

Article

Climate Change Adaptation and Gender Inequality: Insights from Rural Vietnam

Josephine Ylipaa , Sara Gabrielsson * and Anne Jerneck

Lund University Centre for Sustainability Studies, LUMES & LUCSUS, Lund University, P.O. Box 170, 221 00 Lund, Sweden; anne.jerneck@lucsus.lu.se

* Correspondence: ylipaa@live.se (J.Y.); sara.gabrielsson@lucsus.lu.se (S.G.); Tel.: +46-705-309-780 (J.Y.); +46-767-801-144 (S.G.)

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Abstract: Vietnam is one of the countries most vulnerable to climate change impacts, especially from extreme weather events such as storms and floods. Thus, climate change adaptation is crucial, especially for natural resource-dependent farmers. Based on a qualitative research approach using a feminist political ecology lens, this article investigates gendered patterns of rural agrarian livelihoods and climate adaptation in the province of Thái Bình. In doing so, we identify differentiated rights and responsibilities between female and male farmers, leading to unequal opportunities and immobility for females, making them more vulnerable to climate impacts and threatening to reduce their capacity to adapt. This research also shows that demands on farmers to contribute to perpetual increases in agricultural output by the state poses a challenge, since farming livelihoods in Vietnam are increasingly becoming feminised, as a result of urbanisation and devaluation of farming. Past and present national strategies and provincial implementation plans linked to climate change do not consider the burden affecting rural female farmers, instead the focus lies on addressing technical solutions to adaptation. With little attention being paid to an increasingly female workforce, existing gender inequalities may be exacerbated, threatening the future existence of rural livelihoods and the viability of Vietnam's expansion into global markets.

Keywords: agriculture; climate change adaptation; gender inequality; feminist political ecology; vulnerability; policy; sustainability; Vietnam

1. Introduction

Vietnam is projected to be one of the countries most affected by climate change, not only through drastic temperature increases and gradual changes such as sea-level rise, but also due to more frequent extreme weather events, such as flooding and storms [1–4]. Agricultural production, including aquaculture, is highly vulnerable to the effects of storms and sea-level rise [2]. Hence, climate change adaptation is a pressing issue for the state in Vietnam, both for the sake of ensuring continued food and fibre production, and in order to protect the livelihood of small-scale farmers [1,3].

In response to climate change, Vietnam has formed a national climate change strategy for adaptation and mitigation [5]. The plan illustrates the primary tasks to be undertaken by the Vietnamese state [6] and has been used to guide the Nationally Determined Contribution plan for the Paris Agreement [6]. According to the plan, climate adaptation will cost around 3–5% of the national gross domestic product by 2030 [1,6]. As part of the Paris Agreement, Vietnam is requesting international support and financing to cope with current and future climate change impacts [6]. The strategy is part of the national target program directed at provincial levels, which is expected to be implemented through location-based strategies [1]. These localised strategies could prove significant for a large number of people, considering that 70% of Vietnam's population live in the countryside, and around 60%

of this rural population rely on agriculture for their livelihood [7,8]. These statistics indicate that farming is a significant form of livelihood and a pronounced cultural, economic, and political feature of Vietnamese society [7].

Previous research on climate change adaptation has largely taken a natural systems perspective, leaving a knowledge gap on how human systems have become vulnerable to and impacted by climate change, not least in terms of gender and how women and men seek to adapt to climate change [9,10]. Understanding the impacts of and vulnerabilities to climate change, including social relations and power structures, is important for determining which types of adaptation strategies could be useful for specific cases and particular contexts [10]. Here, gender plays a key role in global responses, not only because adaptation is gendered, but also because women are affected differently and may perceive climate change in alternate ways to men [10–12].

In this article, we are starting from feminist political ecology, using grounded theory within a qualitative research design, to answer the following research questions: How and to what extent is adaptation gendered among rural farmers in the Thái Bình province of Vietnam? What are the local adaptation needs? Do the national strategies and provincial implementation plans reflect and address these challenges? We approach the research questions by identifying differences in rights, responsibilities, and control of livelihood resources among female and male small-scale farmers. Furthermore, we look to locate vulnerabilities associated with age, class, and gender.

2. Materials and Methods

This study was based on the first author's field research in Vietnam during the period February to April, 2018. Data collection involved 10 interviews with stakeholders with diverse perspectives, in collaboration with a Vietnamese non-governmental organisation in Hanoi. First, we selected four key informants from the public and private sectors in Vietnam through snowball sampling and in accordance with their expertise in order to acquire reliable data [13]. The private sector was represented by one NGO (KI4) and one research centre (KI5) with expertise in climate change adaptation, sustainability, vulnerability, and gender and farming, either nationally and/or in the northern region of Vietnam. The public sector was represented by the chairperson (KI1 and 3) of two different communes in the *Huyện* in the province of Thái Bình. A *Huyện* is a rural district in Vietnamese. We have chosen to anonymise the district, communes, and people interviewed in this study due to the uncertainty of sensitivity, following the manner of other similar research done in Vietnam, where the location and people have been anonymised [7]. We selected the two communes on the criteria of vulnerability to climate change, multiple recommendations, and accessibility to the network of the collaborating NGO. Additionally, the first author participated in a United Nations-led workshop (140318) on climate risks and livelihoods in Vietnam attended by governmental and non-governmental stakeholders (KI2).

