

The Power of Dialogue in Conditions of Care and Climate: A Feminist Participatory and Intersectional Study of Dalit Women's and Girls' Unpaid Care Labour in Coastal Bangladesh

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DOI: <https://doi.org/10.47772/IJRISS.2026.100800387>

Received: 21 August 2026; Accepted: 26 August 2026; Published: 06 September 2026

EXECUTIVE SUMMARY

This study was conducted with Dalit women and Girls from the Clobber community in the coastal zone of Tala Upazila, Satkhira, which is predominantly affected by salinity and flooding due to climate change. Vulnerabilities of Dalit communities are deeply rooted in their anthropological issues that produced untouchability, which confines them to stigmatized caste-assigned labor. However, Dalit women and girls are experiencing compounded, gendered, and intergenerational forms of exclusion and care burden. These vulnerabilities are further intensified through their intersections with age, poverty, religion, disability, entrenched social norms, and geographically specific contexts, producing layered and unequal experiences of risks, exclusion, and deprivations.

Grounded with qualitative-dominant, intersectional, and participatory research design, this study explores how caste, gender, age, poverty, and climate vulnerability interact to shape different experiences of care work, risk, and agency. Drawing on participatory tools such as gendered time-use mapping, seasonal calendars, risk-benefit analysis, mobility and dignity mapping, and visioning exercises, this study foregrounds Dalit Women and Girl's lived experiences as legitimate analytical knowledge.

Findings from the study reveal that unpaid care labour among Dalit women and girls is not merely a domestic responsibility but a structurally organized system of caste-regulated social reproduction. Climate stress, particularly salinity intrusion, flooding, and livelihood instability, transforms routine care into survival labour, significantly intensifying time poverty, health risks, and emotional burden. Women's contributions to household income through informal and home-based production remain economically invisible and excluded from decision-making structures. Adolescent girls experience early socialization into care roles, frequent educational disruption, restricted mobility, and increased vulnerability to child marriage.

The study conceptualizes climate-intensified unpaid care as a form of survival infrastructure through which marginalized women's unpaid labour absorbs the costs of environmental degradation and institutional gaps. This dynamic perpetuates intergenerational cycles of caste- and gender-based inequality. Despite these vulnerabilities, the visioning exercise revealed a powerful aspiration of Dalit girls for dignified and caste-free futures that challenge the stigmatized roles and imagine pathways beyond inherited labour and social exclusion.

Keywords: Unpaid care work; Dalit women; Intersectionality; Feminist political economy; Climate justice; Adolescent girls; Bangladesh

INTRODUCTION:

Unpaid care is essential in every society, but it is often overlooked and undervalued. Economic systems usually ignore the important role of unpaid care work, thereby hiding the deeper inequalities that sustain them. Because of this, women and girls are often denied their rights and excluded from key economic and political discussions. Old beliefs continue to downplay the value of women's and girls' roles in caring for families and helping with household income. In places affected by climate change, these inequalities get worse, adding more pressure and

unpaid work for women and causing emotional stress. Even though unpaid care is important, research rarely looks at how social inequality, inheritance, and overlapping identities shape care work in South Asia.

Bangladesh has many different communities, but Dalit groups face several kinds of marginalization. Their challenges come from a history of untouchability, caste-based jobs, and the added stress of climate change. In coastal areas like Khulna and Satkhira, Dalit women face even more obstacles. Untouchability limits their freedom and chances to earn money outside the home. They also take on most of the unpaid, often stigmatized care work that is passed down through families. These tasks are seen as 'women's work' and linked to their caste, leaving them with little free time, less freedom to move or make choices, higher rates of dropping out of school and early marriage, and a loss of dignity.

Climate change exacerbates these inequalities. Issues like salty water, floods, water shortages, and fewer job opportunities make care work harder, and sometimes it's a matter of survival. Because of long-standing social inequalities and unfair power structures, girls are expected to help with chores and care work. This often interrupts their education and limits their future options.

This research follows feminist principles, climate justice, and values participation. It puts the voices of Dalit women and girls at the center, treating their real-life experiences as important knowledge. By using participatory methods and open discussion, the study aims to raise awareness of these issues and to show that care work is not just a private matter but a key area for understanding power, inequality, and the potential for feminist change.

Overview of the Dalit Community in Satkhira

In the coastal belt of **Satkhira district**, Dalit women predominantly from the **Rishi, Munda, and Kaiputra** communities live at a lethal intersection of caste-based stigma, gender inequality, and environmental collapse. According to recent 2025 reports by **Amnesty International**, the Dalits of Bangladesh are a marginalized group whose identity is typically characterized as “low caste”. Their birth status in the caste hierarchy, and current and ancestral occupations, are considered “impure”. Dalits are designated as “untouchable” within the Hindu caste system of the Indian subcontinent. Untouchability refers to the subjugation and denial of the basic human rights of people who are labeled as “polluted” or “impure”; it is the most insidious manifestation of caste-based discrimination, specifically in South Asia (Amnesty International 2025).

One NGO named PARITRAN, working for Dalit Community in Satkhira District, reported “Dalits are one of the most marginalized communities and socially excluded people concentrated in this area. They suffer from discrimination, the worst effects of climate change, lack of resources, etc., resulting in extreme poverty and indignity. There are at least .5 million Dalit's living in this region.

Rooted in "descent-based discrimination," Dalit women in Satkhira face systemic exclusion from communal life. They are often segregated into low-lying, flood-prone colonies where government water infrastructure, such as pipelines or tankers, rarely reaches¹. With no household water connections, they rely on carrying water by hand from distant ponds, rainwater collection, or public wells, particularly outside the monsoon season. Gender, caste, poverty, and environmental stress converge to intensify these challenges.

Climate change exacerbates both scarcity and infrastructure damage, and caste-based discrimination at public water sources continues unchecked. The burden of water collection borne largely by women not only limits economic opportunity but also reinforces gender and caste hierarchies, perpetuating exclusion and inequality (Amnesty International 2025).

