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**Promotion and protection of all human rights, civil,
political, economic, social and cultural rights, including the right to development**

Indigenous women and the development, application, preservation and transmission of scientific and technical knowledge

**Report of the Special Rapporteur on the rights of indigenous peoples,
José Francisco Calí Tzay***

Summary

The present report is submitted to the Human Rights Council by the Special Rapporteur on the rights of indigenous peoples pursuant to his mandate under Human Rights Council Resolution 42/20.

In the report, the Special Rapporteur provides a thematic analysis of indigenous women and the development, application, preservation and transmission of scientific and technical knowledge.

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I. Introduction

1. The present report is submitted by the Special Rapporteur on the rights of indigenous peoples, José Francisco Calí Tzay, pursuant to Human Rights Council Resolution 42/20. The Special Rapporteur provides a brief summary of his activities since his previous report to the Council¹ and a thematic study on the situation of indigenous women and the development, application, preservation and transmission of scientific and technical knowledge.

2. The report focuses on the role of indigenous women as scientific and technical knowledge keepers in the context of international human rights law and identifies the current threats and intersecting challenges that they face because of their gender and identity as indigenous people. The report highlights best practices led by indigenous peoples and States and concludes with recommendations for ensuring and protecting the ability of indigenous women to develop, apply, maintain and transmit knowledge.

II. Activities of the Special Rapporteur

3. Since he presented his last report to the Council, the Special Rapporteur has carried out an official visit to Costa Rica and academic visits to the Plurinational State of Bolivia, Colombia, Guatemala, Costa Rica, Honduras, Mexico, Peru and Sweden. He hopes to undertake country visits to Chad, Denmark (Greenland) and Namibia during the coming year.

4. With a view to improving the effectiveness of and coordination between the existing bodies within the United Nations system with specific mandates on the rights of Indigenous Peoples, during the past year the Special Rapporteur has participated in the annual meetings of the Permanent Forum on Indigenous Issues and the Expert Mechanism on the Rights of Indigenous Peoples.

III. Methodology

5. In preparing the present report, the Special Rapporteur reviewed previous studies, issued a public call for input, hosted a consultation on 14 March 2022, participated as a speaker in various related events and collected information during his academic and official visits. He received a total of 38 submissions from Member States, intergovernmental entities, United Nations agencies, indigenous peoples' organizations, civil society and academics, in the form of oral and written submissions.²

A. Previous related reports of mechanisms specific to indigenous peoples

6. The Special Rapporteur has previously addressed the importance of indigenous knowledge primarily in the context of climate change adaptation and mitigation measures,³ conservation,⁴ indigenous justice systems⁵ and in a regional report on indigenous peoples in Asia.⁶ The present report is the first in-depth study by the mandate dedicated specifically to the knowledge of indigenous women.

7. The Permanent Forum on Indigenous Issues has undertaken previous studies examining the topic of indigenous peoples' knowledge⁷ and has in particular addressed the

¹ [A/HRC/48/54](#).

² See <https://www.ohchr.org/en/calls-for-input/2022/call-submissions-indigenous-women-and-development-application-preservation-and>; and <https://law.arizona.edu/indigenous-women>.

³ [A/HRC/36/46](#).

⁴ [A/71/229](#).

⁵ [A/HRC/42/37](#).

⁶ [A/HRC/45/34/Add.3](#).

⁷ [E/C.19/2007/10](#), [E/C.19/2015/4](#) and [E/C.19/2022/8](#).

issue in the African context.⁸ The Expert Mechanism on the Rights of Indigenous Peoples has studied indigenous knowledge in relation to cultural heritage.⁹

B. Terminology

8. The terminology “scientific and technical knowledge” is used in lieu of the more common “traditional” or “customary” knowledge in response to calls to avoid language that devalues the ideas of indigenous peoples. Historically, indigenous knowledge has been viewed as primitive, inferior, unscientific, superstitious or even dangerous. Characterizing indigenous knowledge as “scientific and technical” emphasizes that it is based on observations and is contemporary and dynamic, not static and fixed in time. It further emphasizes indigenous knowledge as a sophisticated set of understandings of no less value than the other kinds of knowledge that often form the foundation of “western” science. For example, scientists are now calling for the recognition and support of indigenous scientific knowledge systems to preserve natural resources and mitigate against climate change.

9. The present report uses quotations or refers to legal norms that retain the terminology used in the cited texts at the time they were drafted. In such cases, the shift in terminology set out above may not be reflected.

C. Gender focus

10. Despite increasing attention paid by international bodies to indigenous knowledge and culture, no United Nations study has previously examined the topic from a gender-based perspective. While recognizing and not diminishing the contributions of men in developing and perpetuating knowledge, such a study is necessary to highlight the unique challenges faced by indigenous women in retaining and revitalizing their role as knowledge keepers. The focus of the present study also fulfils the duty of special procedure mandate holders to take account of gender in carrying out their work.¹⁰

11. In addition, in resolution 42/20, the Human Rights Council mandated the Special Rapporteur to pay special attention to the human rights and fundamental freedoms of indigenous children and women, and to take into account a gender perspective in the performance of the mandate.

12. Discrimination against indigenous women hinders equal access to lands and resources, limits development opportunities and restricts women’s participation in decision-making processes. The imposition of male-dominated colonial structures on indigenous women has often undermined and marginalized their status as bearers of unique knowledge and custodians of biodiversity. The Special Rapporteur focuses on women because their role in developing, transmitting, producing and applying knowledge continues to be hindered by racism, gender discrimination and violence.

IV. International legal framework

13. The development, application, preservation and transmission of indigenous women's knowledge is inextricably linked to the way they use their territory, lands and resources. Indigenous knowledge is transmitted through indigenous languages, storytelling, collective practices and ceremonies. For that reason, the recognition and legal protection of indigenous scientific knowledge is required to protect the collective dimension of its manifestation and the loci of its production. In that context, the protection of collective indigenous rights, such as the rights to self-determination, autonomy, lands and resources, is foundational to protecting indigenous knowledge effectively. Also, the protection of indigenous women’s knowledge operationalizes the right to be free from assimilation, as established in several

⁸ [E/C.19/2013/5](#) and [E/C.19/2014/2](#).

⁹ [A/HRC/30/53](#).

¹⁰ See “Manual of operations of the special procedures of the Human Rights Council” (August 2008).

international instruments, including article 8 of the United Nations Declaration on the Rights of Indigenous Peoples and article X of the American Declaration on the Rights of Indigenous Peoples.

14. A comprehensive international legal framework is needed to protect indigenous women's self-determined development and ownership and control of their scientific and technical knowledge. Until that time, there are a number of international bodies and mechanisms that can be used to support their rights. Indigenous women are entitled to internationally recognized human rights, including the individual and collective right to the protection of scientific and technical knowledge in accordance with the legal standards set out in a number of international instruments.

A. United Nations Declaration on the Rights of Indigenous Peoples

15. Article 11 of the Declaration recognizes the right of indigenous peoples to maintain, protect and develop the past, present and future manifestations of their cultures, such as archaeological and historical sites, artefacts, designs, ceremonies, technologies, visual and performing arts and literature. Article 31 recognizes the rights of indigenous peoples to maintain, control, develop and protect traditional knowledge as well as manifestations of science, technologies and cultures, including seeds, medicines and knowledge of the properties of fauna and flora. The right to traditional medicines, health practices and the conservation of vital medicinal plants, animals and minerals are specifically identified in article 24. Although all the provisions of the Declaration apply equally to both women and men, article 22 recognizes that particular attention shall be paid to the special needs of women.

