



Clarifying the process of land-based research, and the role of researcher(s) and participants

Ranjan Datta

School of Environment and Sustainability, University of Saskatchewan, 28 Campus Dr., Saskatoon, Saskatchewan S7N 1L7, Canada

Johnson Shoyama Graduate School of Public Policy, University of Regina, 2155 College Avenue, Regina, Saskatchewan S4P 4V5, Canada

ABSTRACT: Despite significant research in environmental sociology, environmental sustainability, and cultural geography, the following questions remain ambiguous for many Indigenous communities: What constitutes land-based research and what is its purpose? How are researcher and participants situated in land-based research? Who has the power to select the research topic, research objectives, and research site? Who has the power to determine research protocols, data analysis and dissemination procedures? What can be learned from land-based research? Focusing on a relational participatory action research (PAR) project with the Laitu Khyeng Indigenous community in the Chittagong Hill Tracts (CHT), Bangladesh, this paper addresses the above questions as a means of advocating for land-based research. My learning journey in land-based research is a relational ceremony that not only reinforces my desire to create a bridge between researcher and participant needs but also serves as inspiration in rethinking the meaning of research from the participants' perspectives.

KEY WORDS: Land-based research · Indigenous · Researcher · Research · Research participants

1. INTRODUCTION

A number of substantial research studies have been done on land-based practice; however, most of the research, particularly in Indigenous communities (Kovach 2009, Simpson 2014), has been conducted within a Western¹ framework or by a non-local researcher. Many significant questions remain unanswered for Indigenous communities, including: What constitutes land-based research and what is its purpose? How are researcher and participants situated in land-based research? Who has the power to select the research topic and research objectives? Who has the power to determine research protocols, data analysis and dissemination procedures? What can be learned from land-based research? (Wilson 2008, Kovach 2009, Simpson 2014, Datta 2018). As a result, mention of research causes trepidation in many

Indigenous communities, particularly the Indigenous communities in the Chittagong Hill Tracts (CHT), Bangladesh (Roy 2002, Chakma 2010, Datta et al. 2014, Datta 2018).

Using relational participatory action research (PAR) from my PhD research with members of the Laitu Khyeng Indigenous community in the CHT, Bangladesh, this paper aims to critically discuss (1) how researchers understand the land-based cultural aspects of Indigenous research and (2) how researchers should incorporate Indigenous land-based practice

¹The term Western refers to a static mindset, a world view that is a product of European culture. It is representative of an 'archive of knowledge and systems, rules and values' extracted from and characteristic of Europe and the Western hemisphere that denies diversity of relational knowledge and practice (Smith 1999, p. 42)

*Corresponding author: ranjan.datta@usask.ca

into their research methodology. Relational PAR functions within an Indigenous research framework (Wilson 2008, Dei 2011, Datta et al. 2014) and land-based practice is a central part of the relational PAR framework. It allows Indigenous and non-Indigenous researchers, along with Indigenous co-researcher participants, to learn and honor Indigenous stories, ways of knowing and practicing (Datta et al. 2014). In my PhD research, we (researcher, 4 co-researcher participants, Elders, and Knowledge-holders) were specifically interested in exploring how land-based research inspires a rethink of the politics of research and its impact on the participants' community.

In relational PAR, Indigenous Elders, Knowledge-holders, and leaders are considered to be respected and knowledgeable researchers (Kovach 2009, Simpson 2014). My research journey has shown me that land-based relational PAR can serve as a bridge between participants and researcher by establishing a trustful relationship, recognizing Elders and Knowledge-holders as participants and their knowledge as a significant part of the research, honoring and respecting traditional knowledge, and considering traditional knowledge to be as significant as scientific knowledge. I hope this land-based relational PAR article will be helpful in transitioning other researchers from a researcher-only orientation to a participant-researcher orientation.

2. RESEARCH METHODOLOGY AND METHODS

This study draws from aspects of relational PAR methodology. PAR is a methodology that unites theory, participatory inquiry, and social justice as researchers collaborate with community members to conduct research that responds to the needs of the community, inspires participatory engagement in decolonization, and resolves problems from a relational perspective (Wilson 2008, Datta et al. 2014). For these reasons, the PAR approach was well suited to this case study. As the article illustrates, PAR helps both researchers and participants understand the connections between relational ways of learning, decolonizing, and taking responsibility for protecting our land and overall environment. The study's outcomes indicate that land-based research requires decolonizing and relational learning opportunities that allow us to apply our knowledge to improve everyday environmental problems. I used relational PAR as I had developed a 15 yr relationship with the Laitu Khyeng Indigenous community, particularly Khyeng Indigenous Elders and Knowledge-holders. We used rela-

tional PAR to explore how knowledge and practice of land management and sustainability were embedded in the local culture of the Laitu Khyeng Indigenous community. Co-researcher participants from the Indigenous community were a vital part of this research. Elders, Knowledge-holders, leaders, and youth were the research participants. Following an inductive data analysis, 4 themes were identified and are presented in the next section.

