

**CGIAR Research Program on
Climate Change, Agriculture and Food Security (CCAFS)**

Village Baseline Study:

**Site Analysis Report for My Loi village
Ky Anh district, Ha Tinh province,
Viet Nam (VN02)**

December 2014

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The tools and guidelines used for implementation of the village baseline study across all CCAFS sites, as well as the mapping outputs at a higher resolution can be accessed on our website (<http://ccaafs.cgiar.org/resources/baseline-surveys>).

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ABSTRACT

Data collection for the Village Baseline Study (VBS) of My Loi village in the CCAFS benchmark site of central Viet Nam took place on 17- 19 October 2014. Focus group discussions were conducted separately for 45 men and 45 women villagers.. The VBS had three main topics: map of (1) community resources, (2) organizational landscapes, and (3) information networks. A seminar was held in December 2014 to seek participants' feedback. My Loi village has experienced multiple extreme weather events (temperature and water stresses, storms and typhoons) throughout the years. The main constraints for agricultural development and livelihoods are limited water resources and poor conditions of irrigation systems, which are challenges to improving the agricultural production situation. Moreover, sand and rock mining have caused water pollution, erosion on riverbanks and loss of farmland area. Another constraint is marketing, as villagers are not aware of any organization involved in finding outlets for agricultural products. The potentials for developing innovative climate-smart solutions in the village are several: farmers have experiences and are interested in trying new varieties and adjusting farming calendars to improve the situation. Livestock expansion and agroforests/reforestation hold opportunities for improving household incomes. Furthermore, at least half of the organisations identified in the region are working to address food security issues.

Keywords

Baseline; My Loi; central Viet Nam; village study; participatory mapping; organisations; access to information; climate smart village; climate smart agriculture

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Abbreviations

CSA	Climate Smart Agriculture
CC	Climate Change
CCAFS	Climate Change, Agriculture and Food Security Program of CGIAR
CGIAR	Consultative Group on International Agricultural Research
CSV	Climate Smart Village
DARD	Department of Agriculture and Rural Development
MoNRE	Ministry of Natural Resources and Environment
DoNRE	Department of Natural Resources and Environment
FGD	Focus Group Discussion
ICRAF	World Agroforestry Center
NGO	Non-Government Organization
OBS	Organisation Baseline Study
CPC	Commune People Committee
VBS	Village Baseline Survey
VND	Vietnamese Dong (USD1= VND21000)

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1. INTRODUCTION

The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) is a strategic ten-year partnership between the CGIAR and Future Earth to deal with the threats posed by a changing climate, to achieving food security, improve agriculture and livelihoods. In 2014, CCAFS South East Asia region identified sites for implementing Climate Smart Villages (CSVs). Six sites were selected in three countries of Vietnam, Cambodia and Lao PDR. The objectives of CCAFS CSV is to increase the adaptive capacity of small-holder farmers in light of climate change effects, improve livelihoods by sustainably increasing productivity and resilience, mitigate climate change by reducing greenhouse gases (GHGs), and enhance national food security and development goals. In Viet Nam, the baseline studies were conducted between September and November 2014 in three sites: Ma village in Yen Bai Province, My Loi village in Ha Tinh Province and Tra Hat in Bac Lieu. These villages are selected for the Climate Smart Villages (CSVs) initiative of the CCAFS SEA in Vietnam.

This report presents the results of the Village Baseline Study (VBS) that took place in the My Loi CSV. The VBS is part of the baseline activities (including Household Baseline Survey and Organizational Study) done in target sites for CSVs. The VBS aims to provide baseline information at the village level about community resources, organizational landscapes, information networks, and the community's vision for the future.

The objectives of the village baseline study are to:

1. Collect baseline data on indicators that allow site comparability and monitor changes in the villages over time. In particular, these are changes that allow people to manage current climate risks, adapt to long –run climate change, and reduce/mitigate greenhouse gas emission;
2. Understand the enabling environment that mediates certain practices and behaviours and creates constraints and opportunities (policies, institutions, infrastructure, information and services) for communities to respond to change.
3. Gather information on the aspirations of the community in order to make future interventions more sustainable and easily adopted.
4. Explore gender differentiation.

This report is presented in five sections: the Introduction is followed by a brief overview of the methodologies used, brief profile of Ekxang village, and the results relating to the three evaluated topics – community resources, organizational landscapes, and information networks. A conclusion and recommendations for CCAFS end this report.

2. METHODS

In collecting data for the VBS, a rotation scheme over three days with 90 participating villagers was employed. Simultaneous meetings were held daily in two buildings, with one group of 15 men and another group of 15 women. The team leader randomly selected the focus group participants from a list of households from the household survey. In consultation with the village authorities, the women met in the village common house, while the men met in one of the villager's house. The VBS team consisted of two male facilitators, two male note-takers and one female assistant. Due to limited human resources, there was no female facilitator or note-taker in the team. .