B. United Nations human rights treaties

16. The right to culture is affirmed in article 27 of the International Covenant on Civil and Political Rights and article 15 of the International Covenant on Economic, Social and Cultural Rights. The Committee on Economic Social and Cultural Rights has elaborated on this right in its general comment No. 21 (2009), notably recognizing the collective aspect of the cultural rights of indigenous peoples by stating that the values of cultural life "may be strongly communal" and "can only be expressed and enjoyed as a community by indigenous peoples" and that: "Indigenous peoples have the right to act collectively to ensure respect for their right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures" (paras. 15, 36 and 37). Articles 29 and 30 of the Convention on the Rights of the Child recognize the right of indigenous children to enjoy their own culture, religion and language. The Convention on the Elimination of All Forms of Discrimination against Women further recognizes that women are entitled to be free from discrimination.

C. Indigenous and Tribal Peoples Convention, 1989 (No. 169)

17. The Indigenous and Tribal Peoples Convention, 1989 (No. 169), establishes in article 5 that "the social, cultural, religious and spiritual values and practices of these peoples shall be recognized and protected, and due account shall be taken of the nature of the problems which face them both as groups and as individuals". Article 23 states that: "Handicrafts, rural and community-based industries, and subsistence economy and 'traditional' activities of the peoples concerned, such as hunting, fishing, trapping and gathering, shall be recognised as important factors in the maintenance of their cultures and in their economic self-reliance and development."

D. Regional human rights instruments

18. Article 17 of the African Charter on Human and Peoples' Rights states that every individual may freely take part in the cultural life of his community and that it shall be the

duty of the State to promote and protect the morals and traditional values recognized by the community.

19. Article XIII of the American Declaration of the Rights and Duties of Man also guarantees the right to culture while the American Declaration on the Rights of Indigenous Peoples recognizes right of indigenous peoples to cultural identity and integrity in article XIII and the right to preserve, use, develop, revitalize and transmit to future generations their systems of knowledge, language, and communication in article XIV. Articles XVI and XVIII protect indigenous spirituality and health systems and practices respectively. Finally, article XXVIII protects the cultural heritage and collective intellectual property of indigenous peoples that “includes, inter alia, traditional knowledge and traditional cultural expressions, including traditional knowledge associated with genetic resources, ancestral designs and procedures, cultural, artistic, spiritual, technological, and scientific expressions, tangible and intangible cultural heritage, as well as knowledge and developments of their own related to biodiversity and the utility and qualities of seeds, medicinal plants, flora, and fauna”.

E. Convention on Biological Diversity

20. The Convention on Biological Diversity (1992) affirms the need to respect, preserve and maintain the knowledge, innovations and practices of indigenous peoples embodying traditional lifestyles (art. 8 (j)).¹¹ The Convention protects biological resources and recognizes that the projected decline in biodiversity will have a particularly detrimental effect on indigenous peoples. It recognizes the need to strengthen further the integration of gender, the role of indigenous peoples and the level of stakeholder engagement and acknowledges that there has been an increase in recognition of the value of traditional knowledge and customary sustainable use, both in global policy forums and in the scientific community. However, despite progress in some countries, there is limited information indicating that traditional knowledge and customary sustainable use have been widely respected and/or reflected in national legislation related to the implementation of the Convention, or on the extent to which indigenous peoples and local communities are effectively participating in associated processes.¹²

21. The Beijing Declaration and Platform for Action adopted at the Fourth World Conference on Women in 1995 called on Governments to encourage, subject to national legislation and consistent with the Convention on Biological Diversity, the effective protection and use of the knowledge, innovations and practices of women of indigenous communities and safeguard the existing intellectual property rights of those women as protected under national and international law.¹³

F. World Intellectual Property Organization

22. The World Intellectual Property Organization (WIPO) protects the intellectual property of indigenous peoples and aims to encourage and empower indigenous peoples to use intellectual property tools strategically, if they so wish, in order to protect their traditional knowledge and cultural expressions for their own benefit and in line with their specific social, cultural and developmental needs.¹⁴ A number of WIPO conventions can be used to protect the intellectual property of indigenous women including the Berne Convention for the Protection of Literary and Artistic Works (1979); the WIPO Performances and Phonograms Treaty (1996); and the Beijing Treaty on Audiovisual Performances (2012).

¹¹ See also articles 1 and 15.

¹² <https://www.cbd.int/gbo/gbo5/publication/gbo-5-spm-en.pdf>, pp. 5, 11 and 12.

¹³ <https://www.un.org/womenwatch/daw/beijing/pdf/BDPfA%20E.pdf>, para. 253 (c).

¹⁴ See https://www.wipo.int/tk/en/news/tk/2019/news_0006.html.

G. United Nations Educational, Scientific and Cultural Organization

23. The United Nations Educational, Scientific and Cultural Organization promotes cultural heritage and the equal dignity of all cultures, affirming that cultural diversity is a defining characteristic of humanity.¹⁵ The preamble of the Convention for the Safeguarding of the Intangible Cultural Heritage (2003) recognizes that communities, in particular indigenous communities, groups and individuals, play an important role in the production, safeguarding, maintenance and recreation of the intangible cultural heritage, enriching cultural diversity and human creativity. Finally, article 7 (a) of the 2005 Convention on the Protection and Promotion of the Diversity of Cultural Expressions enacts measures to promote cultural expressions, paying special attention to the needs of women and indigenous peoples.

H. United Nations Framework Convention on Climate Change

24. The Local Communities and Indigenous Peoples Platform was established in 2015 by the twenty-first Conference of the Parties to the United Nations Framework Convention on Climate Change. The Platform facilitates collaboration between the parties to the Paris Agreement on Climate Change and indigenous peoples to understand, amplify and disseminate the knowledge and expertise of indigenous peoples and enable them to contribute more meaningfully to global calls for adaptation and mitigation actions “in a holistic and integrated manner” as the effects of climate change are compounded.

25. The mandate of the Platform emphasizes local and indigenous knowledge as the foundation of the exchange of experience and best practices, with a view to applying, strengthening, protecting and preserving the traditional knowledge systems of indigenous peoples, as well as their technologies, practices and efforts related to addressing and responding to climate change, taking into account the free, prior and informed consent of the holders of such knowledge, innovations and practices.

26. Importantly, the Platform has taken gender into consideration in fulfilling its mandate with an emphasis put on guaranteeing equal participation from both male and female indigenous peoples’ representatives in the implementation of the work plan of the Platform and in leadership roles within it.

I. International Fund for Agricultural Development

27. The International Fund for Agricultural Development (IFAD) has acknowledged that indigenous women, in particular, are full of untapped potential as stewards of natural resources and biodiversity and commits to valuing “indigenous peoples’ knowledge and practices in investment projects” and to building “on these assets by supporting pro-poor research that blends traditional knowledge and practices with modern scientific approaches”.¹⁶ IFAD has created the Indigenous Peoples Assistance Facility to provide small grants to support projects designed and implemented by indigenous peoples to “build on indigenous peoples’ culture, identity, knowledge and natural resources” and “implement grass-root development projects based on their own perspectives”.¹⁷

V. Indigenous women as knowledge keepers

28. Indigenous women are custodians of a collective accumulation of scientific knowledge and technical skills related to food and agriculture, health and medicine, natural resource management, weather patterns, language, textiles, arts, crafts and spiritual practices. Their knowledge, often unwritten, is acquired based on observation and applied and tested

¹⁵ See Convention on the Protection and Promotion of the Diversity of Cultural Expressions.

¹⁶ IFAD, “Engagement with indigenous peoples policy” (2009), p. 15.

¹⁷ See <https://www.ifad.org/en/ipaf>.

through practices, and transmitted across generations.¹⁸ Women’s knowledge is critical to maintaining cultural identity; creating solutions to conflict through indigenous justice; managing the risks and impacts of climate change; protecting biodiversity; achieving sustainable development; and building resilience in the face of pandemics and other extreme events.¹⁹ Indigenous women are described as teachers, caretakers, healers, guardians of community values, protectors, leaders, adjudicators, first responders and keepers of scientific, cultural and spiritual knowledge.

