Climate Change and Women's Perspectives in the Coastal Areas in Bangladesh

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RETHINKING AND RELEARNING DISASTER ADAPTATIONS FROM AND WITHIN INDIGENOUS LAND-BASED PERSPECTIVES

Ranjan Datta, Margot Hurlbert, Arifatul Kibria, Rajmoni Singha, Barsha Kairy and Somashree Chattapadhya

ROUTLEDGE

Rethinking and Relearning Disaster Adaptations from and within Indigenous Land-Based Perspectives

This book offers a critical exploration into Indigenous knowledge systems, particularly focusing on Indigenous land-based knowledge and practice in reshaping disaster adaptations.

Drawing from Indigenous communities in Bangladesh, this book challenges transformational approaches to disaster resilience by centering on land-based perspectives intrinsic to Indigenous cultures. The book showcases how Indigenous and land-based minority communities in Bangladesh have historically coped with and adapted to environmental challenges. It navigates beyond the Eurocentric paradigm, acknowledging the richness of traditional Indigenous land-based knowledge and practice embedded in the relationship between Indigenous peoples, land-based minority communities, and their natural environments. The book focuses on the interconnectedness of Indigenous land-based knowledge, culture, and sustainable practices, providing a blueprint for rethinking contemporary disaster adaptation strategies. By relearning from Indigenous land-based perspectives, readers gain invaluable insights into holistic, community-based approaches prioritizing harmony with nature over technological fixes. Through Indigenist, decolonial, relational, and feminist theoretical research frameworks, the book advocates for a paradigm shift in disaster management, emphasizing the importance of respecting and integrating Indigenous land-based solutions.

Rethinking and Relearning Disaster Adaptations from and within Indigenous Land-Based Perspectives emerges as a crucial resource for scholars, policymakers, and practitioners seeking to foster resilience through a more inclusive and culturally sensitive lens.

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1 Reclaiming Indigenous Community-Led Disaster Adaptation

Decolonizing human-created environmental disasters and relearning adaptations from Indigenous land-based perspectives in Bangladesh explore how Indigenous communities' social, economic, and environmental considerations aligned with cultural and traditional values. Resilience to disasters within Indigenous contexts could not be comprehended in isolation from the community's land-based traditions, land rights, and customary practices. While the pursuit of disaster crisis resilience was broadly conceptualized, it was deeply rooted in traditional land-based learning and practices, as land-based knowledge held hybrid, relational, and scientific meanings for Indigenous communities. This book systematically examines how Indigenous communities revitalized the meanings of disaster adaptations by leveraging traditional knowledge to seamlessly integrate traditional sentiments with the large-scale dislocations occurring both within their land-based knowledge and practice. Using Indigenist, decolonial, relational, and feminist theoretical research frameworks, the book addresses fundamental questions surrounding disaster adaptations concerning conceptions and practices of land management. It seeks to explore effective ways those invoking the term "disaster adaptations" could proactively engage with Indigenous ecological, economic, and social challenges. In line with the specified research questions, the book was guided by critical concerns in identifying the problems inherent in existing forest and disaster management practices concerning everyday land-based practices and traditional experiences in Indigenous regions.

Benefits of This Book

A growing cohort of educators, social and climate change practitioners, and researchers actively sought effective, ethical, and appropriate ways to incorporate Indigenous land-based knowledge systems(ILBKS) into climate resiliency initiatives. However, colonial history often led to the misrepresentation or misunderstanding of Indigenous people, ILBKS, and their land-based culture globally (Battiste, 2017; 2014; Kovach, 2009; Little Bear, 2013). This book aims to foster solidarity with Indigenous peoples' struggle for meaningful land-based disaster adaptation, celebrate diversity, and engage in intimate, cross-cultural relations with Indigenous communities. It draws on various perspectives

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and paradigms to offer substantial benefits to Indigenous and non-Indigenous communities, particularly those educated in non-Indigenous ways or lacking exposure to ILBKS. Addressing epistemological and cosmological differences, the study explores how to integrate traditional Indigenous land-water customs and practices into disaster adaptation strategies. It emphasizes the recognition and respect of ILBKS, honoring Indigenous perspectives for more sustainable ways of being in interdisciplinary communities involving both Indigenous and non-Indigenous individuals working toward disaster adaptation cooperation with cross-cultural knowledge, limits, and possibilities.

