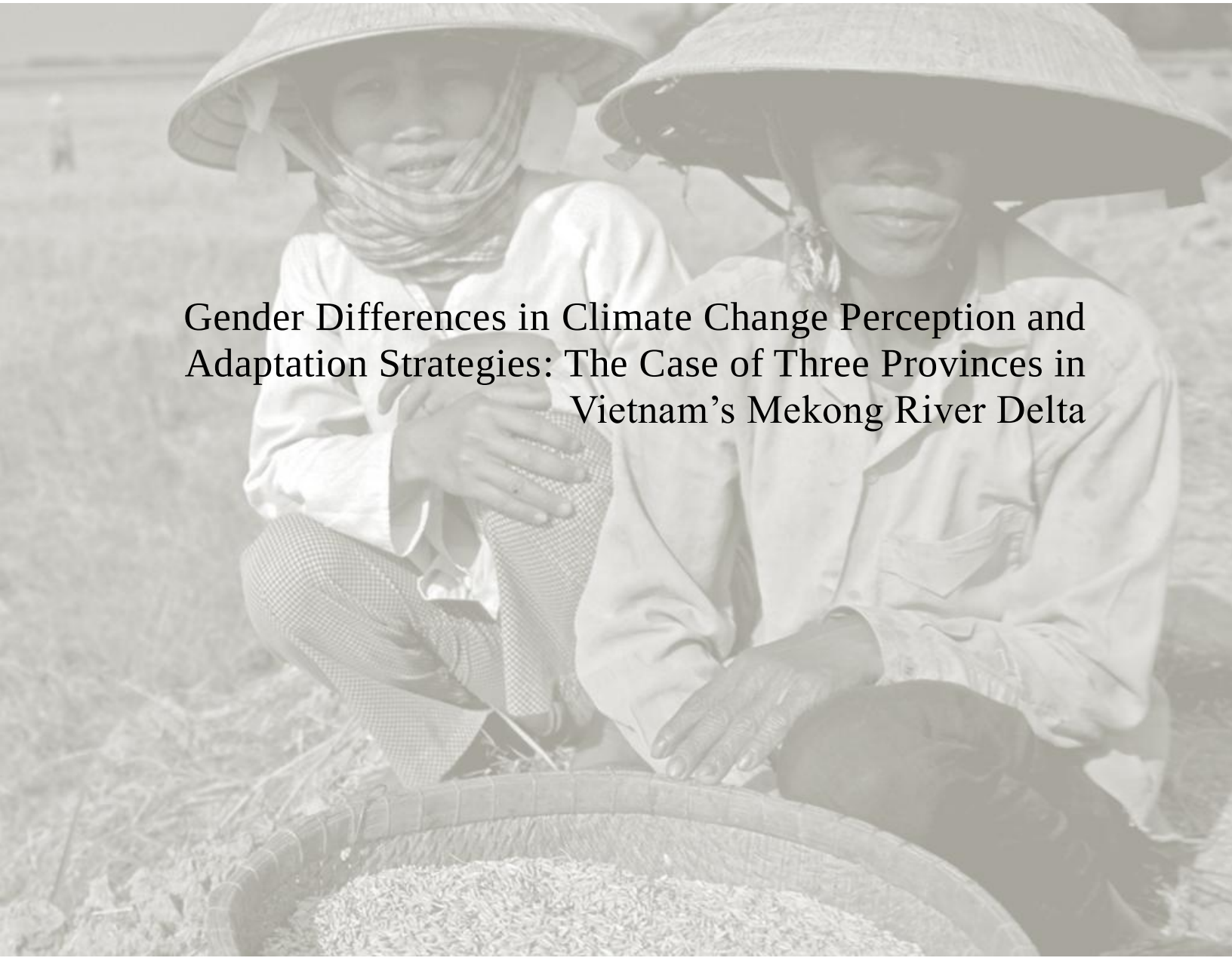

Gender Differences in Climate Change Perception and Adaptation Strategies: The Case of Three Provinces in Vietnam's Mekong River Delta

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Introduction

The CGIAR research program on Climate Change, Agriculture and Food Security (CCAFS) began in 2011. The stated goal of the research program on CCAFS is "*to promote a food-secure world through the provision of science-based efforts that support sustainable agriculture and enhance livelihoods while adapting to climate change and conserving natural resources and environmental services."* To help achieve this goal, CCAFS has been divided into four themes: (1) adaptation to progressive climate change, (2) adaptation through managing climate risk, (3) pro-poor climate mitigation, and (4) integration for decision making.

Phase two of CCAFS began in mid-2015. The original themes of CCAFS were replaced at this time by four flagship programs: (1) climate-smart agricultural practices, (2) climate information services and climate-informed safety nets, (3) low-emissions agricultural development, and (4) policies and institutions for climate-resilient food systems. Along with innovation and knowledge, gender is considered as one of the cross-cutting themes regarded as important for each of the main CCAFS flagship research programs. The purpose of including gender as a cross-cutting theme is to have a positive impact on social inclusion for the rural poor by providing relevant gender analyses across the programs. Recognizing gender as an important aspect of the CCAFS flagship research programs implies that the varying magnitude of vulnerabilities of men and women to climate change, including access to agricultural resources and information, can exacerbate poverty and further worsen existing gender disparities.

The Policy Information and Response Platform on Climate Change and Rice in ASEAN and its Member Countries Project (PIRCCA) is one of the trial projects funded under Flagship 4. PIRCCA has an overarching goal to enable policymakers in ASEAN countries to make informed decisions on (1) food security policies focusing on the supply and availability of rice, (2) climate change adaptation policies, and (3) gender action plans.

The PIRCCA project has Myanmar and Vietnam as its primary focus areas. Ideally, the PIRCCA project would have been implemented in all ASEAN countries. However, resource constraints dictated that PIRCCA be implemented on a smaller scale. As such, Vietnam and Myanmar were selected as the target areas for the PIRCCA project. This decision was based largely on the variation in the rice sectors between the two countries. Vietnam, the second-largest rice exporter in the world, has a very well developed rice economy. Conversely, Myanmar's rice economy is less developed compared to many of its ASEAN neighbors. This dichotomy between the two countries allowed for analysis to be conducted concurrently on the rice sectors at two very different levels of development.