Five methods of data collection were used. Traditional sharing circles (TSC) provided an opportunity to share land-management experiences and expectations in the community. Individual story-sharing was used for deeper understanding of land management and sustainability based on participants' personal experiences. Photovoice² was used to explore relational and spiritual land-management stories. Commonplace books (Sumara 1996) were used to collect personal experiences and feelings regarding introduced land-management practices. Finally, participant observation³ was used to understand and interpret the participants' expressions and responses.

Maintaining community cultural and research protocols was a significant part of this land-based research. For instance, community Elders, Knowledge-holders, youth, and co-researcher participants determined the research goals and purpose. Co-researcher participants actively participated in collective data collection, data analysis, and report and manuscript writing. We (co-researcher participants and I) co-published 3 peer-reviewed journal manuscripts from this research (Khyeng et al. 2014, Datta et al. 2014, 2015). The co-researchers participants published a collective book from their daily journals and this is the first published book written by Laitu Khyeng Indigenous people (Khyeng et al. 2014).

Learning from Indigenous Elders, Knowledge-holders, I have come to realize that undertaking this study is a political activity, dedicated to the reclamation of Indigenous and my (as Indigenous and minority) rights. Thus, I see that our research is not neutral; rather it is grounded in both an academic and political responsibility to protect and reclaim our rights (which include environmental resource management, sustainability, and identity).

²Here, Photovoice was used to represent participants' perspectives on a particular issue, e.g. youths and co-researchers were asked to take pictures of their home, focusing on plants, animals, land etc. They then shared the stories related to these pictures

³Participant observation was conducted only through the co-researcher participants and researcher

3. WHAT CONSTITUTES LAND-BASED RESEARCH AND WHAT IS ITS PURPOSE?

The question 'What is land-based research?' is an important issue for many Indigenous communities (Wilson 2008, Tuck & McKenzie 2016). A land and/or land-based practice can place both the researcher and participants from the Indigenous community (Simpson & Coulthard 2014; blog at <http://decolonization.wordpress.com/2014/11/26/leanne-simpson-and-glen-coulthard-on-dechinta-bush-university-indigenous-land-based-education-and-embodied-resurgence/>) in a position that challenges the Western style of research (Wilson 2008). Indigenous people have a strong connection with the land and a land-based cultivation culture (Datta 2018) and do not see land as separate from their family. Since land is a central part of their everyday life, every day becomes a celebration for many Indigenous communities (Simpson 2014). Similarly, the meaning of research for many Indigenous communities is inter-connected with the land. One of the Indigenous Elders in our research suggested that, 'If we think about research, the word land should come first as the word land can tell us who we are and where we should go. Land is our identity and our culture. Without land we do not exist. Land can tell all our stories' (Datta et al. 2014, p. 20). Researcher and participants need to define their relationship with the land in order to establish their connection to the research.

The land is a significant part of Indigenous everyday life, culture, and identity (Tuck & McKenzie 2016). Recent studies with Indigenous communities prove the importance of land in Indigenous research. The study, *A Land Not Forgotten*, by Michael (2017) employed land-based research to illustrate the complexity of colonial history and its destructive impact on the health of Indigenous communities. Land-based research can employ a multidisciplinary lens that is unavailable to Western research. This land-as-a-community participatory approach privileges Indigenous interests and perspectives with relational knowledge of the land and land-based practice providing a comprehensive picture of Indigenous livelihood, culture, identity, food security, and health issues. Another recent book by McCoy et al. (2015), centers its critical analysis of Indigenous life and education in relation to the land and uses land as a focal point for exploring the historical and current contexts for the colonization of Indigenous people. The book explores the intersections between environmentalism and Indigenous rights, recognizing that geography and community can be used to engage in environmental education.

The book's contributors examine settler colonialism, Indigenous cosmologies, Indigenous land rights, and language as key aspects of place-based research and argue that the land can inspire researchers to consider their research and the research participants from diverse perspectives, including Indigenous, post-colonial, and decolonizing. My studies (Datta et al. 2014, Datta 2018) also incorporate land as a crucial part of the research. I argue that land-based research can challenge Western approaches and non-Indigenous scholars who have not generally reflected Indigenous worldviews, and the research and researchers that have not necessarily benefited Indigenous peoples or communities. Land-based research suggests that the meaning of research and researcher are in continuous transformation in response to the participants' and the participant community's needs. Land-based research inspires the transformation of research and researcher (Bhabha 2004, Datta 2018), as the researcher accepts responsibility for participants and becomes one with them.