Data collection was mainly achieved through a participatory exercise (FG1) and two focus group interviews with female (FG3 and FG4) and male farmers respectively in each of the two communes (FG2 and FG5). The village leader in each commune selected the participants based on the diversity criteria requested by the research team with regards to age, income, and types of livelihood engaged in by farmers. All interviewees worked in mixed livelihoods, entailing agriculture, aquaculture, and animal husbandry, and the groups varied in age from 40 to 80 years.

Based on the interviews, we conducted a policy analysis using 3 out of 18 contemporary national strategies from the period 2011–2020 that we found to be the most relevant strategies to the study's focus: The National Strategy on Climate Change, The Vietnam Sustainable Development Strategy, and The National Strategy on Gender Equality [5,14,15].

3. Theory

Adaptation is a complex, and often costly process covering many human–environmental issues [10]. At the core of gendered adaptation lies a range of intersectional inequalities based on age, class, and gender, which relate to the impacts of and responses to climate change [10]. This inequality creates

a skewed base for individual adaptation capacities, which needs to be taken into consideration when developing policies [10]. Starting from feminist political ecology theory, we mapped out vulnerabilities and the social relations causing them, and then analysed how they are gendered, with the aim to reduce such inequalities and, by extension, poverty and other vulnerabilities [10]. Feminist political ecologists give prominence to environmental justice and seek to locate and explain the origins and causes of oppression and injustices [16]. A holistic perspective serves to reveal the connections and interactions between the environment, the economy, and politics on a local to global scale [16,17].

Inspired by feminist political theory with a grounded theory approach, we carried out an iterative process to develop sensitising concepts for this study: rights and responsibilities, gendered knowledge, and policy and implementation on a scale from micro to macro level (Figure 1). These concepts became apparent through a review of the data and theoretical ideas throughout the research process. For the first concept, we identified rights to, use of, and control over resources by examining who has access to resources, who depends on them, who is responsible for using them productively, and who is in charge of resource management [16]. To understand the patterns and importance of rights and responsibilities, the gaze should be aimed at the household and community level, where the intra-household structures and social relationships contribute to both forming expectations and producing outcomes [16]. For the second concept, gendered knowledge, we asked who has the power to construct knowledge, and how gender affects perceptions of and expectations for knowledge [18]. For the third and final concept, policy and implementation, we located and addressed the form of policy that can exacerbate environmental injustice by not representing the people and populations that are most affected by the decisions undertaken (see Figure 1). Feminist political theory is also useful for analysing participation, representation, and access to political arenas, by mapping out who has the possibility and power to influence policy-making and who lacks access to the political sphere [16].

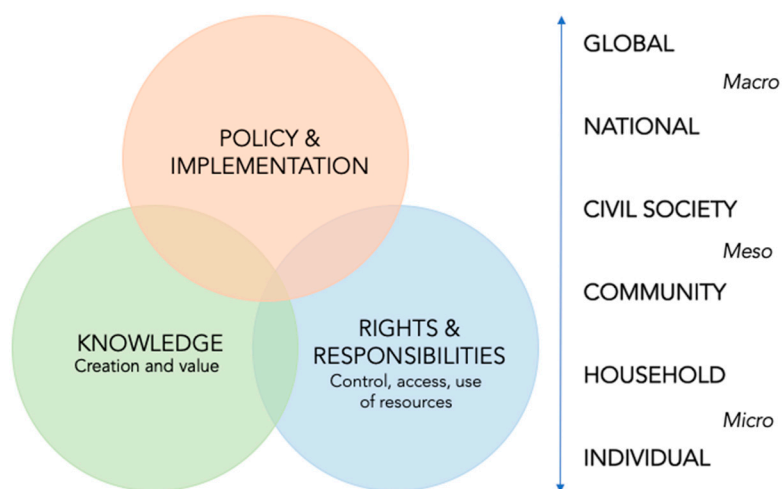


Figure 1. An overview of feminist political ecology. The Venn diagram visualises the three concepts which overlap and influence each other. The scales on the x and y axes demonstrate the wide, multi-level scope of the theory; applicability to cases on macro, meso and micro levels. Source: Ylipää's illustration based on Rocheleau et al., 1996.

Moreover, the historical development of agriculture, rural conditions, and Vietnam's political economy must be considered to more fully understand the current and future climate change impacts and vulnerabilities in Thái Bình.

4. The Setting—Vietnam and Thái Bình

Managing land division has been a central aspect to approaches that aim to achieve a desired future for the political and economic power of Vietnam [7]. Rural policies over the past 40 years have focused on food security, and this remains a prominent focus in agriculture and rural development policies that have

shaped how the state, the local government, and farmers make decisions [1]. The end of the American War in 1975 was later followed by an economic crisis marked by high inflation, low productivity, and food shortages [8]. This context provided the conditions that facilitated the economic reform of *đổi mới* in 1986. This economic reform was the official opening of Vietnamese markets to a neoliberal global economy [7,8]—it initiated the formal shift from a planned economy to a deregulated market, including the shift from public to private ownership and individual entrepreneurship [19], as well as the move from autarchy to increased foreign trade and investments [20]. This step towards a more open economy meant that the state had to decrease its control over Vietnamese citizens, as well as foreign investors [19]. The encompassing reform process of *đổi mới* started in industry, but the agricultural reform was core to the profound transformation of both economy and society. Through *đổi mới*, the agricultural system changed from a model of subsidised collective farming towards a market-oriented, production-based model involving land lease [21]. Farmer households now became individual economic units in an emerging market economy, having gained more control over their production when decision making power was decentralised [21,22]. Although Vietnam soon became a more open economy with high growth rates, it is still not necessarily seen as a fully-fledged market economy, nor has it fully adapted to capitalism, because the government never completely abandoned the command-based system [7,19,23]. Rather, it has applied a hybrid of the two, wherein the state has the power to govern the market, its industries, and the population, largely by control over land-resources and capital [19,24].