This report, which forms part of the PIRCCA project outputs, focuses on the results of the survey conducted in the first half of 2015 on climate change perception and adaptation strategies of male and female farmers in three selected provinces in Vietnam: An Giang, Bac Lieu, and Tra

Vihn. The survey seeks to gather information on current climate change perceptions and adaptation strategies and gaps between the identified male and female respondents. The findings of the survey, along with the outcomes of other PIRCCA activities, are instrumental in PIRCCA's efforts in influencing the crafting of gender-responsive food security policies for Vietnam.

The focus of this study was to first gather information on climate change perceptions and adaptation strategies in Vietnam. Second, this survey was implemented to look for information gaps, perception gaps, or differences in adaptation strategies between men and women. The survey design was such that the husband and the wife of a household were interviewed separately on topics such as climate variability, climate stress and resulting changes, climate stress and impacts, and adaptation and coping strategies.

Background

Gender and climate change

Climate change impacts are different because of different vulnerabilities. The poor, women, and children are among the most vulnerable to the effects of climate change, and climate change may in fact worsen gender inequality, create extra work for women, and exacerbate the vulnerability of women in poor households (Campbell et al. 2009). In many parts of the world, women are more vulnerable to climate change as they have less access to education and information that would help them to manage climate-related risks to agriculture and food security (Jost et al. 2015). Evidence from Uganda, Ghana, and Bangladesh showed that many women had considerably less access than men to critical information on weather alerts and cropping patterns (Jost et al. 2015). Less access to information has weakened women's capacity to respond effectively to climate variability and, consequently, women appear to be less adaptive to climate-smart agriculture because of less access to resources such as financing, information, and extension services (Jost et al. 2015).

Agricultural resources are not equally available to men and women. Globally, it is estimated that, if rural women had the same access to agricultural resources (physical, financial, educational, etc.) as men, yields could increase by 20–30% and hunger could be decreased by 12–17% globally (FAO 2011). Climate change risk is also greater for women because they typically lack the necessary tools to adapt to climate change such as land rights, financial and material resources, as well as the relevant skills to adapt to climate change (Mitchell et al. 2007). Furthermore, cultural barriers can often limit women's access to the services required to adapt to climate change (Mitchell et al. 2007; Dankelman et al. 2008).

The social role of women in many countries can also limit their abilities to adapt to climate change. This enhanced sensitivity to climate change is the result of women's household responsibilities such as childcare, water collection, cooking fuel collection, and an increased participation in agricultural production with less access to agricultural resources (land, extension services, and inputs) as men migrate for work outside of agriculture (Doss 2011; FAO 2011; Kakota et al. 2011; Nelson and Stathers 2009; Peterman et al. 2011). Although temporary out-migration is a common coping strategy for households affected by natural disasters and other shocks, this option is primarily open to men and to households with some labor capital and resilience (Campbell et al. 2009). Women's lack of access is alarming because, at the household level, the ability to adapt to climate change depends on control over land, financial resources, and physical assets, as well as good health and mobility (Tran Thi Van Anh et al. 2008). Women are often more vulnerable than men to climate change because they have less education than men and are often refused property rights, thus making it much more difficult to access financial credit or extension agents (Gurung et al. 2006) when alternative income is required. Women also have fewer employment opportunities away from the farm (Oxfam 2008).

Rural women in particular are reported to be at greater risk of negative impacts from climate change (Goh 2012; Kakota et al. 2011; Nellemann et al. 2011). Similar results were found in Ben Tre and Quang Tri provinces in Vietnam, where researchers from Oxfam (2008) reported that, in many villages, women have fewer assets to turn to during times of crop failure and they are the most vulnerable in the world to climate change because of their resource dependency and limited means to adapt to climate change (Adger et al. 2007; Moser and Luers 2008).

Gender-centric development and research discussions on climate change frequently focus on rural women because they are often considered the most vulnerable group to climate change as well as being reliable agents of sound adoption practices (Dankelman 2010; Enarson and Fordham 2001; Nelson et al. 2002; Speranza et al. 2010). The increased role that rural women are playing in agricultural production could provide an opportunity to positively impact food production as well as food security, even while adapting to a changing climate (Carvajal-Escobar et al. 2008). Poor communities in Vietnam's Ban Tre and Quang Tri provinces have already shown positive signs of climate change adaptation by planting different crops and changing their cropping cycles (Oxfam 2008).

Although there has been much discussion on governmental and organizational platforms about how differentiated vulnerabilities, such as gender, may influence adaptation, less energy has been devoted to academic research on the topic (Adger 1999; Kelkar et al. 2008; Young et al. 2009).

There is still a need for better understanding gender perceptions and adaptation strategies toward climate-smart agriculture and food security. Women and men, because of their respective social roles, are affected differently by the impact of climate change. Consequently, adaptation policies and measures need to be gender sensitive. To understand the implications of adaptation measures for all people involved, it is necessary that all members of an adapting community be represented in climate change planning as well as in governance processes; however, women are often expected to contribute unpaid labor while being absent from the planning and governance processes (Roehr 2007). Equal involvement of men and women and their respective needs and perspectives in adaptation planning is important not only to ensure that the measures developed actually benefit those who are supposed to implement them, but also to ensure that all relevant knowledge is integrated into policy and projects to ensure success (Roehr 2007).

Vietnamese rice sector

Vietnam's development performance in the last two and a half decades is considered as "one of the most spectacular in the developing world" (OECD 2013). Its rapid and sustained economic growth has transformed the country from one of the poorest in the world to a lower middle-income country. The rapid growth of the agricultural sector and in particular the rice sector served as the foundation for Vietnam's successful development story. The rice sector and in particular the Mekong Delta (MKD), the country's rice-producing belt, have achieved this

objective, effectively transforming the country from a rice-deficit to a huge rice-surplus economy.

However, the role of the rice sector as an engine for rural growth and poverty reduction has subsided in recent years. Rising input costs, including those for fertilizer, fuel, and labor, have outpaced nominal increases in producer paddy prices (World Bank 2012). Because of increasing production costs, the Vietnamese rice export sector can no longer rely on cost-competitiveness, a strategy that it has successfully maintained for decades. The Vietnamese rice sector is also dealing with severe environmental issues. Strategies for increased production have mainly focused on intensified rice farming systems, using high-yielding varieties and more agrochemicals (Berg and Tam 2012). The use of pesticides has increased dramatically in the past decades (Van Hoi et al. 2009). Overuse of fertilizer has led to high pest and disease infestations, which has led again to higher pesticide use.

