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Gender-Inclusive Transformational Change in Mekong Delta Seed Clubs: Women's Participation Informed by Agroecology

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in Mekong Delta Seed Clubs:
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Abstract

The localised efficacy of the original seeds clubs of Southern Vietnam's Mekong Delta has been harnessed by the inclusion of many of these clubs into several stages of programming. Participatory rice breeding (PRB) over the last two decades has aimed to promote *in situ* breeding and varietal selection, rice diversity and farmer participation in agricultural technology. This emphasis on a combination of farmer knowledge and technical and scientific support has resulted in a robust informal seed system, recognised and supported by the government, and funded by several large international development actors. Processes for this thesis involved traveling to 'seed clubs' in eight of the Mekong Delta's thirteen provinces, group interviewing women ostensibly involved in this Participatory Plant Breeding and Farmer Field School programming, then mapping this rich data using soft systems methodology. There has been major crop improvements coinciding with this growing participatory plant breeding (PPB) and farmer field schools (FFS) network that forms the informal seed system, however, fieldwork uncovered some serious shortcomings regarding inclusion of women's views and their access to the program. There are structural forces that hinder genuine participation by women and this problematizes the idealised image of PPB: It is not enough to just decentralise a program in order to make it more inclusive. The women expressed concerns regarding amongst other important issues, climate change and crop adaptation to their local environments and reducing chemical usage to directly benefit aquatic biodiversity and water quality in local waterways. With a transformational agroecological intervention systemic changes that the women describe could be achieved. Serious constraints to this process are identified here, along with recommendations to overcome these current roadblocks to women's inclusions in local varietal development, climate change adaptation and mitigation, and more sustainable farming practices for improved human and environmental health.

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List of Abbreviations and Acronyms

CTU	Can Tho University, Mekong Delta's main university. Can Tho City, Vietnam.
CLRRI	Cuu Long Rice Research Institute, Can Tho City – a government research Institute
CEDAW	Convention of the Elimination of All Forms of Discrimination Against Women
CBDC-BUCAP	Community Biodiversity Development and Conservation, and Biodiversity Use and Conservation in Asia Programme. Coordinated by SEARICE and in part funded by Norway's Utviklingsfondet in its early stages. Focus was on agricultural rice biodiversity and PPB, and occurred in three phases: 1996 – 2000, 2000 – 2005 and 2005 – 2010.
CWR	Crop wild relative
FAO	Food and Agriculture Organisation of the United Nations
FFS	Farmer Field School
FARES	Strengthening Farmer Agricultural Research and Extension System Partnership - the programming in the seed clubs from 2010-2015, run from MDI, funded by Swiss Bio at first, then IFAD for the final 2 years.
GHG	Green House Gases
IFAD	International Fund for Agricultural Development
IPM	Integrated pest management
IRRI	International Rice Research Institute
LUC	Land Use Certificate
MDI	Mekong Delta Research Development Research Institute is an interdisciplinary training and research organization of Can Tho University (CTU)
NSD	Norwegian Centre for Research Data
PGR	Plant genetic resources
PGRFA	Plant genetic resources for food and agriculture
PPB	Participatory Plant Breeding
PRB	Participatory Rice Breeding
SD=HS	Sowing diversity = Harvesting Security, a PGR program with various collaborating partners including SEARICE and Oxfam Novib of The Netherlands, with funding from the Swedish international development agency, IFAD and others. SD=HS is the current (2015-2018) programming for FFS and PPB in the Mekong Delta's seed clubs.
SEARICE	South East Asia Regional Initiatives for Community Engagement, Philippines, is regional coordinator of programming implemented in the rice-growing countries of Bhutan, Lao PDR, Philippines, Thailand and Vietnam. They are facilitators, providing local institutions and organisations with some funding and technical support.
SIDA	Swedish International Development Agency
SSM	Soft Systems Methodology
VWU	Vietnam Women's Union

Chapter I. Introduction

1.1 Introduction

An agroecological systems analysis of gendered issues in participation in local participatory plant breeding (PPB) and farmer field school (FFS) development programming can lead to recommendations on how women's participation could be improved and how PPB as a field can be enhanced. Changes to PPB in relation to agroecology and gender sensitive programming can create a more sustainable future for livelihoods. The Mekong Delta is considered the 'rice bowl' of Vietnam, a huge producer of relatively high-yielding lowland rice, and the fertile lands there are a crucial agricultural asset for the country. Improved rice varieties are key to the population's livelihoods, and there exists a robust farmer managed seed system parallel to the formal seed system (Cuc et al. 2008). Climate change has created an urgency in the region to rapidly adapt, and is also an incentive to design local measures to affect greenhouse gas emissions globally.

Rice was domesticated 10,000-12,000 years ago (Seck, Diagne and Mohanty 2012). Asian rice is the seed of the *Oryza sativa* species, in the grass family, *poaceae*. In the world today, rice is one of the most produced agricultural products and is therefore also one of the most-traded commodities. It is the most important grain for human consumption in terms of contributing to nutrition and caloric intake, responsible for feeding more than half of the global population (ibid).

1.1.1 Mekong Delta context

The Mekong delta is a huge flood plain that undergoes inundations yearly (Figure 1). While they were colonisers in Vietnam, the French preferred canals for transportation, and so they began the widespread excavation of canal systems. The Green Revolution began in the region tentatively during the war with America when the International Rice Research Institute (IRRI) introduced the first non-photosensitive rice variety, IR8, in 1968 along with the pesticides, inorganic fertilisers and irrigation technology it required. And along with this new high yielding variety came infestations of the brown planthopper *Nilaparvata lugens* (Stål). Then in 1975, after the war, the new communist government made every effort to bring the new technologies of the Green Revolution to Vietnam to address national food security, which had fallen to dire levels due in part to a second wave of brown planthopper (biotype 2) (which later, by 1977, became resistant to pesticides). Finally, in 1989 the country was again able to enter the international rice export market (Xuan 1975 p.88; Xuan unpublished pp.1-4).



Figure 1 – Map of the Mekong Delta, Southern Vietnam

The Mekong River Delta contains 13 provinces all of which house the MDI's PPB-FFS seed clubs. (Map supplied by Dr. Huynh Quang Tin, 2018).

It was during this time that Dr. Xuan witnessed the near-complete rejection of traditional land-race varieties of rice by farmers in the Mekong Delta and set about creating a gene bank, which today houses over 3000 varieties no longer in use (key informant interview, 07.12.17. See appendix 6.). Thi Ut (2002; cited in Seck, Diagne and Mohanty 2012) surveyed Vietnam's rice cultivation and clearly shows a rapid progression of the total area of land growing modern, improved varieties going from 17% in immediate post-war 1980, to 87% in 1998. Dr. Xuan also discusses witnessing the degradation of the Mekong Delta environments and the concurrent evolution of biotic factors like the brown planthopper and the rice blast disease, stating that these much higher yielding varieties have proven not sustainable (Xuan, unpublished, p.5; Xuan 2005 p3). Interestingly it was the devastating brown planthopper that, in the Philippines, was also the motivation for the establishment of integrated pest management (IPM) biological control methods and the farmer field schools (FFS) way of learning (Kenmore 1980). FFS are an heuristic approach to capacity building amongst farmers

that is also used in the Mekong delta as part of current programming by seed clubs and their institutional and government partners.

Southern Vietnam's seed clubs are a common community strategy established and managed by small-scale farmers of a village as a collective means for them to make their own farms and livelihoods more successful through co-operation (Xuan key informant interview 7.12.18). The seed clubs were mobilised in the region of the Mekong Delta of Vietnam over a period of time since approximately the 1980s according to Dr. Xuan (*ibid*). Seed clubs have allowed rice farmers to share resources, labour, machinery and infrastructure, to create better bargaining powers with brokers and wholesale buyers, and to access technical guidance. They came as a response to the de-collectivisation after the then-newly installed communist government's co-operative farming models were imposed on the southern farmers, and the government appointed heads of these village based co-operatives who invariably came from Northern Vietnam. There are seed clubs all over Vietnam's Mekong Delta. Many but not all of these are involved in PPB and FFS in collaboration with the Can Tho University (CTU) and the extensive network created by this institution's Mekong Delta Development Research Institute (MDI) of government extension agencies working with farmers directly.

The MDI and CTU began also to breed rice doing their part for the Green Revolution, but prior to 2000 the government withdrew finances for this, and all funding for rice breeding was transferred to CLRRRI. This was the point when the MDI turned to PPB as a means to continue rice breeding and fund the important, one of a kind, rice gene bank still housed there today (Dr. H. Q. Tin, personal communication, November 2017). The programming has gone through various phases and collaborations with funding from different international and national, civil and public actors including Utviklingfondet, SwedBio, SEARICE, IFAD, Oxfam Novib, Vietnam's Ministry of Agriculture and Rural Development and Can Tho University. Since 2000, farmer-breeders have released 339 stable lines by 2017 (Dr. H. Q. Tin, unpublished program data, November 2017). While there are over 400 trained farmer-breeders in the Mekong Delta and Central Vietnam, including four women, there are 138 of them (including one woman) who have released stable varieties ready for the market (Dr. H. Q. Tin, key informant interview 8.12.17).

By tapping into the seed clubs of the Mekong Delta, introducing PPB and building on FFS, increasing seed production, then networking the seed clubs across the region together for seed sale exchanges, the MDI has facilitated the development of an extensive seed system amongst the seed clubs (Tin et al. 2010; Cuc et al. 2008). Local researchers term this seed system as 'informal' (*ibid*) since it is effectively not required to adhere to Vietnam's national

seed laws due to its strength and also due to lobbying efforts of such influential people as Dr. Vo Tong Xuan (key informant interview, 7.12.18). The seed system is not officially sanctioned, but is supported by various government decisions in being allowed to continue to operate despite seed certifications laws due to the recognised contribution that this large-scale PRB program has on increasing farmer varieties (Cuc et al. 2008; Tin, Cuc and Be 2008; SEARICE 2013). It could perhaps therefore better be declared an ‘alternative formal seed system’, but for the purposes of this paper it will continue to be termed an informal seed system as per previous publications since evaluating this was not within the scope of this study.

Having established 407 ‘seed clubs’ to date, most of which are in the Mekong Delta (Dr. H. Q. Tin, personal communication, 12.09.17), this FFS PPB program is a thought of as major success story of development NGO and local research institution collaboration. More than 100,000 hectares of rice crops in the Mekong Delta are planted with farmer-bred varieties, about 21% (SEARICE 2009; Cuc et al 2008), many of them stable lines, some of them certified seed, and some lines still in developmental stages. It has ongoing farmer-driven breeding of new varieties using plant genetic resources (PGR) from landraces and secured 30% of the local commercial market in 2014 (Berg 2015; Visser 2015).

The various programming that the MDI has delivered to the seed clubs across the Mekong Delta over the years has come not only directly from that research institute but also via MDI training government extension officers in plant breeding on how to collaborate with farmers. Seed clubs then offer members and anyone else in their communities a range of workshops in collaboration with either the MDI or local and regional agricultural extension staff. They host Farmer Field Schools, workshops and training sessions and meetings. The seed clubs are also a point for dissemination of private industry related information, such as that from agro-chemical companies, as well as a group that can together voice farmers’ challenges, concerns and successes (ibid). These seed clubs and the PPB programming are of great importance as a vital resource for preservation, increase, and distribution of appropriate and desired varieties of rice seed in this region, as well as being already a way in which farmers are combating climate change.

Due in some large part to agricultural greenhouse gas emissions, as well as other climatic feedbacks of industrialised society, climate change is a global emergency that is directly and intensely affecting the Mekong Delta. The whole delta is low-lying and coastal; susceptible to flooding from both sea level rises as well as droughts, which cause less fresh water inundation thus salt water intrusion up to 80 km inland now (Chapman and Van 2018; Wilson 2017). These droughts and unpredictable heavy rainfall patterns also bring ongoing

soil salinity in coastal areas (Wilson 2018) and uncharacteristic, detrimental flooding further inland (Chapman and Darby 2016). Climate change is therefore an omnipresent emergency for farmers in the Mekong Delta and thus became an important aspect of this thesis.

Southeast Asia has seen dramatic increases in natural hazards, including climate related disasters, affecting industries including agriculture (FAO 2018b), the core of our food system. Given that South East Asia remains home to two-thirds of the world's nearly one billion hungry people, there is apparent need for farming communities to be adapting to changing conditions to address their own vulnerabilities. The region witnessed a widespread decrease of undernourishment since early 2000's but improvements have stalled over the last two years (2016-2017) with hunger continuing to affect 9.8% of the population (ibid).

The sudden focus several decades ago on agricultural research and subsequent crop genetic improvements allowed for the well-publicised 'Green Revolution' to provide some relief to hungry people by increasing yields and reducing food prices. The Green Revolution thus reduced the absolute number of food-insecure people (Scobie and Posada 1978; Hayami and Herdt 1977; Webb 2009 cited by Pingali 2012), but at the same time precipitated widespread degradation of landscapes and farming environments (Gliessman 2018). One of the major negative effects of the Green Revolution was the rapid genetic erosion of critical food crops, such as rice (Nourolla 2016). Considering the ongoing global disparity and peasant struggles, clearly the top-down technological transfer approach of the Green Revolution neglected traditional knowledge and local participation, and did not benefit small-scale, resource-poor farmers (Altieri 2002 p.1; Pearse 1980 p.56). Consequently, people with limited access to well adapted varieties now face additional and even greater threats as a consequence of climate change and are in ever increasing need to be in more control of informed and sustainable cropping improvements and agroecosystems management.

In recent years, it has become widely accepted that overall productivity of agricultural systems must increase and that this must be consistent with environmental concerns and equitable distribution of food and other benefits (Springmann et al. 2018). Thus, farming and food systems' success can no longer be measured only on the basis of crop yield, but should also take into account the products and services delivered by the agroecosystem as a whole (Wangpakapattanawong et al. 2017). From an agroecology perspective, these systems would be considered multifunctional, with many important outputs that benefit a range of stakeholders as well as the environment.

1.1.2 Participatory Plant Breeding

Participatory Plant Breeding (PPB) is an innovative and ostensibly an inclusionary approach to agricultural research and development of agricultural technology. PPB and various other explicitly farmer-inclusive participatory approaches have been claimed by Jones, Glenna and Weltzien (2014 p.91) to have established an alternative to the top-down Green Revolution research and technology development model. Incorporation of agroecological principles into such participatory and farmer-to-farmer projects could be one systemic pathway to increase participation and extend inclusion in order to build diverse farmers' capacity to improve starting at the grass-roots level. With the reality of climate change already radically affecting small scale farmers in certain areas, PPB undertaken with a primary focus on location-specific crop selection is essential, but introducing an agroecological perspective brings in attention to the highly important social, economic and environmental dimensions of farmers' lives and how these impact decision making. This broader approach and understanding could better empower currently under-represented and vitally important players, including women and ethnic minorities, thus promoting their inclusion and ideas in decision making and thus situating them to be less vulnerable as members of the whole community. We must recognize that these are difficult cultural changes, but in the long term everyone should benefit.

Small-scale women farmers around the world tend to be increasingly recognised by international and multilateral organisations as valuable to farming and food systems, and their prominence in popular thought and rhetoric in agroecological, food security and food sovereignty, and in PPB circles (Osorio and Gallina 2018; FAO 2011; SEARICE 2011b; Eade and Williams 1995). Women farmers are simultaneously active labourers and managers on their farms; they are decision makers and action takers. They are a demographic of the farming population that should not be overlooked by decision makers and planners in development processes and programming. Their explicit inclusion in programs is potentially an opportunity to strengthen and empower their unique perspectives on recognizing, promoting and improving household and community level social and economic outputs as well as ecosystem services and functions in their local areas.

1.2 Thesis objective and research question

This thesis explores intertwined social and environmental dimensions of the rice production and food system, and the transformational approach of agroecology to inform Southern Vietnam's PPB/FFS programming. The challenge is creating a women-inclusive space for their ideas, activities and contributions to be recognised and incorporated into the functioning of the Mekong Delta seed clubs. Based on systems theory, the frameworks for best practices

in PPB and associated FFS can be viewed through application of a holistic agroecological lens. Women's answers to interview questions as well as topics they brought up themselves in our group sessions are shared and discussed here as evidence of the need to encourage program decision makers and seed club leaders to seriously consider increasing the roles of women and their levels of participation in the seed clubs; this could provide a transformational step that will assist everyone in the system to better achieve their production, economic, environmental and social goals in rice farming.

The objective of this study is first to identify women's perspectives and concerns and find out how these are addressed in the PPB/FFS program in the MD. Furthermore, the study will discuss options for the better integration of women's contributions. A relatively open research agenda uncovered some of the shortcomings of the program early on in fieldwork, and this led to recognising a need for the present research to employ an agroecological systems approach to find recommendations and entry points for changes to improve MDI seed club programming in the Mekong Delta. The main research question to be answered in this paper is therefore: How can Agroecology provide the framework through which to alter and improve the seed clubs, based on the women's current practices, their concerns and their aspirations, and therefore become a strategy for scaling up agroecology and creating an innovative platform for improving current PPB programming?

1.3 Theoretical Framework

I use systems thinking as a framework in which to understand the women and their contexts in the MDI seed clubs. Systems thinking is strongly related to systems theory and both were apparently born of engineering systems theory, which did not account for 'human-ness' involved in some systems. It is a phenomenological social theory with origins in management science. The distinction between 'hard' and 'soft' systems was important to move beyond assuming soft human systems could be treated like machines or engineering marvels. (Checkland 1981; Checkland and Poulter 2006) This theory and approach is a way of considering issues and assumes that they are complex and interlinked with various other factors that all combine and feedback to create synergy or discord. The systems theory and later systems thinking literature refer to these 'issues' differently, but all distinguish them against simple linear problems with simple successful situations. In Armson's (2011 p.14) book she describes early systems thinkers as using the terms *messes* or *wicked problems*, and now Checkland and Poulter (2006) use the term *problematical situations*. Systems thinking assumes that when considered as a whole, such problematic situations as the one explored in

this research expand our ability to understand them and then to adopt lasting changes to improve them (ibid).

Systems theory and systems thinking are considered to be appropriate for this thesis because of the system-wide, complex structure of the seed clubs. Furthermore, it dovetails with the approach of the director of the entire MDI (not just the PPB programming), undertook management of development projects within the MDI with a systems theory approach to change (key informant interview, 7.12.17). The process of balancing collaborative hard and soft scientific research helps to identify mechanisms in both agriculture and ecosystems, and in human activity systems that can inform new or more eco-sensitive and socially equitable practices: a way of bridging the gap between natural and social sciences. The application of systems thinking and of aspects of its methodology, soft systems methodology (SSM), to this research came about because of the feeling of ‘Something needs to be done about this’ (Checkland and Poulter 2006 p.7), not just, ‘here we will document the situation in order to answer this question’. The application of transformational agroecology across the system described here is an ideal, yet this ideal improvement is holistically contextualized with the assistance of systems thinking.

System ideas relate to interactions of system’s parts that all together make up a whole, which does not exist in a vacuum; there are shocks from the “environment” and other external pressures. The complexity of systems, such as the problematical situation of the women’s lives in the Mekong Delta, is largely due to the many and varied human interactions. Problematical situations all have multiple perceptions of reality and worldviews (including my own), and people acting with would-be purpose and intent. These two features then also lead the way to improve the situation. It involves a learning cycle to which to refer back to, it’s simultaneously a systemic approach and a reflective practice. Aiming for calculated changes that are achievable and feasible for “these people in this particular situation with its particular history, culture and politics” (Checkland and Poulter 2006 p.xvii).

The use of SSM in a complex context for analysis and improvements can be ongoing, an open learning cycle with open documents, to continue refinement which seems fitting in the case of long-term development programming, such as those of MDI with SEARICE, Oxfam and SD=HS. In this case it is the women’s ideas about how to make changes that are being adapted to the vision of the improved situation, the ultimate, less problematical situation. This thesis is not just an complete outsider’s ideas of what is normative and should imposed on the issues. Lastly, recoverability as opposed to replicability is part of systems approaches (Checkland and Poulter 2006 p177). Making the whole process of learning about this system,

setting boundaries on it and then highlighting entry points for change all explicit throughout this thesis is therefore essential to its integrity and as true as possible here to systems thinking.

1.4 Review of Literature

1.4.1 Agroecology

It is important in agricultural approaches that whole systems and the multiple roles of different stakeholders are all considered, thus a definition of agroecology as “the ecology of food systems” includes production, economics, environmental impacts, and social relevance including distribution of benefits (Francis et al. 2003). Transformative agroecology is “explicitly committed to a more socially just and sustainable future by reshaping power relations from farm to table” (Méndez, Bacon and Cohen 2016 p.8), and therefore guides a process to holistically address systemic change, not limited to the description or understanding of dynamic, complex farming systems. All manifestations of agroecology as a field recognise that agriculture does not occur in a vacuum free of socio-cultural phenomena. Those committed to transformative agroecology advocate for changes to the complex systems and subsystems of the ecology of our food-scapes. As an holistic approach that compels strategic systemic changes in an agroecosystem, transformative agroecology necessitates transdisciplinary collaboration. There still exist, however, narrow definitions and manifestations of agroecology as a ‘natural science’ that reduces it to an ecology-sensitive agronomy, thereby ignoring social science and political ecology, for example (ibid). Such limited interpretations ignore the important contextualising of cases to achieve effective and lasting improvements for ecosystems and people.

Within participatory plant breeding (PPB) literature it is important to note that the term agroecology or agroecological systems rather refer to an ‘agricultural ecosystem’ or local biophysical conditions, and ostensibly does not include social contexts nor sustainable agriculture as important in the more inclusive current interpretations of agroecology (see Fortmann, Ballard and Sperling 2008 p.91; Sperling et al 2001 p.440; Francis et al 2003). This could be introducing confusion into interpretations of ‘agroecology’, especially for outsiders trying to understand these terms and fields of study. Although, recently Christinck et al. (2017 p.17) use the term hyphenated as ‘agro-ecologies’ to help clarify this confusion. Keeping terminology clearly defined assists with correct interpretations in particular when agroecology is a whole field of study and the means for redesigning the food system. It is of interest to note at the same time as mixing of terminology, there is practical overlap of PPB and the field of agroecology. Both PPB and Agroecology could be considered in part dialogues between

farmers and scientists, wherein farmers' knowledge, expertise and context is valued alongside technical theories and knowledge based on formal research. Both fields emphasise farmer and indigenous or traditional knowledge, aim for farmer empowerment, contextualise local conditions and appropriate technology. "PPB methods have been proposed to bring about a more decentralised breeding approach and the integration of farmers, and their complex selection criteria already from the early stages" (vom Brocke et al. 2010 confirmed by Curtis et al 2001; Mulatu and Zelleke 2002; Ceccarelli and Grando 2007; Thapa 2009). This process ensures that varieties bred *in situ* are thus well adapted. Both fields offer alternatives for farming communities to the lasting negative effects Green Revolution and agri-business as 'development'. Additionally, PPB and agroecology have both come to be platforms for promoting the work and contributions of women farmers in different parts of the world, and expressly including them in agricultural development and technology adoption. While agroecology often employs holistic and systems-based approaches that include social and wider environmental issues, PPB does not; the latter is focused on narrower terms of reference around farmers' needs and input, and local growing conditions. It is hoped that the gap between these two fields can be effectively argued against here as mutual collaborations can strengthen both PPB and agroecology as efforts to assist farmers around the world.

As a farmer myself, I understand the practice of agroecology as reflecting the reality of our complex, context-specific livelihoods and I appreciate transformative agroecology to be simultaneously challenging power relations and structural issues, contributing to better policy development, and applying science for sustainability in the improved design and management of farms and food systems. As a female farmer, I am further motivated by such agroecological social movements as *La Via Campesina* which strongly advocates that "if we do not underpin women's rights we are not practicing agroecology" (International Symposium on Agroecology 3-5 April, 2018, FAO Headquarters, Rome, personal experience) which is an important condition of practicing or applying agroecology in developing contexts where women live subservient to men to varying degrees in their daily lives. The FAO recognises this call and that of others all around the world from their global series of regional discussion on agroecology between 2014 and 2017 in also emphasising that agroecology must place a priority on women's contributions along food value chains (FAO 2018c p.4).

1.4.2 Women's Rice Farming in the Mekong Delta

According to the recent CGIAR working paper literature review on women rice farmers in Vietnam, the available information on gender dynamics of the Mekong Delta's rural

communities is sparse, however the papers found describe quality research (Gallina and Farnworth 2018 p.10).¹ These authors attest that if some structural gender inequalities are addressed systematically along with other on-farm issues, this could improve the social status and recognition of women farmers there as well as provide the potential to increase the on-farm adoption of farming technologies (ibid). There is some variance across the delta in terms of how much labour women contribute compared to males in rice farming. While female rice farmers in some areas in the Mekong Delta do just under half the physical labour (44-48.2%) as compared to males, in the extreme saline coastal areas they actually do 70% of the work in rice production (Paris et al 2009; Chi et al 2013 cited in Gallina and Farnworth 2018 p.15). Furthermore, in other areas women will undertake the majority of the rice farm-work, next to everything, if the males of the household have migrated out for temporary or ongoing employment in urban centres (Chi et al 2010 cited in Gallina and Farnworth 2018 p.15). This paper highlights that there is a knowledge gap in the way women can be involved effectively in, specifically, *low emissions development* (LED) in agriculture; this is another gap in research in current gender issues within rice value chains (Gallina and Farnworth 2018 p.8, p.24). These authors also state that there is a commonplace, practical failing of institutional actors to recognise women's role in agriculture in southern Vietnam and to involve them effectively in extension and technology interventions (ibid p.9). The FAO points to insufficient investment in women food systems actors even after there have been political commitments (2018c), which there have been in the case of Vietnam. And SEARICE's (2011b p.1) report recognises that such unequal access to economic resources and benefits exists specifically in Vietnam. Finally, Gallina and Farnworth (2018 p.24) emphasise another current knowledge gap whereby gender issues have not been addressed in relation to the mitigation of and adaptation to climate change in general in Vietnam. The emphasis on this gender and climate change knowledge gap in particular is possibly due to the emergency that climate change imposes on such farmers at this very moment. It is hoped that my thesis can go some way in bringing attention to this important issue.

1.4.3 Gender inequality

¹ *Working papers* are written by industry experts and in the case of the CGIAR, these papers are reviewed before circulation then released online only. The two CGIAR working papers referenced for this thesis (Christinck et al 2017; Gallina and Farnworth 2018) are both literature reviews.

Gender inequality is a complex issue and often one that is deeply rooted in each culture and upheld by strong structural complications. The work of Helle Rydstrøm (2010b) and the Vietnamese writers she references, who are often otherwise inaccessible without Vietnamese language skills, can assist with understanding the history as well as the contemporary manifestations of the lower status accorded to women in this society and its complexity. This lower status and recognition in general affects access to such things as education and training, land, inheritance and finances for women around the world, not just in Vietnam. Rydstrøm (2010a p.6) writes that across Asia it is common that feminist studies are “condemned as a foreign influence that disrupts national values”. While there is ongoing Eurocentrism in the production of feminist knowledge from some developed countries’ writers and researchers, there exists an important and ever increasing number of writers on feminism and gender issues from the global south as well including indigenous women. But when Eurocentric feminism persists on attempting to impose ‘western’ ideals on Asia, for example, it is acting simultaneously as highly political and unsophisticated in terms of ignoring of local historical, religious and cultural phenomena (ibid). A one-size-fits-all approach addressing gender inequalities, in other words, that is not nuanced to local specificities, at best misses critical elements and at worst is likely to fail.

In the case of development programming, gender mainstreaming where women are explicitly written in to policy and practice may characterise the approach of the organisation but not permeate to local life (Rao and Kelleher 2005 cited in Rydstrøm 2010a p.6). Such was the case for SEARICE in Vietnam according to their internal Gender and Social Inclusion Report (2011a) and their publicly released response to the report (2011b). Furthermore, Rydstrøm (2010a p.7) stresses that gender “accentuates the feminine and masculine as binary opposites...that essentialise men and women” and thus when reduced to numbers of program participants the reality and complexity of gender issues is not visible. Recognising women (and men) as more than statistics is the basis of good policies and practice. The status of women in Vietnam is intertwined with their individual recognition by men, by other women also, and by society and government at large. There is a merging of relatively modern communist ideals of male and female equality with the older, yet still pervasive in rural areas, Confucianism (Rydstrøm 2010b p.171). Confucianism was dominant in Vietnamese society for nearly 900 years until the Government and importantly the Vietnam Women’s Union (VWU) worked to eradicate it, but it still influences gendered interactions and even resurged in some areas (ibid pp.171-172; Le Thi Quy 1996 p.264 cited in Rydstrøm 2010b p.173). Confusingly, however, the VWU at the same time as explicitly differentiating women from

men and actively generating the ongoing ties of women to the domestic sphere (ibid p.176), as opposed to the social sphere, it also blames Confucianism as the major source of male-female inequality (ibid p.182). With women's physical bodies as a matter of national discussion, this is surely to affect their recognition as capable farmers from Vietnamese nationals (staff and peers alike) who are socialised in this rhetoric and cultural perception of gender roles.