Other studies (Roy 2002, Adnan 2004) have shown how land-based research can build alternative research objectives that meet the participant community's everyday needs, expectations, and traditional protocols. In their study, Bang et al. (2014) show how a land-based perspective can contribute to ongoing work that aims to uncover the ways in which settler colonialism is entrenched and reified in educational environments and explore lessons learned from an urban Indigenous land-based education project. The authors explain how land-based practice can re-center Indigenous cosmologies and unearth ways in which settler colonialism quietly operates in teaching and learning environments, implicitly and explicitly undermining Indigenous agency and future prospects by maintaining and reifying core dimensions of settler/colonial relations to the land. They claim that re-centering land-based perspectives in research and practice can enable epistemological and ontological centering that significantly impacts learning, agency, and resilience for Indigenous youth and families. Similarly in our research, a focus on land challenges the increase in human-generated environmental damage, recognizes prior and continuing wrongs against Indigenous peoples as well as inappropriate use of their knowledge, and takes a closer look at fundamental assumptions governing past decisions. Adopting a land-based perspective represents a critical step towards employing Indigenous knowledge and practice to inform land and water policy and governance while potentially offering a significant bridge between Western and Indig-

enous approaches to environmental resource management and sustainability. For instance, during our first sharing circle and individual story-sharing process, both Elders and Knowledge-holders suggested that the meanings of land and water are linked. Elder Kosomo Pure Khyeng explained:

Land and water are everything for us, such as: our cultivated land, uncultivated land, food production, water, birds, animals, hills, sky, wind, insects, plants, trees, feelings, spirituality, sounds, father-mother, brother and sister, and others. Land and water are for us both visible and invisible things. Visible things are humans, animals, birds, crops, land, insects, mountains, rocks, the moon, sun, water, and so on. Invisible things are our feelings, wind, smells, sounds, and spirituality.

Indigenous people position relational practices of land and water as central in communicating their culture, spirituality, production, consumption, and economy (Meyer 2001, Escobar 2010). Similarly, Indigenous scholars Kovach (2009) and Wilson (2008) position relationality as central in explaining Indigenous worldviews. According to Kovach, Indigenous ways of knowing and acting are dependent on relationality. Laitu Khyeng Elder Okko Khyeng explained that relationality helps the community to be responsible for not only their own lives but also for everything in their environment.

Thus, like Smith (1999) in New Zealand, Wilson (2008) in Australia, Meyer (2008) in Hawaii, and Kovach (2009) in Canada, research participants emphasized the importance of a relational understanding of land to communicate and empower their traditional land-based practices. Aligned with the trajectory of land-rights movements, the present study prioritized the Laitu Khyeng Indigenous community's land-based beliefs and practices, their land-rights movement, and their Indigenous identity.

4. HOW ARE RESEARCHER AND PARTICIPANTS SITUATED IN LAND-BASED RESEARCH?

I regard the relationship between participants and researcher as a relational ceremony (Wilson 2008). As Indigenous scholar Shawn Wilson (2008) states that in relational research, researcher and participants become we. For instance, to engage in relational PAR for the last 15 yr, I have had to build strong relationships with the participants' communities, particularly with Elders, Knowledge-holders, and leaders. We organized land and water rights movements together. Together, we raised human rights issues in various forums, including governmental,

non-governmental, and multinational agencies. The research focus was on 'us' instead of 'me' and 'them' (other). We believe that the purpose of research is to build our collective struggle, take collective responsibility, protect our identity and culture, and speak up for our land and water rights. Therefore, at the start of our research, I restated my intercultural socialization, transdisciplinary education, and transdisciplinary research skills to situate myself as part of a participant community, as part of 'we'.

4.1. Intercultural socialization

The participants and I shared similar forms of socialization. For instance, I was born into a minority Indigenous family in Bangladesh. My mother told me that we had been living sustainably on our land for many generations. She had not faced a food and identity crisis in her childhood. A traditional land-based culture and practice ensured sufficient food, land, and a sustainable culture. However, like many Indigenous families in Bangladesh, we have been displaced several times from our ancestors' land due to colonization by British and current mainstream governments (British 1885–1947; Pakistan 1947–1971, Bangladesh 1972–current). Because of our minority and Indigenous identity (Adnan 2004, Chakma 2010, Datta 2018), our land has been forcefully stolen from us. I lost my father and other family members. I know the pain of losing both land and identity. Three of my brothers could not get an education; we did not have food at home every day; my mother had to work in other people's houses to feed our family. I am the only one who received educational opportunities by sacrificing my siblings' labor.

Unlike the mainstream people of Bangladesh, I grew up in a maternal family structure, as is the case with many Indigenous families. Land-water is our Mother and God. We start our day by praying to our Mother-land. Praying to our land-water is honor and respect for our ancestors. My land-based stories connect me with my Indigenous participants and fill the gap between researcher and participants. Although many of our Indigenous ancestors' stories have been lost because of our colonization, my mother told many positive stories about our land, culture, sustainability, and ceremonies. These stories reconnect me with the land, give me strength, and empower me as a researcher. When I told my stories, many of the Indigenous Elders and Knowledge-holders appreciated them and connected with me as a member of their community.

4.2. Transdisciplinary education

My transdisciplinary education has helped me to build my relationship with participants. For instance, like many Indigenous communities in the CHT, I learned many significant stories from my mother regarding how to respect land-water. Many of her stories were relational stories explaining why land-water is an integral part of education. She used to say, 'Land-water is our education, our practice. If we know our land-water relational stories, we will be educated' (Datta et al. 2014, p. 15).