Economically, Dalit women are often "caste-locked" into traditional, informal occupations such as skinning animals, sweeping, or domestic labor for dominant-caste households. Employers often practice "hidden exclusion," where Dalit women are denied jobs in food processing or hospitality because of "purity" stigmas [Nagorik Uddyog 4.2]

A REVIEW OF THE LITERATURE:

Bangladesh is a country where socially and culturally diverse people live in terms of religion, caste, ethnicity, and diverse gender identities. This diversity is further shaped by its geographical context, including coastal zones with salinity, flood-prone areas, and climate-vulnerable regions, which profoundly influence social relations, livelihoods, and everyday care practices. Historically, women have been primarily responsible for family care, without social or economic recognition, and facing multiple risks. Those vulnerabilities are further intensified for the women and girls when intersecting with their caste-based discrimination and geographical complex and climate-vulnerable context, where social exclusion and environmental stress compound existing inequalities.

The unpaid care burden, including its intersectional contexts, has already been discussed by various feminist scholars and researchers who have also delved deeply into these areas. A growing body of feminist scholarship recognizes unpaid care labour as a foundational yet systematically undervalued component of economic and social systems (Elson, 1998; Folbre, 2001). On the other hand, the Intersectional Framework was developed by **Kimberlé Crenshaw (1989)** to address the failure of single-axis analyses (e.g., gender-only or race-only) to capture the lived realities of marginalized groups, particularly Black women. The framework explains how overlapping social identities produce **distinct forms of structural disadvantage and exclusion**. In feminist and development research, intersectionality is essential for understanding why policies and interventions that treat women as a homogeneous group often fail to address inequalities shaped by caste, poverty, age, disability, and climate vulnerability.

The **Feminist Political Economy (FPE)** emerged from feminist critiques of classical and Marxist political economy that neglected women's unpaid labour and social reproduction. Developed by scholars such as **Silvia Federici, Diane Elson, and Nancy Folbre**, FPE highlights how economic systems rely on **unpaid and underpaid care work**, disproportionately performed by women and marginalized groups. The framework challenges the separation between "productive" and "reproductive" labour, arguing that markets, states, and households are deeply interconnected. In development and climate research, Feminist Political Economy exposes how austerity, climate shocks, and social protection gaps intensify care burdens, particularly for caste- and class-marginalized women.

Intersectional feminist research demonstrates that Dalit women and girls experience layered forms of exclusion, where caste-based stigma intersects with gendered norms to produce hereditary and stigmatized care roles (Crenshaw, 1989; Rege, 2013). In Bangladesh, studies show that marginalized women in climate-affected coastal areas bear disproportionate unpaid care burdens due to salinity intrusion, water scarcity, and weak public services (BRAC, 2018; Raihan et al., 2020). Research by UN Women Bangladesh (2021) and BBS (2022) further documents women's time poverty and the invisibility of unpaid care work in national statistics and social protection frameworks. Climate justice scholarship in Bangladesh underscores that climate change acts as a multiplier of existing social inequalities, intensifying women's unpaid labour, health risks, and girls' education disruption, particularly among caste- and class-marginalized communities (Ahmed et al., 2019; Rao et al., 2020).

Conceptual Framework Narrative

This conceptual framework illustrates the cyclical and self-reinforcing relationship between intersecting structural inequalities, unpaid care intensification, and the reproduction of social injustice in climate-vulnerable Dalit communities.

Conceptual Framework



Figure 1 Conceptual Framework

At the entry point of the cycle are the intersecting axes of **caste, gender, age, and climate stress**. These structural and environmental factors do not operate independently; rather, they interact to produce layered forms of marginalization. Caste-based stigma restricts occupational mobility and access to public resources, while gender norms naturalize domestic and caregiving responsibilities as women's work. Age further differentiates experiences, with adolescent girls being socialized early into unpaid care roles. Climate stress from salinity intrusion, flooding, and livelihood instability doesn't occur in isolation. Instead, things like caste, gender, age, and climate stress all mix together, making life even harder for Dalit families. For example, stigma around caste can limit what jobs people can do or what services they can access. Gender roles often mean women are expected to handle most of the housework and caregiving. Girls, especially as they grow up, are taught to help out at home—sometimes at the cost of their education. And when floods or salty water damage crops and jobs, these challenges just pile up, making old problems even worse.

Because all these pressures build up, Dalit women and girls end up doing even more unpaid care work than before. Even in ordinary times, they already do most of the housework and caregiving. But when the weather is bad or the climate changes, their workload gets heavier and more complicated. Suddenly, care work isn't just about keeping the house running; it's about keeping everyone safe, finding clean water, protecting valuables, preparing food during crises, and looking after family members in tough conditions. All this unpaid work by women helps their families and communities get through difficult times, even though it is often unrecognized.

All this extra care work leads to real problems. Women get tired and burned out, and they often don't have a say in important family decisions. Girls might have to skip school or drop out altogether, and some are pushed into early marriage. Because of safety concerns and social rules, their freedom to move around is limited, and they face more harassment. None of this is by accident; it's the result of deep, overlapping inequalities that shape their lives.

Over time, these issues keep feeding into each other. When girls can't finish their education, and women's hard work goes unnoticed, it locks families into a cycle of disadvantages that can last for generations. Climate problems only make this cycle stronger, as families have to rely even more on the unpaid work of women and girls just to get by. This means the same inequalities keep repeating, instead of being fixed.

That's why this situation isn't just a straight line, it's a repeating loop. Inequality makes care work harder, and the struggles with care work create new social and economic barriers. Those barriers then make the inequalities even worse, keeping the cycle going.

So, this framework helps us see that unpaid care work isn't just a private family matter. It's actually at the heart of how caste, gender, and climate problems come together to keep inequality in place, year after year.

METHODOLOGY

This study adopts a qualitative-dominant, feminist, intersectional, and participatory research design to examine how caste, gender, age, poverty, disability, religion, and climate vulnerability intersect to shape unpaid care labour, risk, decision-making, and agency among Dalit women and adolescent girls. Rather than treating participants as passive sources of information, the research positions them as knowledge producers whose lived experiences and interpretations are central to the analysis. The design is informed by feminist political economy, intersectionality, climate justice, and rights-based participatory principles. This integrated approach enables the study to examine both the material dimensions of care labour including time, income, livelihood, and access to resources and its relational dimensions, including dignity, stigma, voice, mobility, and social power.

