Basin, Tanzania, 13 African Journal of Science, Technology, Innovation and Development 2021, p. 3.

96 *Ibid* 95.

V. Recommendations and way forward

This study examines whether the Tanzanian legal framework and policies effectively promote the integration of indigenous knowledge into climate change mitigation and adaptation strategies. The study finds that local communities in Tanzania have developed knowledge rich in cultural and traditional potency for providing solutions against the adverse impacts of climate change within their territories. However, the analysis discloses that 'a silencing effect' is demonstrated by most laws and policies as they do not directly stipulate the integration of indigenous knowledge to mitigate and adapt to the problem of climate change. To that effect, policies and laws have general clauses that stipulate the use of indigenous knowledge to manage natural resources found within their territories. The analysis further discloses that the failure exhibited by the Tanzanian policies and legal framework to effectively recognize and integrate indigenous knowledge for climate change mitigation and adaptation is in fact a surface level problem. There are other deeply rooted challenges that hinder the use of indigenous knowledge in Tanzania. These include the absence of research and inventory that demonstrates the robust body of available indigenous knowledge in Tanzania and its potential for environmental and natural resources management. Indigenous communities are victims of land dispossession because they do not possess secure tenures to their land. This affects the capacity to use indigenous knowledge for environmental conservation practices. There is also a perception that the traditional ways of life of indigenous communities in Tanzania are primitive. This negative assumption affects the public officers' reception of traditional and indigenous knowledge strategies for mitigating and adapting to climate change. One of the recommendations stipulated in this study, among others, is the necessity for the Tanzanian government to enact a specific law and policy on climate change. The comprehensive climate change policy and law should stipulate explicit solutions to climate change that are based on indigenous knowledge. The study concludes that inclusion of indigenous local communities is at the heart of knowledge co-creation in climate change mitigation and adaptation. Certainly, knowledge co-creation allows different actors to collaborate in the creation of solutions to environmental problems.⁹⁷ Co-creation allows the indigenous and local communities to participate in developing new knowledge to address the environmental problem in question.⁹⁸ As such, co-creation of knowledge is more 'likely to generate usable outcomes' and long-lasting environmental solution 'compared to a more traditional top-down approach.'⁹⁹ The study

97 Chapter II.

98 Coggan *et al.*, Co-creating knowledge in environmental policy development. An analysis of knowledge co-creation in the review of the significant residual impact guidelines for environmental offsets in Queensland, Australia, Environmental Challenges 2021, 1.

99 *Ibid* 98.

highlights that legal and policy frameworks play a significant role in promoting and facilitating co-creation of knowledge for climate change mitigation and adaptation. Legal and policy frameworks serve as fundamental pillars in the process of recognizing and promoting the contribution of local and indigenous communities to the climate change agenda. The foregoing brings about the notion that legal practices are likely to limit co-creation of knowledge in climate change mitigation and adaptation when indigenous knowledge is not effectively recognized and championed. And indeed, Tanzania stands in the spotlight in projecting how its legal and policy framework does not currently provide an environment that supports the co-creation of knowledge in climate change mitigation and adaptation.

CHAPTER IX

Case study: Exploration and Exploitation of Hydrocarbons at the Sea in Argentina

Is Knowledge Co-Created or Only a Non-Binding Formal Requirement?

Violeta S. Radovich / Eva Julia Lohse / Margherita Paola Poto¹

I. Introduction

The objective of this case study is to introduce environmental law in Argentina and focus on coproduction of knowledge regarding the new permits to explore and exploit hydrocarbons in the sea that were granted in 2021. The methodology is based on the analysis of laws, deeds of public audiences, interdisciplinary scientific articles, and judicial decisions.

Argentina is a federal Republic. The government system follows Montesquieu's classical division of powers – legislative, executive and judiciary – and a double jurisdictional system – federal and local governments. The last amendment to the Constitution, which took place in 1994, was relevant for environmental protection in the country. Art. 41, first paragraph of the Argentine Constitution guarantees the right to a healthy environment. Art. 41, third paragraph mandates the Argentine Congress to enact *normas de presupuestos mínimos de protección ambiental* – basic requirements environmental protection laws. This constitutional article gave rise to a new environmental scenario from the legal viewpoint². The *normas de presupuestos mínimos de protección ambiental* (the laws on minimum requirements for environmental protection) are mandatory and applicable to all twenty-three Argentine provinces, thus guaranteeing minimum protection of environmental quality to all inhabitants, regardless of their place of residence and/or origin. Provincial authorities may enact complementary and even more stringent or detailed regulations, and they are generally entrusted with law enforcement, monitoring and supervision. Consequently, there are two types of legal rules

1 Radovich wrote the chapter and conducted the research, Poto and Lohse supervised the drafting and revised the final version. Hayden proof-read it.

