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Rethinking Climate Adaptation through Gendered Slow Violence in Can Tho City in the Mekong Delta, Viet Nam

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Abstract

Climate change and variability have increased the frequency and intensity of hydrometeorological hazards. In many flood-prone communities, flooding has become part of everyday life, prompting residents to develop strategies to live with recurring disruption. This paper argues that such experiences should not be understood solely through the lens of climate adaptation. Drawing on the concept of slow violence and feminist political economy, it examines how cumulative harms associated with flooding may become normalised through everyday adaptation practices and remain insufficiently recognised as violence. It also draws on the concept of depletion through social reproduction to examine the costs of sustaining household wellbeing. The analysis is based on qualitative research with seven women living in flood-prone communities in Can Tho City, Viet Nam, where flooding is shaped by climate change, urbanisation, and broader hydrological transformations. Data were collected through semi-structured interviews, participant observation, and secondary sources. Participants were purposively selected to reflect diverse ages, socio-economic backgrounds, and disability statuses. The findings demonstrate that women experience flooding through interconnected physical, emotional, and economic burdens. While participants actively negotiated flood risks through caregiving, livelihood adjustments, and household management, these efforts frequently co-existed with continuing vulnerability. The study argues that flooding can contribute to gendered slow violence as the cumulative costs of everyday adaptation become embedded in household life, particularly when women's labour is insufficiently supported and the resources needed to sustain their wellbeing are inadequate. Recognising these experiences as violence is important because normalised harms are less likely to be recognised as injustice, attract institutional attention, or prompt structural responses.

1. Introduction

Environmental change increasingly shapes the conditions of everyday life in cities worldwide. Driven by the combined effects of climate change, urbanisation, land subsidence, and changing hydrological conditions, flooding is no longer experienced solely as an occasional disaster but as a recurring disruption (Intergovernmental Panel on Climate Change 2023). Although often perceived as a series of discrete flood events, repeated inundation may generate cumulative forms of harm that extend beyond immediate physical damage. Disruptions to livelihoods, mobility, health, and household wellbeing can accumulate over time, becoming embedded in everyday routines. Drawing on Nixon's (2011) concept of slow violence, this paper starts with the argument that the significance of recurrent flooding lies not only in individual flood events but also in the gradual and often unrecognised harms that emerge through repeated exposure over time.

This issue is particularly relevant in the Mekong Delta of Viet Nam, one of the regions most vulnerable to climate change and environmental change. In recent decades, flooding has become a significant challenge in Can Tho City, affecting residents' homes, livelihoods, mobility, and wellbeing. Existing research demonstrates that these flood risks are shaped not only by climatic factors but also by

urbanisation, land subsidence, hydrological change, flood-control infrastructure, and broader development processes (Thomas 2021; Nizar and Dang 2024).

This paper examines how women experience and negotiate flooding in Can Tho City, focusing on the relationship between everyday adaptation and the cumulative harms associated with repeated flooding. Building on feminist engagements with slow violence (Christian and Dowler 2019; Walzer 2023; Dao 2025), it explores how these harms become embedded in everyday life and may be normalised even as their physical, emotional, and economic consequences persist. Feminist political economy provides a lens for examining how gendered divisions of labour and unequal access to resources shape women's responsibilities for maintaining household wellbeing during and after flooding. The paper also draws on the concept of depletion through social reproduction to consider when the time, energy, and resources women expend in managing these disruptions may exceed those available to sustain their wellbeing (Rai et al. 2014; Rai 2024). An intersectional approach further recognises that women's experiences and capacity to manage flooding are shaped by differences in age, disability, livelihood security, and household circumstances. The paper argues that although women actively adapt to flooding, their efforts do not necessarily eliminate vulnerability. Where the costs of adaptation are absorbed through women's everyday labour without adequate support, cumulative harms may become normalised, contributing to gendered slow violence.

The study draws on qualitative research conducted with seven women living in flood-prone communities in Can Tho City. Data were collected through semi-structured interviews, participant observation, and secondary sources, and analysed thematically to examine participants' experiences of recurrent flooding, its impacts on everyday life, and the strategies they employed to manage recurring disruptions.

The paper first develops the theoretical framework used to understand recurrent flooding as a form of gendered slow violence before outlining the study context and methodology. It then examines women's lived experiences of recurrent flooding and the strategies through which they navigate everyday disruptions. Building on these findings, the discussion explores how vulnerability is produced through gendered social relations and how adaptation may simultaneously absorb and normalise continuing harms. The paper concludes by reflecting on the implications of these findings for understanding the relationship between climate change, gender, and slow violence.

2. Theoretical framework

This paper draws on the concept of slow violence to critically examine the relationship between recurring flooding and climate adaptation. Climate adaptation is commonly understood as the process where individuals, communities, and institutions adjust to actual or anticipated environmental change in order to reduce vulnerability and sustain wellbeing (Adger et al. 2009; Smit and Wandel 2006). Foundational vulnerability scholarship similarly argues that disaster risks arise not from environmental hazards alone but from the interaction between hazards and socially produced vulnerability (Blaikie et al. 1994). Thus, vulnerability is not an inherent characteristic of particular populations, but an outcome of

broader social, political, and economic processes that shape access to resources, opportunities, and decision-making power (Blaikie et al. 1994; Farmer 2004; Smit and Wandel 2006).

Adaptation scholarship has increasingly recognised that responses to climate change are shaped by institutions, power relations, social norms, and unequal access to resources rather than technical capacities alone (Adger et al. 2009; Smit and Wandel 2006). However, adaptation does not necessarily reduce vulnerability. Climate impacts may persist despite ongoing adaptation efforts because of financial, institutional, social, and biophysical constraints (Bassett and Fogelman 2013; Morchain 2018; Mechler et al. 2020; Birkmann et al. 2026). Adaptation and harm may co-exist, with some forms of suffering becoming normalised within everyday efforts to live with environmental disruption (Fekete and Sakdapolrak 2014; Filho et al. 2026). This raises the question of how to understand the cumulative consequences of recurring hazards despite ongoing adaptation.

