EMPOWERING INDIGENOUS WOMEN TO INTEGRATE TRADITIONAL KNOWLEDGE AND PRACTICES IN CLIMATE ACTION

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Acronyms and Abbreviations

AD	Afro-descendants
AIPP	Asia Indigenous Peoples Pact
BALANCED	Building Actors and Leaders for Advancing Community Excellence in Development
CBG	Central Borneo Guide
CCCF	County Climate Change Fund
CIF	Climate Investment Funds
COP	Conference of the Parties
COPINH	Council of Popular and Indigenous Organizations of Honduras
CSO	Civil Society Organization
CTF	Clean Technology Fund
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DGM	Dedicated Grant Mechanism
ECMIA	Continental Network of Indigenous Women (*Enlace Continental de Mujeres Indígenas)*
FAO	Food and Agriculture Organization
FCPF	Forest Carbon Partnership Facility
FIMI	International Indigenous Women's Forum (*Foro Internacional de Mujeres Indígenas*)
FIP	Forest Investment Program
GBV	Gender-Based Violence
GEF	Global Environmental Facility
GHG	Greenhouse Gas
GoK	Government of Kenya
GRM	Grievance Redress Mechanism
IAITPTF	International Alliance of Indigenous and Tribal Peoples of the Tropical Forests
IHR	Indo Himalayan Region
IFIP	Inclusive Forum for Indigenous Peoples
IIFB	International Indigenous Forum on Biodiversity
IIN	Indigenous Information Network
IMI	Integrated Mountain Initiative
IP	Indigenous Peoples
IPCC	Intergovernmental Panel on Climate Change
IPLC	Indigenous Peoples and Local Communities
IPO	Indigenous Peoples 'Organizations
IUCN	International Union for Conservation of Nature
IWBN	Indigenous Women's Biodiversity Network
IWGIA	International Work Group for Indigenous Affairs 'Indigenous World
LC	Local communities
LCIPP	Local Communities and Indigenous Peoples Platform
MDB	Multilateral Development Bank
NGO	Non-governmental Organization
NMHS	National Mission on Himalayan Studies
NRM	Natural Resource Management
NTFP	Non-timber Foster Products
OPIAC	Organization of the Indigenous Peoples of the Colombian Amazon (*Organización de los Pueblos Indígenas de la Amazonia Colombiana)*

PACEP	Pastoralist Communities Empowerment Programme
PNG	Papua New Guinea
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SREP	Scaling up Renewable Energy Program
SRR	Sexual and Reproductive Rights
STD	Sexually Transmitted Disease
STI	Science, Technology, and Innovation
TCEs	Traditional Cultural Expressions
TKCP	Tree Kangaroo Conservation Program
TKT	Traditional Knowledge and Technology
TRIPs	Trade Related Aspects of Intellectual Property
UN	United Nations
UNDRIP	UN Declaration on the Rights of Indigenous Peoples
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention on Climate Change
UNORCAC	Union of Farmer and Indigenous Organizations of Cotacachi (*Unión de Organizaciones Campesinas e Indígenas de Cotacachi*)
UNPFII	United Nations Permanent Forum on Indigenous Issues
WEA	Women's Earth Alliance
WB	World Bank
WCCI	Women's Climate Centers International
WCIP	World Conference of Indigenous Peoples
WCCPC	Ward Climate Change Planning Committee
WIPO	World Intellectual Property Organization
WWANC	Women in Water and Natural Resources Conservation

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Glossary of Terms

Indigenous Peoples and Local Communities (IPLCs) is commonly used in the conservation and climate change lexicons, and by Civil Society Organizations (CSOs) and Multilateral Development Banks (MDBs). While IPs are often local communities and local communities can often contain IPs, it is important to recognize that there are key similarities and differences between these groups, and that their rights are often distinct.[1]

Indigenous Peoples (IPs) refer to individuals and communities who self-identify as Indigenous Peoples. They adopt this definition based on characteristics that include: (1) collective ancestral ties to the lands and natural resources where they live, occupy, or from which they have been displaced; (2) strong relations to their lands and natural resources, upon which their identities, cultures, livelihoods, as well as their physical and spiritual well-being depend; (3) distinctive cultures[2], identity markers, and ways of life that are at risk of being denied or lost in modern societies, and cultural institutions (i.e. following traditional leaders and representative organizations) that are distinct from those of the mainstream society or culture; (4) distinct language or dialect, often different from the official language or languages of the country or region in which they reside. Many communities consider themselves indigenous to the locality but do not define themselves as Indigenous Peoples. This is especially so in Africa and Asia.[3]

Local communities as defined by the Rights and Resource Initiative (RRI) are not formally defined under international law. This report considers that they encompass communities that do not self-identify as Indigenous but who share similar characteristics of social, cultural, and economic conditions that distinguish them from other sections of the national community, whose status is regulated wholly or partially by their own customs or traditions, who have long-standing, culturally constitutive relations to lands and resources, and whose rights are held collectively (Rights and Resources Initiative 2020).

Key differences between IPs and other local communities: The distinction between Indigenous Peoples and other local communities is made mainly because IP rights may be subject to special national legislation which must be reviewed distinctly from laws affecting the rights of other communities. In addition, Indigenous Peoples are the subject of specific internationally recognized collective rights, including rights to land and natural resources (e.g., International Labour Organization Convention 169, United Nations Declaration on the Rights of Indigenous Peoples).[4]

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[1] "Understanding Indigenous Peoples and Local Communities." Available at: https://www.kaainamomona.org/iplc

[2] This description does not assume that Indigenous identity is homogenous and frozen in time. It recognizes that Indigenous identity and culture are constructed throughout time as performed in multiple ways by different groups and has gone through changes and taken on new forms. For instance, while nomadism can be attributed as a traditional characteristic of particular Indigenous identities, it has also undergone significant changes throughout time and gained new meanings.

[3] LandMark: Global Platform for Indigenous and Community Lands. "Data." Available at: http://www.landmarkmap.org/data/, World Bank Group. "Indigenous Peoples." Available at: https://www.worldbank.org/en/topic/indigenouspeoples

[4] LandMark:Global Platform for Indigenous and Community Lands. "Data." Available at: http://www.landmarkmap.org/data/

Indigenous Peoples and Local Communities (IPLCs) terminology is adopted throughout the report. However, where key distinctions exist between these groups, they are signaled by use of the specific corresponding term - either IPs or local communities.

Traditional Knowledge and Technology (TKT) is intended as a broad concept, to refer to the cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment (Berkes et al. 1998). Many terms exist and are used interchangeably, such as Indigenous environmental knowledge, as well as broader terms such as Indigenous knowledge, traditional knowledge, Indigenous ways of knowing, Indigenous science, and Native science (Alexander et al. 2011), to name a few. The term TKT is inclusive of the diverse IPLCs who hold valuable, place-based knowledge and technologies to engage with and manage their surrounding landscapes. TKT held by women may include knowledge about edible wild vegetables; medicinal and herbal plants; sustainable gathering methods; water resource management; homestead gardening; livestock management practices; weather forecasting based on knowledge of bioindicators of the health of plant and animal species, and making seed selection, planting, and herd management decisions accordingly, to name a few.

Science, Technology and Innovation (STI) is used in this report, as well as the terms science, conventional, western, and modern to bring out their contrast with TKT. These terms refer to the production of knowledge based on western science, or a set of statistically analyzed data or instrumental records that rests on precise definitions of independent and dependent variables that can be empirically measured and that demonstrate acceptable levels of reliability and validity (Ibid.). While there is no strict dichotomy between scientific/conventional/western/modern and TKT but rather a spectrum of both indigenous and scientific means of acquiring knowledge with many commonalities, fundamental differences exist between traditional and modern knowledge systems and the functioning of the respective economies in which they exist.

Executive Summary

1. There is an increasing recognition of the importance of traditional knowledge and technologies (TKT) in climate change research, policy, and programs. TKT refers to the cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment. Leading climate scientists and institutions highlight the importance of TKT in climate mitigation and adaptation efforts and the recognition of IPLCs as partners in the fight against climate change. Examples of TKT applied in mitigation efforts include agroecological and natural resource management approaches that reduce emissions and sequester carbon. In adaptation, TKT has been used for resilient agricultural production, weather forecasting, combatting deforestation and supporting ecological restoration, and water management to improve resilience to droughts. Indigenous Peoples and Local Communities (IPLCs) have been using TKT to also increase community resilience to other shocks such as COVID-19.

2. The Climate Investment Funds (CIF) increasingly focus on social inclusion including through stronger engagement with IPLCs and aims to serve as a learning laboratory for climate finance. It is within this context that CIF commissioned The Contribution of Traditional Knowledge and Technology to Climate Solutions study (2019) to further inform the adoption of traditional knowledge for addressing climate change. The study did so by advancing the understanding of traditional knowledge systems as compared and contrasted with conventional innovation. The report analyzed relevant literature and findings from key stakeholder interviews and provided a strong rationale for complementing modern climate science with traditional knowledge. It demonstrated the central importance of CIF's inclusive approaches to tackling climate risks using innovative and proven solutions.

3. The present study contributes to filling a knowledge gap on gender dimensions of TKT, particularly with understanding IPLC women's TKT and barriers and enabling factors to integrate their TKT in conventional climate solutions. Existing studies on TKT for climate solutions often lack a gendered analysis, which can result in missed opportunities to partner with IPLC women in scaling up their valuable TKT approaches in the design and implementation of climate solutions. Building on the CIF's 2019 report on TKT, this study aims to show the critical role IPLC women play in the generation, application, preservation, and transmission of TKT, and the barriers and enabling factors that support gender-responsive integration of IPLC women's TKT in climate action.

4. IPLC women are one of the most vulnerable groups to climate change impacts. IPLC women experience "triple-discrimination" for being Indigenous, women, and Indigenous women (IWGIA 2020) . They experience high rates of extreme poverty and Gender-Based Violence (GBV) across all regions, have limited access to basic health and education services, and carry the burden of household care, ensuring food, water, and livelihood security, and have poor access to basic services. Patriarchal gender norms and traditional institutions limit their voice and effective participation in decision-making processes, and their access to critical livelihood resources (e.g. land).

5. This study illustrates that IPLC women are also important agents of change for climate action and have been using their TKT to build the resilience of their communities to climate and other shocks. IPLC

women play a key role in developing, applying, transmitting, and preserving the traditional knowledge that builds and sustains IPLC communities' resilience in the face of ever-increasing extreme events, shifting seasonal and weather patterns, and emerging threats like the COVID-19 pandemic. IPLC women are at the forefront of helping their communities manage these challenges and are often defenders of their communities' rights to their ancestral lands and to the natural resources upon which their lives, livelihoods, and cultural identities depend. Specifically, IPLC women:

- Are creators, custodians, keepers, and transmitters of traditional knowledge and practices that directly support the resilience of their households and communities. Their TKT and practices have evolved over generations through IPLC women's efforts to fulfill their obligations for caregiving, sustainably managing natural resources, maintaining household food and water security, and managing risks and impacts from a range of hazards – including but not limited to the impacts associated with climate change and emerging threats like COVID-19.
- Apply traditional knowledge systems to enable their communities to build resilience in the face of extreme events and shifting climatic conditions. This is illustrated in examples of IPLC women using their TKT to lead reforestation and sustainable forestry initiatives in Colombia, Panama, and Kenya; maintain food security and obtain, purify, and preserve water in the face of climate extremes and variability in South Asia; lead community level responses to COVID-19 in Maasai pastoralist communities in Kenya, and provide support to government agencies and frontline workers in the form of distributing food during the initial phases of COVID-19 lockdown measures, as in the case presented of Indigenous women in Northeast India.
- Play a major role in the transmission of TKT to younger generations, largely through oral traditions. IPLC women also transmit TKT to government agencies in the context of sustainable natural resource management and agroforestry programs.
- Employ social networks including family relations at the community level to facilitate the transfer of knowledge and learning on TKT, and application of TKT to enhance climate resilience of communities. Many of the case studies presented in the report are based on activities that spontaneously evolved out of the organization of IPLC women at the local level.
- Are increasingly being recognized as key agents of change in applying TKT to climate solutions as they are self-organizing from the community and regional to the national and international levels in the climate change and biodiversity conservation worlds. IPLC women and their representative organizations and networks are also influencing government programs and policy through showcasing examples of successful integration of TKT-based solutions applicable to a range of sectors, including sustainable natural resource management, conservation, agriculture, water, and climate change and disaster risk management.

6. The study also shows that IPLC women face tremendous challenges and are among the groups most vulnerable to the impacts of climate change in the world. While variations exist across contexts, IPLC women face barriers related to the following factors:

- Primary responsibility for household care, food, and water security in a context of often patriarchal gender norms and traditional institutions that limit their voice in decision-making processes, and in turn, their access to critical livelihood resources. Reduced opportunities to engage in educational and income-generating activities, and in development programs. In the context of a changing climate,

these responsibilities often mean increasing time burden and health and safety risks for IPLC women and girls.

- Experience of being historically marginalized in development and decision-making processes, related to their "triple discrimination."
- Their rights are often neglected from local to international levels. Due to the intersecting drivers of vulnerability relating to Indigenous ethnicity and gender, the specific needs of Indigenous women are not fully addressed either by Indigenous rights advocacy or by women's rights and gender advocacy.
- Lack of legal recognition and protection of rights to land and natural resources, and exclusion from decision and policy-making processes at all levels.
- Challenges with regards to protecting their Intellectual Property Rights under the current global intellectual property governance regime.
- Disproportionately high rates of extreme poverty and GBV across all regions.
- Poor access to adequate basic services (for Indigenous Peoples this includes access to intercultural bilingual education and health services) and sexual and reproductive health services. Little or limited access to information, including on climate change.

7. The report also reviews examples of good practices in terms of initiatives that have supported gender-responsive integration of TKT and empowerment of IPLC women in the context of climate change. These examples illustrate the importance of various enabling factors that have proven critical to supporting women as agents of change in the generation, application, preservation, and transmission of TKT for climate solutions across different contexts. These examples of good practice include:

- Initiatives that represent central areas of work and advocacy pursued by IPLC women's organizations and Civil Society Organizations (CSOs) working at the nexus of climate change, IPLCs, and traditional knowledge, such as:
    - Training, capacity building, and awareness raising for IPLC women and their representative organizations around climate change and resilience.
    - Documenting, assessing, and showcasing the TKT held by IPLC women.
    - The creation of platforms and opportunities for IPLC women to connect with one another to share climate related challenges and the TKT-based approaches they are using to address these.
    - Building capacity of government stakeholders and donors to enable increased involvement of IPLC women in local, national, and international decision and policy making spaces related to climate change and sustainable management of natural resources.
    - Economic empowerment of IPLC women, including through initiatives that aim to preserve traditional knowledge.
    - Support for recognition and protection of IPLC communities and IPLC women's rights to land and natural resources.
    - Training and mentoring for IPLC women entrepreneurs to make strategic use of Intellectual Property Rights (IPR).
- Government and donor programs that explore and address the social drivers of vulnerability and resilience for IPLC communities. Examples include initiatives that support the self-determination and development priorities of IPLC communities themselves and programs that explicitly link climate change and natural resource management to poverty reduction and empowerment objectives for the

IPLC communities that depend on the ecosystems that are the subject of these programs. A common feature of the examples presented in this category is the adoption of a holistic or co-design model in which IPLC communities and women are seen as partners and are involved in all stages - from undertaking assessments to setting investment priorities to program design, implementation, and monitoring and evaluation.

8. The report concludes with a set of policy and operationally relevant recommendations for supporting gender responsive integration of TKT into climate change initiatives. The recommendations are based on the factors discussed above, the experience of managing projects on the ground, interviews with stakeholders and beneficiaries to previous projects, and a review of the relevant academic literature. The recommendations are grouped around three main themes:

(1) Understanding the gender dimensions of TKT for climate change through research and documentation

- Undertake systematic identification, assessment, and documentation of the TKT held by IPLC women.
- Analyze the gender dimensions relevant to IPLC communities of climate change and related sectoral operations, policies, and programs of government and development partners towards supporting the gender-responsive integration of TKT.

(2) Activities to protect Indigenous women's TKT and support gender-responsive uptake of TKT

- Establish educational programs and institutional structures to codify and promote TKT, including university and vocational training programs with scholarships for IPLC women, learning centers grounded in a holistic Indigenous education model, and intercultural systems for integration of modern scientific approaches and TKT for climate solutions, based on the intercultural and bilingual models applied to health and education sector programs.
- Build partnerships with existing IPLC women's groups, networks, and CSOs working with IPLC women at all levels. Upstream identification of IPLC women's groups and networks, and establishment and fostering of relationships with these groups and networks to support project-level objectives around gender-responsive integration of TKT.
- Focus on stakeholder engagement, local action, and beneficiary driven approaches in climate financing, including expansion of climate funds that are directed by and for IPLC women and climate programs that channel funds and decision-making to the local level.
- Capacity building for national and local government on aspects including the value and gender dimensions of TKT for climate mitigation and adaptation, the gender dynamics around the use of TKT in different settings, undertaking meaningful consultation with IPLCs and women, and culturally appropriate and sustainable approaches to integrating TKT and modern scientific knowledge.
- Capacity building for IPLC women's groups and networks, including on climate change, resilience, available climate change financing mechanisms, and around leadership and capacity to effectively self-organize, develop, and implement initiatives, and engage in decision-making processes related to climate change and natural resource management at all levels. Creation of separate spaces for capacity building and training for IPLC women, including opportunities for south-south exchanges for IPLC women's groups and networks on TKT approaches that have worked in other locations.
- Ensure facilitation and add-on measures, as needed, to enable IPLC women to participate. Such measures include scheduling meetings and training events during times when women are able to

attend, providing services such as childcare, assistance with transportation, and translation and dissemination of information and materials in local and Indigenous languages.

- Advocate for IPLC women's rights and their meaningful engagement in climate change decision-making and policymaking processes at all levels. This may take various forms, such as: (i) connecting climate change adaptation and mitigation programs to poverty reduction, community development, and IPLC women's empowerment objectives, and (ii) support for institutionalizing meaningful consultation with IPLC women into sector-wide and national-level planning and decision-making processes around climate change and sustainable natural resource management.

(3) Methods for engaging IPLC women through operations

- Adopt a co-design approach to climate programs together with IPLC women and their representative organizations. This includes co-production of assessments underpinning such initiatives (i.e., social, climate vulnerability, etc.) and meaningful engagement in a project area that begins early during project identification and continues consistently throughout project design, implementation, and monitoring and evaluation.
- Undertake IPLC gender assessments that include IPLC women's capacity assessments to identify and address (beginning during project preparation) any capacity building needs of IPLC women to effectively engage in project design and implementation.
- Employ action research methodologies that engage all community members, including IPLC women and girls. This can support empowerment of IPLC women through recognizing and valuing their knowledge and roles as change agents in using TKT and can help to ensure that valuable TKT held by IPLC women is not missed in efforts to integrate scientific knowledge and TKT for climate solutions.

1. Introduction: Integrating gender dimensions in traditional knowledge for climate solutions

1.1 Background and Objective

1. **The definitions of TKT vary across contexts and include systems of knowledge that were developed by trial and error over long periods to time, sometimes thousands of years**. Broadly speaking, TKT encompasses three elements: (i) knowledge about the environment, (ii) knowledge about the use and management of the environment, and (iii) values about the environment (CIF 2019). Among Indigenous Peoples, TKT is grounded in the cultural and spiritual aspects of Indigenous ethnic identity, which are intimately intertwined with the natural world and the sustainable management of the ecosystems they inhabit. Traditional knowledge systems contribute to sustaining biological and cultural diversity, reducing poverty, maintaining household and community food and livelihood security, and serve as the foundation of IPLC communities' resilience to climate change. This is especially true for IPLCs with limited access to markets and adequate basic services, who depend largely on climate sensitive natural resources to meet their basic needs.