2 Nonna, The Argentine Constitution and Its Relationship with Environmental Standards, in: Eds. Turner et al, Environmental Rights. The Development of Standards, 2019, Cambridge University Press, pp. 265–285.

that coexist in Argentina – federal legislation governing the entire country and local legislation within each self-governing province. This change implemented by the 1994 constitutional amendment has resulted in conflict with the provinces, which previously did not have to comply with the constitutional amendment concerning any federal environmental minimum standard.³ Another critical consideration is that in Argentina the Escazú Agreement (EA)⁴ holds the highest constitutional status, as long with the Argentine Constitution. Article 75 subarticle 22 of the Argentine Constitution states that Human Rights international treaties that are voted by at least two-thirds of each of the Chambers of the Congress, enjoy constitutional rank. The EA was voted in with this majority. The EA, negotiated twenty years after the Aarhus Convention (AC)⁵, ensured the continuity and application of the AC to the Latin American and Caribbean nations, and opened decision-making to new actors and their views on nature, expanding the horizons of rights from merely participatory to substantive.⁶

II. Environmental law in Argentina

To date, twelve *normas de presupuestos mínimos de protección ambiental* ('laws on minimum requirements for environmental protection') have been enacted pursuant to Art. 41 of the Constitution. They cover a wide range of specific environmental issues:

- Integrated Management of Industrial Waste Act (Law 25.612, 29/7/02)
- PCBs Management and Disposal Act (Law 25.670, 19/11/02)
- General Environmental Law Act (Law 25.675, 28/11/02)
- Water Environmental Management Regime Act (Law 25.688, 30/1/03)
- Environmental Public Information Act (Law 25.831, 7/1/04)
- Integrated Management of Household Waste Act (Law 25.916, 7/9/04)
- Protection of Native Forests Act (Law 26.331, 26/12/07)

3 See for example, *Nonna, Radovich*, Régimen jurídico ambiental de los glaciares y ambiente periglacial en la Argentina, *Revista Jurídica de Buenos Aires*, edición especial 'Derecho de Aguas y Derecho Ambiental' 2016 I. (Coords. *Minaverry/Echaide*), pp. 39–65.

4 Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean, entered into force 22 April 2021, UNTC C. N. 195.2018. TREATIES-XXVII.1.

5 Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, entered into force 30 October 2001, 2161 UNTS 447.

6 *Poto*, Thinking about Ocean Governance. By Whom, for Whom?, in *De Lucia, Elferink, Nguyen*, International law and marine areas beyond national jurisdiction, 2022, pp. 148–173.

- Control of Grassland Burning Activities Act (Law 26.562, 16/12/09)
- Protection of Glaciers and Periglacier Environment Act (Law 26.639, 28/10/10)
- Prevention of Forest and Brush Fires Act (Law 26.815, 16/1/13)
- Management of Empty Containers of phytosanitary products Act (Law 27.279, 11/10/16)
- Adaptation and mitigation to Global Climate Change (Law 27.520, 20/12/19)

Although the Constitutional amendment took place in 1994, it was not until 2002 that the first *normas de presupuestos mínimos de protección ambiental* were enacted. One of these laws, the General Environmental Law (GEL), establishes the tools to achieve the national environmental policy that applies the environmental principles enshrined in the UN Rio Declaration on Environment and Development (Rio Declaration).⁷ The GEL is the Argentine environmental framework law, its provisions apply to every environmental issue in the country. The GEL introduces different instruments such as – environmental land planning, environmental impact assessment (EIA), a system of control over the development of anthropic activities, environmental education, diagnosis and environmental information system and economic regime of promotion of sustainable development. Regarding citizenship participation, the GEL guarantees the right of every person to express his or her opinion in the decision-making process and to access to justice in relation to environmental collective damage. The GEL states that every person has the right to express his or her opinion in procedures related to the protection of the environment, whether these procedures are of general or individual scope. Participation shall be specially guaranteed in regard to EIA procedures and land planning procedures; therefore, authorities shall institutionalize consultations processes or public hearings prior to authorizing activities that may cause negative effects on the environment.