The book critically explores the global significance of disaster adaptations, especially from Indigenous land-based perspectives on disaster adaptations. It acknowledges the positive impacts of traditional land-based perspectives on disasters witnessed in Australia, Canada, New Zealand, and other international Indigenous contexts. ILBKS's perspectives on disaster adaptation practices were pertinent to academic specialists in disaster research, disaster ministries, and policymakers across diverse regions, including Australia, Canada, New Zealand, South Asia, Norway, and South and North America. Despite the growing field of disaster resiliency, Indigenous agendas often did not align, particularly in South Asia.

The research benefits a wide audience, including Indigenous and non-Indigenous educators, students, faculty, researchers, activists, and environmental professionals involved in disaster resiliency and adaptation policies. It holds particular value for diverse communities, streamlining the process of imparting basic understandings to Western-trained educators, professionals, immigrants, and refugee citizens. Although its initial focus was on Bangladesh's Indigenous communities, the research anticipates high relevance to those working in South Asia and other communities across Asia and beyond.

The book caters to critical readers in disaster research, environmental sociology, anthropology, disaster research, interdisciplinary studies, postcolonial studies, ethnic studies, environmental sustainability, and Indigenous and women's studies. Its interdisciplinary nature draws upon diverse fields such as postcolonial theories, Indigenous methodologies, sustainability theory and practices, decolonization, community-based practice, youth practice, and Indigenous knowledge and practice, ensuring broad appeal to academics and practitioners across various disciplines. Embracing a "decolonization and reclaiming approach," the book also addresses the educational policymaking community in the Eastern and Western worlds. It takes a significant step in implementing relational interdisciplinary meanings of sustainability, emphasizing responsibilities for building reconciliation in education (Battiste, 2017, 2014). The research contributes to various intersections between critical anti-racist education and decolonization, impacting different aspects of Indigenous and non-Indigenous lives. It explores holistic meanings of people's lives and their responsibilities for Indigenous education and environmental sustainability, protecting traditional knowledge, culture, and community resilience. Discourses and practices surrounding responsibilities for climate resiliency, local outcomes of cross-cultural

bridge, cultural appropriate knowledge, social and environmental justice, and solidarity are of special interest.

Beyond these academic contributions, the book has multiple benefits, such as finding meanings for both the research and researcher, centering local Indigenous perspectives on disaster, and challenging colonization that persisted in the aftermath of colonialism, ongoing racism, and the exclusion and Othering of Indigenous knowledge in their own land.

Book Context

Indigenous communities in Bangladesh, particularly those dwelling in coastal and hilly areas, confront severe climate challenges due to geographical, ecological, and socioeconomic factors. However, many climate crises in Indigenous communities stem from enduring ongoing settler colonialism, external encroachments involving land grabbing, colonial farming practices, and external environmental governance within Indigenous territories (Datta, 2023, 2019, 2017; Chakma, 2010a; Roy, 2010). In the coastal and hilly areas, Indigenous communities face unique climate challenges stemming from their reliance on forest ecosystems and traditional agricultural practices (Garai et al., 2022; Rasul, 2007; Ullah et al., 2022). Forest deforestation, often linked to external development projects, reduces the natural buffer against landslides and alters precipitation patterns, affecting water availability and soil stability (Rasul, 2007; Ullah et al., 2022). These disasters disrupt age-old practices that have allowed Indigenous communities to coexist harmoniously with their surroundings, pushing them into a precarious balance between preserving their cultural heritage and adapting to the evolving climate (Chakma et al., 2020).