2. **There is no strict dichotomy between scientific/conventional/Western/modern and TKT, but rather a spectrum of both Indigenous and scientific means of acquiring knowledge with many commonalities, fundamental differences exist.** Traditional knowledge systems were developed through trial and error over long periods of time, while conventional technologies are largely rooted in science and engineering. Much traditional knowledge is held in local languages and rich oral traditions that incorporate TKT into stories, songs, objects, places, landscapes, and diverse ways of being. Innovations in traditional knowledge systems evolve and are transmitted through verbal communication and are seldom documented, except in instances of ritual and religious rites. Conventional technologies, on the other hand, evolved as the scientific method was introduced to illuminate natural phenomena and traditional technologies. Changes that occurred from the application of scientific principles were more rapid, often occurring within a generation, instead of gradually over many generations, as is typical of traditional practices and knowledge systems. Additionally, conventional technologies are generally codified and are amenable to systematic adjustments and adaptations making them universally available, transferrable, and subject to adaptation giving rise to innovations. By contrast, traditional techniques remain mostly tacit in nature, and dependent on the experience of a few individuals and their abilities to pass the know-how to other individuals within their communities. As a result, traditional knowledge and the technologies they spawn are highly localized (Ibid.). With respect to climate science, because the Intergovernmental Panel on Climate Change (IPCC), the United Nations body responsible for assessing the science related to climate change, is subject to intense public scrutiny, it tends to rely primarily on information from peer-reviewed scientific studies. In the past the IPCC has largely excluded traditional indigenous knowledge as a source of information for its assessment reports as a result of a general bias against evidence from non-peer-reviewed sources (Alexander et al. 2011: 477).

3. **TKT in the context of climate change has begun to receive more attention over recent years.** Leading climate change scholars, scientific institutions and forums, international organizations, and IPLCs themselves emphasize the critical role that traditional knowledge systems can play in designing

strategies to mitigate Greenhouse Gas (GHG) emissions and build resilience to climate change.[5] The IPCC's 2019 Special Report on Climate Change and Land identifies recognition of the rights of the world's Indigenous Peoples, local communities, and the women within these groups as a scalable climate solution and urges all actors to make IPLCs partners in climate protection efforts.[6] Traditional knowledge systems in many communities have been applied to climate change mitigation through agroecological and natural resource management approaches that reduce emissions and sequester carbon. With respect to adaptation, TKT has been applied in weather forecasting, vulnerability assessment, and implementation of adaptation strategies across a variety of sectors (UNPFII 2019). Some examples of the latter include the migration of IPLC communities to access different micro-climates throughout the year, and Indigenous and peasant irrigation systems in the Andean region. Emerging research has shown that incorporating TKT into climate change policies can lead to the development of effective mitigation and adaptation strategies that are cost-efficient, participatory, and sustainable (CIF 2019).Incorporating TKT into climate change science, policy, and programs can complement modern scientific approaches to benefit both people and nature, particularly in IPLC communities that are responsible for stewarding lands and natural resources in climate mitigation and adaptation projects.

4. **Despite the increasing recognition of the value of TKT to climate change science and response strategies, there remains a lack of understanding of the gender dimensions of TKT, and of the contributions and vulnerabilities of IPLC women in the application of TKT to climate solutions.** While IPLC women are disproportionately affected by climate change, they are also important agents of change. In rural, agrarian settings around the world, IPLC women are responsible for household care and reproduction, and for maintaining food and livelihood security for their households and communities in the face of the increase in extreme events and shifting climatic conditions. They are the custodians of various types of traditional knowledge that have developed through the individual and collective efforts of IPLC women to fulfill these obligations. These traditional knowledge systems are critical for building the social resilience of IPLC communities, or **"**the ability to withstand, recover from, and reorganize in response to crises so that all members of society may develop or maintain the ability to thrive" (Benson et al. 2012). The TKT held by IPLC communities has increasingly been recognized as directly relevant to climate science and adaptation and mitigation programs. However, detailed studies of the gender dimensions of TKT have yet to be fully undertaken, and gender-responsive integration of TKT into climate science and climate change policies and programs remains limited.

5. **The Climate Investment Funds (CIF) were established in 2008 to initiate "transformational change towards climate resilient, low carbon development in developing countries through scaled-up financing."** The CIF's business model is one of partnership among donor and recipient countries, observers from civil society, Indigenous Peoples' groups, and the private sector, and a group of

[5] Examples include CIF (2019); Ford, Vanderbilt, and Berrang-Ford (2012) and Ford, Cameron, Rubis, Maillet, Nakashima, Willox, and Pearce (2016) on including Indigenous knowledge and content in the Assessment Reports of the Intergovernmental Panel on Climate Change (IPCC); the Secretariat of the Convention on Biological Diversity; the US National Climate Assessment; and the Indigenous Environmental Network. See also Hiwasaki, Luna, Syamsidik, and Marçal (2015).

[6] https://www.ipcc.ch/srccl/

Multilateral Development Banks[7] (MDBs) as implementing entities. The CIF portfolio includes investments across its four funding programs in climate mitigation and adaptation. These programs are the: (i) Clean Technology Fund (CTF); (ii) Pilot Program for Climate Resilience (PPCR); (iii) Forest Investment Program (FIP); and (iv) Scaling Up Renewable Energy in Low Income Countries Program (SREP). CTF (funded at the level of $5.4 billion) aims to foster low-carbon transformation in developing countries by providing resources for private and public sector investments in renewable energy, energy efficiency, and clean transport sectors.[8] PPCR is a $1.2 billion program supporting developing countries in integrating climate resilience in their development planning, and implementing public and private sector resilience solutions in low-income countries.[9] FIP (capitalized at $10.6 million) assists developing countries in advancing sustainable natural resource management and provides direct grant investments to address deforestation and forest degradation.[10] SREP is a $720 million program that aims to facilitate low-carbon transformation in the world's poorest countries through supporting scaled-up deployment of renewable energy solutions that enhance energy access.[11]

6. **The CIF commissioned The Role of Traditional Knowledge and Technology in Climate Solutions study in 2019 to further the adoption of traditional knowledge for climate change by advancing the understanding of traditional knowledge systems as compared and contrasted to conventional innovation.** The report contributes to expanding the sparse evidence base on how IPLCs are using TKT to address climate challenges. This is done through analysis of relevant literature and findings from key stakeholder interviews conducted with a wide network of Indigenous Peoples, scholars, government officials, development practitioners, and entrepreneurs; documentation of case studies from across regions; and identification of key challenges and opportunities for accessing and scaling up TKT. Main findings of the report include a strong rationale for complementing traditional knowledge with modern science to address climate change and recommendations geared at the climate change community and the WBG to integrate TKT into climate solutions. These findings demonstrate the central importance of CIF's inclusive approaches to tackling climate risks using innovative and proven solutions.

7. **The CIF places gender equality at the center of its efforts and supports transformational change and climate-smart development for both women and men.** CIF aims to ensure equal participation and contribution of, and equal outcomes for, women and men. As stated in the CIF Gender Policy (2018), "Gender equality efforts are central to CIF's goal of transformational change for reasons of efficiency, effectiveness, and for goals of development impact, gender equity, and social inclusion." Ambition on gender integration has increased in the CIF. The CIF Gender Action Plan Phase 1 aimed to integrate and mainstream gender in policy and programming of the CIF to improve gender equality in climate-

[7] MDB members of CIF are: Asian Development Bank (ADB), African Development Bank (AfDB), European Bank for Reconstruction and Development (EBRD), Inter-American Development Bank (IDB), and the World Bank Group, including International Finance Corporation (IFC).
[8] CTF includes a dedicated funding window (i.e. Dedicated Private Sector Programs (DPSP)) for private sector investments for clean technologies including geothermal power, mini-grids, energy efficiency, and solar PV. https://www.climateinvestmentfunds.org/topics/clean-technologies
[9] https://www.climateinvestmentfunds.org/topics/climate-resilience
[10] https://www.climateinvestmentfunds.org/topics/sustainable-forests
[11] SREP is one of the biggest global funders of mini-grids with over $200 million for projects in 14 countries. https://www.climateinvestmentfunds.org/topics/energy-access

resilient, low carbon development investments in CIF countries. In its second phase, the CIF Gender Action Plan shifted towards a more ambitious goal of contributing toward a systematic gender-transformational change. The Gender Action Plan Phase 2 (2016) defines gender-transformational change as "women's improved asset position, voice, and livelihood status through access to benefits from CIF-funded investments." The most recent Phase 3 Gender Action Plan (2020) retains this goal while placing more explicit emphasis on change in the arenas of markets and institutions. It includes a specific focus on enhancing women's climate leadership through women's effective participation and leadership in local and national level climate decision-making processes.

8. **The CIF commissioned this report to address the critical gap in the gender-TKT-climate change knowledge base by defining the gender dimensions of TKT for climate solutions, as relevant to IPLC women.** The lack of available research on gender dimensions of TKT translated into a scarcity of operationally relevant research for CIF and the Multilateral Development Banks (MDBs) implementing CIF-supported programs that focuses on women's roles as it relates to TKT, critical barriers and challenges they face, as well as enabling conditions and factors that support them in undertaking these roles, and what these mean in terms of opportunities for supporting gender-responsive integration of TKT and science, technology and innovation (STI) for climate solutions. This study aims to fill this gap by exploring existing academic and grey literature and case studies from across regions and sectors, and by undertaking primary research through interviews with Indigenous leaders and stakeholders working at the nexus of climate change, IPLC communities, and gender.

9. **The study will analyze the main roles of IPLC women in generating, applying, transmitting, and preserving TKT as applied to climate solutions.** It will also assess the barriers IPLC women face in performing these roles, and the enabling factors that support IPLC women in the use of TKT towards achieving climate mitigation and adaptation objectives. Based on this assessment, the study identifies operational best practices drawn from the work of IPLC women's organizations, CSOs, and donor and government programs, and concludes with recommendations for supporting gender-responsive integration of TKT into climate solutions.

1.2 Methodology

10. **The study adopts a mixed-methods approach, including review of existing literature and primary data collection.** There is relatively scarce academic literature exploring the linkages between drivers of vulnerability and resilience for IPLC women and their roles in the generation and application of TKT towards climate solutions. The review of literature therefore brings together three broad categories of literature: (i) on the gender dimensions of climate change; (ii) on TKT and climate change; and (iii) on IPs and climate change. The search strategy for published literature included the following keywords: IPLC women, Indigenous knowledge systems, gender, climate adaptation, mitigation, intersectionality, community-based participatory research, Indigenous research methods, traditional ecological knowledge, traditional knowledge, community-based natural resource management, community conservation, forest governance. The literature review also includes grey literature and materials from development and climate change programs implemented by MDBs and Non-Governmental Organizations (NGOs).

11. **The study team conducted a set of key stakeholder interviews, surveys, and virtual meetings with Multilateral Development Bank (MDB) stakeholders and IPLC women's networks.** Between stakeholder interviews, surveys, and the virtual technical review session for the report, CIF consulted more than 50 stakeholders including Indigenous women, Indigenous and women's groups, and development professionals in Multilateral Development Banks. Interview and survey participants work on policy formulation, programs, and projects at the intersection of climate change, gender, and IPLCs. A total of 9 key stakeholder interviews were conducted with 8 female Indigenous leaders and one male Indigenous leader representing Latin America, Sub-Saharan Africa, the Pacific region, South Asia, and Eastern and Central Europe.[12] A total of 2 MDB stakeholders responded to survey questionnaires and 3 representatives of IPLC women's networks.[13] The study team also organized technical review sessions for the study, which were held virtually with attendance and peer review by IPLC and MDB and institutional stakeholders. All stakeholders who participated in the study are active in climate change adaptation, mitigation, and/or conservation initiatives from the local to the global levels.

12. **The report draws on findings from interviews with Indigenous stakeholders, and surveys and virtual meetings with MDB and institutional stakeholders.** Chapters 2, 3, and 4 report on this data and include excerpts from Indigenous stakeholder interviews. The scarcity of published research on the gender dimensions of TKT for climate solutions underscores the importance of supplementing the existing scholarship and grey literature with findings from interviews with Indigenous stakeholders and from the survey of MDB/institutional stakeholders.

1.3 Outline of the Report

13. **In the first chapter, the report provides an overview of the gender dimensions of traditional knowledge and technology relevant for climate change**. It includes a review of the main drivers of climate change vulnerability for IPLC women, including ascribed gender roles within patriarchal traditional institutions, unequal ownership and access to resources, high rates of experiencing GBV, limited access to adequate and culturally appropriate basic services, including sexual and reproductive or psychosocial support services. These intersecting drivers lead to poor development outcomes for IPLC women, who are among the poorest of the poor globally, and are facing new threats, such as the impacts associated with the COVID-19 pandemic and lockdown measures. This chapter concludes by exploring how, despite these challenges, IPLC women are also important agents of change and often at the forefront of using TKT to address climate related challenges and defend their communities' land and resource rights.

14. **In the second chapter, the report draws on case study material and results from key stakeholder interviews to review the various roles IPLC women play as agents of change in generating, applying, transmitting, and preserving TKT.** The first set of examples presented in this chapter illustrates the ways in which IPLC women are applying their TKT to maintaining food and water security for their households and communities. These cases include examples of the role of IPLC women in upholding

[12] Annex 1 provides a sample questionnaire used for these stakeholder interviews, and Annex 3 provides a table of all stakeholders who participated in interviews for this study, including their organizational affiliations and, where relevant, the Indigenous ethnic groups with which they self-identify.
[13] Annex 2 provides the questionnaire used for the MDB stakeholder and IPLC women's network surveys.

agroecological systems such as shifting cultivation and sustainable forest management, as well as homestead agriculture and water resource management strategies. Subsequent case studies present examples of IPLC women using TKT to help their communities respond to shocks and stresses as well as changing conditions—including climate impacts on livelihoods, weather forecasting, and responding to COVID-19 pandemic and related lockdown measures. These case studies illustrate how IPLC women are using their TKT to support the foundations of social resilience for their families and communities.

15. **In the third chapter, the report presents examples of good practice that have supported documentation and assessment of the gender dimensions of TKT, and gender-responsive integration of TKT into climate change policies and programs.** These examples highlight much of the work and advocacy by IPLC women's organizations and networks, as well as examples of government and donor-funded programs that adopt a co-design approach to the identification, design, and implementation of climate resilience initiatives together with IPLC communities and women.

16. **Lastly, in the fourth chapter, the report distills the key messages from the study into policy and operationally relevant recommendations for promoting gender-sensitive TKT in climate solutions.**

2. Defining gender dimensions of traditional knowledge for climate change

17. **Assessing the gender dimensions of TKT for climate solutions is critical for many reasons**. Climate change—along with other hazards and emerging threats such as the COVID-19 pandemic and associated lockdown measures—disproportionately affect the world's poorest and most marginalized people, including IPLC women. Vulnerability to experiencing adverse impacts from climate change, and the capacity to effectively cope with extreme events in the present and build resilience to changing conditions over time are differentiated across and within groups of people. Differentiated vulnerability is shaped by social, political, and economic factors and processes, such as pre-existing inequalities, ascribed gender roles, and voice in decision-making processes that determine access to resources. The impacts of climate change thus reinforce existing patterns of poverty, marginalization, and exclusion (Prior and Heinämäki 2017). Failure to address these impacts and the underlying drivers of vulnerability for marginalized groups risks wiping out gains from past development and frustrating options for inclusive, green recovery from the COVID-19 pandemic going forward.

18. **The discourse on the gendered dimensions of climate change analyzes the factors that shape women's disproportionate exposure and vulnerability to the impacts of climate change.** This field highlights the ways in which climate change vulnerability is both shaped by and compounds existing gender inequalities, adds additional burdens to women's roles and responsibilities within the household, and adversely affects women's access to and ownership of productive resources (Dankelman 2010). More recently, there has been an increasing focus on intersectionality, which highlights how—in addition to gender—others factors such age, race, income, caste, indigeneity, and (dis)ability influence differentiated patterns of vulnerability and resilience among women (Hitomi and Loring 2018; ICIMOD 2014).

19. **An intersectional lens has increasingly been applied to assessing the situation of IPLC women with respect to climate change, particularly in relation to Indigenous women.** Such approaches point out that the intersection of gender and Indigenous ethnicity means that Indigenous women and girls face multiple disadvantages that make them disproportionately vulnerable to the impacts of climate change. In other words, Indigenous women "are not only discriminated simply for being women or for being Indigenous, but also for being Indigenous women" (IWGIA 2020:17). As such, Indigenous women—as well as women identifying with AD and LC communities in many contexts—face exclusionary and discriminatory practices both in their own communities and in society at large.

20. **IPLCs in many settings experience insecure tenure over their traditional lands and the natural resources upon which their lives, livelihoods, and cultural identities depend.**[14] Within this already challenging context, IPLC women are doubly discriminated against as gender norms place the burden of household care on women while patriarchal local institutions and decision-making processes

[14] Using evidence and expert input on the customary rights of communities to lands and territories across 42 countries comprising one-half of the world's land, analysis conducted by the Rights and Resources Initiative demonstrates that Indigenous Peoples (IPs), local communities (LCs), and Afro-descendants (ADs) exercise customary rights to at least 49 percent (3,115 million hectares [or mha]) of the aggregate area assessed in the study (percent of regional land covered by the study: Asia, 38%; Africa, 47.7%; Latin America, 93.1%; and North America, Europe and Oceania 47.9%). This supports prior estimates that IP, LC, AD collectively hold rights to over half of global land area. Of these territories, at least 46 percent (1,488 mha) have yet to be legally recognized, and half of these (789 mha) are in Low- and Middle-Income Countries (LMICs). RRI (2020).

exclude women from ownership of and access to critical resources such as land, income-generating natural resources, and savings and credit instruments (IWGIA 2020: 21).

21. **However, IPLC women are not only victims of climate change but are also important agents of change with much to contribute to climate science, policies, and programs.** IPLC women have developed and transmitted traditional knowledge over generations through their efforts to fulfill their household care and reproduction responsibilities and build the livelihood resilience of their families and communities. The traditional knowledge held by women varies across contexts but tends to relate to aspects such as maintenance of household food and water security, bioindicators of the health of plant and animal species, sustainable management of natural resources, and managing risks and impacts from a range of hazards, including those related to climate change, environmental degradation, and the health and economic impacts of COVID-19, to name a few.

22. **The traditional knowledge held by IPLC women is of great value to Western climate science and government and donor climate change programs but remains underutilized in these contexts.** Examples of successful and gender-responsive integration of TKT into climate change programs are sparse, and progress has been limited on documenting and assessing the value of women's TKT for climate science, adaptation, and mitigation. A better understanding of and engagement with traditional knowledge and the IPLC women who develop it is necessary to feed into and ground climate science in local realities, and to provide a foundation for developing climate change response programs that are more likely to be taken up by and effective in meeting the resilience-building needs of IPLC communities.

23. **Without a deeper and more contextualized understanding of the gender dimensions of TKT relevant to IP, AD, and LC women across different settings, there is a risk that valuable TKT approaches that can be scaled up and integrated with scientific approaches to engender inclusive and sustainable responses to climate change will be lost**. Moreover, without a better understanding of the gender dimensions of TKT for climate solutions, adaptation, mitigation, and development policies and programs could inadvertently reinforce rather than help to address the underlying drivers of vulnerability for IPLC women. The remainder of this chapter outlines findings from existing literature and stakeholder interviews on the drivers of vulnerability for IPLC women, and on the roles and achievements of IPLC women as change agents in advancing the application of TKT to climate solutions.

2.1 Climate change and drivers of vulnerability for IPLC women

24. **Ascribed gender roles and high dependence on climate sensitive natural resources to fulfill household obligations exacerbates IPLC women's vulnerability.** In most settings, the burden of care for children, elders, and families is on IPLC women, who play a central role in maintaining the livelihood and food security of their communities. In some rural settings, and oftentimes for Indigenous Peoples living on their ancestral lands, IPLC communities—and women in particular—experience limited or no access to markets or to adequate and culturally appropriate basic services. Therefore, to perform their roles and responsibilities at the household and community levels, IPLC women are more dependent on land and the natural resource base, which are particularly vulnerable to the impacts of climate change and environmental degradation, and to which IPLC women tend to have limited access due to the patriarchal local institutions and gender norms that characterize many

settings (Tebtebba Foundation 2011). Undertaking household care responsibilities can also reduce opportunities to engage in educational and income-generating activities, and in development programs. In the context of a changing climate, these responsibilities often mean increasing time burden and health and safety risks for IPLC women and girls.