Ten years after *đổi mới*, rice production soared and Vietnam became the second largest rice exporter in the world [1,8,22]. Vietnam's rapid growth in agricultural production enabled the country to decrease poverty and develop economically, establishing Vietnam as a beacon of the green revolution [8]. This growth occurred despite a fairly high incidence of food insecurity, especially in the late 1980s, alongside high levels of malnutrition [25]. More recently, there has been a shift in political attention from reforming traditional agriculture and ensuring food security, to contemporary concerns over climate change [1]. Despite the strategic shift away from collective farming, agricultural and other land-use sectors remain subject to pre-determined production and development targets set by the government [22,26]. With the pronounced desire for economic growth in the name of development, the human–environmental dimensions of sustainability have been overlooked in both society and politics [1]. The push for increased production has led to the overuse of pesticides and herbicides, higher input costs, and increased use of water [8]. Small-scale farming, including agriculture and aquaculture, is still a crucial livelihood for food security and income generation. Small-scale farming provides food to over 71% of the total population of Vietnam [27], and employs more than half of the population in Thái Bình [28].

Agrarian Life in Thái Bình

Thái Bình is a densely populated coastal province in the Red River Delta region, around 70 km southeast of Hanoi in Northern Vietnam (Figure 2) [29]. A large part of the province lies below the level of the two major rivers, the Trà Lý and the Red River, which run through the province [29]. The main source of income in Thái Bình is agriculture, and it has the highest level of rice productivity in the delta [29]. The province has already been exposed to numerous flood events over the past ten years, which have affected and damaged farming households [29]. Such floods are forecasted to increase in the coming decade due to expected changes in precipitation, storms, and sea-level rise [29]. Thus, the region has a pressing need to adapt to climate change.

Thái Bình consists of seven districts [28], one of which is *Huyện*. It is a coastal district with around 200,000 residents and a land area of over 200 km², half of which (51%) is allocated to agriculture [28]. Within this district, there is one township and over 30 communes [28], two of which we studied as part of this research: *Xã 1* and *Xã 2* (*Xã*, meaning 'commune' in Vietnamese).



Figure 2. A map of North Vietnam with the province of Thái Bình marked. Source: Free Vector Maps.

Thái Bình has four seasons, with a pronounced wet period from April to August, followed by a dry period from September to December (Figure 3). Due to the variation in climate, farmers in Thái Bình adopt diverse livelihoods to ensure ongoing production throughout the year. Optimally, the labour requirements of the different livelihoods peak during different seasons, yet they often require ongoing maintenance for most of the year (Figure 3). This adaptation strategy mitigates risk, by decreasing dependence on a sole source of income [30]—if the weather damages one type of livelihood, there are two more on which one can rely. For example, shrimp farming is only possible twice per year between May and September, though this period also coincides with the highest risks of flooding. Simultaneously, April to August is the period identified by locals (FG1) as the most labour-intensive time of the year. However, farming in Vietnam often involves hard labour, oftentimes with low financial returns. The increasing frequency of extreme weather events serves to make farming even riskier and more uncertain [8]. In Thái Bình, this insecurity is illustrated during the wet season—from April to August (Figure 3)—when storms, in combination with hot temperatures, worsen work conditions.

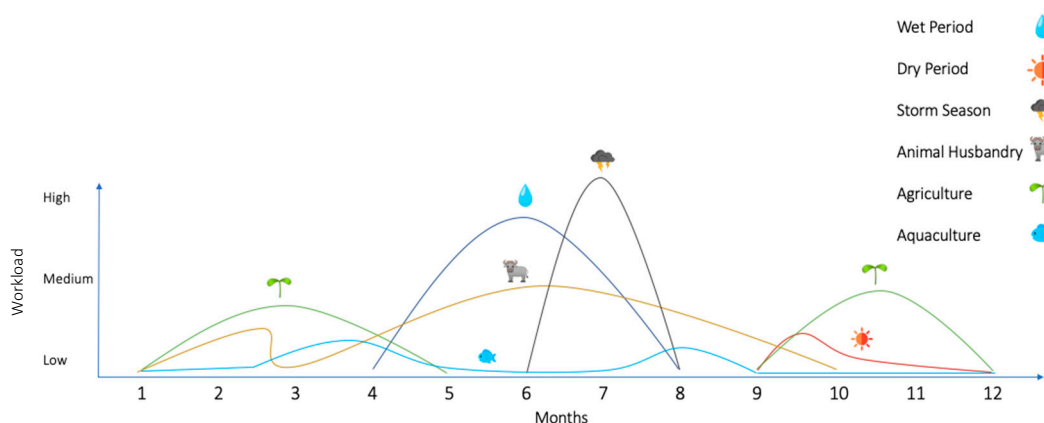


Figure 3. Seasonal calendar of the farming practices and weather patterns in Huyện. The numbers on the x axis indicate the months. The height of the curve on the y axis demonstrates the intensity of workload and the weather defined by the interviewed farmers in Thái Bình. Ylipää's illustration based on FG1.