Historical injustices also play a significant role in increasing the human-created environmental disaster challenges faced by Indigenous communities in Bangladesh (Adnan, 2010; Baird, 2008; Datta & Chapola, 2018; Roy, 2000a). Encroachment on Indigenous lands, often driven by settler colonialism and external interests, exacerbates the vulnerability of these populations (Mason & Rigg, 2019). Displacement due to land grabbing and infrastructural projects disrupts established ways of life and further marginalizes Indigenous communities, leaving them at the mercy of increasingly unpredictable and extreme climatic conditions (Datta & Marion, 2021). The intersection of these factors creates a complex web of challenges for Indigenous communities in coastal and hilly areas, necessitating a nuanced understanding and targeted interventions to ensure their resilience in the face of a changing climate.

In Bangladesh, Indigenous communities, deeply connected to their ancestral lands, face a unique set of challenges exacerbated by the interplay of climate change and colonial legacies (Chakma & Sultana, 2023). This book explores the imperative of decolonizing the discourse on climate disasters and relearning adaptations through the lens of Indigenous land-based perspectives in Bangladesh. By critically exploring the historical injustices, acknowledging the unique wisdom embedded in Indigenous knowledge systems, and advocating

for a paradigm shift in climate policies, this book aims to uncover a path toward sustainable and equitable resilience for these marginalized communities (Barkat et al., 2010; Johnson et al., 2022; Das, 2011; Van Schendel, 2023).

Understanding the contemporary human-created environmental disaster challenges faced by Indigenous communities in Bangladesh necessitates an exploration of historical legacies, notably the impacts of colonization (Johnson et al., 2022; Das, 2011; van Schendel, 2023). The imposition of external systems of governance and economic exploitation has led to land dispossession, cultural erosion, and socioeconomic marginalization. These historical injustices have created a vulnerable context for Indigenous communities, leaving them susceptible to the compounded impacts of climate change.

Indigenous communities in Bangladesh have cultivated an intimate and symbiotic relationship with their land over generations (Adnan, 2010; Roy, 2000a). Their unique land-based perspectives encompass a profound understanding of ecosystems, weather patterns, and sustainable resource management. By decolonizing disaster discourse, this book advocates Indigenous land rights as the center of adaptation to the climate crisis (Hoque et al., 2019). Indigenous knowledge systems offer a rich repository of adaptive strategies and a holistic worldview that integrates environmental stewardship, cultural identity, and community resilience.

Bangladesh is particularly susceptible to disaster due to its geographical location, low-lying topography, and dense population (Mallick, 2019). Rising sea levels, increased cyclonic activity, and altered precipitation patterns exacerbate the vulnerability of Indigenous communities, particularly those in coastal areas and the Chittagong Hill Tracts (CHT) areas. These challenges intersect with the historical impacts of settler colonialism, creating a complex web of adversities for Indigenous populations.

Decolonizing disasters involves acknowledging and rectifying the historical injustices that contribute to the heightened vulnerabilities of Indigenous communities in Bangladesh (Datta, 2024a, 2024b, 2023). This requires dismantling systems of oppression, ensuring land restitution, and empowering Indigenous voices in decision-making processes. Reframing disasters within a decolonial framework can address the root causes and foster a more just and equitable approach to climate adaptation (Chakma & Maitrot, 2016). Relearning adaptations involve shifting from mainstream governance and technocentric approaches to embracing Indigenous-led, community-driven solutions. Indigenous communities in Bangladesh have developed adaptive strategies that draw on their deep understanding of local ecosystems (Rasul, 2007). These may include sustainable traditional agriculture practices, community-based early warning systems, and traditional water management techniques (Datta, 2019). Relearning these adaptations enhances Indigenous communities' resilience and contributes to the broader discourse on sustainable and culturally grounded climate solutions.

Recognizing and protecting Indigenous land rights is central to decolonization and relearning adaptations (Datta, 2019; Roy, 2000a). Land rights are a

matter of justice and fundamental to climate and disaster resilience. Secure land rights allow Indigenous communities to continue practicing sustainable land management, preserving biodiversity, and maintaining the delicate balance between human activities and the environment. Upholding Indigenous land rights is crucial to ensuring the long-term viability of adaptation strategies grounded in Indigenous wisdom.