25. **IPLC women around the world experience disproportionately high rates of Gender-Based Violence (GBV), particularly Indigenous women.** For example, in Canada, Indigenous women are three times more likely to be victims of GBV than non-Indigenous women. In Bolivia, the geographic areas with the highest concentration of Indigenous populations report higher rates of GBV than the national average. Demographic and Heath Surveys in India show that women who belong to Scheduled Tribes have experienced forms of GBV at higher rates than the total population (IWGIA 2020: 18). GBV risks are compounded by a serious lag in Sexual and Reproductive Rights (SRR) and SRR education for IPLC women, which has led to high rates of teenage pregnancy and an increase in sexually transmitted diseases (STDs), including HIV and AIDS.[15] Impacts from climate change on traditional gender roles in some settings have increased the rates of GBV experienced by IPLC women. In Vanuatu in 2011, following two tropical cyclones, a 300% increase in new domestic violence cases was reported. Research in Samoa showed that people displaced by disaster were at higher risks of GBV than people who stayed in their communities (Mcleod et al. 2018). Under quarantine, social distancing, or self-isolation in response to COVID-19, women, especially IPLC women who already face disproportionately high rates of GBV, are at an increased risk of danger as possibilities to escape domestic violence diminish.[16] Indigenous women in many settings where IPs either lack protection or experience insecure land tenure, women have become de facto defenders of their territories and natural resources, for which they have faced persecution, criminalization, and femicide.[17]

26. **IPLC women are disproportionately vulnerable to health impacts from climate change and emerging threats, such as the COVID-19 pandemic and associated lockdown measures.** As the primary caregivers, women are often the most severely affected by diseases induced by climate change. The World Health Organization (WHO) warned that health risks resulting from differences in gender roles are exacerbated by climate change (WHO 2014). IPLC women also have both higher morbidity and mortality rates as a result of limited access to health care, discrimination, and marginalization (UNPFII 2019: 11), and are more severely affected by disasters than their male counterparts.[18] The effects of

[15] Dr. Mirna Cunningham, first World Conference of Indigenous Women interview. https://www.globalpolicy.org/component/content/article/252-the-millenium-development-goals/52541--world-conference-of-indigenous-women.html

[16] National Indigenous Women's Resource Centre, 2020, cited in UN-DESA (2020: 2).

[17] For example, over 400 human rights defenders have been killed in Colombia since 2016—the highest number of any country in Latin America. Indigenous leaders are disproportionately represented among those killed, and the murder of Indigenous female leaders has been on the rise in recent years: 49 women human rights defenders have been killed since 2016. Sixteen women rights defenders were killed in 2019, compared to 10 in 2018. As of December 2020, United Nations Office of the High Commissioner for Human Rights OHCHR had documented five such killings in 2020 and was verifying 10 others. At least three women human rights defenders have been raped since 2016. Human Rights Watch (2021).

[18] Women tend to remain with elderly relatives and children during disasters, rather than flee to safety. Cultural norms may make it difficult for them to leave home, and some lack vital survival skills, from an education to the ability to swim to the right to own land. For example, of the 140,000 people killed in the 1991 cyclone in Bangladesh, 90% of the victims were women, and Röhr (2006) reports that women and children are 14 times more likely to die than men from natural disasters.

natural resource extraction from Indigenous and communally owned territories also impacts the health of IPLC women, such as through the pollution of rivers due to mining. Pandemics like COVID-19 disproportionately affect IPLC women, who are more likely to be working in affected informal sectors and be the caretakers of children, elderly parents, and extended family members.

27. **IPLC women's rights and needs are often neglected in global political processes.** This is particularly true for Indigenous women. Women's rights are formally codified as human rights under the Convention on the Elimination of Discrimination against Women, and IPs' human rights are codified and recognized in the UN Declaration on the Rights of Indigenous Peoples (UNDRIP). Indigenous women's rights are often neglected at both the international and local levels (Prior and Heinämäki 2017: 193). In relation to climate change and Disaster Risk Reduction (DRR), the importance of gender dimensions has been recognized, but a gap remains with respect to IPLC women. Recent years have seen an increasing emphasis on gender-responsive climate actions in the international climate change and DRR governance mechanisms, including the Intergovernmental Panel on Climate Change (IPCC), United Nations Framework Convention on Climate Change (UNFCCC), Sendai Framework for Disaster Risk Reduction (2015-2030), and 2030 Agenda for Sustainable Development. However, a critical gap exists in terms of recognizing the specific needs, vulnerabilities, and capacities of IPLC women vis-à-vis climate change policies and interventions. The international climate change regime also lacks a framework to enhance the participation of IPLC women.

28. **At the national level, IPLC women are underrepresented in decision-making processes around climate change and sustainable natural resource management.** Stakeholders from various regions report that there remains limited understanding of the importance of gender differences vis-à-vis climate policy and limited will to engage women—much less IPLC women—in decision-making processes. Where progress has been made, it is often the result of advocacy, pressure, and initiatives spearheaded by gender working groups and civil society that document and showcase IPLC women applying their TKT to address climate challenges. Underrepresentation of IPLC women's needs and perspectives also occurs at the sector level, and in relation to donor programs. These factors often mean that the roles and substantive contributions of IPLC women as critical TKT knowledge holders remain largely invisible in climate science and in decision- and policy-making processes around climate change and natural resource management.

29. **As a result of their marginalization, IPLC women are overrepresented among the poor, earn significantly less for their productive activities than men and non-Indigenous women, and lack access to critical livelihood resources.** Recent data from ILO (2019) shows that Indigenous women are the worst off—consistently at the bottom of all social and economic indicators. They are the least likely to have completed basic education and are the most likely to be in extreme poverty (FIMI 2020: 11). Poor development outcomes and justice, equity, and participation barriers for IPLC women mean they are limited in their ability to engage in policy- and decision-making processes at all levels and apply their traditional knowledge in climate mitigation and adaptation programs. High poverty rates and limited opportunities for IPLC women to earn an income through use and transmission of their TKT also represent barriers.

30. **The factors described above constrain IPLC women's abilities to effectively develop, apply, preserve, and transmit their TKT for climate solutions—from local level to international climate regime.** Gender norms mean that IPLC women often have primary responsibility for household care

and reproduction, while patriarchal local institutions and high rates of GBV constrain IPLC women's involvement in decision-making processes and their ability to safely and without intimidation work and share communally and self-organize with other women at the local level. These collective spaces are essential to the experimentation and innovation that support the evolution and transmission of TKT held by IPLC women. This is compounded by the lack of secure land tenure and access to natural resources, which severely limits the self-determination and food sovereignty[19] and security of IPLC communities. Limited availability of intercultural education systems, training programs, and initiatives that support co-production of knowledge about TKT through meaningful engagement of IPLC women represent additional barriers to recognition of their roles as TKT change agents, and pose challenges to the documentation, assessment, preservation, and transmission of IPLC women's traditional knowledge and practices.

31. **In relation to climate science, very few studies have adopted a co-production approach to generating knowledge about TKT or meaningfully engage female TKT knowledge holders.** For example, the vast majority of climate studies (87%) practice an extractive model in which outside researchers use Indigenous knowledge systems with minimal participation or decision-making authority from communities who hold them. Few studies report on outputs that directly serve Indigenous communities, ethical guidelines for research practice, or providing Indigenous community access to findings. Among several recommendations, the study encourages further research assessing levels of engagement of underrepresented populations within Indigenous communities, including women (Gavin and David-Chavez 2018: 1). The lack of ethical research guidelines, protocols, and understanding around how to meaningfully and responsibly engage IPLC communities in the co-production of knowledge about TKT is compounded by a lack of Intellectual Property Rights (IPR) that recognize and protect the TKT held by IPLC communities and women.

32. **IPLC communities and women face particular challenges with regards to protecting their Intellectual Property Rights under the current intellectual property governance regime.** The Trade Related Aspects of Intellectual Property (TRIPs) agreement signed in 1994, which became the founding element of the World Trade Organization, constituted a paradigm shift in the intellectual property rights regime by incorporating intellectual property into the international trading system. The agreement on TRIPS also enabled what was previously in the public and available to all to be commodified through granting ownership rights for such goods and resources. In this process, intellectual products such as TKT in the developing world become available for privatization by non-Indigenous actors, as these actors often have the capital and know-how information. This situation allows appropriation of traditional knowledge and technology in developing countries by non-IPLC actors. Therefore, it is crucial to provide necessary capacity building and financial support to IPLC communities and women for claiming IPRs to their traditional knowledge and technology (Boyle 1996; Correa et al. 2009). Work undertaken by organizations such as the World Intellectual Property Organization (WIPO) aims to address this issue, through training and mentoring aimed at strengthening the capacity of women entrepreneurs from IPLC communities to make strategic and

[19] Food sovereignty is defined as "the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems." Declaration of Nyéléni. https://nyeleni.org/.

effective use of intellectual property rights, in support of projects based on traditional knowledge and traditional cultural expressions (TCEs).[20]

2.2 IPLC women as agents of change

33. **IPLC women are important agents of change, developing and applying TKT that supports the social resilience of their communities and advocating to make their voices heard in policy processes at all levels, including around climate change.** Given the central role they play in the production of household and communal livelihoods, IPLC women are often the main custodians of traditional knowledge systems relating to these aspects of life. Much traditional knowledge has developed and evolved out of IPLC women's individual and collective efforts adapting to environmental changes and fulfilling their obligations as caregivers.[21] These traditional knowledge systems are critical to IPLC communities' abilities to sustainably manage natural resources, maintain household food and water security and sovereignty, and manage multi-hazard risks, shocks, and stresses with limited or no external support.

34. **Indigenous women in many contexts also hold extensive knowledge about native languages, and about the territories their communities inhabit, including about the location of sacred sites.** In an example drawn from the Siberian context, where cemeteries constitute sacred sites for IPs, Indigenous women hold knowledge about the location of these sites, which is not only of cultural relevance, but also serves to protect the community. Due to the melting of the permafrost, these cemeteries can become dangerous, exposing toxins. It is Indigenous women who hold the knowledge of where these sites are located, and they inform the community to ensure nobody enters these sacred (and oftentimes dangerous) areas. Indigenous women in this context—and across many other settings around the world—are also the custodians of the traditional knowledge around their peoples' cultural practices and native languages, which is critical to the preservation of Indigenous culture.[22]

35. **IPLC women play a key role in both intergenerational transmission of TKT to children, and in transmitting certain kinds of traditional knowledge (e.g., weather forecasting methods) to local government to facilitate decision-making.** IPLC women in some settings actively self-organize at the local level to collectively find solutions to the challenges affecting their communities. These social and family networks are key to facilitating the transfer of knowledge and learning on TKT between IPLC women. Much of this Indigenous knowledge has been handed down through the generations through oral traditions, and research documents how IPLC women employ social networks and family ties to facilitate knowledge transfer, diversification, and increased use of climate resilient practices.[23] This

[20] WIPO Training and Mentoring Program for Indigenous Women Entrepreneurs. https://www.wipo.int/tk/en/women_entrepreneurs/.

[21] See: Hitomi and Loring (2018); Tebtebba Foundation (2011); ICIMOD (2014); Ketlhoilwe (2013); Mcleod et al. (2018).

[22] Interview with Daria Egereva, Union of Indigenous Peoples of Tomsk Region.

[23] See for example Ketlhoilwe (2013: 158-9) on experiences in Eastern Botswana where local women have reduced dependence on natural products through diversification and, as a by-product, increased sustainability of natural

mode of transmission underscores the fact that TKT held by IPLC women is not static but develops and evolves over generations within a framework of observation, experimentation, and innovation (Chadwick et al. 1998). IPLC women also share their traditional knowledge with local government. In one example from a pastoralist community in Kenya, observations of changes in plant species collected through traditional means by IPLC women are passed on to the village council to inform local decision-making about herd management during the forthcoming season.[24]

36. **At the national, regional, and international levels, Indigenous, Afro-descendant and local women have been self-organizing and building alliances and networks among themselves and with other social movements over the last several decades.** Since the mid-1980s, IPLC women's groups have been creating international alliances and global networks of Indigenous, Afro-descendant and local women with chapters in various regions and countries.[25] Indigenous women have been active in highlighting Indigenous women's rights as distinct from both IP rights and from women's rights, and their participation in the Fourth World Conference on Women in Beijing in 1995 led to the signing of the Beijing Declaration of Indigenous Women. This marked the first time Indigenous women established their own political platform at the international level (FIMI 2020: 17).

37. **IPLC women through their representative organizations and networks have made considerable progress in raising the voice of IPLC women within global political processes.** These efforts have often revolved around highlighting the need to apply an intersectional and gender lens that make explicit the specific vulnerabilities, situations, and opportunities for Indigenous, Afro-descendant, and local women across different settings. Numerous examples exist across all regions of IPLC women leading innovative initiatives on many important issues such as self-determination, violence and access to justice, sexual and reproductive rights, environmental justice and climate change, emergency responses to the COVID-19 pandemic, challenging colonialism and capitalism, and promoting and protecting IPLC women's collective and individual rights (FIMI 2020: 13).

38. **The work of civil society and Indigenous women's groups and networks has been instrumental in increasing the engagement of IPLC women in the international climate change policy regime.** This has been achieved through advocacy work around increasing engagement of IPLC women in the UNFCCC COP process. This has taken various forms such as IPLC women's engagement in initiatives like the development of the UNFCCC Gender Action Plan adopted at COP21 in Cancun; advocating for creation of spaces for the showcasing of IPLC women's voices and issues at the UNFCCC COPs; and supporting creation of the UNFCCC Local Communities and Indigenous Peoples Platform (LCIPP).[26] Indigenous women have also been active in the establishment of the United Nations Permanent

resources. The study also found that social learning through participation in CBO efforts helped to increase both individual and group understandings of climate change phenomenon.

[24] Interview with Edna Kaptoyo, Pastoralist Communities Empowerment Programme (PACEP).

[25] Some examples of these regional and global networks include: ECMIA (Enlace Continental de Mujeres Indigenas); FIMI (International Indigenous women's Forum, or Foro Internacional de Mujeres Indigenas)*;* IWBN (Indigenous Women's Biodiversity Network); COICA (Coordinadora de las Organizaciones Indígenas de la Cuenca Amazónica, or Coordinator of Indigenous Organizations of the Amazon River Basin); International Alliance of Indigenous and Tribal Peoples of the Tropical Forests (IAITPTF); International Indigenous Forum on Biodiversity (IIFB).

[26] https://unfccc.int/LCIPP

Forum on Indigenous Issues (UNPFII), and have used this platform to raise the issues that affect Indigenous women across different regions and contexts.

39. **The Indigenous female stakeholders who took part in the present study have also worked to advance the voice of IPLC women within donor-funded environment and conservation programs.** This work has included shaping climate funding mechanisms through engagement with relevant taskforces, such as Indigenous Peoples Taskforce for the Development of Global Environment Facility (GEF) Guidelines and Principles of Engagement with Indigenous Peoples. Study participants have also engaged in the development of CIF programs, such as the Forest Investment Program's Dedicated Grant Mechanism (DGM), which is an $80 million program that directly supports sustainable forest-use practices led by IPLC groups. It is the largest global REDD+ initiative created solely for and by IPLCs. Study participants have also served as IP observers on the trust-fund committees for CIF programs[27] and are engaging in regional dialogues such as the World Bank's ongoing dialogue with IPs in the Latin America and Caribbean region, and in the World Bank's Inclusive Forum for Indigenous Peoples (IFIP), which will serve as a platform to identify and share good practices across regions and deepen the understanding of initiatives to advance the integration of IP issues in development efforts.[28]

40. **Despite the wealth of valuable traditional knowledge held by IPLC women and the considerable progress made by IPLC women's groups and networks, major gaps remain with respect to gender-responsive integration of TKT into climate programs.** IPLC women remain underrepresented in the international climate change regime; largely left out of climate change research (evidenced by the lack of focus on IPs, much less IPLC women in the IPCC Assessment and Special Reports);[29] and marginalized in national decision- and policy-making processes. While examples of good practice that are founded on principles of strong stakeholder engagement exist in the realm of MDB lending and climate financing (for example, the CIF's Dedicated Grant Mechanism and Forest Investment Program), without adequate measures in place to ensure their inclusion and voice, IPLC women are often missed by government and donor environmental management and climate change programs.

41. **Advancing climate science and climate change programs that foster gender-responsive uptake of TKT must begin with greater engagement between climate science, climate change and development practitioners, and IPLC women.** This starts with recognition of both the value of TKT held by IPLC women, and the drivers of vulnerability they face—both as members of IPs, Afro-descendants, and local communities, and as women within those contexts, seeking both individual and collective rights. Further documentation and assessment of IPLC women's roles in the application of TKT to climate solutions across different regions, settings, and cultural contexts is also necessary. As the remainder of this report will illustrate, support for strengthening IPLC women's roles as change agents in using their TKT towards climate solutions is not only essential to supporting sustainable development for some of the poorest and most marginalized communities in the world, but also represents a critical opportunity to make progress on mitigation of GHG and building social resilience to shocks, stresses, and emerging threats like climate change and global pandemics.

[27] https://www.climateinvestmentfunds.org/stakeholder-engagement
[28] https://www.worldbank.org/en/topic/indigenouspeoples#2
[29] See Ford, Vanderbilt, and Berrang-Ford (2012), and Ford et al. (2016) on the lack of inclusion of Indigenous knowledge and content in the Assessment Reports of the Intergovernmental Panel on Climate Change (IPCC).

3. Traditional knowledge applied by IPLC women for climate solutions

3.1 IPLC women using traditional knowledge to support food and water security

42. **IPLC women hold much traditional knowledge that underpins agroecological food production systems that deliver significant social and climate co-benefits.** These agroecological systems are often designed to regenerate and preserve land and natural resources. For IPs, living in balance with nature comprises a core element of cultural and spiritual identity. These sustainable management principles are exemplified through agroecological food production systems, which, in turn, are essential to building and maintaining the social resilience of IPLC communities, preserving and passing on cultural identity, delivering food and nutrition security, protecting biodiversity, and sustainably managing the natural resources on which IPLC livelihoods depend.

43. **IPLC agroecological food production systems have recently been identified as providing the basis of local level response and resilience to the impacts of the COVID-19 pandemic in many locations where food markets and supply chains have failed.** With examples emerging from diverse settings around the world, there is an increasing recognition that the sustainable development principles underpinning IPLC agroecological systems have much to contribute to climate science, policies, and programs, and that they hold critical lessons for building back better and transitioning to greener and more inclusive societies in the aftermath of the COVID-19 pandemic.[30]

44. **However, the conditions under which IPLC women use their agroecological TKT to maintain food and water security are often extremely challenging.** While conditions vary, they can include complete or near complete dependence on the natural resource base due to limited access to markets and basic health and education services (particularly for IPLCs in remote, rural locations or IPs living on ancestral lands), shifting climatic conditions, extremes, and environmental degradation, and insecure land tenure and access to critical natural resources, including water. These conditions can severely limit the degree of sovereignty IPLC communities are able to exercise over their food and livelihood production systems, with often severe consequences for food, nutrition, and livelihood security, as well as for the preservation of cultural identity and the ability of IPLC women to effectively ensure food and water security and develop and pass on their agroecological TKT.

45. **The cases introduced below take examples from agroforestry and shifting cultivation to illustrate the types of agroecological traditional knowledge held and applied by IPLC women.** These include:

- Knowledge about edible wild vegetables, medicinal, and herbal plants
- Sustainable gathering methods and harvesting non-timber forest products
- Methods to manage pests and increase yields from homestead agricultural production
- Predicting weather conditions and making seed selection, planting, and livestock management decisions accordingly
- Knowledge about bio-indicators of the health of ecosystems and plant and animal species

[30] For example, the focus of the fifth global meeting of the Indigenous Peoples' Forum at IFAD in February 2021 is on the value and resilience of Indigenous food systems in the context of the COVID-19 pandemic. https://www.ifad.org/en/ipforum2021. See also IFAD (2021). Indigenous food systems are at the heart of resilience. https://www.ifad.org/en/web/latest/story/asset/42430200.

- Maintenance and preservation of wild crop, tree, and seed varieties
- Knowledge of water sources and water preservation and purification methods

46. These traditional knowledge systems are of great relevance to various sectors, including climate smart agriculture, sustainable resource and livestock management, water, forestry, and climate mitigation and adaptation. However, much work remains in terms of documenting the value of the TKT held by IPLC women and integrating that TKT into climate science and government and donor climate and sector programs.