On the first and third day, all 90 participants were invited to participate in a short introductory session and a debriefing session, respectively. During the introduction, the team explained the survey and also shared some results of the earlier survey implemented by the World Agroforestry Centre (ICRAF) in 2012 to 2014. During the debriefing session, a summary of the preliminary findings from the FGDs conducted was shared. The results section below details the approach and findings for each topic. In brief, the following activities were carried out:

On Day 1, after the introduction, the women's and men's groups (15 women and 15 men, respectively) worked with a satellite image and sketch-mapped the resources that are important to the community¹, described the current and past states of resources, and identified causes for changes observed in the resources.

Day 2 was devoted to identifying the organizational landscape and the links that exist in relation to food security in a normal year, a year of crisis, and in relation to natural resource management.

Day 3 activities focused on understanding networks of information flow in relation to weather issues and farming activities. The women's and the men's groups were brought together to generate one shared sketch map of how they envision the village in the future (approximately the 2030s). The meeting ended with debriefing for all 90 participants.

The VBS used participatory methods where the information was captured on sketches, maps, flip charts, information cards, and notes. The information was developed in two steps. First, while the team stayed in the village the debriefing report was prepared in Vietnamese to benefit the villagers and seek their feedback. Photographed sketches and maps were inserted in the debriefing report. Second, in this site analysis report the team reworked the maps and the diagrams to replace some primary sketches and photographs.

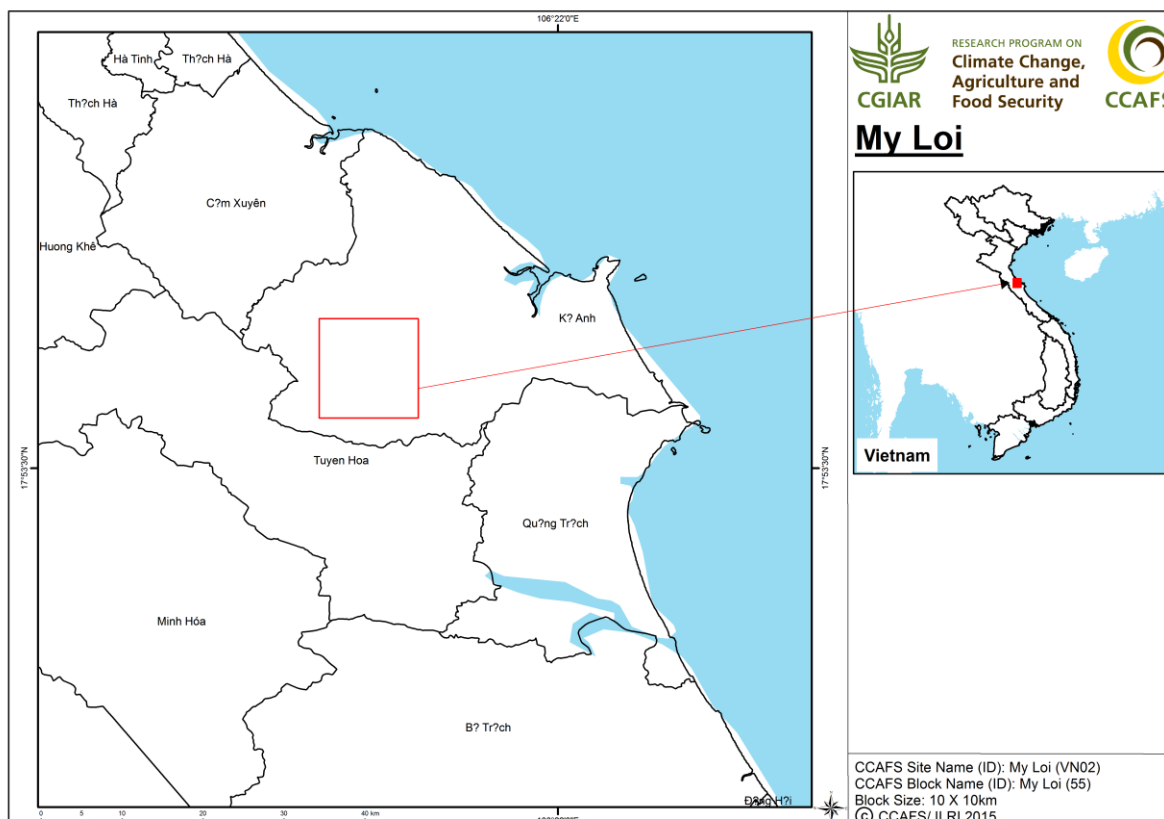
¹ Community: According to WHO (1998), a specific group of people, often living in a defined geographical area, who share a common culture, values, and norms, are arranged in a social structure according to relationships, which the community has developed over a period of time. Members of a community gain their personal and social identity by sharing common beliefs, values, and norms, which have been developed by the community in the past and may be modified in the future. They exhibit some awareness of their identity as a group, and share common needs and a commitment to meeting them. In this report, community refers to My Loi village.