III. Marine vs. offshore

When referring to hydrocarbon exploration and exploitation in the sea, I have previously argued that it should be described as ‘marine’ or ‘sea’ exploration or exploitation rather than ‘offshore’, from both a linguistic and an environmental point of view.⁸ The word ‘offshore’ is traditionally used as an adjective to describe ‘away from or at a dis-

7 UN, Rio Declaration on Environment and Development, Doc. A/CONF.151/26 (vol. I).

8 Radovich, Governance of oil and gas exploration and exploitation at sea towards coastal marine biodiversity preservation, in: Couzens/Paterson, Protecting Forest and Marine Biodiversity: The Role of Law, 2017, pp. 227–250.

tance from the coast.’⁹ While exploration and exploitation of hydrocarbons in the sea initially took place in close proximity to the shore, currently, the practices of exploration and exploitation are taking part in deeper waters and far from the coast. In reality, the hydrocarbon platforms are located in the marine, sea or ocean environment, rather than in the ‘non-shore or offshore’ environment. Accordingly, regulators ought to consider installations from the marine point of view. For these reasons, this chapter employs the terms ‘marine’ or ‘sea’, rather than ‘offshore’. In order to conserve the sea, we shall first name it.

IV. Permits regarding exploration and exploitation of hydrocarbons in the Argentine sea

There is no *norma de presupuesto mínimo ambiental* in Argentina specially devoted to the regulation of hydrocarbons exploration and exploitation, neither conventional exploration, nor shale, nor marine. There have been attempts to enact this law, however, as exploration and exploitation of hydrocarbons concern economic interests, the negotiation and enactment of such a law were not possible. Yet, as the GEL is the framework law applicable to every environmental issue in the country, it remains applicable to this activity. The GEL mandates that public hearings shall be carried out before authorizing activities that may cause negative effects on the environment; however, the results of these public hearings are not legally binding. The GEL establishes that if public authorities decide to the contrary of the results in the public hearings, they shall justify their decision. In terms of Poto, the fact that the results of public audiences are not binding means that they are a mere procedural guarantee. Thus, it is a uni-directional administrative procedure governed by States that have the last word on the final decision, and consequently the discretionary power to accept or dismiss the opinion of non-State actors on the environmental impacts. The participatory process should establish a space of knowledge co-creation rather than a mere procedural guarantee. In this way, a rebalance of the powers between decision makers might be carried out, revitalizing the role of participatory or procedural rights for nature (PRfN) as functionally supportive of rights of nature (RoN).¹⁰ Pursuant to the ecocentric shift, nature is conceived of as holding its own rights, rather than being an entitlement for human use.¹¹ The idea of human representatives providing a voice for nature is central to the idea of nature’s rights. The development of rights of nature laws in Ecuador and Bolivia has applied the concept of *Buen Vivir*, the idea of living a good life, inspired by Indigenous communal societal

9 Cambridge Dictionary.

10 *Poto*, Thinking about Ocean Governance. By Whom, for Whom?, in: De Lucia/Elferink/Nguyen, International law and marine areas beyond national jurisdiction, 2022, pp. 148–173.

11 *Macpherson*, Indigenous Water Rights in Law and Regulation, Cambridge University Press 2019.

goals. Ecuador and Bolivia further recognize the rights of *Pachamama*, Mother Earth.¹² In Argentina, natural gas and oil constitute the energy resources with the highest participation in the national energy matrix.¹³ During the 1990s, energy policy underwent a process of privatization. As of 2003, a series of measures were carried out that evidenced a change in energy policy.¹⁴ The partial modification of the hydrocarbon regulations in 2014 to promote oil exploration in new areas and unconventional hydrocarbons (National Law 27007/2014), constituted a significant fact in the aforementioned policy change.¹⁵ In 2006 and particularly in 2015, the project to search for hydrocarbon resources on the Argentine continental margin started. In total, there are approximately eleven possible marine basins available.¹⁶ Currently in Argentina, the exploration and exploitation of hydrocarbons in the sea is carried out in the south of the country in the *Cuenca Austral*, located in front of *Tierra del Fuego* and *Santa Cruz* provinces. Cuenca Austral is the only productive basin in the country since 1989.¹⁷ This marks the first hydrocarbon exploration and exploitation project tendered in front of the coasts of Buenos Aires province, and 300 km from the main touristic city of the province, *Mar del Plata*. This is also the first time that a tender of a project for the exploration and exploitation of hydrocarbons in the Argentine sea is subject to a previous public hearing. Indeed, I have previously argued that contrary to Brazil, Argentina fails to publish the location of each marine basin and its level of hydrocarbons production, violating GEL Articles 16 and 17 and the *norma de presupuestos mínimos de protección ambiental* Environmental Public Information Law N° 25.831.¹⁸ The North Argentina Basin (NAB) was delimited in 2018, through Resolution 65/2018 of the Argentine Secretary of Energy, by the 37° and 43° S and the 56° and 60° W (Fig. 1).¹⁹ The NAB is located on two important underwater geomorphological complexes: the continental slope and the rise or foot of the slope. The continental margin is an area within the ocean floor