To investigate the power relations, structural inequalities, prevalence of existing social norms, and care-labor burden, the study adopts a **qualitative-dominant, feminist, intersectional, and participatory research design**. This enables the investigation of how caste, gender, age, disability, poverty, and climate vulnerability interact to shape the unpaid, stigmatized, and inherited care-labor burden of Dalit women and girls in the affected coastal context of Tala Upazila of Satkhira District.

This study is grounded in the following analytical framework, where –

- **The Intersectional Framework** examines how cast, gender, age (girlhood), poverty, disability, and geographic marginality interact to produce layered and compounding forms of disadvantage.
- The **Feminist Political Economy** recognizes care-labor-burden and social reproduction as central to economic systems. On the other hand, it will also add their contribution to climate adaptation, the prevalence of structural inequality, and to challenge their existing social norms.
- **The Climate Justice Lens** examines how climate change as a multiplier of historical and structural injustices shifted their livelihoods and sources of safe drinking water, which ultimately intensified care burdens, health risks, and livelihood precarity for Dalit women and girls.
- The Right-Based and Participatory Principles to value the Dalit women's and girls' lived experiences as rightful knowledge and recognize them as co-analysts and agents of change instead of just as respondents.

This integrated approach explicitly challenges the invisibility of caste-based care labour within development, climate adaptation, and gender equality discourses.

Study Area and Population:

The study was conducted in selected climate-affected communities of Tala Upazila, Satkhira District, coastal Bangladesh, where salinity intrusion, flooding, water insecurity, livelihood disruption, and geographic marginality shape everyday life. The study focuses on members of the Dalit community whose historical experiences of caste-based exclusion and stigmatized occupational roles intersect with contemporary climate and socioeconomic vulnerabilities. The primary study population comprised Dalit women aged 18–59 years and adolescent girls aged 12–17 years. To capture differentiated experiences, the study purposively included widows, single women, women and girls with disabilities or impairments, economically disadvantaged households, school-going and out-of-school adolescent girls, and households associated with caste-assigned or informal occupations. The primary study population included:

- Dalit women aged 18–59 years
- Dalit adolescent girls aged 12–17 years

To capture information from the diverse population, particularly intersectional areas from the Dalit Groups, such as widows, single mothers, as well as women and girls with impairments, different religious groups, including Christian and Hindu, were purposefully included. By profession, they were clobbers, but in recent years they have shifted to informal labour or the production of betel leaf.

Sampling Strategy

A purposive and stratified sampling approach was used to identify information-rich participants with diverse experiences of caste, gender, age, disability, livelihood, socioeconomic status, and exposure to climate stress. The purpose of sampling was not statistical representativeness but analytical diversity and depth. Participants were recruited through community-level engagement and locally appropriate channels. Separate engagement processes were maintained for adult women and adolescent girls to reduce age and gender power asymmetries and to create safer spaces for discussion. Participation was voluntary, and participants were informed about the purpose of the study and their right to decline participation or withdraw.

To ensure diversity across age, marital status, disability status, caste-assigned jobs, and degrees of climatic exposure, a purposeful and stratified sampling technique was used. Sampling prioritized information-rich cases over statistical representativeness, in line with feminist qualitative research principles.

Approximately 5–6 Focus Group Discussions (FGDs) and 15–20 In-Depth Interviews (IDIs) were conducted at various study locations to collect data. Throughout, separate interactions with adult women and teenage girls were maintained to guarantee protection and to record age-specific aspects of caregiving and empowerment. The sampling of the study is outlined in the table below:

Table 1: Sampling Strategy

Types of Data Collection	Respondent Groups	Total Respondents
Focus Group Discussion and Other Group Tools	Dalit women aged 18–59 years	3 Sessions*10 Respondents of each= 30 Respondents
Focus Group Discussion and Other Group Tools, including Visioning Exercise	Dalit adolescent girls aged 12–17 years	3 Sessions*10 Respondents of each= 30 Respondents
Key Informative Interviews	Dalit women aged 18–59 years	30 Respondents
Total Respondents		90 Respondents

A suite of **participatory and feminist qualitative methods** was used to make visible the temporal, spatial, emotional, and embodied dimensions of unpaid and stigmatized care labor.

Data Collection Methods and Tools

Data were generated through a combination of qualitative and participatory methods. These included Focus Group Discussions (FGDs), In-Depth Interviews (IDIs), Key Informant Interviews (KIIs), gendered 24-hour time-use mapping, seasonal calendar analysis, risk–benefit analysis, mobility and dignity mapping, GEM-informed exercises, and participatory visioning. The combination of methods enabled triangulation across individual narratives, collective reflections, temporal patterns, and participants’ own assessment of power and empowerment.

Here,

- **Seasonal Calendar Analysis** examined fluctuations in care work, health risks, school attendance, and mobility across climatic cycles, particularly during periods of salinity intrusion and flooding.

- **Gendered and caste-based time-use mapping (24-hour clock)** documented daily care routines, comparing routine days with climate-stress periods to reveal intensification, task rigidity, and early initiation of girls into care roles.
- **Risk and benefit analysis** explored the unequal distribution of physical, emotional, and social costs associated with caste-based care labour, alongside the often-unacknowledged beneficiaries of this work.
- **Mobility and dignity mapping** investigated how caste stigma and care responsibilities restrict movement, shape safety perceptions, and produce dignity loss in public and institutional spaces.
- **Visioning exercises** enabled participants to articulate dignity-based aspirations, alternative futures, and community-defined indicators of change beyond survival narratives.
- **Focus Group Discussions** facilitated collective reflection on norms, stigma, climate stress, and intra-household care distribution, while In-Depth Interviews captured sensitive personal narratives related to education disruption, first encounters with caste-assigned labor, and internalized stigma.
- The Study applied **the Gender Equality and Empowerment Measurement (GEM)**, tool as an analytical instrument rather than a standalone survey. The GEM tool assessed dimensions of empowerment relevant to caste- and climate-affected contexts, including decision-making autonomy, control over time and mobility, voice in family and community spaces, perceived dignity, and aspirations for change. To enhance the study of intervention, constraint, and intergenerational transmission of disempowerment, GEM findings were triangulated with life narratives, time-use data, and visioning activities.