A crucial aspect of decolonizing disasters is the adoption of Indigenous communities' traditional land-based approaches in Bangladesh (Dewan, 2021; Muthukrishnan & Datta, 2023). Indigenous communities should be leaders in the decision-making processes that affect them. This involves recognizing and respecting diverse knowledge systems, fostering collaborative research, and promoting the agency of Indigenous individuals in shaping their destinies. Community-centric approaches empower Indigenous communities to adapt and innovate in ways that align with their cultural values and sustainable practices.

Decolonizing disasters and relearning adaptations from Indigenous land-based perspectives in Bangladesh are ethical and practical necessities in a rapidly changing climate (Datta, 2019). By acknowledging historical injustices, embracing Indigenous wisdom, and prioritizing community-centric approaches, we can pave the way for more equitable and sustainable climate solutions (Demos, 2020). Upholding Indigenous land rights and integrating traditional knowledge into climate policies benefits Indigenous communities and enriches the broader discourse on resilience and adaptation in the global fight against climate change. As we strive for a more just and sustainable future, we must recognize the interconnectedness of environmental justice, cultural heritage, and the collective well-being of all communities, particularly those on the frontlines of climate vulnerability.

Historical Background of Disasters in Bangladesh

Bangladesh, situated in the delta of the Ganges, Brahmaputra, and Meghna rivers, is one of the most disaster-prone countries in the world. Its geographic location, combined with high population density and socioeconomic challenges, makes it particularly vulnerable to natural hazards. This vulnerability is exacerbated for Indigenous communities, who often reside in marginalized areas and rely heavily on natural resources for their livelihoods. This section provides a brief history of human-created environmental disasters in Bangladesh and their impacts on Indigenous communities, highlighting key events and the role of traditional knowledge in disaster resilience.

Major Human-created Environmental Disasters in Bangladesh

The 1970 Bhola Cyclone: The Bhola cyclone, which occurred on November 13, 1970, is one of the deadliest tropical cyclones on record. It struck the

coastal regions of Bangladesh, then East Pakistan, killing an estimated 300,000 to 500,000 people (Chowdhury et al., 2021). The cyclone caused extensive destruction to housing, agriculture, and infrastructure, leaving millions homeless. The Indigenous communities in the coastal areas were severely impacted, losing not only their homes but also their traditional fishing and farming livelihoods.

The 1998 Floods: The 1998 floods were among the most devastating in Bangladesh's history, submerging two-thirds of the country for over two months (Hossain & Sakai, 2021). These floods affected 30 million people, causing widespread damage to crops, homes, and infrastructure. Indigenous communities in flood-prone areas, such as the CHT, experienced severe disruptions. Traditional knowledge, such as elevated homesteads and floating vegetable gardens, played a crucial role in mitigating some of the impacts (Haque et al., 2021a).

The 2007 Cyclone Sidr: Cyclone Sidr made landfall on November 15, 2007, causing extensive damage across southern Bangladesh. The cyclone resulted in over 3,000 deaths and significant destruction to homes, crops, and infrastructure (Paul & Routray, 2022). Indigenous communities in the Sundarbans, a UNESCO World Heritage Site, were particularly affected. The cyclone disrupted their traditional livelihoods, such as fishing and honey collection. However, community-based early warning systems and cyclone shelters, informed by local knowledge, helped reduce casualties (Ahmed & Alam, 2021).

The 2009 Cyclone Aila: Cyclone Aila struck on May 25, 2009, causing widespread damage, especially in the southwestern coastal regions. The cyclone led to severe flooding and salinity intrusion, affecting over 3 million people (Nasher et al., 2022). Indigenous communities, dependent on agriculture and fisheries, faced significant challenges in recovering from the environmental changes brought by Aila. Traditional practices, such as rainwater harvesting and Indigenous crop varieties, were vital in the community's adaptation efforts.