5. Results and Discussion

5.1. Post-đổi Mới: Gendered Land Rights and Responsibilities

The collectivisation before the economic reform in 1986 did not bring equality to women in Vietnam, and when land rights were strengthened with *đổi mới*, male farmers could increase their

authority over households, women, and children [31]. Women should legally be registered on land lease contracts alongside their husbands, however in practise it is usually only the male head of the household who is listed on the certificate [31,32]. Previous research demonstrates that strengthened land rights for women increases their autonomy and status, because their control over assets may help change the norms and attitudes about economy being a 'masculine task' and, by extension, men's social behaviour towards women [32]. However since the reforms, women's work has become less visible (mainly due to their unpaid housework) in comparison to the previous system, as collective work compensated farmers with individual points for completed tasks [31]. The privatisation of the market has increased the workload for women, with little or no time to engage in matters other than work, such as attending political meetings or leisure activities [31].

The legal access to land has become an issue of gender inequality. In the agricultural reforms in 1988 and 1993, farmland was allocated based on household career and size—more land per new-born child was allocated to parents who were not industrial workers or state employees, with a family of four generally allocated around 1000 m² of land or less [33,34]. In 2001, all farming land in Vietnam had been distributed amongst farmers, which meant that larger families would no longer be entitled to more land [33]. Today, the division of land is mainly achieved through marriage, with parents of the couple gifting land to the newlyweds [7]. As an alternative, farmers can also access more land by renting, or by paying the family allocated the land a percentage of the crop or livestock produced on it [7]. The current land use rights are situated under the Land Law from 2014, stating that current households have access to their land for 20–50 more years, though it stipulates that the state may reallocate land in the future [7].

In Thái Bình, government authorities allocate land to each household, which will use and manage the allotted land [33,34]. Without legal rights to land ownership, neither male nor female farmers can control all associated resources. However, there is a gender difference in allotted rights between the right to manage the land and the right to use it, as male farmers have the decision-making power to allocate the allotted land between various purposes, while women only have the right to use it to the degree that their household responsibility allows [31]. Thus, the allocated rights and the privilege that they entail are specifically restricted to men, leaving little or no decision-making power to women. Given that women have weaker access under the gendered hierarchy, they have less control and lower decision-making power over resources in their own home or over their livelihoods [32].

Livelihood activities are highly gendered in the agrarian communities of Thái Bình. According to the focus group discussions, tasks divided by gender are motivated by the perception of 'natural abilities'; women are considered better suited for certain tasks while men are seen as naturally skilled in others. For example, women are assumed to be skilled in housework and petty trading, while men are seen as better skilled in strategic planning. In terms of farming, this means female farmers are mainly responsible for agriculture and animal husbandry, while male farmers are responsible for aquaculture. This division of responsibilities has also been reported in other provinces of Vietnam [35]. The view that women are perceived as 'naturally' weaker than men was expressed by a male farmer and other men were in agreement (FG5):

If men carry a 50 kg bag of rice, they can do it in about 2 h. Women, they have to bear children, therefore their health worsens. If they do heavy work, it affects their health later, meaning that they will not live as long.

Responsibilities are also divided by age, with older people, regardless of gender, doing more housework, which is otherwise considered a woman's role. Responses in the focus group activities repeatedly revealed perceptions that 'weaker' people should do tasks that are considered 'feminine'. This notion that women are less capable of heavy labour is prevalent in other Vietnamese provinces [7,36].

Although gender divisions restrict choices and opportunities for both women and men, limited room to manoeuvre disproportionately affects women, due to underlying patriarchal norms [7,16]. For example, men have more space for self-expression than women, because men are all 'freelancers',

as one of the female farmers stated. In talking about gender divided tasks, male participants also mentioned activities outside work, such as playing cards or drinking alcohol, while the female participants never described activities other than those related to their productive and reproductive responsibilities. Such responses indicate that women have less, or simply no, leisure time, as was confirmed by one of the key informants (KI4):

Men walk around in the community, go outside the boundary of the village to talk to other people and exchange ideas, while women stay behind.

This reflection indicates gendered differences in free time and mobility, which produces the inequitable division of labour reported. With regards to climate change, women's lower mobility, and fewer opportunities for knowledge exchange, is restricting. This restriction impacts women themselves (intrinsic value), and also their adaptation potential (instrumental value).

Gendered division of labour and responsibilities extends to family finances, where women are 'accountants' in everyday transactions, while men are 'managers' of strategic purchases, investments, and business expansion. One key informant (KI4) stated:

They [husband and wife] usually say that they have to discuss with each other but [...] men always make the final decision, for example on the house or things that are costlier. A purchase that costs more than 150,000 Đồng (150,000 VND is equivalent to approximately 5.70 EUR) is made by the man in the household, and when it is below that, the wife is allowed to make the decision. So, even when they are going to buy a rice cooker and if it's more expensive than 150,000 Đồng they are not allowed to make the decision to buy it without their husband's approval.