Besides my Indigenous and minority land-based education, my mainstream education has also helped me to understand the impacts of colonization. For instance, I had the opportunity to complete a Bachelor's and a Master's degree in Sociology. Studying sociology has helped me to understand social inequality, social structure, and identity. I also completed a second Master's degree in Criminal Justice to help me understand the critical challenges in Indigenous land-water rights. My PhD in environmental sustainability has helped me to explore decolonization, critical anti-racist learning, and reclaim my Indigenous ways of thinking and acting. In my transdisciplinary PhD program, I learned how to value participants' voices over scientific ways of doing and how to honor and respect participants' needs and voices over institutional and academic objectives.

4.3. Transdisciplinary research skills

My community-based research skills have helped me to relearn my role as a researcher in the participants' community. I have had the opportunity to instruct and participate in courses in quantitative methods and statistics, qualitative research, social inequality, race and ethnic relations, crime and justice, ecological anthropology, investigations of culture and environment, Indigenous community-based land management, and development politics. I have had opportunities to work with the nationally and internationally known Indigenous scholars and activists Drs. Marie Battiste, Verna St. Denis, and Alex Wilson at the University of Saskatchewan in various research assistant and teaching assistant positions. These faculty members are known nationally and internationally for their contributions to land-based education, decolonization, critical anti-racist theory and practice, sustainability and environmental education, Indigenous research, and cross-cultural methodology.

I have also been involved in a number of research projects, both in the earlier stages of my graduate studies as well as through my research assistant work. I am currently involved in a collaborative quantitative study with other researchers working in the area of Aboriginal (i.e. First Nation People of North America's) issues relating to the water crisis. This uses land-based science with Aboriginal students in Saskatoon Public Schools to develop a deeper understanding of Aboriginal perspectives on solving the water crisis. In this study, we have had the opportunity to share and expand our knowledge, mentor, teach, and co-learn with Grade 8 students and teachers from schools within the public school division. In addition to my teaching and research experience, I had nearly 10 yr professional work experience with Indigenous communities prior to beginning my PhD. Working in Bangladesh as a research associate, I gained extensive professional experience in the fields of community-based research, social inequality, developmental politics and globalization, and social justice advocacy. Having been involved with minority and Indigenous youth groups and people in the CHT through this work, I participated in various research studies on Indigenous land rights, women's rights, and environmental rights, with numerous opportunities to meet and coordinate meetings with government and non-government stakeholders and CHT Indigenous leaders.

My Indigenous identity, cross-cultural socialization, interdisciplinary education, community-based research skills, and passion for understanding critical and socially engaged land-based issues have provided me with a solid foundation on which to rebuild my relationship with research participants. For me, research is not only for academic gain but is also a land rights struggle and represents our collective struggle, collective dreams, and collective actions.

5. WHO HAS THE POWER TO SELECT THE RESEARCH TOPIC, RESEARCH OBJECTIVES, AND RESEARCH PARTICIPANTS?

'Who has the power to select the research topic, research objectives, and research site?' is significant when conducting research with an Indigenous community (Smith 2008, Wilson 2008, Kovach 2009). In much Western research, only the researchers have the power to select the research topic and objectives (Kovach 2009, Datta 2019). The Indigenous scholars

Dei (2011), Datta (2018), Kovach (2009), and Simpson (1999) argue that in strictly researcher-oriented research, participants become research tools, are exploited and discriminated against. For instance, during the present study's field research, one of the Knowledge-holders, Kasamong Pure Khyeng from the Laitu Indigenous community in the CHT, explained how research could be exploitation if both researcher and research did not originate in the participants' community:

Many researchers have been using our community's people, our culture, and our knowledge to do business. For example, lots of student researchers get their academic degree through using our knowledge; lots of university and research institute researchers have been making money by using our traditional knowledge; lots of NGOs have been getting money from various donor agencies by selling our traditional knowledge. What have we gotten from these university student researchers, university and research institute researchers, NGO and government researchers? I have not seen any benefit from these researchers and their research for me, my community, and our culture. I see this research as a business making use of our community's people, culture, and practice. We are fearful when we hear the word research. It takes our time, knowledge, and practice for other people's business and we do not get anything from it; we do not even know what knowledge has been taken or how it has been used. All we get is a couple of drinks [tea/coffee]. We do not want this kind of research in our community. We are so disappointed in any kind of research nowadays. We have not seen any findings from many of the researchers. Researchers take our knowledge that we shared as friends; they use our knowledge for their discoveries, funding, and academic degrees. We helped many researchers in many ways so that they could get the proper information that they were looking for; however, the researchers did not give us anything.