While discrimination against women is legislated against in Vietnam as well the country being a signatory of the Convention of the Elimination of All Forms of Discrimination Against Women (CEDAW), discrimination and lower representation in both government and many other professional circles exists. There is a legislated principle of equality between a married heterosexual couple in the Marriage and Family Law of 2000 (Rydstrøm 2010b p.174) yet there is a conflicting specific set of expectations and social regulations for women (ibid p175). Le Thi Phuong Mai (1998 p.6 cited in Rydstrøm 2010b p.180) points to nuances of home life for women as being indicative of their status within and without the family and becomes a measure of the gendered inequalities against them. Given all this, women in rural Vietnam are continually negotiating their status around pervasive gender inequality.

Within the field of PPB, social anthropologist and researcher Louise Sperling first published on the nuanced contribution of women farmers in East Africa during the 1990s (see Sperling, Loevinsohn and Ntabomvura 1993), and since then she and numerous others have been working on gender sensitive participatory plant breeding cases and evidence-based best practices. In terms of function, women's inclusion in such research improves the activities' success, efficiency and efficacy while regarding empowerment; the participation of women means that they directly benefit from increased skills with better roles in decision-making, status and independence (Fortmann, Ballard and Sperling 2008 p91). In another CGIAR working paper, Christinck et al (2017) reviewed literature that included gendered differentiation in the trait preferences of participants of PPB programs for single varieties around the world. But the team found the majority of literature came from Africa, while only six of their 39 articles came from PPB in Asia, and none from Vietnam. This knowledge gap can be informed with the data collected on women's trait preferences specifically in an attempt to record women's decision-making contributions on their farms.

PPB is world renowned and has gained acceptance and traction in a number of places. Thus it is important to determine whether there is active participation by women and indigenous minorities in the Mekong Delta in the associated seed club programming, an issue that should be of concern to funders and program staff involved in such an important large

scale, long-running program. According to a 2015 unpublished program report women account for just 5.1% of FFS attendees, justified by the sweeping statement “men make all the decisions around rice production” (Nhan et al 2015 p395). Exploring this phenomenon that exists alongside the high amount of work women do in rice farming supports the research objective of this thesis about learning more regarding the current role of women in active participation in the seed clubs in Vietnam, and how better understanding could lead to specific recommendations on how inclusion might be accomplished and its potential results. Such recommendations need to be sensitive to present cultural realities and gender roles, and make compelling arguments based on research for greater empowerment of women in the seed networks if that is revealed to be a major stumbling block in the current system.

The relevance of agroecology is coming to the fore, as we observe that FAO among other international players is currently pushing to ‘scale-up’ agroecology as a way to ecologically design and manage farms and food systems integrated with social equality and fairness in particular in relation to women farmers (FAO 2018a). This is highly relevant to the parallel movement in PPB that is growing in importance, and recognition that many of our production gains in the future will depend on the location- and farm-specificity of adaptation to soils and climate. The foothold that a large-scale network of participatory plant breeding participants can provide, implemented through the collective efforts of many small local groups, is important across a region being drastically affected by climate change. This has the potential to provide an opportunity for widespread adoption of agroecology’s social and ecological framework and here this possibility will be explored further.

Chapter II. Methodology

2.1 Choice of Methodology

In order to answer how can Agroecology provide the framework through which to alter and improve the seed clubs, I used mixed methods. A qualitative methodology was employed to gather information on women’s participation in farming and decision making, along with some additional quantitative aspects collected in order to gain a better sense of the demographics of the sample and the farm systems in question. The methods utilised were semi-structured group interview questionnaires (Bernard 2006 p.232; Chilisa 2012 pp.220-222), a short written survey for each interviewee (ibid pp.288-292), numerous call-backs to ask further questions of the interviewees, two on-farm observations (Lieblein et al 2006), and a number of unstructured key informant interviews (Bernard 2006 pp.196-200). I employed

an ‘agroecological lens’ as a perspective to shape methodology whilst on field work, and also later during data cleaning and analysis in order to be consistently holistic in my approach and give equal weight to the intertwined social and environmental dimensions of this system. This involved using some core agroecological competencies (Lieblein et al 2012), direct observation during the group interviews (which were all conducted in Vietnamese), dialoguing with interviewees, participating in a meal with them after the interview and continuing dialogues, and reflecting after each day’s work, especially whilst in the field. This agroecological information gathering and processing method was particularly helpful for the adaptive management needed to modify questions and methods of inquiry based on context-specific forces that impacted my methodological decisions in the field. It was also effectively transferred onto the systems approach later employed.

I recognised the need for a methodological approach that prepared me for cross-cultural research. The methodology for this thesis was therefore additionally influenced by the book *Indigenous Research Methodology* by B. Chilisa (2012) in which the author offers a thorough and specific text on how to decolonise research by people of European backgrounds, such as myself, amongst not only indigenous people but in general amongst people of a different culture and ethnic background to the researcher. Thus this was an active attempt at navigating both the positives and the challenges of working through interpreters, encountering ‘gatekeepers’ of communities and communicating verbally and non-verbally cross-culturally in order to collect robust data of use for this research (Chilisa 2012 chapter 2). It was also critical to gain as much information about the interviewees’ circumstances and farming systems from general observations in rural farming areas and villages, without being able to make many direct on-farm observations due to political and cultural constraints on the research process.

2.1.1 Semi-Structured Group Interviews

The semi-structured group interviews would contribute to the qualitative data. Chilisa (2012) recommends group interviews for qualitative cross cultural research to generate more support amongst interviewees in telling an unfamiliar foreign researcher potentially personal aspects of their lives and to enhance or build upon each others’ narratives in a conversational, dialogue-friendly atmosphere. I deliberately chose to employ a semi-structured approach to interviewing, which includes occasional interjections with questions that firstly potentially expand the data, and secondly triangulate some answers and add to reliability. I created an interview guide (Appendix 2) that was informed by Bernard (2006 p.210-239) where he

covers how to word interview questions in order to obtain quality data. Additionally, I employed Bernard's (2006 pp.210-212) instructions for semi-structured interviews, which cover the forms of questioning, prompts for more information from participants, and when to expect and how to handle divergent topics, and his instructions on note-taking and direct observations.

The semi-structured group interviews covered three broad topics: participation in programming, on-farm decision-making and practices/technology, and improvements in programming. Questions were based around the interlinked economic, environmental and socio-cultural dimensions of the participants' experiences within the seeds clubs and on their own farms. This interconnection between the economic, the social and the environmental or ecological is what Gliessman (2018, p599) recently reiterated constitutes all component parts of the food system. The questions the interview guide included were influenced to greater or lesser extents by three distinct findings or frameworks. Firstly, the following categories of the extensive framework devised by Sperling et al. (2001) including: the effective targeting of user needs in PPB, capacity building and knowledge generation, empowerment, and biodiversity enhancement. Secondly, the list of preferences for varietal traits found to be relevant to farmers by Christinck et al. (2017) in their literature review paper on gender differentiation in this area was used as a checklist template for us to rapidly mark off the women's answers, as well space provided in case the women came up with any additional traits to add to Christinck's already extensive list. And finally, interview questions were informed by agroecological farming practices from my own experiences in agriculture: inputs, nutrient cycling, and pest and problem management.

The interview guide was translated into Vietnamese by Ms Tien of the Can Tho University's Mekong Delta Research Development Institute (MDI), and who became my translator for fieldwork. The translators' professional position was administrative assistant in the PPB program itself, and as such she demonstrated a high level of understanding of the vernacular necessary to be translated from Vietnamese into English. Early on in the fieldwork she became more than a translator but a vital interpreter, essential for informing and improving my cross-cultural understandings. She worked with me prior to fieldwork in translating the interview guide and during this time she showed a clear understanding of the need for limiting factors that could influence the answers and affect data quality. She assisted greatly with slightly altering my questions for them to make more sense in the rural culture of rice farmers; she was from a rice farming family herself and they owned a small farm outside of Can Tho City. She explained to me various practices of rice farming, techniques I was not yet aware of,

so that we could include them in our questionnaire. A complete version of the interview guide appears in Appendix 2.

2.1.2 Individual longitudinal survey

The longitudinal variety ‘survey’ was one page handed out to each participant asking for the names and sources of rice variety grown during the 2-3 different seasons over the last year, and, if they could remember, the varieties grown from 2000 until 2016. This page also included a tick box next to the rice’s names for other factors such as, who made the decision to grow it and was it an improved variety. This method collected a lot of data in a short amount of time. For the purposes of this thesis it was important to methodically document such an important production women’s contribution information as who made the decision on which varieties to grow within the household. This survey provided a long-term view on varietal decision-making. Additionally, the diversity of rice grown over the years was interesting given the focus on diversity of the international NGO’s attached to the program. The resulting longitudinal list of varieties grown and the sources of the seeds is rich data that will be used for the most part elsewhere, namely for program data and my future publications. Along with Dr. H. Q. Tin, I was able to assign an origin for each variety: the institution that first bred that variety. All this data can be seen in the tables in Appendix 3.

2.1.3 Key Informant Interviews

Key informant interviews were for the most part unstructured or semi-structured and regarded either perceptions and expert experiences of women in agriculture or theories of change in development programming. Those interviewed included technicians, program directors, farmer-breeders, and one woman who was excluded from the group interview by her mother-in-law; in fact she ran after us to tell us this after we left the house of the interview. These unstructured interviews were often spontaneous. The woman who ran after us had important information on power and oppression in her life, which could be relevant to other rural women. When the agricultural extension office staff showed up to the group interviews, or when we made a visit to the government seed station and seed centre, it awarded me an opportunity to understand more about policy and practice at the broader regional government level, and priorities and challenges from their perspectives. The head of PPB programming at MDI and the Director of MDI were both interviewed afterwards on theories of change within the development work MDI was involved in in order to contextualized some of my observations. While finally those in charge at both Oxfam Novib/SD=HS and SEARICE for the Vietnam (North and Mekong Delta) biodiversity PPB/FFS programming were interviewed for their

response to the data pointing to a low rate of involvement for women. A complete list of interviewed persons can be found in Appendix 1.

2.1.4 Call-back interviews

I had asked permission to contact those participants with a phone number if we needed to make any clarifications or get more information. I understood the importance of this when I noticed that some women were occasionally shy to come forward with their answers and opinions. I further noticed that sometimes a woman would make a definitive statement while another stayed silent but not agreeing, as shown by her body language. So we made these calls after all the group interviews and they became also an opportunity to ask a few more questions to many of the women. I saw from both group interviews and later translations of the proceedings that the person assigned to accompany me to all the interviews may have interfered, thus calling the interviewees outside of her control could perhaps give access to more honest and accurate responses. This interference is covered in all three sections in 2.2 “Challenges and Limitations”, below.

2.2 Challenges and Limitations

2.2.1 Political and cultural constraints.

One major limitation to the research is that the methods had to be drastically altered in order to be approved by the Vietnamese Government, which limited the breadth and depth of the data I could collect. Fieldwork in Vietnam necessitates official government approval; for non-Vietnamese nationals, research must be pursued only with permission from authorities for all those like myself on a research visa. Initially, a formal letter of approval to pursue research objectives was received from Dr. Huynh Quang Tin, making his institution, MDI, the host institution at Can Tho University. Subsequently, as part of the process of applying for and obtaining a visa to officially undertake research in Vietnam, the host institution was provided with the various proposed methods formats, which they then passed on to government officials until finally one was approved and a research visa granted. My original research plan had involved focus groups (Chilisa, pp.212-217) and interactive systems mapping activities (Checkland and Poulter 2006), with the women but when this was proposed to officials in charge my plan was rejected. I adapted with a thorough questionnaire which meant there could be less qualitative group dialoguing and but did mean that there was an opportunity to also collect quantitative data which could potentially prove useful both for my thesis and for my later publications.

Along with approved permission to conduct group interviews with women connected to the seed clubs was a set of directions I had to follow in order to conduct my research: 1) at all times during active fieldwork and travel between interview sites, I had to be accompanied by an approved contact person from the MDI (this person will now be referred to as the ‘contact-woman’); 2) at each group interview site there would be a representative present from the local communist party and/or local authorities such as the police to observe that the interview process does not deviate from the plan and interview guide submitted; 3) interviews were limited to two hours maximum; and 4) the instructions specifically stated that my location would be logged as the approved site of the interview for the allotted two hours. Obviously these constraints or challenges to my prior understanding of how to conduct research found me not at liberty to leave the premises nor make any farm or village visits for observations with interviewees. I could not walk around and observe farms or the villages and undertake a transact walk as was originally planned. Such a method would have elicited some more contextualised systems observations and questioning.

Despite these restrictions I was still able to obtain a robust amount of data from the women with the questionnaire used for the group interviews. The questioning was not at all controversial and all representatives of the authorities present at each interview either chatted with the men at the next table or took notes quietly as they listened to us. I was careful to observe the women’s reactions to the authority representative as he arrived and throughout the group interviews, and none of them appeared worried or concerned about his presence. When the women were asked about gender issues they were straightforward; I observed no holding back based on the fact that other men and a male authority figure were often present. On the contrary, the women would often answer with confidence and even argue with the other seed club men there about levels of female participation in their local seed club, but the authority person never interjected nor gave his opinion and the women therefore did not interact with him at all.

Even within these constraints, the group interviews provided a unique platform and useful forum to generate conversation, and to gather a lot of data in a short amount of time. Given I was only allowed to visit each area/seed club for two hours exactly, a group interview allowed me to talk to more women. This also gave me the unexpected insight into the reality that these women were not being invited to and/or accommodated to participate as much as they would have liked. As explained in section 2.5 (“Callbacks”), in several of the group interviews there was a dominant character and if she decided on something that could have been controversial or differing opinions, then the other women would stay silent. Taking notes

on when I thought this might be the case, then calling those women back, confirmed my observations and gave them a chance to explain their own opinions on those matters. So in fact, it ultimately led to more in-depth data. However there was one group to which I could not get through by phone; we called all of them back repeatedly but only spoke to one woman out of the five who were present in the original interview.

From the outset, I was aware that this program in general would be supporting largely conventional farmers, some of whom may have been employing integrated pest management (IPM) to various degrees due to the seed clubs' utilization of FFS, which is traditionally a vector for IPM. Without mentioning agroecology or organics, just 'organic matter' (as in plant matter), the narratives of the women lead towards concerns they had with pesticides, and discussions on organic practices ensued. This, combined with a common thread of the interviewees stating that they were in fact not participating very much in the program, not informed of workshops or meetings, not actual members themselves and that they wanted women's only activities as part of programming, is how this thesis turned unexpectedly towards transformational agroecology. At the outset, when I was offered the opportunity to make contact with MDI and perhaps study some aspect of the seed clubs, my field of study, agroecology was connected to the topic through the participatory nature of the seed clubs, and the PPB methodology. My preparations before leaving for fieldwork included reading material from the program itself: two external consultations, annual reports, websites and newsletters. These and other articles I read on PPB and women's inclusion in, for example, trait selection lead me to make assumptions which transferred over to both my early drafts of the interview guide, and these informed the final interview guide that was utilised.

When asked to give more details on the ways in which they participated in the program, from social inclusion and equality aspects of agroecology to my personal interests in gender issues in farming and in development, I was most fascinated about hearing the narratives of the women that were said to be involved in the program and their perceived benefits, challenges and proposed changes. Based on this context of the interview process and how it played out, I was excited to know that even under such culturally-specific and politically-controlled circumstances it was still possible to capture a clear picture of women's roles in the seed clubs and their functions – at least to the extent that anyone from outside the culture and without Vietnamese language skills could achieve.

2.2.2 Translation and interview format

Both the imperfect nature of translation and the interview format proved to potentially limiting factors. Relying on translated notes written by others, and not translated transcripts of recordings, meant that I could potentially misunderstand what was taking place in the group interviews, phone calls, and other venues. But, despite the fact that I could not choose my own translator, she turned out to be both a good fit and an excellent resource for this research. Another challenge was that during the group interviews, the hired translator, Ms Tien, and I had to mostly remain silent and allow the woman of higher status, the contact-woman, to conduct the interview, which prevented Ms Tien and me from to ask clarifying or follow-up questions.

While the interview conditions were challenging, Ms Tien and I took steps to mitigate the confounding factors. I would then take notes during the session on how people said something, short or long answers and their tone, their body language, and when a participant was not answering a question and perhaps holding back. Additionally, I noted when someone from outside our women's group would interrupt in order that I could understand that situation/conversation later if my translator did not have the opportunity to translate it to me directly on the spot. I made notes of my own observations and then questioned my interpreter about what was occurring or being said at those points later. Ms Tien and I also worked together as soon as possible after the interview to translate and combine our notes, so that her memory would be fresher. However, there were some occasions where the presence of the contact woman meant that Ms Tien and myself were limited to brief translations meetings where I could go through superficially to understand the proceedings. Then I prioritised meeting as soon after each group interview as possible alone with Ms Tien. This is where the call-back interviews became important for adding to an understanding of group interviews.

2.2.3 Involvement by the Contact Woman

The 'deference effect' (Bernard 2006 p.241) was clearly demonstrated by the interactions between my translator and the contact woman during the group interviews. It is important to publish/analyse real perceptions and experiences of program target groups and actual participants, since extensive funding and resources go into them. However, the reality of researching within these contexts is problematic. There is evidently a difficulty in independently researching amongst community members related to any development program such as this, in particular when the researcher and the interviewees/ participants speak different languages and communications rely on intermediaries connected to the program. Limitations can be placed on the research to ask uncontroversial questions of the cohort or

focus group for positive information to dominate. And when that subjective boundary is judged as being breached by the political person in charge, the questions can either be ignored or their format altered to become less than ideal. They could even be deliberately mistranslated when the external researcher does not understand the language.

With the help of this project's translator these issues have been dealt with as best as possible, thanks to the personal relationship we developed during conducting this project. But if she (the translator) were perceived to have acted to undermine these attempts at manipulation or control, it is possible that her full time job as administration staff of the MDI could potentially be in jeopardy. This may limit the potential for broad publication of results, or if somehow these attempts at data manipulation were even suggested in a publication. The rapport built with my translator could not be utilised during the interviews where she had to largely stay silent due to her lower status compared to our 'contact-woman'. It is even a challenge to me to decide how much of this political influence should be included in the thesis, since this should be published on Brage (NMBU portal for thesis copies), although I may have to opt for 'not making this document available to the public'.²

Along this same line, I removed some questions when I noticed that the contact woman was asking them in a loaded way to steer and influence the answer. For example, "Do you want to be a full member of the seed club" was repeatedly asked instead as "You don't need to be a full member of the seed club, do you?" These are essential dimensions to be considered in the evaluation and interpretation of qualitative results. What gets lost in translation must be acknowledged, as well as the power and status at play in the group interviews.

Some questions were removed from the interview questionnaire after a few attempts when it became clear that there was obvious discomfort among focus group members in answering them fully due to the presence of the contact woman. These were sometimes related to failures by seed clubs, and the occasional data that we did collect should be discounted because of the obvious discomfort the women were experiencing with answering such questions. Examples were questions that related specifically to the problems within the seed clubs—a question that was too direct to be asking in front of the contact women. Thus I had to obtain their opinions in other less direct means of questioning, and form questions that were problem specific such as 'what time would you prefer meetings and workshops'? and 'Would

² On Friday 14th December 2018, the Dean of NMBU's faculty of plant sciences agreed that this thesis should be embargoed for the safety of my translator. This thesis will therefore not be publicly available until December 2023.

you like to have women’s only activities and why’? When these types of questions were asked there we no hesitation in answering which I interpret as successful adaptive management of the situation whereby the contact women could not be shamed but rather the responses reflected a future scenario.

Call-backs were used after the group interviews were all concluded and all translations made. Reviewing the data and due to the deference effect as well showed that it would be wise to use the mobile phone numbers given to us by 95% of the women to call them back. And so call-backs became a new method, adapted to due to the circumstances, which dealt in some ways with the problem of the contact women’s presence. My translator, Ms Tien, conducted the interviews, while I was present and she asked a set of questions that I developed based on my notes of my observations during the group interviews. Ms Tien was enthusiastic about making the calls to improve the reliability of the data, but at the same time she was fearful of the contact women knowing about the call-backs because she would demand to be involved. And Ms Tien was risking being in trouble with her superiors at work which was why I ensure she was fully consenting to conducting these call-backs for me. For ethical purposes we introduced ourselves again, explained the reason for the calls, then asked again if it was fine to go ahead and ask some more questions of them. Calls were made successfully to 35 women.

Despite these restrictions and limitations to the conduct of interactions with women in the villages, I was still able to get some valuable data and specific observations from the field experiences in Vietnam. The challenges and limitations are described here in such detail because they were obviously presented major communication disconnects, and could influence the interpretations of what was collected and what impact the women’s opinions could have on potential changes in the system. I believe that it was possible to work around or within these constraints, but the results must be interpreted with all these limitations in mind.

2.4 Data Collection

2.4.1 Site selection

I met with the women of these MDI-supported PPB-FFS seed clubs at ten sites, and various key informants over the course of five weeks in November and December, 2017 to collect the data (Table 1).

Table 1 – Date and sites of group interviews

Date	Site number	Seed Club and Province
08.11.17	Site 1	Kien Trung Seed Club, Hau Giang Province
09.11.17	Site 2	Lang Giai Seed Club, Bac Liu Province

10.11.17	Site 3	Lang Tron - Gia Rai Seed Club, Bac Lieu Province
13.11.17	Site 4	My Lam Seed Club, Ken Giang Province
14.11.17	Site 5	Vinh Trach Seed Club, An Giang Province
14.11.17	Site 6	Nui Voi, An Giang Province
15.11.17	Site 7	Thanh My Tay seed club, An Giang Province
17.11.17	Site 9	Hau My Trinh Seed Club, Tien Giang Province
23.11.17	Site 10	Long Ho Seed Club, Vinh Long Province
24.11.17	Site 11	Thanh My Seed Club, Tra Vinh Province

Dr. H. Q. Tin chose the sites (Figure 2) based on their “success” (personal communication 5/11/17) in the PPB programming, as well as their geographic scattering across the large delta region to make this a representative sample and help define the area where results would be applicable. Originally, Dr. Tin advised that he had chosen 11 seed clubs sites, however on arrival to Site 8 it became clear, though it had formerly been a seed club, it was no longer participating in MDI programming; it was, however, one of the program’s ‘success stories’ and had become an educational co-operative involved in organic rice crops and fish-rice systems trials with farmer varieties. Therefore, ultimately ten group interviews were conducted at ten seed club sites in eight provinces (Figure 1). I later came to understand that perhaps also influencing this site selection was the existence of active women farmer-breeders in three of the ten PPB/FFS seed club sites. There are just four female farmer-breeders across the whole delta.

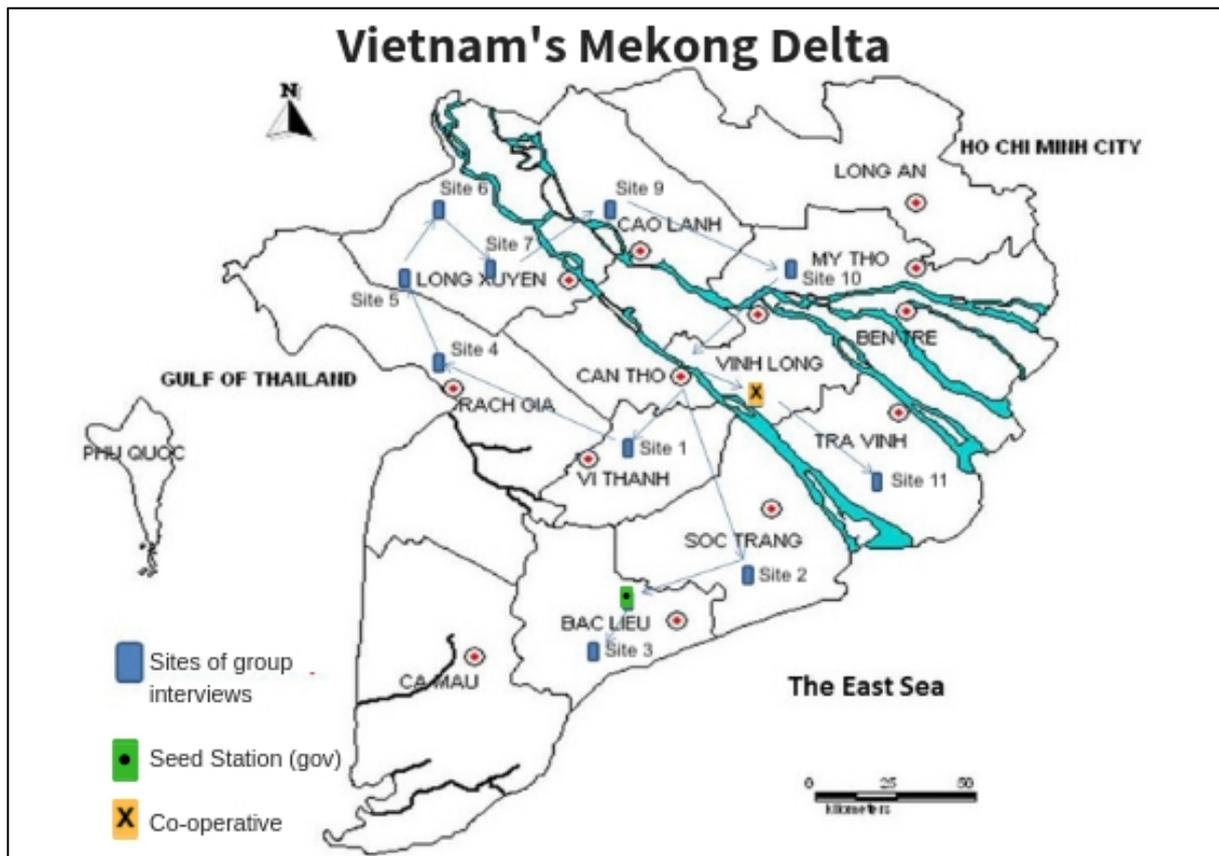


Figure 2 – Map of the study sites in the Mekong Delta

Note: this figure shows 12 sites: 10 group interview locations, one former seed club turned co-operative, and one government seed station in Bac Lieu province. (Map provided by Dr. H. Q. Tin of MDI).

2.4.2 Group interviews

The ‘leaders’ of the seed clubs were called by Dr. Tin well prior to my arrival in Vietnam and they were requested to organise a meeting of no more than ten women on a specific day at either 10:00 am or 2:00 pm. Dr. Tin also had to arrange for the local authorities to be available to attend for the two hours at each site; interviews could not proceed without supervision by a local communist party representative present. The entire, government-approved questionnaire in both English and Vietnamese was handed to the representative of the authorities at each interview before we began. Women stated that they were invited by the seed club leader, or the message came through their husbands.

The group interview was conducted from an interview guide (Appendix 2), which was preceded by a cover letter to each group describing the project. It included a consent form where the women as a group were asked for permission to have their answers recorded, and their photos taken for thesis defence presentation and any other uses could only be with their explicit agreement as the case arose. Granting us permission to call them at a later date if more information was obtained as well. This was developed with assistance from the Norwegian Centre for Data Research (NSD) and their approval was obtained for its usage.

I noted all observations of the settings, and who else was present, in what capacity and what they were doing at the time of the interviews. Due to not having permission to electronically record any of the interviews, my interpreter worked fast to write notes of the proceedings by hand. These interview notes were written in a notebook I provided her. She also used detailed interviews guides at each site with pre-prepared lists of possible answers. This meant that I could watch her use this guide to follow proceedings and see what some of the answers were as they were ticked off by my translator as the women mentioned them. Space was provided on these answer sheets where the women brought up other answers not given as options to my translator to record.

At each group interview, the contact-woman, the translator and I each had a copy of the interview guide and used this for writing down short answers. The entire, non-controversial interview guide in both English and Vietnamese was handed to the representative of the authorities at each interview before commencement. At each group session, I would first ask each of the questions in English and the contact-woman was supposed to translate this directly to the interviewees. As per semi-structured interviewing technique, I occasionally interjected with questions. While there were no objections to my deeper probing from authorities present at any of the interviews, the contact-woman did occasionally become frustrated with these minimal interjections.