Agroforestry

47. Forest ecosystems represent an important carbon sink and are home to dwindling biodiversity and to many IPLC communities around the world. For IPs, forests are of particular importance, not only economically and socially, but also to the survival of their cultural identity. Growing evidence shows that forests in Indigenous territories are far more sustainably managed than forests under other land uses. For example, research focused on the Amazon region indicates that IPs provide a major global environmental service by acting as buffers against not only deforestation[31] but also large-scale carbon emissions (Walker et al. 2020). The IPCC's 2019 Special Report on Land and Climate Change recognizes that the traditional knowledge of IPs and their sustainable stewardship of the world's lands and forests are key to reducing global emissions.[32] Evidence suggests that women play a central role in the sustainable management of forest landscapes and other critical ecosystems, and in upholding the regenerative food production and livelihood systems that sustain life for the IPLC communities living therein.

48. Findings from stakeholder interviews illustrate how IPLC women are responding to high rates of deforestation by establishing tree nurseries and replanting programs based on their rich traditional knowledge around indigenous tree species. For example, in Eastern Panama, the community of Ipeti Embera Indigenous Peoples have reported being unable to construct their homes using their traditional methods because of the diminishing quantity of timber available—an effect of both climate change and overlogging. As a response to both the dwindling of raw materials for the construction of their traditional homes and to drought caused by the drying of local rivers, the women of these communities have started to practice reforestation of native tree species. This has occurred without assistance from the government or donors, but rather, represents a traditional response to the resource challenges these communities are facing—spearheaded by the women living in these communities.[33]

49. IPLC women in Kenya and in the Colombian Amazon are similarly engaging in the establishment of tree nurseries as a livelihood strategy and response to climate change. In the case of Kenya, these women are not only using their traditional knowledge of indigenous tree species to advance climate adaptation and mitigation challenges and to provide a sustainable source of income for their

[31] RAISG (2015) found that deforestation rates in the Amazon were five times greater outside Indigenous territories and conservation units than they were inside Indigenous territories.
[32] https://www.ipcc.ch/srccl/
[33] Interview with Florina López Miró (Indigenous Women's Biodiversity Network (IWBN) for Latin America and the Caribbean).

communities. They are also supplying the local community and local government with native tree species, thereby using their TKT to advance sustainable forest management at the local level.

IPLC women in Kenya using TKT to advance sustainable forest management and response to climate change impacts

They [IPLC women] are agents of change and they sensitize the community by donating some of these indigenous tree seedlings. We have seen them share this Indigenous knowledge even with government officers about how best they can address issues of floods, droughts, and they are learning from each other at the same time and at the same time trying to address issues that affect them and their families. (Source: Interview with Rose Wamalwa, Women's Climate Centers International [WCCI]).

In the Narok area, a region where there is the largest water catchment tower in Kenya, the women have this intimate knowledge and understanding of tree species, how to restore them, what needs to be planted where and can regenerate faster, and how to regenerate and conserve on site because the women have known how to regenerate those, germinate the tree seedlings. Now they've been working with the forestry department as the main supplier of native indigenous tree species and also supporting community restoration initiatives in their communities. (Source: Interview with Edna Kaptoyo, Pastoralist Communities Empowerment Programme [PACEP])

Indigenous women in Colombia: restorers of the Amazon

We are delivering support to Indigenous women in the Amazon under the program called Vision Amazonia [implemented by the Ministry of Environment in Colombia]. Indigenous women advocated and obtained some resources under that program—a percentage of the resources destined for IPs was set aside for Indigenous women, and with those resources, the program is supporting the tasks and work that Indigenous women have been undertaking in their territories for the mitigation and adaptation of change climate. The women presented their projects to the Ministry of the Environment and we are supporting this process. It is a great recognition of the role of Indigenous women in the territories. They are genuine restorers of the territory. In the Amazon, you will never see deforestation in Indigenous territories because when a space is opened to cultivate it is done with a ritual of permission from nature and with total commitment to restore what is taken almost immediately, and that is done with the same species, so you will never see deforestation in Indigenous territories of the Amazon. And this is the role that women play in the territories (Source: Interview with Fany Kuiru Castro, National Organization of the Indigenous Peoples of the Colombian Amazon [OPIAC])

50. IPLC women also have rich traditional knowledge around the sustainable harvest and management of non-timber forest products (NTFP). One example illustrates how the women of the Xikrin Indigenous People of Bacajá in the Brazilian Amazon partnered with the Brazilian government's National Indigenous Peoples Foundation (FUNAI) and The Nature Conservancy (TNC) to lead a diverse portfolio of sustainable resource management and production projects. These projects began in 2013 and many have expanded and are still operating today. All of these projects support the sustainable harvest of non-timber forest products, with the aim of leaving the forest standing strong. These projects include dressmaking, dye creation for body paint, flour production and vegetable cultivation. One of the projects that has expanded and is now being implemented in several Xikrin villages is *babaçu* oil production (a type of coconut). The project centers on use of Indigenous women's traditional knowledge and roles and strengthens the women's capacity to manage the production and commercialization of the *babaçu* for use within the villages and for external commercialization. The

oil is sold at fair prices and routed directly to consumers or stores in urban centers, adding significant economic value to an activity of cultural and environmental importance. This project recently received recognition [34] from the United Nations Food and Agriculture Organization (FAO) for women's empowerment and autonomy in rural activities that promote healthy and traditional foods.[35]

51. **While IPLC women play a central role in the sustainable management of forest landscapes, the value of these roles is often not recognized, and IPLC women continue to face significant challenges in accessing critical forest resources.** The loss of forests, as well as insecure tenure or access for forest dwelling IPLCs, has a direct and negative impact on IPLC communities' sovereignty over their land's traditional agricultural systems, which are profoundly linked to their identity and culture (IWGIA 2020: 218). Indigenous communities whose land rights are denied or who do not have self-determination on their territories are not able to exercise control over their food production, losing their livelihoods and reducing their ability to sustain themselves. The situation of IPLC women, as the main providers of food and nutrition for their families, is even more serious (IFAD 2021: 3). Rights and Resources Initiative's (RRI) 2017 assessment of national laws regulating IPs' and local communities' forest tenure found that almost all of them fail to adequately acknowledge and protect the rights of women, including women's rights to property, inheritance, community membership, community-level governance, and community-level dispute resolution (RRI 2017).

52. **IPLC women also face critical barriers with respect to participation in donor-funded forest landscape projects.** For example, recognizing the important role of IPLC women in forest landscapes, REDD+ partner organizations set targets for women's participation, ranging from 30–50%. Overall, however, only 35% participation by women was achieved (with differences reported among countries). The various reasons women's participation rates did not achieve targets reflect the following challenges and barriers faced by IPLC women: cultural factors (gender roles, male dominance); women's heavy workloads; restrictions on women's traveling; lack of confidence due partly to low literacy rates and educational levels (IWGIA 2014: 7).

53. **Efforts are needed in various areas for IPLC women to fully and effectively participate in REDD+ initiatives.** Central areas of concern include: linking the demands for equal individual rights for men and women over land and forest with advocacy for the recognition of collective (territorial or communal) land and forest rights of IPs; promoting more gender equality within IPs' customary law and institutions; and, in particular, promoting the full participation of IPLC women in customary decision-making processes and institutions (Ibid.). Another study similarly recommends that forest sector laws, strategies, and policies be developed with inclusive, co-development approaches, for example, through an inclusive institutional framework for engagement and participation in forest policies by women, Indigenous persons, CSOs, NGOs, and the private sector (PROFOR 2019: 7).

[34] http://www.funai.gov.br/index.php/comunicacao/noticias/5279-projeto-empreendedor-de-mulheres-xikrin-alcanca-reconhecimento-internacional

[35] https://www.nature.org/en-us/what-we-do/our-insights/perspectives/indigenous-women-xikrin-amazon-rainforest/

Shifting cultivation

54. **The central role of IPLC women in upholding resilient agroecological systems is also illustrated in the case of shifting cultivation, a food production system on which IPLCs across many regions of the world depend for their livelihood and food security.** Decades of research on shifting cultivation have demonstrated that this food production system enables greater carbon sequestration than other forms of land use, enhances biodiversity, and is crucial for in-situ conservation of crop genetic resources, among other benefits, and therefore offers important lessons for climate change response strategies (CCMLCIP 2012). Case studies undertaken by FAO, IWGIA and AIPP (2015) to take stock of changes in livelihood and food security among Indigenous shifting cultivation communities in South and Southeast Asia concluded that IPLC women perform about 70 percent of the work done in shifting cultivation. This pattern was evident across all seven countries included in the study (CCMLCIP 2012), in which the TKT generated and applied by IPLC women to shifting cultivation includes the following: extensive knowledge of cultivated and wild plants, and of harvesting NTFP to produce handicrafts such as baskets, fish traps, kitchen wares, clothes etc.; responsibility for seed selection and preservation; uses for plants, animals, and insects not only for food but also to treat illnesses and for nutrition for pregnant and nursing mothers; and transferring knowledge of TKT to younger generations, largely through oral traditions (FAO, IWGIA and AIPP 2015).[36]

Homestead agriculture

55. **IPLC women are often responsible for managing homestead-based agriculture and have developed rich traditional knowledge to increase production.** This is of critical importance not only to maintaining household food security but also to achieving economic empowerment for IPLCs through the sale of excess produce since, in many settings, IPLC women are restricted by religious or cultural norms to engaging exclusively in home-based income-earning activities (Khanum and Al Mahadi 2015: 18). In this context, IPLC women have developed innovative methods to increase production and manage pests with locally available materials. For example, rural women in Bangladesh have developed a method of spreading ash mixed with kerosene over vegetable gardens infected with aphids as a pest control method. Many women also use ash as a source of fertilizer in their vegetable plots. To prevent bird attacks on vegetable homestead plots, women have also been documented to hang banana leaf threads over *brinjals* (eggplants). Women also practice cutting of narrow incisions in the stem of papaya and betel nut plants as a way to increase fruiting and prevent fruit dropping (Chadwick et al. 1998).

56. **In some cases, homestead production decisions have great impacts on the lives of IPLC women**. One example from the flood prone regions of Bangladesh is found in the widespread shift that has occurred from rearing chickens to raising ducks. This has made IPLC women and their families more able to withstand the effects of flooding, and thus, has had important economic empowerment impacts on IPLC women, who are often primarily responsible for homestead agriculture, including poultry rearing. It has been documented that "a significant number of *Haor* women[37] were involved in duck rearing farm [sic]. [While] it appears that inadequate or no systematic study been conducted on *Haor* women's participation in intra-family decision making process in duck rearing farm [sic]," duck farming

[36] FAO, IWGIA, and AIPP (2015).

[37] The Hoar region is located in NE Bangladesh and is made up largely of wetland ecosystems.

can be a vital tool to improve women's status, households' food security, and employment opportunity (Khanum and Al Mahadi 2015: 18-19).

Water resource management

57. IPLC women are traditionally the "water providers" and domestic water managers across many rural, agrarian settings around the world. The water collected by IPLC women is used for a wide range of homestead activities including human and livestock consumption, cooking and cleaning, sanitation, and watering homestead vegetable plots. In fulfilling their roles as water providers and domestic water managers, women have traditionally developed a wide range of strategies to obtain, purify, and preserve water. The following examples provide an overview of various traditional knowledge-based approaches used by IPLC women in South Asian countries to manage water resources.[38] Many of these practices have also been documented in other parts of the world.

58. IPLC women use their TKT for ensuring access to water in their communities. In India, ***village irrigation tanks***, intended primarily to provide water for paddy cultivation, are also used as a major source of water for drinking, bathing, washing clothes, and other sanitary and hygienic purposes. Evidence suggests that women employ a range of TKT-based approaches, for example, as a means of ensuring access to water, women practice spatial separation of collection points based on use. In Sri Lanka, Ullawishewa (1994) (as cited in Chadwick et al. 1998: 20) also reported the use of these same practices, noting that decision-making around collection points was based on a range of factors: the depth of water (deeper parts of the tank tending to be calmer and clearer), access to sunshine at the collection point (to kill germs and "purify the water"), the distance to the other collection points (preferring as far away as possible), the existence of aquatic plants around the water collection points (a thick cover of plants on the open water makes the water calm and also restricts the influx of sediment from other points), and the presence of *Terminalia arjuna* (*kumbuk*) trees near the water (the tree is believed to have de-salinizing properties). The range of factors used by women to assess water quality in these examples illustrates the breadth and depth of TKT.

59. Women also practice several traditional methods to purify water. Women are aware that water taken from irrigation tanks and wells was often contaminated with bacteria, silt, and floating solid particles. In order to filter and purify the water entering the well from the springs, in Sri Lanka, wood from the *kumbuk* tree was burnt and deposited between the walls and the logs, so that the springs feeding the well have to pass through the charcoal from the burnt wood. Burnt wood and burnt coconut shells were also added to the bottom of the well—the former to reduce salinity and the latter to clear the water. In Bangladesh, during heavy flooding when people are forced to drink unclean water, the population uses a coagulant—alum (*fitkiri*)—to clear the water. Women also ***filtered water at the water point*** with a filtering cloth. Often the inside of the pots used to collect water are rubbed with the seeds of *Stryclinos potatorum* (*ingini*), which help to clear the water. Boiling water destroys any remaining microorganisms, and boiled water is given to children and to older and sick members of the community. **Water recycling and harvesting methods are also used by IPLC women.** For example, women maintain wastewater generated by washing and bathing and divert it to the vegetable gardens that they maintain. Additionally, during the rainy season, water from the tin roofs,

[38] These examples are drawn from Chadwick et al. (1998: 15, 20-21), covering TKT applied by women in India, Bangladesh, and Nepal.

often containing extracts after coming in contact with leaves, makes the courtyard slippery. To prevent this, women tie half longitudinal sections of *borack* bamboo along the margin of the roof and a cement jar used to collect the runoff water, which is then used for washing purposes. Ferroukhi and Chokkakula (1997) (as cited in Chadwick et al. 1998: 15) explored TKT around water harvesting and artificial recharge in northern India. Here, the most important strategy by which local people known as the Maldharis have traditionally managed to safeguard their livelihoods has been through rainwater harvesting. The techniques they have developed harvest the sporadic floodwater in depressions of various sizes, known locally as tanks or jells, which act as storage areas for flood water and ensure that the community's drinking needs are fulfilled even during water scarce years when no rain falls.

60. **For IPs, water has significant cultural and spiritual importance, and is seen as a living force that requires protection**. Indigenous women across many settings are seen to share a sacred connection to the spirit of water through their role as child bearers, and they therefore have special responsibilities to protect and nurture water. In many water scarce settings, this has placed Indigenous women at the forefront of protecting their communities' rights to water, often through advocating for better inclusion in regional water management. One such example is found in the "Movement of Zapatista Women in Defense of Water," which has formed since 2004 in the Mazahua Zone of Mexico.

Indigenous women defending their rights to water in the Mazahua Zone of Mexico

Since 2004, the Mazahua Zone of Mexico has seen the formation of the "Movement of Zapatista Women in Defense of Water," in which Indigenous women have called for both their rights to water resources as well as inclusion in regional development processes. This movement has occurred in reaction to the polarizing and unequal effects that active water markets can have. In this example, local tourism development had appropriated water sources used by the local Indigenous population. At the basin level, development policies focused on users in the middle and lower parts of the basin, ignoring the needs of Indigenous people in the upper basin.

Recommendations of the Movement include: recognition, valuation, and compensation for the important ecosystem services role that IPs play in aquifer recharge zones; explicit reference in Mexican water law to IPs and their resource rights in line with the country's Constitution and Forestry Law; inclusion of representatives of IPs as a distinct cultural group (in addition to groups associated with particular use-functions such as industry and agriculture) on watershed councils and commissions charged with basin water allocation; and more robust legal-institutional mechanisms for conflict resolution between IPs and the non-Indigenous population. (Source: World Bank 2006; Avila Garcia 2005; Juan Martinez, Personal Communication, cited in van Koppen and Kuriakose 2016: 2)

61. **A major challenge for Indigenous women using their traditional knowledge to maintain water security for both consumption and cultural reasons is the lack of legal recognition of IPs' rights to their ancestral lands and the natural resources on which their livelihoods and cultural identities depend.** This has often meant that IPs—and in the case of water access and rights, oftentimes Indigenous women—have had to become environmental activists as a matter of survival, often in direct opposition to powerful corporate interests seeking to mine water and other natural resources from Indigenous territories. According to a report by London-based NGO, Global Witness (2019), of the 212 land and environmental defenders who were killed in 2019, around 40% were IPs and

traditional landowners. More than two-thirds of these killings took place in Latin America.[39] Among them was the 2016 murder of Berta Caceres, a Lenca Indigenous leader, environmental activist, and co-founder and coordinator of the Council of Popular and Indigenous Organizations of Honduras (COPINH). She led a grassroots campaign that successfully pressured the world's largest dam builder to pull out of the Agua Zarca Dam, for which she was awarded the Goldman Environmental Prize in 2015. Tragically, she was murdered the next year by men who had been hired by the executives of the company contracted to build the Agua Zarca dam.[40]

62. **Clearly defined and legally secure freshwater tenure rights are essential to Indigenous Peoples', Afro-descendants', and local communities' livelihoods and food security, as well as to countries' efforts to achieve sustainable development priorities and ensure resilience (RRI 2020a)**. While land tenure has received much attention and been widely accepted as a precondition for the ability of up to 2.5 billion people who rely on community lands to achieve their development priorities and resilience, community-based freshwater tenure has received far less attention. Given this lack of attention, across all regions, the extent of IPLC communities' legal rights to water remains largely unknown, representing a major gap in the knowledge base. The analysis undertaken by RRI also demonstrates that despite commitments in all countries included in the review to eliminate all forms of discrimination against women and improve gender equity in water management, laws regulating community-based freshwater rights are typically gender-blind. The analysis concludes that consistent realization of community-based freshwater rights requires an integrated, tenure-based approach that will often require national-level legal reforms to effectively harmonize water, land, and forest legislation (Ibid 2020: 8-10).

3.2 Using traditional knowledge to build resilience to multi-hazard risks and emerging threats

63. **IPLC women use their traditional knowledge to support their communities' resilience in the face of shocks and stresses of all kinds, including but not limited to the impacts of climate change.** IPLC communities tend to live in a multi-hazard risk context, experiencing shocks and stresses associated with a range of hazards. In addition to climate change and environmental degradation, IPLC communities confront risks that are both idiosyncratic (e.g., household level impacts such as illness or loss of income source) and covariate in nature (e.g., pandemics, insecurity related to living in FCV contexts, economic shocks affecting whole areas). These risks do not operate in isolation but rather overlap in time and space, with impacts often interacting and compounding one another. This multi-hazard risk context necessitates a focus on addressing the underlying drivers of vulnerability and building social resilience of IPLC communities—or "the ability to withstand, recover from, and reorganize in response to crises so that all members of society may develop or maintain the ability to thrive" (Benson et al. 2012).

[39] https://www.dw.com/en/5-deadly-countries-for-environmental-defenders/a-54298499#:~:text=Lethal%20attacks%20against%20activists%20were,dam%20construction%20in%20her%20region.

[40] https://www.goldmanprize.org/recipient/berta-caceres/

64. **In relation to climate change, the risk management strategies of IPLC women often emerge out of their efforts to meet their household care obligations in a context of high reliance on climate sensitive natural resources and ever-increasing extreme events and shifting seasonal and weather patterns.** Ensuring food, water, and livelihood security become increasingly challenging for IPLC women due to climate change. IPLC women, as primary caregivers, are also disproportionately affected by the health risks caused due to climate change—such as changes in disease vectors—. IPLC communities in many settings, particularly those characterized by limited access to basic services and Disaster Risk Management (DRM) programs, often have little means other than relying on their own TKT to support community-level response to climate change and variability. Thus, IPLC women's application of Indigenous knowledge has, in many cases, helped enable IPLC communities to take action to support coping and adaptation in the absence of external help in response (Siyambango et al. 2015: 166).

65. **The following case studies illustrate the central roles of IPLC women in applying TKT to respond to and prepare for shocks, stresses, and changing conditions.** The TKT used by IPLC women in these examples include monitoring of plant and animal species to support traditional weather forecasting; undertaking measures to ensure continuity of household functions in the face of extreme events like flooding; and leading community level responses to the COVID-19 pandemic and related lockdown measures.