- 12 Radovich, Considerations on Participation of Indigenous Peoples and Local Communities (IPLCs) in the BBNJ Draft Instrument: are we on the right sustainability path in: *Lohse/Peters*, Sustainability Through Participation. Perspectives from National, European and International Law, 2022.
- 13 Ceppi, Política energética argentina: un balance del período 2003–2015. *Probl Desarro* 49:192, Universidad Nacional Autónoma de México, Instituto de Investigaciones Económicas, 2018, pp. 37–60.
- 14 Veron, Socrate, García, Participatory process for marine spatial planning: perception of Mar del Plata's residents on offshore hydrocarbon exploration in the North Argentina Basin (Argentina), *Journal of Coastal Conservation* 2022, pp. 26–51.
- 15 Radovich, *Petróleo y Gas en el Mar. Regulación Ambiental en la República Argentina*, *Rev Fac Derecho Cienc Polít* 2016, 46 (125): 261–274.
- 16 Pucci, Situación de las cuencas marinas de la República Argentina, *Petrotecnia* 2006 16:26.
- 17 See www.argentina.gob.ar/economia/energia/exploracion-costa-afuera/historia-offshore-en-argentina (last access November, 2022).
- 18 Radovich, Implicancias ambientales en la exploración y la explotación hidrocarburífera en el mar con especial referencia al régimen de la República Argentina y del MERCOSUR, 2018, p. 219.
- 19 Resolution 65/2018, Argentine Secretary of Energy, November 4th, 2018.

that develops immediately after the landmass. Both the continental shelf and the slope and rise, are part of the continental margin. From the oceanographic point of view, the NAB is dominated by the Cold Malvinas Current, a detachment of the Antarctic Circumpolar Current, which surrounds the continent of Antarctica and is one of the few currents that borders the entire planet.²⁰ It has cold waters, rich in nutrients and moves along the continental slope. In this way, it endows certain sectors of the Argentine Sea with great fish wealth.²¹

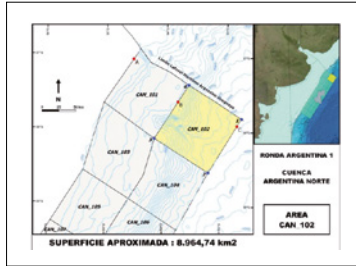


Figure 1: Source: <https://econojournal.com.ar/2022/01/ypf-presento-el-estudio-de-impacto-ambiental-para-un-nuevo-bloque-offshore-en-el-mar-argentino/> last access December 2022.

From June 29th to July 1st 2021, Public Hearing 1/21 (AP1/21) was held by the Argentine Ministry of Environment and Sustainable Development (AMESD). The purpose of the hearing was to bring into consideration the EIA of the project 'Argentine Offshore Seismic Acquisition Campaign; Argentina North Basin (CAN 108, CAN 100 and CAN 114 areas): 522 people enrolled to participate in the hearing, 350 presented their opinion orally, the remainder sent their opinion in writing to the hearing. Only 4% of the people who spoke in the audience expressed support for granting these new permits.²² After the hearing, the Minister of Environment and Sustainable Development initially claimed that he had decided not to grant the permits based on the results of the hearing. However, in the last days of December 2021, the permits were finally granted, in spite of the high opposition shown in the public hearing.²³ The hearing lasted three

20 Veron, Socrate, Garcia, Participatory process for marine spatial planning: perception of Mar del Plata's residents on offshore hydrocarbon exploration in the North Argentina Basin (Argentina), *Journal of Coastal Conservation* 2022, pp. 26–51.

21 Campagna, Verona, Falabella, Ecorregión Mar Argentino, in: Brown/Martínez Ortiz/Acerbi/Corcuera, *La Situación Ambiental Argentina* 2005, pp. 321–354.

22 See Final Report of Public Hearing N° 1/21, available at www.argentina.gob.ar/sites/default/files/if-2021-65230741-apn-dneamad.pdf last access November 2022.