The translator later translated all her notes into English for me, and we worked together either that night or later. I felt that the sooner after the session, the better the translations because her memory of the events would be fresher. We would also go through my notes and her own in her notebook to come to a shared understanding as best we could about what took place during the sessions. Ms Tien was tasked with writing a translation of the entire interview in her notebook before the next group interview in an attempt to capture the session as well as possible

Additionally, during the group interview, the longitudinal questionnaire was handed out to each participant, which was a sheet for each individual woman to fill out herself. Approximately half of the 70 women interviewed were able to fill out the questionnaire themselves, while the rest required varying levels of assistance which was provided by either a peer, the (male) seed club leader, the translator, or the contact-women.

2.4.3 Call-back interviews

Follow-up phone calls were made after the all group interviews were completed. These call-back interviews were made after a couple of weeks of going through the data, translating

everything, and transferring all notes out of notebooks and interview guides to the computer. In these phone calls, I asked for clarifications on some extant answers, I re-asked some questions because of concerns of reliability, and I asked some new questions that helped us expand the data collected from each group.

2.4 Data Analysis

I worked with the raw data after having combined all the notes, both by myself and by my translator. Joining my notes with hers for each question of the questionnaire instead of keeping them separate allowed for as full a record as possible of the step by step proceedings of the group interviews as we each perceived it; my notes based on observations and her later explanations to me, and hers based on translations. Whole two-hour group interview notes, and the notes for all key informant interviews also, were placed into a spreadsheet, with a column beside these notes for mnemonic codes. I developed a list of codes or indexes based on topics covered by the questionnaire as per the mnemonic coding techniques of Miles and Huberman (1994 cited in Bernard 2006 pp.402-404). (See Table 2.)

Table 2 – Mnemonic coding for notes that mentioned seed clubs

Short Description	Code
Seed Club	SC
SC: inter-seed club relationships	SC-Rel
SC: within one seed club	SC-In
SC: participation	SC-Par
SC: improvements	SC-IMP
SC: benefits	SC-Ben
SC: governance	SC-Gov
SC: Participatory plant breeding	SC-PPB
SC: Participatory variety selection	SC-PVS
SC: participatory variety enhancement	SC-PVE

Further, I coloured each of the topics these codes covered. After separating the notes into different rows, I re-read them and applied codes to a list in the first column the tables beside the row with the raw data, to indicate that this topic was covered in that row. Then where the topic appeared in the text in the middle column I coloured it with the same colour as its mnemonic code for ease of finding it later. I then categorised these coloured and coded excerpts and was able to draw out strong themes that occurred in each interview, essentially

thematic coding analysis. Then seeing the themes as part of a system that the interview participants were clearly calling for change on, I began to apply systems mapping techniques.

I made a *current* systems map from the perspective of the women based on all the data collected. This systems map has relevant internal components and lines of influences between them, along with subsystems; all within the systems boundary. This is based on Armstrong’s (2011 chapter 8), recommendations and set of instructions this method (Figure 3).

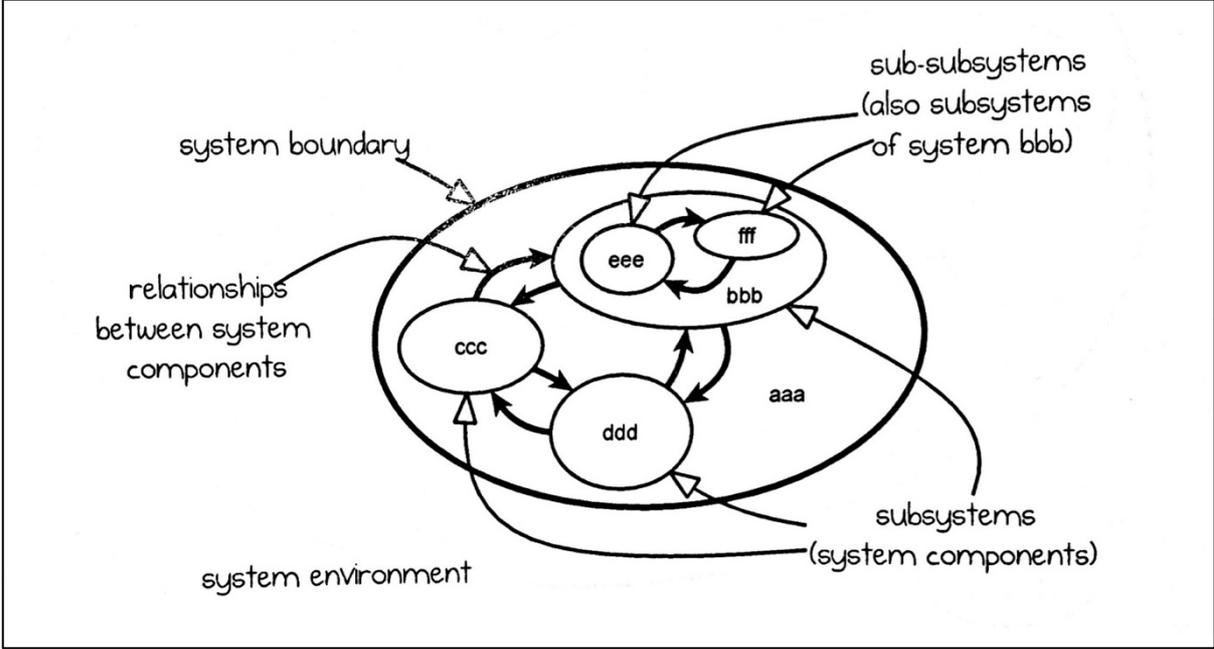


Figure 3 – A model of a systems map showing components, subsystems, boundaries and the environment (Armstrong 2011 p137).

Then outside of this I made an *environment*, within which were placed factors or components that could affect the system, but which components within the system had little influence over. This systems mapping and influence mapping is based on Checkland (1981), Checkland and Poulter (2006) and Armstrong (2011). The systems map went through many manifestations before landing on a ‘shape’ or composition that most coincided with the results of the data and through which changes could be interpreted; this is as per Checkland and Poulter (2006) who state that systems mapping remains up to people’s interpretations and the same system can be represented differently depending on who draws it. This is because of the soft, or human element, as opposed to a machine, which is not open to interpretation.

The next step was to create a transformative agroecology systems map, again based on the data, specifically the desired changes and frustrations of the women as well as an evidence based approach to re-design this system with lasting improvements. The themes of the coding analysis all feature strongly in the maps and the more detailed aspects of what the

women say feature in the arrangement and the relationships between components described in the discussion (see Chapter IV).

Transformative agroecology is a holistic approach, which will be simplified for the purposes of this thesis into two categories that examine and discuss issues of social justice and the environment as mentioned by the women. These two categories are discussed across the systems thinking framework for analysis: 1) a way to better understand the *mess*, or a problematical situation, as illustrated by the data, and 2) the means to re-design this system based on *desirable* and *feasible* changes both prioritised by the interviewees and also based on an overarching evidence-based agroecological lens.

Chapter III. Results

This chapter includes the usable data collected from women that attended the ten group interviews, relevant information from key informants interviewed during fieldwork and in later stages, and some observations made during fieldwork. The holistic nature of agroecology systems thinking involves presenting results on a wide range of points of interest that all relate back to the research objective, as such, the results are grouped under the sections: demographics, women's varietal decision making, participation in seed clubs, benefits of being connected to the seed clubs, gender sensitivities, sustainable agriculture, and climate change mitigation and adaptation, and finally a synthesis of key findings. The data are collated here for the purpose of building up a complete picture of the women's places in the farming system in the Mekong Delta in the context of the PPB/FFS seed clubs in order to answer the research question: *how can Agroecology provide the framework through which to alter and improve the seed clubs, based on the women's current practices, their concerns and their aspirations, and therefore become a strategy for scaling up agroecology and creating an innovative platform for improving current PPB programming?*

3.1 Demographics: Who were the women in the group interviews?

The women who participated in the group interviews, those who fully completed the questionnaire during the sessions, totalled 71. However for the purposes of this study the data of 70 women are included in this results section.³ It is relevant to look into aspects of their differences and similarities to each other to consider how transformative agroecology can rise to the challenge of addressing women on their own terms. Transformative agroecology is contextual and looks to effect improvements in women's (and indigenous peoples') rights and access to services which may differ depending on certain demographics.

3.1.1 Ethnicity

Of these 70 women, none are indigenous Khmer, all are of Viet ethnic background. There were also no other Khmer members at any of the seed clubs visited, male or female or otherwise.

3.1.2 Membership Status

³ Site 8, had ceased to be an active part of the PPB/FFS programming from MDI and SEARICE. The woman that attended to be interviewed thus did not meet the criteria for this paper. This site and interview are discussed in Appendix 5.

Across all ten sites, three interviewees are farmer-breeders; they actively participate in ongoing participatory plant breeding, and one of them had released various stable lines which were being grown commercially in the region by many farmers, including many of the women in our group interviews. These three women are each official, named members of their local seed club, as are six other interviewees. Sixty-one women are therefore not members themselves and are connected to the seed club for the most part through their husbands, or through their parents, while some that were part of the seed clubs had no family members. (See Table 3.)

*Table 3 – Details on interview participants at each site
Includes number of interviewees, total seed club members, number of women members, and number of female breeders*

Site	Number of Interviewees	Total Seed Club members	Number of Women members	Female Farmer-Breeder
Site 1	6	20	3	1
Site 2	5	32	0	0
Site 3	10	13	0	0
Site 4	6	16	0	0
Site 5	4	39	1	0
Site 6	12	20	0	0
Site 7	5	18	1	0
Site 9	6	30	11	0
Site 10	9	15	4	1
Site 11	7	12	1	1

3.1.3 Age

As shown in Chart 1 (below), the 70 participants' ages were spread between 19 years and 65 years, with the majority of participants being above 35 years. Approximately one quarter of respondents are aged 56-65 years, approximately one third of them are in the next age group or 46-55 years old, which constituted the biggest age group amongst participants, and 29% are between 36 and 45 years old. Just 13% of women interviewed are aged under 35 years. Table 4. shows the ages ranges for each group of interviewees, and as well as their mean average age, with 36.1 years being the youngest average and 55.4 years being the oldest average for an interview group.

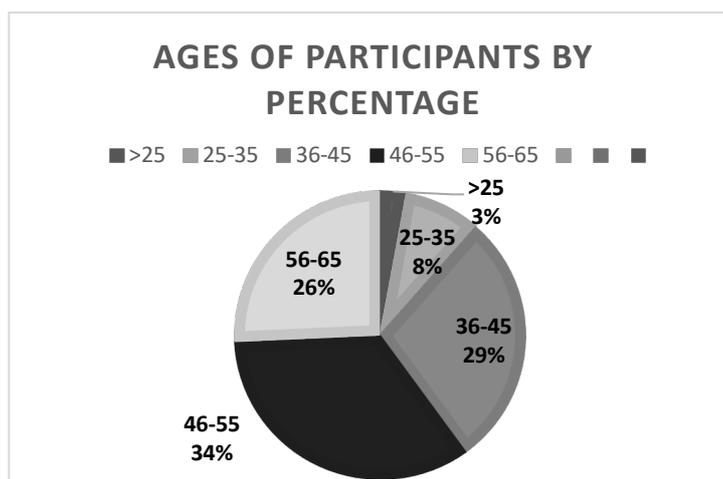


Chart 1 – Age ranges of interview participants

3.1.4 Marital status

The majority of interviewees, 61 in total, are currently married, while six are widowed, and just a small minority, three of them, are single.

3.1.5 Occupation

While all women said they considered themselves rice farmers, a minority said that they had other economic activities that either took priority time-wise, or formed the foundation of their personal income contribution to that of the household. For some of these their occupation was as a farm labourer for someone that was in the seed club, not just the one landless women, but others too stated that as well as working on their own farm they had to also work on the seed club’s leaders’ farms to make ends meet. Three of them stated that they spent much time with their small retail businesses – either a market stall or a small shop run from the home. Two of the women stated that they were foremost tailors. And one said she more managed the animals on her diverse farm, as well as contributing to the rice, but less than her husband. The majority, however, worked primarily on their rice crops, with a dozen of them using the term ‘farm manager or co-manager’ in Vietnamese, while others used a more general term for a farmer.

3.1.6 Legal rights to land

A slightly smaller majority, 57 women (79%), have their names on a land use certificate (LUC) from the government, that is they officially hold the legal rights to their rice growing land. Regarding this land that is officially under a LUC by the interviewees, most of these women have co-signed the LUC with their husbands. In only one case the husband is the sole signatory of the land, this woman has no legal right to her rice growing land. There are six women who hold the LUC alone and are either widowed or single. One of them even rented additional land for growing rice. (Chart 2 shows this breakdown of who holds the land use certificate in the

cases amongst interviewees who farm on land leased either by themselves or within their marriage.)

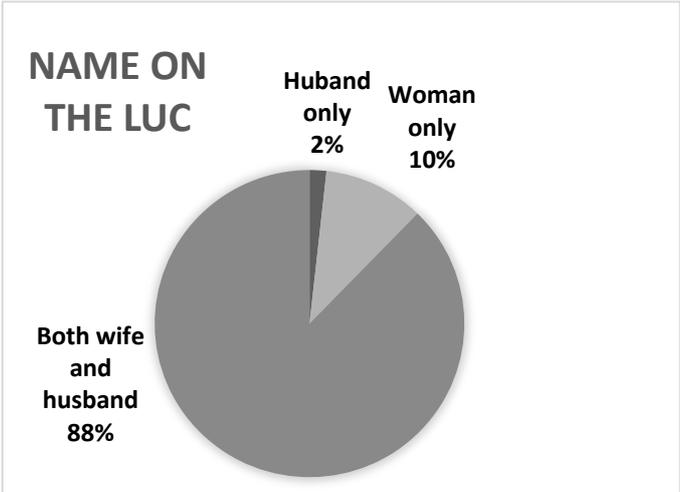


Chart 2 – Percentage of Land use certificates held by the women alone or within their marriage

There were six women who were only rented land to grow on, their households did not hold a LUC, and two more both rented and grew on land leased by their parents from the government (under a legal LUC). None of these eight women leased or co-leased any land. Four women were only able to grow on their parents’ land, leasing no land outright by themselves as yet. Finally, there was only one participant who neither had her own land, nor was able to rent land to grow on: she was a farm labourer of a ‘seed club household’.⁴ See Chart 3 for the breakdown of all land use rights.

⁴ Her boss began the interview with us, but did not complete it due to being too busy to stay for the whole two hours. Thus data was only collected from the labourer and not the land ‘owner’ in this case. Questions were not geared towards landless labourers, perhaps a blind spot of the research plan, but since she stayed in the group interview, and having done training with the local seed club, I have given weight to her answers, and take her as just one representative of so many others like her to be considered as valuable stakeholders in the rice food system of the Mekong Delta as per the Gallina and Farnworth (2018) recommendations for marginalised female landless farm labourers.

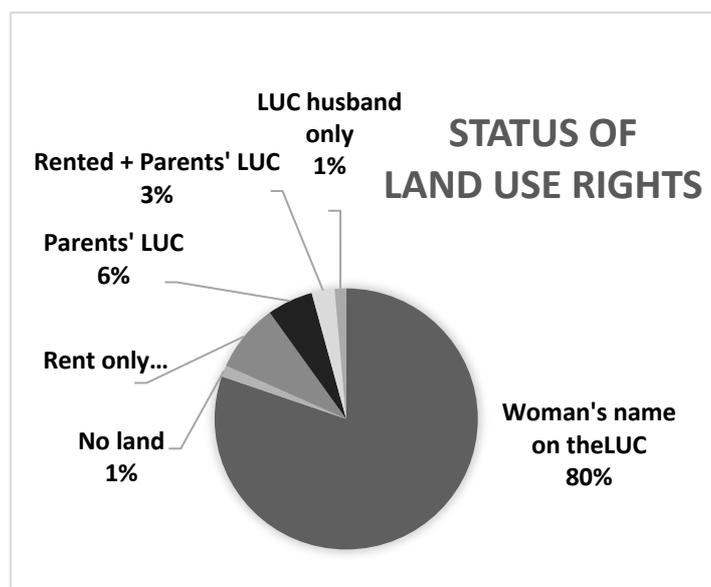


Chart 3 – Percentage of statuses of land use rights among participants in group interviews

3.1.7 Land size

Land size varied greatly amongst the women. Not including the one woman who was landless, 69 women cultivated their own crops on areas that varied between 1000 m² at site 2 on the coast and 310,000 m² worked by the very successful farmer-breeder at site 10 whose husband holds the LUC for all the land. The ranges of land area at each site and the averages are shown in Table 4.

Table 4 – Ranges of land area under rice cultivation at each site

Site	Land area range (m ²)
Site 1	2000-7000
Site 2	1000-30,000
Site 3	1500-36,000
Site 4	10,000-120,000
Site 5	0-34,000
Site 6	5000-56,000
Site 7	5000-46,000
Site 9	3000-20,000
Site 10	5000-50,000
Site 11	5000-310,000

The clear majority, 53 of the 69 women with land to grow on, farmed on less than 20,000 m², and thirteen grew on areas larger than this (Chart 4.). The six women who were the sole owners of their land each cultivated varying amounts: two grew on 5000 m² each, two grew on 10,000 m² each, one on 20,000 m² and one on 26,000 m².

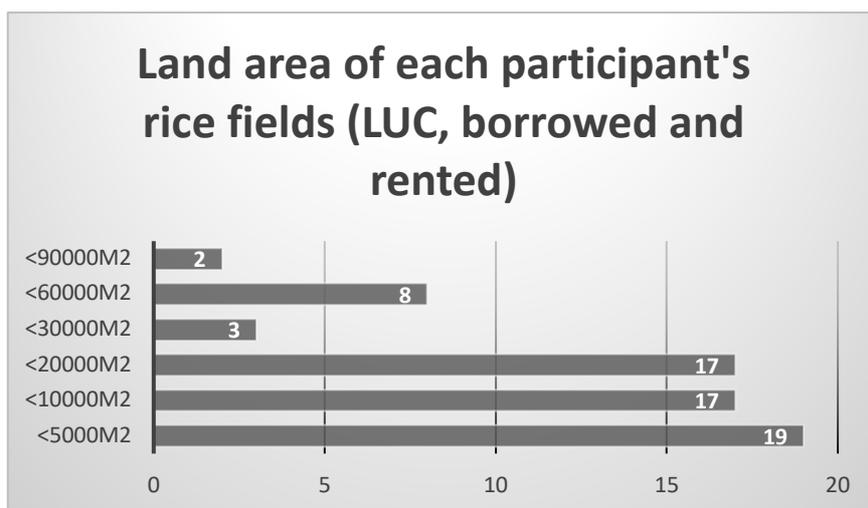


Chart 4 – The land are of the total rice fields of each participant

3.2 Women’s varietal decision making, trait preferences and on-farm diversity

The women to a large extent were involved in such important decisions on their farms as choosing which varieties to plant each season, to continue with the same one or change to a different variety. They based these decisions on a thorough understanding of rice farming processes at all stages: production, harvest and post-harvest. This data gives weight to the positive effect including women more specifically in seed clubs could have on their economy and farm management strategies. On farm diversity, however, appears to be based on the food and the economic needs of the family as opposed to being motivated by well-formed idea of diversity, including rice diversity, as having any meaning. Food security and economic improvements are essential for families to strive for, and this data shows that women have their families’ interests at heart in their daily life. However, that rice diversity and other biodiversity did not garner an explicit mention from the women is grounds for the part that agroecology could play in empowering program participants with experiential knowledge of the importance of biodiversity.

3.2.1 Involvement in varietal decisions

The one page survey asked each individual participant about decision-making. For each variety of rice, the interviewees were able to specify who had made the decision to cultivate it on their farm: the husband only, herself only, both in the couple made the decision together, or others. In some cases others made those choices; invariably parents. Chart 5 (below) details the percentages of who makes this big decision on the farms each season.

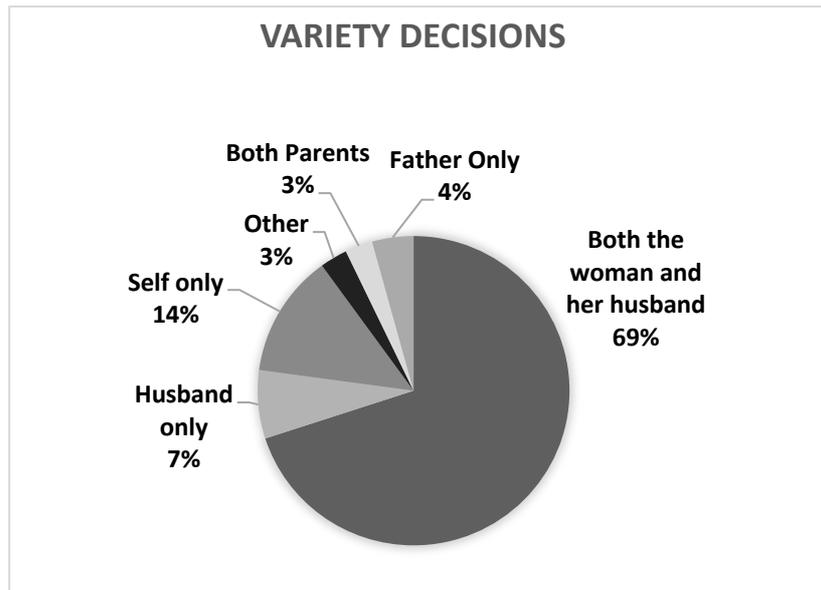


Chart 5 – Who makes the decisions on each farm regarding which varieties to plant each season

In 69% of varietal decision in 2017 and over the various season, the women stated that both she and her husband had together made the decision to choose to cultivate that particular variety; to put this another way, 49 of the 70 women said that they shared the decision to cultivate specific varieties in each growing season together with their husbands. There was one woman who made all the decisions, and was the sole farm manager even though she co-owned the land with her husband; he was a teacher. Most of the widowed women, who had once made these decisions with their husbands, and the lone decision maker on her farm together account for 14% of varietal decisions made and recorded in 2017. There were five women who recorded that their husband had made the varietal decisions alone in 2017 without her input.

Therefore the women indicated that for the most part they shared decision making with their husband. They learned about varieties by way of conversations with their family, mostly their husbands. A small minority (14%) said they made their own decisions based on different research. Some of them said they would listen to the seed club leader and then use this as a basis for other discussions or go with his advice. And one said she would like to be able to get more information from him but could not. Most said they heard about varieties from their husbands who had gotten the information from the seed clubs leader. Some mentioned that they would like to talk about these things with the other women present but had never met them before. Most said they would like to be able to attend, that is, have the time and have prior knowledge of, seed club activities whereby they could learn more and have more information to base these decisions on. But many said they did not make these decisions often, sticking with the same variety for many years because it was successful during that season.

Quotes ⁵
“I always talk to my neighbour on one side about varieties, but on the other side is the seed club leader and I ask him questions but he is too busy to talk to me. I want to know what he is doing, what is he growing, why he is farming that way.” (Site 3)
“My husband and I have a good relationship and we always talk about what to grow each season.” (Site 7)
“My husband is a teacher and he doesn’t know much about rice farming. I make the decision of which variety to choose each season.” (Site 5)
“I think about what I can export, that how I choose the variety.” (Site 10)
“It is hard to change varieties, you have to learn new techniques. It is risky. We stay with the same variety if it is working and getting a good yield.” (Site 6)

3.2.2 Trait characteristics

Regarding the specific traits or characteristics all of them gave us answers but not all of them went into detail and made comments about this. All participants were asked to volunteer criteria they considered when making decisions about rice growing. They said they were looking for particular characteristics and chose a variety based on these. Chart 6 shows that the most important characteristic for the farmers who participated in the decision to grow a certain variety was a high yield, but high price has only half as many women stating it as a motivator. Very closely following high yield was “easy to sell far away” which could mean for export or sale to regional centres such as Can Tho City or Ho Chi Min City.

⁵ Direct quotes from the group interviews can be found throughout the results section in order to personalise data. They allow readers to form some small understanding of the women’s worldviews, an important aspect of building a holistic picture from the point of view of a human activity system in systems thinking (Checkland and Poulter 2006 pp.9-11). It is assumed that these quotes and worldviews they express are data themselves.

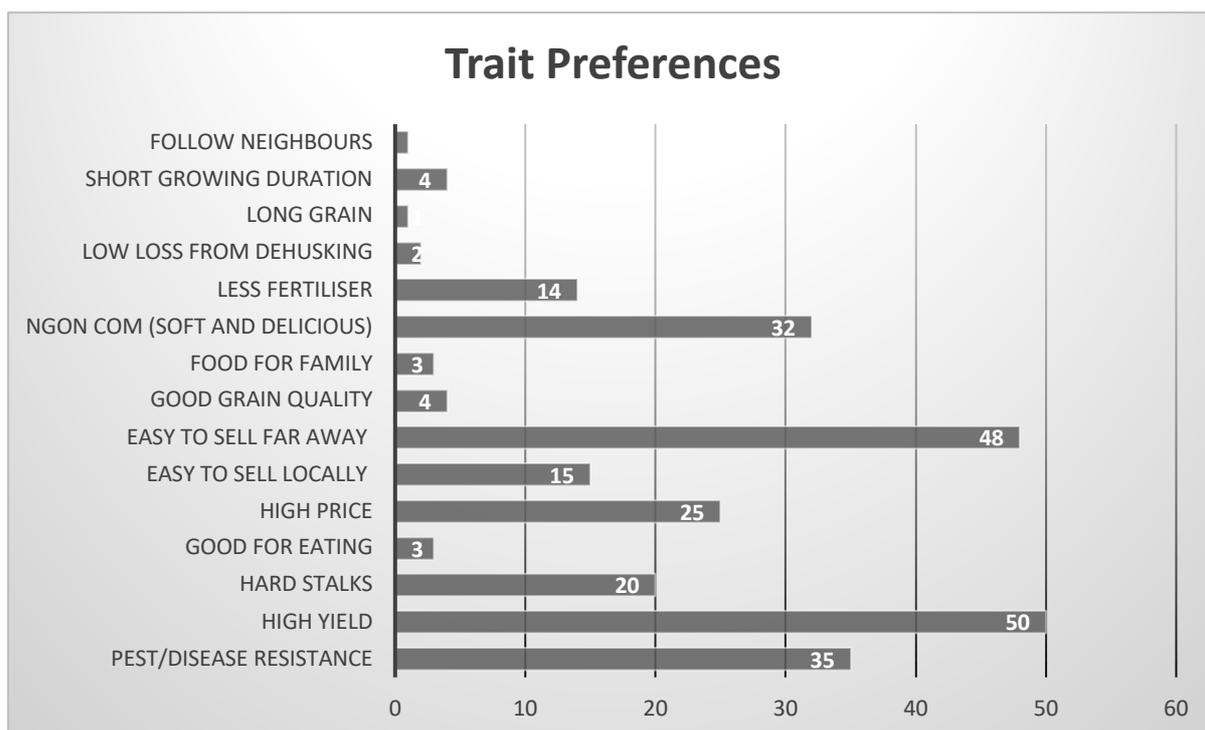


Chart 6 – Traits preferred by women who actually participated in decision-making regarding varieties to be grown

3.2.3 On-farm diversity

This longitudinal written survey for each participant first asked details about the rice varieties grown on their land in 2017 and then which varieties they had grown from 2000 until 2016, if they could remember; there was space for them all.⁶ Altogether there were at least 64 different varieties of rice planted amongst the group of 69 women from 2000 until 2017 (again the landless woman did not provide information at this point). And in 2017 alone, thirty-one rice varieties were being grown amongst the group of women. It is to be noted that these were all stable lines.⁷ Over the entire period from 2000 until 2017 seeds were either sourced from the extensive farmer lead seed system that exists in the Mekong Delta, in large part due to general seeds clubs, as well as the seed clubs that participate in MDI’s PPB programming. Of the 64 varieties grown over the 18-year period, 27 of them were obtained through the formal seed system and 49 varieties were purchased through the informal seed system. This is more than the total of varieties because some were accessed by the women from different sources,

⁶ This data has been collated and is provided in Appendix 3.