Table 2. Participatory and Feminist Research Tools

Tool	Analytical purpose	Key dimensions explored
Gendered 24-hour time-use mapping	Examine distribution and intensity of labour	Care, paid work, rest, schooling
Seasonal calendar	Examine temporal variation	Climate stress, water, illness, livelihoods, care
Risk–benefit analysis	Examine unequal distribution of costs and benefits	Physical, emotional and economic risks
Mobility & dignity mapping	Examine spatial inequality	Safety, harassment, caste stigma, mobility
GEM-informed exercises	Examine empowerment	Economic decision-making, knowledge, security, dignity, social power
Visioning exercise	Identify aspirations and pathways for change	Education, livelihoods, dignity, agency
FGDs	Collective reflection	Norms, stigma, care, climate, power
IDIs	Capture individual experiences	Life histories, care, education, stigma
KIIs	Contextualize community-level changes	Climate, services, livelihoods, social structures

Gender Equality and Empowerment Measurement (GEM)

The Gender Equality and Empowerment Measurement (GEM) was incorporated as an analytical and participatory tool rather than as a standalone quantitative survey instrument. The GEM-informed exercises explored five interconnected dimensions of participants' lives: economic situation and decision-making power; knowledge, education and skills; physical security and mobility; self-confidence and dignity; and social relations and power. Questions were adapted to the local context to examine how caste, gender, age, care responsibilities, and climate-related stress shape participants' access to resources, voice, autonomy, and opportunities. GEM findings were triangulated with time-use mapping, life narratives, FGDs, and participatory exercises to examine both observable constraints and participants' own interpretations of empowerment and inequality.

Table 3. GEM-Informed Analytical Domains

GEM domain	Core questions	Intersectional dimensions
Economic situation & decision-making	Who earns? Who controls income? Who decides household expenditure?	Gender, care, caste, poverty
Knowledge, education & skills	Who accesses education and skills? Why do girls leave school?	Age, gender, poverty, caste
Physical security & mobility	Where do women/girls feel safe or unsafe?	Gender, caste, climate, age
Self-confidence & dignity	Can women express opinions and challenge injustice?	Caste stigma, gender norms
Social relations & power	Whose voice matters in family/community decisions?	Gender, caste, age, social status

Data Analysis

Data were analysed using a feminist intersectional thematic approach. Transcripts, field notes, participatory exercise outputs, and narrative accounts were reviewed iteratively to identify patterns related to unpaid care labour, caste-based stigma, gender norms, economic decision-making, education, mobility, dignity, climate stress, and agency. Initial codes were informed by the study's conceptual framework, while additional codes were generated inductively from participants' narratives and participatory discussions. An intersectional matrix was then used to examine how experiences differed according to caste, gender, age, disability, poverty, religion, and climate exposure. Time-use and seasonal-calendar findings were compared across normal and climate-stress periods to identify changes in the intensity, duration, and distribution of care work. GEM-informed findings were triangulated with qualitative narratives rather than treated as independent measures of empowerment. Emerging interpretations were also discussed through participatory reflection and validation to strengthen analytical accountability and reduce researcher-imposed interpretations

The study integrates four complementary analytical perspectives. Intersectionality examines how caste, gender, age, disability, poverty, religion, and geographic marginality interact to produce differentiated forms of disadvantage. Feminist political economy conceptualizes unpaid care as socially reproductive labour that sustains households and local economies while remaining economically undervalued. Climate justice examines how environmental stress redistributes risks and adaptation costs toward populations already marginalized by historical and structural inequalities. Rights-based and participatory principles position Dalit women and girls as rights-holders, knowledge producers, and agents of change rather than passive research subjects. Together, these perspectives enable the study to examine not only who bears the burden of care, but also how power determines whose labour is recognized, whose voice is heard, and whose knowledge informs responses to climate and social inequality.

Ethical Considerations and Safeguarding

Ethical and safeguarding considerations were integrated throughout the research process because the study involved adolescent girls and explored potentially sensitive issues related to caste discrimination, gender inequality, harassment, child marriage, poverty, and family relations. Participation was voluntary, and participants were informed about the study objectives, procedures, confidentiality arrangements, and their right to decline questions or withdraw from participation. For adolescent participants, [insert the exact consent/assent procedure actually followed] was implemented in accordance with the ethical requirements governing the study. Discussions with adolescent girls were conducted separately from adult participants and facilitated through age-appropriate and gender-sensitive approaches. Personal identifiers were excluded from the analytical dataset and reporting, and participants were not required to disclose experiences they considered unsafe or distressing.

Study Findings:

This section presents the findings of the study, which are predominantly based on qualitative, feminist, intersectional, and participatory analyses of unpaid and intersectional care labor among Dalit women and Adolescent Girls in climate-affected coastal areas of Tala Upazila, Satkhira. Findings are interpreted through the lens of intersectional, feminist political economy, climate justice, and rights-based participatory principles. This study emphasizes how the historical caste system, gender, age, poverty, and climate vulnerability compound the care burden, risks, and constraints for the Dalit women and Girls in the study area. The following framework has been empirically grounded in participatory data analysis. It synthesizes feminist intersectionality and political economy to explain how caste, gender, age, poverty, and climate stressors co-produce unpaid and stigmatized care labor. It reveals a structural asymmetry in which Dalit women and girls bear disproportionate risks and losses, while households, markets, and climate adaptation systems capture the benefits.

