Conclusion

At the climate change conference in Glasgow in 2021 (COP26), I witnessed politicians, students, teachers, scientists, international development specialists, journalists, and others enthusiastically supporting female empowerment as a significant factor in the formula to achieve environmental social justice. By 2022, at COP27 in Sharm El Sheikh, Egypt, similar displays of support led to a modest breakthrough: Under the heading of "loss and damage," United Nations' member states from the Global North promised monetary compensation to countries in the Global South that were severely affected by climate change disasters. Events, panels, forums, and public demonstrations at COP27 aimed to raise awareness about women, youth, farmers, and climate migrants/refugees. Feminist activists used digital technology and discussed culture heritage projects to challenge the status quo patriarchy and identify benchmarks to chart improvements over time. Connecting this to the themes presented in this book, I highlight below nine topics that were promoted at COP27 and, should they be successful, I believe will be key determinants of future progress.

1. Focus on Africa

Several programs urged improvements in human health, economic well-being, women's social status, and the environment in Africa. Literature reviews and field studies in the first half of this book indicate that past government programs in Africa overall have not supported women leading climate change initiatives nor have they encouraged women to become involved in decisions relating to energy consumption and climate policy. One positive trend is that several international organizations affiliated with the United Nations include women in rebuilding local agricultural systems. In this book, one oral history from Uganda, from the Women's Empowerment for Resilience and Adaptation Against Climate Change, indicated that working with women to implement farming methods that reduce

Empowering Female Climate Change Activists in the Global South: The Path Toward Environmental Social Justice, 147–154

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carbon emissions has effectively upgraded their social status. One publicized initiative at COP27 was promoting climate-friendly solar cooking in Africa to address the challenges of about 2.4 billion people (mostly women) who cook with polluting fuels. A key point was that promoting these cookstoves reduces health hazards relating to sexual and reproductive health and are critical elements of inclusive, human rights-based climate action.

2. Develop Climate Finance

As previously noted, women are hindered by limited access to capital and thus experience financial instability and dependence. However, because they do not want to be passive recipients of aid, women are actively engaged in acquiring and learning how to apply financial management skills, become part of information networks, and distribute financial resources throughout their communities. At COP27, climate finance and feminist activism merged into a series of "lightning talks" to illuminate the ways climate finance can achieve both environmental and gender equality goals, with a focus on funding feminist organizations and movements.

A major argument of this book is that climate finance must address just and sustainable solutions to the climate crisis throughout the Global South. To address severe loss and damage resulting from climate-related disasters in developing countries, COP27 culminated in a commitment to secure long-term funding from developed countries who are, in fact, the largest polluters. One event byline sums up the key concern: "Delivering the promise: How to ensure future adaptation needs are addressed."

3. Encourage Youth

To be truly effective and maintain a sense of community among groups throughout the world, several constituency groups at COP27 emphasized the need to involve the younger generation in economically profitable enterprises and social justice. Events and forums promoted intergenerational dialogue to showcase education programs that encourage youth participation, particularly in Africa and SIDS (small island developing states), where young people are integrally involved in drafting Nationally Determined Contributions (NDCs) - that is, individual country's commitments to improve the environment. One example, in Chapter Four, included an interview with the director of the Association of Environmental Education for Future Generations (AEEFG) in Tunisia. That program aimed to raise student awareness about the United Nations' Sustainable Development Goals (SDGs) and encourage youth to work with decision makers in local communities to eliminate environmental hazards, including dangerous chemicals. Another example was the journalist in Thailand who wrote about several female environmental activists from different socio-economic and educational backgrounds to enable future generations to challenge entrenched "patriarchal" attitudes especially in rural communities.

4. Involve Women Farmers

A consistent theme for climate justice activists at COP27 was recognizing the difficulty rural women farmers in Asia and Africa face in building climate resilience at grass-roots levels. One panel focused on how indigenous women exchange ideas to promote ancestral knowledge. Another panel specified that rural women are disadvantaged because they lack stable incomes. Moreover, when their unemployed male counterparts become frustrated, women often become victims of domestic violence. In other words, the effects of climate change are woven into a social fabric that can be stretched only so far before it rips apart.