⁷ Through this section of the survey we were also able to elicit data on the origin of the varieties, where they were originally bred and released: 45 of the varieties had originally been developed by the formal seed sector, while 17 varieties came from farmer breeding and selection, and two were varieties unknown to the expert with whom I went through this data, Dr. Huynh Quang Tin. The exact developmental institutions are listed in Appendix 3.

sometimes a formal seed source, sometimes an informal one. The formal seed system includes government-run seed centres, seed stations and research institutes, private businesses and companies. Data were not collected on the amount of seed that each woman's farm was purchasing for sowing; the survey did not cover how much of any variety was purchased or planted. Note also that the women all stated that all of these varieties were obtained with a monetary exchange; they were all purchased, not bartered.

There was just one woman who saved seed for her own use for the next growing period or season. By far the majority of the informal sources of seed rice was from the seed club with which the women were associated through their husbands or parents, and rarely as members themselves. Other informal seed system actors that the women accounted for were neighbours, and parents, and occasionally another seed club.

Most of the interviewees mentioned that they grew other food crops or tended animals; some commercially, most just for household food security. In other words their farms and home gardens were diverse. Biodiversity or even rice diversity, however, never came up as a motivation in itself to grow and house various varieties and species; the term nor the concept behind biodiversity was never discussed or mentioned. This is relevant because one of the main objectives of the MDI programming is rice biodiversity (SEARICE 2009; Berg 2015; Visser 2015; Dr. Tin, key informant interview 8.12.2017). Additionally, biodiversity did not feature as any of the women's strategies for adaptation or mitigation of climate change as the website and glossy brochures of the program says it does. It appears that this as a global issue of importance is either lost on the men to transmit to their wives after training, or that it is not included in the training in the first place. The few times that I asked, the women had not heard of a rice gene bank in Can Tho city that protected landraces and which MDI farmer-breeders were now using as PGR.⁸ I asked one farmer-breeder about her germplasm and she replied that she did receive it from the MDI.

3.3 Women's participation in their seed clubs' programming

The seed clubs' activities are not limited to members only. They offer activities such as meetings, trainings and workshops, FFS, participation in trials and ongoing breeding enhancement and selection, and of course PPB. They teach farmers about better techniques, discuss trends together and may even have collective bargaining power together in the face of tough rice 'middlemen' who come looking to buy seed each season. MDI is not the only

⁸ I admit a blind spot here on my part, this question should have been asked to everyone.

institution that accesses farmers through the seed clubs. They are also the point of entry for seed companies in the private sector, as well as private chemical companies. Seed clubs, with the help of MDI are better networked with others in the program and are therefore buying and selling seed collectively to other seed clubs. More often now a seed club might come to operate as a for-profit sole business entity, owned by the seed club leader, with none of the co-operative structure except for bargaining power.

From my perspective as an observer, communication became often quite more animated when we began to discuss participation in seed clubs’ activities. Many tones changed from being neutral and helpful when information was being supplied about demographics and crops, to many women sounding more annoyed, some even exasperated when talking about seed clubs’ gendered levels of inclusion. It is to be noted here that Chart 7 (below) illustrates that not all women who attended the group interviews had ever attended a seed club activity. While many women had attended or participated in some activity, a significant amount were connected to the seed club only through either their husbands or their fathers attending the seed club activities. 31% of interviewees indicated that they had never attended a seed club activity, some even joked that the group interview was their first.

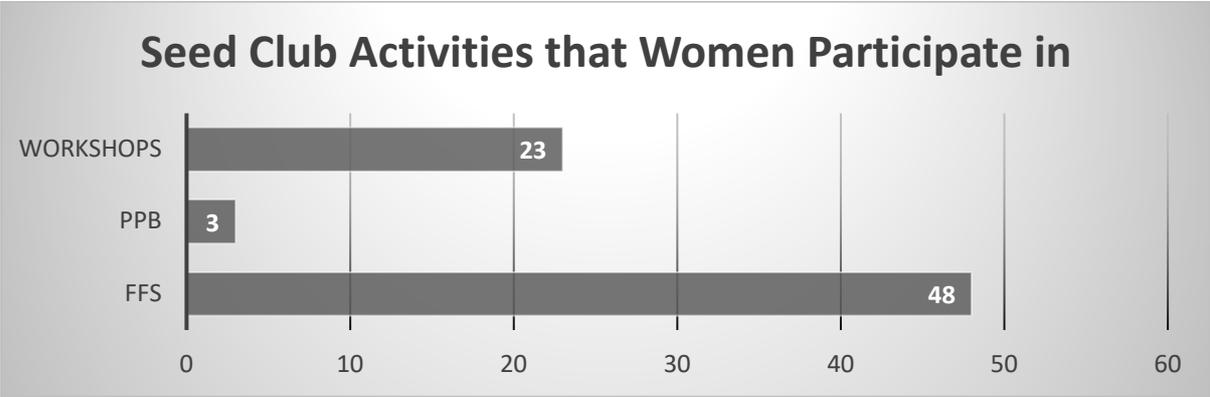


Chart 7 – The seed club activities that the women participated in
 Note: no good data was collected on PVE and PVS activities (see paragraph ‘3.4 PVE and PVS’ below).

3.3.1 Members and participation in seed club activities

In total 9 out of the 70 women that attended and participated in the group interviews were the *named* member of the seed club. Therefore, in the majority of cases, it was the husband that was a named member, in some cases the father, and in one case the son was now the member after the interviewee’s husband had passed away, although she stated without being asked by us that she would like to be a named member now. The three farmer breeders were members and were content with the amount of seed club activities they were involved in. Three married women and three single or widowed women all said they were the farm managers and

therefore the named members of the seed club. These six invariably wanted to attend more activities of the seed clubs but all complained about people assuming they were too busy and did not have time to attend everything and therefore not inviting them. All of these women stated that they wanted to know of upcoming activities so they could plan ahead in order to be able to participate; currently they were not always being advised of seed club pursuits, they said repeatedly, even though they were members. Some were clearly vexed that they were ignored and not included as much as other full members. One stated angrily that she was sick of men assuming things about her like she had children to look after when she could always arrange alternatives and wanted to attend as many activities as was offered.

Quote

“They don’t think I am a serious farmer. But I am a seed club member!” (Site 7.)

While one made her case for needing more support to get to activities that were further away since she could not drive (her husband worked elsewhere as a teacher). It was for this reason she said that instead of being offered assistance, she was simply not told about these activities further away.

3.3.2 Non-members

The seed clubs’ activities are not limited to members only, but many women mentioned regretted missing out for various reasons. There were the few women with other occupations, and another one mentioned having a baby currently, that said they were happy to not participate more. For the rest however, they listed things they wanted to do. And across the groups invariably one woman would mention that the morning was the best time for her and the others would agree. The times suggested were between 9am-11am for most of the groups and 9am-12am in one group.

3.3.3 Participatory Plant Breeding

As already mentioned, there were three women breeders in the interviews. Amongst these groups none of the other women wanted to participate in breeding but were more interested in being involved in decisions around traits to aim for. These women had more knowledge of what breeding entailed.

One woman ran after my translator as we left on our motorbikes. She wanted to let us know that her mother-in-law forced her to cook for the group that day and said she was not

permitted to join the interview. She said that made her frustrated because she wanted to tell the people from the university (myself) that she was not allowed to join activities of the seed club despite wanting to. Her mother-in-law and father-in-law were active members, and good rice farmers. She could see they knew more techniques than her parents. She wanted to learn breeding in particular, but her parents-in-law, in particular her mother-in-law she said, actively excluded her from the seed club, she said no one should not have the power to do that.

On the other hand, at sites where there were no women breeders, the feeling of being left out was well voiced. Amongst nearly all groups there were women who were very vocal about being left out of breeding experiments.

Quote

“We just want to know what they’re doing but we are never invited” (Site 4)

Many stated they were confused about how breeding was undertaken and were genuinely curious about it. While a couple mentioned they do not have enough land to be involved in trials unless they would yield and be sellable, several expressed frustration at being deliberately excluded. One even said that she had offered many times part of her land for trials. Said she thought it might mean her access to workshops and information on better techniques would improve. This woman affirmed that she was “brave” so she would not mind being the only woman in the group; she had time to attend and had transportation, but she was not told often enough when activities were happening, even though she was the neighbour of the seed club leader.

3.3.4 Participatory Varietal Selection and Participatory Variety Enhancement

Here my data is more based on what was happening in the *questioning* during the interviews. My translator noticed that every time the contact woman asked questions about Participatory Variety Enhancement (PVE) and Participatory Variety Selection (PVS) participation rates amongst women, she would give simple examples to the women then tell the translator to record that the women were participants in this important aspect of MDI programming. I, too, noticed with each group the confusion at first when this question was posed, then nods of heads and some short answers. Later reviewing these translations I noticed a theme of all answers being very simple, as a farmer myself I noticed that these techniques were general tasks undertaken by all farmers: removal of sick plants, weeding, taking away short plants if

the variety was tall. The contact woman simplified the examples likely to not have almost all interviewees stating they did not participate at all in these activities.

I have elucidated through the comments made about breeding and about on farm trials, as well as the varieties the women said they were growing that they were not part of *participatory* activities in these areas. Additionally, I triangulated data here with data on what women did with their unhulled rice seed: all of it was for sale (either food or seed) or for use in the home, and in one case, kept for next year. Only the three farmer breeders said they kept some seed for ongoing trials, selling the rest as food. Regarding the discrepancy in the PVS and PVS data that the group interviews provided: this was actually the main reason I made the decision to call so many women back after the group interviews: clarifying this corrupted data was important. Call-backs revealed that all the women question on this again, with better wording, had learned the daily tasks of weeding and removing sick plants and other general crop care from their parents, not from the seed clubs at all. One mentioned the radio had provided her with advice about looking at seed quality early in the season and removing plant with flat seed. Two women at Site 2, who were not only co-managing their own small farms but also labouring for the seed club leader, said that while he never taught them more than what their parents had, they had observed him doing more in task-set and were both trying to copy these techniques on their own farms. They said they would like actual instruction, and not just to be left to mimic tasks in case they were getting it wrong. In short, none were involved in seed club group activities of trials and discussions around enhancement of not yet stable lines, and selecting good seed for selection. None of them were involved in crop trials, all grew stable lines for sales and household food security.

3.3.5 Workshops

The data on participation showed interviewees were limited to 23 women (33%) who had attended any workshop run through the seed club; most often with either technicians from institutions like MDI or SEARICE, or with extension staff from government agencies. One woman stated that the only workshop she had been to hosted by her local seed club was held through the seed club by a fertiliser company.⁹ Yet those 23 women, and 39 more (total 86%)

⁹ It is important to note, again, that the seed clubs existed prior to MDI collaboration, and maintain activities outside of the MDI programming. They are open to other organisations and even private companies to hold workshops and information sessions, and offer sales to members.

said, when asked if they would like to attend any seed club activities, that they need access to specifically to training and workshops on techniques to improve their rice production.

3.3.6 Farmer Field Schools

Farmer Field Schools are better attended amongst the participants with a total of 48 (69%) women stating that they had attended at least one FFS. How many each individual had ever attended is unknown. At each seed club, at this point in the interview guide (and as per Bernard 2006 p.212 on semi-structured interviewing) I maintained my discretion to pursue this topic and ask how many FFS each woman had attended. And like a play act, every time this question was posed for the contact woman to translate, she would laugh loudly and say “Oh no, can’t ask that, too many to count! Too many to count! They can’t remember! So many! Always going to FFS!” and laugh harder. She never translated the question and put it to the women to answer. At the last site, Site 11, however, for the first time I got a chance to briefly socialise with some women afterwards without the contact women present. I was granted five minutes by the police officer that was supervising the interview take a very swift walk to look at the neighbouring farm¹⁰, which belonged to an interviewee. I took this short opportunity to ask the women how many FFS they had each attended and thus got my only answers to this question. At Site 11, two women had attended FFS: one had attended just one FFS, while the other woman had been to three FFS.

3.4 Benefits of being connected to the seed clubs

While the women in general wanted to be more involved, and wanted activities to be sensitive to women’s schedules, there was many benefits to being connected to the seed clubs, either through their husband, their parents, or directly themselves. The benefits of the seed clubs are numerous, and it is little wonder that the women want to participation to the fullest extent of their capacity given their other jobs and time consuming household tasks. This list of benefits also shows the seed clubs as important local organisations and networks of the food and seed systems in the Mekong Delta that have the potential to not simply focus on economic improvement but also on social and environmental improvements in the region in the context of many problematic factors also highlight here (in other results’ sections).

It must be noted here that the seed clubs are not solely serviced by MDI and the network for PPB and FFS and other technical training that they sporadically provide; benefits of the

¹⁰ This constituted the second ‘farm visit’ out of just two that was permitted. The first was at Site 1 due to the interview being held at the home of the female farmer breeder (and interview participant) of the seed club.

programming can only be measured by research on this in particular topic undertaken in much more depth (Appendix 8).

3.4.1 Benefits to the household

Every woman stated categorically that her household being involved in some way in the seed clubs had improved household food security. For the one landless labourer interviewed, perhaps this could be construed as indirect: the household that employs her has the profits of the high yields to pay her wages with which she buy food. The next most common answer to this question is “better life quality”; perhaps more open to interpretation but certainly a prevailing opinion, with 69 women answering affirmatively. The landless labourer was the only person who did not list this as a perceived benefit. Just under half of the women said that with improved household economy they could pay for their children’s education, while many reminded me that their children had already grown before this could be of use to them. Chart 8 shows the results of this question. Note that ‘other’ included items listed by only one or a couple of participants and were: being able to share rice with a neighbour in need and furniture.

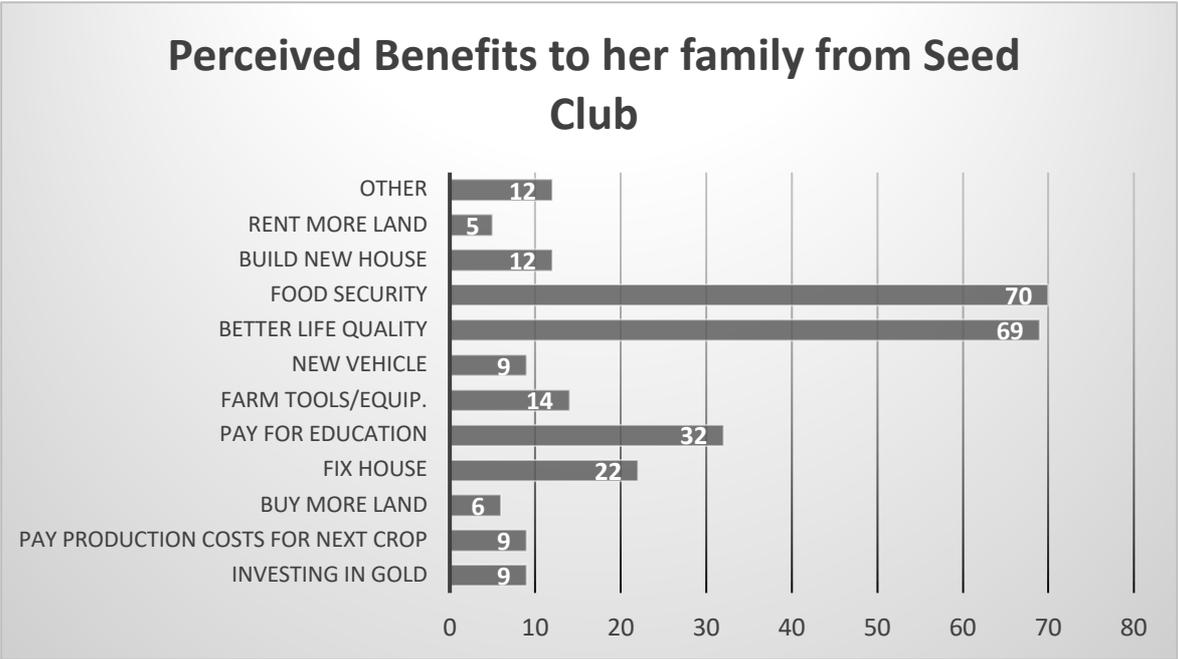


Chart 8 – Perceived benefits to family of seed club participants

3.4.2 Benefits to the women personally

The interviewees mentioned several personal benefits and had very similar experiences with a high level of agreement that being connected to the seed clubs has increased their knowledge (both directly, but also indirectly through their husbands), improved their status in the family and improved their ‘prestige’. And all of them stating that it had given them more confidence.

The category of ‘other’ here (as seen in chart 9) included a motorbike for one woman, being able to raise her opinions with her husband (still not equal but a better relationship). The nuances of this data and cultural meanings of status and prestige were not recorded and it would be up to future research to do this.



Chart 9 – Women’s own list of benefits from seed clubs since becoming involved

3.5 Gender sensitivities

For the seed club programming to be fully inclusive, a gender-sensitive approach must urgently be systemically applied, with evidence-based practice and a real concerted effort from all actors in the system. Underpinning women’s rights is central to agroecology. Here is data of gender insensitivity that constitute evidence for this issue to be classed as a systemic problem and of critical importance to address.

3.5.1 Gender training for men

All groups were asked if their husbands had ever participated in gender training. One woman said he had, but it was through the police and the Vietnam Famer’s Union. Most other women said no, while others were unsure. The seed club leader who sat at a table next to our group at every site would be drawn in to the interview at this point and at every site he said that his seed club had never offered gender training for men. Although women were not specifically asked, approximately 30 offered comments about how this could help them and the seed club should offer gender training for their husbands. Some of their quotes are below.

Quotes
“If he goes to gender training my life will be easier.” (Site 4)
“I would like my husband to understand how hard I work.” (Site 3)
“If my husband goes to gender training it will be easier for me at home and I will get more help from him.” (Site 9)

“If they get gender training maybe they will invite us to more seed club activities.” (Site 6)

“If he would go to gender training then he will stay home more so I can sometimes go to seed club activities instead of him, and that will be fine because I will share it all with him when I get home.” (Site 11)

3.5.2 Women-only activities

The Gender and Social Inclusion Report (SEARICE 2011a), explicitly recommends women-only activities for the seed clubs as a way to better gender mainstream so there was a question in the questionnaire about this specifically. None of the women’s local seed clubs had ever offered a women-only activity. So, while not on the questionnaire, I asked women this question, though the contact woman clearly disliked this. The first time I spontaneously asked this question was at Site 2 and the contact women told me “No, they don’t need that!” To be diplomatic, I agreed with her that that might be the case but because two of these women were extremely shy, it would be interesting to know what they think. So she rolled her eyes and asked them in an exasperated tone. Their answer was a resounding ‘Yes!’ All five of them in unison said this earnestly. The contact woman scowled and mumbled something my translator did not catch. There was immediate tension and I changed the topic. The next interview the same thing happened but this time she asked the question with a tone of disdain and shaking her head. The women here all again answered yes, then detailed why to us. I later read my translator’s notes and saw that the contact woman had phrased the question “You don’t need women’s only activities, do you?”, which is a very leading question that in some cases may have influenced some of the shy women to remain silent. Ultimately, 28% of women said they did not want women’s only activities. However, 69% of participants said they wanted and some even said they needed women-only activities in their local seed club. And 13% stayed silent for this question. Some their quotes are below.

Quotes
“Men and women are equal, we don’t need special activities” (Farmer-breeder at Site 1)
“I’m too busy so that would not help me” (Site 7)
“Men and women are equal” (Vietnam Women’s Union Member, Site 3)
“I only feel comfortable to ask questions around women, I don’t have confidence to be in a workshop with men” (Landless labourer at Site 5)
“I don’t need it but I think that if we had them more women would participate in the seed clubs and that is a good thing” (Site 5)
“My shyness is a big problem for me participating with others, especially men” (Site 2)

“If there is a women-only activity that means my husband will be happy to stay home and cook. If the activity is open to everyone, he will just go and I have no option to attend” (Site 11)
“We are busy but if you organise training only for women then we will go” – all agreed. (Site 11)
“I know some techniques, but I don’t feel confident in a workshop or a learning exchange so I let my husband go to all the seed club activities instead of me. If there were women-only activities I would go” (Site 5)
“I have never met the women here in this group before. I want to go to more seed club activities so I can talk with more women” (Site 7)
“I go sometimes but I never see any other women!” (Site 3)
“ It will be good for husbands, they can understand the role of wives and help us” (Site 11)
“It’s fun and easy to talk together and share experiences if there is only women” (Site 6)

Note that at Site 1, the most confident person in the group interview, the farmer-breeder, said “Men and women are equal, we don’t need special activities” when I asked if the seed club offered women-only activities. This was the only group not asked about women-only activities so they were asked during call-backs and the response varied. The ones who remained silent in other groups could be silently agreeing or be potentially intimidated by the way the contact women asked the question every time. I noted more silent people when there was a dominant woman in the group who said answered ‘no’.

3.5.3 Internalised sexism

Internalised sexism or internalised misogyny is a social phenomenon whereby women act out sexism towards both themselves and others of the same sex. They have been socialised or acculturated to discriminate against, oppress or hold back other women, minimize women, and mistrust them. They may have differences in status and age, or they may even be peers, but they perpetuate the gender gaps in society with their actions, opinions and words and believe in the gender bias towards men. (Bearman, Korobov and Thorne 2009). Internalised sexism, as is also the case for other internalised forms of discrimination, falls into the category of ‘internalised oppression’ since it upholds the status quo of another groups’ oppression even when members of the oppressor may not be present (Mason and Reiser 1992).

During the fieldwork I interviewed various female government staff at non-seed club sites who verbalised such discrimination against women. It is extremely relevant to the question of how agroecology can provide a framework for women’s inclusion, because the power imbalances between these agricultural professionals are extreme, as is the discrimination that it engenders. It is critical to address and improve this problem, and

transformative agroecology asserts women's participation and inclusion, and does not simply assume it as these results show PPB in the Mekong Delta does.

At a government seed centre in Bac Liu Province, I met with all the 15 female staff; from the cashier, administrator and an accountant, to the manager and two young biotechnicians. One biotechnician could speak fluent English. She was conducting trials on organic tomatoes and establishing a rice gene bank to re-adapt land-races to the local conditions for breeding purposes. After she showed me around her areas at the station we all sat down for an interview about the seed station's work and women farmers. All 15 female staff members were present, but all but three stayed silent the entire interview. At one point I asked a young biotechnician about the possibility of the seed centre offering women-only courses, since women's attendance in their (free) public courses was so low. In English, this young biotechnician said to me:

Quote
"Women farmers are lazy and stupid. They just stay at home and do not do any real work. No, we will not do a training just for women, they won't come." Biotechnician, staff member, Seed Centre, Bac Liu Province.

While I transcribed her words, there was some rapid diplomatic follow-up by the manager there about a lack of capacity but that they should consider women's training opportunities. She was clearly worried I was writing this quote down. This concerted fieldwork effort to understand the structural forces against small-scale women farmers in Vietnam allowed me access statements and personalities that may go

At Site 8, the organic rice training co-operative formerly a seed club, I met with both the male director there, and some district level agricultural department staff, two males and one female. During my questioning regarding women's attendance to the co-operative's training workshops¹¹, the female government extension centre staff member said something in Vietnamese as she rolled her eyes and shook her head. The contact woman laughed out loud, but I noticed that none of the men there did, none even smiled. The contact woman then rapidly mumbled something to my translator. And I looked to her for a translation but she shook her head and smiled uncomfortably. Then a few moments later when she noticed that

¹¹ The co-op director estimated women's attendance to be approximately 20% at their workshops but said he did not record numbers.

the contact woman was not looking at her, she wrote “Later” on my page meaning she had something to tell me later in private:

Quote
“Those women are lazy and they only come to workshops if it has something to do with cooking,” female government extension centre staff member, at Dinh An Co-operative, Site 8.

The internalised sexism expressed by the contact woman was inconsistent throughout the group interviews and travel in the Delta region for the three weeks that she was my chaperone. She never explicitly expressed such verbally derogative comments to me, as the women mentioned above had done. And occasionally I observed what could be flickers of interest in her face, when she heard the women’s answers that were critical to current programming, and she would take notes at each interview at these points also. (Note: she never let me see these notes, despite this being part of our arrangement after it turned out that I could not electronically record the group interviews.) But her loaded questioning persisted, and every chance she could she would tell me that the women do not need women-only activities in the seed club or through MDI and their networks of extension and technician support.

Quotes
“No need for women-only activities, men and women are equal, you can see that here,” Contact woman, regularly.
“The women are allowed to come to activities, no one is stopping them. We are not stopping them. The seed clubs are equal for men and women. They do not need gender training and women-only activities,” Contact woman, at site 6.

These women of power are significant barriers as well to rural women’s full integration and inclusion in programming. An agroecology framework employed as a way to actively highlight that all farmers’ knowledge and experience is valuable. And respecting their expertise as different but complementary to scientific expertise is part of society together tackling agricultural development challenges.

3.6 Sustainable agriculture, and climate change mitigation and adaptation

The women had much to say on climate change and how it was drastically affecting their farms and livelihoods. Their descriptions here, and their narratives on how to deal with this emergency, are intimately linked to the potential agroecology has as the foundation of a way forward that my thesis is advocating for.

3.6.1 Changed climates and associated threats at seed clubs sites and on women’s farms

At each site the women described climatic and related changes they have seen over recent years, these effects on their farms and livelihoods and changes this will bring about in terms of adaptations. Table 5 shows a collated list of each group’s perspectives and experiences on this.

Table 5 – Perceived effects of climate change and resulting changes to farming

Site	Climatic changes	Effects	Direct changes to their practices
Site 1	Uncertain rains, heavy rains Flooding Hotter	Increases pests and disease Not able to dry seed in 2016, complete loss	All want to change varieties All need better pest and disease resistance Want to be prepared for more climate changes
Site 2	So much change in recent years Unpredictable rain in HT (summer autumn) Higher winds and more rain in TD (autumn winter) In DX (winter spring) a lack of water, Drought Salinity – rising tides – salt water into the paddy fields	More rice leaf folders in last 10 years Human health affected Crops lost	Cannot burn straw in wet fields, so cannot deal with pests as effectively Using more pesticides Using more fertiliser Salt resistant varieties Cannot grow vegetables anymore We need to change everything to prepare for climate change
Site 3	Salinity intrusion Not enough fresh water for rice	Crop losses Failed crop due to no water	Salt resistant varieties Livelihoods failing, considering changing to shrimp farming All said climate change was forcing them
Site 4	Many more insects now than 10 years ago: rice stem gall midge is the worst, rice blast disease, brown plant hopper Sea level rise (this site 1km from coast) Drought	Crop loss (50% loss last year because of rice stem gall midge) Lower yields Heavy salinity	Cannot reduce insecticide Don’t know how to deal with new insects IPM does not work anymore Get chemicals on credit and pay interest All have built bond dykes and have to use the community sluice gate They expect other changes and want to adapt early
Site 5	TD season is changing, rain is now earlier and uncertain Higher water level in river	Famers cannot manage water levels by themselves consistently	Need new climate change adapted varieties
Site 6	Flash flooding in 12 th Lunar month ¹² Unpredictable weather	Water levels 70 cm higher than normal in their fields No profits in 2013	Need to change variety
Site 7	Flooding in TD season Unpredictable heavy rains	Failed crops, money problems	Will not cultivate in TD season anymore Back to using increase fertiliser and insecticide

¹² Vietnam uses its own lunar calendar with New Year happening at ‘Tet’ in late January or early February.

Site 9	King tides flood 80 km deeper into land now, reaching their location for the last three years Lack of water in XH (Spring-summer) More rain Uncertain rain and sun Scorching sun in 2016 Drought	Salinity – water and soil Acidic soil (dryness) Rice stem gall midge struck 2016 (because of more rain) No profit in DX (winter-spring) No profit in	Build bond dike Want sustainable farming techniques Need pest and disease resistant varieties
Site 10	Heavy rain, much more than before. Drought Unpredictable dry and wet Unpredictable and more windy days		Need a short duration variety More focus on upland crops. No more 2 nd crop (XH, spring-summer) of rice; watermelon, eggplants or chilies instead. Improve soil health
Site 11	Lack of water at end of DX Drought Unpredictable dry and wet Higher temperatures Increased Rice Blast Disease in last 5 years More storms	Saline water during DX (winter-spring) season. Their seeds tolerate salt, but cannot change variety.	Need both salt and acidity tolerant varieties

3.6.2 Changes they wish to make on their farms

All groups stated they were worried about the contribution that their own practices had on climate change. Although the contact woman continually referred to the “hole in the ozone layer” and they would all nod, according to my translator’s notes, no person in the group interviews mentions this phenomena, instead they all use the Vietnamese term for climate change. They all state clearly that they know rice farming is contributing and groups referred to methane and chemical usage, in particular their fertilisers, as their contributions that they wanted to mitigate. Table 6 shows the changes they expressed explicitly that they wanted to make in order to contribute to mitigating climate change and GHG emissions.