The feedback meeting in December 2014 was attended by 12 participants of the the FGDs conducted in October 2015 and 12 persons who did not participate any of the FGDs conducted, and 15 representatives from province, district and commune authorities. The participants were divided in three groups: women villagers, men villagers, and leaders. Each group was facilitated by a CCAFS team member. Results on the four topics (natural resource utilization, organizational landscapes, information networks for weather and agricultural information, and mitigation baseline information) from CCAFS baseline survey (including VBS and Situational Analysis) were presented. Illustrations (such as maps, graphs, figures) created during data collection in Septemebr were presented to the three groups on a rotating basis for inputs and refinement. These include (1) village description, (2) organizational landscapes, (3) visions, and (4) current and future maps. When needed and feasible, corrections were made on the illustrations using post-it notes and a different colour pen for each group to easily attribute the comments. When relevant, new information and clarifications were added to this report.

The detailed tools and guidelines used for the implementation of the village baseline study across all CCAFS sites, as well as the manuals, data and analysis reports can be accessed at <http://ccafs.cgiar.org/resources/baseline-surveys>.

3. BRIEF PROFILE OF MY LOI VILLAGE

My Loi village is centrally located in Ky Son commune, Ky Anh district, Ha Tinh province, Viet Nam (Map 1). The geographical coordinates of My Loi village centre are - 17.9985; 106.1590 (17°59'54.8"N 106°09'32.7"E). The village is located in the uplands of the northcentral coast and was chosen as a climate-smart village for its exposure to multiple extreme weather events (temperature and water stress, storms and typhoons) and potential for climate-smart solutions.



Map 1: Location map of My Loi village in CCAFS benchmark Ha Tinh site, Vietnam

Ky Son commune in Ky Anh district is located in the southernmost part of Ha Tinh province, bordering to Quang Binh province. Ky Son shares the northern border with Ky Thuong and Ky Lam communes, the eastern border with Ky Lac commune, and the western border with Ky Thuong commune. The southern border is shared with Thach Hoa and Dong Hoa communes in Tuyen Hoa district, Quang Binh province. My Loi's population in 2013 was 768 (213 households), or 10% of the population of Ky Son commune.

4. RESULTS

This section presents the approach and findings for each of the three topics covered by the focus groups in the following order: (1) community resources, (2) organizational landscapes, and (3) information networks.

4.1. Topic 1: Community resources – participatory satellite imagery interpretation and visioning

Community infrastructure, resources, and gender-differentiated access and utilization of those resources were examined using participatory visual interpretation of high resolution satellite imagery of the village and nearby landscape of a 10x10 km grid (RapidEye). The purpose of the exercise was to create a basic understanding of women and men’s perception of community resources and community dynamics in relation to the environment. The participants discussed of the current state of the resources in terms quality, accessibility, management, history and the potential drivers of change. A mixed group illustrated an image of village resources and the people in 2030 to understand opportunities, constraints and aspirations for the future².

4.1.1. Mapping current resources

First, the groups made maps using coloured paper to represent natural resources, infrastructure, buildings, and landmarks in the village. The maps were first made on the ground, and later transferred into flipcharts by the team and the participants.

Next, the team showed a 10x10 km satellite image of the commune and neighbouring communes. The villagers were asked to locate their village by pointing out on the image. Once the participants established the bearings on the satellite image, the team put a piece of tracing paper on top of the satellite image, and asked the participants to identify on the satellite image the landmarks they had previously drawn on the ground, and record those landmarks on the tracing paper.

The resulting maps of infrastructure (roads, markets, schools, and buildings) and current status of natural resources (rivers, forest, and farmland) are shown in Map 2 for men’s group and Map 3 for women’s group. These maps are labelled as “Layer 1” Table 1 summarises the the information focusing on the current conditions of the identified resources in the community during the exercise. This was generated by the male participants.