Farmers continue to struggle with long periods of drought, which frequently occur after severely damaging floods recede. Chapter Five pointed out that, because of their daily chores on the farm, women are well positioned to observe changes in weather patterns. If given the opportunity and training, they could track and record extreme weather events such as cyclones, tsunamis, intense winds, and droughts. Chapter Six contained several field studies by international development specialists that encouraged women farmers to work together to draw maps and diagrams to pinpoint difficult aspects of agroecosystems and sustainable livelihoods.

At COP27, the co-founder of the rural-based *Bhungroo* program, Trupti Jain, was recognized as one of the 75 most influential women in India. Her program attracted engineers in Israel and Germany who wanted to introduce *Bhungroo* to women farmers in Africa. As an extension, *Bhungroo* became part of the Indian government's south-south technology transfer program with partnerships in Kenya, Uganda, Namibia, and Nigeria. It was adopted by the Women's Climate Leadership program in the Association for Southeast Asian Nations (ASEAN); and is now part of the Asian Development Bank's Mekong Delta "South-South Technology and Profit Acceleration Program." Trupti's story will continue to be a vital resource for rural women.

5. Include Climate Migrants

As weather related events become more severe, "informed and innovative solutions are needed to ensure full protection of climate migrants regardless of status." Feminists focused on three questions: (1) How can the risk of climate-induced human mobility be reduced, and the rights of migrants be protected? (2) What role should local and international stakeholders play? (3) How can migrants become part of the decision-making?

Chapter Three and Chapter Four provided several examples of climate-related migration. It described how Hazara women were displaced from Afghanistan and migrated to southeastern Australia; undocumented Syrian families settled in refugee camps in Türkiye and received technical training to earn an income; historically nomadic Dom communities in Türkiye continued to be marginalized without government support; and women in rural Guatemalan villages became sole providers for their families after their husbands migrated to other countries

for work. Chapter Four also mentioned programs created by a French non-profit, Singa, which also supports projects to serve migrants and address feminists' concerns.

6. Use Digital Technology

Though not as prominent in its proceedings as some of the preceding topics, climate justice activists at COP27 acknowledged the crucial role of digital technology in connecting vulnerable populations, especially across the Central African subregion. One such initiative, *Launch of African Women's and Girls' Demands for COP27*, specifically addressed the advantages of using digital technology to help communities adapt to climate change. Chapter Six discussed various ways digital technology may be used. Several studies indicated that social media and other forms of digital technology help rural women gain confidence and expand their economic and intellectual growth.

To raise human dignity, the act of encouraging all individuals to participate in activities with technical and practical inputs supports the emergence of local leaders. For example, rural women entrepreneurs use social media in the Setiu Wetlands in Malaysia as part of a program in environmental science. More broadly, in most climate change initiatives, reliable data (collected digitally and analyzed at the national level) are necessary to create gender equity policies. At COP27, participants from the Global South noted that rural women have low levels of ICT – information and communication technology – literacy and lack adequate access to digital technology. Studies note that, for example, when women overcome that barrier, they can transform their small home businesses into e-businesses and become actively involved in marketing their eco-friendly products online.

7. Transform the Arts and Heritage Culture

Cultural events always are prominent at global climate change conferences, perhaps because they are visual representations of how women maintain oral traditions and heritages across generations. One public forum at COP27 used the following pitch:

Art, culture, and heritage drive gender inclusive climate resilient pathways for adaptation and mitigation. The session will focus on three concepts under the framework of resilience – (a) the role of women as custodians of culture (tangible and intangible) (b) women as key agents of change in climate action, adaptation, and mitigation (c) women using art and culture as a transformative tool to bring about awareness and climate action.