Table 6 – Climate change mitigation mentioned by interviewees

Site	Mitigation measures to climate change	Notes
Site 1	Use less fertiliser, and other chemical pesticides and for healthier waterways Sustainable farming All want to grow organic rice	
Site 2	Want to use less fertiliser and pesticide on their fields	
Site 3	Switch to shrimp farming as rice continues so badly All want to change and adopt the 6R** Stop burning rice straw and plough it in instead	
Site 4	They don’t have to use much fertiliser already Will grow vegetables on the dykes to stop erosion	
Site 5	Three want to do the 1M6R**	
Site 6	(NOTE: I was sick throughout this interview, having to leave and come back, and the contact woman skipped such sections of discussion)	

Site 7	Varieties that need less fertilizer All want to adopt 1M6R**	All wanted demonstration and proof of 1M6R** before adopting it
Site 9	Improve soil (all) Grow organic rice (several women here) Transplanting instead of seed sowing to reduce fertiliser and pesticides Growing corn and watermelon to improve the soil Use less pesticide and fertiliser on rice Want sustainable farming techniques Been using 3R3G* technology package but now want to change to 1M6R**	
Site 10	All wanted to adopt 1M5R** All said they wanted to eventually farm organically. Two said they want pest and disease resistant varieties to use less chemicals Four said they chose varieties that need less fertiliser	They had all heard of this technology called 1M5R and wanted access to extension to assist their transition. One woman stated she would like to visit organic farms and see evidence first.
Site 11	Better training to look out for imitation organic fertilizer Use less fertilizer (all) Use only organic fertilizer on home gardens (all) All want to apply the 1M6R** technology package: reduce fertiliser, reduce pesticide, reduce reliance on water/irrigation, reduce seeds per m ² and reduce GHG emissions and reduce post-harvest losses. Three women want to grow organic rice	

*3R3G 3 Reductions 3 Gains: Reduced seed, reduced N fertilizer, pesticide, and maintaining yield, and improving farmer's health and better protecting the environment (through the reduced reliance on agrochemicals)
**1M5R (or 1P5G) or now **1M6R technology: Must use high quality seed, Reduce fertiliser, reduce pesticide, reduce reliance on water/irrigation, reduce seeds per m² and reduce GHG emissions from their rice fields and reduce post-harvest losses.

3.4.3 Methods with a low-environmental impact

The women described some approaches they stated were consistent with traditional (pre-modernisation) farming methods and practices that were aimed at building soil structure and nutrients. They also often mentioned other practices that were modern or new to them that they considered to be less impactful on the environment and on human health. These methods can be described as contributing to agroecological practices on their farm, as opposed to techniques that involved chemical applications. Some of these practices required either increased labour or heavy machinery, and their implementation depended on the finances and the seasons' suitability; ploughing-in of rice straw and crop residue for example only occurred when they had access to a machine, or had the capacity to work and or hire labour and when the season was not uncharacteristically wet which had been the case in recent years.

While, as an important aspect of what should be an ideal agroecological systems transformation, some of the practices listed below should be questioned for their scientific value in contributing effectively to improved, "low-environmental-impact" farming practices.

The foundation behind any program’s natural or sustainable farming interventions must be supported by rigorous science. Simultaneously, it can be informed by local knowledge and practices, but should then be tested and measured for efficacy and consequences. Table 7 lists their practices that they already use, and practices they said they wanted to employ, and sometimes their reasons for this. On the list, for example readers can see “burning of crop residue (straw and husks) on the field” which while “natural” and “traditional” may not be best practice. However it served an important purpose, the women said, of changing soil acidity, which is a necessity. How, in best-practice sustainable farming, to deal with the issues of both crop residue and soil acidity is an outcome of this data that can inform a future agroecological PPB framework for the MDI program.

Table 7 – Sustainable farming practises, already used and aspired to be used, mentioned by interviewees

Site	Sustainable farming practices, low and organic inputs, nutrient cycling, etc., used by the women already	Aspirations and possibilities for sustainable and organic practices
Site 1	One had fish pond on edge of rice field All had bananas All sold their straw to mushroom growers in two season or, Burn the straw on the field in the other season (to assist with acidity) All grew organic vegetables for their home-use	Organic vegetables for human health Better waterways for human health, so worried about water pollution All want to reduce fertilisers and insecticides for their waterway health
Site 2	All sell straw to mushroom farmers	We need to change everything to prepare for climate change Want organic rice production All want to grow organic vegetables for their home-use Want to reduce water pollution
Site 3	Two use mulch on upland crops Four plough their crop residue into soil Two sell to mushroom growers Six burn their rice straw on the field	Want to prepare for climate change
Site 4	Several had chickens Several had vegetable market gardens Some had bananas Several practiced regrowth, then grazing animals on rice fields (Luá Chet) All use their crop residues (straw and husks) – Spray a fungi on them then bury them to become organic matter in soil and soil nutrition Two mix raw and burnt husks for mulch for other crops	Some wanted to also practice regrowth, then grazing animals on rice fields (Luá Chet) One wanted to use more organic matter on her fields Said Many companies sell organic fertilizer but their soil is already nutrient rich They expect other climate changes and want to adapt early
Site 5	One had fish pond on edge of rice field One had huge animal and plant diversity (goats, chickens, oxen, ducks, pumpkin okra, corn, lotus all commercially) One had just chickens Three used ducks on their paddy fields Same three burnt rice straw on field One ploughed rice husks into soil	Other two wanted to use ducks Four said need training to improve the soil
Site 6	Use oxen manure	

	All burn rice straw in the field All (in summer) turn rice straw and rice husks into the soil Three use rice straw and husks as mulch All want to do the 1M6R All grow organic vegetables for family	
Site 7	One grows peanuts All use ducks against snails, to clean the paddy field, and to add nutrition to soil	Several grow chili Needs techniques to make organic fertilizer One wants to reduce fertilizer but afraid the soil does not have enough nutrition All want to improve their soil All want to do the 1M6R**
Site 9	Duck on paddy to eat snails Use 3R3G* technology package All use some IPM manure from chickens and from oxen on orchard and other upland crops All use organic fertilizer on home gardens Buy from organic fertilizer company for watermelon, lime.	Want sustainable farming techniques Improve soil (all) All have pigs – none mention using their poop.
Site 10	Four said they chose varieties that need less fertilizer Many have ducks, chickens, oxen or a combination of these and use their manure	All wanted to grow organic rice One woman stated she would like to visit organic farms and see evidence first, not just get training in this. Several have coconut Two said they want pest and disease resistant varieties to use less chemicals Improving soil health here was critical
Site 11	Burn straw in paddy All grow coconut, use this as a mulch resource for upland crops and trees Use rice straw and rice husks in paddy soil after 1 st crop	Want to improve soil Three women want to grow organic rice Six said they want pest and disease resistant varieties to use less chemicals

A small number of interviewees outlined the practice of allowing animals like oxen, goats or pigs to graze after harvesting (called *luá chet*), thus adding manure to the soil as well as reducing the task of removing plant stubs before the next season. This practice was one that these few women said that they had abandoned but then reintroduced when they were concerned about their soil's nutrition. Many more women, the majority, stated that they rented out their rice paddy fields during the growing season to duck farmers; they described to me how the ducks were eating specifically snails and perhaps some insect pests, although they were unsure about this exactly. They did not mention how the ducks' droppings would assist to add nutrition to the soil, a valuable natural fertilizer for the rice.

Just several of the women said they actively utilize integrated pest management (IPM). Some mentioned that the pests and diseases had increased and they now found IPM to be inefficient, and other said that it had not been a focus of the FFS and seed clubs activities and they did not know how to effectively undertake it. Several women mentioned that they would like to use IPM. At Site 1 where our interview was at the farmer-breeder's house, right beside

a rice field, I was able to observe just a small number of marigolds in flower on the bank and when I pointed these out she said that they had formerly utilised IPM, the *tagetes* were IPM remnants, but now she just used pesticides. Interestingly, she was definitely one of the most vocal out of all the women interviewed about the chemicals polluting their local waterways from farms; she stated her concern numerous times and stated that it was up to them to learn to use less pesticides, and the other women all agreed.

At this session, and several others, there was a discussion around current practices of using too much chemical pesticides and fertilisers where some interviewees would become emphatic about the need for them to learn different ways of managing. Others lamented the problem but were more resigned and said they had to use these measures, and that pests were worse now than ever and they could not envisage any other option. At several sites the conversations entered into what they grew in their home gardens to eat and how that was organic. They described a “clean” life with “clean” food and water, eating organic food in their homes and washing with clean waterways from the canals beside their homes.

3.7 Synthesis of key findings

The interviewees are real farmers with expertise on their own farms and the market’s conditions. Yet climate change is an immediate danger to their livelihoods. And they would like to be more involved in solutions for this urgent issue. There is a wealth of sustainable farming techniques from the practices and ideas of the women presented here that could be networked and built upon. However they themselves know that there is a need for effective organic insecticides and fungicides to be employed across the region to combat pests with less ill-effects on the environment.

They think broadly, globally as well as locally as shown here when it comes to their trait preferences, their post-harvesting actions as well as their sometimes conflicting family/household economic livelihood priorities and environmental values. They have their knowledge gaps and they are hungry for them to be filled and then for them to be equal partners in contributing to the regional food system and to regional environmental issues. They feel that they are effectively excluded from programming, both systemically and structurally, yet without this being an explicit policy of the program. The women have contributions to make towards breeding priorities but have no forum to be heard.

Chapter IV. Discussion and analysis

Taking a systems approach meant interviewing many people, and presenting a rather significant amount of data here in order to build up a detailed picture of the system and to make systems maps based on solid information. Therefore the framework for analysis employed here must be kept simple in order to answer the research question: *How can Agroecology provide the framework through which to alter and improve the seed clubs, based on the women's current practices, their concerns and their aspirations, and therefore become a strategy for scaling up agroecology and creating an innovative platform for improving current PPB programming?*

Transformative agroecology is a holistic approach, which will be simplified for the purposes of this thesis into two categories that examine and discuss issues of social justice and the environment as mentioned by the women. These two categories are discussed across the systems thinking framework: 1) a way to better understand the *mess*, or a problematical situation, as illustrated by the data, and 2) the means to re-design this system based on *desirable* and *feasible* changes both prioritised by the interviewees and also based on an overarching evidence-based agroecological lens.

This section will discuss whether or not the scaling up of agroecology and the application of transformative agroecology is appropriate in the context of the women's perspectives in the Mekong Delta's MDI PPB and FFS seed club programming.

4.1 The current system

This section details the components that comprise the system of the MDI's PPB and FFS seed club programming, which includes the subsystems and the relationships between them, and the system's 'external' environment. See the systems map (Figure 4) below. Systems thinking allows for different interpretations of such systems given the multitude of possible boundaries which could be assumed (Checkland and Poulter 2006; Armstrong 2011 p. 143). This map of the current system will be informed by the data as presented by the women, as well as other data and observations collected through the fieldwork. Within the system are found components and/or subsystems that relate to each other, have relationships and influence (ibid; ibid). And outside the system's boundary is the system's 'environment' over which the main stakeholder of the system has little influence, but which still assert pressure on or greatly influence that stakeholder: climate change, and Confucianism here (see below). For this systems map, the current problematical situation, there are components outside the system boundary that *do* influence and have relationships with components within the boundary

(Oxfam, SD=HS, and SEARICE, and even the rice gene bank) but they have little effect on the women and are therefore a different, more benign shape and position on the map.

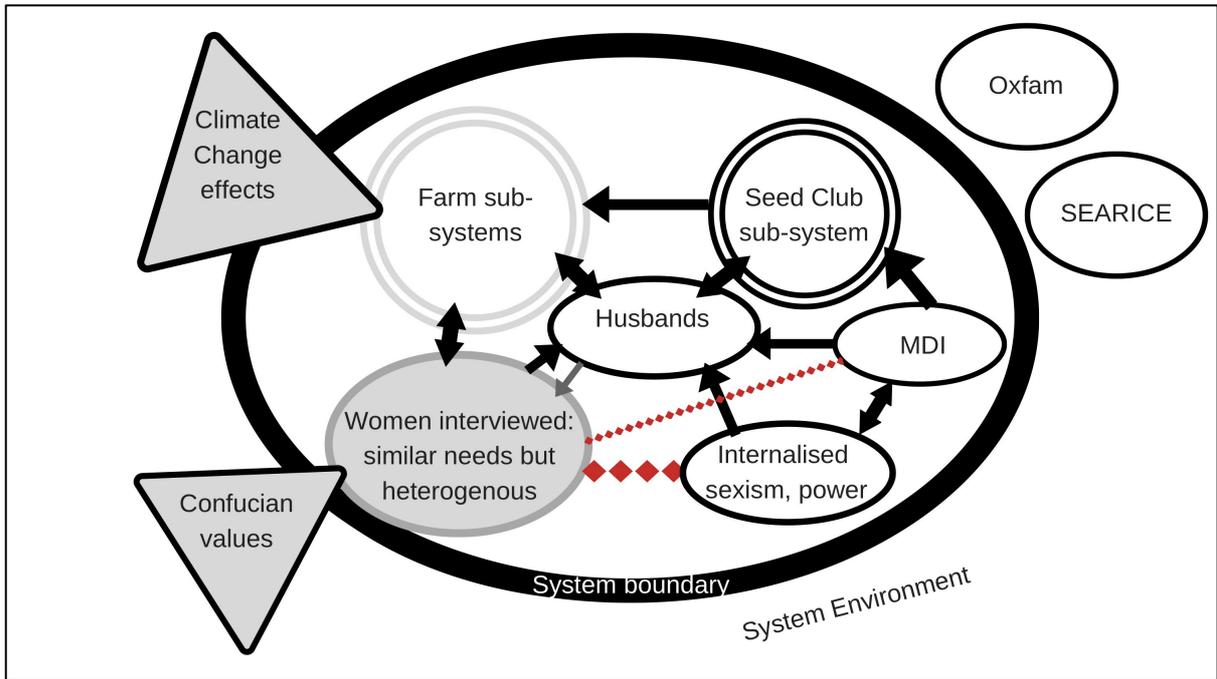


Figure 4 – Current systems map of the MDI's PPB and FFS seed club programming.

Legend: One-way arrows means one-way support, two-way arrows mean mutual support, dotted lines mean antagonism, no arrow means no direct, strong positive relationship.

Figure 4 shows a current systems map of the farming life of the women interviewed. Here the system is simplified in diagram form, however the discussions that take shape below are full and descriptive. One-way arrows indicate support in the direction of the arrow, while two-way arrows indicate mutual relationships, both positives in the system. It is recognised that the subsystems are complex in themselves, but their complexity can be dealt with by other research and project management tools. First we must acknowledge the women's non-uniformity: they are more than just the binary opposite to the men/husbands in their system.

4.1.1 Heterogeneity among women in the groups

While all the women of the seed clubs of the Mekong Delta interviewed as part of this research are of Viet ethnicity, they are nonetheless a heterogeneous group, and should be treated as such by development practitioners, and agriculture technicians and extension staff. Casting them all under one label, female as opposed to male, is not enough to address and alter deeply rooted structural issues and power imbalances to empower them and make them all less vulnerable to climate change and other risks.

Important work is being done on the differentiated vulnerability to climate change of women in areas where this is already having effects on local environments. Researchers have begun to recognize that people's vulnerability to climate change are differentiated socially and along gender, political and economic lines (Mrino and Ribot 2012 cited in Huyun and Ressoreccion 2013). The results of a relevant study from Central Vietnam affirms the importance of considering women's differences such as their class, status, age and stage of life, and who heads their household for development and government programming, in particular relation to climate change (Huyun and Ressoreccion 2013).

4.1.2 Right to land

These women's right to land is an important feature of their security and level of vulnerability. The World Bank researchers emphasise this as a means to women's economic empowerment and the ability to more equally participate in decision-making (Zakout 2016), making them thus less vulnerable to risks. All land in Vietnam is administered by the state on the population's behalf, and while the 2013 constitution recognises land use rights for all, males remain the main beneficiaries of this right (Alvarado et al 2015 p.8). Citizens have lease arrangements with the government in the form of a land use certificate (LUC). Prior to 2003 these were only awarded to male 'heads of households' (Zakout 2016). When even land ownership skipped a widow and her son became the 'head of the household' and LCU holder this should be seen as a glaring and contradictory remnant in modern times of Confucianism's Three Submissions (*Tam tong*) whereby a daughter obeys her father, a wife obeys her husband and a widow obeys her son (Trinh T. Minh-Ha 1992 p.8 cited in Rydström 2010 p.171). Due to this it is clear that the high rate of joint titles amongst the women interviewees should not be confused with any declamatory communist ideals of female-male equality, but rather a recent alteration to the status quo which saw international development efforts to have women join their husbands on LUCs since their right to do so was finally legislated (see Alvarado et al 2015; and Zakout 2016).

That 79% of group interview participants legally hold the right to their land is a major strength for them. Thus it is a feature of the current system map that is foundational for the strength of the women shown by the two-way arrow between the women and their land/farms. That many women in Vietnam now co-sign LUCs or have become the legal sole lessee over their land dramatically improves women's decision-making power, with mutual decision making higher amongst households with a joint-title (90%) as compared to household with a single title (64%) (Zakout 2016). Marriage and land rights are linked amongst this sample,

given that, of the group that are married and grow on non-rented land, there is only one women whose husband solely holds the LUC and she is a successful farmer-breeder that farms (with her husband) the largest land area of the 70 women interviewed: 310 hectares. This majority of wives co-leasing land with their husbands should be considered a manifestation of rights being exercised and vulnerability lessened, and thus is one of the strengths of the current system.

4.1.3 Land size

The average size of land holdings in the Mekong Delta is larger compared to Northern Vietnam, where rice cultivation is predominantly upland and rain-fed. In the Delta provinces, a farm size averages between 2-3 hectares (equivalent to 20,000-30,000 m²) (Gallina and Farnworth 2018 p15). Table 8 shows the variation in ranges and averages land area farmed by the interview participants. We can see that the areas cultivated by the women vary across a huge range, but with many below the average of the Delta; it is to the credit of the seed clubs that smaller scale farming households are the members. This is shown in the system map (Figure 4) as the arrow directly to the farm subsystem from the seed club subsystem.

Table 8 – Range of land area and average land under rice cultivation

Site	Land area range (m ²)	Average land holdings (m ²)
Site 1	2000-7000	4666.7
Site 2	1000-30,000	8700
Site 3	1500-36,000	11,227.3
Site 4	10,000-120,000	52,333.3
Site 5	0-34,000	18,200
Site 6	5000-56,000	26,500
Site 7	5000-46,000	19,600
Site 9	3000-20,000	9000
Site 10	5000-50,000	14,333.3
Site 11	5000-310,000	56,714.3

4.1.4 Women's roles

The results of this study show that most women are part of making important agricultural decision on their farms, and play large roles in both labour and management of their farms. Gallina and Farnwork (2018 p.12) point out that while there is some traditional, typically gender sequential labour roles in rice cultivation in the Mekong Delta, these roles are no longer rigid. These authors' findings (ibid) align with my own here that women's work

on their farms ranges from field sanitizing, through production and post-harvest processing, to utilization and sales: the whole process of rice farming. Furthermore, the data in this thesis fills a gap in knowledge about the gendered elements of the decision made by a household regarding what variety of rice to plant each season. My research brings new light to this area and we now know that 70% of the women interviewed here participated with their husbands in the decision to grow a particular variety in 2017. Additionally, 14% of women interviewed made these decisions alone each season over the same time period, and just 7% of the varietal decisions for 2017 were made solely by men. Thus it is strongly acknowledged here that women are contributing to important decisions on their farms, and this is another strength of the current system, one that can be built on for system improvements for PPB/FFS.

However, the important contributions made by women in the Delta region are direly overlooked and, despite their obvious contributions and the research proving this, rice farming is widely held to be a male domain (Gallina and Farnworth 2018 p.13). Furthermore, the roles of these rural farming women were overtly denigrated by other women in power, who had the capacity to provide instead vital recognition. Thus the large dotted line of aggression from internalised sexism and power, as well as the external component of Confucian values that women are hard pressed to effectively overcome. This is a troubling issue within this current system. And my observations amongst extension staff, technicians and program employees of playing down women's role in agriculture are confirmed by an MDI published program research paper justifying the low rate of female attendees to FFSs (just 5.1%) stating "men are the main labour and make all the decisions related to production" (Nhan et al. 2015 p.395). Hence, in the system map (Figure 4) there is a dotted line, albeit a thin one, also from the MDI to the women in the system map. This downplaying or unfounded lack of recognition of women's contributions is clearly a systemic, structural discrimination problem that should be addressed, and would be transformational if it were. This error has ramifications not just for meeting program outcomes and targets, but more importantly it has negative consequences for women's empowerment and their ability to build capacity and agency at this critical point in time when their livelihoods are seriously threatened by climate change.

4.1.5 Participation and power

Participation in the MDI PPB/FFS programming, when it comes to women and indigenous involvement, appears to falling short of the ideals of participation in normative development theory and practice (Nelson and Wright 2000). There has been the creation of a vague meaning of "participation" at this local group level in rural Vietnam where the term "participate" was

used during the group interviews, but without the method that the large international funders would expect. My observations were that if a woman had come to one seed club activity she was said to be ‘participating’, if she was a farmer that went to as many seed club activities as she could, she was also a participant. This is a phenomena described by Nelson and Wright (2000 chapter 1) whereby people situated in different areas of operation or hierarchical level in an organisations have different ideologies around power, participation and then ultimately empowerment also. The ideological differences that have appeared through comparing the external evaluators’ reports (Berg 2015; Visser 2015) and the experiences expressed by the women interviewed should be reviewed by program co-ordinators and managers. The data shows that women’s experiences in the seed clubs and the limited level of programming they have access to are below standard in both theory and “best-practice”, as in the women’s own articulation of the problems in this current system; illustrated here without a direct link between the women and the seed clubs. Participatory plant breeding here, just based on the numbers of male to female breeders (approximately four hundred men to four women, Dr. H. Q. Tin, key informant interview 8.12.2017) can be said to not be open to the participation and genuine involvement of women. The relationship between the seed clubs and the women is weak yet feasible and desirable to be strengthened and this will be addressed in the next section of the analysis.

It cannot be overlooked, however, that PPB here is contributing to economic improvements in households, as is now well documented here. And the PPB program is obviously empowering male farmers across the Delta in large numbers. But reaching the women economically is not the same as empowering them with *both* knowledge and improved finances. Furthermore, the women want to be approaching the farms with more care for the surrounding environment. Figure 5 illustrates the current positioning of PPB, and the discord between this field and that of agroecology. The FAO (2018a) began its focus on “scaling-up” agroecology this year in an effort to not only involve more people around the world but also to be having more of an economic impact as well.

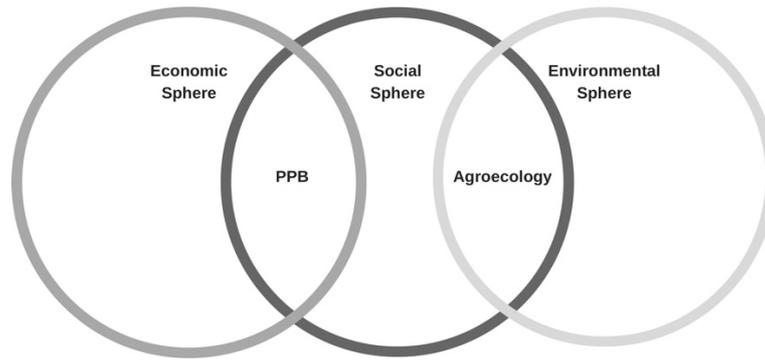


Figure 5 – The current state of foci for PPB and Agroecology

4.1.6 International NGOs

In recent years it has become an organisational-wide strategic change for Oxfam to be no longer carrying out projects “on-the-ground”, favouring instead to support small local networked civil society organisations to be doing their job for them (Oxfam 2012). How do foreign (international) NGOs, such as Oxfam and SEARICE, and their big funders, such as SIDA, ensure that progressive, widely held values of real empowerment and rights for women and indigenous people (for example) are being upheld by the local institutions they are partnering with and who are increasingly carrying out the projects? How do they ascertain and maintain a holistic gender mainstreaming approach and justify this to their funders, when in fact in this case the local organisation according to the head of MDI PPB programming has no capacity to do this. In a key informant interview responding to the women’s concerns discovered in the group interviews, Dr H. Q. Tin stated (8.12.17) that his capacity was limited to implementing techno-managerial fixes with a modernisation approach to development and change. He went on to say that SEARICE was concerned with gender but he does not have the resources to make that a priority. I do not propose the answers here, but this is why SEARICE and Oxfam sit outside the system boundary and in relation to the women, and thus have no direct influence.

4.1.7 Climate change

The women expressed a deep concern about climate change both in terms of adaptation and mitigation. And their concerns are justified not only given the dire situation globally (see IPCC 2018) but local dangers and local GHG contributions as well. They describe how they are currently in a battle with increasing pests, diseases and droughts, as well as heavier and more unpredictable rains, and unrelenting salinity problems. Vietnam is in the world’s top ten

of countries in the global climate risk index most vulnerable to climate change. Prior to signing and ratifying the Paris Agreement, Vietnam had a National Target Program to Respond to Climate Change of Vietnam yet Huyuh and Ressoreccion (2013 abstract) were highly critical terming it to be “blind to women”. It is hoped that the current NAP is better but we cannot expect that to be directly answering the women’s concerns; the changes can begin within this more localise problematical situation.

Climate change weakens the entire system and is urgent (desirable) that seed clubs address it in more holistic ways. The women showed an awareness that their farming was contributing to global climate change¹³ and they also stated determined motivation to reduce their farms’ GHGs. Data from 2014 (Huynh et al 2014 cited in Gallina and Farnworth 2018 p.10) show that in Vietnam, agriculture generally contributes 43.1% while paddy rice specifically contributes 24.8% of their total GHGs. While some had heard of agricultural technological packages available through government extension that addressed lowering inputs, still increasing yield, and simultaneously reducing GHGs there was only one group who had adopted one of these. This is another illustration of women having much lower comparative access to extension, and thus a decreased rate and ability to effectively employ mitigation management practises (Gallina and Farnworth 2018). There is an urgency to both increase the efficacy of design and delivery by better understanding women’s issues in the Mekong Delta in order to make sure that there is equitable benefits to both men and women in mitigation technologies (ibid p.8). Yet there is a gap in the knowledge on how to ensure this and what the gendered outcomes of a lower emissions agriculture in the region may be.

Along with this desire to mitigate was a necessity to adapt to the sudden increase in dangerous and often unpredictable effects of climate change locally. PPB gives the farms the potential to adapt on an extremely important level, yet through not mainstreaming gender and being explicitly inclusive of and a comfortable learning environment for women, the programming is extremely gender biased. The terms of all farmers are not being taken into consideration when women were vocal about the ways they wanted to improve on their farms in the face of climate change. The difficulty of supporting farmers to adapt in ways that are

¹³ Their awareness of the more macro-level global climatic changes and effects, as well as what they understand could happen if they took sudden and effective measure to mitigate should be the objective of more research. This is because I had concerns during the interviews that there was some level of mis-information or simplifying the processes to the women when at each interview the contact woman spoke of the “ozone layer being pierced”. (See Morgan Scoville-Simonds on *The anti-politics of adaptation* regarding development project rhetoric around climate change.)

meaningful is fully acknowledged; the feasibility is questionable but in this situation the difficulties must be overridden because what is at state is too valuable. Currently, from the point of view of the interviewees and the way this system is mapped, women are being directly and dramatically affected by climate change, which lies outside of their system's boundary and is over-burdensome. Having effectively no agency over it, yet desiring this hugely problematic situation to change means a concerted effort is required on a program level, nationally and internationally if there is to be any transformation in this system component.

4.1.9 Farming sub-systems at risk

The result of all this is that individual farms are at risk. The farms of these women are shown as vulnerable in this current systems map above by the farm sub-system having a light grey circle around it as opposed to a robust, black outline. Thus this is a sub-system within the women's system mapped here that is critical to support from their perspectives. The lack of technical support, and program recognition to these women who actually provide approximately half the labour on average in rice cultivation in the delta region (Gallina and Farnworth 2018 p.15) and co-decide such import issues as which variety to cultivate is compounding the vulnerability of the whole system. Female individuals are not empowered to manage their farms to their fullest capacity. One of the most common requests for more access to within the seed clubs was technical support. And many emphasised not only improved farming techniques but also practices that improve their farm systems sustainability both for the environment within and around it, such as their waterways, and their soils. In fact, improving their soil was seen to be critical at numerous sites: thus so is support to give them the effective tools to undertake this.