Also, future problems should not be ignored. The Mekong Delta has been identified as significantly vulnerable to climate change (Dang et al. 2014), which is leading to increasing water shortages in the dry season (Dong et al. 2012).

Survey Location and Methods

In total, 214 households were interviewed as part of the climate change perception and adaptation strategies study. The surveys were carried out by IRRI's local partner in Vietnam, the Institute of Policy and Strategy for Agriculture and Rural Development (IPSARD). The surveys were conducted in seven districts located in three provinces: An Giang Province (n = 90), Bac Lieu Province (n = 64), and Tra Vinh Province (n = 60). The surveyed provinces are highlighted in Figure 1.

Geographic selections for this study were based on a priori knowledge of areas facing climate change issues. This criterion was used in the selection of provinces, districts, communes, and villages. Once the villages were selected, a list of farmers with at least ten years of farming experience was prepared for each commune. Survey participants were then selected using a stratified random sampling procedure with equal numbers of respondents from each village.

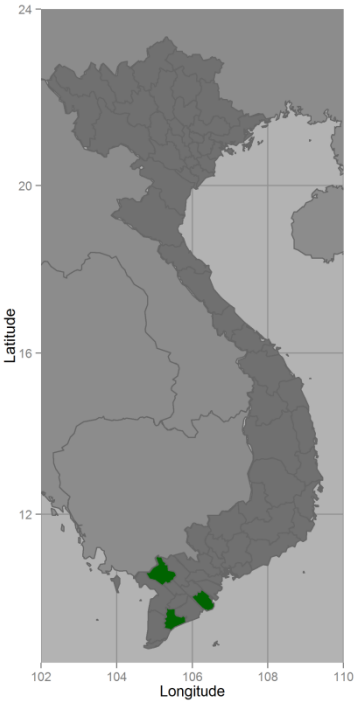

Figure 1. Surveyed provinces in Vietnam.

Respondents and Farm Characteristics

Mean values for respondents are presented in Table 1. On average, males were older and had more farming experience and more years of formal education. These findings are similar to earlier studies (Khai and Yabe 2012; Khai and Yabe 2011). Nearly 80% of the respondents were from the Kinh ethnic group. This was true for males and females across the sample.

Table 1. Household descriptive statistics.

	Males	**Females**
Age (years)	48.92	45.10
Farm experience (years)	28.28	24.22
School (years)	6.85	5.70
Ethnicity (%)		
Khmer	20.1	20.1
Kinh	79.9	79.9

	Households
Household size (persons)	4.79
Farm labor <18[†]	22.5%
Farm labor >18[†]	50.3%
Nonfarm labor <18[†]	35.8%
Nonfarm labor >18[†]	36.5%

[†] Values presented as a percentage of household size.

The majority of farmland in the surveyed area is owned by the farmers. The average farm size (Figure 2) of the respondents is 2.02 hectares. On average, 1.84 hectares are owned and 0.18 hectare is rented. Rice is a primary crop for the surveyed farmers as total paddy production accounts for an average of 1.90 hectares of land use or about 94% of the total farm size. Many farmers have three production seasons per year. The first season generally starts in April and ends in August, the second season starts in September and ends in November, and the third season begins in November and ends in April of the following year. Based on the data from this survey, season three had the highest yield, followed by season two and season one.

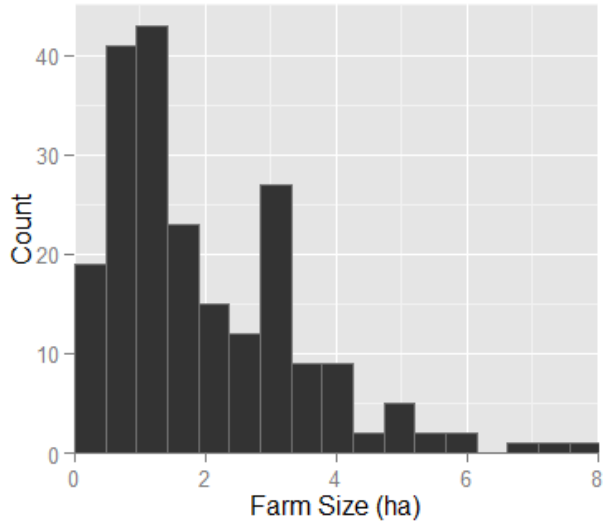

Figure 2. Total farm size in hectares.

Household Income

Rice income plays a vital role in the overall income of the households surveyed. The mean income from rice is the highest among all income sources for the farmers (Table 2). Also, more farmers were engaged in rice production than in any other means of income. The next highest income-earning activity for the surveyed farmers was shrimp farming. However, only 13 of the 214 surveyed households were engaged in shrimp production. Conversely, more than 96% of the surveyed farmers were engaged in rice production.

Table 2. Annual income by category.

	Mean income[↑]	Count
Rice	146.50	206
Other crops	15.03	29
Pigs	23.07	29
Poultry	8.57	7
Fisheries	45.00	5
Shrimp	142.30	13
Off-farm	35.33	36

[↑] Income reported in million VND.
USD 1 = VND 21,800, July 2015.

Climate Variability

Respondents were asked to report their perceptions on multiple climate change variables such as temperature, rainfall, drought, floods, and sea-level rise. All questions were asked of both spouses in the household. Of the 214 households surveyed, 214 males reported that they had noticed changes in the weather in the last ten years and 213 females reported the same. When asked specifically about changes in temperature, nearly all respondents, male and female alike, reported a perceived increase in temperature (Figure 3). The data suggest that temperature is on average higher and is potentially more variable. Results of Figure 3 also show respondents perceiving colder temperatures during the cold months and hotter temperatures during the hot months as well as many reporting irregular change. Almost no respondents perceived a decrease in temperature or no change at all. When asked what the most significant perceived changes in temperature trends were, males and females both reported most frequently that increases in temperature were the most significant changes, with 131 and 112 responses, respectively.