To address this question, this paper draws on the concept of slow violence. While violence is often understood as direct physical harm, Galtung and Fischer (2013, p. 35) define it as "any avoidable insult to basic human needs" that lowers actual wellbeing below what is potentially possible. This broader conceptualisation shifts attention towards social conditions that generate avoidable harm. Structural violence, a concept pioneered by Galtung (1969), focuses on unjust political, economic, and social structures that systematically produce suffering. Although these harms may lack a visible perpetrator, they constrain access to resources, opportunities, and rights, particularly for those with little responsibility for creating these conditions (Farmer 2004; Farmer et al. 2006).

Building on these insights, Nixon (2011) introduces slow violence to highlight how harm unfolds gradually, incrementally, and often out of sight. Unlike spectacular disasters or direct physical aggression, slow violence is characterised by delayed destruction, dispersed causality, and cumulative impacts over extended periods (Nixon 2011; O'Lear 2021). It extends structural violence by demonstrating how unequal social arrangements generate attritional harm distributed unevenly across space and time (Farmer 2004; Nixon 2011; O'Lear 2021). Environmental change is a particularly important site for examining slow violence because its harms accumulate and become embedded in everyday life, making them difficult to recognise as violence despite their profound consequences.

Feminist scholarship extends this temporal understanding of violence by examining how harm is reproduced through repeated practices and unequal social relations, rather than discrete incidents alone. Gender-based violence is embedded in power relations that organise labour, resources, and responsibility unequally, while routine practices reproduce these inequalities (True 2020; Elias and Rai 2019). Slow violence also operates through interactions between environmental, infrastructural, and social processes, producing uneven temporalities of risk (O'Lear 2021; Rezwana and Pain 2021; Thomas 2021; Trumble 2021). Environmental degradation can intensify existing inequalities by generating additional everyday labour, making environmental harm consequential not only through direct exposure but also through the work required to sustain life under deteriorating conditions (Nixon 2011; True 2020). Recurrent flooding can thus be understood as a process in which environmental pressures interact with

pre-existing inequalities to produce cumulative physical, emotional, economic, and social harms (Pain 2018; Rezwana and Pain 2021; Walzer 2023).

Feminist political economy helps explain how these consequences are distributed and absorbed through the gendered organisation of paid and unpaid labour (True 2010). The work required to maintain households and livelihoods during and after flooding forms part of social reproduction, encompassing the activities and relations involved in sustaining labour, households, and communities, including domestic work, care, and social provisioning (Rai et al. 2014). Although essential to everyday life, social reproductive labour is often undervalued and unequally distributed, allowing additional demands associated with environmental disruption to be absorbed through existing household responsibilities (Nixon 2011; Elias and Rai 2019). The concept of depletion through social reproduction (DSR) explains how harm can arise when the time, energy, and other resources expended in sustaining everyday life exceed those available to support it (Rai et al. 2014; Rai 2024). DSR does not treat care itself as harmful, but draws attention to the conditions under which this work is organised and supported. Depletion is not simply individual tiredness or overwork, but is structurally produced through the unequal organisation of social reproduction and inadequate recognition and support (Rai 2024). Where the additional work required to sustain life amid environmental change is not matched by sufficient income, infrastructure, services, and social support, efforts to maintain households and livelihoods may gradually erode the health and wellbeing of those undertaking this work.

Bringing these perspectives together, this paper conceptualises recurrent urban flooding in Can Tho City, Viet Nam, as a form of gendered slow violence. Slow violence draws attention to the gradual accumulation of harm, while feminist political economy and DSR explain how this harm is produced through unequal social relations and the depletion of resources required to sustain everyday life. The repeated labour involved in maintaining households and supporting family members may be perceived as ordinary domestic responsibility, obscuring its connection to environmental disruption and unequal access to support. These demands can be understood in relation to Nixon's (2011) notion of "quotidian terrors", which highlights consequential but less spectacular harms experienced in everyday life. Although residents may develop adaptive capacities that enable them to remain in flood-prone environments, adaptation should not automatically be interpreted as resilience or successful adjustment. It may sustain everyday life while reinforcing inequalities in the management of environmental harm and the distribution of its costs. The analytical focus therefore shifts from adaptation as an outcome to the gendered processes through which its demands are negotiated and normalised, and the cumulative harm that may emerge over time.

3. Methodology

3.1. Study area

Can Tho City, located in the heart of Viet Nam's Mekong Delta along the Hau (Bassac) River, is a low-lying urban centre with an average elevation of only 0.5 to 1.5 metres above sea level. As a semi-open

floodplain influenced by the Mekong River system, the city experiences recurrent flooding from both upstream river flows and tidal inundation. Climate change has further intensified flood risks through changing rainfall patterns, increasing rainfall variability, and sea-level rise, while the city's low elevation heightens its exposure to both tidal and pluvial flooding (Government of Viet Nam, MONRE 2018; Government of Viet Nam, MONRE 2024).

Urban flooding in Can Tho City is not solely the product of climatic processes but also results from complex human-environment interactions. Rapid urbanisation has transformed agricultural land into residential and construction areas, reducing green spaces and natural drainage capacity (Dang and Kawarazuka 2025; Nizar and Dang 2024). At the same time, infrastructure development, including elevated roads and flood-control projects, has altered local hydrological dynamics and, in some cases, exacerbated inundation in lower-lying residential areas. Beyond the city itself, long-term rice intensification policies and flood-control infrastructure across the Mekong Delta have disrupted natural water flows and contributed to downstream flood risks (Huong and Pathirana 2013).

Local responses commonly follow the strategy *ngập đến đâu, nâng và chặn đến đó* (raise and block wherever flooding occurs), involving the construction of temporary barriers and the elevation of structures (Dang and Kawarazuka 2025; Huong and Pathirana 2013). While such measures may reduce flood impacts for some households, they often leave lower-income residents living in low-lying areas exposed to recurrent flooding. These conditions make Can Tho City a particularly relevant site for examining how recurring urban floods generate cumulative and uneven impacts across different social groups.

3.2. Data collection and analysis

Data were collected through secondary sources, participant observation, and semi-structured in-depth interviews. Secondary data comprised grey literature from government and non-government agencies, providing contextual information on urbanisation, environmental change, and flood management.