Roads

National Road 12 runs through My Loi. It connects the village with Ky Anh town (with ports and industrial zones under development), the Ho Chi Minh Trail, and Cha Lo border gate to Laos. In 2013, National Road 12 was upgraded wider and extended, merging previously disconnected sections of the road. The road is asphalted with two lanes separated by a white line. The villagers said that the road opens up opportunities for travelling and trading goods. However, the operations of overweight trucks carrying heavy construction

² The detailed approach to this exercise is outlined in the CCAFS Village Baseline Study Implementation Manual (follow the link to the baseline study from our website <http://ccafs.cgiar.org/resources/baseline-surveys>).

materials and minerals have damaged the road surface. Deep wheel tracks appear partly along the road, especially close to quarries, posing risk to road safety.

The intra-commune road system makes My Loi well connected with other villages. The Inter-Commune Road 10 and Son Lac road, connect My Loi village with Ky Son and Ky Lac communes. In 2002, the roads were upgraded and covered with asphalt or concrete using government funds. Four out of six kilometers of intra-commune roads are covered with concrete financed partly through government funds and partly through villagers' contributing labour and materials such as gravel and construction sand. The remaining 2 km are planned be finalized in 2015 or 2016 under the Government's rural road policy (*chinh sach betong hoa duong giao thong nong thon*). In general, the roads meet the demand of villagers, although some parts of the Inter-commune Road 10 have potholes.

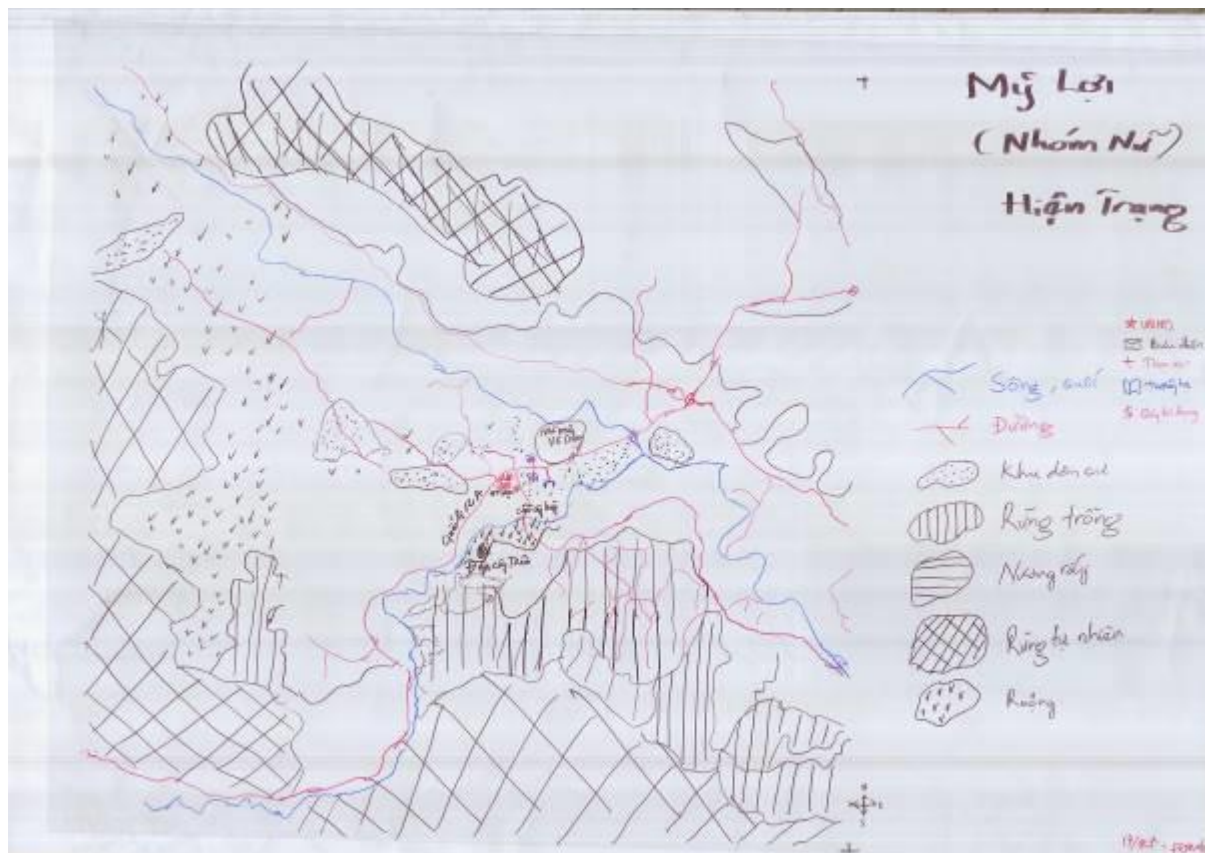
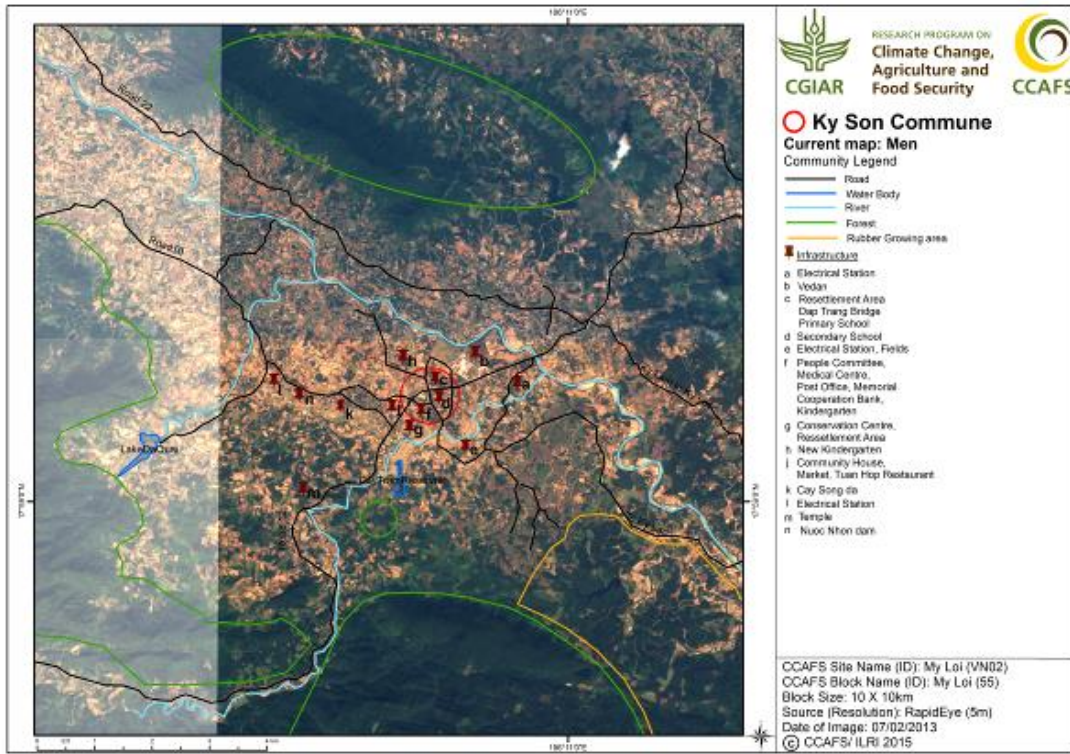