The 2017 Landslides: In June 2017, heavy monsoon rains triggered landslides in the CHT, resulting in over 150 deaths and significant property damage (Islam et al., 2022). Indigenous communities in the hill tracts, including the Chakma, Marma, and Tripuri, were particularly vulnerable due to their settlements on steep slopes. Traditional land-use practices and community solidarity played crucial roles in rescue and recovery efforts.

The 2023 Flood: In 2023, the CHT and wetland areas of Bangladesh experienced severe flooding, impacting Indigenous communities who depend on the region's river systems for their livelihoods (Datta & Kairy, 2024). The unprecedented floods caused extensive damage to homes, agricultural lands, and infrastructure, displacing many families. Traditional knowledge and practices, while valuable, struggled to cope with the scale of the disaster. The increased frequency and intensity of such events underscore the urgent need for comprehensive disaster management strategies that incorporate Indigenous insights and enhance community resilience.

Impacts on Indigenous Communities

Indigenous and minority communities in Bangladesh are disproportionately affected by human-created disasters due to their socioeconomic marginalization and dependence on natural resources. These communities often reside in remote and environmentally vulnerable areas, such as coastal regions, floodplains, and hill tracts, which expose them to higher risks during natural disasters (Rahman & Khan, 2022).

Loss of Livelihoods: Natural disasters frequently disrupt the livelihoods of Indigenous communities. Cyclones and floods can destroy fishing equipment, livestock, crops, and natural resources essential for subsistence. For example, the Mro and Khumi communities in the CHT rely on *jhum* (shifting) cultivation, which is highly susceptible to landslides and heavy rains (Chakraborty et al., 2023).

Displacement: Many Indigenous communities face displacement due to recurring natural disasters. The loss of homesteads and arable land forces them to migrate to safer areas, often leading to cultural disintegration and loss of traditional knowledge. The displacement also creates tensions with host communities, as seen with the land disputes involving the Indigenous peoples of the CHT (Hossain & Deb, 2021).

Health Impacts: Disasters exacerbate health issues among Indigenous populations, who already have limited access to healthcare. Floods and cyclones often lead to outbreaks of waterborne diseases, malnutrition, and mental health problems. The disruption of healthcare services and lack of clean water and sanitation facilities further complicate recovery efforts (Alam et al., 2022).

Cultural Erosion: The frequent displacement and disruption of traditional livelihoods due to natural disasters can lead to the erosion of cultural practices and languages. Indigenous knowledge, which is often transmitted orally through generations, is at risk of being lost when communities are fragmented or relocated (Rahman & Biswas, 2021).

Role of Indigenous Land-Based Knowledge in Disaster Resilience

Despite their vulnerabilities, Indigenous communities in Bangladesh have developed and maintained rich traditions of disaster resilience. These traditional land-based practices, passed down through generations, are crucial for adapting to and mitigating the impacts of natural hazards.

Elevated Homesteads: Many Indigenous communities construct their homes on stilts or elevated platforms to protect against floods and tidal surges. This practice, seen among the Garo and Santal communities, helps reduce damage during floods (Islam et al., 2022).

Early Warning Systems: Indigenous knowledge systems often include sophisticated early warning signals based on environmental cues. For

example, the fisherfolk communities in the Sundarbans use changes in wind patterns, animal behavior, and tidal rhythms to predict approaching storms (Haque et al., 2021b).

Sustainable Agriculture: Indigenous agricultural practices, such as the use of flood-resistant crop varieties and floating gardens (*baira*), help communities cope with extreme weather conditions. These techniques ensure food security during and after disasters (Ahmed & Alam, 2021).

Community Solidarity: Strong social networks and community cohesion are hallmarks of Indigenous societies. During disasters, community members collaborate in rescue and relief operations, share resources, and support each other in recovery efforts. This solidarity is crucial for survival and rebuilding (Rahman & Khan, 2022).