Primary data consisted of participant observation and semi-structured in-depth interviews conducted in Vietnamese by the second author with seven women from seven households across different communities in Can Tho City. Interviews explored participants' experiences of recurrent flooding, household responsibilities, coping strategies, perceptions of risk, and demographic characteristics, including age, ethnicity, occupation, and disability status. They examined how women experienced and responded to flooding across different stages of flood events, including its implications for caregiving, livelihoods, and everyday wellbeing, as well as the strategies and resources available to manage recurring disruptions. Participant observation complemented these accounts by situating women's experiences within their everyday activities, relationships, and social contexts. This combination of methods was relevant to examining gendered slow violence, as cumulative and normalised harms may be difficult to identify through accounts of individual flood events alone.

Participants were purposively selected to include women of diverse ages, socio-economic backgrounds, disability statuses, and household circumstances. Six participants were Kinh, the majority ethnic group in Viet Nam, while one was Khmer, one of the country's largest ethnic minority groups. This diversity supported an intersectional analysis of how gender interacted with other social positions and material circumstances. Following Ackerly and True (2020), the analysis recognised that intersecting social forces and contexts shape experiences and may obscure how inequalities are produced and sustained. The unit of analysis centred on women's everyday responses to recurrent urban flooding at the individual, family, and community levels. The seven cases were selected to capture diverse experiences of gendered slow violence. Although limited in number, this small-N approach prioritises depth over breadth, allowing strategically selected cases to reveal social mechanisms and contextual dynamics (Flyvbjerg 2006). This is particularly relevant to examining relational processes in which decisions, care responsibilities, and experiences of risk emerge through everyday negotiations shaped by family relations, social networks, and broader structural conditions (Carling et al. 2012; Farbin et al. 2025).

Ethical considerations were prioritised throughout the research process. Informed consent was obtained before each interview, and participants were informed of the study's objectives, the voluntary nature of participation, and their right to withdraw at any time. Interviews were conducted in locations chosen by participants and audio-recorded with their consent. To ensure confidentiality, pseudonyms were used, identifying details were removed, and audio recordings were deleted following transcription. Participant observation involved repeated visits to households, marketplaces, workplaces, and women's social networks, providing insights into everyday flood experiences, gender relations, and local social dynamics. Fieldwork was conducted over ten months, from May 2019 to February 2020.

Data analysis was conducted iteratively, beginning during fieldwork and continuing through post-fieldwork examination. Guided by the study's focus on gendered slow violence, the analysis examined three interrelated dimensions: (i) perceptions of recurrent flood risk; (ii) the physical and emotional consequences of flooding; and (iii) the everyday strategies through which women negotiated these consequences while remaining in place. Interview transcripts underwent thematic and descriptive coding, followed by content analysis. Similar patterns were grouped across cases and examined through cross-case comparison.

An intersectional lens informed the interpretation of these themes, recognising that women's experiences cannot be understood through gender alone but must be situated within intersecting social positions and material circumstances (Ackerly and True 2020). The analysis considered how gender interacted with age, ethnicity, socio-economic circumstances, disability, livelihood, household composition, and family relationships in shaping flood impacts and response capacities. Particular attention was paid to the relationships between productive, reproductive, and community labour; the distribution of household and caregiving responsibilities; and access to family support and other resources. Comparing the seven cases enabled the identification of shared patterns and differences in how these circumstances shaped women's exposure to disruption, everyday demands, and available

response strategies. This approach examined gendered slow violence as a socially differentiated process shaped by intersecting inequalities and unequal access to resources and support.

The analysis focused on cumulative and normalised harms that might not ordinarily be recognised as violence, including everyday disruptions, care demands, physical strain, emotional distress, and the enduring consequences of recurrent flooding. By examining participants' accounts alongside observations of their everyday lives, flooding was approached not merely as a series of discrete hazard events but as a recurring process whose consequences were experienced and negotiated in everyday life.

4. Findings

4.1. Perceiving and making sense of recurrent floods

Women in Can Tho City's flood-prone communities perceived recurrent flooding not as isolated disaster events but as a persistent feature of everyday life. Their accounts reveal how understandings of flood risk were shaped by daily experiences of living, working, and caring within flood-affected environments. They shared a common awareness that flooding had become more frequent, severe, or difficult to predict. At the same time, their perceptions of risk were closely intertwined with practical concerns about mobility, livelihoods, housing conditions, and family responsibilities.

Several participants explicitly described noticeable changes in flood patterns over time. Mrs. An, a 67-year-old lottery seller from An Binh, observed that recent floods differed significantly from those she had experienced previously. She described flooding as becoming more severe, faster, and increasingly difficult to understand, comparing the recent flooding with the "enemy in the past", which is a reference to her traumatic experiences during the American-Viet Nam War in the 1960s. Similarly, Mrs. Thu, a 34-year-old street vendor, reflected on changing flood conditions in her neighbourhood, explaining,

I've been here for 8 years; it was flooded a few years ago, but I don't know why it was flooded last year and this year.

Her account suggests that flooding was perceived as changing over time and becoming increasingly difficult to make sense of based on previous experiences.

For some women, perceptions of worsening flood risks were directly linked to urban development and infrastructure changes. Mrs. Tu, a 43-year-old Khmer bottle collector living in Chau Van Liem, attributed increased flooding to the construction of an elevated alley near her home. Likewise, Mrs. Ly associated worsening inundation with nearby construction projects, observing that flooding had become more common only in recent years. These experiences indicate that participants often understood flooding not simply as a natural hazard but as the outcome of broader environmental and infrastructural changes affecting their communities.

Although participants recognised increasing flood risks, they rarely discussed flooding in abstract environmental terms. Flood risk was perceived through its effects on everyday activities and bodily experiences. For Mrs. Ny, a 78-year-old widow living near the Cai Son Hang Bang River, flooding was primarily understood through the difficulties it created in moving around her home. She described how floodwater reached her bed and made sleeping difficult, while slippery floors increased her risk of falling. Similarly, Mrs. Tha, a 39-year-old grocery store owner with a one-leg disability, perceived flooding through the challenges it posed to mobility. As she explained,

Very inconvenient! You see that it is already inconvenient in a normal situation as my disability condition ... the floor is slippery. I could not move around easily.