A. Natural resource management and biodiversity conservation

29. Indigenous women reproduce and protect indigenous identity, culture and societal roles on the lands and territories they have traditionally owned, used or occupied.²⁰ It is out of this intimate relationship of respect, responsibility and interdependency with nature that indigenous women have been able to build and hone their scientific knowledge, a vast, too-often untapped resource for environmental protection and stewardship. Indigenous women’s scientific knowledge has a key role to play in safeguarding ecosystems, maintaining biocultural integrity and designing collective futures to ensure human, multispecies and environmental justice and equity.

30. Indigenous women’s in-depth understanding of botany and animal species can contribute to climate science and mitigate against the catastrophic impacts of climate change. They offer empirical observations and interpretations of the natural world, highlighting elements that climate scientists generally do not consider when designing conservation and climate adaptation and mitigation policies.²¹

31. Globally, indigenous women play an essential role in conservation and water resource management. For example, in Kenya, Ogiek and Sengwer women practise beekeeping, harvesting honey for food and medicinal purposes as an important element of forest conservation in support of biodiversity.²² Women collect herbal medicine by extracting the specific part required and then leave the plant to continue growing.²³

32. In Asia, shifting or rotational cultivation is a defining characteristic of many indigenous peoples living in mountainous areas. Such cultivation involves practices that protect the integrity of the land and the ecosystem, farming small patches of land and then moving on to other areas to allow the areas already cultivated to recover and rejuvenate. Across Asia, there is a lack of understanding of indigenous practices for rotational crop cultivation and forest management and of the contribution that indigenous peoples make to sustainable conservation and biodiversity.²⁴

33. Indigenous women’s special relationship with water is illustrated in the 2008 water declaration of the Anishinaabek, Mushkegowuk and Onkwehonwe nations that emphasizes their responsibility to care for water based on women’s knowledge. The women of the Kimberley region of Australia created the Matruwarra (Fitzroy) River Council and adopted the Fitzroy River Declaration. As guardians of the river, they are speaking up to protect the

¹⁸ See <https://www.siliconrepublic.com/innovation/Indigenous-women-climate-change-first-voice>.

¹⁹ See Climate Investment Funds, *Empowering Indigenous Women to Integrate Traditional Knowledge and Practices in Climate Action* (May 2021).

²⁰ See, for example, <https://www.fao.org/Indigenous-peoples/news-article/en/c/1374632>.

²¹ International Work Group for Indigenous Affairs, “Recognising the contributions of indigenous peoples in global climate action? An analysis of the IPCC report on impacts, adaptation and vulnerability” (2022).

²² See, for example, <https://www.forestpeoples.org/sites/fpp/files/publication/2016/10/sengwerwomenreportweb.pdf>; <https://www.beesforpeace.org/the-ogiek-and-bees.html>; and <https://www.ifad.org/en/web/latest/-/from-kenya-the-ogiek-honey-slow-food-presidium>

²³ See, for example, <https://www.forestpeoples.org/sites/fpp/files/publication/2016/10/sengwerwomenreportweb.pdf>; <https://www.beesforpeace.org/the-ogiek-and-bees.html>; and <https://www.ifad.org/en/web/latest/-/from-kenya-the-ogiek-honey-slow-food-presidium>.

²⁴ A/HRC/45/34/Add.3, para. 26. See also communications THA 2/2019, OTH 7/2019, OTH 8/2019, THA 4/2020, OTH 22/2020 and OTH 23/2020.

interests of that communal, life-sustaining resource, preserving its health for present and future generations.²⁵

34. In Timor Leste, the mandate has observed women-led initiatives, based on indigenous justice practices, that have expanded mangrove forests to protect the coastline and prevent salination, and have enforced temporary no-fishing zones with remarkable gains for the coral reef ecosystem.²⁶ In Oaxaca, Mexico, indigenous women lead the process of “water harvesting” by recovering groundwater through community management and practices.

B. Food security

35. Indigenous women play an integral and active role in farming, food production, preparation and preservation and seed conservation, transmitting their knowledge and time-honoured practices intercommunally and intergenerationally. They contribute to food security within their own communities and have been able to define and apply sustainable production strategies and distribution.²⁷ Through indigenous scientific knowledge, learned from their mothers and grandmothers, women are involved in crop identification, weather pattern prediction and seed selection, storage and management. These practices have evolved and been refined through careful practice and observation over generations.

36. Indigenous women have a wealth of knowledge and understanding about what food items their ecosystems produce, where and when to find them and how to make best use of what is available. Additionally, they have extensive knowledge as to which fruits and vegetables grow best on their lands, as well as having proven systems for farming and cultivating their lands year-round without causing lasting damage to the ecosystem. Indigenous peoples have historically focused on wild or naturally occurring plants rather than farmed plants. Such knowledge is essential for understanding and preserving the ecosystem.

37. Seeds are particularly important to indigenous peoples across the world as symbols of rebirth, growth and the cycle of life.²⁸ For most indigenous peoples, seed custodianship lies largely in the hands of women, seeds being considered an important part of a woman’s identity, knowledge and power.

38. Across Africa, indigenous women have developed a range of seed-saving methods, smoking seeds over fire to protect them and mixing them with herbs and ash to guard against fungi and repel pests. Women seed custodians determine which of the seeds they have bred will do best in conditions they predict are about to unfold. In the context of climatic instability, the refined ecological knowledge held by women becomes ever more essential. Reading the signs in the ecosystem requires careful observation and attention to detail, such as changes in the behaviour of insects, plants, animals or birds, levels of moisture and patterns of rain or drought. Knowledge of the constellations and the relationship to the moon’s cycle also have an important bearing on determining the seasonal cycles, rains and planting systems.²⁹

39. In Northern Thailand, the Shan, Lua and Akha indigenous women use rotational methods of sharing seeds within the community to ensure food security and limit any possible risk of extinction. Since no one family can plant the whole variety of seeds every year, each family produces different crops and the seeds are shared after the harvest.³⁰ Indigenous women in Nepal apply their scientific knowledge of farming and food preparation, which includes methods of drying and preserving food, such as fermentation of soybeans.³¹ In India,

²⁵ Submission by Anne Poelina, Co-Chair of Indigenous Studies, Senior Research Fellow, Nulungu Institute, University of Notre Dame Australia. See also <https://martuwarrafitzroyriver.org/fitzroy-river-declaration>.

²⁶ See [A/HRC/42/37/Add.2](#).

²⁷ Submission by the Government of Guatemala.

²⁸ Submission by the Food and Agriculture Organization of the United Nations (FAO).

²⁹ African Biodiversity Network and The Gaia Foundation, *Celebrating African Rural Women: Custodians of Seed, Food and Traditional Knowledge for Climate Change Resilience* (2015), p. 14.

³⁰ See Asia Indigenous Peoples Pact, *Indigenous Women, Ancestral Wisdom* (2021).

³¹ Submission by Nepal National Indigenous Women Forum.

Adivasi women manage community seed banks and their custodian role strengthens resilience to climate change by preserving threatened varieties of seeds.³²

40. Among the Inga in Colombia, indigenous women's knowledge has been vital for food security, sustainable agriculture and the health of their communities. Their role as seed custodians has earned them respect for nurturing and sustaining the family and community.³³ The indigenous Kuna women of Panama are involved in rescuing and preserving native seeds threatened by climate disasters, rising sea levels and flooding and Maya women in Central America have developed methods to select maize varieties with high nutrient contents.