Weather forecasting

66. **Improving weather and climate forecasting through the integration of science and Indigenous knowledge is an area of growing interest and is an area in which IPLC women have much to contribute.** Much of the research on traditional knowledge and climate change has focused on the value of local weather and environmental change observations to complement large-scale climate projections (Mcleod et al. 2018: 179). Observations of meteorological variables in many local settings has traditionally been the role of men and includes monitoring of aspects such as the direction and strength of winds, stars, or behavior of the moon. In many settings, however, given their roles in food and livelihood production, it is IPLC women who have the most intimate knowledge of a range of bioindicators as a result of closely monitoring the behavior of plant and animal species. In many contexts, the observations of IPLC women around these bioindicators feed into both traditional and official weather forecasting strategies, which, in turn, are used to support community decisions around planting and herd management for the forthcoming season.

67. **Among the Maasai pastoralist community in Kenya, as the primary providers of food, women are also the primary holders and transmitters of traditional knowledge around food production.** This includes intimate knowledge gained through closely monitoring the ecosystems with which they interact daily to ensure food production. It is the women in the community who work in the farmlands and who manage the livestock. As such, they interact a great deal with their local ecosystems and are constantly monitoring changes in plant and animal species. They then share that information with the Village Councils to support community decision-making.

Maasai pastoralist women in Kenya using their traditional knowledge of plant and animal bioindicators to support seasonal weather forecasts

Mostly you will have traditional forecasters of weather who observe stars, and they are men. But when it comes to biodiversity, it is the women who will tell you 'the acacia is flowering, so it is the onset of rainy season." People are seeing the value of having traditional forecasters who use stars but also having women because then you also have more than 200 indicators that the community use for their understanding of how the climate is going to be.

For example, one woman in the community noticed the presence of a different species of plant in the hillsides and she told the Village Council that [based on the presence of the plant] there would not be drought and that they did not need to move their camels and other livestock […] This informs household and community decision-making. Let's say, it's time for migration for humans and their livestock; this is done as a group. So, this monitoring information that comes back and is collected from different communities and areas is used to inform the decision-making about how the landscape will be used, whether to move or not to move. That kind of information is brought back by the women. (Source: Interview with Edna Kaptoyo, Pastoralist Communities Empowerment Programme [PACEP])

68. **Another example from the Tangkhul Community of Northeast India illustrates that women's involvement in local weather forecasting is common across different settings.** Indigenous women in the Tangkhul community are also the main food producers, responsible for activities such as seed keeping and management of wild crops, herbs, medicinal plants, and family provisioning. In the absence of internal or external support, these women have developed various means of predicting the likelihood of annual weather conditions and crop yields.

Indigenous women predicting annual weather conditions and crop yields in Northeast India

The female Indigenous forecaster announces at the beginning of the year whether the forthcoming year will be characterized by sufficient rain or by drought, and whether certain traditional crops will produce good or poor yields. Indigenous women do this by selecting the best seeds and storing them in a special sacred container for over a year. The container may be opened only once a year, prior to the seed sowing festival. During the seed sowing festival, the female Indigenous forecaster announces her findings by observing the luster of the container, dampness of the seeds, and any fungus or mold infestation visible in the seeds. Depending on the forecast, the community takes decisions of their choice of crops and whether to invest in jhum field (a shifting cultivation field) or wet terrace plantation. For example, for the year 2020, Indigenous women forecasters predicted good crop yields in the terrace field and low yields for jhum crops, and as it happened, terrace farmers experienced good harvest while jhum farmers suffered crop failure. Normally, weather observation like the cloud or wind behavior during the seed sowing festival are done by men. But over generations, the knowledge of forecasting cumulative weather conditions and crop yields in the forthcoming season is held by women. (Interview with Thingreiphi [Athing] Lungharwo, Naga Women's Union)

Maintenance of household food security during extreme events

69. **IPLC women also use their TKT to support community-based responses to climate change through the development of methods to ensure food security during extreme events.** In many cases, when floods or droughts cause food shortages or difficulty obtaining potable water, women limit their food and water intake to ensure sufficient supply for men and children (ISDR 2008: 79). Research has also documented the methods IPLC women have developed over generations to cope with household-level impacts from climate change and variability, for example to source and store water, and to maintain cooking responsibilities during extreme events.

70. **One example is found in the methods IPLC women in Bangladesh have developed to cope with the challenges of maintaining household food security during extreme flooding.** During these events, "women's normal activities become much more difficult to perform. They could not maintain their 'normal' *parda* (veil). They faced different types of problems in performing all household activities such as cooking, cleaning, carrying drinking water, taking care of children, looking after livestock and sanitation." To manage these challenges, a longstanding and widespread practice adopted by rural women in Bangladesh before extreme flooding is to prepare movable clay stoves (*chula*) to make it easier to cook during floods, either to move the household to a raised area, or for women to cook on raised surfaces or roads near their homes until floodwaters recede (Chadwick et al. 1998: 22-23).

71. **Reliance on diverse food and water sources throughout the year, including those in different micro-climates is another important TKT-based adaptation strategy employed by IPLC communities across different regions.** This practice is based on reciprocal relationships in Indigenous food systems as well as nomadic lifestyles. The examples below are drawn from Russia and illustrate the role of Indigenous women's traditional knowledge in supporting their communities' ability to use different sources of food and water throughout the year.

Shor Indigenous women adapting to the impacts of climate change

Usually, among the Indigenous peoples, women are engaged in household chores: raising children, cooking, caring for livestock, harvesting. Therefore, when the ripening period of some plant species changes, women have to adapt to new harvest dates or use other sources of nutrition […] Women change their way of life: they use other food products, methods of harvesting and processing non-timber forest products (mushrooms, berries, nuts, etc.).

Tuva, Altai, and Khakassia Indigenous women using traditional knowledge to support community-based responses to climate change

Some nomadic Indigenous Peoples, due to changes in the environment, change the ways of migrations and places used as pastures. Typically, such people have different options for migrations in order to maintain the necessary balance on the pastures and not allow them to deplete. The early melting of snow and ice on the rivers and changes in the composition of vegetation on pastures force the nomads to change pastures more often than usual, and in this case old knowledge about the geography of the area, about plants that can be used for grazing livestock, about new sources of drinking water are used. There are traditional ways of finding water that have been passed down from generation to generation. Often women hold such knowledge. (Source: Interview with Alexander Arbachakov, The Council of Elder of Shor People)

COVID-19 responses led by IPLC women

72. **IPLC communities around the world have turned to traditional practices to help them cope with the impacts of the COVID-19 pandemic.** For instance, the Karen people of Thailand revived their ancient ritual of "*kroh yee*" (village closure) to fight the spread of COVID-19. This has also been applied in Malaysia, Bangladesh, and many countries in Latin America, with communities closing off entry to their areas. Indigenous organizations in different regions have also responded by providing key messages through written and social media and radio broadcasts in Indigenous languages. For example, the Mayan Language Academy has translated COVID-19 prevention messages into several Indigenous languages and plans to issue more (UN-DESA 2020).

73. **Across many regions, IPLC women have been at the forefront of responding to the health and economic impacts of the COVID-19 pandemic by adopting innovative measures based on ancestral knowledge and practices.** These strategies have been aimed at preventing contagion through culturally appropriate dissemination of information and through provision of masks and hand washing resources; supporting families and communities in caring for high risk individuals, in part through the use of traditional medicine; and contributing to creating the conditions for physical, mental, and spiritual survival—both individually and collectively (FIMI 2020: 23). Examples from stakeholder interviews illustrate how Indigenous women in Northeast India and Kenya are spearheading initiatives that are supporting not only their communities' responses to COVID-19 and related lockdown measures but also government agencies.

Indigenous Women in Northeast India volunteer to provide food, masks, and support to village quarantine centers

Many people would think Indigenous women are vulnerable and we don't contribute but during the initial period of the lockdown, all the [food] markets were closed abruptly. So, we gathered foods and vegetables and then distributed it to frontline workers like police, nurses, doctors, and to the administration. Indigenous women, because of our experience and readiness, in many areas, we were able to mobilize and gather food immediately and distribute it free of cost. This wasn't just in one community but Indigenous women from different communities and areas volunteered to give food as the markets were closed and then the church came in later. We [Indigenous women] not only provided food during the initial lock down period but also supplied food and fruits to quarantine centers for months during the entire period.

Village closures happen in our region as well. In our case, COVID-19 committees were set up in each village in response to the pandemic and village quarantine centers were built on the outskirts of the village. People who came back to the village from outside were isolated for 28 days in these quarantine centers before being allowed to enter the village. There, they are taken good care of by women and youth who supply food items, seasonal fruits, vegetables, cooking, counselling, and making arrangements for transportation and clean bedclothes. In preparation, before the arrival of the returnees to the village, the quarantine center is cleansed and sanitized spiritually, and each returnee is given a warm welcoming note to tell them they are precious and loved by the community and encouraging them to spend a meaningful time with the community during pandemic period.

Indigenous women also stitched face masks which they distributed for free during the initial periods when there was a shortage of masks in the market. Later, when masks became readily available, they began to sell masks for income generation.

(Source: Interview with Thingreiphi [Athing] Lungharwo [Naga Women's Union] and Prerana Baisnab [IMI])

Maasai Indigenous women leading community-level COVID-19 responses in Kenya

Nooormishuki Chesengei ("Mama Chesengei") is a Maasai woman living in Southern Kenya. Her community was hit hard by COVID-19: in addition to the health threat, Maasai women's main source of income—selling Maasai beads to tourists—was no longer viable, as tourists were no longer visiting. Mama Chesengei works as a community climate change ambassador for Women's Climate Center International (WCCI), an organization that is piloting a network of Climate Centers across Uganda and Kenya. These Centers provide localized, peer-to-peer training in climate resilient agriculture, water, health, and sustainability. When COVID-19 hit, Mama Chesengei took it upon herself to sensitize other community members about the virus. She mobilized to develop a community-led COVID-19 information campaign that involves collaborating with women's groups, local churches, community health workers, government officials, and village elders to help increase awareness about the pandemic within local communities.

The women, led by Mama Chesengei, are challenging the cultural beliefs and practices that are preventing their community from responding to the pandemic effectively, despite the fact that it is considered taboo for women to challenge traditional norms. Speaking about the work of Mama Chesengei, Rose Wamalwa, co-founder of Women's Climate Center International (WCCI) notes that: "*[the women] are telling the communities that [the pandemic] is not witchcraft, it is not the ancestors who are mad at us, it is a pandemic and if we don't respond to it, our communities will be no more. The women have been doing that, they have taken up that role.*"

Additional aspects of the women's work include: providing support to home-based care management within the community, especially for households with high-risk members; disseminating information on the importance of handwashing, and setting up community handwashing stations using locally made plastic containers; making soap and masks, in support of community health and also to provide income for Maasai women whose traditional income sources have become unviable during the pandemic; and providing support to government officials for contact tracing, based on monitoring of individuals coming and going from their villages. (Sources: Interview with Rose Wamalwa (WCCI) and *Indigenous women overcome discrimination to lead community COVID-19 responses*. https://cdkn.org/2020/08/feature-kenya-indigenous-women-overcome-discrimination-to-lead-community-covid-19-responses/?loclang=en_gb#_ftnref2)

4. Enabling factors for gender-responsive uptake of traditional knowledge

4.1 Researching, documenting, and showcasing TKT held by IPLC women

74. **Efforts to research, document, and showcase the value of TKT to climate adaptation and mitigation, including the gender dimensions of TKT, is critical for supporting its gender-responsive uptake.** IPLC groups, networks, and the CSOs working on issues related to gender, climate change, and conservation have undertaken a great deal of work in this area. An important methodological approach has been to work in partnership with local, IPLC researchers and use participatory action research methodologies that engage a broader cross section of the community, including IPLC women and girls (rather than working exclusively through traditional leaders or Indigenous authorities, which in many contexts are men). One example of such an initiative comes from the northeastern mountain states of India, where the Integrated Mountain Institute (IMI) implemented the project, under the National Mission on Himalayan Studies (NMHS) from April 2017 to March 2019, Understanding Mountain Peoples' Approach and Practices to Combating Climate Change in the Indian Himalayan Region: Research to Renewal and Reforms." The box below provides further information on this project.

Understanding Mountain Peoples' Approach and Practices to Combating Climate Change in the Indian Himalayan Region: Research to Renewal and Reforms in Manipur

The project set out to develop a compendium of best practices in priority sectors that were selected based on Manipur's State Action Plan on Climate Change. Among key objectives is to document adaptation good practices focusing on natural resource management strategies used by Indigenous mountain communities, and to provide policy recommendations on existing gaps around socially inclusive climate planning by integrating Indigenous knowledge and initiatives within state action for climate change adaptation. An intended aim is to showcase the value and contribution of mountain communities' traditional knowledge and systems for development and climate change. Another important aspect of the project has been the development of a Young Researchers' Forum to engage researchers from the mountain states. The Young Researchers identify traditional practices together with communities and they are analyzed from the perspective of what has worked; the factors that underpin success in the use of such practices over extended periods of time; aspects that may inhibit the replication of effective practices across other states; and factors that contribute to a given practice's feasibility for scaling.

As a result of the NMHS project in the State of Manipur, the success of community conservation practices and natural resource management strategies were highlighted. Initiatives are now taken by the local government to involve local bodies and leaders of communities in renewing the State Action Plan on Climate Change. (Source: Interview with Thingreiphi [Athing] Lungharwo [Naga Women's Union] and Prerana Baisnab [IMI])

75. **Related to efforts to research and document TKT are initiatives that advocate for exchange opportunities to bring IPLC women and policy makers together to engage on the value and uptake of TKT.** Activities that showcase the value of TKT to climate science, and to mitigation and adaptation programs can support the preservation of such TKT and promote its integration into government and donor programs. These activities can also have important empowering effects for the individuals holding such TKT, especially for IPLC women, whose traditional knowledge may be unrecognized or undervalued in some settings. Support for exchange visit programs that bring local and national policy

makers to communities to see examples of effective TKT approaches are particularly promising for empowering IPLC women and for increasing the awareness and understanding of the value of TKT for climate solutions among policy makers.

Exchange opportunities between IPLC women and local leadership in Kenya

It has made a huge difference in terms of the community acknowledging the importance and the strength that these women have. I think over time the strategies we have used, where the women are implementing initiatives, is to have local leadership come and see and doing exchanges so that local leadership and men are able to see the differences and they are now becoming open and starting to offer support and respect. But still, it is not at the level we want it to be, more needs to be done in terms of showcasing these examples [of women using TKT to address climate change] and also gaining more support in terms of technical and financial resources to scale up and have [these strategies] embedded in policy and local action planning. (Source: Interview with Edna Kaptoyo, Pastoralist Communities Empowerment Programme [PACEP])

4.2 Capacity building and facilitation support for IPLC women's groups and networks

76. **Capacity building for IPLC women's groups represents an important area of work in terms of supporting IPLC women to effectively engage in gender-responsive integration of TKT.** Research has highlighted that in relation to climate change, "resourcing of local women's organizations is key to supporting women's empowerment and providing a mechanism for them to express their needs and views on climate actions" (Mcleod et al. 2018: 183). Findings from stakeholder interviews also suggests that partnering with local IPLC women's groups as a vehicle to achieve broader community reach in terms of awareness raising around topics like climate change and COVID-19 is often far more effective than awareness raising by government agencies or other external groups, in which messaging is often highly scientific, technical, and not grounded in the cultural context or reality of IPLC communities.[41] Thus, capacity building for IPLC women's groups is important for involving IPLC women in decision-making processes around climate change and can help to support awareness raising and adaptation at the local level.

77. **Important areas for capacity building for IPLC women's groups include training on topics such as climate change, resilience, IPLC and IPLC women's rights to land and natural resources, and engagement with government and decision-making processes.** Training for IPLC women's groups has also included a focus on aspects such as confidence building and communication, to support effective engagement with decision and policy makers. Researchers also point to the need for greater support for local women's groups, including strategic planning and training to take on additional tasks—such as support for accessing complicated climate finance mechanisms, including help for women's groups to meet gender-focused funding requirements (Mcleod et al. 2018: 183).

78. **Related to capacity building is facilitation support in the form of add-on measures that may be necessary in a given context to enable IPLC women to effectively engage in projects and decision-making processes.** For example, providing technical and logistical support to grassroots women is critical for enhancing the inclusion of IPLC women in REDD+ projects and for helping to ensure that they are able to effectively participate in national, regional, and global REDD+ processes. This includes

[41] Interview with Thingreiphi (Athing) Lungharwo (Naga Women's Union) and Prerana Baisnab (IMI).

support such as interpretation and translation services, and travel and logistics (IWGIA 2014). The 2019 annual report for the DGM (DGM 2019: 16) similarly highlights that "enabling women's participation in trainings is key to increasing their chances of leading and implementing subprojects," and refers to the Ghana DGM as an example of good practice. In the Ghana DGM, trainings for men and women were undertaken separately, the training schedule was adjusted to accommodate the schedules of "queen mothers," and arrangements were provided for care of children while women are in training. IWGIA (2014) notes that based on the importance of integrating such targeted empowering action, that separate training sessions for women, meetings, and platforms were initiated in all REDD+ partner countries.

79. **As a facet of capacity building, efforts to educate and distribute information to IPLC women are critical not only for advancing their own rights but also for responding to climate change.** According to Project Drawdown,[42] educating women and girls is the sixth most important action the world can take to mitigate climate change. This link is made because women and girls who are educated have more control to actively manage their reproductive health, realize higher wages, and greater upward mobility, leading to overall economic growth. Educated women and girls can then be more effective stewards of their land and water and gain greater capacity to adapt to shocks of natural disasters and extreme weather events driven by climate change.[43] Educating IPLC women and girls on their land and natural resource access rights, where these are recognized and protected, can significantly contribute to climate change objectives.

4.3 Capacity building for state actors and donors on the value of TKT held by IPLC women

80. **Capacity building for state actors and donor organizations is also needed to support the uptake of TKT into climate change science and programs.** Developing the capacities of national and donor stakeholders to effectively engage with traditional knowledge systems and the communities that create and depend on them represents a critical area of work in terms of advancing culturally appropriate and gender-responsive uptake of TKT into government and donor climate change programs. This includes training on topics such as the gender dimensions of TKT across different settings; the value of TKT for climate solutions and how TKT held by IPLC women can help to advance climate resilience and the implementation of national and local level climate change action plans; how to undertake meaningful engagement and consultation with IPLCs, working through their representative organizations at different levels; and methods for meaningfully engaging IPLC women.

[42] Founded in 2014, Project Drawdown is a nonprofit organization that seeks to help the world reach "Drawdown"—the future point in time when levels of greenhouse gases in the atmosphere stop climbing and start to steadily decline.

[43] https://www.drawdown.org/

The role of government and MDB capacity and commitment in achieving meaningful stakeholder engagement in CIF-financed operations

A 2018 review of CIF-financed operations found that the effectiveness of local stakeholder engagement in CIF-financed projects depends heavily on the capacity and commitment of government implementing agencies and their MDB partners to undertake meaningful stakeholder engagement. The report highlighted the following findings in relation to examples of strong stakeholder engagement:

In the **Forest Investment Program (FIP) in Mexico,** the government and MDBs ensured that community representatives had significant influence on financial incentives and technical assistance during project design and implementation.

The appropriate use of local stakeholder engagement to implement MDB environmental and social safeguards benefitted residents and communities in the **Clean Technology Fund (CTF) Ho Chi Minh City Metro** and **Chile geothermal projects**. In contrast, the CTF Bogota transportation project faced implementation delays related in part to the capacity and willingness of project managers to conduct the needed local stakeholder engagement.

In several projects, investments in capacity building for government and local stakeholders improved their ability to share information, consult, and collaborate in design and implementation. In **Tanzania's Scaling up Renewable Energy Program (SREP)**, funding was earmarked for building the capacity of the Rural Electrification Agency to work effectively with local stakeholders, particularly at the community level where energy infrastructure projects had previously had negative impacts on local landowners. (Source: CIF 2018: viii; ix)

4.4 Support for increased involvement of IPLC women in policy- and decision-making processes

81. **IPLC women's groups, networks, and CSOs have worked to support and advocate for increased engagement of IPLC women in policy- and decision-making processes around climate change, environmental management, and sustainable management of natural resources.** This includes work to increase the voice of IPLC women in the development of national climate change plans and priorities, as well as support for IPLC women's involvement in environmental management committees at the regional/county level. Recognizing the importance of political power for IPLC women at all levels, some IPLC women's groups and CSOs encourage and support IPLC women to become involved in local, regional, and national politics, noting that quotas for female representation are often not adhered to, and where they do exist, oftentimes they fail to engender transformative change for IPLC women on the ground unless they are accompanied by budgets and real decision-making power. While diversifying quotas and affirmative action are important tools for increasing the participation of IPLC women within government departments, these are not enough alone. To ensure the rights of IPLC women are realized, there is a need to go beyond quotas by giving women real decision-making power within policy-making processes.