Adaptive Resource Management: Indigenous communities have developed adaptive management practices for natural resources, such as sustainable fishing, forest conservation, and water management. These practices enhance ecosystem resilience and reduce vulnerability to natural hazards (Karim & Mimura, 2021).

The historical background of disasters in Bangladesh highlights the country's vulnerability to various hazards, with significant impacts on Indigenous communities. Major events like the 1970 Bhola cyclone, the 1998 floods, and cyclones Sidr and Aila have caused extensive damage and disruption. However, Indigenous knowledge and traditional practices have played vital roles in enhancing resilience and adaptation. By integrating Indigenous knowledge with modern disaster risk reduction strategies, Bangladesh can develop more effective and sustainable approaches to managing natural hazards.

Indigenous Land-Based Knowledge as Sustainable Disaster Adaptation

In this book, we refer to the Indigenous land-based knowledge systems (ILBKS) as the understandings of land-based skills, and philosophies developed by societies with long histories of interaction with their natural surroundings. These systems encompass a wide range of expertise in areas such as traditional agriculture, traditional resource management, health, and weather prediction. The ILBKS is crucial for sustainable development and environmental conservation, as it embodies practices often more attuned to local ecosystems than modern scientific approaches (Berkes, 2018).

Significance in Disaster Adaptation

Indigenous knowledge is vital in disaster adaptation, particularly in regions frequently affected by environmental hazards. These systems offer time-tested strategies for predicting, preparing for, and recovering from disasters. The knowledge is deeply rooted in the local context, making it highly relevant and

practical for the specific environmental challenges faced by Indigenous communities (Hiwasaki et al., 2014).

- *Early Warning Systems*: Indigenous communities often possess keen observational skills and understand environmental cues that indicate imminent natural disasters. For example, changes in animal behavior, wind patterns, and sea conditions are used to predict storms or floods.
- *Sustainable Resource Management*: Traditional practices such as rotational farming, agroforestry, and sustainable fishing help maintain ecosystem balance and reduce vulnerability to disasters. These practices often enhance biodiversity and soil health, which can mitigate the impacts of floods and droughts.
- *Structural Adaptations*: Indigenous architecture often includes features designed to withstand local hazards. Elevated homes in flood-prone areas and stilt houses in coastal regions are examples of structural adaptations that enhance resilience to flooding and cyclones.
- *Community-Based Approaches*: Indigenous communities typically have strong social cohesion and collective action mechanisms. This social structure facilitates efficient and coordinated disaster response and recovery efforts, ensuring that resources and assistance are shared equitably.
- *Knowledge Transmission*: The oral tradition of knowledge transmission ensures that vital survival strategies and adaptive practices are passed down through generations. The continual sharing and refinement of knowledge enhance community resilience over time.

Examples from Bangladesh

Bangladesh is home to diverse Indigenous and land-based minority communities, each with unique knowledge systems that contribute to disaster adaptation. Here are specific examples of Indigenous practices in Bangladesh that enhance resilience to natural hazards.

Chittagong Hill Tracts: The CHTs are inhabited by various Indigenous communities who have developed sophisticated land management and agricultural practices to cope with the region's challenging terrain and climatic conditions (Datta, 2019; Roy, 2024a).

Jhum Cultivation (Shifting Cultivation): This traditional agricultural practice involves clearing a piece of forest land, cultivating it for a few years, and then leaving it fallow to restore its fertility. *Jhum* cultivation helps prevent soil erosion, maintains soil fertility, and supports biodiversity, which is crucial for food security during climatic extremes (Chakma & Sultana, 2021; Datta and Marion, 2021).

Terrace Farming: To mitigate the impacts of heavy rainfall and landslides, Indigenous communities in the CHT practice terrace farming. By

creating stepped fields on hill slopes, they reduce soil erosion and water runoff, ensuring more stable agricultural yields (Mukul et al., 2021).

Traditional Bamboo Housing: Bamboo, abundant in the region, is used to construct homes designed to withstand earthquakes and heavy rains. The flexibility and strength of bamboo structures make them resilient to natural hazards common in the hill tracts (Rahman et al., 2020).