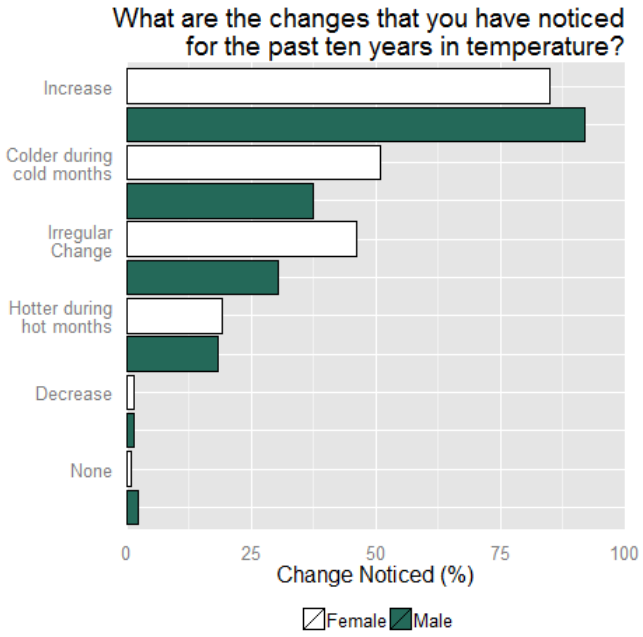

Figure 3. Perceived changes in temperature in the last ten years, Vietnam.

On average, male and female respondents reported a decrease in precipitation (Figure 4). In addition, both reported irregular change in precipitation patterns. Approximately 31% of the males also perceived rainfall coming later in the season. Respondents reported that the most significant change in precipitation they observed was low rainfall, with 104 males and 97 females reporting. Similarly, males and females had comparable perceptions on drought. High

drought was most perceived, with approximately half of the respondents noting that they had seen high drought. Nearly 40% of the male respondents also reported early drought. High drought was the most reported aspect considered to be the most significant change in drought in the last ten years by 91 males and 66 females. The responses to changes in precipitation and drought are in agreement with one another and suggest that low precipitation is of concern to many respondents in southern Vietnam. In further agreement, the respondents also reported less flooding in the last ten years.

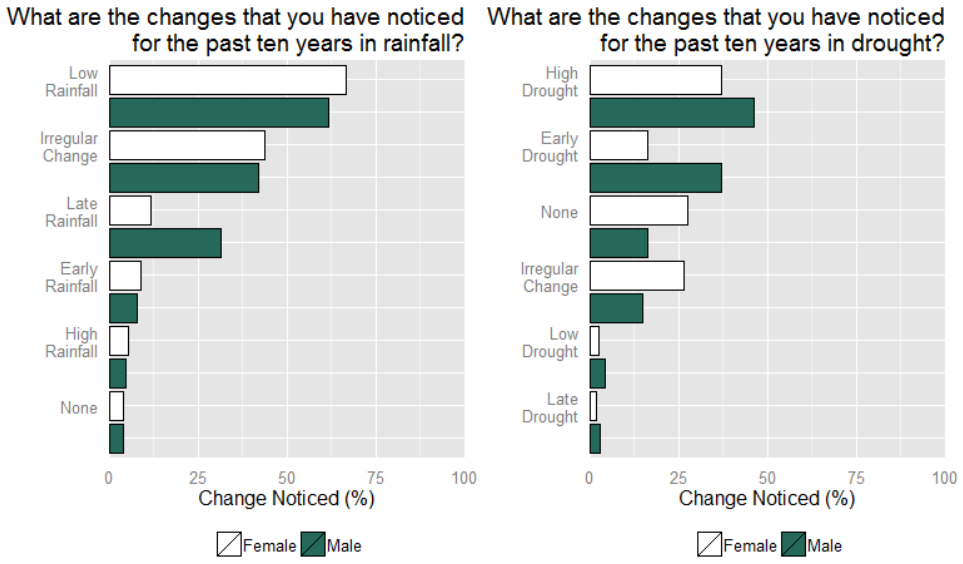

Figure 4. Perceived changes in precipitation and drought in the last ten years, Vietnam.

Sea-level rise does not seem to be of concern to the respondents: 42% of the male respondents and 37% of the female respondents reported no change in sea-level rise in the last ten years. Very few respondents reported observing any change in sea-level rise in the last ten years (Figure 5). The responses on sea-level rise were similar between males and females. In fact, all responses regarding climate variability were similar between male and female respondents.

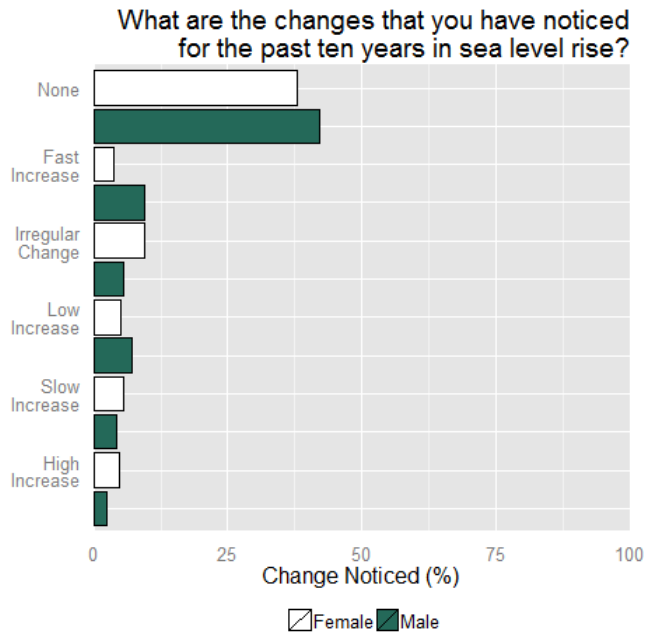

Figure 5. Perceived changes in sea-level rise in the last ten years, Vietnam.

The reasons for climate change are also similar between the sexes. Male respondents report that climate variability is due to humankind and nonhumankind activities at 33% and 44%, respectively. Females' responses are similar but with more emphasis on humankind activities. Female respondents report that climate variability is due to humankind and nonhumankind activities at 41% and 43%, respectively. There appears to be consensus among the respondents that temperatures are increasing and becoming more variable, precipitation is decreasing, and sea-level rise is not presently a concern in their respective regions.

Climate Stress and Changes

The results of observed weather stresses are shown in Figure 6. Both male and female respondents report heat stress to be the stress most present in their area. Similarly, drought was reported as the second-highest observed stress in each respondent's area, followed by salinity and flooding. When respondents were asked which stress was most important or most noticeable in their areas, the most common response was salinity, with 36% male and 34% female respondents identifying salinity as the most important or most noticeable stress in their area. Even though heat and drought were reported as more frequently than salinity, the intensity of the stress associated with salinity appears to be the greatest for some respondents. Storms and sea-level rise were scarcely reported as observed weather stresses.