In these cases, flood risk was experienced through disruptions to routine activities rather than through formal understandings of climate or disaster risk.

Livelihood concerns also played an important role in shaping how women made sense of flooding. Participants whose incomes depended on daily mobility were particularly attentive to the practical implications of rising water levels. Mrs. Thu associated flooding with difficulties travelling to work and maintaining her income-generating activities. Likewise, Mrs. Tu perceived flooding through its consequences for her bottle-collecting work and household survival. Despite recognising worsening flood conditions, she continued working because, as she explained,

If I do not do this kind of activity, my family does not have money to survive. My husband earns a small income, it is not enough for living, so I would need to do that [work].

These accounts suggest that risk perception was often mediated by livelihood realities, with concerns about income and survival influencing how women interpreted and responded to flood risks.

Across cases, participants also demonstrated a strong awareness of the ways flooding affected family life and household responsibilities. Women frequently discussed flooding in relation to childcare, caring for dependent family members, or protecting household belongings. Mrs. Thu described the need to simultaneously manage floodwater and supervise her children, noting that,

I took care of my children and managed the flood water in order to avoid the damage to both. My husband usually worked in another district or even other provinces.

Mrs. Tu similarly emphasised concerns about her children and a brother-in-law with mental illness during flood events. For these women, perceptions of flood risk extended beyond personal safety to include responsibility for the wellbeing of others.

At the same time, participants often expressed a degree of familiarity with flooding that reflected long-term exposure. Floods were widely recognised as disruptive and burdensome, yet they had also become embedded within everyday life. Mrs. Ny’s account illustrates this dynamic. Despite repeated falls, physical discomfort, and sleep disruption, she continued living in the same location and managing

floodwater herself. Similarly, Mrs. An described living with floods as an ongoing reality, remarking that she expected to “just live like this year by year.” Such statements suggest that recurrent flooding has become a normalised aspect of daily life, even when participants clearly recognised its adverse consequences.

Overall, participants perceived recurrent flooding through the lens of everyday experiences instead of through abstract notions of environmental risk. Across the seven cases, women recognised changing flood patterns, linked worsening conditions to both environmental and infrastructural factors, and understood flood risks through their impacts on mobility, livelihoods, household responsibilities, and family wellbeing.

4.2. Living with the flood impacts

Participants frequently described the physical demands associated with living in flood-prone environments. A common experience across cases was the repetitive labour required to manage floodwater and minimise damage to homes and belongings. Women regularly pushed water out of their houses, cleaned muddy floors, elevated furniture and household goods, and rearranged belongings during each flood event. These activities were often performed alongside their existing livelihood and caregiving responsibilities.

Several participants also experienced health problems associated with prolonged contact with floodwater, including skin irritation, scabies, and bodily pain. Mrs. Tu, for example, explained that,

Sometimes, my feet got scabies. My whole body ached because I spent too much time dealing with the floods. I bought some skincare and applied it, and it got a little better. But I faced it again and again because the floods came again and again.

Floodwater exposure further increased risks of injury, particularly among participants with existing vulnerabilities. Mrs. Ny experienced repeated falls on slippery floors, while Mrs. Tha, who had a one-leg disability, described flooded surfaces as particularly difficult to navigate. These accounts suggest that the physical impacts of recurrent flooding were shaped not only by flood exposure itself but also by participants’ age, health conditions, and disability status.

Flooding also disrupted participants’ livelihoods and income-generating activities. Several women depended on daily earnings from informal work and therefore remained exposed to flood risks even during periods of severe inundation. Mrs. An, a lottery seller, explained that flooding reduced her daily sales from approximately 300 tickets to between 100 and 150 tickets. Likewise, Mrs. Tu’s income from collecting recyclable materials declined substantially during flood periods. Despite these losses, neither woman could stop working because their households depended on their earnings.

Livelihood challenges were further compounded by limited financial support available to some participants. As an elderly widow with no regular source of income, Mrs. Ny relied primarily on small allowances from the state-sponsored Elder Association and occasional support from her children,

I just got some money from the Elder Association every month, and some of my children send me little money annually. It is not enough, I am so miserable.

Despite experiencing recurrent flooding and declining physical mobility, the support available to her remained limited, leaving her largely dependent on family networks and her own efforts to cope with everyday flood impacts.

Alongside these physical and economic consequences, participants described significant emotional burdens associated with recurrent flooding. Sleep disruption emerged as a particularly common experience. Mrs. Ny explained that floodwater occasionally rose to the level of her bed, making it difficult to sleep and increasing her anxiety about household belongings. Mrs. An similarly described worrying about floodwater entering her house at night and reported that she “could not sleep well” during periods of flooding. These experiences illustrate how recurrent flooding extended beyond physical inconvenience to affect participants’ sense of comfort, security, and wellbeing.

Many women also expressed ongoing worry for the safety of family members. Participants with dependent children frequently described the need to constantly monitor their children during flood events. Mrs. Thu explained that she simultaneously managed floodwater and cared for her children to prevent accidents, while Mrs. Tu worried about both her children and her brother-in-law, who had a mental illness. These concerns required continuous vigilance and often persisted even when floodwater were relatively shallow. Emotional burdens therefore stemmed not only from flood exposure itself but also from women’s responsibilities for protecting and caring for others.

Fear and uncertainty were also evident across several cases. Mrs. An described being afraid of falling while walking through floodwater to sell lottery tickets and recalled feeling “scared” when flood levels rose unexpectedly. Similarly, Mrs. Tu reported moving cautiously through flooded areas because she feared slipping or falling. For some participants, these concerns were compounded by uncertainty about future flood conditions. Women frequently described flooding as becoming more severe, longer lasting, or increasingly difficult to predict, generating a sense of unease about what future flood seasons might bring.

Recurrent flooding also generated emotional strain within spousal relationships. Mrs. An frequently expressed frustration that flood-related cleaning and recovery work fell primarily on her despite being both the household’s main income earner and the person responsible for managing flood impacts at home. During one field observation, Mrs. An’s interaction with her husband revealed tensions surrounding flood-related household responsibilities,

Mrs. An: “Why didn’t you arrange and clean your home?”