41. In the Arctic, indigenous peoples' culinary traditions and food processing systems are based on seasonal cycles and with their rich knowledge, herders, hunters, fishers and gatherers have sustainably supported human and animal life over thousands of years. Saami women have developed sophisticated techniques of food preparation and conservation that promote food sovereignty while preserving their ecosystems. Saami reindeer herders' knowledge illustrates the technology they have developed to secure the sustainable and safe consumption of reindeer meat. The correct use of salt and moisture is achieved by selecting specific plants and firewood that produce a dense white smoke. That penetrates the meat tissue without requiring very high temperatures and the combined antibacterial effects protect the meat from degradation.³⁴

42. Around the world, indigenous women call for their inclusion and participation in research on natural resource management, seed conservation and pollination. When the authorities use technical terms, it often appears that they are referring to new discoveries, but for indigenous women such "discoveries" are often not new as they have been nurturing and developing that knowledge and those practices for thousands of years. If research is discussed and explained in more practical ways, then technical terms become more accessible for indigenous women who relate them to their daily practices and livelihoods.³⁵

C. Health and medicine

43. Indigenous women have scientific knowledge of community health related to physical and mental well-being. That includes a significant body of robust knowledge of women's sexual, reproductive and maternal health that they share to ensure continuation of their skills to future generations.³⁶ Community members often prefer to seek advice from indigenous medical practitioners, who are held in high regard and trusted for their specialized knowledge and care.

44. In Guatemala, indigenous women have different medical specialties, including midwives who focus on the sexual and reproductive health of women; bone setters/chiropractors; and those who balance energies to heal minds and bodies. All specialties derive from indigenous cosmovision. Midwifery is essential to indigenous medicine and in many cases is the only option where there is little to no access to hospitals or medical personnel. Midwifery also provides a more comfortable environment for indigenous women, who receive services in their mother tongue. Indigenous women promote and defend scientific knowledge inherited from their ancestors, knowledge that has often been proven to work by academic institutions and the medical community. They ask that academics and others studying their knowledge help them to legitimize and vindicate their knowledge.³⁷

³² See IFAD, *The Traditional Knowledge Advantage: Indigenous Peoples' Knowledge in Climate Change Adaptation and Mitigation Strategies* (2016).

³³ See <https://www.kfw-entwicklungsbank.de/Our-topics/Climate/REDD/Indigene-V%C3%B6lker>.

³⁴ EALLU project, *Indigenous Youth, Arctic Change & Food Culture. Food, Knowledge and How We Have Thrived on the Margins* (2017).

³⁵ Intergovernmental Platform on Biodiversity and Ecosystem Services, Task Force on Indigenous and Local Knowledge Systems, *Indigenous and Local Knowledge about Pollination and Pollinators Associated with Food Production. Outcomes from the Global Dialogue Workshop*, (2014) p. 39.

³⁶ Submission by Government of Mexico, p. 3.

³⁷ Submission by National Movement of Midwives, Nim Alaxik, in Guatemala. See also [A/HRC/39/17/Add.3](#).

45. In north-east Arnhem Land in Australia, Aboriginal women are revitalizing sovereign birthing knowledge and practice. Yolngu and western medical pregnancy and childbirth knowledge systems are being integrated through the establishment of culturally safe birthing centres and programmes.³⁸

46. Indigenous women's scientific knowledge is living, resilient and adaptable to new situations, such as the global coronavirus disease (COVID-19) pandemic. Indigenous women have treated people with COVID-19, saving the lives of those unable to access hospitals, doctors and clinics.³⁹ In Mexico, indigenous medical practitioners were able to help the community understand the symptoms of COVID-19 and promoted hygienic practices. In Brazil, indigenous women gathered during the pandemic to share scientific knowledge of medicines and remedies to mitigate the effects of COVID-19 in their communities.

47. In Nepal, a study conducted during the pandemic highlighted how women were at the forefront in organizing and performing rituals for protection from the pandemic and their capacities to respond to the stress showed that they were more resilient than their male counterparts were.⁴⁰

48. The Lakota (Oceti Sakowin) women in the United States of America have been able to transmit a wealth of indigenous knowledge, passed down intergenerationally. The Lakota acknowledge that "women are where all life begins," they bear, nurture, and sustain life from the sacred spirit (Wakanyeya). Oceti Sakowin women have linked gut health to trauma-induced neurological imbalance and treat the imbalance by prescribing the consumption of fibre-rich bison intestines.⁴¹ Western science research on DNA confirms what the Lakota people have always known and indigenous spiritual beliefs support modern advancements in biotechnology.

D. Arts and crafts

49. Indigenous women have a knowledge of arts and crafts that is of spiritual, cultural and practical significance. Artistic practices have been shared among women for purposes of self-empowerment, environmental sustainability and healing from trauma. In Colombia, during situations of armed conflict, women's textiles represent the archive of memory and resistance, a system of knowledge and a way for women to exercise leadership in the collective transmission of knowledge.⁴² In Mexico, indigenous women possess a diversity of cultural knowledge that is reflected in weaving, embroidery and pottery-making.⁴³ Inuit women are responsible for crafting clothing for the harsh Arctic environment and for the construction of whaling boats, an essential and revered role in their communities.

50. In Nepal, indigenous women carry the knowledge of craftsmanship, such as pottery, carpentry and carpet- and garment-making, and women have created entrepreneurial ventures that contribute to the preservation and transfer of indigenous knowledge and skills, while also enhancing economic resources.⁴⁴

51. In the United States, indigenous peoples of the plains incorporate geometric patterns and abstract depictions meaningful to their tribes and regions in quillwork, a method of stitching animal hide using sinew.⁴⁵

³⁸ Submission by the Australian Human Rights Commission.

³⁹ Submission by the Government of Guatemala, p.4.

⁴⁰ Submission by Nepal National Indigenous Women Forum.

⁴¹ Submission by Stephanie Little Hawk-Big Crow, Oglala Lakota, Oceti Sakowin, on behalf of Lakota women.

⁴² See report of the mujeres Arhuacas de la Sierra Nevada de Santa Marta to the Truth Commission in 2020 (in Spanish only).

⁴³ Submission by the Government of Mexico.

⁴⁴ Submission by the Nepal National Indigenous Women Forum.

⁴⁵ See Keli A. Tianga, "The next generation of indigenous knowledge keepers", Shelterforce, 5 September 2019.

E. Language and culture

52. Women's knowledge is integrated across disciplines. For example, knowledge of agriculture is interconnected with spiritual and cultural practices. That knowledge is conveyed through stories, songs, proverbs, dance, art, community rules and rituals. Indigenous women possess vast amounts of religious and spiritual knowledge and are often recognized as spiritual leaders in their communities. In many communities, women are the custodians of sacred sites and are responsible for providing seeds for ceremonies to encourage rain and germination and to provide thanksgiving after the harvest.⁴⁶ Indigenous women are the most effective bearers of indigenous culture and language, in part because of their role as teachers and caregivers, transmitting knowledge to their children and grandchildren in lullabies from the first moments of their lives.

53. In the Vhuthanda clan of South Africa, the Makhadzi (woman elders) are responsible for leading the rituals at sacred sites and for preparing seeds for ceremonies.⁴⁷ In Siberia, Russian Federation, women hold the knowledge about the location of sacred burial grounds which is not only of cultural significance but also protects the community from harmful chemicals released by melting permafrost. The Tuawhenua Maori women of New Zealand have religious protocols for transmission of various types of knowledge along age and gender lines. In Brazil, the Kawaiwete people recognize a shaman mother to teach farming.⁴⁸ In Australia, indigenous women gather to strengthen kinship, transfer knowledge and share cultural practices and songlines.⁴⁹

54. Indigenous women play a key role in the intergenerational transmission of language and the preservation of indigenous languages is vital for the protection of scientific and cultural knowledge. Indigenous women are the most effective bearers of indigenous culture and language, in part because of their role as teachers and caregivers, transmitting knowledge to their children and grandchildren.⁵⁰

55. Efforts to preserve indigenous languages through revitalization projects to provide education and media in indigenous languages are crucial for protecting indigenous women's scientific knowledge. The United Nations recently proclaimed the International Decade of Indigenous Languages (2022–2032) “to draw global attention to the critical situation of many indigenous languages and to mobilize stakeholders and resources for their preservation, revitalization and promotion”.