Another Knowledge-holder raised similar issues about Western forms of research, saying:

Why should I participate in research that is not going to be beneficial to my community? Every year I face many researchers from various governments, universities, and companies. In the name of development, researchers take our knowledge and leave. When the research is completed, we do not know what knowledge they have taken from us or why. We do not get anything from it. Now the word 'research' [emphasis added] represents danger to us. I think it is a different form of oppression.

5.1. Transformation

Our relational PAR took strong steps to transform researcher-oriented research into participant-oriented research (Datta 2019). The participants took

the lead in this research. They, particularly Indigenous Elders and Knowledge-holders, decided what their community's needs and expectations were. In selecting research questions and research objectives, the participants' choices were given priority. For example, the following 3 research questions were selected in conjunction with Indigenous Elders and Knowledge-holders:

(1) What are traditional Indigenous Laitu Khyeng land-management customs and practices, particularly in relation to environmental sustainability?

(2) To what extent have Laitu Khyeng community members been affected by introduced land-water management policies?

(3) What are Laitu Khyeng community members' hopes and expectations regarding land-management policies and practices, particularly in relation to environmental sustainability?

Participants in the study included co-researcher participants, Elders, Knowledge-holders, leaders, and youth (people between 15 and 30 yr of age are referred to as youth, according to the Elders). They played a central role in selecting the above research questions and reflected the community's needs based on collective conversation led by Indigenous Elders. The participants collectively agreed with these 3 research questions. Traditional oral consent, according to community protocols, was collected throughout the research.

5.2. Selection processes

The participants' involvement in selecting the research site was an important commitment for our relational PAR. They collectively discussed which site in the Indigenous area would be well suited for in-depth information. Elders and Knowledge-holders discussed it and provided the participant researchers and myself with guidelines regarding which area's Elders and Knowledge-holders would be suitable for our research. Elders and Knowledge-holders also demonstrated their interest by providing guidelines for leading story-sharing sessions. Elders and Knowledge-holders not only helped as gatekeepers while conducting the research but also served as researchers, guides, and relationship-builders.

Since I had previous personal and working relationships with Laitu Khyeng Elders, Knowledge-holders, and leaders, I asked them to help me recruit and select 4 co-researcher participants from the Khyeng community located within the CHT. In my co-researcher recruiting letter, I clearly mentioned

the purpose of the study (following discussions with community Elders, Knowledge-holders, and leaders) and their (i.e. co-researcher participants) responsibilities in investigating traditional and current forms of land management.

6. WHO HAS THE POWER TO DETERMINE RESEARCH PROTOCOLS, DATA ANALYSIS AND DISSEMINATION PROCEDURES?

6.1. Research design

Historically, Indigenous Elders and Knowledge-holders have been successful in providing guidance to protect Indigenous land, language, and culture (Smith 1999, 2006, Battiste 2008, Kovach 2009). Data analysis and dissemination studies have confirmed that Knowledge-holders and spiritual leaders have traditionally been responsible for providing guidance and protection (Angmarlik et al. 1999, Kulchyski et al. 1999, Alfred 2009), and have revealed that Indigenous Elders and Knowledge-holders play significant roles in research data analysis and dissemination. These studies show how guidelines provided by Elders and Knowledge-holders help to: (1) restore an Indigenous presence on the land and revitalize land-based research practices; (2) transmit Indigenous culture, spiritual teachings, and knowledge of the land between Elders and youth; (3) strengthen advocacy for traditional activities and the re-emergence of Indigenous culture in the community and social institutions which serve as governing authorities within Indigenous communities; and (4) support short-term and long-term initiatives and improvements in sustainable land-based economies as the primary income of reserve-based First Nations communities and as supplemental income for urban Indigenous communities.

Indigenous Elders and Knowledge-holders were an integral part of our relational PAR. We sought ongoing guidance during our story-sharing, data analysis, and report writing. Indigenous Elders and Knowledge-holders played an important role in conference presentations and co-publications and retained the first set of primary research data, papers, reports, and thematic coding reports. In addition, the involvement of Indigenous Elders, Knowledge-holders, and co-researcher participants was vital during the actual research process. They engaged and participated throughout the field research and data analysis processes; helped identify volunteer participants (such as Elders, Knowledge-holders, and

youth participants); facilitated traditional sharing circles with Elders, Knowledge-holders, and youth participants; provided participant observations and photovoice; recorded traditional sharing circles and individual storytelling discussions; maintained a commonplace book to record personal observations, art, poems, experiences, stories about the environment, field notes; and helped to code and analyze research data etc.

A good quality audio recording and, ideally, a verbatim (word for word) transcription of the interviews was used. The participants were asked to review each stage of transcription and provide feedback, and their feedback was carefully and respectfully considered. To ensure Indigenous Elders', Knowledge-holders', and co-researchers' participation in data analysis, a computer coding system was rejected in favor of thematic coding processes. Indigenous Elders and Knowledge-holders approved important themes for each research question. The co-researcher participants carefully read the transcript line by line, applying a paraphrase or label (code) that described what they had interpreted in the passage as important. According to participants' choices, open thematic coding took place, i.e. coding anything that might be relevant from as many different perspectives as possible. Thematic codes referred to substantive things (e.g. particular behaviors, incidents, or structures), values (e.g. those that informed or underpinned certain statements, such as spirituality), emotions (e.g. sorrow, frustration, love), and more impressionistic/methodological elements (e.g. interviewee found something difficult to explain, interviewee became emotional, interviewer felt uncomfortable). At this stage, we removed some themes that were not significant according to the participants' choices and added new themes that were not included in our initial conversation (see Fig. 1).