Coastal Sundarbans

The Sundarbans, a UNESCO World Heritage site, is home to several Indigenous communities, including the Munda and Mahato, who have adapted to the challenging coastal environment through innovative practices.

Nipa Palm Thatch: Indigenous communities use Nipa palm leaves to thatch their roofs, which are highly resistant to saltwater corrosion. This practice helps protect homes from the saline environment and reduces the need for frequent repairs (Haque & Mondal, 2021).

Floating Vegetable Gardens (Baira): In response to frequent flooding, communities have developed floating gardens. These gardens, constructed from water hyacinth and bamboo, float on water and allow for the cultivation of vegetables during flood seasons, ensuring food security (Islam & Shamsuddoha, 2018).

Mangrove Afforestation: The Indigenous people of the Sundarbans actively participate in mangrove afforestation projects. Mangroves act as natural barriers against storm surges and coastal erosion, providing crucial protection to the coastal inhabitants (Hossain et al., 2016).

Northern Floodplains

Indigenous communities in the northern floodplains, such as the Garo and Santal, employ various strategies to cope with the region's flood-prone environment.

Elevated Homesteads: Homes are built on raised platforms to protect against annual floods. This practice prevents water damage to living spaces and reduces displacement during flood events (Hossain & Sakai, 2021).

Rainwater Harvesting: To address water scarcity during dry periods, Indigenous communities have developed rainwater harvesting systems. These systems collect and store rainwater, providing a reliable water source during droughts and dry spells (Redvers, 2020a).

Indigenous Crop Varieties: The use of traditional crop varieties that are more resilient to flooding and drought conditions helps ensure food security. These crops are often better adapted to local conditions and require fewer inputs than modern hybrid varieties (Chowdhury et al., 2021).

Thus, ILBKS in Bangladesh provides invaluable resources for disaster adaptation. These systems, deeply embedded in the cultural and environmental contexts of Indigenous communities, offer practical and sustainable solutions to the challenges posed by climate change and natural disasters. By integrating Indigenous knowledge with modern scientific approaches, policymakers and practitioners can enhance the resilience of vulnerable communities and ensure more effective disaster risk reduction strategies.

The ILBKS approaches are essential for developing more inclusive, equitable, and effective disaster adaptation strategies. By recognizing and integrating ILBKS, promoting participatory decision-making, and addressing historical injustices, decolonial perspectives enhance the resilience and sustainability of disaster adaptation efforts. Critiquing and transforming conventional approaches that marginalize Indigenous voices and knowledge is crucial for fostering social justice and empowering Indigenous communities in the face of increasing climate-related disasters.

Decolonial Research Frameworks and Methods

In this book, we (as Indigenous and non-Indigenous land-based scholars) have used an interdisciplinary methodological framework that synergizes the Indigenist, relational, decolonial, and land-based research approaches to ensure a holistic and culturally responsive analysis. Our research approaches make us responsible to the Indigenous and land-based minority communities that we had opportunities to learn.

Indigenist Research Approach

The Indigenist research approach is rooted in Indigenous knowledge systems and worldviews, prioritizing the sovereignty and self-determination of Indigenous communities (Smith, 2021). This approach emphasizes the importance of relational accountability, meaning that research must benefit the community and be conducted in a way that honors cultural protocols (Wilson, 2008). Indigenist research also involves reclaiming and revitalizing Indigenous ways of knowing, challenging colonial methodologies (Datta, 2023; Kovach, 2010b). It focuses on the need for research to be reciprocal, community-driven, and respectful of Indigenous spiritual, cultural, and historical contexts (Peltier, 2018; Chilisa, 2020).

Relational Research Approach

The relational research approach centers on the interconnectedness of all beings, asserting that knowledge is co-created through relationships (Wilson, 2008). This approach challenges individualistic and objectivist paradigms by emphasizing the importance of reciprocity, respect, and collaboration in the

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