Men's control of household purchases restricts women's self-determination, leading to fewer opportunities and weaker jurisdiction, which could also hamper climate change adaptation due to women's limited decision-making power. This power imbalance was evident in responses shared by male participants, who indicated that it was a women's duty to 'support' men, with little acknowledgement of women's work as independent of men and valuable in of itself. One male farmer (FG2) reported:

The man is the leader of the family, below us is our wives. They play secondary roles.

This comment demonstrates cultural norms that see men become key decision makers, with women only able to contribute to decision-making through suggestions. In the seasonal calendar and focus group activities, men interrupted women by 'correcting' them, even though these men did not offer responses that were consistent with the topic being discussed. The following incident illustrates how men sought to dominate discussions after a female farmer reported inequitable divisions in labour (FG1):

Women work harder than men, both in farming and housework.

When the women claimed this, the men who were present during parts of the interviews (even though they had been asked to leave for the female group interview) protested and claimed that women and men are equal in their communities. Without hesitating, the women started laughing and disagreed with the men (FG1):

You have to listen to us, we know the reality.

These gendered power relations and divisions of labour in agrarian societies are not unique to Thái Bình, with research demonstrating that they are also present in other provinces in Vietnam [7,36–38] and small-scale farming communities in other countries of Asia and Sub-Saharan Africa [37]. Cultural norms, rules, and value structures determine what women and men can and should do [18], which is evident from the responses above. Although patriarchal norms remain and are reproduced, the form of expression may change. Power strategies may be used to control a specific group of people, such as men controlling women, but whether they are intentional or not, the outcome is (often) the same—lack of control [16]. Hence, gender divisions are not logically divided according to capacity or skill but determined by culture, as pointed out by one key informant (KI4):

Rice production was the most important crop produced during the time of state subsidies, so men were responsible for rice plantation. Later on, when Vietnam became a market economy, prices went down to almost nothing and women became responsible for the rice plantation. Now, men are responsible for aquaculture [...]. Women should not work with shrimp farming, because of the taboo that women will cause bad luck to the shrimp farming. It is a cultural notion, where, for example, women are not supposed to participate in certain practices based on ideas such as women's menstruation being considered dirty and thus seen to be bad for shrimp farming.

Cultural constructs that menstruation is a source of pollution and should preclude women from work in aquaculture is not in line with reported ideas that women cannot do 'heavy work' due to presumed 'physical weakness'. Rather, it provides a framework with which to justify the exclusion of women from high-value tasks. Thus, women's inability to participate in aquaculture is replicated in other areas of life in Vietnam, usually with regards to activities that involve high risk and large amounts of capital [35]. The exclusion of women from these activities illustrates a power norm in the gender regime, dictating that women are secondary to men. This indicates that, while ideas or expressions of the norm may change over time, control over or restriction of women's involvement remains consistent.

When a society is gendered, experiences, impacts, and opportunities vary depending on the gender of the person [16]. Regarding climate change, women and men are impacted differently by the effects of the extreme weather, due to their divided responsibilities and rights for control, access, and use of resources [8]. If men are the leaders of the households, responsible for bigger decisions, and have the last say in decision-making, then women may get excluded from important household decisions. Despite the socialised male and female roles complementing each other in the household, the triple burden of productive, reproductive, and caretaking work falls higher on women, which is consistent with other research [7,39]. This is a clear indication of lack of access and control for women over household politics, including decisions that only concern women, but which are still made by men. As the key informant from the NGO stated (KI4):

Vietnam is a society of traditional patriarchal values, so men are more respected than women.

In the context of climate change, we can interpret the triple burden on women as a situation where a gendered society places a burden of high responsibility on women without any corresponding level of decision-making power, providing fewer alternatives and possibilities to adapt to climate change.

5.2. Knowledge: Gendered Views on Farming and Climate Change

In the study setting, we found two main differences in the perception of climate change between male and female farmers: the women noted a general increase in extreme weather events and were specifically concerned about floods and storms, while men saw extreme weather as a unified threat including sudden shifts in temperature and climate. In addition, men would describe shifts towards specific weather events in a more detailed way. Similar results, wherein men are more likely to have a more detailed understanding of weather patterns, have been found in other farming communities in Northern Vietnam [4]. Men are more prone to walking around outside of the community to exchange information, whilst women who work in the fields and stay around the house to tend to household chores learn from practise, which leads to distinctive gendered knowledge [4]. One key informant indicated (KI4):

If we are looking into the awareness of climate change, it seems like men are more aware of those problems than women.

The differences in experienced and perceived risks between men and women is a product of the unequal production of and access to knowledge. As men have more spatial mobility than women to meet and discuss weather phenomena (and other issues) with others, they also have the possibility to

both challenge and develop their ideas in exchange with others [4,7]. The clear gender division can be a strength in the sense that the farmers are aware of their respective responsibilities and obligations, and know what they ‘must do’ depending on their gender. Such complementary knowledge and roles as a result of divided rights and responsibilities may allow both adults in the household to rely on each other to overcome disasters. However, such reliance builds on the condition that there should be both women and men in each household for them to be able to handle extreme weather events (and everyday farming life).