Care at the Crossroads: An Intersectional Feminist Framework Linking Caste, Climate, and the Political Economy of Unpaid Labor

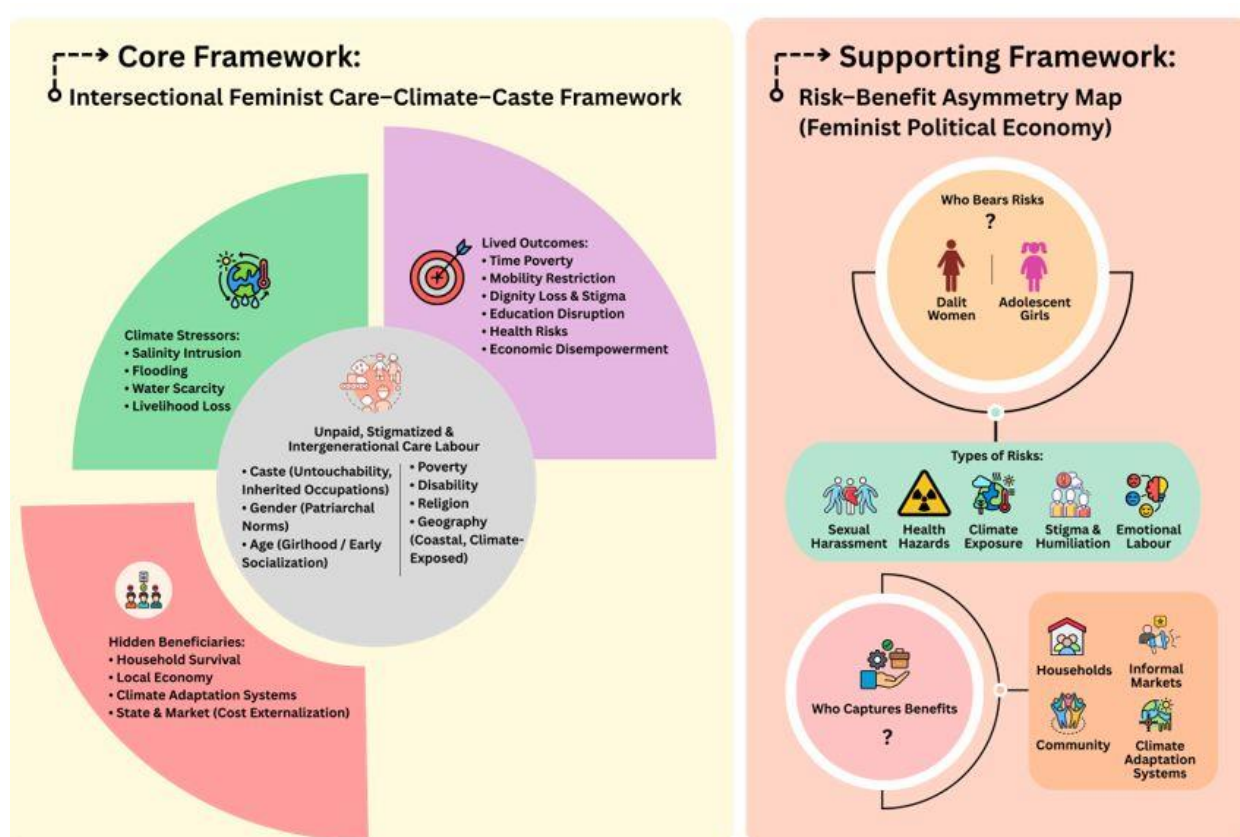


Figure 2: Study Framework

Rather than treating care work as isolated household activities, the analysis situated care labour as relation of power, dignity, decision making of resources, and social reproduction foregrounding Dalit women's and Girls lived experience as legitimate analytical knowledge.

Intergenerational and Caste-Based Socialization into Care Labour

Findings reveal that care work is structurally assigned to women and girls rather than volunteer work and transmitted across generation through the gender-based norms. Adolescent girls reported to start the care work like water collection, support cooking, take care of siblings at an early age (10-12), while the boys of their family started to support their father in the field at the age of 17-18. These responsibilities were framed within HH as natural preparation of womanhood and caste-appropriate roles, rather than as labor requiring recognition or redistribution. When boys and girls of the same age live within a household, priority is given to socializing girls

into domestic and care-related work. This practice is justified by the expectation that girls, after marriage, will move to their marital households where they will be required to perform extensive household labour. We found the same results from the analysis of the Christian Community, where the participants reported that their adolescent girls need to participate in their HH works as well as family income, and that results in dropping out of school at class Six – Seven. Although there is some support available from the Uttoron and Dalit Focused NGOs for the Christian Dalit community through the Church-Based institutions, there are absence of skill and vocational-based trainings which limit their scope for expansion as small-scale and home-based entrepreneurship.

The GEM-based analysis on knowledge, skills, and social power indicates that early care responsibilities directly constrained girl's educational trajectories. Time use mapping and life narrative show that entry into care labour frequently coincides with school absenteeism or dropping out due to additional family responsibilities during climate stress period. While discussing adolescent girls, some of their classmates experienced child marriage at the age of 16-17 after completion of the Secondary School Certification Program due to the prevailing inequality and existing social norms about Girls where it denies the rights of education for girls' children and their contribution to the HH activities.

These patterns were especially pronounced in HH engaged in caste-assigned activities, where women and girls' contribution perceived as endless flexibility and expendable. Labor of women thus functioned as a mechanism of social reproduction without recognizing their roles in the overall HH revenue generation while supporting in the field or processing the battle life for market sale and contribution to their HH work.

Time Poverty and Feminization of Survival Labour

Gendered and caste-based 24-hour time use mapping reveals pervasive time poverty among Dalit women and Girls. The exercise primarily focused on understanding their engagement during both normal and climate-stress periods. During the normal period, adult women's schedules were dominated by unpaid care tasks alongside informal income-generating labor, leaving little or no time for rest or leisure. Adolescent girls' routine reflects similar patterns, combining schooling with extensive domestic and caregiving responsibilities. The discussion of time tools and FGD reveals that, Men are only engaged in the income generating activities and they don't support in the HH or care works even in the climate stress period. However, sometimes women need to support their male counterparts in the field or be involved in informal labour activities to support their family income. Women also support the processing of the battel leaf and process the food for domestic cattle that usually unrecognized as a contribution to family income.

The exercise of time use mapping identified that, during the climate stress period, especially salinity intrusion and flooding, the HH works and working hours intensify substantially. Seasonal calendar and GEM discussion on economic decision-making demonstrate that women spent additional time collecting water, caring for sick family members, preparing cattle food, and processing betel leaf for market sale. Girls also reported extending their domestic work when their family's coping strategies rely on unpaid labour.

During the monsoon season, women's workload increases significantly, with all forms of domestic and care-related tasks requiring more time and effort. Women reported working continuously throughout the day with little opportunity for rest. In contrast, men's income-generating activities often decline during this period, leading many to remain at home. This reduction in earnings is associated with heightened stress and frustration among men, which women identified as contributing to increased household tension and conflict. These dynamics illustrate how seasonal climate stress redistributes labour and emotional burdens within households, disproportionately intensifying women's unpaid care responsibilities while exacerbating gendered power imbalances.