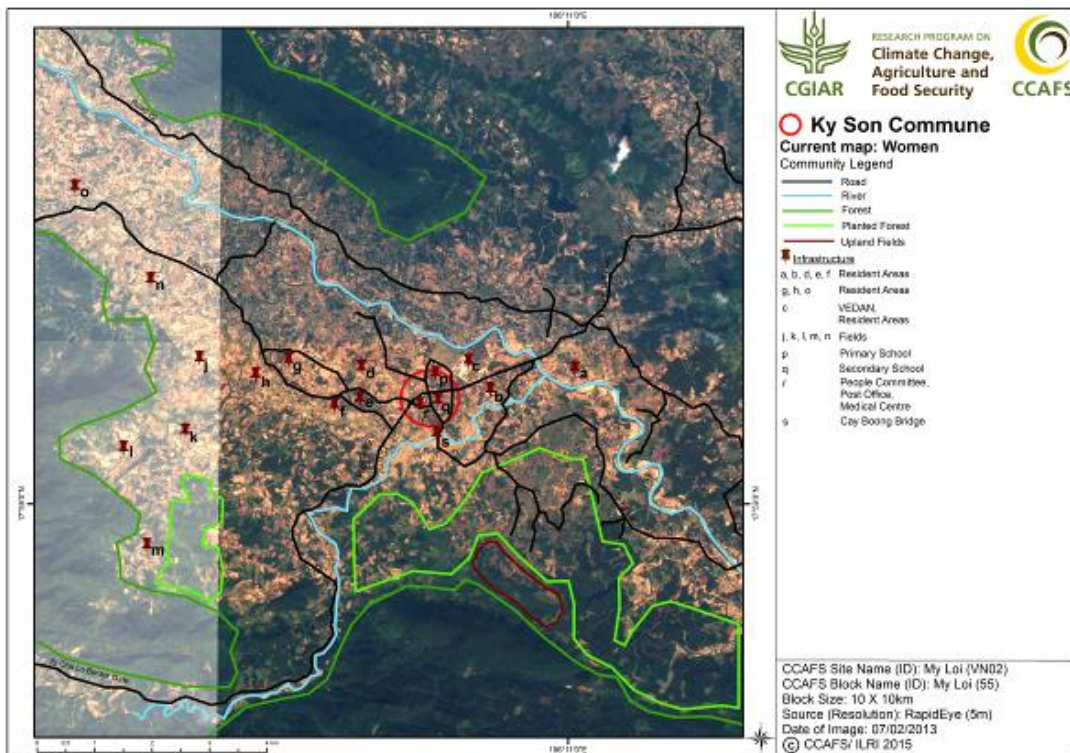
Photo 1: Current conditions mentioned by women regarding natural resources and infrastructure