F. Leadership

56. Historically, indigenous women have been leaders in their communities. The preservation of indigenous communities, values and ways of life depend on indigenous women and girls regaining their roles as leaders and teachers within their communities. This is especially true with respect to indigenous medicines, as women are often the holders of this knowledge. The ability of indigenous women to carry out their roles and activities is important to their mental health and well-being, and to maintaining a strong sense of cultural identity.⁵¹

⁴⁶ African Biodiversity Network and The Gaia Foundation, *Celebrating African Rural Women: Custodians of Seed, Food and Traditional Knowledge for Climate Change Resilience*, p. 15. See also Climate Investment Funds, *Empowering indigenous women to integrate traditional knowledge and practices in climate action*.

⁴⁷ African Biodiversity Network and The Gaia Foundation, *Celebrating African Rural Women: Custodians of Seed, Food and Traditional Knowledge for Climate Change Resilience*, p. 16.

⁴⁸ Intergovernmental Platform on Biodiversity and Ecosystem Services, Task Force on Indigenous and Local Knowledge Systems, *Indigenous and Local Knowledge about Pollination and Pollinators Associated with Food Production*, p. 48.

⁴⁹ Submission by the Australian Human Rights Commission.

⁵⁰ See [E/C.19/2015/4](#).

⁵¹ See Native Women's Association of Canada, “Indigenous women and girls, traditional knowledge, and environmental biodiversity protection” (February 2018).

57. Many indigenous women are experienced decision-makers who have honed their management skills over generations of family and community leadership. Indigenous women's right to self-determination will not be fully realized until they achieve full political participation. Indigenous women should be welcomed into political and social spaces from which they have previously been excluded so that their scientific knowledge can be applied to development and decision-making processes concerning issues that directly impact them.

58. Inuit matriarchs oversee the protection of the community, teach values, prepare food, hold knowledge of the seasons and medicines and health practices, and supervise the daily lives of community members. The matriarchal Garifuna society in Honduras looks to women as decision makers for the future of the communities, and in Mexico, indigenous women hold important positions as leaders and protectors of food security and security of land tenure and resources.⁵²

59. The Australian Human Rights Commission notes that: "Prior to the imposition of western patriarchal structures that force gendered hierarchies, women's knowledges were of equal worth and importance to those of men."⁵³

VI. Current threats to indigenous women's knowledge

A. Loss of lands, territories and resources

60. Indigenous women steward nature under tenuous conditions, often with limited access to and control over lands and resources. Loss of their scientific knowledge occurs as they are driven from their lands owing to climate change, the creation of protected areas, extractive projects, violent conflict and economic migration.⁵⁴ Land is critical to the development and preservation of deep-rooted practices related to farming, food production and medicine. As the Permanent Forum on Indigenous Issues has observed, loss of land and restricted access to resources makes "it increasingly difficult for them to practise and maintain their indigenous knowledge systems".⁵⁵

61. Indigenous women are disproportionately impacted by the ecological, economic and spiritual effects of extractive industries on their lands. Their knowledge is devalued when the natural resources they steward are exploited without their free, prior and informed consent. Loss of access to and ownership of lands causes disempowers indigenous women, deprives them of their community roles and occupations, and threatens their ability to maintain and transmit their scientific and technical knowledge.

62. Climate change gives new urgency to the recovery and preservation of indigenous women's scientific knowledge as they are disproportionately impacted by its effects, including drought, desertification, flooding, melting glaciers, rising sea levels, changes to vegetation and animal populations, and the general degradation of agricultural lands and natural resources. Worldwide, this means that women have less access to natural resources, endangering their way of life.

63. The Intergovernmental Panel on Climate Change has expressed concern that existing climate change policies and regulations might lead to access to territories being limited, the substitution of traditional livelihoods, reduced genetic diversity and harvesting opportunities and loss of transmission of indigenous knowledge, which in turn may limit the effects of climate change adaptation measures in many regions. In 2019, the Intergovernmental Panel emphasized the crucial role played by indigenous peoples in preserving ecosystems and preventing deforestation, which are key to combating climate change.⁵⁶ Nevertheless, the

⁵² Submission by the Government of Mexico.

⁵³ Submission by the Australian Human Rights Commission.

⁵⁴ See [A/HRC/45/34/Add.3](#).

⁵⁵ [E/C.19/2014/2](#), para. 33.

⁵⁶ Intergovernmental Panel on Climate Change, *Climate Change 2014: Impacts, Adaptation, and Vulnerability – Part A: Global and Sectoral Aspects* (2014), ch. 7. See also *Climate Change and Land: an IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems* (2019).

valuable contributions of indigenous peoples to protecting the environment from climate change continue to be denied.

64. Furthermore, indigenous women's security of land tenure may be threatened by State implementation of climate change mitigation projects. Programmes such as REDD+ (Reducing Emissions from Deforestation and Degradation) can restrict access to forests or result in the dispossession and relocation of indigenous peoples from their lands. Moreover, international and domestic environmental programmes often exclude indigenous women from the distribution of environmental benefits.

65. Scientific and technical knowledge plays an increasingly pivotal role in the adaptation and mitigation of climate change; however there is little protection for indigenous knowledge systems within national legal frameworks. Indigenous women in Asia are the primary agricultural producers in their communities but changing climate patterns causing droughts, floods and hurricanes disrupt agricultural production and force people, most often women, to find work in urban areas. There they face stigma, discrimination and labour exploitation.⁵⁷

66. The Kuna people were relocated from their islands to the mainland of Panama, forced to move because of rising sea levels, flooding, and overpopulation. Changes in climate have altered indigenous food practices, and knowledge of land use passed down by women through generations, threatening the cultivation of native seeds, the preservation of sacred aquifers and naturally anti-seismic architecture.

B. Gender and structural racial discrimination

67. Societal and structural inequality has been attributed to structural racial discrimination and puts the transmission of indigenous women's knowledge at risk.⁵⁸ Colonization broke down community structures and its residual effects continue to be felt by indigenous women and girls today. Colonial interference with indigenous governance and social structures has created structural discrimination and contributed to the erosion of indigenous women's community roles.⁵⁹ Stereotypes of indigenous women exist, such as misconceptions that their scientific knowledge of medicinal plants is harmful to the environment or constitutes witchcraft.⁶⁰ Discrimination also occurs within indigenous communities. In some regions, where women are relegated and confined to the private domain and excluded from social, civil and political events, they are restricted in their ability to disseminate knowledge. This is particularly challenging when knowledge is unwritten and transmitted orally. Discrimination in the educational system has led to an alarming loss of indigenous languages, and with it a rich oral tradition of scientific knowledge.

68. Multiple intersecting forms of discrimination create barriers to women's development and use of their scientific knowledge, including access to lands and resources; educational and employment opportunities; health care; political participation in national and local governance, including environmental planning; labour protections; infrastructure and social services; and legal systems. Barriers to political participation for women include the failure to provide materials in indigenous languages, means of transportation and security concerns.⁶¹ Despite progress in this area, indigenous women continue to suffer discrimination that too often leads to their disenfranchisement and underrepresentation in public life.

C. Lack of disaggregated data

69. Poor data collection renders indigenous women virtually invisible in official statistics, constraining efforts to advance gender and ethnic equality in public policies. The lack of disaggregated data on indigenous women hampers research and impedes the design of policies and programmes that address the overlapping and interdependent forms of

⁵⁷ See [A/76/202/Rev.1](#).