A comparative analysis has been conducted during the group exercise that identifying how climate stress intensifies the number of works and timing for the women and girls.

Table 3: Time Poverty Analysis

Normal Period: Tasks and Time Allocation	Climate Stress Period: Tasks and Time Allocation
Household cleaning, courtyard sweeping, morning prayer, and breakfast preparation - 2 hours.	Early-morning salvage and asset protection, including relocating grain, seeds, furniture, and documents to elevated structures (machangs) in anticipation of flooding - 2.5 hours.
Collection of drinking water from nearby tube wells and routine livestock care, including feeding cattle and poultry - 3 hours.	Extended water collection due to salinity and flooding, involving long-distance travel to locate safe water; searching for floating fodder and protecting livestock from floodwater - 5 hours.
Regular cooking, food preparation, and processing activities such as drying crops and husk - 4 hours.	Emergency food preparation under precarious conditions, including cooking on temporary stoves or rafts; searching for dry fuel (e.g., dung-cakes, debris); food rationing as male household members migrate for wage labour - 5 hours.
Personal hygiene, bathing at ponds, and short afternoon rest - 2 hours.	Structural maintenance and care work without rest, including placing sandbags to prevent erosion, repairing heat- or flood-damaged walls and roofs, and caring for children and elderly family members affected by illness or exposure - 2+ hours.
Homestead maintenance and social activities such as gardening, sewing kantha, and visiting neighbors - 3 hours.	Crisis-related vigilance, including standing in relief or aid distribution lines, searching for manual or casual work, and continuously monitoring rising water levels and environmental threats - 3+ hours.
Evening household responsibilities, including cooking dinner, assisting children with studies, cleaning, and preparing the household for sleep - 4 hours.	Shelter management and security work, including caring for family members in crowded shelters, guarding remaining assets, managing safety risks, and coping with lack of privacy and sanitation for 4+ hours.
Approximately 15 hours of combined unpaid domestic and care labour.	Approximately 19.5 hours or more , characterised by intensified physical labour, elimination of rest periods, and heightened emotional and cognitive stress.

In addition, during the climate stress period there are some specific **"Resilience Tasks"** that are often ignored:

Seed & Asset Protection: Women are typically the "seed keepers." During floods, they must waterproof and hide seeds, jewelry, and documents in plastic or buried jars.

Alternative Energy Management: When firewood is wet or unavailable, women spend hours making "Gute" (dung cakes) or searching for alternative fuel like fallen branches and leaves.

Sanitation Management: In floods, finding a private place for "MHM" (Menstrual Hygiene Management) becomes a time-consuming and stressful task involving finding dry rags and secluded spots.

From a feminist political economy perspective, these findings shows that how climate stress transforms unpaid care work into survival labour, absorbing the costs of environmental and institutional failures through women's time and bodies. Time of poverty thus operates not merely as an individual constraint but as a structural mechanism through which inequality is reproduced. Climate shocks intensify women's time poverty, transforming care into survival labor and reproducing structural inequality through the unpaid extraction of women's time, bodies, and emotional labor.

Economic Situation and Decision-Making Power

The overview of the Dalits highlighted that many are often forced into day labor or informal work due to caste-based circumstances. Additionally, climate change has impacted on their vegetable farming, especially Sidr, leading them to focus mainly on betel leaf cultivation. The analysis shows that Dalit women often have limited or irregular access to income because of the heavy caregiving responsibilities they bear. Household survival largely depends on male earnings or unstable daily jobs, while women's vital contributions through unpaid care work are often overlooked economically. Furthermore, although women participate in processing betel leaves or caring for domestic cattle, they tend to be excluded from decision-making about selling these products or sharing in the profits. These observations reflect the pervasive patriarchy that intensifies the difficulties faced by Dalit women, reinforcing unequal power dynamics. Women and girls also encounter sexual harassment and safety concerns, which hinder their ability to engage in income-generating activities outside their homes. Overall, these findings highlight how economic disempowerment is deeply connected to unpaid care responsibilities.

Analysis from the Feminist Political Economy

Feminist political economy analysis reveals that climate adaptation in marginalized contexts is effectively subsidized through the unpaid extraction of women's labour. Dalit women's care work sustains households, markets, and local resilience systems while remaining economically invisible, thereby reproducing caste- and gender-based structural inequalities across generations.

Knowledge, Education, and Skills

The primary livelihood activities of the targeted populations include van pulling, basket weaving, agricultural labour, and daily wage work. There is a notable absence of structured skills development and vocational training initiatives. As a result, the potential for small-scale and home-based enterprises remains largely unrealized. Women reported that with access to basic productive assets such as sewing machines, they could engage in tailoring and expand their existing quilt (kantha) stitching activities. Despite possessing these skills, they receive no institutional or programmatic support to translate them into sustainable livelihood opportunities.

The GEM group exercise with the adolescent girls reveals that the girls is consistently disrupted by the intersecting factors of poverty, care responsibility and insecurity. Many Girls reported dropping out of school due to economic instability, HH care demands, safety, and harassment as primary reasons, and that ultimately leads to conducting child marriage for some of their classmates. On the other hand, families are more flexible in continuing their boy siblings' education, as they are never forced to engage in care work and don't have any issues with safety and security. These findings strongly reveal the existence of gender inequality and male-dominated social norms. The lack of formal education and certified skills further limited access to dignified employment, reinforcing cycles of dependency and intergenerational inequality.

On the other hand, in the participants from the Christian community, Dalit women reported getting incentives to continue education for their children, and for that reason, the girls of their community have a better environment compared to the Hindu community.

Risk, Stigma and the Geography of Care:

Risk and mobility–dignity mapping demonstrated that care-related mobility exposes Dalit women and girls to overlapping physical, gendered, environmental, and caste-based risks. Water collection, taking children to school, travelling to markets and banks, working in fields or betel-leaf gardens, collecting livestock fodder, and undertaking day labour were identified as activities involving different forms of insecurity. Participants described risks including sexual harassment, verbal abuse, caste-based humiliation, unsafe roads, mud, snakes and leeches during the rainy season, and unequal treatment in workplaces.