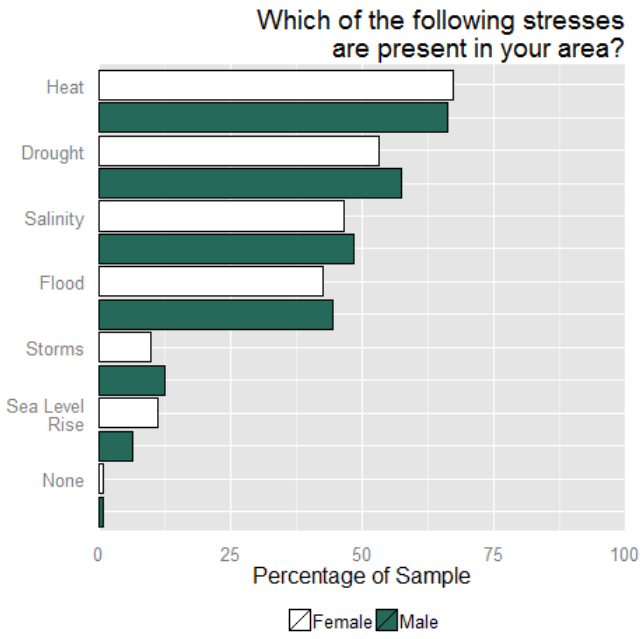

Figure 6. Perceived weather stress in the last ten years, Vietnam.

Rice paddy yields were reported to decrease during times of stress, with 150 male and 148 female respondents observing this trend. Male respondents reported an average decrease in yield of 41.37%. This value is inclusive of 31 male respondents who reported total crop failure. Similarly, female respondents reported a mean average decrease in yield of 40.71% inclusive of 22 female respondents who reported total crop failure. The distributions of reported yield decreases are shown in Figure 7.

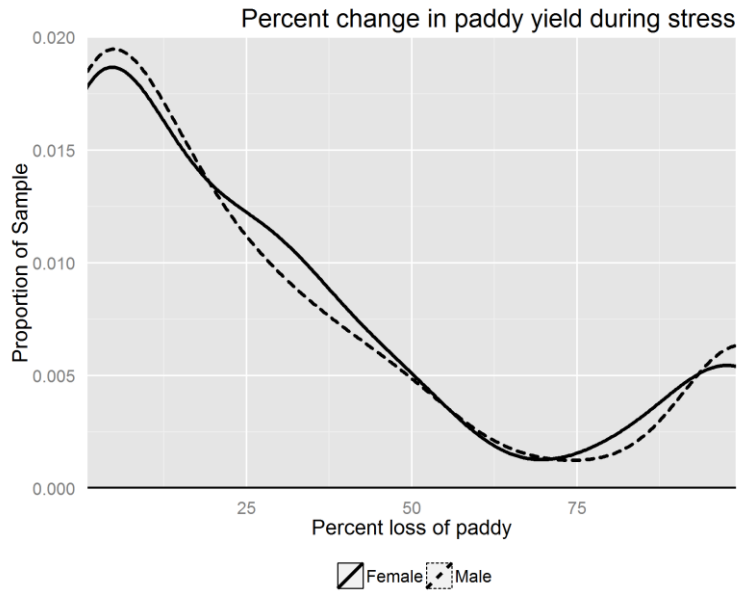

Figure 7. Reported decrease in rice paddy yield by respondents.

Respondents also reported that livestock production was affected by stress, with 31 male and 32 female respondents reporting. The largest effect reported was in the increase in disease incidence, with 22 male and 25 female respondents reporting this change. The effect of climate stress in aquaculture is unknown in this study because too few respondents were participating in aquaculture.

A total of 123 male and 105 female respondents reported that climate stress has affected irrigation on their farms. The most reported effects based on an open-ended question were a shortage of irrigation water and salinity-contaminated irrigation water. The most commonly reported irrigation source was the use of canals, with 102 males and 94 females reporting this as their primary irrigation source. Even when stress is present, only 5 males and 11 females report changing irrigation sources. Canals were reported as a new source of irrigation for all respondents who reported changing irrigation sources during stress.

Of the 214 households surveyed, 169 reported keeping rice paddy for home consumption. During times without climate stress, 150 males and 145 females reported having full self-sufficiency in rice. During times of climate stress, only 12 males and 105 females reported full self-sufficiency. On average, males reported a decrease of 0.82 month (about 25 days) of paddy availability for household consumption. Females reported a decrease of 1.03 month of paddy availability for household consumption. The data show that climate stress is decreasing rice self-sufficiency in the households by approximately one month per year.

Climate Stress and Impacts

Respondents were asked to identify the impacts of climate stress on rice production. Low yields were the most commonly reported impact for both males and females (Figure 8). Male and female respondents reported 142 and 146 times that low rice yields were an impact of climate stress, respectively. Other factors included crop loss, with 53 males and 55 females reporting it as an impact of climate stress on rice production. To a lesser extent, increased debt was reported 26 and 36 times by males and females, respectively. From this survey, 31 male and female respondents reported no impact of climate stress on rice production.

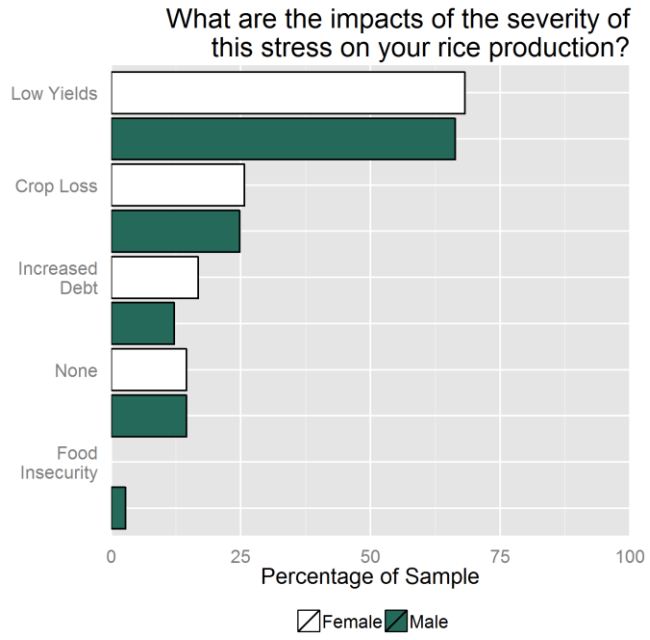

Figure 8. Reported impacts of climate stress on rice production.