82. **In relation to the international climate change regime, critical gaps have been identified with respect to participation of IPLC women.** Some scholars have pointed to alternative models that could be built upon to address this gap in the UNFCCC COP process. For example, lessons could be learned from the Convention on Biological Diversity, under which the first general principle on the implementation of Article 8(j) specifies the "[f]ull and effective participation of women of Indigenous and local communities in all activities of the program of work." The Arctic Council provides another

potential model and example of good practice, in its adoption of a "permanent participant" approach in which Indigenous Peoples' Organizations (IPOs) have gained a status of permanent participants. This has allowed IPOs to be present, and to make proposals and statements in all the decision-making of the council. Echoing recommendations made by the Arctic Caucus at the Seventh Session of the UNPFII, the UNFCCC could adopt a similar approach, with participatory quotas for IPLC women, who are particularly underrepresented in high-level political positions on a global scale. This might include the active support of IPLC women in national delegations (Prior and Heinämäki 2017: 208).

4.5 Support for creating platforms for IPLC women to share their climate challenges and TKT

83. Support for the creation of spaces and platforms at all levels for IPLC women to share around climate related challenges and traditional knowledge constitutes another example of good practice. At the local level, many IPLC women's groups and CSOs active in work around climate change, IPLC communities, and TKT have facilitated connections between IPLC women in different locations, initially through exchange visits and subsequently maintained through the use of technologies like WhatsApp. Fostering and facilitating the maintenance of connections between IPLC women support not only the expansion of IPLC networks but also continuous learning between IPLC women on the use of TKT-based approaches that have worked in different locations facing similar conditions. This, in turn, encourages continuous experimentation and evolution of effective TKT-based solutions to climate challenges, and expands the pool of IPLCs and the geographic reach of knowledge sharing around TKT. An example of such an initiative is described in the box below.

Women's Climate Centers International (WCCI)

WCCI is piloting a network of these women's centers across Uganda and Kenya to provide localized peer-to-peer training in climate resistant agriculture, water, health, and sustainability, and, in turn, to facilitate the co-production of sustainable climate solutions together with Indigenous and grassroots women, so that IPLC women are not only beneficiaries but also engaged as planners and managers in sustainable solutions to the climate change related issues affecting their communities. (https://www.climatecenters.org/)

WCCI is creating that platform for Indigenous knowledge sharing and being able to connect them to other grassroots women in different regions and in different communities and facilitate learning from one another … what is happening in Western Kenya where I come from—we are having floods, how are we addressing this kind of impact? And what about those women in Northern Kenya, where there is drought? What is the impact and how are they addressing it? Through these connections, these women have continued to learn from one another, to share the technology that they are using at grassroots level and what has worked and what has not worked in Western Kenya, in Central Kenya, and then they compare how best they can address these issues. We are seeing that through such arrangements of trainings and connections a lot is happening on the ground. The people are able to address the issues that are affecting them, the women and the communities have been able to reduce the pressure on natural resources and their livelihoods are improving because of the different technologies they are learning from one another and applying at grassroots level […] That is the WCCI model—empowering and creating a platform for grassroots women to be the change agents, especially when it comes to issues of climate change. (Source: Interview with Rose Wamalwa, Women's Climate Centers International [WCCI])

84. Facilitating connections between IPLC women at the local level can also support their empowerment through connecting them to the regional, national, and international chapters of

IPLC women's networks. These networks are advocating and working on IPLC women's issues and rights across a range of topics, including climate change, conservation, TKT, and environmental degradation. Support for forging alliances with the IPLC women's movement and other relevant actors at the regional and global levels can serve as vehicles for helping to ensure that IPLC women's rights are realized at the local level.[44]

85. **At the international level, the creation of platforms such as the Local Communities and Indigenous Peoples Platform (LCIPP)[45] to advance engagement of IPLC communities in the international climate change regime and COP process represents an important advance**. The initial two-year work plan of the LCIPP indicates that gender considerations will be mainstreamed in the platform's activities in coherence with the UNFCCC gender action plan.[46] Additionally, the COP has stressed "the importance of striving for gender balance in the appointment processes of representatives."[47] These represent important advances; a next step in terms of supporting the gender-responsive integration of TKT-based approaches to climate change could be to partner with IPLC women and their representative organizations to further analyze the gender dimensions of TKT as relevant to Indigenous and local women across different regions and settings, including the documentation of TKT held by Indigenous and local women.

4.6 Establishing upstream connections with IPLC women and their representative organizations

86. **Establishing upstream relationships with IPLC women and their representative organizations is another example of an enabling factor.** In a local-level example, WCCI supported the Maasai women's community-level response to COVID-19 (introduced above in Chapter 3) through the provision of materials to make soap. Rose Wamalwa—the co-founder of WCCI—notes that the fact that WCCI had already worked to establish connections with and between grassroots women's groups across Kenya meant that mobilizing to support women like Mama Chesengei in their efforts to protect their communities from COVID-19 was quick and seamless: "When COVID-19 came, it was easy for us to use these already established groups and connections to mobilize and make sure that we passed the messages to the respective community groups. This is how the COVID-19 response program was so successful."[48] This point illustrates the importance of establishing trust and connections with local IPLC women's groups in terms of being able to quickly mobilize response support at the local level once the next disaster strikes. This is easier to achieve when relationships with IPLC women's networks in a country, region, or in a given sector are established upstream by the donors, governments, and other institutions working at the overlap of environment, climate change, and IPLC communities.

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[44] Dr. Mirna Cunningham, first World Conference of Indigenous Women interview. https://www.globalpolicy.org/component/content/article/252-the-millenium-development-goals/52541--world-conference-of-indigenous-women.html

[45] https://unfccc.int/LCIPP

[46] https://unfccc.int/sites/default/files/resource/Initial%20two-year%20workplan%20of%20the%20LCIPP%20%282020-2021%29.pdf

[47] Membership—LCIPP Facilitative Working Group. https://unfccc.int/process-and-meetings/bodies/constituted-bodies/facilitative-working-group-of-the-lcipp/membership-lcipp-facilitative-working-group

[48] Interview with Rose Wamalwa, Women's Climate Centers International (WCCI).

87. **Related to this finding from stakeholder interviews, CIF (2018) reports that strong local stakeholder engagement during the investment planning phase lays the groundwork for effective stakeholder engagement during project design and implementation.** The CIF's PPCR investment plans in Tajikistan and Zambia are both held up as examples of good practice in this regard, as both established multi-stakeholder institutional mechanisms that influenced the design and implementation of projects. In the case of the CIF's FIP program, DRC's strong local stakeholder engagement and Indonesia's contentious stakeholder engagement in investment planning both carried through into the project cycle (CIF 2018: viii).

4.7 Economic empowerment of IPLC women

88. Initiatives that support the financial inclusion and economic empowerment objectives also represent important enabling factors of IPLC women. These schemes take many forms, including micro-credit and community banking, climate finance mechanisms that focus on stakeholder engagement and co-production of programs together with IPLC communities,[49] funds that support Indigenous livelihoods and agroecological systems,[50] and funding mechanisms controlled by and for IPLC communities[51] and IPLC women.[52]

89. Another example of good practice is found in initiatives—often started by IPLC women—that support economic empowerment objectives of IPLC women through the preservation of TKT. Examples of this type of initiative can be found in businesses, such as eco- and agritourism, that have generated income through providing opportunities for foreign and local tourists to learn more about TKT and the IPs who hold such TKT. Two examples of such initiatives are described in the box below. As seen in the UNORCAC example, the financial benefits of these schemes—while critical—are

[49] For example, CIF programs have a strong focus on Stakeholder Engagement. https://www.climateinvestmentfunds.org/stakeholder-engagement The CIF's FIP program, in particular the DGM for Indigenous Peoples and Local Communities is designed and led by representatives of Indigenous Peoples and local communities in FIP countries to enhance their capacity to engage in and contribute to local, national, and international REDD+ dialogue and actions. https://www.climateinvestmentfunds.org/dedicated-grant-mechanism

[50] See for example, the Agroecology Fund: https://www.agroecologyfund.org/

[51] The **Indigenous Peoples Assistance Facility (IPAF)** is one example of a funding instrument that aims to strengthen IP communities and their organizations through small grants for projects that foster self-driven development and are designed and implemented by IP communities and their organizations.

[52] The **ANYI Fund** was established in 2008 as a unique, innovative international fund directed by Indigenous women for Indigenous women. Its mission is to support and co-invest in human, financial, and material resources with women from Indigenous organizations and communities in order to achieve the fulfilment of their individual and collective rights and contribute to the *buen vivir* (good living) of Indigenous Peoples. (Source: FIMI. 2020: 25). The **Aboriginal and Torres Strait Islander Women's Fund (ATSI Fund)** is another example. ATSI was founded in 2014 by nine Aboriginal women from Northern Territory in Australia to address a gap in philanthropic funds that are led entirely by Indigenous women. Their grantmaking will support Indigenous women's efforts for cultural and language revitalization, including protection of sacred sites; economic and leadership development of women; support to strengthen Indigenous men's groups; ecological stewardship of land and natural resources; and promoting LGBTQ rights, among other activities (Source: https://internationalfunders.org/aboriginal-women-weaving-culture-in-philanthropy/)

sometimes secondary to empowerment effects related to increasing the self-esteem of participating Indigenous women and of placing a value on the preservation of Indigenous culture.

Central Borneo Guide

Central Borneo Guide (CBG) is a tourism guide service rooted in Indigenous wisdom and started by Yun Pratiwi, a local Dayaknese woman from Central Kalimantan, on the island of Borneo. Yun founded the Central Borneo Guide (CBG) in 2016 as a means of creating a business venture while also reviving local Indigenous wisdom about land, food, and environmental management. CBG collaborates with local projects and communities in Kalimantan to help Indonesian and international tourists visit and learn more about Dayak culture and nature, while also providing work opportunities for local Indigenous communities, and support for preserving Dayak culture and traditions. Yun was recognized in 2020 by the Women's Earth Alliance (WEA) Women in Action program. (Source: Interview with Yun Pratiwi, Central Borneo Guide; https://womensearthalliance.org/yun-pratiwi/)

Runa Tupari tourism initiative, Union of Farmer and Indigenous Organizations of Cotacachi (UNORCAC), Ecuador

UNORCAC launched a program in 2002 to address the erosion of agrobiodiversity in the foothills of the Cotacachi Volcano in Ecuador by encouraging the conservation and sustainable use of genetic plant resources through the reintroduction and preservation of native crop varieties. Under the umbrella of this program, Indigenous families have developed rural micro-enterprise initiatives that support biodiversity conservation and income generation for Cotacachi's farming families, helping to ensure their food and livelihood security. One of these, the Runa Tupari tourism initiative, has helped to improve incomes from agritourism and increased self-esteem for the Indigenous women involved. The project allows foreign tourists to explore Indigenous communities and experience first-hand the lives of farmers and their relationship with local agricultural biodiversity, agricultural practices, food, traditional medicine, and Indigenous rituals. While tourism provides average monthly revenues for the families hosting visitors, the most valuable aspect of this activity has proven to be the process of improving the self-esteem of family members (particularly women) and supporting a revaluation of cultural identity and of the elements associated with it, including native crops. (Source: UNDP [2012]. Union of Farmer and Indigenous Organizations of Cotacachi [UNORCAC], Ecuador. Equator Initiative. https://www.equatorinitiative.org/wp-content/uploads/2017/05/case_1348261464.pdf)

4.8 Recognition and protection of IPLC and IPLC women's land and natural resource rights

90. **Recognizing and protecting the ownership and access rights of IPLC communities to land and natural resources—with a focus on the rights of IPLC women—represents a critical enabling factor.** In addition to findings from stakeholder interviews, a growing evidence base bolsters this finding. A 2014 report analyzes links between legal community forest rights (or lack thereof), the extent of government protection of those rights, and forest outcomes, drawing on examples from 14 forest-rich countries in Latin America, Africa, and Asia. The report finds that legal forest rights for communities and government protection of their rights tend to lower carbon dioxide emissions and deforestation and improve the carbon storage of forests. Conversely, when IPLCs have no or weak legal rights, their forests tend to be vulnerable to deforestation and thus become the source of carbon dioxide emissions (WRI 2014: 3).

91. **Existing evidence from the UN, the World Bank, and the IFPRI[53] shows clear social, economic, and ecological benefits when women have formal rights to communal land.** Additionally, when women have secure rights to land, they acquire better quality inputs, make investments to improve land, and receive more income. This results in women's empowerment through increased economic security and control over household decision-making; improved family food security and children's health; and significant productivity gains. With respect to the latter point, research indicates that if women had the same access to resources for agricultural production as men, they could increase yields on their farms by 20 to 30 percent (USAID 2016). A 2016 systematic review of science literature also shows that including women in natural resource management leads to better governance and conservation outcomes (Leisher et al. 2016).

92. **However, despite their role as change agents and custodians of valuable TKT, the critical contributions of IPLC women often go unacknowledged.** They tend to be excluded from decision- and policy-making processes at all levels and are often left out of climate change science and programs to which their TKT could significantly contribute. The recognition and protection of IPLC women's rights by governments, as well as the advocacy and capacity building work undertaken by CSOs and IPLC women's representative organizations towards achieving this objective, therefore represent critical enabling factors for supporting gender-responsive integration of TKT, as well as the resilience, self-determination, and sustainable development of IPLC women and communities.

4.9 Co-design of programs between governments, donors, and Indigenous Peoples

93. **A common feature of governments and donors with empowering, resilience-building impacts for IPLC women is the adoption of a co-design approach.** This approach engages IPLC communities and women as partners in the identification of investment priorities and in the design and implementation of operations. The programs highlighted below represent a few examples of operationalizing co-design principles in social development, climate change, and conservation projects, respectively.

94. **The first example presented comes from a World Bank-financed operation called the Panama Support for the National Indigenous Peoples Development Plan Project.** This investment project adopted a co-design approach and is investing in the development priorities of the country's 12 IP ethnic groups and working with local Indigenous institutions and Indigenous women to foster empowerment.

[53] See: UN (2011). *Women in agriculture: closing the gap for development.* http://www.fao.org/3/i2050e/i2050e.pdf; The World Bank (2012). World Development Report 2012: Gender Equality and Development https://openknowledge.worldbank.org/handle/10986/4391; Peterman (2011). Women's Property Rights and Gendered Policies: Implications for Women's Long-term Welfare in Rural Tanzania. https://doi.org/10.1080/00220381003600366, cited in TNC (2018).

"Development with identity": Empowering Indigenous women through support for IP development plan

In 2018, the World Bank approved a project to finance investments in infrastructure, quality, and cultural pertinence of health, education, and water and sanitation services prioritized by IP communities living in Panama's 12 Indigenous Territories. This project is innovative because it is financing investments identified by IP communities themselves in their Comprehensive National Plan for Indigenous People's Development. The project was co-designed and implemented through a tri-partite partnership between the Government of Panama, the World Bank, and the National Indigenous Peoples Roundtable (representing Panama's 12 Indigenous Territories), and also builds the capacity of Indigenous Authorities and the Panamanian Government to work together to identify, plan, and implement development in Indigenous Territories going forward. This represents an important shift towards a beneficiary-driven development model in which IPs have a seat at the table alongside an MDB and the government in terms of setting objectives and priorities for their own development.

This project was also highlighted as an example of good practice for closing gender gaps. Analysis during project preparation was undertaken in close consultation with Indigenous women. The results highlighted processes and factors that contribute to the exclusion of Indigenous women from decision-making positions and processes, which then fed into the design of the project and its gender strategy. The latter was approved by the National Indigenous Peoples Roundtable (comprised exclusively of male Indigenous Authorities), including objectives around strengthening the participation of women in the decision-making processes of Indigenous Authorities and of the IP Roundtable. To achieve these objectives, the following activities are being implemented: (i) The inclusion of women appointed by the 12 Indigenous Congresses and Councils to form part of the IP Roundtable; (ii) design and implementation of a leadership program for male and female Indigenous representatives; (iii) creation and operation of technical sub-committees within the Vice Ministry of Indigenous Affairs within the implementing ministry, including one comprised of Indigenous women; (iv) inclusion of gender dimensions in studies that will inform project activities; and (v) the promotion of women´s participation in local committees, such as Rural Water Committees (JAARs). (Source: Support for the National Indigenous Peoples Development Plan (P157575). https://projects.worldbank.org/en/projects-operations/project-detail/P157575)

95. **A second example of co-design supporting enabling objectives for IPLC women is drawn from Kenya, where responsibility for climate action is being devolved to the county level.** This process began in 2012 as part of the Government of Kenya's (GoK) broader devolution program. Pilots of a County Climate Change Fund (CCCF) were implemented in the counties of Isiolo, Garissa, Kitui, Makueni, and Wajir with support from a number of development partners through the Ada Consortium.[54] Through these pilots, funds and decision-making for climate action were channeled to the local level and investment priorities for building resilience were identified using participatory mechanisms at the community level. Based on the success achieved by the pilots, in 2020 the GoK initiated the development of the Financing Locally Led Climate Action Program to scale up the CCCF mechanism to all 47 counties. Once established, the Program will serve as a platform for coordinating development partner support for local climate action. This represents the first time that the social resilience principles of devolved climate finance and participatory climate and (multi-) risk management will be operationalized to enable locally-led climate action at this scale—both in terms of geographic coverage and level of financial investment.

[54] https://www.adaconsortium.org/

Devolved decision-making and financing for locally led, participatory and inclusive climate action in Kenya

In 2012, Kenya began piloting its CCCF through which national funds are channeled to the county level, where Ward Climate Change Planning Committees (WCCPCs) are mandated to lead participatory processes at the community level to identify investments community members feel will build their resilience to climate change. Proposals for investment are only funded if they meet the established thresholds of inclusivity, and WCCPCs are required to back their choice of investments by providing documentation of involvement of all stakeholders—especially women and youth, who often are overlooked in local decision-making. Youth and women representatives are also included in the County Technical Committees, which evaluate proposals for funding. The CCCF mechanism is also accompanied by a training program to enhance the capacity of WCCPC members to execute their mandate. These trainings have proven to be critical to female WCCPC members who often lack confidence and skills to engage the public.

Assessments of the pilots indicate that women are the major direct beneficiaries of CCCF investments, a result of the increased involvement of women in local level decision-making. Empowering outcomes for IPLC women include: (i) Decreased time burden for women and girls collecting water through increase in the number of water investments/boreholes/dams. Women reported that this extra time is now invested elsewhere, including in livelihood activities and setting up small business. Women also reported that extra time spent at home helps to reduce conflict with their husbands, and girls now have more time to spend on their schoolwork. (ii) Increased involvement of IPLC women in decision-making. Women now sit with men in meetings and in other platforms to engage in discussions on development and can articulate and effectively contribute to discussions on prioritized public goods investments where initially their contributions were minimal or absent. (iii) Women have also been elected to executive positions, such as treasurer, and in other places, they are leading community consultation alongside men to prioritize CCCF investments. The CCCF mechanism has transformed community attitudes towards women, and as a result of the enhanced value placed on women's contributions, for the first time, women now have a representative on local traditional governance institutions (*Dedha*).

(Source: Ada Consortium [2018]. Gender inclusion and the CCCF mechanism: Increasing the voice and the benefits for women. https://www.adaconsortium.org/index.php/component/k2/item/389-gender-inclusion-and-the-cccf-mechanism-increasing-the-voice-and-the-benefits-for-women)

96. **A final example of co-design presented below relates to linking biodiversity conservation to empowerment objectives through basing protected area conservation on the sustainable landscape management practices of the IPLC communities inhabiting those ecosystems.** The success of these approaches underscores the importance of adopting a co-design approach that engages IPLC communities and women as partners in the design and implementation of programs that seek to integrate TKT-based approaches.