Furthermore, it is not only that women and men have different perspectives, but gendered knowledge is also valued differently depending on *how* it is gendered [16]. Women can have valuable perspectives on climate regarding the livelihood tasks that they are responsible for, but they lack jurisdiction to express their concerns about the practical means of adaptation strategies. For example, the male farmers emphasised physical damage on houses, boats, watch-houses, banks, and dams more than female farmers did. Instead, women discussed the condition of their houses in terms of relative stability, or through references to their farming practices (FG3):

In 2012, all the rice crops blew away. The drying rice on the roofs was blown away.

These gendered differences were reflected in the proposed responses to the impacts of climate change, with men emphasising the need for robust infrastructure to cope with climate change. Women, on the other hand, expressed the need for prevention planning by stockpiling food and tools, and saving money ahead of disasters. Women also highlighted the importance of protecting the elderly by taking them to higher land where flooding cannot reach them. It is perhaps unsurprising that the female farmers address such issues when food, small household finances, and care-taking lie within the scope of their responsibilities. With clear gender divisions, women and men become experts within their own responsibility domain [7] and hold different expertise that can be highly valuable for adaptation planning. However, if adaptation planning is only the responsibility of the head of the household, which the farmers agree is the man in the family, then only men’s perspectives and preferences are considered. This may result in prevention planning being omitted from household climate adaptation strategies. One of the key informants expressed the following regarding this issue (KI2):

When they live together they complement each other with different types of knowledge. So, what I want to say is that women’s knowledge is very important but it has been disregarded [. . .] and the role of the women is very important in the household economy. On a broader scale, it is very important in decision-making, but most of the time policies are made by men, and not by women. So, because they are men, they cannot understand what women need and do not have the same knowledge as women, so there becomes a gap and lack in the policy-making.

In other words, women and men acquire different types of knowledge through their different experiences and possibilities. Such knowledge is dependent on the gendered rights to and responsibilities around household resources, where men have access to and manage higher value resources, both in produce and purchases [35]. Women perform more ‘delicate’ tasks, such as transplanting the rice fields. Women’s work is also seen to include post-disaster recovery work, with more responsibility placed on women as a result of cultural notions that men should work less but with physically ‘heavier’ tasks. Thus, women are expected to work more hours, but with tasks that are considered ‘lighter’. Also, there is a clear distinction between how women focus on and tend to the damage done in their responsibility domain, while men focus on their own responsibilities.

Inequality in access to and production of knowledge is one key aspect of this unfavourable position. Women lack ownership and control over most resources, but are still held responsible for the produce. It could be argued that this lack of opportunity and control over their own lives can decrease their capacity to enact climate change adaptation [40].

5.3. Feminisation and Devaluation of Farming

Urbanisation and labour migration was a recurring theme in all the key informant interviews, with further implications for gendered rights and responsibilities. Many developing countries, including Vietnam, are experiencing labour migration, where men leave rural work in agriculture to seek other income opportunities in urban areas [7,8]. Several of the key informants agreed that urbanisation is a challenge for Vietnam, and that the country must increase the opportunities for farmers to stay in agriculture and other rural livelihoods through work opportunities with higher income and lower risks. Several of the farmers expressed that the income from farming is not enough to make ends meet and that they need other sources of income. According to the farmers, extreme weather events create further instability, which is mentally draining, with farmers fearful that a storm or flood could ruin the time, money, and effort they have invested in farming. Through the perspective of the farmers, labour migration undertaken by younger generations was seen as an opportunity for a more secure income and for remittances from their children. The village leader of one of the communes in Thái Bình mentioned that the majority of people leaving are young men. Thus, the majority of the farmers who stay in rural areas are women, especially women of older generations [7,38]. One of the key informants recognised this trend (KI2):

It is common in Vietnam that women have to stay at home and you do a lot of work on the farm while men will go outside to get other jobs for other incomes. [...] Men tend to go outside and find other higher incomes for their family and therefore women stay at home and men leave for other work. So, women do both household work and farming.

Older women do not have the same opportunities to leave and find other jobs [38]. Even though many of the farmers were older men, women have less freedom when choosing alternative paths in life due to the gendered structures of responsibilities. The key informant continued (KI2):

Women are left behind in the countryside when their children are moving abroad or to the cities to find prosperity, and then only women and old people are left in the rural areas. This is the most common trend in Vietnam.

These trends result in a 'feminisation' of farming, meaning that a major share of small-scale farming is not only done by women, but also expected of women, due to gendered norms and rules. This 'feminisation' is facilitated by the idea that many farming activities and practices are increasingly seen as feminine [7], a global trend taking place in other agriculture-dense communities [41,42].

The process of the feminisation of agrarian communities is growing in Vietnam and results in enhanced inequalities [7], especially for older women, whose responsibilities are growing, while they lack the rights associated with farm management. Through this demographic and labour transition, women end up in a disadvantaged position due to social conditions and limitations [38].

Furthermore, there is a prevailing devaluation of farming and skill in contrast to modern and urban ideas and knowledge, which hinders the participation of farmers in formal planning processes [7]. The devaluation is manifested in the outsider view that farmers are not knowledgeable about what is best for them [43]. This type of prejudice was demonstrated throughout the data collection process in Hanoi and Thái Bình, where several of the authorities and key informants expressed that we should not ask certain questions in the interviews with the farmers because they "would not know". The lack of a bottom-up approach in the national strategies and the provincial implementation plan does not only derive from the political hierarchy of Vietnam, but also from this aspect of the devaluation of farmers and of women. There is a clear difference between rural and urban areas in Vietnam, as one of the key informants at the research centre explained (KI5):

In urban areas, women's empowerment is more prevalent. For example, women can be in power positions and can focus more on their career. But in the rural areas, there is a remarkable difference. It is more traditional and will take a longer time to catch up with the

urban side. Education level is an issue, but also culture and traditions are stricter in rural communities than in the urban areas.