There is progress and precedents of PPB focusing on organics but this is not widespread yet in PPB in developing countries. In one case in Europe, the crop is durum wheat where organic farmers and breeding technicians are working together for improved grain characteristics in the very specific farming conditions of organic cultivation (see Chiffolleu and Desclaux 2011). Low fertilizer usage was high on the trait preferences list for women, but perhaps there is the potential instead to be breeding towards organics whereby they can be less concerned about fertilizers' origins, and apply traditional methods and be supported to learn improved precision methods in organics.

4.2: The system redesigned; transformative agroecology

The *desirable* and *feasible* changes are essential to identify according to systems thinking's soft systems methodology (Checkland and Poulter 2006 pp.9-13) where the redesign of a system cannot exceed capacity if success is expected. These desirable and feasible changes are identified amongst the following areas in this discussion. They are the entry points for improvements towards transformation, and can all be seen in the second, redesigned systems map (Figure 6), the systematic pathway towards transformative agroecology for the women of the Mekong Delta and their food and farming system according to this thesis.

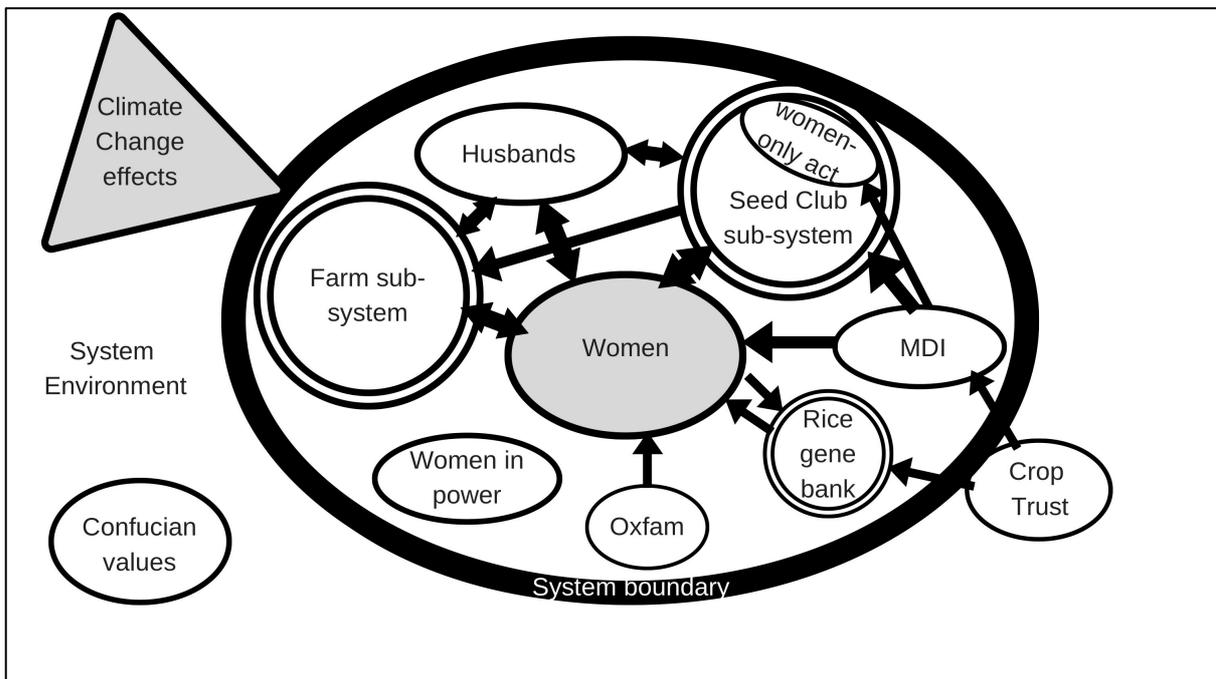


Figure 6 – The transformed systems map of PPB in the Mekong Delta.

This system shows transformational agroecological interventions with women now at the centre and resultant redistributions in power, improved relationships, less external pressures and more mutual support within the system, and explicit support for women to reach parity. Again, one way arrows mean basically one-way support, two-way arrows mean mutual support, and no arrow means no directed strong positive or negative relationship or no support and influence.

4.2.1 Khmer indigenous people of the Mekong Delta

In gender and feminist studies, and in agroecology as well, the rights of indigenous people are ideally upheld and their inclusion and recognition in programming is best-practice (La Via Campesina 2017; FAO 2018a; Eade and Williams 1995). Both SEARICE and Oxfam *desire* the inclusion of indigenous people in their general programming (Eade and Williams 1995; SEARICE 2008; SEARICE 2011a; SEARICE 2011b), and specifically in the Mekong Delta through the MDI programming. And according to the MDI's external reports and the organisation's publications, the Khmer people are already involved (Berg 2016; SEARICE

2009). However, of all the seed clubs where we interviewed, none of the women were indigenous Khmer, and none of the seed club members at large were Khmer. This Viet dominance prevailed even at three sites in communities with significant Khmer populations (Sites 2, 3 and 5).

As part of SEARICE's Gender and Social Analysis study, recommendations made were clear about increasing Khmer participation in seed clubs. But there are no Khmer farmer-breeders either of the approximate 400 other male farmer-breeders (Dr. Tin, key informant interview, 8.12.17). While there are many seed clubs across the Mekong Delta, and I conducted interviews at just ten of these, there is my study gives reason to believe that increasing Khmer participation has not been achieved. Indigenous Khmer participation is both a desirable and utterly feasible adjustment that is still as urgent as it was back in 2011 (SEARICE 2011a) to this highly praised participatory plant breeding program. The Khmer are some of the most marginalised people of the Mekong Delta and although rice farmers themselves, they have the lowest access to extension and agricultural development programming (Gallina and Farnworth 2018 p.15). That the MDI, SEARICE and Oxfam Novib (SD=HS) are not making concerted efforts to lessen this pressure on these indigenous farmers is a critical problem that needs real action, not a quick tokenistic fix for the statistics of the programming.

4.2.2 Landless women and renters

Seed clubs can feasibly be charged with directly offering support in the form of a relatively high level of access (information and invitations) to training and extension through the seed clubs to women without land and without LUC's, that is to say: renters. It is indeed of importance to maximise efforts towards empowerment and inclusion for more marginalised members of society, and finding the realistically feasible changes that can be made to a system in order to improve it is essential to this analysis. It is these landless people and renters that are more likely to be forced to migrate out of rice farming into uncertainty of urban migration for work (Gallina and Farnworth 2018).

Including labourers in seed clubs workshops and trainings was important for the one participant who was landless and worked another's farm. Women farm labourers are especially vulnerable to agricultural technology moving forward and either putting them out of a job via mechanisation, or making their skills outdated and therefore less desirable in Vietnam (Gallina and Farnworth 2018) and around the world (Osorio and Gallina 2018). Keeping this landless participant, and others like her, updated with techniques and technology

is essential to the livelihoods of the women in the Mekong Delta. The practice of informing seed club member’s on-farm staff of a seed club activity that could benefit them is feasible to be encouraged.

The 21% of those either renting or landless, however, should not be ignored because of this high level of land rights amongst this sample. While the few young adults under 25 years that were interviewed should expect to be holders of LUC’s in time, given that their parents currently hold them, there were women interviewed who do not own any land at all, not even with their husbands, and these are the women are most at risk. These renters were scattered through various sites. There was one women who rented her land at six different sites across the delta. Without a clear understanding of how membership or inclusion in seed clubs occurs for some men and for fewer women, but not for others in these communities, it is important to note that, while none of the women whose households rented land only were explicit members themselves, their husbands were. Seed club membership is at least not exclusively open to land lessees.

4.2.3 ‘Participation’ and membership in the seed clubs

Given the significant blind spot Vietnamese society has in giving rural women the recognition they deserve, and the ramifications this has for women’s access to extension, it first needs to be noted that women of the seed clubs we visited make up just one tenth of total seed club membership. (Table 9 shows the number of women members at each seed clubs visited, not the number of members that were interviewees). Next, this number needs to be changed: it is both feasible and desirable. Seed clubs could feasibly be encouraged to follow the case of land use certificates and shift from only being held by one head of household, usually male, to being held by the couple, and by female heads of households. The latter group, female heads of households, are particularly more economically vulnerable. Ensuring widows are the official members of the seed clubs should be a priority, and the widows in my research that were not the named members wanted to be, but their deceased husbands’ names were in some cases still on the seed club lists.

Table 9 – Women as a percentage of total seed club members at the interview sites’ seed clubs.

Site	Total Seed Club members	Women members	Percentage of women members
Site 1	20	3	15%
Site 2	32	0	0%
Site 3	13	0	0%
Site 4	16	0	0%
Site 5	39	1	2.6%

Site 6	20	0	0%
Site 7	18	1	5.6%
Site 9	30	11	36.7%
Site 10	15	4	26.7%
Site 11	12	1	8.3%
Total percentage of women members, of the 9 seed clubs:			9.7%

It is well recognised by development specialists that there is often a problem of higher status groups monopolizing the participatory processes, and that it is rarely addressed by development practitioners (Eyben and Ladbury 2000 p. 195). The lack of women participating in programming is a central feature and dominant blind spot in the system map of the current problematical situation (Figure 4) that needs to be addressed. It is desirable that MDI and the seed clubs, together with their collaborative partners come together to workshop a shared understanding of empowerment and participation for women and indigenous people in the seed clubs. Participation is associated with empowerment which in turn relates to people having the power to reach their potential (Nelson and Wright 2000 p.7). Putting policies in place that can result in transformational changes to programming in terms of a shift in power for Viet males and opening the area for parity with rural women in the seed clubs can only improve the whole system. It should be feasible also, due to the weight given by Oxfam¹⁴ in their international development work to women’s empowerment (Eade and Williams 1995) that such a change is within their capacity to undertake.

4.2.4 Trait preferences

It’s important that breeders are aware of the trait preferences of people expecting to uptake new varieties in breeding programs. Christinck et al. (2017) state that “gender differentiation should be expected in trait preferences in plant breeding” and their study looks at men’s and women’s preferences *across* different crops. Programmers at both SEARICE and MDI stated that the trait preferences of the women had never before been surveyed in the Mekong Delta (Dr. H. Q. Tin, personal communication 4.11.2017; N. H. Cuc, personal communication 4.11.2017; N. Ignacio, personal communication 3.11.2017). This thesis found that the women actually had a range of traits in mind when considering their varietal decisions that covered both production and post-harvesting categories, as defined by Christinck et al. (2017).

¹⁴ Oxfam only because SEARICE has advised they will not be continuing with this MDI PPB/FFS programming, see Appendix 8.

These authors' survey of the literature highlights a number of traits across the world which were preferred by women over men, and vice versa (Christinck et al. 2017 pp.14-16) which will be compared here. In general, men and women both focused on a range of production related traits, however prominence of post-production traits, such as food and fuel (ibid), differed between marketing preferences for men and use preference for women. In the Mekong Delta group interviews here, 63 of 70 women mentioned marketability in total (they themselves split marketability into both local/regional and national or export, as per Chart 6 in the "Results" section), and 50 women stated high yield as a priority; these were the two highest production and post-harvest traits stated by the interviewees. Both these traits, according to the Christinck et al (2017 p.16) review, were more often mentioned or consistently ranked higher by men than women.

In other words, women in the Mekong Delta possible have various other preferences that are exactly the same as the men's in the PPB program, and yet also have the right to a few that might be women-only. In any case, "men and women do not need separate varieties, but varieties that contain preferred traits for both genders" (ibid p5). Gender sensitivities can only improve breeding programs and even improve understanding of agriculture and food systems, and researchers and technicians are reminded to not work with unproven assumptions about gender-differentiated traits Christinck et al. (ibid p.26). Thus in this systems map of transformative agroecology (Figure 6) the women's trait preferences are both understood and taken into consideration in the PPB approach by farmer-breeder, breeders from institutes, and other technicians of the program and the extension offices. This way their range of preferences also has the chance to come into its own and potentially become more nuanced once their needs begin to be met by breeding. For example, their concerns of less fertilizer, mentioned by fourteen of the women, could become a breeding priority and even a luxury if the soils begin to improve after the concerted effort women desired in the interviews.

Christinck et al. (2017) conclude that to "address gender-differentiated trait preferences...actually requires sound methodology and gender inclusive participation structure when planning for crop development programs at various levels—internationally, regionally, nationally and locally" (2017 p 6). Thus there is a desire for direct contact from Oxfam to facilitate the understanding and respect of women's needs and preferences here within the MDI and the extension networks, which include women in positions of power exercising lateral sexism and lateral oppression. There is also an opportunity for Crop Trust, a newer player in the Mekong Delta rice breeding scene, to also support a power shift and heightened inclusion of women in other ways. Perhaps direct support for the gene bank could

eventuate, the women contributing to and having access to the germplasm stored within it. This could constitute an increase knowledge amongst the women there of the global imperative to consider biodiversity in our farm and food systems for the future. Despite crop biodiversity being the main objective of the support for seed clubs through the MDI, SD=HS have only been successful at presenting this importance to the world and not to the women farmers in the Mekong Delta,

They may not all want to undertake PPB themselves, but many interviewees mentioned wanting to *understand* it as well as conduct trials on their land, and to be involved other PVE and PVS activities. To ensure support for women of the delta to have access to the knowledge about how breeding actually works would result in real involvement in varietal selection and varietal enhancement that is truly *participatory*. The women’s shared observations and PVE and PVS involvement *with* the seed clubs, not just practicing general production tasks at home as taught to them by their parents, can only enhance breeding of varieties for *all* farmers in the delta so it should be part of the host of solutions to adopting systemic change. These women’s depth of concern for the current environmental crisis which effects them on an economic as well as on a compassionate level could come to inform PPB priorities and then have tremendous flow-on effect for the health of the ecosystem and local climate change mitigation. Thus PPB becomes more agroecological at once with a higher level of social equality and the associate concern for addressing both micro and macro environmental woes.

The priorities within and recognition between both fields change the relationship between their domains, with the transformative agroecology approach to this system change.

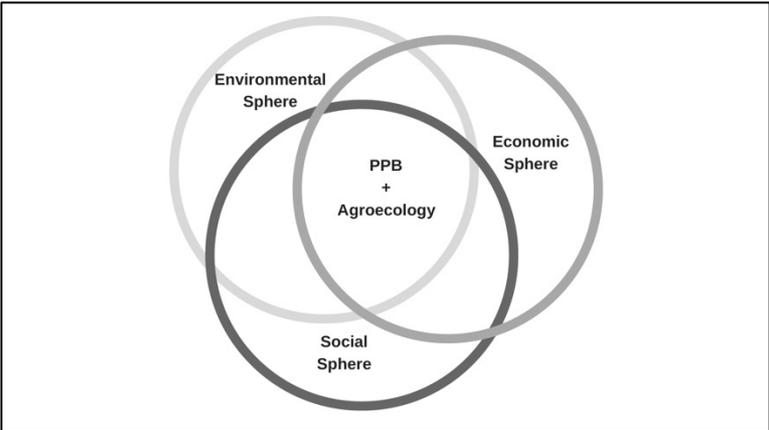


Figure 7 – Transformative agroecology as employed in the Mekong Delta enhances PPB

What changes is the degree of overlap among the three spheres, as shown in Figure 7, and this type of modification could be included as policy in the MDI; gender sensitivity work concerns can inform greater involvement of women, and thus impart the importance of the more

nanced meaning of participation to seed clubs. Successfully changing to where participation meaningfully involves a more representative cross-section of farmers, especially women, could directly contribute to empowerment and thus a shift in Viet male power that potentially benefits everyone.

4.2.5 Gender sensitivities

Women's only activities appears from the data to be an essential step opening programming up to more women. While official policy cannot discriminate against women and bar them from participation, the widespread structural discrimination does affect their ability to join the seed clubs. As firmly recommended in 2011 (SEARICE 2011a) with their *Gender and Social Inclusion Report*, including women and Khmer minorities in PPB and FFS is critical. SEARICE attempted to put into both policy and practice the yet how this not translate out to the seed club level needs to be assessed systematically and addressed as such as well. One way to attempt deconstruction of these barriers to women and more marginalised farmers like the Khmer and landless women labourers recommend in the report was that of comprehensive gender training for the seed clubs. See in the current systems map (figure 4) above that while, yes, there is of course a mutual relationship between husbands and wives, there is, as described by the women, a lack of recognition by the men of when it comes to work loads and household duties, and the women would like this to shift. Coming to a shared understanding of how, for example, the time of day for activities matters to the women and the women only activities is not discriminatory but rather a chance for women feel they have arrived to the point in farm technical knowledge of their husbands in order to join them. It must be remembered here that these men have had many years of direct, regular access to training and workshops through the seed clubs via MDI and extension officers and are perceived by the women to be more advanced in their technical farming knowledge. Therefore attending activities is intimidating to women, as they stated. Through such gender trainings empathy can be built for women's heavier burdens and lack of access and recognition for all the household work that they do as well as the unrecognised farm work too.

That extension officers, including female ones, dismissed gender sensitive approaches show an organisation failing as well which could also perhaps benefit from gender training. As pointed out by Gallina and Farnworth (2018) women are not given credit in the form of access to extension and training for the little under 50% of farm work that they do on average in the Delta, not to mention the documented increased farm labour and farm management (up to 70%) undertaken by women whose husbands have migrated out for work. Gender training

could address this institutionalised discrimination among government technicians and extension workers

With the transformation mapped out in the system above (figure 5), the women offered women only activities in the seed clubs. While the women in the interviews only discussed needing better more gender sensitive access to technical training and workshops, there is also a case for there to be women only FFS. FFS can be target to women, at the right time of day for them and can create a safe environment for learning. FFS is aimed to be a peer learning space with good facilitation. One of the originators of FFS and IPM, Peter Kenmore (see Kenmore 1981), stated that by offering women the chance of regular women only FFS there is the opportunity for enhancement of knowledge not just for participants but for that whole farming community. He refers specifically to the fact that women only FFS are usually held at a different part of the day to men's or 'open' FFS due to the recognition of the women's other important tasks. A different time of day, he says, means that there would be a different insect pest profile and a different plant physiological phase to be explored heuristically. (Peter Kenmore, personal communication, 4.4.18). As the women on the coast said during their interviews, they are overwhelmed with the amount and new make-up of pests and diseases afflicting their farms just in recent years. This new systems map show that with a systemic approach to all the issues within the problematical situation outline above a shift of power and participation can move the delta's farmers towards gender parity. And it is hoped there can be an easing of Confucian Values as an external pressure once recognition has been recontested, and that with higher women's access to programming and seed club activities there can also be a lateral recognition and respect from the women in the government system who were so openly misogynistic in the current system.

4.2.6 Climate change and the farming sub-systems

Gallina and Farnworth (2018 p8) outline "mitigation-co-benefits" that both improve agricultural production and profits and reduce the fam-level GHG emissions. One of these technology packages, the agricultural ministry's 1-Must 5-Reductions (1M5R) was recently altered to add GHGs as one more reduction and it became the 1M6R (Joe Rudek, Vietnam Low Carbon Rice Project, personal communication, 15.11.18). The Vietnam Low Carbon Rice Project altered the 1M5R and applied the technology package to 10 production groups with the assistance of the VWU to specifically target women farmers (ibid). Results are preliminary, but these steps in the system indicate that there is an adaptive capacity for the food system of the Mekong Delta to begin to tap into women's contribution potential to GHG

emissions reductions and other details for seed selection and adoption, especially in light of the MDI (although not the PPB FFS programming) actually being one of the implementing organisations. This action on climate change mitigation and adaptation, and lower-impact farming methods being not only relevant to but also essential for women farmers should be shifted into other programming. Since the Director of the MDI states he take a systems theory approach to development I believe this is possible.¹⁵ Adaptation and climate change must not simply be techn-omanagerial fixes but must be transformative for stakeholders on social and politica levels as well (Eriksen et al 2015 chapter 1). In the transformed systems map, the women's concerns have been heard, and their capacities build on the foundation of their conviction and knowledge of the troubles of the current problematical situation. In other words they are less marginalised and have more capacity for agency; they are at the centre of redesigned systems map (figure 6). And the flow on effect of this is that the farming sub-systems have been strengthened and made more resilient, supported by transformational agroecological approach to PPB and FFS in the Mekong Delta.

¹⁵ He and the other stakeholders will soon receive a report on key findings and recommendations based on this thesis.

Chapter V. Conclusion

The women interviewed as part of this research were not only active decision makers and active workers on their farms, but they also expressed what could possibly be a relatively unique perspective on recognizing, promoting and improving ecosystem services and functions in their local areas. This thesis has attempted to fill or at least contribute to various knowledge gaps through the collection and analysis of a huge array of data from the complex food and farming system of the Mekong Delta. I have here also attempted to make a case for the collaboration between agroecology and PPB as a means to improve both fields. This collaboration could be the means to scale-up agroecology and to make PPB more systemic and transformative in terms of sustainability for such marginal small-scale farmers that are however part of one of the most important food systems in the world, the Mekong Delta.

In relation to the gaps in knowledge about Vietnamese women's access to agricultural technologies and extension in the case of PPB in particular, their participation and involvement rate is low despite the huge roles they play on their farms. Beyond this I have documented results of their view on this exclusion; their level satisfaction at this not-ideal situation is low, and they are literally asking for change, and suggesting practical ways they can see this improving moving forward.

The deficit in the research area of the Mekong Delta's female rice farmers' on-farm contributions and decision-making, has been addressed here too. They are not all passive when it comes to what rice to be growing, allowing others to make the decisions, but rather this data proves their contribution to varietal decision making is shared with their husbands. Deciding what rice to grow is clearly not just a male domain, it is more often a decision shared. And when widowed is it a decision made not just by sons, but also by the more experienced farmers of the households, the new sole farm manager; a point overlooked by programming generalisations that have tended to exclude. Furthermore, some of these women's priorities for farming into an uncertain future have been documented, an important contribution to the human side of farming management in a climate changed world. Additionally, the Mekong Delta's women farmers' trait preferences are here collated for the first time and can now be taken on board as legitimate breeding priorities, and essential to the improvement and relevance of the MDI PPB work to female farmers.

Finally, the linkages of PPB and agroecology need to be strengthened for benefit of both fields' and their proponents and practitioners. This union is one where by agroecologists include PPB as the preferred farmer to scientist model for plant breeding for sustainable

agriculture. And also incorporates an agroecological ideal whereby PPB embraces not just social sciences (as it has already done to some extent, yet this is lacking in the Mekong Delta) but also the aim of mitigating climate change and mitigating local environmental issues and concerns of farmers. While the women interviewed here receive benefits from their husbands participating in the seed clubs, there is more to their lives than just economic improvements gained indirectly from the MDI seed clubs. It is suggested in this thesis that these rural women's empowerment and realisation of their wider aspirations for environmental and agroecological improvements on their farms and with regards to social justice could come about with a realised place for women in the seed clubs. For women to be able to access the seed clubs' activities on the terms they have expressed here, power relations need shifting and recognition of women's needs and busy schedules needs to be incorporated into activity planning. Their instructions for their participation and involvement importantly begins at first with women-only activities at their preferred time of day, and will lead to the confidence in more women to be in a mix-gender activity where they can hold their own in knowledge of rice cultivation and breeding, enhancement and selection techniques. This could be transformational. And when their ideas go beyond mere verbal expression, with the support of technicians and their husbands, into reality this will finally be transformational agroecology. Whereby we can see changes in the Mekong Delta in environmental and social spheres, not just in the economic sphere as we have seen with MDI's PPB in recent years.

Incorporation of agroecological principles into such participatory and farmer-to-farmer projects is suggested here to be an effective systematic pathway to increase women's participation in seed clubs, in PPB and in FFS in the Mekong Delta in order to build diverse farmers' capacity to improve starting at the grass-roots level of gender sensitive programming. With the reality of climate change already radically affecting small scale farmers in certain areas, PPB undertaken with a primary focus on location specific crop selection is essential, but introducing an agroecological perspective brings in attention to highly important social, economic and the environmental dimensions of farmers' lives and how these impact decision making. This broader approach and understanding could better empower currently under-represented and vitally important players, including women and ethnic minorities, thus promoting their inclusion and ideas in decision making and situate them to be less vulnerable as members of the whole community. We must recognize that these are difficult cultural changes, but in the long term everyone should benefit.

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Appendices

Appendix 1 – List of Interviews

Date	Interviewee(s)
08.11.17	Six women, Site 1., Kien Trung Seed Club, Hau Giang Province
08.11.17	Female staff of Long Phu Seed Station, unstructured interview, Soc Trang Province
09.11.17	Five women, Site 2., Lang Giai Seed Club, Bac Lieu Province
09.11.17	Female staff of Bac Liu Seed Centre, unstructured interview, Bac Liu Province
10.11.17	Ten women, Site 3., Lang Tron - Gia Rai Seed Club, Bac Lieu Province
13.11.17	Six women, Site 4., My Lam Seed Club, Ken Giang Province
14.11.17	Five women, Site 5., Vinh Trach Seed Club, An Giang Province
14.11.17	Twelve women, Site 6., Nui Voi, An Giang Province
15.11.17	Five women, Site 7., Thanh My Tay seed club, An Giang Province
16.11.17	Manager, two female staff, and district-level extension Officers, unstructured interview, Din An Seed Co-operative, Site 8., Dong Thap Province
17.11.17	Seven women, Hau My Trinh Seed Club, Site 9., Tien Giang Province
23.11.17	Ten women, Site 10., Long Ho Seed Club, Vinh Long Province
23.11.17	Key informant - Woman “not allowed to participate in interview”, Long Ho Seed Club.
24.11.17	Seven women, Site 11., Thanh My Seed Club, Tra Vinh Province
24.11.17	Leader at Thanh My Seed Club, Tra Vinh Province, unstructured interview.
25.11.17	Mr. Chau, Farmer breeder and leader of Thanh My Seed Club, Tra Vinh Province
25.11.17	Ms. Trang, Farmer-breeder, Thanh My Seed Club, Tra Vinh Province
06.12.17	Call-backs to [some] group interviewees
06.12.17	Farmer-breeder woman, semi-structured phone interview, from Kien Trung Seed Club
07.12.17	Call-backs to [some] group interviewees
07.12.17	Dr. Vo Tong Xuan, semi-structured phone interview
08.12.17	Director of MDI, semi-structured interview on theories of change in development context of the whole MDI programming.
08.12.17	Dr. H.Q. Tin, semi-structured interview on theories of change in development context of the PPB/FFS seed club programming.
15.11.18	N. Ignacio, Director of SEARICE, short questionnaire via email.
03.12.18	Anita Doha, Oxfam Novib, Netherlands, semi-structured skype interview.

Appendix 2 – Interview guide

BẢNG CÂU HỎI PHÒNG VẤN (QUESTIONNAIRE)

Natalie Keene

Tổ giống: Seed club:.....

Ngày: Date:.....

Ask about local ecologies, and about seed club membership amongst the group. Take notes.

PART 1: Các câu hỏi về kỹ thuật (khoảng 20-30 phút)

Technical questions Approx 20-30minutes

1.1 Làm sao chị đến được buổi họp này? Chờ nghe câu trả lời trước

How were you invited today? Listen, no leading question.

1.2 Ngoài lúa, chị có trồng cây nào khác không. Chị có chăn nuôi không? Chị có trồng nấm, nuôi tôm, cá ... không? Chờ nghe câu trả lời trước

What are the other plants and animals, mushroom/fish/shrimp etc you also have on your farm **FOR SALE**? Listen to their list, no leading questions.

STT No.	Cây trồng khác Plants	Chăn nuôi Animals	Trồng nấm Mushroom	Nuôi cá Fish	Nuôi tôm Shrimp	Khác Others

1.3 Lúa có phải là cây trồng chính của gia đình chị không?

Is rice your main **COMMERCIAL** crop?

1.3b Trang trại của bạn có bất kỳ thực vật hoặc động vật nào khác không?

Other crops/animals?

1.4 Chị trồng lúa ở đâu? Đất của gia đình chị hay đất thuê. Trả lời bằng cách giơ tay.

Where you farm/grow rice, who owns the land? Offer options/ask them to raise hands.

Tên Name	Chồng Husband	DT Area	Vợ Wife	DT Area	Cả hai Both	DT Area	Đất của cha mẹ Parents	DT Area	Đất thuê Rent	DT Area	Khác Other
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

PART 2.