Tree Kangaroo Conservation Program: using traditional landscape management to conserve protected areas in Papua New Guinea

The Tree Kangaroo Conservation Program (TKCP) employs an innovative model of community conservation to manage the YUS Conservation Area, located in the Morobe Province of Papua New Guinea (PNG). The program has achieved important empowerment outcomes for IPLC women. The model used by TKCP is unique in that it represents the first time that the diverse Indigenous communities inhabiting the area have come together to advance a shared agenda for conservation and sustainable livelihoods. The YUS Conservation Area is the first community conservation area and locally owned forest in the country. The model allows customary landowners to retain ownership and control of the area while also providing national-level recognition and protection. The TKCP was recognized with an Equator Initiative Prize in 2014 and attributes its success to the adoption of a holistic approach of working with local clans to form a community-based conservation area to protect the habitat of the tree kangaroo using traditional land management practices.

The TKCP empowers women to participate in all aspects of the initiative and aims to address drivers of vulnerability IPLC women face in the PNG context. Through a project called "Building Actors and Leaders for Advancing Community Excellence in Development" (BALANCED), TKCP provides communities with greater access to health information and services. Village-level trainings are provided and engage and train youth and peer educators who educate their communities on environmental stewardship, safe sex, sexually transmitted diseases (STDs), gender issues, and pre- and post-natal care, among other issues. Peer educators are also working with "mama groups" to provide women with information about reproductive health, family planning, and childcare. Women are encouraged to participate in TKCP activities and to express their needs and opinions through the "mama groups," while men are continuously sensitized at community meetings on gender equality.

The BALANCED program has impacted IPLC women's lives by providing them with information about family planning, contraception, birth spacing, sanitation, malaria prevention, and childcare**.** The Equator Initiative notes that the wider promotion and adoption of the BALANCED program could help PNG communities address longstanding issues of gender inequality. Most significantly, the health and family planning services program has trained women to become peer educators for health and environmental issues. This training is laying the foundation for younger women to play a more active leadership role in the YUS Conservation Area in the future. TKCP also supports IPLC women to participate in local decision-making processes. Each zone in the YUS Conservation Area has elected at least one "mama representative," and the YUS Executive Team and the YUS Conservation Area Management Committee each reserve one seat for a "mama representative." (Source: https://www.equatorinitiative.org/2017/05/13/tree-kangaroo-conservation-program/)

(1) Human Rights Watch describes Papua New Guinea as "one of the most dangerous places in the world to be a woman." It is estimated that nearly two-thirds of women in Papua New Guinea experience rape or assault in their lifetime. UNDP (2016: 9). https://www.equatorinitiative.org/wp-content/uploads/2017/05/case_1475252084.pdf

5. Recommendations: gender-responsive traditional knowledge for climate change

5.1 Understanding the gender dimensions of TKT for climate change

1. **Further research is needed on the gender dimensions of TKT for climate solutions relevant to and co-produced in partnership with IPLC women.** Relatively little climate change research exists on the linkages between drivers of vulnerability and social resilience for IPLC women and their roles in the generation and application of TKT towards climate solutions. There is a need to systematically document and assess the TKT held by IPLC women, and the norms, institutions, and factors that shape IPLC women's roles and capacities as change agents in the generation, application, and transmission of TKT across different settings. This requires unpacking the IPLC term to explore how these dynamics play out across different national, regional, geographic, and socio-cultural contexts, in collaboration with the women who self-identify as Indigenous, Afro-descendant, or as pertaining to local communities across different contexts.

2. **Targeted research is needed on the gender dimensions of MDB and government climate change and related sectoral operations, policies, and programs relevant for IPLC women and their use of TKT.** This includes assessment of the extent to which current and past initiatives have integrated TKT in a gender-responsive manner for IPLC women across various sectors, such as climate change, DRM, agriculture and food security, water resource management, sustainable NRM, sustainable forestry, and programs financed by climate funds such as the CIF, in particular the DGM. Assessing the gender responsiveness for IPLC women of different development models and types of programs represents another important area for further research, including in relation to Community Driven Development, social protection programs, micro-credit and other financial inclusion schemes, and payment for ecosystems services. The influence of government policies and programs on gender-responsive integration of IPLC women's TKT for climate solutions also requires further assessment, particularly around approaches for engagement of IPLC communities and women in policy- and decision-making processes from the local to the international level, and the gender dimensions of different land and natural resource tenure regimes, including models of collective ownership.

3. **Engaging IPLC communities and women as co-producers of knowledge about their TKT is critical to achieving culturally appropriate, gender-responsive uptake of TKT**. The norms and institutions that shape patterns of exclusion, marginalization, and opportunity for Indigenous Peoples, local communities, and the women self-identifying as members of these groups are complex and context specific. Research and operations undertaken in these contexts must be based on an in-depth and contextualized understanding of the drivers of vulnerability for IPLC women and the roles they play as change agents. Working with IPLC women's organizations and networks at the regional and national levels is essential to mobilizing and facilitating these processes. Partnering with these representative organizations, and meaningfully engaging IPLC women throughout design and implementation of research and operations are critical to ensuring that the programs operating in these contexts work to address rather than reinforce existing patterns of inequality and exclusion (Evans et al. 2017). This relates to researching TKT for climate science as well as undertaking assessments to design climate change and other sectoral operations. An additional factor that has

been highlighted as important for successful integration of Western science and TKT is to bring together technical experts from outside together not only with local leaders or appointed spokespeople, but with representatives of all community members, including IPLC women (David-Chavez and Gavin 2018).

5.2 Activities to support gender-responsive integration of TKT

1. **Develop educational programs and institutional structures to codify and promote TKT.** This could take a range of forms, including establishment of: university and vocational training programs with scholarships for IPLC women (Siyambango, et al. 2015: 274); learning centers grounded in a holistic Indigenous education model rather than based on a Western education model to learn from, train, and build the capacity of IPLC and other communities on TKT; intercultural programs to research and document TKT and for the integration of Western scientific approaches and TKT for climate solutions, based on existing intercultural models in the health and education sectors. These initiatives could also support the introduction and use of appropriate technologies to preserve and transmit TKT, such as radio and video, as well as the use of resources like mobile libraries to support shorter term training.

2. **Establish partnerships with existing IPLC women's groups, networks, and CSOs working with IPLC women at all levels.** Upstream identification of IP and IPLC women's groups and networks, and efforts to establish and foster relationships with these groups and networks can support project-level objectives around gender-responsive integration of TKT, as was the case in the Panama Support for the National Indigenous Peoples Development Plan Project introduced in Chapter 4. Working through existing IP and IPLC women's groups at the project level can provide an entry-point to culturally appropriate and effective engagement with IPLC communities.

3. **Focus on stakeholder engagement, local action, and beneficiary-driven approaches in climate financing.** Further expand climate funds and financing mechanisms that are directed by and for IPs (DGM, etc.) and specifically for IPLC women, as well as climate programs that channel funds and decision-making to the local level where climate impacts are being felt.

4. **Support for the protection of intellectual property rights of IPLC communities in relation to TKT.** This includes expansion of programs such as WIPO's to train and mentor IPLC women entrepreneurs to make strategic and effective use of intellectual property (IP) rights, in support of projects based on TKT and traditional cultural expressions (TCEs).[55]

5. **Capacity building for IPLC women's groups and networks.** Investments are needed in training for IPLC women and their representative organizations around climate change, resilience, available climate change financing mechanisms, as well as around leadership and capacity building to strengthen existing IPLC women's abilities to effectively self-organize, develop, and implement initiatives, and engage in decision-making processes related to climate change and natural resource management at all levels.

6. **Related to the above-mentioned recommendation, the form of Indigenous women's capacity building initiatives matters.** It is important to create separate opportunities for capacity building and training for IPLC women, including opportunities for South-South learning such as experiential trips

[55] https://www.wipo.int/tk/en/women_entrepreneurs/

for IPLC women's groups and networks on TKT approaches that have worked in other locations (David-Chavez and Gavin 2018: 13). Past experience working with IPLC women has shown the importance not only of experiential learning but of creating separate spaces for learning and training of IPLC women that "allow them to educate themselves and to gain more confidence, which they can then carry over into meetings where both men and women are present" (IWGIA 2014).

7. **Ensure facilitation measures to support effective participation of IPLC.** This may include, for example, scheduling meetings and events during times women are able to attend, provision of separate spaces for the engagement of women, provision of childcare services, transportation, etc.

8. **Provide translation and dissemination of information about climate change impacts and TKT approaches in local and Indigenous languages.** In some settings, IPLC women are more likely to speak the Indigenous than dominant languages. Therefore, disseminating findings of assessments and other materials locally, and in Indigenous languages, means information about climate change impacts relevant to a particular region and TKT and STI approaches that have worked in areas with similar conditions are more likely to reach IPLC women in these settings. Disseminating findings locally, and in other areas of the country or region with similar socio-cultural characteristics and climate-related challenges, can also enhance the likelihood that IPLC women are able to use such information (Ibid.).

9. **Capacity building for national and local government on the value and gender dimensions of TKT for climate change.** Work is also needed to support development of national and donor capacities on aspects such as: the value of TKT for climate solutions; the gender dynamics around the use of TKT in different settings; undertaking meaningful consultation with IPLCs in general, and specifically with IPLC women; and culturally appropriate and sustainable approaches to integrating TKT and STI.

10. **Support for IPLC women's rights and meaningful engagement of IPLC women in climate change decision- and policy-making processes at all levels.** This type of support may take different forms, for example:

- **Link climate change programs to poverty reduction and empowerment objectives of IPLCs in general and IPLC women specifically in a given project location.** Programs relating to climate change, environmental management, sustainable use of natural resources, conservation, etc. must include a focus on the communities that rely upon these ecosystems. In many locations, this is most urgent with respect to recognition and protection of IPLC communities' and women's land tenure and resource access rights, as well as respect for the right of IPLCs to self-determination and to protect their TKT. While these rights are enshrined in international conventions (for IPs), they are often not recognized or protected at the national and regional levels.

- **Support for institutionalizing meaningful consultation with IPLC women into sector-wide planning and decision-making processes.** An additional factor driving vulnerability among IPLC women in many contexts is exclusion from local and national decision-making processes that determine patterns of access to land and natural resources. Taken together with the cross-cutting nature of climate change impacts, engagement with IPLC communities and women should be integrated into sector planning, decision-making, and natural resource management approaches. This can help to support the recognition by governments of the rights of IPLC communities and women.

5.3 Methods for engaging IPLC women through operations

1. **Adopt a co-design approach to project design and implementation.** For operations aiming to support gender-responsive uptake of TKT, early, consistent, and meaningful engagement with IPLC women should be aimed not only at consulting a project concept and potential risks and opportunities for IPLC communities, but rather should aim to design the project (or project component—as relevant) *in participation with IPLC communities and IPLC women*. This co-design (or beneficiary-driven) approach is critical for ensuring that a given operation aligns with the development aims of IPLC groups themselves—and with the inclusion and empowerment needs of IPLC women within the project area.

   This can be challenging and time consuming to achieve in practice, particularly in settings where traditional decision-making processes and local norms and institutions are not gender inclusive. Useful starting points include partnering with IPLC women's groups to undertake IPLC gender assessments and to co-design the operation, as well as assessing whether IPLC groups have issued their own development plans that highlight priorities for support across sectors and using these as a guide where they do exist, and where they do not, engaging directly with representative IPLC and IPLC women's groups to identify challenges and opportunities.

2. **Undertake IPLC gender assessments.** As a core part of project preparation, an IPLC gender assessment could be developed to identify and engage IPLC gender stakeholders early on, and to analyze key gender dimensions relevant to IPLC communities residing in or with collective attachment to the project's area of influence. This assessment could form part of a broader gender analysis, if one is being conducted for the operation; as part of the project social assessment being undertaken in the context of application of Environmental and Social Standards or Safeguards; or as a standalone piece of work. Gender sensitive questions should also be included in other relevant analyses being undertaken as part of project preparation (e.g., institutional analyses).

IPLC gender assessment findings will be important for:

- Mapping and analysis of stakeholder groups.
- Obtaining relevant IPLC-TKT-gender data and considerations that may not be captured in a general gender assessment or in a TKT review.
- Developing the approach to applying Safeguards or Environmental and Social Standards, particularly in relation to identification of risks and mitigation measures for (and together with) IPLC women, underpinned by a stakeholder engagement strategy able to meaningfully engage IPLC women during preparation and throughout implementation of the project.
- Ensuring that Citizen Engagement (CE) mechanisms and project Grievance Redress Mechanisms (GRMs) are designed in a way that responds to local realities, needs, and challenges facing IPLC women in project locations.
- Enhancing the design of the intervention with respect to gender responsiveness for IPLC women
- Identifying a Monitoring and Evaluation framework and targets that adequately capture IPLC worldviews and priorities for development, are relevant for reducing the specific drivers of vulnerability for IPLC women and make use of participatory monitoring arrangements involving IPLC women in assessing the effectiveness of interventions on the ground.
- Informing the selection of activities that contribute to achieving a project's climate change co-benefits, in particular on adaptation, by identifying and analyzing gender-responsive TKT approaches that could be built upon and integrated with Western scientific approaches.

- **Include an IPLC women's stakeholder capacity assessment.** The IPLC gender assessment should include an IPLC women's stakeholder capacity assessment to identify (and address as part of project preparation) any capacity building needs of IPLC women to effectively engage in project design and implementation, as well as any add-on measures needed to facilitate the participation of IPLC women. The capacity assessment should include a budget and assessment of the source of financing for capacity building/add on measures, depending on the region/country. Trust Fund or additional sources of funding for technical assistance may be available to complement project funds.

- **Topics to be explored in consultation with IPLC gender stakeholders.** Consultation with identified IPLC gender stakeholders would focus on: proposed project objectives, activities, and design; potential project risks, adverse impacts and proposed mitigation measures in the context of applying safeguards or Environmental and Social Standards; specific themes to be analyzed as part of the IPLC gender assessment, as relevant to the project area of influence/sector of intervention (e.g. women's roles and needs with respect to the generation and application of TKT); capacity building needs of IPLC women; and findings of the IPLC gender assessment, with a focus on how findings will be turned into concrete proposals for incorporation into project design and environmental and social risk management instruments.

3. **Engage IPLC gender stakeholders early on.** Initial screening to identify the scope of the IPLC gender assessment would begin with a desk study/literature review of the IPLC gender-TKT-climate nexus in the given project location. This would include compilation of any data or analysis of policies and

regulations and especially data that is sex- (and, if available, ethnic-) disaggregated. Part of this initial screening would involve identifying and engaging relevant IPLC gender stakeholders: including, local and national Indigenous women's experts; existing IPLC women's networks active in climate change adaptation, mitigation, conservation, and/or sectors of relevance to the given operation; and representatives of IPLC beneficiary communities. Within the pool of existing IPLC gender expertise and networks identified, efforts should be made to identify and build (or expand on existing) partnerships with experts and organizations (including at the community level) that have worked specifically on IPLC women-TKT-climate issues.

4. **Additional methodological considerations.** As part of conducting meaningful consultations with IPLC gender stakeholders, it is important to determine which ethnic- and gender-sensitive stakeholder engagement methods and approaches are appropriate and feasible in the particular setting (surveys, interviews, questionnaires, informal meetings, workshops, etc.). When working with IPs, a helpful starting point is to identify if IP groups have released consultation protocols, and where these do not exist, to consult directly with IP representative organizations to identify the consultation preferences of IPs, and, within this, any specific adaptations necessary to effectively engage Indigenous women (for example, dedicated focus group discussions and separate training events).

    - Taking differential vulnerability and intersectionality as conceptual starting points, IPLC gender assessments should use mixed quantitative-qualitative methods, and analysis should disaggregate IPLC gender-sensitive data by ethnic group. To the extent possible, qualitative methods based on action research and PRA approaches (e.g., focus groups, informal and semi-structured interviews, ethnographic approaches, transect walks, etc.) should complement quantitative analysis, and IPLC gender assessments should focus not solely on women, but rather on "gender relations and the factors behind them in order to understand strategies that can meet the needs of both women and men and also prevent backlash against women's participation." (Mai et al. 2012, cited in Evans et al. 2017: 37)

    - Related to this point, it is also important to identify the additional factors that shape differentiated vulnerability *within* groups of IPLC women, such as age, socioeconomic status, ethnicity, or other factors—depending on the context. Designing a project based on a good analysis of these factors and the gender division of labor in the project area of influence will help ensure that benefits generated by the project are more equitably shared (Marin and Kuriakose 2017: 1). Given that structural issues relevant to IPLC women in general—and to their TKT roles in particular—are likely to vary across ethnic groups (especially, but not only, in large country settings) findings should also be disaggregated by gender and ethnic group to adequately capture variations.

5. **During project implementation**. As part of supervision support during project implementation, task teams should ensure that capacity building and other facilitation needs identified during preparation as critical to supporting engagement of IPLC women continue to be supported. As a part of project supervision, task teams should also ensure that participatory monitoring arrangements for project activities on the ground are functioning.

References

Alexander, Clarence, Nora Bynum, Elizabeth Johnson, Ursula King, Tero Mustonen, Peter Neofotis, Noel Oettlé, Cynthia Rosenzweig, Chie Sakakibara, Vyacheslav Shadrin, Marta Vicarelli, Jon Waterhouse, and Brian Weeks. 2011. "Linking Indigenous and Scientific Knowledge of Climate Change." *BioScience*. 61(6). 477-484. https://doi.org/10.1525/bio.2011.61.6.10.

Benson, Charlotte, Margaret Arnold, and Alejandro de la Fuente. 2012. *Financial Innovations for Social and Climate Resilience.* Unpublished framework paper. World Bank, Washington D.C.

Berkes, Fikret, Mina Kislalioglu, Carl Folke and Madhav Gadgil. 1998. "Minireviews: Exploring the Basic Ecological Unit: Ecosystem-like Concepts in Traditional Societies." *Ecosystems.* 1. 409-415.

Boyle, James. 1996. Shamans, Software, and Spleens: Law and The Construction of the Information Society. Harvard University Press.

CCMLCIP. *Climate Change Mitigation with Local Communities and Indigenous Peoples: Practices, Lessons Learned and Prospects.* Cairns, Australia (26-28 March 2012). Conference Abstracts. https://i.unu.edu/media/tfm.unu.edu/publication/142/CCMLCIP-2012-Crn-2-Abstracts-web.pdf.

Chadwick, M. Soussan, J., Mallick, D. & Alam, S. 1998. Understanding Indigenous Knowledge: Its Role and Potential in Water Resource Management in Bangladesh. https://assets.publishing.service.gov.uk/media/57a08da6ed915d3cfd001b48/R6755Rep.pdf

Climate Investment Funds (CIF). 2018. *How to Implement Stakeholder Mapping into the Programmatic Approach of the Climate Investment Funds.* https://www.climateinvestmentfunds.org/knowledge-documents/how-implement-stakeholder-mapping-programmatic-approach-climate-investment-funds.

CIF. (2019). "The contribution of traditional knowledge and technology to climate solutions." https://www.climateinvestmentfunds.org/sites/cif_enc/files/knowledge-documents/att_contribution_of_traditional_knowledge_and_technology_report_cif_1.pdf.

Correa, Carlos and Li, Xuan. 2009. "How Developing Countries Can Manage Intellectual Property Rights to Maximize Access to Knowledge" South Center.

David-Chavez, Dominique M. and Michael C. Gavin. 2018. "A global assessment of Indigenous community engagement in climate research." *Environmental Research Letters,* 13(12), 1-17. https://doi.org/10.1088/1748-9326/aaf300.

Dedicated Grant Mechanism (DGM). 2019. *Dedicated Grant Mechanism for Indigenous Peoples & Local Communities*. 2019 Annual Report. https://static1.squarespace.com/static/550abd2ce4b0c5557aa4f772/t/5de56a29cd1f1d1da5581005/1575316013812/FINAL+2019+DGM+AR_Reduced+Size.pdf.

Dankelman, I. (2010). *Gender and Climate Change: An Introduction*. Earthscan.

Duchicela, Luis Felipe, Svend Jensby, Jorge Uquillas, Jelena Lukic, and Karen Sirker. 2015. *Indigenous Peoples development in World Bank-financed projects: our people, our resources; striving for a peaceful and plentiful planet.* Case Studies Report. The World Bank.

Evans, Kristen, Selmira Flores, Anne M. Larson, Roberto Marchena, Pilar Müller, and Alejandro Pikitle. 2017. "Challenges for women's participation in communal forests: Experience from Nicaragua's indigenous territories." *Women's Studies International Forum*, 65, 37-46. https://doi.org/10.1016/j.wsif.2016.08.004.