This informant speaks to trends in gendered power structures in the rural agrarian societies, which are more traditional. She is of the opinion that such differences produce a gap between the opportunities afforded to urban and rural women, and that this will probably not change in the near future. In addition, if the trend of feminisation persists, there will be a major issue with the gendered divisions in rights and responsibilities.

With increasing climate change impacts in Vietnam [8] and an increasingly feminised agricultural industry [7,38], several relevant questions arise: Will women remain hindered from performing certain activities and practices that are crucial to their everyday life? What if gender rights and responsibilities in farming become even more feminised? If men are not around in rural communities to act as the head of household, can and will women take over decision-making and other tasks coded as male and masculine?

5.4. Expected Increased Production

Most farmers in Vietnam are subject to the influence of market prices [44]. If farmers invest in the production of a specific type of crop or species, failed investments resulting from price fluctuations can significantly affect household income. Since agriculture, and in particular small-scale farming, is a low-profit sector, the margins are small. As one of the female farmers put it (FG4):

We don't have any money. Honestly. When we lose resources, we have to take full responsibility ourselves. And in order to continue next year, we have to borrow money from the bank. So, if we lose crops or materials, we're completely lost.

The above comment highlights the pressure for constant production, with no regard for the impact of extreme weather on levels of production [45]. The pressure on farmers to be able to sell their produce comes from suppliers and authorities, who both depend on constant production, as stated by one of the key informants (KI4):

They [the authorities] just aim for development by increasing the production every year. No matter what. If there are storms, rain, or drought that affect the farming, it doesn't matter [. . .] for example, this year we gained 5 tonnes of rice per hectare so [. . .] next year they push for 6 tonnes per hectare because it has to increase from last year [. . .] That's the mentality of politics and policies in Vietnam. So, they just look at figures and revenue but in fact they don't care about what people are facing.

The push for increased production is a result of several factors [22,26]. Female farmers are responsible for the type of agriculture production that is most impacted by extreme weather, and are responsible for selling the products. Thus, women disproportionately experience this pressure to increase yields, which creates both stress and increasing workloads. One of the female farmer groups expressed their worry and lack of control in the following way (FG3):

If it [extreme weather that destroys the produce] happens one year, we can maintain our production. However, if it continues every year it becomes more difficult, which leads to food suppliers not wanting to buy our produce anymore, as they cannot rely on inconsistent production.

These demands, both from the authorities and suppliers, are already mentally draining for farmers. Thus, the increased impacts resulting from climate change compound this stressor for farmers.

Based on the findings of this study, it is reasonable to argue that the overall burden on female farmers will likely increase as a result of cumulative stressors related to gender inequalities, increased production requirements, and climate change impacts. Women are affected on a deeper or structural

level due to their weak access to, use of, and control over resources [8]. Women who are left behind without alternative opportunities are further devaluated by not being listened to, resulting in invisibility and fewer possibilities to adapt to climate change. Not being able to achieve climate change adaptation is a highly unsustainable outcome for women in the area, in particular since proper adaptation may have the potential to protect their lives, the property they depend on, and their income. Hence, the aspect of including a gender perspective specifically in the discussion on the changing role of women's burdens becomes an important long-term project, alongside the changing climate. For adaptation to be effective, it needs to be applicable to local conditions [10,46]. Therefore, we argue for gender-informed adaptation, wherein climate change responses, including their implementation, require attention to the gender dynamics that derive from the heavily gendered agrarian society, particularly where responses to an extreme weather event are gendered.

5.5. A Call for Inclusive and Situation-Based Policies

According to Christoplos et al. [1], the Vietnamese national strategies have not mapped out existing vulnerabilities. A key issue with the strategies is the absence of definitions for adaptation and vulnerability. Not having definitions for these terms is problematic because the scope of adaptation is not clarified, nor who is addressed when discussing vulnerable groups. By examining the provincial strategies that are based on the national directives, it is evident that the completed projects in Thái Bình are merely focused on technical and infrastructural solutions, not human capacities. An emphasis on technological solutions is a common approach under one-party states, as it is a direct method that does not touch upon social-political realms [47]. Projects undertaken are also in line with the suggestions that were made by the male farmers in the focus group discussions, including protection from flood by improved dykes and other infrastructural investments. The impacts of climate change on agriculture are not mentioned in any of the projects in the provincial implementation plan. An approach that would be in line with the farmers' request is the investment in improved forecasting for improved predictions and warnings in case of extreme weather. The report on the implementation of climate projects is purely technical, overlooking the aspects of gendered impacts and adaptation, the feminisation of farming, capacities of an aging rural population, and the inclusion of local perspectives. Nevertheless, the key informants were not optimistic that the existing plan could be implemented on provincial and local levels, as the head of the NGO says (KI4):

To be honest, they [local authorities] don't have enough money to implement and enforce it [the national strategy] on the provincial level.