⁵⁸ Submission by the Government of Guatemala, p. 5.

⁵⁹ See [A/HRC/30/41](#) and [E/C.19/2009/8](#).

⁶⁰ See https://www.un.org/esa/socdev/unpfii/documents/EGM12_Lama.pdf.

⁶¹ See [E/C.19/2013/10](#).

discrimination they face. Too often this gap leads to indigenous women's perspectives being overlooked, ignored and substituted by the views of other constituencies. The system-wide action plan for ensuring a coherent approach to achieving the ends of the United Nations Declaration on the Rights of Indigenous Peoples specifically calls on the United Nations system and Member States to address this issue.

D. Violence against indigenous women and girls

70. Indigenous women's ability to transmit scientific knowledge across generations is impacted by the violence they experience in the form of domestic violence, sexual violence, armed conflict, labour exploitation, trafficking, criminalization and obstetric violence.⁶² Violence against indigenous women and girls not only constitutes "an attack on those women individually, but often involves harm to the collective identity of the communities to which they belong".⁶³

71. The practices of indigenous peoples can also present barriers to the protection of indigenous women's scientific knowledge. These include forced marriage, female genital cutting and violent definitions of masculinity.⁶⁴ Responsibility for improving such violent situations often lacks the support and advocacy of indigenous men.

72. Violence against indigenous women and girls has made this issue a key focus of the mandate, as discussed in thematic reports⁶⁵ and recent communications to States,⁶⁶ as well as during most official country visits. In 2021, the Special Rapporteur visited Costa Rica and heard about the increased aggression, intimidation and threats that indigenous women and youth have been facing, affecting their role in the transmission of indigenous scientific knowledge and the possibility of developing their entrepreneurial skills and resulting in the loss of food sovereignty.⁶⁷ The mandate has observed that State mechanisms to address violence against indigenous women have been slow and inadequate.

73. Indigenous women and girls, however, "should not only be seen as victims. In reality, they are active change agents in society and champions of sustainability, standing at the forefront of promoting Indigenous Peoples' rights and women's rights, as well as playing an essential role in safeguarding and passing along Indigenous knowledge, tradition, culture and language".⁶⁸

74. The criminalization of indigenous environmental defenders has been well documented, with women often leading the efforts to protect their lands and resources from external threats, such as development projects. Indigenous women are also criminalized for carrying on with their livelihoods in national parks, world heritage sites and other protected areas, where access to their lands, territories and resources is restricted.

75. Indigenous women suffer gendered impacts as smear campaigns may target them by spreading rumours that they are dishonourable women of poor reputation who violate indigenous traditions by engaging in public participation and advocacy on community concerns. The aim of such defamation is to disempower and alienate women from their families and communities. While the majority of indigenous individuals who face criminal charges are men, women bear the brunt of their absence as they have to assume responsibility for securing resources to sustain the family, including food and the means to send their children to school.⁶⁹

⁶² E/CN.6/2017/12, para. 7. https://www.un.org/ga/search/view_doc.asp?symbol=E/CN.6/2017/12.

⁶³ Inter-American Commission on Human Rights, *Indigenous Women and their Human Rights in the Americas* (2017), para. 49.

⁶⁴ See A/HRC/30/41.

⁶⁵ See A/HRC/30/41 and A/HRC/39/17.

⁶⁶ See, for example, CAN 4/2021, MEX 7/2021, BRA 3/2021, HND 3/2021, COL 6/2021 and PHL 1/2021.

⁶⁷ See <https://www.ohchr.org/en/statements/2021/12/end-mission-statement-united-nations-special-rapporteur-rights-Indigenous>.

⁶⁸ International Work Group for Indigenous Affairs, *The Indigenous World* (2020), p. 18.

⁶⁹ See A/HRC/39/17.

76. Women's cultural practices are also criminalized. The long-term effects of colonization have created obstacles for indigenous women to practice midwifery today. State-registered health-care professionals often do not respect indigenous midwives, who therefore risk being criminalized and mistreated when they bring women to hospital with birth complications and being held responsible for maternal deaths.

E. Misappropriation of indigenous women's knowledge

77. Indigenous women lack the legal protection for their scientific and technical knowledge that is granted to other forms of intellectual property in much of the world.⁷⁰ In some cases, western scientists have studied indigenous knowledge of plants and appropriated that knowledge without recognition or remuneration for the indigenous owners. That misappropriation of knowledge has led to distrust among indigenous peoples, who may be reluctant to share knowledge as they lack intellectual property protection. Furthermore, intellectual property protection does not take into account the collective dimension of indigenous knowledge or the fact that the knowledge may be sensitive and not to be shared publicly.⁷¹

78. In the absence of legal recognition, indigenous knowledge is often considered to be in the public domain to be utilized, commodified, commercialized, exploited and benefited from through appropriation, reproduction and imitation, without the free prior and informed consent of the indigenous peoples concerned. Even where legal protections exist through the intellectual property regime, the framework is not adequate, as the collective dimension of indigenous authorship and the object of protection fail to be taken into account, in addition to the failure to recognize indigenous systems of knowledge during the patenting process. In Mexico, women are engaged in rearing livestock and selling grocery and food products such as nixtamal, but their knowledge has been appropriated for the economic benefit of others.⁷²

79. Indigenous art and culture has been exploited for tourism, romanticizing sacred indigenous practices and ceremonies. The selling of artisanal products in a competitive market risks loss of identity and cultural practices, where mass production of imitation products occur. For example, in Guatemala, Mayan clothing has been commercially exploited by companies and individual designers alike.⁷³

80. In other cases, pharmaceutical or agricultural companies have taken indigenous scientific knowledge and marketed it without permission or with no recognition given to the indigenous owners. For example, indigenous knowledge of stevia has been misappropriated and exploited through widespread commercialization, misleading marketing and synthetic biology. The Guarani Pai Tavytera people of Paraguay and the Guarani-Kaiowa people of Brazil have a sacred relationship with stevia, whose sweetening properties they have been aware of since time immemorial. They have denounced the misappropriation of indigenous knowledge by multinational companies without consultation or compensation as well as the loss of territories, biodiversity and the knowledge that resulted from its harvesting.⁷⁴

81. The dominance of commercial seed companies and their marketing strategies threatens indigenous women's knowledge of old local seed varieties and indigenous practices of communal seed banks for non-profit sharing.

VII. Best practices led by indigenous peoples

82. Indigenous women are creating environments conducive to the preservation, development, use and transmission of their knowledge when they have a voice in indigenous governance and when they are supported through broader political involvement that promotes

⁷⁰ Submission by the Government of Guatemala, p. 6.

⁷¹ See [E/C.19/2007/10](#).

⁷² Submission by the Government of Mexico, pp. 5 and 7.

⁷³ Submission by the Movimiento Nacional de Tejedoras Mayas de Guatemala.

⁷⁴ Submission by the Guarani Pai Tavytera people of Paraguay and the Guarani-Kaiowa people of Brazil.

their leadership skills. They are overcoming barriers to participation by creating awareness, educating indigenous women on their rights, building their capacity as advocates and enlisting indigenous men as allies to support them in their efforts to increase their visibility and amplify their voices.

A. North America

83. The Sturgeon Lake First Nation of Canada recently brought back their Cree birth practices that involve pre- and postnatal ceremonies and teachings. The First Nation is developing legislation to formalize the practice according to Cree knowledge systems, creation stories and cultural norms, and include provisions to recruit and train new midwives through the transmission of indigenous knowledge. Cree teachings will inform the architectural layout of a new birthing centre.

B. Oceania

84. Many indigenous-led initiatives are taking place in Australia. The Pertame master apprentice programme brings native speakers of the Pertame language together with adult learners for camps and classroom teaching to strengthen language transfer and preservation.