Husband: “I was tired, let it be!”

Observation notes indicated that Mrs. An appeared dissatisfied with the situation, yet she proceeded to clean and organise the house herself. Similar tensions emerged around household finances and flood-

related repairs, adding to the emotional burden associated with recurrent flooding.

The findings demonstrate that recurrent flooding affected women through interconnected physical, economic, and emotional consequences. Participants experienced bodily pain, health problems, livelihood disruptions, sleep disturbances, fear, worry, exhaustion, and spousal tensions associated with unequal household responsibilities. While these impacts varied, they collectively shaped women's everyday experiences of living with recurrent floods.

4.3. Navigating life during floods

Care work emerged as a central aspect of women's everyday negotiations with flood risk. Participants were often responsible not only for their own safety but also for the wellbeing of children, elderly family members, spouses, and other dependents. For women with young children, flood management was inseparable from childcare responsibilities. Mrs. Thu, a street vendor and mother of two, explained that she simultaneously managed floodwater and cared for her children, noting that,

I have to carry all of the home's roles even in the flooding situation.

Similarly, Mrs. Tu, a bottle collector from Chau Van Liem, was responsible not only for her two children but also for a brother-in-law with a mental illness. During flood events, she closely monitored family members to prevent accidents and ensure their safety while continuing to earn an income and manage floodwater at home.

Care responsibilities also shaped the experiences of older participants. Mrs. Ny, a 78-year-old widow, continued managing floodwater despite declining mobility and recurring falls. Although she lived with her daughter and grandchild, she often dealt with flooding alone while other family members were away at work. Likewise, Mrs. Diem remained at home during flood periods to care for children and manage household flood impacts while her husband continued working outside the home. Across cases, caregiving responsibilities frequently expanded during periods of inundation, requiring women to devote additional time and attention to family members while simultaneously responding to flood-related challenges.

Alongside care work, women undertook extensive household adaptation measures to reduce flood impacts and protect their homes. A common strategy involved repeatedly pushing water out of houses, cleaning muddy floors, elevating furniture, and moving belongings to higher locations. These activities were often undertaken during every flood event and became embedded within everyday routines. Mrs. Tu described having to repeatedly clean her house and remove water after each flood, while Mrs. Ny regularly rearranged household belongings and managed floodwater despite her age and mobility limitations. These efforts were not one-time responses but ongoing practices repeated throughout each flood season.

Household adaptation was frequently undertaken through women's labour. Participants described cleaning homes, moving belongings, erecting temporary barriers, seeking government assistance, and

managing post-flood recovery. These responsibilities were often assumed even when other household members were present. Mrs. Ly explained that her husband did not assist with flood-related cleaning because he considered it as “women’s work”,

I do everything. Even when he has free time, he doesn’t help because he says this kind of work is women’s work.

Similarly, Mrs. An took responsibility for accessing government housing assistance after her husband refused to engage with the application process, explaining that,

“I knew there was funding support from the Local Government, so I presented it to my husband, but he was unsatisfied and critical of me. He did not want to do it, so I did it by myself.”

These accounts demonstrate that adaptation extended beyond physical responses to flooding and included the administrative, organisational, and emotional labour required to maintain household functioning.

Several participants also implemented small-scale structural adaptations to their homes. Temporary barriers, raised doorways, and elevated floors were commonly used to reduce water intrusion. Mrs. An and her husband constructed temporary walls to keep floodwater out of their home, while Mrs. Tha invested in raising the floor level of her house. However, participants frequently noted that such measures offered only partial protection. Mrs. Tha explained that despite previous upgrades, flooding continued to disrupt both her household and her grocery business. Similarly, Mrs. Tu observed that elevated alley construction intended to improve infrastructure had instead trapped water around nearby houses, creating new challenges for residents. These experiences illustrate how household adaptation often involved continual adjustments to changing flood conditions rather than permanent solutions.

Women’s adaptation efforts frequently extended beyond the home and into their livelihood activities. Several participants modified daily routines to accommodate flood conditions. Mrs. Thu adjusted her travel routes and sometimes suspended street vending when floodwater became too deep. Reflecting on the challenges of travelling during floods, she explained,

It is a bit difficult to travel during the flooding period because there is too much flood water. It was inconvenient to ride a bike. I carried a lot of food on my bike, so it is heavy and I worry that I could not control my bike in the flooded area.

Similarly, Mrs. An left home earlier when flooding was expected to avoid mobility disruptions, while Mrs. Tu continued collecting recyclable materials despite flooded roads and hazardous conditions. Such adjustments enabled women to continue earning an income while responding to flood risks, although they often required additional time, effort, and exposure to floodwater.

Furthermore, these efforts were not always supported by employers or other institutions. Mrs. Diem, for example, had to spend additional time managing household flood impacts and childcare responsibilities

before leaving for work. Flooded roads also made travelling more difficult and time-consuming. Although she was still permitted to work if she arrived late, her wages were reduced accordingly. As a result, adapting to recurrent flooding often required women to absorb the economic costs associated with disrupted mobility and additional household responsibilities.

Some participants also engaged in temporary relocation during periods of severe flooding. However, these movements were often brief and closely linked to concerns about family responsibilities, livelihoods, and property. Mrs. Tha, who owned a small grocery store at her house, for example, temporarily moved to her parents-in-law's house during periods of high water but remained there for only a few hours before returning home. As she explained,

I worried about my home and my business, I wanted to come back and take care of them.

This experience suggests that temporary mobility functioned primarily as a short-term coping strategy rather than a long-term solution to flood exposure, given participants' ongoing responsibilities often limit their ability to remain away for extended periods.

The findings reveal that women actively negotiated recurrent flooding through a combination of care work, household adaptation, livelihood adjustment, and place-based decision-making. Participants exercised agency in navigating everyday life during floods by managing floodwater, protecting family members, modifying daily routines, and sustaining household livelihoods. However, these efforts were shaped by economic constraints, housing conditions, livelihood dependence, and family responsibilities, which often limits the feasibility of relocation or more substantial adaptation measures. These activities also required women to undertake repeated additional work alongside their existing livelihood and caregiving responsibilities, while the financial and institutional support available to them remained limited. As a result, women frequently relied on incremental and temporary strategies to navigate recurrent flooding while remaining in place.