2.1 Những đặc điểm nổi bật của giống lúa khi chị chọn để canh tác là gì? Chờ nghe câu trả lời trước

What are important traits / characteristics for you when choosing a type of rice to grow? No leading questions, we just listen for answers here.

SẢN XUẤT - Production	ND1	ND2	ND3	ND4	ND5	ND6	ND7	ND8	ND9	ND10
Kháng sâu bệnh Pest/disease resistance										
Không cần phân no fertilizer										
Ít tốn phân less fertilizer										
Chín sớm earliness										
Thu hoạch dễ harvest easily										
Năng suất cao high yield										
Chịu hạn drought tolerance										
Chịu mặn salt tolerance										
Cứng cây hard stalk										
Phẩm chất hạt - grain quality										
Làm theo hàng xóm - follow neighbour										
Khác other										

SAU THU HOẠCH VÀ CHẾ BIẾN - Post harvesting and processing										
Dễ suốt hạt - Easy to thresh										
Lưu trữ - storage										
Ít thất thoát trong quá trình thu hoạch – losses during processing										
Tiêu thụ ở địa phương - sell locally										
Tiêu thụ ở địa phương khác - sell far away										
Giá cao - high price										
Other										
SỬ DỤNG – USE										
An ninh lương thực - food for family										
Ngon cơm - smell, soft, good eating										
Thích hợp chế biến các loại thực phẩm khác - Suitable to make different kind of food										
Khác other										

2.2 Các hình thức canh tác tự nhiên hoặc truyền thống mà chị đã sử dụng. Nếu chưa sử dụng, chị có muốn sử dụng không? (Sử dụng các chất hữu cơ, các rơm, rạ, lúa thu hoạch còn sót, lúa chết). **Chờ nghe câu trả lời trước.**

What are some natural ways of farming that you use already / or want to start using? Organic matter, Crop residue, Regrowth? No leading questions, we just listen for answers here.

STT No.	Đã và đang sử dụng Already use (in what season?)						Muốn sử dụng trong thời gian tới Want to (in what season?)						
	OM	S	CR	S	Lúa chết	S	OM	S	CR	S	Lúa chết	S	
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													

Did before but not now? _____

Other info _____

—

2.3 Lúa sau khi thu hoạch xong, chị đã sử dụng như thế nào? Còn rơm, rạ, trấu thì sao? Trả lời bằng cách giơ tay.

What do you do with the rice that you currently grow the grains and the stalks and leaves?

2.3.1 Đối với rơm, trấu. Nếu trả lời cho rơm ghi R (Straw), nếu trấu ghi T (Husk)

Rice straw (R) / husk (T). No leading questions, we just listen for answers here.

STT /No.	Nấm Mushroom	Đốt Burn in paddy	Bán Sell	Bán làm gì Sell for?	Vùi phân Mix to soil/bury	Thức ăn cho gia súc nhà Feed for family animals	Phủ/Rả i trên mặt đất Mulch/ ground cover	Khác
1								
2								
3								
4								
5								
6								
7								
8								
9								

10								
----	--	--	--	--	--	--	--	--

2.3.2. Lúa, Gạo, Cơm, Các sản phẩm khác (Rice) . Giơ tay trả lời.

Rice grains? Raise hands.

STT /No.	Làm giống Seed for self	Chia sẻ giống Seed exchange	Bán giống Seed selling	Để ăn Food for family	Bán lúa hàng hoá Sell unhulled as food (ie with husk on)	Chế tạo các sản phẩm khác và bán - Selling food product	Thức ăn cho gia súc feed for animals	Khác/ Tôn giáo/ Rượu Other/Religion /Wine
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

2.4 Chị có ý định thay đổi gì trong việc canh tác trong năm tới không? Hay Chị có bị bắt phải thay đổi không?). Chờ nghe câu trả lời trước.

Do you want to / or do you have to make any changes on your farm over the next year? Listen for answers. No leading questions.

STT No.	Đổi giống Change variety		Giảm giống Reduce Seed amount		Giảm diện tích Reduce land area – rice		Tăng diện tích Increase		Chuyển sang cây màu Change Crops		Cải thiện đất Improve soil		Canh tác bền vững '6G' The '6 reductions'		Chịu hạn Drought tolerance		Chịu mặn Salinity tolerance		BĐKH Climate change		Khác
	Tự	Buộc	Tự	Buộc	Tự	Buộc	Tự	Buộc	Tự	Buộc	Tự	Buộc	Tự	Buộc	Tự	Buộc	Tự	Buộc			
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

3.3 Có những hoạt động nào chị muốn tham gia nhưng không thể không?
Chờ nghe câu trả lời trước. Is there something that you want to participate in that you cannot? Listen only.

STT No.	Có Yes	Không No	Cụ thể Specifically what?
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

3.4 Chồng chị có tham gia trong CLB không?
Does your husband participate in the seed clubs? Is he a member?

STT (No.)	Có (Yes)	Không (No)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

3.5 Chồng chị có tham gia các lớp tập huấn về giới không? Nếu có thì do CLB tập huấn hay tổ chức bên ngoài. Giơ tay trả lời.
Has your husband done any training on women's issues/gender through the (a)seed clubs or (b)through another organisation?

STT No.	Trong CLB – in seed club		Ngoài CLB – outside seed club		Khác- other
	Có (Yes)	Không (No)	Có (Yes)	Không (No)	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

3.6 Những lợi ích mà CLB giống mang lại cho gia đình chị là gì ? Chờ nghe câu trả lời trước.

What have been some benefits of the seed clubs to your family? Listen here, do not give options.

STT No.	Mua thêm đất (ha) Buy more land	Sửa nhà Repair house	Giáo dục Education	Trang thiết bị Equipment	Phương tiện VC Vehicle	Cải thiện CSỐn g Improve life	ANLT dinh dưỡng Food security	Khác Other
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

3.7 Những lợi ích mà CLB giống mang lại cho chị là gì? Chờ nghe câu trả lời trước

What have been some benefits to you personally? Listen here, do not give options. Take notes on comments they say

ST T No.	Uy tín Prestige	Địa vị xã hội Status in society	Vị trí trong gia đình Status in family	Tự tin Confidence	Công tác xã hội Join other groups	Liên kết xã hội Relationship with other groups	Kiến thức Knowledge	Khác and NOTES
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

3.8 Những khó khăn mà chị gặp phải khi tham gia CLB. Chờ nghe câu trả lời trước. Chủ yếu các thông tin về chương trình, các thành viên tham gia, các hoạt động, không hỏi các thông tin mà dự án không quản lý được.

What have been some problems with the seed clubs? (program, people, activities; not difficulties about external factors that program cannot control.)

STT No.	Mối quan hệ giữa các thành viên Problems betw. people	Thời gian tham gia Not enough time to participate	Không nhiều phụ nữ tham gia Not enough women	Khác Other
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

3.9 Trong tương lai, chị mong muốn thay đổi các hoạt động của CLB giống như thế nào? Chờ nghe câu trả lời trước. Sau đó có thể giờ tay.

What would you change about the seed clubs for you to participate more?

STT No.	Tập huấn kỹ thuật Technical training	Quản trị nông trại Farm management training	Marketing	Mối liên kết nhiều CLB Link with other seed clubs	Liên kết TTG Link with Seed Center	Chính sách hỗ trợ từ địa phương Local support	Sản xuất lúa sạch Organic rice	Chuyển đổi giống cây trồng Change/add crop	Khác Other
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

More comments:

Appendix 3 – Seed variety data

Seed varieties and seed origins on the women's farms: a longitudinal view

Part 2 of the questionnaire was filled out by the women themselves, individually. Part of this form specifically dealt with the rice varieties they currently grew on their farms, and varieties they had grown over the past 16 years (back to 2000) if they could remember. This data is useful to view longitudinally where the farmers interviewed had procured their rice; if it was through the seed club or from elsewhere. Later this data was analysed to show where all the rice varieties mentioned were originally developed/bred. There was a total of 64 varieties of lowland rice mentioned by the women as having been grown on their farms over the years up to 2000. Some women acknowledged they could not remember all the rice varieties, but that they were recoding most of them. It is also important to note that not all data was recorded for the group of 13 women at Site 6 since I was ill during the interview and had to fast-track through this survey to other questions considered more relevant at the time. For Site 6 we recorded not individuals' responses but just one list of what they all grew this year, and what they remember/what the seed club leader also remembers them growing over the previous 16 years. (See below for an example of a survey.)

Where the varieties were developed initially: 45 varieties were developed by institutions of the formal seed sector (including MDI). 17 varieties were farmer bred or selected.

The source of the seed rice: 27 varieties were sourced (purchased) from the formal seed system; and 49 varieties, some of the same as those that were also purchased from the formal supply chain, were purchased from the informal seed system.

This data has been provided to Dr. Tin/MDI to be utilised as program data and it is hoped that it can result in future publications on rice diversity.

Site 9

STT: 2 Ngày/Date: 17/11/17

1.5 Nguồn giống sử dụng lập một bảng thông tin sẵn và gửi từng người chọn
****Seed Source will have a list with big letters on one sheet of paper for them to choose from**

Gởi bảng cho nông dân tự ghi tên các giống lúa họ sử dụng, sau đó hướng dẫn họ đánh dấu vào các ô chọn lựa tương ứng

**on pieces of paper, one for each participant, they write list of rice names that they grow – then mark the relevant options*

Mùa vụ Season	Tên giống Variety	Trồng trước đây 2000-2016	Đang sử dụng 2017 WHEN	Nguồn giống (tên đơn vị cung cấp giống) Seed source	Giống lúa mùa Traditional	Giống lúa ngắn ngày Improved	Cả hai quyết định Both	Chồng quyết định Husband	Vợ quyết định Wife
ĐX	Jasmine	✓	✓	Seed club		✓	✓		
	502104	✓		4		✓	✓		
	H 29	✓		4		✓	✓		
	4900	✓		4		✓	✓		
	5451	✓		7		✓	✓		
	3536	✓		4		✓	✓		
XH	Long Hò		✓	4		✓	✓		
	502104	✓		4		✓	✓		
	Đai + Hò		✓	4		✓	✓		
HT	Đai + Hò		✓	4		✓	✓		
	Long Hò		✓	4		✓	✓		
	5451	✓		4		✓	✓		

A longitudinal variety form. Much of this data could be used for later publications. For this thesis, just variety diversity and who made the decision to cultivate was utilised.

*Excerpt of research by Natalie Keene into women's participation in Mekong Deltas seed clubs associated with MDI + SEARICE and Oxfams/SD=HS. Natalie Keene: natalie.keene@gmail.com / +4740055059

VARIETIES												
Site 1												
Informants	Season	Variety	2000-2016	2017	Traditional or Improved	Seed source	Variety developed/selected					
6 total	ĐX	OM4900	1		Improved	ToGiong Seed club	CLRRI					
		OM5457		1	Improved	ToGiong Seed club	CLRRI					
		RVT		5	Improved	ToGiong Seed club	north					
		OM1490	2	1	Improved	ToGiong Seed club	CLRRI					
		OM2395	4	1	Improved	ToGiong Seed club	CLRRI					
		IR50404	1		Improved	ToGiong Seed club	IRRI					
		OM5451		3	Improved	ToGiong Seed club	CLRRI					
		OM1900	1		Improved	ToGiong Seed club	CLRRI					
	HT	OM5457		1	Improved	ToGiong Seed club	CLRRI					
		OMCS2000	2		Improved	ToGiong Seed club	CLRRI					
		OM5451	2	5	Improved	ToGiong Seed club	CLRRI					
		IR50404	3	1	Improved	ToGiong Seed club	IRRI					
		OMCS20	2		Improved	ToGiong Seed club	CLRRI					
		RVT		1	Improved	ToGiong Seed club	north					
	TĐ	OM5451	1	5	Improved	ToGiong Seed club	CLRRI					
		RVT		2	Improved	ToGiong Seed club	north					
		OM2517	1		Improved	ToGiong Seed club	CLRRI					
		OMCS2000	3	1	Improved	ToGiong Seed club	CLRRI					
		DT8		1	Improved	ToGiong Seed club	Dong Thap Seed Centre					
		OM2395	3		Improved	ToGiong Seed club	CLRRI					
		IR50404	1		Improved	ToGiong Seed club	IRRI					
	Varieties	12	9	8		Formal 0	Institution bred 12					

Site 3	Informants	Season	Variety	2000-2016	2017	Traditional or Improved	Seed source	Variety developed/selected
	10	HT	OM2517	2		Improved	self / Seed Centre	CLRRI
			OM2517	5		Improved	Seed Centre	CLRRI
			OM5451			Improved	her own saved seed	CLRRI
			OM5451		2	Improved	Seed Centre	CLRRI
			OM5451		1	Improved	Dai Ly	CLRRI
			Ham Trau	7		Improved	self / Seed Centre	farmer selected
			Ham Trau	1		Improved	neighbour	farmer selected
			OM5451			Improved	her own saved seed	CLRRI
			OM1490			Improved	Seed club	CLRRI
			OM1490	2		Improved	her own saved seed	CLRRI
			IR50404			Improved	Seed Centre	IRRI
			GR11	1		Improved	Seed Centre	farmer-bred & released
			OM4900	3		Improved	Seed Centre	CLRRI
			Hon Dat 5	2		Improved	Seed Centre	farmer-bred & released
			RVT		2	Improved	Seed Centre	north
			U900	1	1	Improved	Seed Centre	?
			U218	1		Improved	Seed Centre	?
			Jasmine85	1		Improved	Seed Centre	IRRI
			OM4218	2		Improved	Seed Centre	CLRRI
			OM2717	1		Improved	Seed Centre	CLRRI
			OM5459		1	Improved	Seed Club	CLRRI
			GR9		1	Improved	Seed club	farmer-bred & released
		TH	OM5451		1	Improved	her own saved seed	CLRRI
			OM5451	1	2	Improved	Seed Centre	CLRRI
			GR11			Improved	Seed Centre	farmer-bred & released

	Ham Trau	2		Improved	Seed Centre	farmer selected
	OM2517	1		Improved	Seed Centre	CLRRI
	VND95-20	1		Improved	Seed Centre	IAS (HCMC)
	OM6976	1		Improved	Seed Centre	CLRRI
	Tai Nguyen	1		traditional	Seed Centre	local variety
	Ham Trau	1		Improved	Seed Centre	farmer selected
	HD1	1		Improved	Seed Centre	farmer-bred, released & Certified
	OM4900	1		Improved	Seed Centre	CLRRI
	RVT		1	Improved	Seed Centre	north
	OM1490	3		Improved	Seed Centre	CLRRI
	Nang Hoa		2	Improved	Seed Centre	seed co
	GR9		1	Improved	Seed Centre	farmer-bred & released
	GR9		1	Improved	her own saved seed	farmer-bred & released
ĐX	RVT	1	2	Improved	Seed Centre	north
	OM5451		2	Improved	Seed Centre	CLRRI
	OM1940		1	Improved	Seed Centre	CLRRI
	Ham Trau	1		Improved	Seed Centre	farmer selected
	OM2517	1		Improved	Seed Centre	CLRRI
	OM4900	1		Improved	Seed Centre	CLRRI
	Nang Hoa		2	Improved	Seed Club	seed company
	GR9		1	Improved	Seed Club	farmer-bred & released
Varieties	22	16	7		Formal 22	Institution 14
					Informal 7	Farmer bred/selected 6
						Unknown 2

Site 4	Informants	Season	Variety	2000-2016	2017	Traditional or Improved	Seed source	Variety developed/selected
	6	ĐX	Ham Trau OM4900	2 2	6	Improved Improved	My Lam Seed Club MY Lam & Nguyen Tinh Seed Club	farmer selected CLRRI
			OM6976	1		Improved	My Lam Seed Club	CLRRI
			OM81	2		Improved	her own saved seed	CLRRI
			OM81	1		Improved	parents	CLRRI
			OM2517	2		Improved	her own saved seed	CLRRI
			OM2517	1		Improved	parents	CLRRI
			HĐ1	1		Improved	Seed club	farmer-bred & released
			HĐ3	1		Improved	Seed club	farmer-bred & released
			HĐ29		1		Seed club	farmer-bred & released
		HT	Ham Trau OM4900	2 1		Improved Improved	Seed Club Seed Club	farmer selected CLRRI
			OM6976	1	5	Improved	Seed Club	CLRRI
			OM81	2		Improved	her own saved seed	CLRRI
			OM81	1		Improved	parents	CLRRI
			OM2512	1		Improved	her own saved seed	CLRRI
			OM2517	1		Improved	her own saved seed	CLRRI
			OM2517	1		Improved	parents	CLRRI
			HĐ29		1	Improved	Seed Club	farmer-bred & released
			HĐ20	1	1	Improved	Nguyen Tinh Seed Club	farmer-bred & released
		Varieties	10	9	3		Formal 0 Informal 10	Institution 5 Farmer bred/selected 5

Site 5:	Informants	Season	Variety	2000-2016	2017	Traditional or Improved	Seed source	Variety developed/selected
		ĐX	IR50404	3	4	Improved	Seed club	IRRI
			OMCS2000	1		Improved	Seed club	CLRRI
			OM1490	1		Improved	Seed club	CLRRI
			OM2514	1		Improved	Seed club	CLRRI
			OM6976	2	1	Improved	Seed club	CLRRI
			Nang Hoa 9		1	Improved	Seed club	seed company
		HT	IR50404	3	4	Improved	Seed Club	IRRI
			OM6976	2	1	Improved	Seed Club	CLRRI
		TĐ	OM5451		1	Improved	Seed Club	CLRRI
			IR50404	3	4	Improved	Seed Club	IRRI
			OM2517	1		Improved	Seed Club	CLRRI
			OM6976	1	1	Improved	Seed Club	CLRRI
		Varieties	8	6	4		Formal 0	Institution 8
							Informal 8	Farmer bred/selected 0
		Site 6: Thanh My Tay						
	Informants	Season	Variety	2000-2016	2017	Traditional or Improved	Seed source	Variety developed/selected
	12	HT	IR50404	x		Improved		IRRI
			OM6976	x	x	Improved		CLRRI
			OM4218	x				CLRRI

*Data not recorded
 Researcher sick
 13 women in
 group=
 too many.

Site 7:	Informants	Season	Variety	2000-2016	2017	Traditional or Improved	Seed source	Variety developed/selected
		HT	OM4218	4		Improved	Seed Club	CLRRI
			OM2517	3		Improved	Seed Club	CLRRI
			OM6976	1	3	Improved	Seed Club	CLRRI
			OM9582		2	Improved	Seed Club	CLRRI
		TĐ	OM9582		4	Improved	Seed Club	CLRRI
			OM6976		1	Improved	Seed Club	CLRRI
			OM2517	1		Improved	Seed Club	CLRRI
		ĐX	IR50404	1		Improved	Seed Club	IRRI
			OM6976		2	Improved	Seed Club	CLRRI
			MTL114		2	Improved	Seed Club	MDI
			OM4218	3		Improved	Seed Club	CLRRI
			OM2517	2		Improved	Seed Club	CLRRI
			OM9582		2	Improved	Seed Club	CLRRI
		Varieties	6	4	3		Formal 0	Institution 6
							Informal 6	Farmer bred/selected 0

Site 8

Not a seed club site, removed from data.

Informants	Season	Variety	2000-2016	2017	Traditional or Improved	Seed source	Variety developed/selected
7	ĐX	Jasmine	3	3	Improved	seed club	Maybe IRR
		IR50404	6	1	Improved	seed club/seed station	IRRI
		HĐ29	1		Improved	seed club	farmer-bred & released
		OM4900	3		Improved	seed club	CLRR
		OM5451	1		Improved	seed club	CLRR
		OM3536	3		Improved	seed club	CLRR
		HMT1	2		Improved	seed club	farmer-bred & released
		Jasmine 85		3	Improved	seed club	IRRI
		HMT1		1	Improved	seed club	farmer-bred & released
		HD1	1		Improved + CERTIFIED	seed club	farmer-bred & released
		Đai thom 8		1	Improved	seed club	HCMC seed co
	XH	LH8	1	3	Improved	seed club	farmer-bred & released
		IR50404	1	3	Improved	seed club/seed station	IRRI
		Đai thom 8		2	Improved	seed club	HCMC seed co
		OM3536	5		Improved	seed club	CLRR
		OM5451	2	1	Improved	seed club	CLRR
		HMT1	1	1	Improved	seed club	farmer-bred & released
		HD1	3		Improved	seed club	farmer-bred & released
		HMT9		1	Improved	seed club	farmer-bred & released

	HMT1	3		Improved	seed club	farmer-bred & released
	Jasmine		1	Improved	seed club	Maybe IRRI
HT	IR50404	5	3	Improved	seed club	IRRI
	HĐ29		1	Improved	seed club	farmer-bred & released
	OM5451	2	1	Improved	seed club	CLRR
	LH8		2	improved	seed club	farmer-bred & released
	Đai thom 8		3	Improved	seed club	HCMC seed co
	OM4900	2	1	Improved	seed club	CLRR
	HMT1		1	Improved	seed club	farmer-bred & released
	HD1	2		Improved + CERTIFIED	seed club	farmer-bred & released
	HMT1	2		Improved	seed club	farmer-bred & released
	Jasmine		1	Improved	seed club	Maybe IRRI
Varieties	12	9	10		Formal 0	Institution 7
					Informal 12	Farmer bred/selected 5

Site 10:	Informants	Season	Variety	2000-2016	2017	Traditional or Improved	Seed source	Variety developed/selected
	9	DX	Tai nguyen	2		traditional (mutant)	seed club	CLRRI
			Tai nguyen	2		traditional (mutant)	seed station	CLRRI
			Tai nguyen	2		traditional (mutant)	CLRRI	CLRRI
			Tai nguyen	3		traditional (mutant)	seed company	CLRRI
			OM2418	1		Improved	CLRRI	CLRRI
			OM6976	1	1	Improved	seed club	CLRRI
			OM6976	2		Improved	CLRRI	CLRRI
			OM6976	1		Improved	seed company	CLRRI
			OM5451		2	Improved	seed club	CLRRI
			OM5451	2		Improved	CLRRI	CLRRI
			OM5451		1	Improved	seed company	CLRRI
			LH8		1	Improved	Her own seed	farmer-bred & released
			LH8		6	Improved	seed club	farmer-bred & released
			OM3536	1		Improved	CLRRI	CLRRI
			OM3536	1		Improved	seed company	CLRRI
			OM1490	1		Improved	seed club	CLRRI
			OM1490	2		Improved	CLRRI	CLRRI
			OM6976	2	1	Improved	seed company	CLRRI
			OM6976	1		Improved	seed company	CLRRI
			OM5454	1	1	Improved	seed club	CLRRI

	OM5451		2	Improved	seed club	CLRRRI
	OM5451	2		Improved	CLRRRI	CLRRRI
	OM1490	1		Improved	seed club	CLRRRI
	OM6976	1		Improved	CLRRRI	CLRRRI
	Varieties	12	4		Formal 6	Institution 7
					Informal 11	Farmer bred/selected 5

Site 11:	Informants	Season	Variety	2000-2016	2017	Traditional or Improved	Seed source	Variety developed/selected
	9	HT	CL8	4	1	Improved	Seed Club / PVS	Ag college Tien Giang prov
			OM3536	3		Improved	Seed Club	CLRRI
			MTL149	2		Improved	Seed Club /PVS	MDI
			OM5451		2	Improved	seed Club	CLRRI
			ML202	3	2	Improved	seed Club	seed centre in Binh Thuan
			ML202		1	Improved	Seed Company	seed centre in Binh Thuan
			TM16	1	2	Improved	Seed Club	farmer-bred & released
			OMCS2000	1		Improved	PVS	CLRRI
			OM1490	2		Improved	PVS	CLRRI
			OM1490	1		Improved	Seed Company	CLRRI
			OM5451	1	2	Improved	PVS	CLRRI
			OM5451	1	1	Improved	CLRRI	CLRRI
			MTL605	1		Improved	Seed club	MDI
			MTL603	1		Improved	Seed Club	MDI
			OM6162		1	Improved	Seed Club	CLRRI
			OM4900	1		Improved	Seed Club	CLRRI
			Ham Trau	1		Improved	Seed Club	farmer selected
		TD	TM16	4	4	Improved	Seed Club	farmer-bred & released
			OM5451	1	1	Improved	seed Club	CLRRI
			OM5451	1	1	Improved	CLRRI	CLRRI
			OM4900	1		Improved	seed Club	CLRRI
			CL8	1	2	Improved	seed Club	Ag college in Tien Giang prov
			Sieu Ham Trau		1	Improved	seed Club	farmer selected

	ML202	1	1	1	Improved	Seed Club	seed centre Binh Thuan
	MTL232	2			Improved	MDI	MDI
	MTL105	1			Improved	MDI	MDI
	MTL103	1			Improved	MDI	MDI
	OM6162		1		Improved	Seed Club	CLRRI
	ST5	1			Improved	Seed Club	Seed Centre Soc Trang
DX	CL8	4	2	2	Improved	seed Club	Ag college in Tien Giang prov
	TM16	4	4	4	Improved	seed Club	farmer bred
	ML202	2	1	1	Improved	seed Club	seed centre binh t
	Sieu Ham Trau	3	4	4	Improved	seed Club	farmer selected
	MTL105	1			Improved	MDI	MDI
	MTL103	1			Improved	MDI	MDI
	OM1490	1			Improved	CLRRI	CLRRI
	OM6162		1	1	Improved	seed Club	CLRRI
	OMCS2000	1			Improved	seed Club	CLRRI
	OMCS2001	1			Improved	seed Club	CLRRI
	ST5	1	1	1	Improved	seed Club	Seed Centre Soc trang
	OM5451	1	1	1	Improved	CLRRI	CLRRI
	Varieties	19	18	6		Formal 7	Institution 17
						Informal 16	Farmer bred/selected 3

Variety Origins							
	Seed source			Variety developed/selected			
	Total varieties	Formal	Informal	Institution	Farmer bred/selected	Unknown	
Site 1	12	0	12	12	0		
site 2	15	5	1	14	1		
site 3	16	22	7	8	6	2	
site 4	10	0	10	5	5		
site 5	8	0	8	8	0		
site 6	6	N/A	N/A	6	0		
site 7	6	0	6	6	0		
site 8	N/A	N/A	N/A	N/A	N/A		
site 9	12	0	12	7	5		
site 10	12	6	11	7	5		
site 11	20	7	16	17	3		
Totals	64	27	49	45	17	2	
Total Varieties 2017							
	31						

Appendix 4 – Reflections, Challenges and Learnings

While of course my reflections and learning pathways and outcomes over the course of this thesis were multitudinous, each with different challenges or elations, or moments of clarity, I will here attempt to be brief, and cover just the biggest challenge I encountered. It is my intention here to also provide a short description of how aspects of this difficulty was overcome, but how I remain with question regarding ethics and ways forward. Ultimately, this experience will be carried into further work I do, and research, if any, that I conduct. It was a steep and upsetting learning curve that I will be wary of and work towards strongly mitigating in all of my future endeavours.

Initially I was particularly interested in the traits women preferred in their rice varieties and if the program's Participatory Rice Breeding (PRB) was meeting those needs. But after listening to women describe their local contexts, in answers to my questions, I learned that they wanted to be more involved in the PPB project and that they had ideas for how that participation could increase. As a result of the initial group interviews in the first villages, this became my more critical focus for research. In an echo of participation research and accepting the power of adaptive management of the work, my objective was narrowed and the principal research question became shaped by what the women wanted me to hear and what they wanted to change about their situation within the region wide complex farming and food systems. Not just the words of the women wanting to be more involved, but also the difficulties I experienced working alongside some people in particular forced my research focus to change.

The contact-woman, who held higher status than my translator and was therefore in charge of the questioning, would often stray from the interview guide and our preparatory discussions and ask questions in a leading way which meant that there was some data I just had to discard. Her questions were sometimes asked with a scrunched up nose, a shaking head and instead of a neutral, open question she would ask and quickly state, "You don't want to change anything about the seed club do you? No." At every site she asked about women's only activities also in this same manner, but the conviction with which some women would counter her preconceptions and potential judgements and answer an emphatic

“Yes!” lead me to conclude that not only could I include this data as valid but that this could come to form one of the main foundations of my thesis findings and recommendations. At the beginning of each interview, it was explained that everything the women said would be used only to inform *my* research for my masters thesis, but during the interviews the contact-women also took notes. She said at first that she would do this to assist me, but then refused to hand them over. During the interviews when I had occasion to, I would look at her interview guide and study her answers. I was mostly intent on following who was talking amongst the participants, their tones and body languages, and ensuring that my translator was staying up with proceedings. But often when I looked over, I noted discrepancies between my own and my translator’s counts/responses on certain questions, and that of the contact-woman’s. She then kept these incorrect and corrupted data, and her notes that she refused to give to me and it is my belief that she will inevitably publish papers that counter many of my arguments here, and continue to undermine these women as she did so blatantly often during our group interviews.