These risks were not experienced uniformly. For example, collecting livestock fodder could be relatively safe when women purchased it using household resources but could expose them to caste-based verbal abuse when

collecting fodder from other people's land. Similarly, day labour provided an income opportunity but was associated with concerns regarding sexual harassment, unequal payment, and non-women-friendly working conditions. The geography of care therefore demonstrates that mobility is shaped not only by physical distance or environmental hazards but also by social power and caste position.

GEM findings on physical security and mobility further indicate that adolescent girls experienced heightened concerns about travelling alone, particularly during early morning and evening hours. Such concerns contribute to restricted mobility and increased dependence on male family members.

Table 4. Risks Associated with Care and Livelihood Activities

Activity	Key risks	Gender/caste dimension
Water collection	Verbal abuse, caste-based humiliation	Caste + gender
Taking children to school	Traffic, mud, snakes, leeches, harassment	Gender + climate
Field/betel-leaf work	Snakes, leeches, sexual harassment	Gender + occupational
Electricity bill/bank/market	Sexual harassment, insecurity	Gender + mobility
Livestock fodder collection	Caste-based verbal abuse, restricted access to land	Caste + poverty
Day labour	Sexual harassment, unequal payment, unsafe work environment	Gender + economic
Flood-period movement	Physical hazards and environmental insecurity	Gender + climate

Climate Change as a Multiplier of Care Burden

Seasonal calendar analysis illustrates how climate stress acts as a multiplier of existing inequalities, expanding both the intensity and scope of care labour. Salinity intrusion increased the time spent fetching safe drinking water, while flooding disrupted livelihoods, healthcare access, and schooling. The analysis reveals that, earlier they used to drink water from their HH sources but after two devastating cyclones, Sidr and Ilea nowadays they have to depend on the outsourced safe drinking water due to saline intrusion. However, previously radish and tomato were cultivated around their homestead and tidal water reached their local canals, which were the sources of Crabs. But the climate change effects radically changed the contexts where they failed to cultivate any vegetables or collect crabs from their local canals. Overall impacts to their family nutrition intakes and women need to pay extra time to fulfil the nutrition demands of their family. This also resulted in additional expenses to purchase vegetables from the market.

GEM discussion on economic security and decision-making reveals that climate shocks deepened households' reliance on unpaid female labour as a primary coping strategy. The discussion reveals that although women were producing vegetables and collecting crabs, only men had the power to make decisions to sell those in their local market. Even women didn't have any option to participate in decision-making for the profit from selling those vegetables and crabs.

From the KII analysis, it was identified that climate change caused flooding in these areas during May-July. Analysis from the KIIs and FGDs also identified that climate change contaminated their previous drinking water sources with arsenic and salinity, which led them to collect water from suppliers in the local producer points and some deep safe tubewells.

Participants consistently described climate stress as compounding pre-existing vulnerabilities rather than creating new one. For caste-marginalized Dalit households, climate events intensified unpaid care demands, particularly on women and adolescent girls. Girls' care responsibilities increased sharply during climate crises, often resulting in prolonged school absence or permanent dropout.

These findings align with climate justice perspectives that highlight how those least responsible for climate change bear disproportionate burdens through unpaid labour, health risks, and livelihood precarity.

Dignity, Agency, and Feminist Futures:

Despite pervasive constraints, GEM informed visioning exercises reported that Dalit women and Girls articulate aspirations grounded in dignity, safety, and autonomy rather than mere survival. Girls envisioned features involving continuing education, safety, mobility, and dignified employment explicitly rejecting caste-assigned labour roles and confine within care works. Women emphasized aspirations for secure livelihoods, access to safe water and healthcare, and social recognition of their care work.

GEM findings on self-confidence and social power indicate that while women and girls often felt unable to speak openly or challenge injustice in everyday settings, participatory research spaces enabled collective reflection and articulation of alternative futures. These aspirations were framed as collective and structural, underscoring demands for institutional accountability rather than individual escape.

These findings challenge deficit-based narratives and underscore the importance of recognizing Dalit women and girls as agents and co-analysts, capable of envisioning feminist futures when provided with rights-based participatory spaces.

DISCUSSION FROM THE FINDINGS

The Political Economy of Climate-Extracted Care

Findings reinforce feminist economic arguments that unpaid care labour is foundational to social and economic systems (Elson, 1998; Folbre, 2001; Federici, 2012). In coastal Dalit communities, climate change worsens unpaid care work, creating climate-extracted care. Women's labour acts as an invisible subsidy supporting household survival, local economies, and climate adaptation. Increased care duties during salinity intrusion and flooding, such as water collection, food management, and caregiving, show how environmental stress is absorbed through women's unpaid labor. This aligns with Federici's critique of capitalism's dependence on reproductive labor, but highlights how climate change externalizes costs onto marginalized women through intensified unpaid work. Climate adaptation here is gendered and caste-based, relying on unequal, unrecognized labour relations.

Caste as a Labor-Regulating System

This study advances intersectional feminist scholarship by framing caste as a labor-regulating structure that influences the distribution, valuation, and invisibility of care work. While prior research noted caste-based occupational segregation (Rege, 2013), findings here show caste also determines who performs unpaid care, under what circumstances, and with what recognition. Dalit women and girls are confined to stigmatized, low-value, often invisible labor, both paid and unpaid, naturalized within caste and gender norms that reinforce hereditary roles and limit mobility and skill development. This results in caste-based exclusion from dignified paid work and caste-assigned unpaid care duties. Caste stigma also affects access to water, labor, and public services, increasing care burdens. Unpaid care labor must be understood through caste-gender intersections that regulate labor and uphold inequality.

Climate Justice and Feminized Adaptation

The findings align with climate justice scholarship, which states that those least responsible for climate change face the worst impacts (Ahmed et al., 2019; Rao et al., 2020). This study adds by showing these burdens are mediated through unpaid care systems, leading to feminized adaptation. Household and community adaptation strategies, such as water management, food security, and asset protection, are mainly carried out by women and girls without formal support. This feminization indicates systemic failure where governance underinvests in infrastructure, shifting responsibility to marginalized women. The study also shows that climate vulnerability involves not just environmental exposure but also socially unequal capacities to respond. Dalit women's unpaid labor becomes a crucial adaptation mechanism, exposing gaps in climate policies that overlook care economies.