5. Discussion

5.1. The gendered production of flood vulnerability

The findings demonstrate that flood vulnerability is not simply a consequence of environmental exposure but is produced through gendered social relations shaping everyday responsibilities, mobility, access to resources, and adaptation opportunities. Consistent with feminist and structural violence scholarship, vulnerability emerges from unequal social relations and access to resources (Farmer 2004; Galtung and Fischer 2013; Lama et al. 2021; Detraz 2023). Environmental disruption can intensify existing inequalities by placing additional demands on those already responsible for sustaining household and community wellbeing (True 2010, 2020). Understanding the gendered impacts of recurrent flooding therefore requires attention to the social and economic relations shaping how its consequences are managed and absorbed.

Across many societies, including in Viet Nam, women continue to undertake a disproportionate share of unpaid reproductive labour, including childcare, eldercare, food preparation, and household maintenance, while simultaneously participating in income-generating activities (Phan et al. 2019; Linh et al. 2021). These divisions reflect broader inequalities in resources, economic opportunities, and decision-making power (True 2010; Elias and Rai 2019). Social reproduction, encompassing the work and relationships that sustain people, households, and communities, is essential to everyday life but often undervalued and unequally distributed (Rai et al. 2014). Environmental disruption can increase the work required to maintain everyday life without providing additional resources and support (Nixon 2011; True 2020).

The findings reflect these dynamics. Participants were primarily responsible for managing floodwater, cleaning homes, protecting household assets, caring for family members, and maintaining daily routines, often alongside livelihood activities. These tasks were treated as extensions of women's domestic responsibilities, even during severe flooding. Mrs. Ly's account illustrates how such expectations were justified through gender norms, as her husband considered flood-related cleaning to be "women's work". Women also assumed responsibility for mobilising resources and seeking assistance. For example, Mrs. An sought government financial support after her husband dismissed the possibility that assistance would be available. This reflects findings that women's bonding social capital, built through relationships with relatives, neighbours, and community networks, can facilitate access to information and assistance during crises (Nizar and Dang 2024). However, these additional responsibilities did not necessarily provide women with greater decision-making power, resources, or institutional support.

These gendered responsibilities did not produce uniform experiences of flood vulnerability. Their consequences were shaped by the intersection of gender with age, disability, livelihood insecurity, and household circumstances. Older women and those with disabilities faced particular mobility challenges from floodwater and slippery surfaces, while women dependent on daily informal earnings faced pressure to continue working despite hazardous conditions and reduced income. These differences shaped both the demands placed on women and their capacity to manage them.

The consequences of this unequal distribution of adaptation work extend beyond additional labour. Depletion through social reproduction highlights the harm that may arise when the time, energy, and other resources expended in sustaining everyday life exceed those available to maintain wellbeing (Rai et al. 2014; Rai 2024). In this case, the additional labour required to manage floodwater, clean homes, care for family members, and restore household routines may erode women's physical and emotional wellbeing when income, infrastructure, services, and social support are inadequate. The issue is not that care or social reproduction is inherently harmful, but that this work may become unsustainable when responsibilities are unequally distributed and insufficiently supported.

Women's vulnerability was also shaped by how caregiving responsibilities, livelihood dependence, and household obligations constrained their mobility and adaptation options. Mobility and immobility are socially produced through gendered expectations and unequal access to resources (Lama et al. 2021; Upadhyay et al. 2024). Therefore, women's decisions to remain in hazard-prone environments must be

understood within the broader social relations shaping their mobility opportunities (Van Aelst and Holvoet 2016; Lama et al. 2021; Upadhyay et al. 2024). Similar dynamics have been observed in flood-prone communities in Viet Nam, where women's reproductive roles can anchor them in flood-affected spaces to manage household wellbeing and everyday disruptions (Dang 2024). Participants often remained in flood-prone environments not because risks were absent, but because caregiving responsibilities, livelihood dependence, housing constraints, and social obligations limited their alternatives.

Nevertheless, these findings challenge portrayals of women as inherently vulnerable. Such representations risk homogenising women's experiences and obscuring the social and institutional processes that generate vulnerability (Van Aelst and Holvoet 2016; Detraz 2023). Participants actively managed flood risks, sustained livelihoods, cared for family members, and mobilised social networks and available assistance (Christian and Dowler 2019; Dao 2025). Their actions demonstrate agency, although this did not necessarily translate into greater access to resources, institutional support, or decision-making power. Women's capacity to adapt should not be taken as evidence that vulnerability has been overcome when the responsibilities of sustaining household wellbeing remain unequally distributed and inadequately supported.

Recurrent flooding can reproduce and intensify existing gender inequalities. Gendered divisions of labour, unequal access to resources, and constraints on mobility shape women's exposure to environmental harm and their capacity to manage its consequences. Where the demands of sustaining everyday life exceed available resources and support, they may contribute to depletion. The following section examines how everyday adaptation can sustain household functioning while normalising the cumulative harms associated with recurrent flooding.

5.2. Between adaptation and slow violence: normalising harm through everyday adaptation

Environmental harm in Can Tho City has become embedded within everyday life. Despite experiencing physical pain, emotional distress, livelihood disruptions, and expanding care responsibilities, participants generally continued living in flood-prone environments through a range of everyday adjustments. Understanding this apparent normality requires moving beyond event-based understandings of disasters to examine how environmental harms become normalised, absorbed, and insufficiently recognised over time. The concept of slow violence provides a useful lens for understanding this process.