23 Resolution 436/2021, Argentine Ministry of Environment and Sustainable Development, December 24th, 2021.

days and was divided into three phases. Firstly, the national authorities presented the case and explained the formal steps to be followed by each of the speakers. Then, the concessionaire EQUINOR Argentine Branch presented the Environmental Impact Study (EsIA) carried out by the company Serman y Asoc. SA. The company representative explained the studies carried out by the consulting firm in the area, potential impacts, their assessment, as well as the planned mitigation measures and the proposed Environmental Management Plan. In conclusion, they argued that, in general, the effects of the activity on the environment are not only localized but also have a limited duration and with the proposed mitigation measures and their management plan, the activity is totally sustainable.²⁴ In a third phase, the participants expressed their opinion.

65 % of the speakers stated that the EsIA underestimated the impacts involving threatened species and important conservation areas. Approximately 58 % of the participants made observations related to climate change and the national energy matrix. Within these positions, the emphasis was on climate change and the commitments assured by the country in reducing Greenhouse Gas emissions, as the primary reason why encouraging the exploitation of hydrocarbons constitutes a contradiction. Related to this, the modification of the energy matrix by incorporating renewable energies was considered as a relevant and necessary issue as the public policy of the country.

Approximately 48 % of the participants referred to the relevance of oil spills and pollution as the potential main impacts of the project. In general, observations addressed issues of: pollution impact over fisheries and over important conservation areas, impact on tourism and the regulations of the Environmental Management Plan and Mitigation Measures.²⁵

22 % of the participants made observations related to the fishing activity carried out in the area and the potential impacts of the project, mainly pertaining to the acoustic effects on the local resource. Likewise, the lack of joint planning between the fishing and energy sectors was raised as well as concerns regarding the consequences that the project could have on artisanal fishing, among others. About 19 % of the participants expressed their disagreement with the organization of the participatory process, as well as its importance during all stages of the EIA. In their speeches, reference was made to the scarce information on the subject, the importance of improving the mechanisms and increasing the instances of public participation, as well as the need for the public hearing to have a binding character.

24 Veron, Socrate, Garcia, Participatory process for marine spatial planning: perception of Mar del Plata's residents on offshore hydrocarbon exploration in the North Argentina Basin (Argentina), *Journal of Coastal Conservation* 2022, pp. 26–51.

25 *Ibid* 24.

12% of the speakers referred to issues related to the Sustainable Development Goals, gender policies and indigenous communities. For example, one of the speakers mentioned the continued importance of the sea for the Guaraní culture. About 10% of the speakers made observations related to the tourist activity in the city of Mar del Plata (the closest to the NAB) and the Atlantic Coast. They remarked that tourism is the main activity on the coast of Buenos Aires province and, the effects of a potential spill on the coast would immeasurably affect the beaches and the surrounding areas. 5% of the participants made observations related to the EsIA submitted by the company EQUINOR, questioning its objectivity. 4% of the exhibiting citizens made observations and comments associated with the need to carry out and implement a Strategic Environmental Assessment (SEA) of the activity under analysis, especially before issuing the environmental execution permits. As a result of AP1/21, on September 23, 2021, the AMESD issued Resolution 16/2021²⁶, ending the participatory instance and resolving to suspend the terms of the EIA procedure until a response was obtained from the different competent bodies consulted, in order to safeguard the public interest involved. Three months later, on December 24, 2021, the AMESD issued Resolution 436/2021²⁷, finishing the term suspension of the EIA procedure and authorized the implementation of the project 'Seismic Acquisition 2d-3d-4d OffShore in Block NAB 108 – NAB 114'. The AMESD grounded the decision stating that the pertinent consultations were carried out with organizations such as the Ministry of Energy; the Directorate of Fisheries Planning of the Ministry of Agriculture, Livestock and Fisheries; the National Institute for Fisheries Research and Development; the Argentine Naval Prefecture and the Navy Investigation Division; and those additional information requirements were made to the company and answered.

1. *Amparo* filed against the granted exploration and exploitation permit

Under Art. 43 the Argentine Constitution establishes:

“Any person shall file a prompt and summary proceeding regarding constitutional guarantees, provided there is no other legal remedy, against any act or omission of public authorities or individuals which currently or imminently may damage, limit, modify or threaten rights and guarantees recognized by this Constitution, treaties or laws, with open arbitrariness or illegality. In such a case, the judge may declare that the act or omis-

26 Resolution 16/2021, Argentine Ministry of Environment and Sustainable Development, September 23rd, 2021.

27 See www.argentina.gob.ar/economia/energia/exploracion-costa-afuera/historia-offshore-en-argentina last access November 2022.

sion is based on an unconstitutional rule. This summary proceeding against any form of discrimination and about rights protecting the environment, competition, users and consumers, as well as about rights of general public interest, shall be filed by the damaged party, the ombudsman and the associations which foster such ends registered according to the law (...).”