Intergenerational Transmission of Care Inequality

The study emphasizes how unpaid care work is passed down through generations by early socialization of girls into gendered and caste-based roles. This finding supports intersectionality theory (Crenshaw, 1989) but expands it by showing how care inequality is systematically transmitted through social reproduction. Adolescent girls' early involvement in care work often at the expense of education creates long-term impacts on their economic independence, agency, and life choices. Climate stress worsens this cycle by increasing reliance on girls' labor during crises, leading to school dropout and higher risks of child marriage. This intergenerational cycle is not just a cultural phenomenon but a structural one, reinforced by poverty, lack of services, and institutional neglect. It indicates that without targeted interventions, climate change will intensify existing inequalities by more deeply embedding care burdens within future generations of marginalized women.

Discussion from GEM Domain: The below integrated analysis suggests that caste and gender do not merely add to climate vulnerability; they structure how climate risks are experienced, how adaptation costs are distributed, whose labour absorbs those costs, and whose voices are recognized in decisions about the future.

Table 5. Integrated Intersectional Analysis of Care, Power and Climate Vulnerability

GEM domain	Care-related finding	Caste dimension	Climate dimension	Gender/intergenerational outcome
Economic situation & decision-making	Women contribute to household production but have limited control over income	Caste-associated occupations limit opportunities	Livelihood disruption increases dependence	Economic disempowerment
Knowledge, education & skills	Girls perform care work from an early age	Hereditary labour expectations	Climate shocks disrupt schooling	Educational inequality
Physical security & mobility	Water collection and livelihood mobility create risks	Caste discrimination in public spaces	Floods, mud, snakes, water insecurity	Restricted mobility
Self-confidence & dignity	Women hesitate to challenge social norms	Stigma and humiliation	Climate stress increases dependence	Diminished voice and dignity
Social relations & power	Men's voices dominate household decisions	Caste hierarchy limits social recognition	Resource scarcity intensifies competition	Intergenerational reproduction of inequality
Visioning/agency	Participants articulate alternative futures	Desire to move beyond caste-assigned work	Desire for climate-secure livelihoods	Transformative agency

CONCLUSION

This study demonstrates that unpaid care labour among Dalit women and girls is neither a private household responsibility nor a simple consequence of poverty or climate exposure. It is produced through intersecting relations of caste, gender, age, economic inequality, and environmental vulnerability. Climate stress intensifies these relations by transforming routine domestic responsibilities into survival labour, transferring the costs of environmental and institutional insecurity onto women's time, bodies, and emotional labour.

By bringing feminist political economy, intersectionality, climate justice, and participatory approaches into dialogue, the study makes visible forms of labour and knowledge that remain largely excluded from conventional gender and climate analyses. Its most important contribution lies in showing that **climate vulnerability is mediated by social power**: who performs care, who benefits from it, who controls resources, whose mobility is restricted, and whose knowledge is recognized are all shaped by intersecting inequalities.

At the same time, the participatory visioning process demonstrates that Dalit women and girls are not merely subjects of vulnerability. They are knowledge producers, rights-holders, and agents of transformation who articulate aspirations for education, dignity, safe mobility, economic autonomy, and futures beyond inherited caste-based labour. Recognizing and supporting these aspirations is essential for moving from vulnerability-centred interventions toward more transformative approaches to gender equality, social justice, and climate resilience.

Policy and Practice Implications

The study has concluded with the following policy recommendations

Table 6. Findings and Policy Implications

Empirical finding	Structural issue	Recommended response
Girls enter care work at 10–12	Gendered socialization	Care-sensitive education and retention programmes
Care burden increases during climate stress	Feminization of adaptation costs	Integrate unpaid care into climate adaptation planning
Women contribute to income but lack control	Economic disempowerment	Women's control over income, markets and financial services
Water collection requires increased time	Climate + infrastructure inequality	Reliable, accessible safe-water infrastructure
Girls face mobility and harassment risks	Gendered insecurity	Safe transport, public spaces and safeguarding mechanisms
Girls leave education	Care + poverty + social norms	Stipends, flexible education and retention support
Caste stigma affects access to resources/work	Structural discrimination	Anti-discrimination mechanisms in programmes and services
Women's productive work remains invisible	Feminist political economy	Recognize and measure unpaid and home-based productive labour
Skills opportunities are limited	Economic exclusion	Market-linked skills development for women and girls
Women and girls have aspirations for dignified futures	Agency and transformative potential	Support leadership, voice and participatory decision-making

RECOMMENDATIONS

Building on the feminist “5Rs” framework (Recognize, Reduce, Redistribute, Represent, and Reward), the following recommendations are proposed:

1. Recognition

- Integrate unpaid care work into National Adaptation Plans (NAPs) and climate policies.
- Institutionalize caste- and gender-disaggregated time-use data within national statistics (BBS).
- Recognize unpaid care as a core component of climate resilience and social protection systems.

2. Reduction

- Invest in climate-resilient water infrastructure (e.g., desalination plants, piped water systems) in Dalit settlements.

- Establish community-based childcare and eldercare services, particularly during climate shocks.
- Improve access to clean energy solutions to reduce time spent on fuel collection.

3. Redistribution

- Design and implement gender-transformative programs that actively engage men and boys in care responsibilities.
- Introduce care-sensitive social protection schemes (e.g., cash transfers, public works) that account for women's time poverty.
- Promote labour-saving technologies tailored to climate-affected rural contexts.

4. Representation

- Ensure meaningful participation of Dalit women and girls in local governance, climate planning, and disaster management committees.
- Strengthen community-based organizations and feminist collectives to amplify marginalized voices.

5. Reward (Economic Empowerment)

- Provide certified vocational and technical training linked to market opportunities.
- Expand access to productive assets (e.g., sewing machines, livestock, micro-grants).
- Recognize and support home-based and informal production systems as legitimate economic contributions.

6. Climate Justice Integration

- Allocate equity-based climate finance targeting caste-marginalized communities.
- Incorporate unpaid care indicators into disaster response and monitoring frameworks.
- Align humanitarian and development interventions with intersectional climate justice principles.

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