85. Based on consultations across the country with nearly 2,300 indigenous women in 50 locations, including remote areas, in 2018 the Aboriginal and Torres Strait Islander Social Justice Commissioner of the Australian Human Rights Commission conducted a project entitled *Wiyi Yani U Thangani* (Women's voices). The findings provide evidence that women's knowledge is critical for supporting families and communities, maintaining social cohesion, healing people from trauma and illness, and caring for land, water and animals, and should inform new policy models for environmental protection, the sciences, medicine, maternal health and child, disability, and aged care.⁷⁵

86. The Kimberly Women Rangers of Australia collect and propagate seeds, maintain a seed bank and undertake revegetation.⁷⁶ The "Yanalangami: strong women, strong communities" is an Aboriginal-led leadership initiative that connects women to create a culturally safe community to share knowledge and provides an empowerment programme and professional development opportunities.⁷⁷

87. In northern Australia, indigenous fire management practices to reduce the extent and severity of wildfires are well recognized and women play an important role in practising such conservation measures.⁷⁸ In its 202 report, The Australian Royal Commission into National Natural Disaster Arrangements stated that indigenous local knowledge had successfully informed land management for tens of thousands of years.⁷⁹

88. In the Pacific regions, the International Solomon Islands Development Trust seeks to preserve and record indigenous knowledge and practices regarding prevention measures and response mechanisms to mitigate the effects of natural disasters, including storm surges, cyclones, sea erosion, flooding, sea-level rise and tsunamis. Elders, women and men, have provided oral and written indigenous knowledge as part of an assessment to develop community disaster plans and proved that scientifically accurate indigenous knowledge has enhanced conventional disaster risk reduction techniques. The intergenerational knowledge transmission resulted in the younger generation acknowledging and valuing the importance of indigenous knowledge, which has led to its revival and increased self-esteem.⁸⁰

⁷⁵ Submission by the Australian Human Rights Commission.

⁷⁶ Ibid.

⁷⁷ See <https://www.yanalangami.com.au>.

⁷⁸ Dean Yibarbuk, "Fighting carbon with fire", *Our World*, 10 September 2009.

⁷⁹ <https://naturaldisaster.royalcommission.gov.au/publications/html-report/chapter-18>.

⁸⁰ See IFAD, *The Traditional Knowledge Advantage: Indigenous Peoples' Knowledge in Climate Change Adaptation and Mitigation Strategies*.

C. Latin America

89. In 2020, the Asociación de Mujeres Indígenas of Colombia succeeded in their legal efforts to designate the Andes-Amazon rainforest that they steward as a civil society nature reserve. The Asociación brings indigenous women in Colombia together to revitalize their knowledge of medicinal plants, gardening, artisanship, women's self-care and ecological stewardship.⁸¹ In Sierra Nevada de Santa Marta, Arhuaca women engage in ethno-education and ethnobotanical research on sacred plants that have medical, spiritual and nutritional properties. In response to COVID-19, they have promoted the revitalization of indigenous scientific practices by using natural medicines and sacred plants, strengthening the Arhuaco food system and other cultural practices.⁸²

90. In Panama, indigenous women play a fundamental role in conserving and transmitting the Guna cosmovision to future generations. The Organización de Mujeres Indígenas Unidas por la Biodiversidad de Panamá has promoted a project to recover indigenous knowledge on jaguars and other felines among the Guna and Embera peoples and generate information on the conservation of the cats by systematizing information based on indigenous culture and strengthening the local capacity.

91. The Wapichana and Macuxi indigenous women of Brazil gather to learn from elder women about the medicinal properties of plants to strengthen resistance to COVID-19 and are engaged in networking to develop and share their scientific knowledge among indigenous communities and between generations of indigenous women.⁸³

92. Indigenous Nicaraguan women have formed cooperatives to apply agricultural, medicinal and artisanal knowledge to advance their economic opportunities. The Wangki Tangni organization has brought together a collective of Miskito women farmers, promoting women's self-sufficiency through organic farming practices, and uses its radio station led by indigenous women to reach remote indigenous communities along the Nicaragua-Honduras border and educate community members about their rights. They have also established networks to promote the involvement of indigenous women in indigenous governance and bring them together with municipal governments to combat violence against them.⁸⁴

D. Asia

93. Despite climate extremes and variability throughout the region, indigenous women in Bangladesh are taking the lead on securing access to food and purifying and preserving stores of water. They are combating increased flooding and salinization by cultivating floating gardens and planting saline-tolerant reeds, fruits and trees.⁸⁵

94. In Thailand, indigenous women manage crop production processes, a vital spiritual and cultural tradition for the Akha people. Climate change, increasing monoculture and divergent market orientation away from indigenous communities has led to a gradual disappearance of Akha agriculture. To combat this, community organizers have established a centre to teach youth and interested outsiders the science of Akha agricultural practice. Also in Thailand, the indigenous Shan women, have long understood how to ferment food to store it during famines and other crises, ensuring family and community food security.⁸⁶

⁸¹ See <https://www.amazonteam.org/Indigenous-women-achieve-mamakunapa-civil-society-nature-reserve/>.

⁸² FAO, "Celebrating indigenous women scientists on the International Day of Women and Girls in Science", 11 February 2021. <https://www.fao.org/Indigenous-peoples/news-article/en/c/1374632>.

⁸³ See <https://cir.org.br/site/2020/12/20/mulheres-wapichana-e-macuxi-da-regiao-murupu-realizam-oficina-de-medicina-tradicional>.

⁸⁴ Madre, "Towards an indigenous women-led just recovery", p. 3.

⁸⁵ Local Communities and Indigenous Peoples Platform web portal – Asia, accessible at <https://lcipp.unfccc.int/about-lcipp/un-Indigenous-sociocultural-regions/asia>.

⁸⁶ See <https://aippnet.org/land-tenure-security-foundation-resilient-sustainable-food-systems-webinar-Indigenous-women-global-game-changers>.

E. Africa

95. In Chad, pastoralist M'bororo women have demonstrated a sophisticated knowledge of hydrology, including the capacity of the land to capture rainwater, and of the importance of conservation of certain tree species in order to protect water sources.⁸⁷

96. In Kenya, indigenous women are leading reforestation and sustainable forestry initiatives and have been working to improve community resilience to climate change through rainwater harvesting practices. Maasai women took the lead in their pastoralist communities by distributing food during the COVID-19 outbreak.⁸⁸

VIII. State support for indigenous women's knowledge

97. Some national health-care systems have started to integrate indigenous-led medicine in "western" medical clinics, institutionalizing and acknowledging the value of indigenous women's scientific knowledge. Integrating indigenous medical practices in State-run or State-funded clinics serves the dual purpose of making medical services more available to indigenous peoples and fostering the development, use, transmission and preservation of indigenous scientific knowledge of healing practices. Cross-cultural women's health initiatives are being implemented in parts of Australia, Bolivia (Plurinational State of), Ecuador, Guatemala, Mexico and Peru.⁸⁹

98. States have taken important steps to increase the political participation of indigenous women through the creation of policies and legislation. Positive change has been made in that regard through the implementation of quotas and constitutional reforms to encourage their involvement in government and political organizations.