Schools

My Loi village has three educational facilities: kindergartern, Ky Son primary school, and Ky Son secondary school. The kindergarten has two campuses, one in neighbouring Son Trung 2 village and one in My Loi; it is located nearby the community house in My Loi centre, which is convenient for both children and parents. The men's group raised concerns over the quality of the water system in the campus and recommended its improvement. Ky Son primary and secondary schools consist of two and three 2-storey-buildings, respectively. Both meet national standards. School facilities are maintained via an annual government fund and fees from the parents.



Map 2: Men's map of current community resources



Map 3: Wome's map of current community resources *Market*

Ky Son market is located in the commune centre beside inter-commune Ky Son-Ky Lac and National Road 12. Ky Son Cooperative of Services belonging to Ky Son Commune People's Committee manages the market. In 2013, the market was upgraded via government funds to assist the local community in trading goods and agricultural products. Waste management remains a challenge, according to the authorities and the villagers.

Ky Son medical centre

The medical centre was relocated near Ky Son Commune People Committee due to the construction of National Road 12. The centre is managed by Ky Son Commune People's Committee and Ky Anh Department of Health. In addition to examination and treatments, the centre offers certain periodical social policy programs on medical care for the elderly, disabled, the poor, and the children. Although the centre currently has seven employees, the villagers said that the centre lacks specialized facilities and staff members need more training to improve the quality of care provided.

Ky Son Commune People's Committee (CPC)

Ky Son Commune People's Committee works in a complex of a 2-storey building and a Grade IV building³. The Community House (Nha Van Hoa) is undergoing reconstruction through the Government's New Rural Program and is expected to be finished by late 2015.

Rivers

Two rivers, Rao Tro and the slightly smaller Rao Moc, run through Ky Son commune. The rivers are the main water sources for daily household consumption and irrigation. Due to mining of construction sand, the river flow has changed and dislocated parts of the riverbank. The construction of the National Road 12 has also narrowed the river. Overexploitation in the sand mines in the riverhead and waste from residents further pollute the rivers. According to the FGD participants, the river water is no longer sufficient for their daily needs.

Two dams with reservoirs are planned in Rao Tro river in Ky Son commune to supply water to Formosa industrial zone. Villagers believe this will have negative impacts on the community and agricultural production in the area. For example, they expect that Cay Boong bridge will be flooded more frequently if water levels increase in the dams.

Reservoirs, lakes and dams

Cay Tram and Da Quai are the two largest reservoirs in the commune and the main sources of irrigation water supply. Cay Tram reservoir was built in 1960 and upgraded into a concrete dam in early 2014. Currently, the reservoir storage capacity meets the water needs for the annual two crops in the Chu Ke and Bai Nai paddy fields. The reservoir can also be used for flood control. During the feedback meeting in December 2015, the women's group said that the reservoir/lake is about six meters deep and could hold fish cages. The farmers

³ Grade IV building is a classification by Ministry of Construction for houses with walls made of brick or timber; expected life-time is 30 years of usage; roof made by tile plates or fibrous cement; lower quality materials and amenities for daily use.

were unclear about who exactly manages the dam; the men said it was “the village” and the women “nobody”, while the leaders said that the reservoir is managed by Binh Thuan artel of agriculture and irrigation under supervision of Ky Son CPC.

Da Quai reservoir has not been upgraded and the dam is made of soil and partly damaged. This reservoir is also used for flood control and irrigation but operates less efficiently than Cay Tram dam due to leakage. Ky Son commune has two more reservoirs: Cay Song, which only covers a small area, and Cay Trang, which no longer retains water for irrigation. Two bridges connect Cay Trang reservoir with the residential areas.

Irrigation systems

The irrigation systems are a main constraint for agricultural production in Ky Son. There is approximately one kilometer of permanent irrigation channel connecting Cay Tram reservoir with Bai Nai and Chu Ke fields, which are the only fields that can support two crops per year. The remaining irrigation canals are not concrete, These causes leakage resulting to inefficient water use low production of rice and cash crops. In unirrigated fields, which are predominant in the area, farmers can cultivate one crop per year.