A key characteristic of slow violence is that harm unfolds gradually and cumulatively, making it increasingly difficult to distinguish from the ordinary conditions of everyday life (Nixon 2011; Pain 2018; Walzer 2023). Furthermore, slow violence often develops through the interaction of repeated disruptions, existing inequalities, and long-term processes of environmental change (Christian and Dowler 2019; Rezwana and Pain 2021; Trumble 2021). Understanding harm as a pattern is also important for recognising how its effects accumulate over time (True 2020). Participants generally anticipated annual flooding and organised daily activities around expected inundation. Floodwater management, disrupted

mobility, income losses, and household recovery were frequently discussed as routine aspects of life, and not necessarily as extraordinary experiences. Nevertheless, this normalisation did not imply an absence of harm. Participants continued to experience bodily pain, exhaustion, emotional distress, disrupted livelihoods, and expanding care responsibilities. Similar to Walzer's (2023) argument, these harms were not necessarily invisible, but had become embedded within everyday routines and expectations, leading them to be increasingly treated as ordinary consequences of living in flood-prone environments. Viewed individually, these experiences may appear as temporary consequences of particular floods. However, cumulatively, they reveal a recurring pattern of disruption that repeatedly places demands on women's labour, health, and wellbeing. The intersection of gender with age, disability, livelihood insecurity, and caregiving responsibilities shaped women's capacity to manage flooding and recover from its impacts. As these unequal conditions persisted across successive floods, the resulting harms could become normalised as part of everyday life, making them increasingly difficult to recognise as manifestations of ongoing violence (Pain 2018; Rezwana and Pain 2021; Trumble 2021).

The findings further suggest that everyday adaptation played an important role in sustaining this normalisation. Recent scholarship demonstrates that adaptation is often embedded in mundane everyday activities and not necessarily driven by specific climate interventions (Conway-Lamb 2025; Dao 2025; Upadhyay et al. 2024). Participants rarely framed their actions in terms of climate adaptation. They described practical efforts to continue everyday life despite recurrent flooding, including removing floodwater, protecting household assets, adjusting travel routes, modifying livelihood activities, temporarily relocating during severe inundation, and re-organising daily routines around changing flood conditions. These actions enabled households to continue functioning despite ongoing disruption and reflected participants' active efforts to negotiate environmental risks. However, their capacity to maintain everyday life depended on repeated adjustments and additional work, raising questions about who was expected to absorb the costs of managing recurrent environmental disruption.

In this study, women undertook much of the additional labour required to manage flooding, often alongside their existing productive and reproductive responsibilities. This illustrates how the costs of environmental disruption were absorbed through the gendered organisation of social reproduction. Existing scholarship similarly demonstrates that environmental adaptation often occurs through everyday forms of social reproduction that remain largely invisible within dominant adaptation narratives (Christian and Dowler 2019; Dao 2025; Detraz 2023). Although these activities enabled women to restore household routines after individual floods, recurrence of flooding repeatedly required similar work. The cumulative significance of this labour lies not only in the demands of each episode, but also in the repeated expenditure of time and energy and the continuing disruption to women's everyday lives. In this sense, women's adaptation labour functioned not only as a response to flooding but also as a mechanism through which the cumulative consequences of flooding were managed, contained, and rendered more bearable (Trumble 2021; Christian and Dowler 2019). Thus, adaptation contributed to the continuation of everyday life while simultaneously making the labour and costs required to sustain that continuity less apparent.

This dynamic is significant because adaptation scholarship increasingly recognises that environmental risks often persist despite ongoing efforts to cope with changing conditions and that adaptation may co-exist with residual loss, damage, and continuing vulnerability (Adger et al. 2009; Fekete and Sakdapolrak 2014; Mechler et al. 2020). Despite continual adaptation, participants continued to experience health problems associated with prolonged floodwater exposure, physical exhaustion from flood-related labour, emotional distress, livelihood disruptions, and constrained mobility. Therefore, women's capacity to manage flooding did not necessarily eliminate the harms associated with it. In this context, adaptation functioned less as a process of eliminating vulnerability than as an ongoing effort to live with its consequences (Morchain 2018; Filho et al. 2026). The continued presence of these harms highlights the limits of evaluating adaptation solely in terms of people's capacity to cope.

This observation is particularly important within contemporary climate adaptation governance, which commonly emphasises resilience, adaptive capacity, preparedness, and participation as indicators of successful adaptation (Adger et al. 2009; Conway-Lamb 2025; Mechler et al. 2020). Vietnamese climate policies similarly promote resilience and women's participation in adaptation and disaster risk reduction processes. However, national policy documents, including the Viet Nam National Action Plan 2021–2030 with Vision to 2050 (NAP) and the Nationally Determined Contribution (NDC), acknowledge persistent limitations in integrating gender analysis into climate governance, constraining efforts to identify differentiated vulnerabilities and develop targeted responses (Government of Viet Nam, MONRE 2024; Government of Viet Nam 2022). Consequently, women's everyday experiences of sustaining households through recurring climate disruptions may remain insufficiently recognised within dominant adaptation frameworks. When adaptation is assessed primarily in terms of continued functioning or the capacity to cope, the unequal distribution of its costs and its cumulative consequences for wellbeing may receive less attention.

The findings highlight the significance of this disconnect. Women in Can Tho City were already adapting to recurrent flooding through extensive everyday labour, often without additional institutional support commensurate with the demands placed on them. In the absence of adequate government support to reduce these demands or provide the resources needed to sustain this work, women's labour effectively subsidised adaptation, enabling households to manage recurrent flooding while absorbing its costs within everyday social reproduction. Where the resources available to women were insufficient to sustain their wellbeing, this arrangement risked contributing to depletion through social reproduction (Rai et al. 2014; Rai 2024). This critique echoes broader concerns that adaptation frameworks often prioritise adaptive outcomes while paying insufficient attention to the social relations and structural conditions that produce vulnerability (Bassett and Fogelman 2013; Morchain 2018; Detraz 2023). From a slow violence perspective, the problem is not simply that vulnerability persists despite adaptation, but that the burdens associated with recurrent flooding can become normalised as part of everyday life (Walzer 2023; Pain 2018; Dao 2025). Thus, adaptation may conceal as much as it reveals, shifting attention towards people's capacity to cope while diverting attention from the unequal conditions that continue to generate harm.