99. In Guatemala, the Government has adopted a national policy on indigenous midwives and the mandate of the Special Rapporteur has called on the Government to guarantee the budget necessary for its full implementation, thereby honouring the work of those women.⁹⁰ Guatemala has supported indigenous women's knowledge of forestry management by promoting the socialization of a forest calendar, compiling indigenous knowledge of conservation, and is working with indigenous peoples to provide this resource in their languages.⁹¹

100. Mexico has adopted a federal law through which the State recognizes and guarantees the protection, safeguarding and growth of the collective intellectual property rights of indigenous peoples to cultural heritage and cultural expressions and knowledge.⁹²

101. The Commonwealth Scientific and Industrial Research Organisation of Australia works with Aboriginal and Torres Strait Islander communities on several projects, including an initiative led by indigenous people to empower indigenous rangers to use data and artificial intelligence in land management by enabling them to drive and develop artificial intelligence and digital tools themselves. The aim of the project is to survey species and habitats of cultural and ecological significance by mixing ethical artificial intelligence with indigenous knowledge and deliver practical solutions for conserving precious ecosystems on indigenous lands.⁹³

⁸⁷ Indigenous Peoples of Africa Coordinating Committee, "An introduction to integrating African indigenous & traditional knowledge in national adaptation plans, programmes of action, platforms and policies" (2016), p. 21, available from <https://ipacc.org.za/wp-content/uploads/2020/02/LimaReportFinal.pdf>.

⁸⁸ See Climate Investment Funds, *Empowering Indigenous Women to Integrate Traditional Knowledge and Practices in Climate Action*.

⁸⁹ See, for example, United Nations Population Fund, "Promoting equality, recognizing diversity. Case stories in intercultural sexual and reproductive health among indigenous peoples" (2010).

⁹⁰ A/HRC/39/17/Add.3, para. 90.

⁹¹ Submission by the Government of Guatemala.

⁹² Submission by the Government of Mexico.

⁹³ Submission by the Government of Australia.

IX. Conclusions and recommendations

102. Indigenous women face exceptional impediments to the development, preservation, use and transmission of their scientific knowledge. Because of their relationship with the land and natural environment and the marginalization they face for being women and indigenous, they are disproportionately affected by the loss of lands, territories and resources owing to climate change, the development of megaprojects and the creation of protected areas.

103. The loss of indigenous languages is a key impediment to the transmission of indigenous women's knowledge. Indigenous languages are disappearing at a critical rate and with them invaluable knowledge and culture is being lost around the world. Indigenous women urgently call for indigenous language education programmes to be developed and resourced and measures taken, in consultation with them, to support intergenerational knowledge transmission.

104. Indigenous women are often absent from decision-making processes, as international and national institutions overlook their contributions and exclude their knowledge from the design of programmes and policies, for example through exclusion of indigenous medicine from State health-care systems. Indigenous women face great challenges in occupying the spaces that are needed to preserve their knowledge.

105. In the absence of culturally appropriate legal frameworks that conform to international human rights standards, indigenous women's knowledge is exploited or misused by external interests, including the tourism, pharmaceutical and fashion industries. Likewise, indigenous women's knowledge has been lost and stolen, as in the case of the misappropriation of medicinal plants, human remains and other cultural artefacts taken from burial or cultural sites by collectors, anthropologists, curators or biologists.

106. Indigenous women have shown great resilience in the face of significant environmental, social and political obstacles to the development, use and transmission of their scientific knowledge, much of which has already been lost. To guard against future loss, States must work with indigenous women to promote self-advocacy and implement initiatives led by them to address such obstacles. It is also incumbent on the international community to take action to protect and preserve indigenous women's knowledge as an irreplaceable repository of scientific and technical information. Finally, United Nations agencies are called upon to align their work with the rights set out in the United Nations Declaration on the Rights of Indigenous Peoples (art. 42) and mobilize financial cooperation and technical assistance (art. 41).

107. The Special Rapporteur recommends that States:

(a) Adopt the terminology "indigenous scientific and technical knowledge" in place of "traditional" or "customary" knowledge;

(b) Ensure effective legal protection of indigenous women's rights to lands, territory and resources, and promote their participation in the management and regulation of their lands and resources, including their participation in administrative and legislative processes to obtain their free, prior and informed consent to projects impacting their lands and resources;

(c) Adopt, in collaboration with indigenous women, affirmative measures to guarantee their equal and full political participation, including the establishment or strengthening of institutions for indigenous women in leadership roles, the recognition of their organizations as legal and public interlocutors and the provision of spaces for their participation. Also ensure that government institutions and services are culturally and gender-responsive to embrace indigenous women's knowledge;

(d) Incorporate indigenous knowledge into decision-making with respect to environmental programmes and the management of protected areas, including in conducting environmental and social impact evaluations for land use. Recognize the role of indigenous women in environmental conservation through specific funds and the

promotion of women’s full and equal participation and leadership in all governance and decision-making in the pursuit of climate justice, conservation and sustainable environmental solutions;

(e) Develop, in consultation with indigenous women, culturally appropriate education programmes to preserve and revitalize indigenous languages and ensure intergenerational knowledge transmission. That should include indigenous women-led and family-centred early childhood education systems to further transference of knowledge to the next generations. Also include intercultural education models, in coordination with indigenous peoples, by including indigenous women’s knowledge in the school curricula at all levels of education;

(f) Create and support national, regional and local platforms for indigenous women to exchange and preserve their knowledge;

(g) Recognize indigenous women as the legitimate rights holders of their knowledge and adopt, in consultation with indigenous peoples and in accordance with international human rights standards, national legal and policy frameworks that protect indigenous women’s knowledge and intellectual property, including their scientific products, agricultural, spiritual and artisanal knowledge and medicine, and establish safeguards against the misappropriation of their knowledge and lack of benefit sharing;

(h) Improve access to high-quality, culturally appropriate and non-discriminatory health care for indigenous women that is respectful of indigenous knowledge and cultural practices. Provide human and financial resources to recognize and promote indigenous scientific knowledge as part of State health systems, including support for indigenous women’s knowledge of midwifery, maternal health and early childhood care in order to ensure intercultural health services;

(i) Recognize indigenous knowledge as a preferential requirement during the hiring process for professionals, such as park rangers, teachers and midwives;

(j) Institute or strengthen efforts to prevent and respond to widespread violence against indigenous women and girls, including the implementation of culturally sensitive programmes, prioritizing support for indigenous women-led, community-based anti-violence strategies;

(k) Combat all forms of violence, intimidation and threats against indigenous women defending their lands, territories and resources and halt the criminalization of indigenous conservation and agricultural practices;

(l) Design, in collaboration with indigenous peoples, effective restorative mechanisms, which may include restitution and compensation for damage or loss, with respect to their cultural, intellectual, religious and spiritual property taken without their free, prior and informed consent, or in violation of their laws;

(m) Recognize indigenous place names by renaming geographic locations;

(n) Incorporate the United Nations Declaration on the Rights of Indigenous Peoples into national law. Ratify, if pending, and implement the Convention on Biological Diversity, the Indigenous and Tribal Peoples Convention, 1989 (No. 169), the International Convention on the Elimination of All Forms of Racial Discrimination and other relevant instruments that protect the rights of indigenous peoples.

108. The Special Rapporteur recommends that international organizations:

(a) Adopt the terminology “indigenous scientific and technical knowledge” in place of “traditional” or “customary” knowledge;

(b) Ensure the meaningful participation of indigenous women in the achievement of the Sustainable Development Goals, and the post-2020 global biodiversity framework;

(c) **Include indigenous women’s knowledge in technical panels, platforms and forums that address, inter alia, climate change solutions, biodiversity loss, language loss and health policy;**

(d) **Promote and strengthen indigenous women’s participation in the design of programmes, actions and policies concerning indigenous scientific knowledge and access to genetic resources.**

109. **The Special Rapporteur recommends that indigenous peoples:**

(a) **Strengthen indigenous women’s access to land and resources in their jurisdiction;**

(b) **Support the political participation of indigenous women in decision-making related to, inter alia, the use of indigenous lands and resources and culturally appropriate policies and programmes to respond to social problem;**

(c) **Recognize, protect and promote the role of indigenous women as holders and transmitters of knowledge and languages;**

(d) **Support indigenous women’s organizations for political empowerment, leadership and skills training to increase their ability to play a fundamental role in their communities and secure knowledge transmission.**