Chapter Two indicated that the United Nations Education, Scientific, and Cultural Organization (UNESCO) must make a greater effort to integrate gender into its climate change programming. As recognized above, music, drama,

dance, etc. are integral to social and political movements and will remain so in the digital age. Supporting arts and crafts programs can help change social attitudes about women's work. Arts and culture are best represented in reflexive oral histories because the oral histories can include audiovisual and other media.

Since the early 2000s, international development specialists have used cultural heritage activities to acknowledge the rights of indigenous people and help them manage and control natural resources. Also, in popular culture, the film, Avatar, raised awareness about the exploitation of the Dongaria Kondh people who live in the Nimaigeri forest in eastern India. In addition, several climate change projects catalog Traditional Ecological Knowledge (TEK) as part of its food security programs in Central America. Several projects celebrate ancestral practices and approaches, including those used by midwives that have been passed down through generations.

8. Listen to Latin America

In addition to Africa, climate justice activists highlighted initiatives taking place in Latin America. At its core is the following description of one discussion panel:

Gender-just climate solutions ensure the exercise of womxn's rights while contributing to biodiversity conservation, climate change adaptation and mitigation. Their point is that community-based and democratic local solutions have developed unique models that strengthen local and regional capacities to advance the SDGs as well as the UNFCCC Gender Plan of Action. The event aims to emphasize that gender is not an isolated issue but is connected transversally to the effective implementation of national climate policies on circular economy, mitigation technologies, adaptation and loss and damage.

Chapter Three and Chapter Four discussed several programs in Latin America that provide achievable solutions for other parts of the world. Among them are: (1) Fragments of Hope (in Belize), which restores endangered coral reefs and helps local women gain community recognition, monetary compensation, and cooperation from male peers; (2) The Meal Flour Project in the western highlands of Guatemala, which trains women to cultivate mealworm farms to provide a source of protein for indigenous Mam communities; (3) FUNDAECO, also in Guatemala, which establishes healthcare centers and midwife training in protected areas; and (4) ENDA Colombia in Bogotá, which organizes women's recycling collectives to protect local lands.

9. Implement a Global Stocktaking

Finally, emerging from COP27 is a focus on global stocktaking, which includes feminists in the Global South who promote climate policy and mainstream

gender programming to "decolonize climate action." One main idea is to build local initiatives that can be upscaled and applied to other geographical regions:

To build bridges and open new spaces for exchanging experiences and views among local practitioners, researchers, and policymakers around the cross-cutting benefits of locally owned and gender-responsive climate mitigation and adaptation actions.

In this book, I have identified several international programs that recognize women's contributions and the methods they used to manage, conserve, and adapt to the realities of climate change. Implementing global stocktaking measures require climate change policies that recognize the continuum of women's agency and institutional poverty. Here are a few examples of how local initiatives were upscaled:

- Through the European Union, an Italian clothing manufacturing company, Quid, created ways to replicate its business model in Portugal, Spain, and Greece to provide work to climate migrants seeking work. Furthermore, it is exploring the possibility of setting up similar operations in Bangladesh.
- The Solar Age Project now implemented in Türkiye was inspired by The Barefoot College in India, a community-based organization that has provided basic services and solutions to problems in rural communities in the developing world since 1972.
- The United States' Agency for International Development's (USAID's) Improved Cookstoves (ICS) program, introduced to women in a rural district in the North Central Coast region of Vietnam in 2014, has expanded through the Global Alliance for Clean Cookstoves throughout Africa.

Conclusion

To upscale female empowerment programs, policymakers must learn from detailed testimonials and oral histories. A report issued by one prominent organization, Women Engage for a Common Future (WECF), uses case studies to promote female empowerment in the context of climate change policies. The WECF report proposed alternatives to the dominant patriarchal development model including shifts toward a care economy with community-owned energy technologies. One of the report's authors, Gina Cortés Valderrama, emphasized that individuals as well as grass roots organizations, civil society, governments and policymakers, and funding organizations must recognize two "living concepts:" (1) Womxn - that women are not one homogeneous group and (2) Extractivism – that underlying structures support "a persistent mechanism of colonial plunder and oppression over time." The most difficult challenge ahead is whether policymakers will have the courage and fortitude to draft, implement, and enforce agreements that conserve resources and pressure companies and countries to change their entrenched practices and, over the long term, change the systems that have created and perpetuated inequality – reminding us of our complicity.