After coding the first transcriptions, the researcher, co-researcher participants, and participants, led by the Indigenous Elders and Knowledge-holders, met to compare the labels they had applied and agreed on a set of codes to apply to all subsequent transcripts. Thematic codes were grouped together into categories (using a tree diagram), which were then clearly defined. The working analytical framework was then discussed and applied through indexing, thematic coding, and transcription. It was useful throughout the research to have a separate notebook for each co-researcher to note down impressions, ideas, and early interpretations of the data. Each thematic analysis was discussed with Indigenous Elders and Knowledge-holders in a traditional sharing circle format. It is worth



Fig. 1. (a) Researcher and co-researcher participants using collective coding processes, and (b) Elders and Knowledge-holders providing guidance in the Laitu Khyeng Indigenous community in the CHT, Bangladesh. Photo credit: Nyjai Khyeng

noting that this stage often took longer than anticipated to ensure that sufficient time was allocated to meetings, for individuals and the group of participants to explain and review their feedback, and to write up the findings.

Most participants found relational PAR data analysis and report writing to be empowering. For instance, one of the Elders said:

As Indigenous people, we come from the land and will go back to the land. We draw our knowledge of how to live in balance, to care for ourselves and others from land-based practice. This knowledge remains with us, despite experiencing colonization and racism. Land-based research can empower us and solve our problems.

Similarly, another Knowledge-holder opposed the Western form of research in their community saying, 'We do not need research which cannot take action to protect our youth, land, culture, and identity' (Datta et al. 2014, p. 110). She thought that 'Indigenous ways of doing land-based research enable us to take responsibility'. She also explained that land-based research 'provides space for all ages and genders. Land does not discriminate against anyone' (Datta et al. 2014, p. 110).

6.2. Traditional research protocols

Research protocols are of particular concern for many Indigenous communities (Kovach 2009). Moreover, the current body of literature on environmental research, environmental sociology, and environmental sustainability has been criticized for its lack of breadth and operationalized protocols by many Indigenous communities (Roy 2002, Kovach 2009, Datta et al. 2014). Although at the international level, Article 31 of the United Nations Declaration on the Rights of Indigenous Peoples states that Indigenous peoples have the 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, including human and genetic resources ...

(United Nations Declaration on the Rights of Indigenous Peoples 2007, <https://www.un.org/development/desa/indigenouspeoples/declaration-on-the-rights-of-indigenous-peoples.html>), in many cases the research in the CHT did not adhere to traditional community research protocols (Adnan 2004, Chakma 2010).

Our land-based relational PAR distinguished itself by favoring traditional community protocols over institutional protocols. For instance, research questions, objectives, and research sites were selected according to the participants' choices instead of prioritizing institutional policies. Although it was a chal-

lenge to incorporate the community's traditional protocols, the Canadian Tri-Council Policy Statement: Ethical conduct for research involving Aboriginal peoples was helpful. This joint policy of the Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council of Canada (NSERC), and the Social Sciences and Humanities Research Council of Canada (SSHRC) benefits researchers by guiding them towards valid results and Indigenous populations by addressing their research priorities (Ball & Janyst 2008, Bull 2010, CIHR, SSHRC, NSERC 2010). For instance, our relational PAR recognized the value of Indigenous perspectives and their contribution to the research. The knowledge and experience of Indigenous Elders and Knowledge-holders were treated with full respect. Participants discussed how this research would not directly benefit participants; however, they would share ownership of the research results and publications. Co-researcher participants co-authored post-research publications (Datta et al. 2015), and the community can access the research results, including printed, audio, video, and digital material, at any time. All research reports and publications are available to the communities and individuals through their community leaders.

7. WHAT CAN BE LEARNED FROM LAND-BASED RESEARCH?

My ceremonial learning journey taught me that land-based relational PAR represents a significant step towards reclaiming and implementing Indigenous traditional practices in environmental resource management and sustainability (Berkes 1999, Datta 2018). It contributes to an understanding of how Indigenous and non-Indigenous people, governmental and non-governmental organizations (NGOs), environmental professionals, scholars, and activists can understand and practice resource management processes at the relational level of ontology—a level of awareness and being which continues to confound many who work in the environmental field (Nadasdy 2007, Natcher & Clifford 2007).