Forests

There are two types of forest in Ky Son commune: natural and planted forests. The natural regeneration forest only exists in Hon De Mountain and consists of small trees and bush rather than fullgrown trees. High-value species no longer exist. The natural forest is managed by Ky Anh Forest Control in cooperation with the commune People’s Committee. The villagers said that the forest is important for retaining surface and ground water, avoiding landslides and climate regulation. In addition, it supplies materials for handicrafts such as *coryphe-saribus* for hat making or rattan and bamboo, which contributes significantly to household incomes.

The planted forest includes mostly acacia and cajuput (keo tram) for paper pulp production with a cycle of about 5-7 years. The average planted area per household is approximately 0.5 ha to 2ha. Assigned households are responsible for afforestation, protection and utilization according to the existing Government’s forest and forestland allocation policy and guidelines.

Farmland

Ky Son commune has 82ha for rice production and 220ha for peanut production, in which My Loi has 8.5ha for rice production (Chu Ke, Bai Nai, Bac Muong, Cay Da and Lo Ngoi fields) and 30ha for peanut production (Cay Ru, Bai Nai, Nha Rau fields and some home gardens). Other various crops such as rice, sweet potato, maize and green beans are cultivated depending on climatic conditions and the seasons. Due to water limitations and poor irrigation infrastructure, only Chu Ke and Bai Nai fields can produce two crops per year while the rest produces only one crop per year.

The construction of inner-field and inner-village roads has reduced the number and area of farmland. Moreover, floods sweeping away significant areas of the riverbank have exacerbated the problem. Villagers have 50-year-land-use-rights for crop cultivation.

Electricity system

All households in My Loi village can access the national power grid since 1999. However, during rainy and storm seasons, blackouts are frequent due to fallen trees or planned for safety reasons. The blackouts during the summer also result from low production of electricity (water shortages in the hydropower plants) and increasing demand. The projected increasing demand for electricity will require improved capacity of power supply, in particular, to reduce the frequency of blackouts and increase the voltage.

Telecommunication masts

Ky Son commune has two telecommunication masts built by Vietnam Post and Telecommunication group (VNPT) and Viettel Post and Telecommunication group (Viettel). The VNPT mast is located near Ky Son Commune People's Committee building while the Viettel mast is located in Son Trung 2 village near the inter-commune road number 10.

About 95% of the villagers own a mobile phone. The villagers expect that the demand for good telecommunication will increase.

Table 1: Summary for map layer 1- current conditions as perceived by men (M) and women (W)

Land cover class	Community determined land use	Location Names	Current state (quality)	Time to resource	Management and ownership issues	Environmental Benefits	Opportunities	Limitations
Roads (M)	Travel and trade, connect Viet Nam and Laos	National Road 12	Good quality as just upgraded recently. 12m width	10 minutes	Ky Anh Department of Roads managment		Travel and trade easily	Some parts are damaged due to overweight trucks
Roads (M)	Connect communes	Inter-commune roads	Upgrading by concrete covering	Run through the village	Government		Travel and trade easily	
Roads (M)	Connect communes	Inter-commune road 10	Good	Run through the village	Government		Travel and trade easily	Some parts are damaged lead to road accidents
Roads (M)	Connect villages and fields	Intra-village roads	4 of 6km are covered by concrete	Run through the village	Village		Travel and trade easily	2km uncovered. Big vehicles can not pass through
Roads (W)	Travel and trade	National Road 12	Good	10 minutes	Government	None	Travel and trade easily	<ul style="list-style-type: none"> - Forest area reduced for the roadconstruction - Road accidents due to damage - Too narrow

Land cover class	Community determined land use	Location Names	Current state (quality)	Time to resource	Management and ownership issues	Environmental Benefits	Opportunities	Limitations
Roads (W)	Travel and trade	Intra-village roads	Good. Most of the roads are covered by concrete	Run through the village	Funded by government		<ul style="list-style-type: none"> - Convenient for agricultural production. Smaller vehicles can transport agricultural materials between house and fields. - Travel and trade easily 	
Schools (M)	Education	Kindergarten in Mỹ Lợi and Son Trung 2	Water shortages	Village centre	Ky Anh Department of Education/Ky Son CPC		Children go to school easily, parents have more time for work	
Schools (M)	Education	Ky Son Primary school	Meet national standards, 2 two-storey buildings	5-20 minutes	Ky Anh Department of Education/Ky Son CPC			
Schools (M)	Education	Ky Son Secondary school	Meet national standards, 3 two-storey buildings	5-10 minutes	Ky Anh Department of Education/Ky Son CPC			
Schools (W)	Education	Kindergar-ten	<ul style="list-style-type: none"> - Good ifacilities - Staff has good quality 	Centre of village	Ky Anh Department of Education/Ky Son CPC		<ul style="list-style-type: none"> - Covenient location - Raising awareness on importance of education 	Tution fee is higher than average incomes