Respondents were asked if there were noticeable changes in individual stresses on male and female household members as a result of climate stress (Figure 9). The responses were nearly identical for all four scenarios: (1) male perception of male stress, (2) male perception of female stress, (3) female perception of male stress, and (4) female perception of female stress. Generally, male respondents perceived more health problems for both male and female household members whereas female respondents perceived increased anxiety of male and female household members. The similarities of responses among males and females may signal that stress is managed at the household level rather than at the individual level.

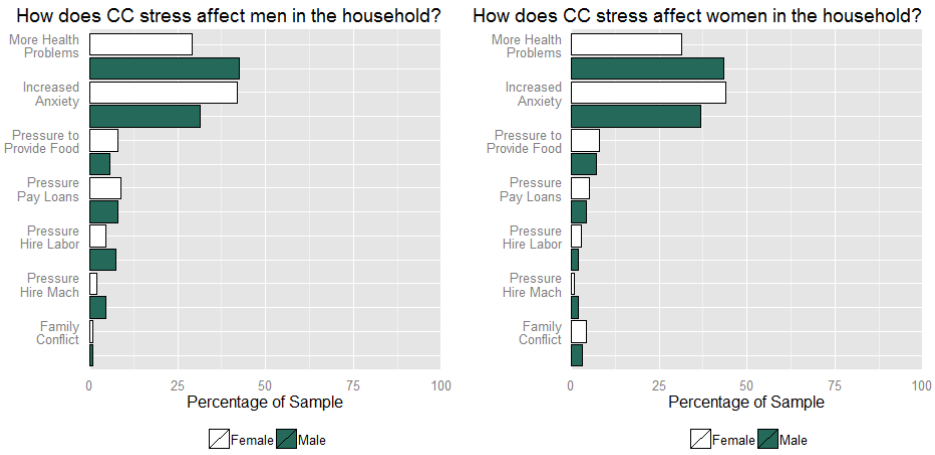

Figure 9. Perceived impact of stress on household members.

Institutional Support

In total, 127 male and 120 female respondents reported that they received institutional support in times of stress. The majority of the institutional support that was investigated in this study was not widely used by the respondents. For instance, only two males and two females reported that they received housing support in times of stress, one female reported that she received relief goods rations during stress, 16 males and nine females reported that they received credit support during stress, seven males and nine females reported receiving rice training during stress, and two males and three females reported receiving some other support. Support for farming activities was the most reported type of institutional support, with 124 males and 91 females reporting that they received this type of support during times of stress.

Respondents were asked in an open-ended question what they expected regarding institutional support. Most commonly, farmers expected support in means of production such as improved rice varieties, training for production techniques and climate change adaptation, access to low-interest credit for inputs, and better access to irrigation water through canal and dike improvements. Other agricultural support not related to production was improved postharvest technologies and techniques, access to markets, and price support for paddy produced on the farm to be sold at a higher price at the market. Finally, respondents also reported nonfarm support such as access to rice for home consumption and health insurance.

Respondents were asked about their access to information on cropping patterns and agronomic practices, aquaculture activities, and weather conditions. Only 18 males and 13 females reported that they had access to information on aquaculture activities, which is not surprising because only five households reported income from fisheries and another 13 from shrimp. More respondents reported access to information on cropping pattern and agronomic practices: 173 males and 163 females reported that they had access to this information. Even more common

was access to information on weather conditions: 210 males and 198 females reported access to this.

Adaptation and Coping Strategies

Respondents were asked what they did as individuals to cope with the negative impacts of climate stress. For many, the answer was to do nothing. The option to do nothing was selected by 120 males and 82 females. Furthermore, 92 males and 69 females cited doing nothing as the most important strategy for dealing with stress. Aside from taking no action, male respondents also cited reducing consumption (n = 57), bank loans (n = 46), and working more (n = 46) as adaptation strategies that they had previously used. Females reported reduced consumption (n = 65), bank loans (n = 59), use of savings (n = 47), and working more (n = 45) as adaptation strategies. This section on adaptation and coping strategies introduces the largest differences in male and female responses, for instance, the discrepancies in using bank loans between males (n = 46) and females (n = 59). It is possible that the coping strategies being used by individuals in a household are not realized by other members in the household. Still, the adaptation and coping mechanisms are similar between male and female respondents. The results can be seen in Figure 10.

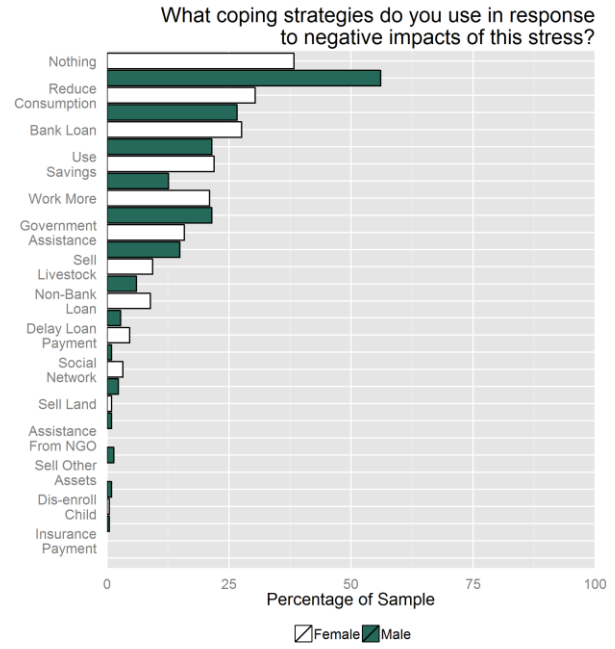

Figure 10. Reported individual coping strategies by gender.

Figure 11 shows a greater consensus between genders regarding the adaptation strategies of the farm. For male respondents, no change is still the most common response strategy reported (98 responses). Female respondents reported no change (84 responses), second only to changing rice

variety (100 responses). Male respondents reported changing rice variety second most frequently (95 responses). Change of cropping pattern was cited 42 and 33 times by male and female respondents, respectively. Also, leaving lands fallow was reported 42 and 24 times by male and female respondents, respectively. Other adaptation strategies such as changing to livestock production, diversifying crops planted, growing dry fodder crops, and relocating crops were scarcely mentioned by the respondents.