Our land-based research filled various knowledge gaps for the Indigenous communities of the CHT, Bangladesh. In particular, our study examined Indigenous land alienation, the importance of local practices and traditional forms of land management, local ways of practicing sustainability, and the issues surrounding existing governmental and non-governmental land-management projects. In accordance

with the research questions, the study was guided by a critical concern for identifying the problems with existing land-management practices and policies, and for finding ways to frame the Laitu Khyeng Indigenous community's understanding of sustainability in relation to their everyday and traditional land-management practices and experiences. Our study situated itself within this context and represented a significant step forward in exploring identity and justice in relation to Indigenous understandings of land management (Tuck & McKenzie 2016).

Our land-based research made a contribution to both research and practice in ways that benefitted the participants with the hope of inspiring a new culture of sustainability in Indigenous regions, particularly in the Laitu Khyeng Indigenous community (Kovach 2009). For example, participants articulated diverse cultural practices related to environmental issues and solutions, demonstrated relationships with their environment and their ancestral land and water, found opportunities to document their traditional experiences with their environment, and shared their knowledge with each other.

Relational PAR from the Indigenous perspective is able to unpack the social constructs (discourses) which may be preventing acknowledgement of, and thus authentic engagement with, underlying premises of Indigenous knowledge (Smith 2006, Nadasdy 2007). Our study demonstrates effective and ethical engagement with Indigenous peoples and their knowledge in solving ecological crises. The project models intercultural collaboration and ways of work across 'disparate and irreconcilable systems of thought' (Barnhardt & Kawagley 2005), which cannot simply be integrated one into the other (Agrawal 2002).

Through the study, I learned that focusing on land-based practice significantly redefines the meaning of research and researcher from the participants' perspective, particularly from the perspective of the Indigenous community's Elders, Knowledge-holders, leaders, and youth. This contrasts with past research involving Indigenous peoples in many Indigenous communities which has been defined and carried out primarily by non-Indigenous academics and researchers (Smith 2006, Kovach 2009, Dei 2011). Indigenous and non-Indigenous scholars who are working with Indigenous communities (Nadasdy 2007, Wilson 2008, 2013) argue that Western approaches and non-Indigenous scholars have not generally reflected Indigenous worldviews, and the research and researchers have not necessarily benefited Indigenous peoples or communities.

Acknowledgements. First and foremost, I want to thank my mentors, advisors, and PhD supervisor Drs. Marcia McKenzie, Alex Wilson, David Natcher, Maureen Reed, and Manuhua Barcham for their ongoing inspiration, motivation, and support in my decolonization processes. This paper arises out of a PhD research project entitled 'Land-water management and sustainability: an indigenous perspective in Laitu Khyang Community, Chittagong Hill Tracts (CHT), Bangladesh', based at the School of Environment and Sustainability (SENS), University of Saskatchewan, Canada. I am also grateful to the Laitu Khyang Indigenous Elders, Knowledge-holders, leaders, and youth participants who so warmly welcomed me into their community and provided opportunities to learn their land-water management and sustainability stories. I am also enormously grateful to my 4 co-researcher participants—Nyojy U. Khyang, Hla Kray Prue Khyang, Hla Aung Prue Khyang, and Mathui Ching Khyang—for joining this research team and for their continuing support.