This informant discussed discrepancies between the strategies at the national and local levels, inability to finance the strategy, and lack of cooperation between the authorities, which hinder the implementation of the strategy from national to local level. It appears that 'lack of funding' is perceived as the major issue among key informants and local authorities. However, the omission of gender-sensitive perspectives and other intersecting vulnerabilities in the strategies, including societal trends that affect the capacity to adapt, can see projects implemented in a manner that is not compatible with local contexts and the diversity of capacities among the farmers [46].

However, if gender is integrated into national or provincial climate strategies, that may not necessarily lead to direct change, as previous national strategies often lacked implementation. This reality was discussed by participants (KI5 and FG3), with one of the women from one of the focus groups saying (FG3):

We have been here for 33 years, but we have never gotten any support from them [the authorities].

Adding aspects of gendered adaptation to the strategies should become a long-term solution that could set the standard for sustainable inclusive adaptation. However, even if strategies were based on gendered local capacity, the outcomes of the strategies would not reach the local communities as intended. Therefore, it is inevitable to ask whether it is enough to include gender in the policies

when these do not appear to change the implementation process of the authorities. Despite the discrepancy between strategy and actual implementation, the inclusion of gendered adaptation and local knowledge in the strategies could increase the awareness of the issue and help to guide the work of other the stakeholders in climate change adaptation, by setting the new national standard in how it should be done.

Participatory approaches that include the opinions of local farmers in the process of adaptation planning are crucial, not only for the sake of equality but also for the improvement of adaptation. Creating situation-based strategies helps to make the implementation more efficient and more in line with the needs of the local communities [8,10,46,48]. Specifically, listening to people who are vulnerable, based on parameters such as age, gender, and income-level, can facilitate adaptation measures that are applicable in practise for vulnerable groups. If the trend of urbanisation sees that fewer men and young people will work as farmers, it is important to create an adaptation plan that is suitable for older women with lower income levels and (oftentimes) the lowest capacity to adapt.

The findings show that the strategies lack a holistic, sustainable perspective by not addressing these issues to the degree that they impact both female and male farmers' capacity to participate in and contribute to climate change adaptation. The main reason for this lies in the fact that policies do not acknowledge the socially differentiated rights, responsibilities, and knowledge, nor are they informed by or entrenched in local perspectives and experiences on the farming ground. There is no evidence to suggest that the state will introduce further agricultural or rural reforms soon, or that it will go forward with reforms in the field of gender. Rather, as is often in the case in major social reform in Vietnam, new policy is often preceded by spontaneous bottom-up processes in either urban industry or rural agriculture [49]. In that respect, the state in Vietnam is better described as reactive than pro-active. So, if women cannot wait for the state to act, then what can they do? Non-governmental organisations and institutes play an important role in Vietnam's development to sustainability [50–52]. Many of the projects on sustainability are driven by non-governmental actors, in collaboration with the Vietnamese state [53]. On the basis of this study, we propose that scaling up gendered adaptation strategies will rely on a continuing collaboration and increased support of situation-based and inclusive policies from NGOs, institutes, and community-based organisations in Vietnam. However, the multiple stressors could possibly exacerbate the current situation to a point of crisis, wherein female farmers have to take action to improve their livelihoods and increase their agency [54]. A reclaiming of agency by vulnerable groups has prevailed in other similar situations of crisis where the multiple stressors have become immense [54]. Without increased local agency or pressure from the ongoing sustainability projects in Vietnam, the implementation of gendered adaptation will continue to be a lengthy process.

6. Conclusions—Gender Matters

In this study, we have examined gendered adaptation among rural farmers in the Thái Bình province of Vietnam. We have shown that farmers in Thái Bình are environmentally vulnerable by living in and being part of communities that are already impacted by climate change. In addition, they are financially constrained, socially affected, and burdened by increased stressors. However, capacities connected to that vulnerability vary within the community, making certain people more exposed and vulnerable than others, not intrinsically but contingently. Age, class, and gender have become clear parameters in the identification and evaluation of vulnerability within the overarching threat of climate change impacts. Increasing labour migration due to farming not being lucrative, in combination with a state induced pressure on increased production, leaves elderly and female farmers behind both literally, in terms of place (rural agriculture), and in terms of equality and human well-being, leading to, or even reinforcing, the feminisation of farming. Meanwhile, women lack rights to and control over resources that they are nonetheless responsible for in terms of outcome. Thus, women are unable to access and contribute to knowledge production in order to alleviate the pressing situation they are in, nor possess the power to participate in or influence policy-making.

Therefore, we argued for gender-informed climate change adaptation that acknowledges a suite of important conditions, such as the gendering of capacities and impacts, the feminisation of farming, an aging rural generation, and socially differentiated local knowledge and experiences. Furthermore, we showed that the national strategies that are supposed to increase the adaptation capacity lack a holistic sustainability perspective by not acknowledging site-specific differentiated rights, responsibilities, knowledge generating capacities, and vulnerability. It is simply not enough to rely on economic instruments or technological solutions, especially when farming livelihoods are continually devalued. Technological solutions fail to address gendered regimes and dynamics which result in few opportunities and weak sustainable adaptation for farmers, specifically female farmers. If social relations in terms of age, class, gender, and location, are not highlighted and considered in national strategies and policies, it will be very difficult to reach social goals and national targets on economic growth, climate response, gender equality, and sustainable development.

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