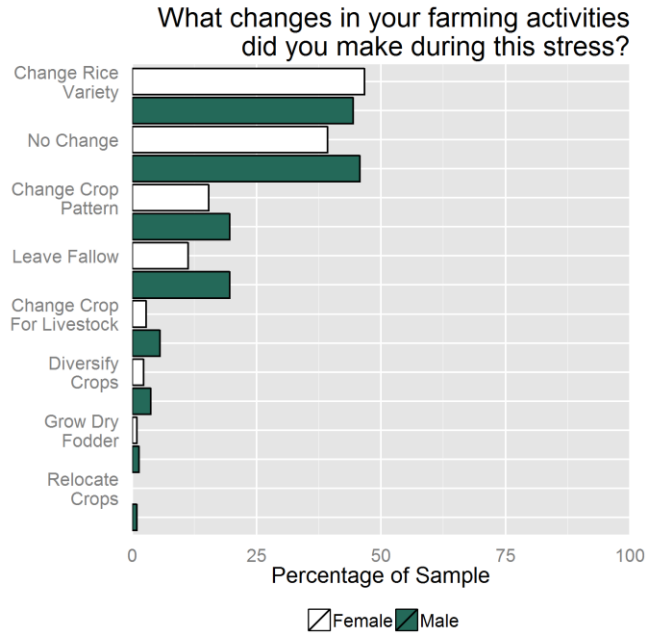

Figure 11. Reported farm adaptation strategies.

Because changing rice varieties was the most reported adaptation technique used on surveyed farms, it is interesting to know what factors influence adoption decisions among respondents. The most resounding factor in adoption reported in Figure 12 was for the new variety to have good yield. Not only was good yield reported as a factor 167 times by males and 170 times by females, it was also reported as the most important factor 90 and 71 times by males and females, respectively. Other factors that were important for males were stress tolerance (n = 114), market demand (n = 105), and physical factors (n = 75) such as soil and climate conditions. Females reported other factors such as market demand (n = 88), producer selling price (n = 88), and stress tolerance (n = 74) as important in selecting a rice variety.

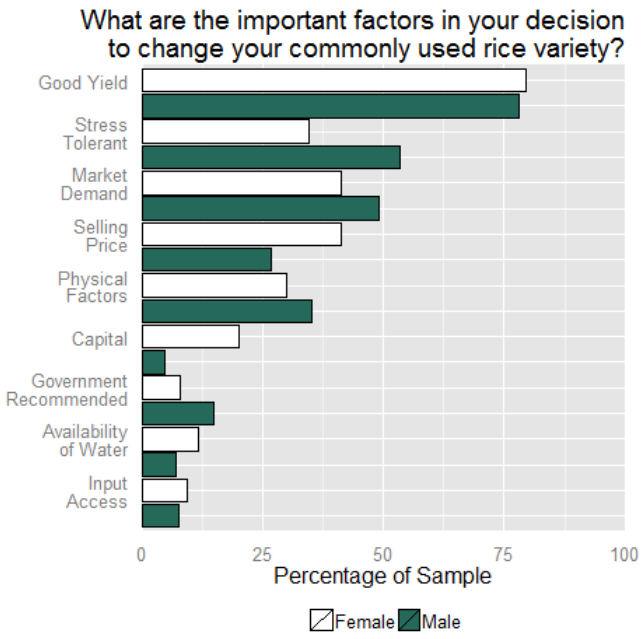

Figure 12. Reported factors affecting the adoption of new rice varieties.

Figure 13 shows that the factor most affecting change in cropping pattern (i.e., what to plant) for both male and female respondents was physical factors such as climate and soil conditions with 118 and 100 responses, respectively. Physical factors were also cited most frequently as the most important factor in changing a cropping pattern with 86 and 71 responses from males and females, respectively. Other notable factors for male respondents are market demand (n = 55), government recommendation (n = 54), and good yield (n = 46). Females reported good yield (n = 81), selling price (n = 73), market demand (n = 54), and capital (n = 47) as important factors in changing a cropping pattern.

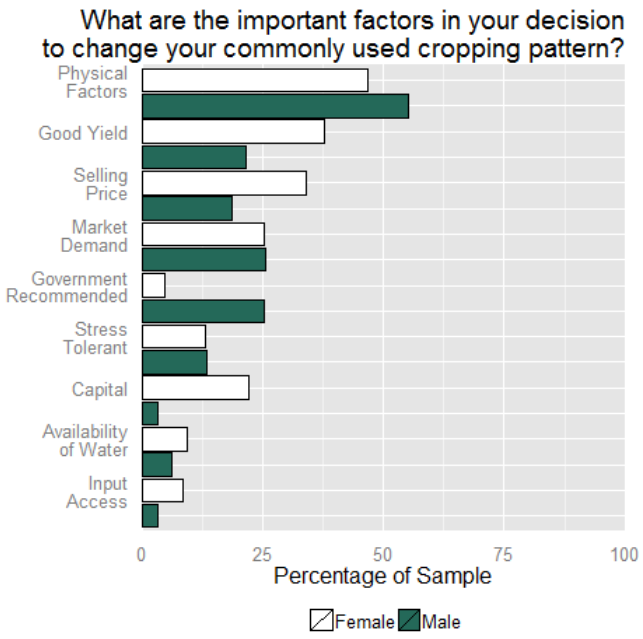

Figure 13. Reported factors affecting the adoption of new cropping patterns.

The factor affecting changes in the cropping calendar (i.e., when to plant) was most notably government recommendation, with 167 and 109 responses from males and females, respectively. Government recommendation was also cited as the most important factor in changing a cropping calendar by 125 male respondents and 87 female respondents. Although considerably less, other factors that influence males' decision to change cropping calendar are physical factors (n = 77) and water availability (n = 38). Similarly, less pronounced factors for women are selling price (n = 52), good yield (n = 49), capital (n = 44), and physical factors (n = 41). These results can be seen in Figure 14.