Reflexive oral histories (i.e., oral histories that represent multiple viewpoints) can document the pathways. Through the contributions, outlined herein, of students, colleagues, and feminist climate change activists, I hope that this book inspires others to create paths toward environmental social justice and female empowerment in the Global South. There are many ways to enrich your life and those of others! To further spark your creativity and further reflection, here are the latest 2022 winners of the Gender Just Climate Solutions awards (Fig. 28).

- In Togo, Yokoumi revolutionizes the shea butter sector (shea butter is a fat extracted from the nut of the African shea tree) and strengthens women's economic autonomy. This organization supports 50 producers of shea butter in the village of Kelizio village to form a woman-led cooperative for high quality and natural shea butter. It will install a photovoltaic solar plant to power its mill; and provide electricity to 1,600 inhabitants of this isolated and underserved rural area. To further reduce their dependence on fossil fuels and biomass, shea butter producers have invested in individual improved stoves.
- In Pakistan, the Sindh Community Foundation applies a "Feminist Participatory Action Research" approach to gather data on the priorities, needs, and demands of women agriculture workers to improve working conditions and health services in response to rising temperatures and extreme events. It establishes a training program for 100 women agricultural workers on climate awareness, climate justice, and labor rights protection; with the goal of pressuring policymakers to implement the Sindh Agriculture Women's Protection Act of 2020.
- In India, the Keystone Foundation brings together ancestral knowledge and modern science by supporting 20 indigenous women from Tamil Nādu and Kerala, named Women Barefoot Ecologists, as they observe, and monitor climate impacts on their forests, rivers, and farms. They have launched forest nurseries, community kitchen gardens, water source protection initiatives, and soon to come a seed keeping social enterprise.



Fig. 28. Photo of 2022 Winners of the Gender Just Climate Solutions Awards (left to right) from Togo, Pakistan, and India. Copyright © 2022 Courtesy of Annabelle Avril, Photographer for the Women and Gender Constituency.

In addition, three of the five *Earthshot* 2022 Prize winners, created by Prince William, will provide £1m (\$1.2m) to each of the following projects that may have the effect of uplifting women in Kenya, India, and Australia. To date, the projects do not appear to explicitly acknowledge the fabric of social justice that must be woven into climate change. The three projects are:

- Kenya's Mukuru Clean Stoves, which is a female-founded business with mostly female staff. This company produces stoves that are fired by processed biomass made from charcoal, wood, and sugarcane instead of solid fuels, which can lead to air pollution and accidents that claim four million lives each year.²
- India's Kaushik Kappagantulu's Greenhouse-in-a-Box helps smallholders protect their crops from extreme weather and pests, in a country that has been severely impacted by climate change.
- Australia's Indigenous Women of the Great Barrier Reef has trained over 60 women in both traditional and digital ocean conservation methods.

The problems we face are enormous and the challenges formidable. But grounds for hope exist in creativity, energy, dedication, and the will-to-cooperate among hundreds of millions of rural women in the Global South. Their solicitude for their families and their communities are a beacon of hope for all of us. Their work is ongoing. For example, in mid-March, 2023, Trupti Jain (of the *Bhungroo* irrigation project in India) was a featured speaker – and mentor – at the United Nations water conference (see Fig. 29).



Fig. 29. Invitation to an Event Organized by the WECF to Advocate for Gender Just Policies at the United Nations 67th Session of the Commission on the Status of Women. Featuring Trupti Jain (*Bhungroo* Irrigation Project).