Even though I felt we were being manipulated and often had to fight attempts at being lead astray by the contact-woman, another aspect of this experience which gave me hope and cemented my motivation to continue, was the unwavering professionalism and honesty of my translator. We established a rapport on the first night when I had prepared a huge list of questions and things I wanted to tell her about me and why I was here. This went very well, then I met her small immediate family and she and I quickly became friends. She would note down the exact wording of the questions being asked by the contact-woman, knowing that I had provided clear guidance on the way the questions were to be asked and that the contact-women was straying from the ‘script’. This helped me to eliminate contaminated data ultimately, but immediately my translator became more invested in the project because of this; in sharing the exact words of the women we interviewed and explaining to me how and where the data was being manipulated.

These experiences of working with an extremely difficult person, one with a vested interest in challenging my findings was exhausting. Furthermore she was herself guilty of beliefs that often contradicted evidence-based best practices for PPB. I reflected a lot on ethics, my own and hers in particular and this was a huge motivation to try and encompass all the data we collected and not just hand pick the easiest section to analyse and make sterile conclusion about that would not affect the women’s lives at all.

Appendix 5 – Elaboration on non-seed club site

This appendix elaborates on the non-seed club site and the woman informant who may not have been a genuine farmer

Site 8, a site on my list of locations to visit and conduct a group interview with women, turned out to be not a seed club but the site of a co-operatively own organic rice research and educational institute. Formerly this co-operative had been part of the PPB and FFS programming with MDI and SEARICE but had since ‘graduated’ to independence and was no longer a seed club with PPB support. I was not aware of this situation until I arrived and was introduced to the director there. Present at this location were also 4 staff from the district-level Department of Agriculture, one of whom was a woman, and the silent ‘government authority’ to observe. I undertook unstructured interviews with the director about governance and operations, and of the extension staff about women farmers in general in the area and how the staff worked with seed clubs. It was during this conversation that I learnt a fact of critical importance; that there were 100’s of seed clubs in that province alone, but only several were involved in the PPB/FFS succession of programming. Prior to this all the literature I had read (websites, reports, and articles), and the conversations I had had led me to assume that seed clubs were basically an invention of SEARICE and MDI, and only existed to be part of PPB. So it was at this point that I set out to also find out about the origin of the concept of seed clubs, which led me to Dr. Vo Tong Xuan (see interview excerpts in Appendix 6).

While I interviewed, and waited and no women appeared for the group interview as arranged. So I discussed their rice-fish systems with the director there at length and took the opportunity to ask about organics in the delta region. Eventually a woman arrived, almost one hour late but we proceeded with an interview; just the translator and myself spoke with her. The contact-woman stayed with the group of extension staff. The data collected from this woman was interesting; she was a young woman who said she had just taken over from her parents in managing their farm, and she was happy with training opportunities from the co-operative. Just a few days later, however, my interpreter heard through her networks that the woman was put in place by an embarrassed district agricultural department. Because none of the women originally invited to our interview actually attended, the local officials there allegedly quickly ‘fixed’ the situation by asking a young woman who worked in town at the local extension office to come and pretend to be a woman attending workshops. This

she explained had to occur so that none of the staff and government agricultural officers there would lose face. The interviewee's data was deleted, not only because of her potentially giving untrue information just to fill an embarrassing gap in informants but also because ultimately the site was not a seed club and no longer took part in MDI programming.

While the co-operative was of value to visit, and doing important unique work in organic rice cropping it remains to be seen how many women are attending training there. The director stated that the co-operative kept no records of this.

Appendix 6 – Excerpts from the interview with Dr. Vo Tong Xuan

Excerpts from the interview with Dr. Vo Tong Xuan (aka 'Dr. Rice') and the establishment of CTU's rice gene bank. Interview conducted by phone from my work station at the MDI, 2nd December 2017:

Returning to Vietnam in 1971 after graduate studies at Los Baños, Philippines, Dr. Vo Tong Xuan an early-career rice specialist soon began collecting local landraces of rice across the Mekong Delta, the Southern Vietnamese Highlands and Central Vietnam and established the gene bank at MDI. He was at the time teaching at CTU and since his students came from provinces across the delta and Central Vietnam he says he found a way to do less travel himself but still collect landraces before they went out of use and were lost forever. He says he assigned his students the 'homework' of collecting at least 10 of the different varieties they could find in their villages when they returned home for the Tet holidays; the time that these varieties would have been newly harvested.

He said that it was during this very period that he and soon others were collecting, even during the war that people were substituting these landraces with more modern varieties. The collection may not be exhaustive, and there could have been numerous traditional cultivars lost to us today. Dr. Vo told me that in fact, new rice came to Vietnam starting in 1968 with a group from IRRI and USAID. The traditional cultivars are today the main source of PGR necessary for the development of new modern varieties with alleles suited to local conditions, desirable traits that were present within crosses and eventually stable lines with enough genetic variation still included, and thus the potential to adapt to rapidly changing climate in the Mekong Delta.

The first cold storage for the precious germplasm came well after the ending of the war and was in fact funded by as US – Viet scientific collaboration philanthropic association in 1982. This has been essential to the maintenance of this collection. However when I was in Can Tho, at MDI, I saw that this very same original freezer still stands in an air conditioned room, leaking water onto the floor and sitting at the risky temperature of +2degrees Celsius – when in fact those seeds should be stored at a temperature of at least -5C.

As part of this thesis project I wrote a short report for NMBU/Crop Trust's Dr. Westengen on the current status of the gene bank: the collection, and its accessibility to farmer-breeders.

It also included details of the data collected from the group interviews with the women, specifically an initial analysis of their levels of participation in the PPB/FFS programming. This report contributed in small part to a CWR preparatory study he was working on at the time for Crop Trust's 'Adapting Agriculture to Climate Change: Collecting, Protecting and Preparing Crop Wild Relatives'.

After we discussed the establishment of the gene bank I asked Dr. Vo about what it was like for southern farmers after the war when communist government took over. Northerners soon came down to the south both as members of the large, new state farms, and as 'pioneer farmers' moving to areas newly opened up by the government agriculture. Many of both these ventures were before long declared bankrupt; southerners had no interest in working hard to maintain farms which northerners were in charge of and the government owned. Dr. Vo said that during these short lived, but very difficult years, students and staff of CTU helped farmers with production accounting to keep the government on a low payment of rice as tax. Then in 1980, on 2nd September he broadcast on the television this way for farmers to undertake clandestine production and reporting. After this, and then of course the protests and petitions from southern farmers themselves the government, which had already backed away from collectivisation in the south early on, then also back tracked on its 'renovation' policy. This effectively left farmers to themselves, however many northerners stayed. The farms were in most cases given back however many land claims cases still exist today.

This history made me wonder about the people that I had interviewed. Who were the people of the seed clubs, and why were many people in the villages not in these clubs? Were they northerners? Were they elites from pre-war times? Or were they a representative cross section of ethnic Viet society? Furthermore, who are the extension officers, what are their backgrounds; These female government staff who openly expressed to me a distrust of women farmers' motivation to participate in workshops and training. Whomsoever they all are, it is time for them to find ways to actively promote and support the inclusion of not just women but of indigenous Khmer, and minority ethnic Chinese of the region, all of whom are rice farmers and worthy of the assistance and boost that seed club membership can provide to livelihoods and has the potential to provide to individuals' and families' empowerment.

Appendix 7 – Report on the state FFS/PPB in the Mekong Delta

Short Report for Dr. Ola Westengen, NMBU/Crop Trust, on FFS/PPB in the Mekong Delta, 6 December 2017

(Based on interviews with farmers, district level extension staff, government Seed Centre and Seed Station staff, and program staff at the MDI conducted by master's student Natalie Keene in November and December, 2017)

The formal rice breeding and the FFS/PPB/PCI programming in the Mekong Delta of Vietnam has gone through various phases and evolved over time. In 1974 rice specialists began collecting local landraces of rice across the Mekong Delta and the Southern Vietnamese Highlands and established a gene bank at MDI. Prior to the above mentioned FFS/PPB projects of CBDC, FARES and SD=HS, the MDI was well budgeted to conduct its own rice breeding and selection, seed production, multiplication and dissemination. MDI thus previously contributed primarily to the formal seed system in the Mekong Delta. Once the government allocated funding and secured overseas funding for another formal breeding institute, CLRRI*, the MDI was forced to alter their approach to rice breeding and began their collaboration with SEARICE. They have found a cheaper way to invest in rice breeding, diversity as well as increases in yields which has been successful at making farmers the breeders of stable and market ready varieties since 2000 when the first 2 farmer-bred varieties were released.

(Photo: Luá Mua, traditional rice varieties)



The CTU gene bank remains at MDI, but it, along with MDI will be absorbed into the broader CTU structure next year. The gene bank currently holds:

- A total of c.3,000 accessions and varieties in a cool storage (24deg) and a cold storage (1-2deg – the freezer is set to 0degC but can no longer reach that and the temperature gauge currently shows c.2degC),
- 1,988 local landrace accessions of rice from the Mekong Delta (lowlands),
- 647 accessions of traditional landrace highland rice from Southern Vietnam,
- 2 rice CWR: *Oryza rufipogon* and *Oryza officinalis* with multiple accessions. They are local to the Mekong Delta and both these species remain on farms today as wild grasses that appear along the edges of paddy fields' paths and dividing mounds/walls, and neither of them have been used in breeding efforts for many years due to taking too long to achieve desired characteristics,
- C.>100 stable lines of farmer-bred rice varieties all bred, selected and released since 2000. (Note however that as discussed below this is **not all** of the varieties that farmers have been responsible for breeding and release over the last 17 years),
- C.800 varieties bred, selected and stabilized by the MDI are also housed here.

* CLRRI (Cuu Long Rice Research Institute, Can Tho) has apparently developed and released over 10,000 rice varieties and is the biggest player in the formal seed system of the Mekong Delta.

- (Note: the freezer for PGR cold storage is from 1982, and originally it got to -5degC but can no longer even be set to that low temp).

According to Dr. Huynh Quang Tin here at the Mekong Delta Research and Development Institute (MDI), which sits as an institute of Can Tho University (CTU), SEARICE has always been the South East Asian regional coordinator of overseas funders' programs that have gone through MDI for implementation in the Mekong Delta. SEARICE has coordinated MDI to manage the following projects: CBDC (1996 – 2010), FARES (2010 – 2015) and SD=HS (2015-2018). SEARICE coordinates, facilitates, monitors, allocates funds and collaborates on budgeting, and provides some technical supports to these projects, which have been/are also in other locations around South East Asia.

In the Mekong Delta specifically regarding each of these programs/projects:

- CBDC was funded by Norway's Utviklingsfondet*. The focus was on agricultural rice biodiversity and PPB, and occurred in three phases: 1996 – 2000, 2000 – 2005 and 2005 – 2010.
- FARES was funded by Swiss Bio in the first 3 years (2010 – 2013), then by IFAD for the final 2 years (2013 – 2015). The focus was on strengthening research and extension, and farmer partnerships for rice crop enhancement and quality seed production and certification.
- SD=HS is the current project and is funded by SIDA (Swedish International Development Cooperation Agency) through Oxfam Novib and other SD=HS collaborative partners. There is a focus on on-farm diversity and therefore involves other crops not just rice. In the Mekong Delta this means that new seed clubs have been established very recently, and some formerly rice-focused seed clubs have decided to diversify into some of all of these other crops as well. The SD=HS project means Dr. Tin's work at MDI is branching out into sesame, mung beans and corn diversity, FFS, PCI (PPB, PVS and PVE) on farms. Different seed clubs in different regions are focusing on 1 or more of these 3 crops depending on the appropriateness of doing so based on agroecological and market considerations.

Oxfam Novib has long developed regional networks in South East Asia (and Africa and Latin America), and these networks have yielded long-term local partnerships with groups/organisations such as SEARICE. This, among other programs, projects and campaigns, has developed into the collaborative SD=HS project. SD=HS also directly provides some technical and policy support to SEARICE and MDI (and also therefore in Northern Vietnam, Lao PDR and Myanmar/Burma, and Peru and Zimbabwe where SD=HS is also active). Along with SIDA, the other funders of the whole SD=HS program in the 5 countries are IFAD, Nationale Postcode Lotterij (Netherlands) and the



* To Dr. Tin's awareness CBDC was fully funded by Utviklingsfondet, but suggests we check this with Teshome Hunduma who was the coordinator at that time.

Netherlands government Ministry of Foreign Affairs. Partners other than SEARICE are Oxfam, Asociación ANDES, ETC Group, Community Technology Development Trust (Zimbabwe), GRAIN, South Centre and Third World Network.

Presently and for the past c.25 years, the main contribution to the Mekong Delta seed systems from the MDI has been to concurrently breed and stabilise new rice varieties for release and to develop and strengthen the local seed system. They have done this with their partnership with SEARICE through CBDC, FARES and SD=HS through focusing not only on FFS and PPB but also on participatory varietal selection (PVS), participatory varietal enhancement* (PVE), seed production, connecting and networking the seed clubs for seed sales and exchanges between the clubs and other collaborations and exchanges, and technical workshops for seed club members and interested participants.

The manifestation of 'seed clubs' is not unique to MDI's work in the Mekong Delta. There are actually 100's of farmer-organised 'seed clubs' that are not affiliated with MDI, are independent from any formal partnerships and exist to reduce costs for farmers and collaborate on efforts to succeed on their farms. The seed clubs of the SEARICE/MDI programming may have already existed before becoming involved in the partnership, or may have been established once extension officers and program staff identified core farmers around which clubs could be established. There was in total 407 affiliated seed clubs in both Central and Southern Vietnam in 2015 (at last official count). Since then some have merged together and others have emerged. In the Mekong Delta's 13 provinces there are

Participatory Plant Breeding

Regarding PPB, Dr. Tin describes there as being formal-led and the farmer-led breeding and selection occurring parallel with each other. My own observations and data, as well as other data sources agree with this statement regarding farmer-led PPB:

- Since 2000, 339 stable varieties have been **crossed, selected, stabilised and released** as new varieties by c.35 of the farmer-breeders trained by MDI. Only once released by the breeders to the market is the new variety recorded in data.
- Of these 339 released varieties, many were developed for release by farmer-breeders during CBDC and FARES projects; 147 in CBDC, 139 in FARES.
- Not all farmer bred released varieties have samples in the gene bank and either only exist in farmers' fields or may have already been lost due to falling out of popularity. The women breeders that I spoke to said they have not sent any PGR to be stored at the gene bank nor have they been asked to or suggested to do so. One informant called this a failure of management that could be corrected if there was capacity and motivation to do so; this is currently lacking they say.
- Many more than c.35 farmer-breeders exist in the Mekong Delta but the numbers of actual, active farmer-breeders are not known due to them not having successfully created a variety for release to date. Some farmers trained in breeding may be taking a break from breeding or have never really established themselves in the activity after completing the training due to any number of factors.
- Many, many more crosses have been created than the 339 released varieties by these experimental farmer-breeders but not stabilised and released (maybe too early yet for some or others may have been abandoned), and there exists no data on

these non-released varieties' exact total numbers however many farmers keep good records and further research could be conducted in this area.

- Some breeders started out as farmers interested in the techniques of breeding and were at first trained/mentored by a local farmer-breeder who had done the training with MDI; example being one woman I met who has been breeding for 16 years and was first taught by her father but who has now completed training with MDI.



She says she has made countless crosses and has worked on various varieties with her father which have been released. She is now the full owner of the family farm, legally, and is taking over breeding operations.

- 3 out of the 4 women who are farmer-breeders in the Mekong Delta were informants in the current master's thesis research project; 2 have released varieties to the market.
- All breeders, male and female, that I spoke to do crosses at home, then selection from the F1 onwards is done usually on their farms in experimental plots, and at later generations may also be outsourced to other interested farmers in the seed club to continue selection until the variety is stable. These farmers are trained in varietal selection by MDI and/or local technical teams and their seed club peers.



(Photo: Breeding and selection greenhouse on most recently trained female farmer-breeder's farm)

- The farmers' crosses never come to MDI for selection before seed multiplication at which point it may come to MDI or go to a government seed centre or seed station for testing before release, or it may just get released directly by the seed club to the open market to the other networked seed clubs.
- MDI has bred c.800 stable lines and after some years of selection on the CTU campus will go to trained farmers in the seed clubs for PVS at about F3 or F4.
- 2 farmer-bred varieties are certified at a national level.

- Many more farmer-bred varieties have been annually certified at the province level at Farmer Field Days (FFD) at the district government's Seed Centres, however there is no collation of the exact numbers on this. One farmer variety may get certified in one province one year but the following year may not due to one of two reasons even if seed quality and variety stability remain: either the farmers collectively elect other varieties to certify that year at the field day above that one based on the out performance of its characteristics, or the conditions for farming have shifted and the characteristics strong in that variety are no longer desirable.
- An examination of the 63 rice varieties the women listed as being planted on their farms over the last 17 years showed that while the majority had sourced their seed from their local and other seed clubs, 42 of those varieties originated (were bred by) formal institutions, and only 20 were farmer-bred (one was farmer selected years ago from traditional variety, now sold by seed companies).
- 7 varieties being grown by the women were originally bred at MDI.

In the arena of both breeding and organising, the MDI program staff have:

- Established and continue to improve a highly-developed network connecting the program's seed clubs; farmers are active in attending each other's FFS, buying and selling seed from members and participants at lower than market prices inter- and intra-seed clubs, obtaining farmer-breeders' lines to conduct on-farm experiments and selection.
- Provided Training of the Trainer (ToT) in FFS and PPB and other PCI. MDI trains about 20 province level extension officers/advisors annually, who then are expected to go on to train district level extension staff who conduct FFS and workshops at the village level.
- Provided PPB training. This happens once a year, conducted by MDI and taught directly to potential new farmer-breeders that have interviewed with Dr. Tin and shown strong interest and motivation to breed rice. The training involves new advances in plant and rice breeding for established breeders as well as introductory training for new breeders.

*The 11 women who self-identified in this research project as wanting to undertake PPB training may be eligible for next year's course; Dr. Tin said he would contact them for an interview.

Participatory Varietal Enhancement (PVE)

(Also known as participatory varietal regeneration, but the MDI prefers PVE as suggested by R. Salazar to better capture the meaning of the activity.)

- By far varietal enhancement was the activity most practiced by the 70 women informants, however on further questioning many conceded that they had not learnt this from the program; their husbands had, however.
- Many women said they only knew the techniques of transplanting, and removing odd/'bad' plants from their parents and their husbands, a few from seed companies.
- MDI staff say they and extension staff provided workshops on and incorporate PVE into FFS activities to advance the skills of farmers in this area. Specifically, MDI staff

say that their training goes beyond removing plants not showing good characteristics or good health. The program staff say farmers are taught to observe, then observe again later for differences, then act and take out odd plants (too tall, too short, less grains, odd in some other way, recognise that with multiple harvests there will be seed sprouting from previous crops and how to seek it out and remove it from the crop).

- But the 8 women who said they did get PVE training from the seed clubs say they just learnt pesticide use, transplanting, removing bad plants.

Participatory Variety Selection (PVS)

- Each of the 70 women who were interviewed for the current master's thesis research project said that their and their husbands' (usually) requirements for varietal traits were met by the rice they planted each year.
- The women's preferences were dominated by production traits: with high yield and pest and disease resistance being most commonly mentioned.



(Photo: farmer's experimental field with new crosses for selection)

- MDI has a small, practical detailed handbook for farmers to understand and implement selection.
- Selection takes place on-farms in the seed clubs with enough space by farmers with the skills to do so in the seed club. Some farmer-breeds that we talked to on this trip said they rented more land to undertake experiments.
- Selection also happens at government seed stations and seed centres by staff there and during FFD, and during seed clubs' FFS.
- Of the 10 non-farmer-breeder women that were called back who initially stated they participated in PVS 6 said they didn't actually do it themselves and had not learnt it from the seed clubs; 1 had instead learnt selection activities from a seed company; 1 observed selection while she laboured on a farmer-breeders farm; and just 2 had done PVS training with the seed clubs, only one still practiced it on her farm (seed counting on the stem, comparing seeds for quality were the activities she stated she did).
- From observation and discussions, farmer-breeders were more likely to be doing selection even though there is a distinction made between PPB and PVS in the program. All 3 women farmer-breeder that were met conducted vigorous selection processes including thorough observations and record keeping, and labelling, measurements, comparisons and consistency.

Preliminary data collected as part of this fieldwork shows some gender and minority issues within the program, as outlined below:

- 3 of the c.35 successful farmer-breeders with released varieties are women,
 - 9 of the 70 women interviewed are seed club members,
 - Many women interviewed said they practiced PVE, and call-backs showed that by far the majority of them did crop enhancement as learned from their parents, not from the seed clubs or the SEARICE/MDI program/project activities,
 - just over half of the women questionnaire respondents indicated definitively that they wanted women's only activities to increase their participation in the seed clubs.
-
- Amongst the women variously involved in the 11 interviewed seed clubs, no Khmer women participate in any form; even in 3 seed clubs in areas with relatively high populations of Khmer people.
 - Only one seed club that was visited had Khmer representation with 2 male Khmer members out of a total of 54 members at that seed club, in an area where the Khmer population is relatively high.
 - No data exists on the background of the seed club members being either pre-war Southern Vietnamese inhabitants, or post-war Northerners that were moved down here and allocated farmlands in the reforms by the Vietnam Communist Party Government.

Program benefits:

- While follow-up call-backs indicated that many of the women had not in fact learnt PVE or PVS from the seed clubs many of them were well managing and co-managing their farms with improvement in the areas of seed production, marketing and sales.
- Collective bargaining power was getting them a higher price for their seed and for the grain they sold to the mills.
- And connections with other seed clubs means they are paying less for seeds they buy.
- The majority had soured their seed over the last 17 years from seed clubs.
- Incomes had improved greatly for many and they indicated this stating they had paid for their children's education with this, invested in gold, rented more land, recently been able to afford home improvements and some had built new houses.

Climate Change

The Mekong Delta is, according to both general reports and modelling and experiences shared from farmers themselves, experiencing a newly unpredictable beginning and end rainy season, heavier rain events, stronger storms, abnormal extreme dry periods, and salinity from rising seas and deeper dry spells and even droughts. There is also the effect multiplier of the up-river dams being constructed, holding water back and in the dry season this means sea water goes further up rivers and into irrigation canals.

Climate change was referred to directly by many women informants; named as the aim of on-farm changes, the cause of on-farm problems and crop failure, and as the cause of rainy season unpredictability.

And it was also indirectly referred to at **every** interview site in relation to breeding and selection, trait preferences, production issues on farms, new and deepening salinity issues

(with not always a cause behind them mentioned), rain and water problems, drought problems.

Most farmer-breeders I met explicitly mentioned they were working on varieties that would allow them to adapt to the local changes climate change has already caused and is predicted to cause. While the institute only explicitly mentioned to me (on a number of occasions) their breeding aims of superior aromatic qualities combined with high yield and short duration.

Theories of change and development

According to the Director of International Collaborations at MDI, the whole institute, which works solely in rural development, has three guiding aspects: Improve farm technology, Improve human capacity, and Effective Models, eg models of farming systems and social governance. Approaches emphasise working closely together with local people, training by directly training them and doing Train the Trainer to multiply efficacy and the potential for capacity expansion, and establish pilot programs with local people themselves. He says their approach is 'inclusive' and 'participatory' and uses Action Research to evaluate programs, and multiply programs/projects. I asked specifically about gender and he emphasised inclusion again saying that gender was one aspect along with private sector and civil society.

He summarised by saying that the institute has a systems approach link disciplines together and to affect and 'measure' farmer level, whole of community level and regional level. We all know how difficult PAR and AR are with limited time and human-power at hand to conduct it so it was observed during this fieldwork that the seeds clubs to a fair degree lack capacity to conduct AR thoroughly, and to employ systems approach that incorporated gender and minority issues. Gender is not mainstreamed nor is it a separate approach.

That said however, multiple women interviewed mentioned how before their husbands became members they were poor and yields were lower, relative costs higher, incomes lower and they struggled. The majority, as stated above, noted new life improvements associated with higher incomes from farm successes directly related to the program. In three locations, the women were visibly poor, many in those 3 group interviews lacked mobile phones (a new indicator of poverty levels!), had much smaller land to grow on, much of their production was for household consumption. Their discussions around improvements in incomes were comparatively limited although still many in that cohort said their incomes were on the rise. So these poorer communities are accessing the project. Women in these 3 areas were equally split on the idea of women's only activities to increase their personal participation in the seed clubs; about half agreed [with each other that] they wanted it, the other half agreed it was not necessary.

This fieldworks' interviews and observations lead me to conclude that while there are strong efforts at using systems theory and thinking in seed club programming, it lacks gender awareness, and awareness of the importance of explicit Khmer participation as the local indigenous minority people here. And it may also be adversely affected by ignoring recent historical communist land reforms' effects on communities (with Northerners being moved here and land forcibly removed from Southerners) – there is not data on members family origins and on their position as Northerners or Southerners in their villages, and it was

impossible to collect given the constant presence of the government official / communist party member at our group interviews.

My observations lead me also to detect strong elements of modernisation approaches that have been in many cases successful for many participants but have not addressed deeper structural inequalities and those linkages with poverty for the Khmer and the lack of empowerment for both Vietnamese and Khmer women. There is a clear commitment to grass-root empowerment for some farmers but it lacks village level disaggregation and opts to take the easier path of already confident and networked people (namely, mostly Viet men) to identify themselves as interested in program inclusion. For the families of those men, poverty has been or is being alleviated, but local inequalities are not; not being the target of improvements themselves. Furthermore, modernisation elements of the seed clubs programming implementation also include that once incomes are raised, and they are being raised by the program, families have better food security (which the women reported that they do), and there is more money for children's education (yes women said that they were able to pay for schooling now). It is through this trickle-down assumption that once educated the children will have more opportunities and the free market will benefit those with the motivation to succeed, and they may even be women! When questioned directly about women and Khmer participation it was repeatedly expressed by program staff and government extension workers to me that everyone is allowed to participate but many chose not to and that personal choice is the reason why the women and the Khmer men and women are strongly under-represented in the seed clubs.

Appendix 8 – Follow-up with SD=HS and SEARICE

I had organised a face-to-face meeting with SEARICE director for immediately after the group interviews in late 2017 had taken place since she was visiting the program whilst I was still in Vietnam. She was sent an outline of initial, pre-coded, findings from the group interviews in order to discuss these during our meeting, which was unfortunately cancelled. Since then I have not been able to meet with, her however an email was received on 20th November from her that stated:

“SEARICE has decided not to join the second phase [of programming]. But it doesn't mean that we will not continue our work in Vietnam. We are in the process of developing a new program which is focused on Agroecology and biodiversity. So your inspiration is actually leading you to the right direction. ...” (N. Ignacio, personal correspondence, 20.11.2018).

Furthermore, although my requests for interviewing throughout the data collection phase of this research were not answered, I requested a meeting with SD=HS and Oxfam Novib (Netherlands staff) Anita Doha, for early December in order to both share some of my documented findings and to enquire of the progress of moving into the next phase, if at all, of programming in southern Vietnam. She informed me that phase II of SD=HS programming in the Mekong Delta is under development and currently negotiating financing. They are currently completing their end of program (phase I) evaluations. I resorted to reporting my a laundered version of my findings verbally to her since sending them this thesis could risk my translator's employment at the MDI. I was careful to be discreet and communicated numerical data to her of participation levels and dominant desired traits, as well as the predominance of women's expressed need to increased access to programming along with some of the interviewees suggestions for seed club improvements and the concerns they have for their farms. Ms Doha stated that they have been planning to undertake a study into gendered dimensions of the programming and with my research they have stronger reason to do so. This is proposed to be taking place after the Vietnamese New Year holidays from March and is expected to be ongoing for 6 months. Thus, my next step is to complete the short report for MDI, SEARICE and SH=HS consisting of both inert data as well as a basic agroecological systems analysis and discussion; nothing that could implicate my translator but all the information and reasoning that could assist advocacy for these farmers' inclusion in the male-dominated seed clubs of the Mekong Delta and assistance to address their environmental concerns.



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