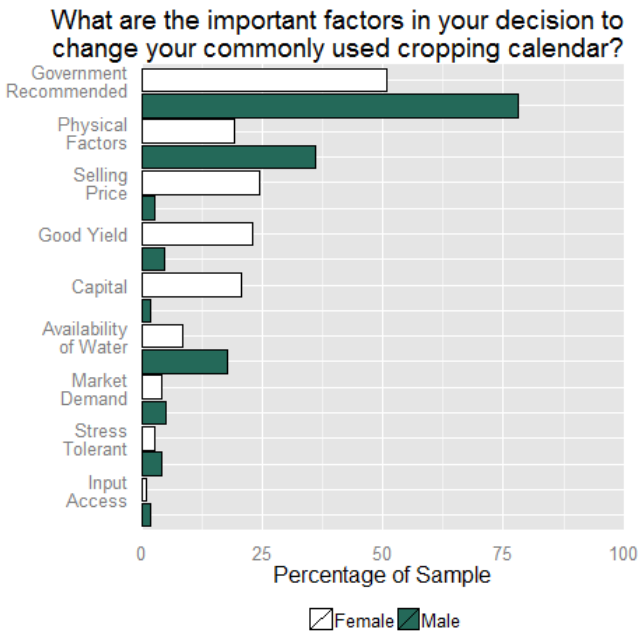

Figure 14. Reported factors affecting the adoption of new cropping calendars.

Moving forward, climate change will provide challenges in agriculture. A number of proposed adaptation techniques were suggested to respondents, as seen in Table 3. Technologies with the largest reported acceptance in the future to adapt to climate change are the adoption of stress-tolerant varieties, a more general change in variety, change in input use, pest and disease management, and change in cropping calendar. For the most part, male and female responses were similar. The exceptions to this are the reported acceptance of pest and disease management (males reported acceptance 55 more times than females) and change in input use (males reported acceptance 62 more times than females). The interest of the respondents provides opportunities in the future for better rice varieties and better agronomic practices. The challenges of climate change in agriculture will require site-specific solutions and Table 3 provides some insight into what technologies will be met with acceptance in the future.

Table 3. Reported acceptable technologies for adoption to cope with climate change.

Technology	Males	Females	Difference
Stress-tolerant varieties	192	180	12
Improved cropping system	43	41	2
Changes in varieties	148	129	19
New land management techniques	49	33	16
Changes in water management	33	14	19
Pest and disease management	144	89	55
Varieties with disease and pest resistance	30	7	23
New livestock breeds	5	1	4
Animal health management	25	7	18
Change in cropping calendar	96	76	20
Change in input use	135	73	62
Crop rotation	33	12	21
Other	3	4	1
None	2	7	5

Respondents were asked what management training they wanted to enhance their skills in order to better adopt the technologies mentioned in Table 3. Pest management was the most demanded training from males (n = 168) and females (n = 150). Males also demanded training on crop production (n = 137), crop nutrient management (n = 79), seed health management (n = 77), water management (n = 70), and animal management (n = 52). In addition to pest management, female respondents also demanded training on seed health (n = 101), crop production (n = 76), and animal management (n = 50). The results are shown in Figure 15.

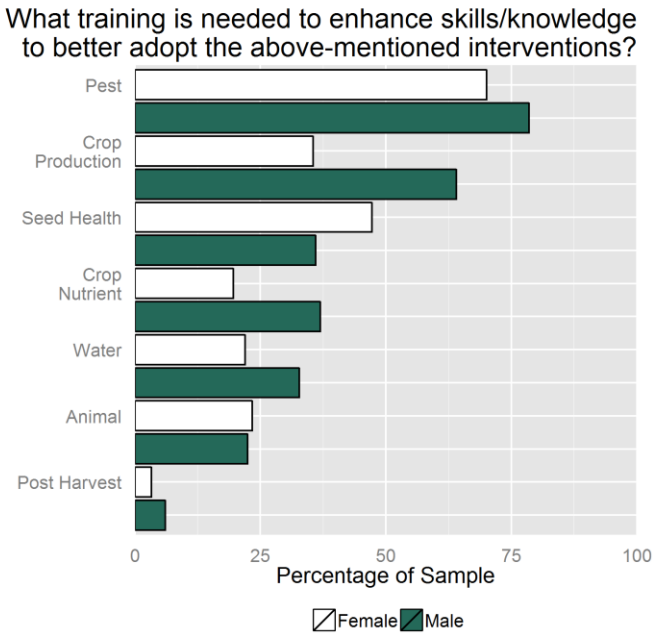

Figure 15. Reported desired management training.

Concluding Remarks

Data for this study were gender disaggregated to investigate whether there was a difference in climate change perceptions, access to climate change information, and adaptation and coping strategies. The data do not provide any strong evidence that a gender gap exists in any of these areas. The largest variability in responses, albeit small, comes from the individual coping and adaptation strategies. However, the small variations across all questions suggest that issues related to climate change are managed at the household level rather than at the individual level.

Some interesting findings from this study are that all participants surveyed have witnessed a change in weather in the last 10 years. Most notably, temperatures have increased and become more variable while precipitation has decreased. Farmers are demanding rice varieties that are heat-tolerant, drought-tolerant, and salt-tolerant; pest management training; and crop production management training.

The findings outlined above affirm that the gender imbalance in the awareness and understanding of climate change issues between male and female rice farmers in the Mekong River Delta (MRD), the biggest rice bowl of Vietnam, is not a serious problem although there is a slight difference in male and female coping and adaptation strategies. This coincides with what we have captured during several field visits and surveys there. Some reasons for this are mentioned below.

Although the term “climate change” is not so popular in Vietnam, when it is represented by proxy questions relating to changes in temperature, precipitation, etc., climate change becomes more understandable to many farmers. These farmers can recognize changes in climate because of the local experience they have in agriculture. In addition, the wide coverage of climate issues in mass media, such as television, radio, and newspapers in the MRD and other rural areas, has helped in disseminating climate and weather information.

In Vietnam, male farmers rather than female farmers are primarily responsible for rice production but female farmers are well aware of the difficulties and challenges to rice production because it is the main livelihood and main source of income for their households. Any changes in climate and weather that result in damage in rice production and losses in rice income eventually will be noted carefully by female farmers.

As mentioned before, the findings are not completely new but once more help prove the nonexistence of gender imbalance in climate change perceptions between male and female farmers in the MRD. However, to avoid conflict, if any, with findings from other studies on gender issues, we would like to note that the gender balance we found is in the understanding of climate change impacts and adaptation measures instead of general socioeconomic issues.

Based on this study, the impacts of climate change in Vietnam do not appear to be individual but rather disaggregated at the household level (at the most finite level) or more likely at the landscape level. Challenges related to climate change faced by individual households are likely to be the same challenges as their neighbors have. Therefore, future climate change studies in Vietnam should provide more emphasis on spatial considerations and less emphasis on gender issues that do not appear to exist in climate change perceptions or access to climate change information. Future gender research in Vietnam should focus on adaptation and coping strategies during climate change stress as it appears that gender differences are present in this area.

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