Participants remained in flood-prone environments not because risks were absent, but because livelihood dependence, caregiving responsibilities, housing constraints, social obligations, and limited alternatives shaped their ability to move elsewhere. Consistent with recent work on climate immobility, remaining should not be interpreted simply as successful adaptation (Lama et al. 2021; Upadhyay et al. 2024). Instead, it reflects the unequal conditions under which people negotiate environmental risks and sustain everyday life. Women's continued presence could enable households to maintain livelihoods and caregiving arrangements while also requiring them to manage recurring disruption. In this context, remaining in place reflected both an adjustment to prevailing circumstances and the constraints limiting opportunities to reduce exposure to harm (Nizar and Dang 2024; Upadhyay et al. 2024).

These dynamics demonstrate how recurrent flooding can contribute to gendered slow violence, as the cumulative harms of environmental disruption become embedded in the everyday labour required to sustain household life (Nixon 2011; True 2020; Rezwana and Pain 2021; Dao 2025). As cleaning, caregiving, livelihood adjustments, and household recovery become routine responses to flooding, the unequal distribution of adaptation costs and the continuing harms associated with them risk being treated as ordinary consequences of living in flood-prone environments. Where women's labour sustains household functioning without adequate institutional support, this continuity may obscure the cumulative costs borne by women and reduce pressure to address the structural conditions that perpetuate them (Walzer 2023; Pain 2018; Rai 2024). This perspective challenges the assumption that women's capacity to endure and manage flooding necessarily demonstrates resilience, directing attention towards the gendered distribution of adaptation costs and the cumulative harms that may arise when this labour is insufficiently supported.

6. Conclusion

This paper began with a simple but important question: when people continue to live with recurring environmental hazards despite ongoing adaptation efforts, how should the cumulative consequences of those experiences be understood? Drawing on women's experiences of recurrent urban flooding in Can Tho City, Viet Nam, the findings suggest that adaptation alone cannot fully answer this question. Although participants negotiated flood risks through household adjustments, livelihood activities, caregiving, social networks, and mobility strategies, these efforts co-existed with continuing physical, emotional, and economic burdens. Adaptation enabled women to continue living in flood-prone environments without necessarily removing the conditions that generated vulnerability or the harms associated with recurrent flooding.

The findings demonstrate that women's experiences of recurrent flooding cannot be understood through environmental exposure alone. Vulnerability was shaped by gendered divisions of labour, caregiving responsibilities, livelihood dependence, mobility constraints, and unequal access to resources (Blaikie et al. 1994; Farmer 2004; Adger et al. 2009). An intersectional perspective further highlights how age, disability, livelihood circumstances, and household responsibilities shaped women's experiences differently. While women actively adapted to recurrent flooding, their labour absorbed the costs of

environmental disruption and enabled households to maintain everyday life (Bassett and Fogelman 2013; Morchain 2018; Conway-Lamb 2025; True 2010). When the resources expended in sustaining household wellbeing exceed those available to maintain it, this may contribute to depletion through social reproduction, particularly where institutional support is insufficient (Rai et al. 2014; Rai 2024). Adaptation and vulnerability can therefore co-exist.

From a slow violence perspective, the significance of recurrent flooding lies not only in individual flood events but also in the cumulative harms emerging through repeated exposure. The findings demonstrate how flooding interacts with existing gender inequalities and intersecting social and material conditions to produce harm (Galtung 1969; Farmer 2004; Christian and Dowler 2019; Rezwana and Pain 2021; Trumble 2021). These harms become embedded in everyday routines and expectations, making them difficult to recognise as violence despite their persistent effects (Pain 2018; Walzer 2023). This paper argues that recurrent flooding can contribute to gendered slow violence, not simply because women fail to adapt, but because they are expected to continually adapt to conditions that continue to generate harm. Where their additional labour remains insufficiently supported, the costs of maintaining everyday life accumulate while the conditions producing these harms remain unaddressed.

This argument carries important implications for climate adaptation governance. Adaptation frameworks frequently emphasise resilience, adaptive capacity, preparedness, and participation as indicators of success (Adger et al. 2009; Mechler et al. 2020; Conway-Lamb 2025). However, these approaches may overlook the unequal distribution of labour and responsibility sustaining adaptation. Where women's labour compensates for insufficient institutional support, household functioning may obscure the cumulative costs borne by women and the consequences for their wellbeing. Assessing adaptation therefore requires attention not only to people's capacity to cope, but also to who performs the work, what resources and support are available, and whether the conditions producing harm are addressed. A climate-just response requires more than strengthening adaptive capacity. It also requires addressing structural inequalities and recognising protection from avoidable environmental harm as a matter of social justice and human rights.

Several limitations should be acknowledged. First, the empirical analysis focuses exclusively on women's experiences, providing limited insight into how people of other gender categories experience and negotiate recurrent flooding. Second, the analysis relies primarily on secondary sources to examine state policies and broader governance dynamics. Third, although interviews with the same participants covered different flooding periods, the study was not designed to systematically trace changes across successive flood and recovery cycles. Future research could examine how cumulative flooding impacts, adaptation labour, and available support change over time.

Despite these limitations, this paper contributes to debates on climate change and gendered violence by demonstrating that violence need not take the form of direct physical harm or singular catastrophic events. Harm may accumulate through recurrent environmental disruption when its costs are absorbed through unequal gender relations and women's everyday labour (True 2020). This normalisation warrants

critical attention because harms accepted as routine are less likely to be recognised as injustice or prompt structural responses (Pain 2018; Walzer 2023). By conceptualising recurrent flooding as a process that can contribute to gendered slow violence, this study highlights how cumulative harms become embedded in everyday life while the unequal conditions sustaining them remain insufficiently addressed. Therefore, recognising these harms as violence is necessary to make them visible and politically actionable.

Declarations

Ethics Approval and Consent to Participate

Ethical approval was obtained from the Chiang Mai University Research Ethics Committee, with approval number CMUREC No. 62/100. Written informed consent was obtained from all participants before each interview.

Consent for Publication

Written informed consent for publication was obtained from all participants.

Competing Interests

Not applicable. The authors declare there are no competing interests.

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Authors Contributions

The first author led the study design, data analysis, writing, and revision of the manuscript. The second author conducted the data collection and contributed to the data analysis and writing. Both authors read and approved the final manuscript.

Availability of Data and Materials

The data are not publicly available to protect the confidentiality and privacy of the participants.

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