This expedited and summary proceeding is called *amparo*, it is useful in terms of enhancing access to justice. It promotes a procedural innovation that empowers citizens, the *Ombudsman*, and environmental NGOs to seek judicial protection of the constitutional right to a healthy environment. The *amparo* actions have proved to reduce costs, decrease delays, and minimize the risks previously associated with pursuing judicial remedies.²⁸

In regard to the exploration and exploitation permit granted by Resolution 436/21²⁹, an *amparo* was filed by a citizen before a judge from Mar del Plata, and the judge suspended the permits.³⁰

2. The judicial decision

The judge stated that the EQUINOR Argentine branch shall abstain from initiating the exploration of hydrocarbons until the final judicial ruling is issued. The decision was based on three main reasons. First, on the failure to fully comply with the information and participation requirements under national law³¹ and the EA. Given that calls for the public hearings should be published twenty running days before the hearings are held, this case failed to meet that standard as the calls were published merely seventeen days before. Moreover, the calls for the hearings shall be published in federal and local newspapers, in this case, the call was only published in federal newspapers. The second reason behind the permit suspension was grounded on the failure to consult the local municipality. EA Article 7 defines the role of public participation in environmental decision-making processes. In this way, it affirms that the right of public participation must be ensured and guaranteed in all stages of the processes, with the Enforcement Authority being the one that previously provides the necessary information in a clear, timely and understandable manner.

28 *Nonna*, The Argentine Constitution and Its Relationship with Environmental Standards, in: Eds. Turner et al, Environmental Rights. The Development of Standards, 2019, Cambridge University Press, pp. 265–285.

29 See www.argentina.gob.ar/economia/energia/exploracion-costa-afuera/historia-offshore-en-argentina last access November 2022.

30 ‘*Godoy, Rubén Oscar c/ Estado Nacional – Ministerio de Ambiente y Desarrollo Sostenible s/Amparo Ambiental*’, Cámara Federal de Mar del Plata, June 2022.

31 Argentina, Executive Order 1172/2003 on Access to public information, December 3rd, 2003.

The third reason was based on the EIA failures to measure the accumulative impacts of the exploration and exploitation of hydrocarbons to be carried out in the Argentine sea. The judge stated that a SEA shall have been carried out. Moreover, the Judge expressed concern regarding the fact that the EIA made no reference to the whale *Ballena Franca Austral*, which has been declared National Natural Monument by Law 23.094/84.³² Finally, the Judge concluded that the National Parks Authority should have been consulted during the EIA process because of this reason.

V. Concluding remarks

This study illustrates the evolution of environmental rights and participation in Argentina, analyzing the process of constitutionalizing environmental participatory rights and critically, observing how these rights in practice risk being confined to the realm of mere procedural formula. It also demonstrates how courts have the last word to solve the tension between environmental protection and other interests (such as economic development). The example of the last case discussed in this study suggests that judges are inclined to be protective toward the environment and therefore to encourage the application of participatory guarantees in environmental decision making. Nevertheless, even when constitutional reforms and courts appear to align with the effective implementation of co-created and participatory approaches to environmental decision-making, the road toward the achievement of constructive and efficacious co-production in environmental decision-making is still fraught with tensions and challenges.

32 Argentina, Law 23.094/84, October 19th, 1984.

Coproduction of knowledge (CoPK) brings together different knowledge constellations and knowledge bearers to develop a holistic comprehension of a complex problem like climate change. The book offers an overview from a mostly legal perspective of how CoPK is applied to research, education and practice to tackle complex problems, such as climate governance, through an inclusive and participatory approach. CoPK reconfigures the research focus from one that is inherently informed by traditional modes of scientific research to one that is informed by a collective and collaborative approach.

The book is divided into two parts: an analysis of CoPK as a methodological approach to research and education (Part I) and a map of case studies of jurisdictions in which CoPK is adopted to overcome inequalities or guarantee inclusive participation (Part II). This book is the result of an international and comparative strategic-scientific workshop organized at the University of Bayreuth, Germany.

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