LITERATURE CITED

- Adnan S (2004) Migration, land alienation and ethnic conflict: causes of poverty in the Chittagong Hill Tracts of Bangladesh. Research & Advisory Services, Dhaka
- ✦ Agrawal A (2002) Indigenous knowledge and the politics of classification. *Int Soc Sci J* 54:287–297
- Alfred GT (2009) Colonialism and state dependency. *J Aborig Health* 5:42–60
- Angmarlik P, Kulchyski PK, McCaskill DN, Newhouse D (1999) In the words of Elders: Aboriginal cultures in transition. University of Toronto Press, Toronto
- ✦ Ball J, Janyst P (2008) Enacting research ethics in partnerships with indigenous communities in Canada: 'Do it in a good way'. *J Empir Res Hum Res Ethics* 3:33–51
- ✦ Bang M, Curley L, Kessel A, Marin A, Suzukovich ES III, Strack G (2014) Muskrat theories, tobacco in the streets, and living Chicago as Indigenous land. *Environ Educ Res* 20:37–55
- ✦ Barnhardt R, Kawagley AO (2005) Indigenous knowledge systems and Alaska native ways of knowing. *Anthropol Educ Q* 36:8–23
- Battiste M (2008) Research ethics for protecting Indigenous knowledge and heritage: institutional and researcher responsibilities. In: Denzin NK, Lincoln YS, Smith LT (eds) *Handbook of critical and Indigenous methodologies*. Sage, Berkeley, CA, p 497–509
- Berkes F (1999) *Sacred ecology: traditional ecological knowledge and resource management*. Taylor and Francis, Philadelphia, PA
- Bhabha HK (2004) *The location of culture*. Routledge, London
- ✦ Bull JR (2010) Research with Aboriginal peoples: authentic relationships as a precursor to ethical research. *J Empir Res Hum Res Ethics* 5:13–22
- ✦ Chakma B (2010) The post-colonial state and minorities: ethnocide in the Chittagong Hill Tracts, Bangladesh. *Commonw Comp Polit* 48:281–300
- CIHR, NSERC, SSHRC (Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, Social Sciences and Humanities Research Council of Canada) (2010) Tri-Council policy statement: Ethical conduct for research involving humans (TCPS2). <http://www.pre.ethics.gc.ca/eng/archives/tcps2-epts2-2010/Default/>
- ✦ Datta R (2018) Rethinking environmental science education from indigenous knowledge perspectives: an experience with a Dene First Nation community. *Environ Educ Res* 24:50–66
- Datta R (2019) *Land-water management and sustainability: Indigenous practices*. Routledge, London
- ✦ Datta R, Khyang UN, Khyang HKP, Khyang HAP, Khyang MC, Chapola J (2014) Understanding Indigenous sustainability: A community-based participatory experience. *Rev Bras Pesquisa em Educação em Ciências* 14:99–108. <https://seer.ufmg.br/index.php/rbpec/article/download/2694/2060>
- ✦ Datta R, Khyang UN, Khyang HKP, Khyang HAP, Khyang MC, Chapola J (2015) Understanding sustainability education: a community-based experience. *Rev Bras Pesqui Educ Ciênc* 14:99–108. <https://seer.ufmg.br/index.php/rbpec/article/view/2694>
- Dei SJG (2011) Introduction. In: Dei GJS (ed) *Indigenous philosophies and critical education: a reader*. Peter Lang, New York, NY, p 1–15
- ✦ Escobar A (2010) Latin America at a crossroads. *Cult Stud* 24:1–65
- Khyeng N, Khyeng H, Khyeng M, Khyeng K (2014) (Bangla), Land crying. ALRD, Dhaka
- Kovach M (2009) *Indigenous methodologies: characteristics, conversations, and contexts*. University of Toronto Press, Toronto
- Kulchyski P, McCaskill D, Newhouse D (1999) In the words of Elders: Aboriginal cultures in transition. University of Toronto Press, Toronto
- McCoy K, Tuck E, McKenzie M (eds) (2015) *Land education: rethinking pedagogies of place from Indigenous, post-colonial, and decolonizing perspectives*. Routledge, New York, NY
- Meyer MA (2001) A cultural assumptions of empiricism: a native Hawaiian critique. *Can J Native Educ* 25: 188–200
- Meyer MA (2008) Indigenous and authentic: Hawaiian epistemology and the triangulation of meaning. In: Denzin NK, Lincoln YS, Smith LT (eds) *Handbook of critical and Indigenous methodologies*. Sage, Berkeley, CA, p 211–216
- Michael LR (2017) *A land not forgotten: Indigenous food security and land-based practices in northern Ontario*. University of Manitoba Press, Winnipeg
- ✦ Nadasdy P (2007) The gift in the animal: the ontology of hunting and human-animal sociality. *Am Ethnologist* 34: 25–43
- Natcher DC, Clifford GH (2007) Putting the community back into community-based resource management. In: Natcher DC (ed) *Seeing beyond the trees: the social dimensions of Aboriginal forest management*. Captus Press, Concord, p 41–59
- Roy RD (2002) Land and forest rights in the Chittagong Hill Tracts, Bangladesh. ICIMOD Talking Points 4/02. International Centre for Integrated Mountain Development, Kathmandu
- Simpson L (1999) Aboriginal peoples and knowledge: decolonizing our processes. *Can J Native Stud* 21: 137–148
- ✦ Simpson L (2014) *Dancing on our turtle's back: stories of Nishnaabeg re-creation, resurgence and a new emergence*. ARP Books, Winnipeg
- Smith LT (1999) *Decolonizing methodologies: research and indigenous peoples*. Zed Books, London

- Smith LT (2006) Choosing the margins: the role of research in indigenous struggles for social justice. In: Denzin NK, Giardina MD (eds) *Qualitative inquiry and the conservative challenge*. Left Coast Press, Walnut Creek, CA, p 151–174
- Smith LT (2008) On tricky ground: researching the Native in the age of uncertainty. In: Denzin NK, Lincoln YS (eds) *The Sage handbook of qualitative research*. Sage, Thousand Oaks, CA, p 85–108
- Sumara DJ (1996) Using commonplace books in curriculum studies. *JCT Journal of Curriculum Theorizing* 12: 45–48
- Tuck E, McKenzie M (2016) *Place in research: theory, methodology, methods*. Routledge, New York, NY
- Wilson S (2008) *Research is ceremony: Indigenous research methods*. Fernwood, Winnipeg
- Wilson S (2013) Using indigenist research to shape our future. In: Gray M, Coates J, Yellow Bird M Hetherington T (eds) *Decolonizing social work*. Ashgate Publishing, Burlington, VT, p 311–322

*Editorial responsibility: Darryl Macer,
Scottsdale, Arizona, USA*

*Submitted: August 10, 2017; Accepted: September 25, 2018
Proofs received from author(s): December 13, 2018*