FAO, IWGIA and AIPP. 2015. *Shifting Cultivation, Livelihood and Food Security: New and Old Challenges for Indigenous Peoples in Asia.* 0694_AIPPShifting_cultivation_livelihoodfood_security.pdf (iwgia.org).

Human Rights Watch. 2021. *Left Undefended: Killings of Rights Defender's in Colombia's Remote Communities.* https://www.hrw.org/sites/default/files/media_2021/02/colombia0221_web_0.pdf

International Indigenous Women's Forum (FIMI). 2020. *Global Study on the Situation of Indigenous Women and Girls: Our Voices and Actions for Our Rights After 25 Years of Beijing Platform for Action.* The Global Study on the Situation of Indigenous Women and Girls – FIMI – IIWF (fimi-iiwf.org)

Ford, James D., Will Vanderbilt, and Lea Berrang-Ford. 2012. "Authorship in IPCC AR5 and its implications for content: climate change and Indigenous populations in WGII." *Climatic Change*, 113, 201-213.

Ford, James D., Laura Cameron, Jennifer Rubis, Michelle Maillet, Douglas Nakashima, Ashlee Cunsolo Willox, and Tristan Pearce. 2016. "Including indigenous knowledge and experience in IPCC assessment reports." *Nature Clim Change* 6, 349–353. https://doi.org/10.1038/nclimate295

Ford, James D., Michelle Maillet, Vincent Pouliot, Thomas Meredith, Alicia Cavanaugh, and IHACC Research Team. 2016. "Adaptation and Indigenous Peoples in the United Nations Framework Convention on Climate Change." *Climatic Change,* (139), 429-443.

ICIMOD. 2014. *Women's Empowerment at the Frontline of Adaptation Emerging issues, adaptive practices, and priorities in Nepal*. (2014). ICIMOD Working Paper 2014/3. 5_gender_and_cca_-_nepal_case_study.pdf (adaptation-undp.org).

Hitomi, Maaya K. and Philip A. Loring. 2018. Hidden participants and unheard voices? "A systematic review of gender, age, and other influences on local and traditional knowledge research in the North." *FACETS*, 3, 830-848. https://doi.org/10.1139/facets-2018-0010

Hiwasaki, Lisa, Emmanuel Luna, Syamsidik, José Adriano Marçal. Emmanuel, L., Syamsidik & Marçal, J.A. 2015. "Local and indigenous knowledge on climate-related hazards of coastal and small island communities in Southeast Asia." *Climatic Change,* 128, 35-56.

International Labour Office (ILO). 2017. *Indigenous Peoples and climate change: from victims to change agents through decent work.* Gender, Equality and Diversity Branch. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---gender/documents/publication/wcms_551189.pdf

International Strategy for Disaster Reduction (ISDR). 2008. *Indigenous Knowledge for Disaster Risk Reduction: Good Practices and Lessons Learned from Experiences in the Asia-Pacific Region*.

https://www.undrr.org/publication/indigenous-knowledge-disaster-risk-reduction-good-practices-and-lessons-learned

The International Work Group for Indigenous Affairs (IWGIA). 2014. *Indigenous Women in REDD+: Making their voice heard*. https://www.iwgia.org/en/resources/publications/306-briefings/3180-indigenous-women-in-redd-making-their-voice-heard.html.

IWGIA. (2020). *The Indigenous World 2020.* 34th Edition. http://iwgia.org/images/yearbook/2020/IWGIA_The_Indigenous_World_2020.pdf.

Khanum, Romaza and Muhammad Salim Al Mahadi. 2015. "Economic Empowerment of Haor Women through Duck Farming in Bangladesh." *The Agriculturists* 13(1). 18-25. https://doi.org/10.3329/agric.v13i1.26543.

Ketlhoilwe, Mphemelang Joseph. 2013. "Improving resilience to protect women against adverse effects of climate change." *Climate and Development*, 5(2), 153-159. https://doi.org/10.1080/17565529.2013.789788

Marin, Amanda Beaujon and Anne Kuriakose. 2017. *Gender and Sustainable Forest Management: Entry Points for Design and Implementation.* Climate Investment Funds. https://www.climateinvestmentfunds.org/sites/cif_enc/files/knowledge-documents/gender_and_sustainable_forest_management.pdf

Mcleod, Elizabeth, Seema Arora-Jonssonb, Yuta J. Masudac, Mae Bruton-Adamsd, Carol O. Emauroise, Berna Gorongf, C.J. Hudlowg, Robyn Jamesh, Heather Kuhlkeni, Barbara Masike-Lirij, Emeliana Musrasrik-Carlk, Agnes Otzelbergerl, Kathryn Relangm, Bertha M. Reyuwn, Betty Sigraho, Christina Stinnettp, Julita Telleiq, Laura Whitford. 2018. "Raising the voices of Pacific Island women to inform climate adaptation policies." *Marine Policy,* 93, 178-185.

Prior, Tahnee Lisa and Leena Heinämäki. 2017. "The Rights and Role of Indigenous Women in The Climate Change Regime." *Arctic Review on Law and Politics*. Vol 8. pp. 193–221. https://doi.org/10.23865/arctic.v8.901.

PROFOR. (2019). *Taking Action on Gender Gaps in Forest Landscapes.* Working Paper. https://www.profor.info/sites/profor.info/files/PROFOR_GenderGapsActions%20Working%20Paper.pdf.

PROFOR. (2017). *Gender-focused Portfolio Review of Forest Projects for the Environment and Natural Resources Program on Forests (PROFOR) of The World Bank.* https://www.profor.info/sites/profor.info/files/Gender%20Focused%20Forests%20Portfolio%20Review%20Aug2017_final%20with%20Cover.pdf.

RAISG. (2015). *Deforestation in the Amazonia (1970-2013).* www.raisg.socioambiental.org.

Rights & Resources Institute (RRI). (2016). *Community Rights and Tenure in Country Emission Reduction Programs: Status and Risks for the FCPF*. http://rightsandresources.org/wp-content/uploads/2016/06/RRI_Community-Rights-and-Tenure-in-Country-Emission-Reduction-Programs_June-2016.pdf.

RRI. (2017). *Power and Potential: A Comparative Analysis of National Laws and Regulations Concerning Women's Rights to Community Forests.* Power_and_Potential_Final_EN_May_2017_RRI.pdf (rightsandresources.org)

RRI. (2020). *Urgency and opportunity: addressing global health, climate, and biodiversity crises by scaling-up the recognition and protection of Indigenous and community land rights and livelihoods.* https://rightsandresources.org/publication/urgency-and-opportunity/.

RRI. (2020a). *Whose Water? A comparative analysis of national laws and regulations recognizing Indigenous Peoples', Afro-descendants', and local communities 'water tenure.* https://rightsandresources.org/publication/whose-water/.

Röhr, U. 2006. "Gender and Climate Change." *Tiempo* Vol. 59.

Sithole, Angeline and Mogopodi Lekorwe. 2019. "Women's use of indigenous knowledge systems to cope with climate change." *Advances in Social Sciences Research Journal*, 6(6), 111-119.

Siyambango, Nguza, Alex T. Kanyimba, and Pempelani Mufune. 2015. 'Indigenous knowledge and climate change in rural Namibia: A gendered approach. 'In Chinsembu, Kazhila, Ahmad Cheikhyoussef, Davis Mumbengegwi, Martha Kandawa-Schulz, Choshi D. Kasanda, and Lawrence Kazembe (Eds.), *Indigenous Knowledge of Namibia* (pp. 263-282). Windhoek: UNAM Press.

Tebtebba Foundation. 2011. *Indigenous women, climate change and forests.* https://www.asianindigenouswomen.org/index.php/climate-change-biodiversity-and-traditional-knowledge/climate-change/61-indigenous-women-climate-change-and-forests/file

The Nature Conservancy (TNC). 2018. "Want to Save the Planet? Empower Women." https://www.nature.org/en-us/what-we-do/our-insights/perspectives/want-to-save-the-planet-empower-women/

The World Bank. 2015. *Indigenous Latin America in the twenty-first century: the first decade (English).* The World Bank Group. http://documents.worldbank.org/curated/en/145891467991974540/Indigenous-Latin-America-in-the-twenty-first-century-the-first-decade

UN DESA. 2020. *The Impact of COVID-19 on Indigenous Peoples.* UN/DESA Policy Brief #70. https://www.un.org/development/desa/dpad/publication/un-desa-policy-brief-70-the-impact-of-COVID-19-on-indigenous-peoples/.

UNDP. 2013. REDD Programme: Guidance Note on Gender Sensitive REDD+. https://www.undp.org/content/dam/undp/library/gender/Gender%20and%20Environment/Guidance%20Note%20Gender%20Sensitive%20REDD%20English_FINAL.pdf.

UNFCCC. 2013. *Best practices and available tools for the use of indigenous and traditional knowledge and practices for adaptation, and the application of gender-sensitive approaches and tools for understanding and assessing impacts, vulnerability and adaptation to climate change.* https://unfccc.int/resource/docs/2013/tp/11.pdf.

United Nations Permanent Forum on Indigenous Issues (UNPFII). 2019. *Report on the eighteenth session* (22 April–3 May 2019). Economic and Social Council Official Records, Supplement No. 23. https://undocs.org/en/E/2019/43.

USAID. (2016). Fact Sheet: Land Tenure and Women's Empowerment. https://www.land-links.org/issue-brief/fact-sheet-land-tenure-womens-empowerment/

Van Koppen, B. and Anne T. Kuriakose. 2016. Gender and Indigenous Institutions in Agricutural Water Management. Investment Note 2.0. The World Bank. http://documents1.worldbank.org/curated/en/970091468184457266/pdf/103538-BRI-PUBLIC-AWM-NOTE.pdf

Walker, Wayne S., Seth R. Gorelik, Alessandro Baccini, Jose Luis Aragon-Osejo, Carmen Josse, Chris Meyer, Marcia N. Macedo, Cicero Augusto, Sandra Rios, Tuntiak Katan, Alana Almeida de Souza, Saul Cuellar, Andres Llanos, Irene Zager, Gregorio Díaz Mirabal, Kylen K. Solvik, Mary K. Farina, Paulo Moutinho, and Stephan Schwartzman. 2020. "The role of forest conversion, degradation, and disturbance in the carbon dynamics of Amazon indigenous territories and protected areas." https://www.pnas.org/content/117/6/3015

World Health Organization (WHO). 2014. *Gender, climate change and health.* https://www.who.int/globalchange/publications/reports/gender_climate_change/en/

World Resources Institute (WRI). (2014). *Securing Rights, Combating Climate Change: How Strengthening Community Forest Rights Mitigates Climate Change.* https://files.wri.org/s3fs-public/securingrights-full-report-english.pdf

Annex 1: Questionnaires for TKT-Gender stakeholder interviews

Name:

Organizational Affiliation:

Country:

(Questions are adapted to each stakeholder, with specific follow up questions and emphasis shifting, as appropriate, for example between community level activities and priorities for support and scaling up vs. broader implications for national / international policymaking and frameworks for supporting gender sensitive TKT in climate solutions.)

1. What are the climate change related challenges confronting the community(ies) your organization represents (including both slow onset changes like drought and changing rainfall and seasonal patterns, as well as fast onset disaster events such as storms, floods, etc.)?
2. In this climate change context, are there particular challenges that women and girls face?
3. How about other groups? Traditionally marginalized communities? Indigenous Peoples?
4. Are there specific challenges faced by IPLC women and girls in confronting the impacts of climate change? If so, what do you see as the basis for the specific challenges that IPLC women face?
5. What about men, are there specific challenges they face?
6. In what ways do these communities prepare for and respond to the climate-related challenges they face?
7. To what extent are these activities based on external support vs. traditional community knowledge?
8. How are roles and responsibilities for preparing for and responding to climate-related events divided between men, women and youth at the household level (including both slow onset changes and extreme events)?
9. Which specific activities do women and girls traditionally undertake at the household and community levels to prepare for and respond to these climate-related events?
10. Do these communities receive support from the government, NGOs, donors or other organizations (or private sector) that is helping them to prepare for and/or respond to the climate related challenges and impacts they face? In what ways have existing programs been effective? And ineffective?
11. Do existing programs incorporate the use of traditional knowledge in any way, that you are aware of?
12. Are men and women equally able to access existing programs? If not, why not?

13. Are there specific groups (marginalized communities? IPs?) that are unable to access government/NGO support/other existing programs?

14. Are existing programs socio-culturally appropriate from the perspective of local indigenous groups?

15. Do existing programs adequately understand and address the aspects mentioned in response to questions 2 and 4 (above) on particular challenges facing IPLC women and girls? If not, what would they need to do differently to more effectively address the challenges IPLC women and girls face?

16. In your view, have any existing programs had an influence (positive or negative) on the roles men and women traditionally play at the community level when preparing for and responding to climate events?

17. Are you aware of any programs (government or private sector) that promote the use of traditional knowledge in relation to climate change mitigation and adaptation or conservation?

18. Are there specific examples of traditional knowledge approaches around climate adaptation, mitigation, or conservation that should be preserved / supported? What role do women play in implementing these approaches? What would need to be done for these to be scaled up in a gender sensitive way?

19. What do you see as specific priority actions for local & national governments / development programs (and specifically WBG support) / policymaking / private sector to take to support: (i) the preservation, scale up and integration of indigenous knowledge and technology with national and international climate change approaches and frameworks, and within this, (ii) the voices and specific needs of IPLC women in their roles as agents of change in adapting to and mitigating climate change?

Sample questionnaire for IPLC communities/women

1. Who in indigenous communities, or who in your community, keeps knowledge about traditional medicine and traditional ways to deal with climate problems? Is it the women, is it the men? Both?
2. How do they keep this knowledge? Is it written down anywhere? Oral? Captured in stories told to the young?
3. Have outside specialists, government people or researchers ever asked about this traditional knowledge? Who, when?
4. What are the most important techniques women in your community know about how to deal with climate issues (adjust the question to the problem(s) the community is facing – floods, droughts, erosion, fires, land degradation, loss of forest cover)?
5. How are these techniques working for your community; how effective are they?
6. If the women in your community have ideas about how to deal with climate issues, is it easy to communicate these ideas to the rest of the community? Who has to decide? Is it the men, the elders? Do they listen to the women?
7. Are there any techniques your community used to employ but no longer can (perhaps the community needed to use a certain product or animal for some purpose, but it no longer exists)?
8. Do you know if women in other indigenous / local communities do similar things?
9. What about others (not necessarily indigenous people or local communities)?
10. If there are techniques women in your community know about, or used to employ even if you are no longer doing that for some reason, do you think the knowledge would be helpful to others or do you think the techniques can work only in your community? Why?
11. If the techniques would be useful to others, what would they need to do or to learn in order to use these techniques successfully?

Annex 2: Questionnaire for MDB stakeholders and IPLC women's networks

Name (Optional):_____
Organizational affiliation:_____
Position/Title:_____
Countries of focus:_____

Thanks very much for taking the time to complete this questionnaire! Your responses will feed into a study being undertaken by the Climate Investment Funds (CIF) on the gender dimensions of Traditional Knowledge and Technology (TKT) as applied to climate solutions. This study builds on the CIF's 2019 report, *The Contribution of Traditional Knowledge and Technology to Climate Solutions,* by addressing a gap in the TKT-climate change knowledge base around gender dimensions relevant for Indigenous Peoples and local communities (IPLCs).

In which regions do you work with Indigenous Peoples (IPs)? (please select all that apply)

a. East Asia and Pacific
b. Europe and Central Asia
c. Latin America and the Caribbean
d. Middle East and Northern Africa
e. North America
f. South Asia
g. Sub-Saharan Africa

2. In which sectors do you work with IPs? (please select all that apply)
    a. Agriculture
    b. Climate change
    c. Education
    d. Energy
    e. Environment & Natural Resources
    f. Forestry
    g. Governance
    h. Health
    i. Social Development
    j. Social Protection
    k. Water
    l. Other:

3. Please provide the name of projects you have worked on (or are aware of) that involved the use of Traditional Knowledge and Technology (TKT) in application to climate change.

4. Which specific traditional knowledge and technologies did your project focus on? (Please select all that apply).

    a. Carbon sequestration
    b. Early warning systems
    c. Coping with hazards
    d. Herd management
    e. Landscape management
    f. Land use and agriculture adaptation to climate change
    g. Partnership of government and Indigenous Peoples to address climate change impacts
    h. Rising sea level risk management
    i. Water resource management (e.g. rainwater harvesting, water conservation)
    j. Weather forecasting
    k. Other:

5. Did you engage with IPLC women and/or women's networks/organizations in in your project that focused on TKT?
    a. Yes
    b. No

    If yes, please briefly describe:
    (If respondent selects "Yes" it will be a requirement to provide details in the Text Box)

6. In which stage of your project did you engage with IPLC women? (please select all that apply)

    a. Design (Please explain)
    b. Implementation (Please explain)
    c. Monitoring and evaluation (Please explain)

7. Did your project include any actions to support IPLC women in preserving and/or applying TKT-based approaches at the community level?
    a. Yes
    b. No

    If yes, please briefly describe:
    (If respondent selects "Yes" it will be a requirement to provide details in the Text Box)

8. What are the main challenges and barriers IPLC women face in engaging with development organizations, local, and national governments on climate change programs?

9. What types of activities and areas for support do you see as critical for strengthening the role of IPLC women in generating and applying TKT for climate solutions?

10. Are there female indigenous leaders that you suggest we interview as part of this work? Please provide their names in the text box below.

11. How about other experts or colleagues working on the nexus of IPLC-TKT-gender issues (within or outside your organization)? Please provide their names and organizational affiliations in the text box below.

12. May we use your answers in the CIF report on gender dimensions of TKT for climate solutions?
    a. Yes – paraphrase only
    b. Yes – direct quote only
    c. Yes – either paraphrase or direct quote
    d. No
    e. Other: (e.g. If there are only certain answers you would be comfortable including in the report, please indicate those question numbers in the text box, and for each, whether you prefer direct quotes / paraphrase / either).

13. Would you be willing to participate in a virtual workshop with IPLC and institutional stakeholders to review the findings of this study, prior to its finalization and publication?
    a. Yes
    b. No

Annex 3: Stakeholders interviewed for the study

Region	Country	Name	Organizational affiliation	Indigenous Ethnicity
Latin America and the Caribbean (LCR)	Panama	Florina López Miró	Indigenous Women's Biodiversity Network (IWBN) for Latin America and the Caribbean; OMIUP Panama; Foundation for the Promotion of Indigenous Knowledge	Guna Yala
	Colombia	Fany Kuiru Castro	Coordinator of Women, Children, and Family, National Organization of the Indigenous Peoples of the Colombian Amazon (OPIAC)	Uitoto
Africa (AFR)	Kenya	Edna Kaptoyo	Pastoralist Communities Empowerment Programme (PACEP)	Pokot Pastoralist
	Kenya	Rose Wamalwa	Women's Climate Centers International (WCCI); Women in Water and Natural Resources Conservation (WWANC)	Does not self-identify as Indigenous but works with Indigenous peoples and marginalized communities
East Asia and the Pacific (EAP)	Borneo	Yun Pratiwi	Central Borneo Guide; Women's Earth Alliance (WEA)	Dayak Tribe
South Asia (SAR)	New Delhi	Prerana Baisnab	Integrated Mountain Initiative (IMI)	Koch-Rajbongshi community of Assam
	Manipur	Thingreiphi (Athing) Lungharwo	Naga Women's Union; Asia Indigenous Peoples Pact (AIPP); International Indigenous Forum on Biodiversity (IIFB)	Tangkhul Naga
Eastern and Central Europe (ECA)	Russia	Alexander Arbachakov	The Council of Elder of Shor People; World Bank Inclusive Forum for Indigenous Peoples (IFIP)	Shor People
	Russia	Daria Egereva	Union of Indigenous Peoples of Tomsk Region	Selkup

The Climate Investment Funds (CIF) accelerates climate action by empowering transformations in clean technology, energy access, climate resilience, and sustainable forests in developing and middle-income countries. The CIF's large-scale, low-cost, long-term financing lowers the risk and cost of climate financing. It tests new business models, builds track records in unproven markets, and boosts investor confidence to unlock additional sources of finance.

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