Land cover class	Community determined land use	Location Names	Current state (quality)	Time to resource	Management and ownership issues	Environmental Benefits	Opportunities	Limitations
Schools (W)	Education	Ky Son Secondary School	<ul style="list-style-type: none"> - Good facilities - Good quality staff - Meet national standards 	10 – 15 minutes	Ky Anh Department of Education/Ky Son CPC		<ul style="list-style-type: none"> - Convenient location for children - Raising awareness on importance of education 	Tuition fee is higher than average incomes
Market (M)	Trade and marketing	Ky Son Market	Upgraded in 2013	10 minutes	Ky Son Cooperative		Trade easily	Waste management
Market (W)	Trade and marketing	Ky Son Market	<ul style="list-style-type: none"> - Diverse supply of goods - Good infrastructure - Convenient location 	15 minutes	Government		<ul style="list-style-type: none"> - Trade easily with many kinds of goods - Increase incomes - Convenient for trading and purchasing goods 	<ul style="list-style-type: none"> - Small number of kiosks - Service fee is still high - Does not have toilets - Ground is made of soil (gets muddy during rain)
Medical Centre (M)	Examine and treat medically	Ky Son Medical Centre	Good	10 minutes	Ha Tinh Department of Medical/ Ky Son CPC		Villagers are examined and treated regularly and on time	Occasional overcapacitated

Land cover class	Community determined land use	Location Names	Current state (quality)	Time to resource	Management and ownership issues	Environmental Benefits	Opportunities	Limitations
Medical Centre (W)	Examine and treat medically	Ky Son Medical Centre	- Sufficient number of staff - Clean	10 – 15 minutes	Ha Tinh Department of Medical/ Ky Son CPC		- Convenient for examination and medical treatments - Regular health care program	- Occasionally overcapacitated - High prices for medicine. The prices of medicine or health services are not enclosed in public - Some specific medicine not in supply
Ky Son Commune People Committee (M)	Administration procedures	Ky Son CPC	1 two-storey building and 1 grade IV building	Centre of village	Ky Son CPC		Villagers get support from CPC conveniently	Commune hall is under reconstruction
Commune Hall (M)	Meeting, performance	Culture house/Commune hall	Under reconstruction	Centre of village	Ky Son CPC			
Rivers (M)	Provide water for irrigation, daily water needs for villagers and livestock	Rào Mơn/Rào Mốc	Lack of water due to the construction of National Road 12 and mining at the river head	5 minutes	Ky Son CPC	Climate regulation / Provide fertility	Provide nutrients to agricultural fields/water for irrigation	Erosion on riverbanks/ polluted water
Rivers (M)		Rào Trỏ	Good, plenty of water	20 minutes	Ky Son and Ky Lam CPCs	Climate regulation / Provide fertility		Erosion on riverbanks due to sand mining
Irrigation canals (M)	Irrigates fields	Cay Tram	Enough water for 2 fields Chu Ke and Bai Nai only		Ky Son CPC		Irrigation	Only a half of 1km covered by concrete

Land cover class	Community determined land use	Location Names	Current state (quality)	Time to resource	Management and ownership issues	Environmental Benefits	Opportunities	Limitations
Rivers, irrigation canals (W)	<ul style="list-style-type: none"> - Daily water supply for villagers and livestock - Sand and stone for construction - Clean water for FORMOSA - Irrigation 		River is widening and river flow slowing down	10 minutes	Government	Climate regulation	<ul style="list-style-type: none"> - Source of water for irrigation - Source of fish and prawns 	
Reservoirs (M)	Water for irrigation, flood control	Cay Tram	Upgraded in 2013	10 minutes	Ky Son CPC/My Loi village	Climate regulation	Provide water for irrigation	Lack of water
Reservoirs (M)		Đa Quại	Poor conditions its banks are made of soil	40 minutes	Ky Son CPC		Provide water for irrigation	Erosion
Dams (M)		Cây Sòng	Poor conditions as dams are made of soil	20 minutes	Ky Son CPC			
Dams (M)		Tráng	No longer use	20 minutes				
Dams (W)	Store irrigation water	Cay Tram	Good, upgraded in 2013	20 minutes	Government	Climate regulation		
Forest (M)	Forest production exploitation	Hòn Đe	Good	30 minutes	Ky Anh Forest Control	Retain water/Prevent erosion/ Climate regulation	Provide firewood, forest material	

Land cover class	Community determined land use	Location Names	Current state (quality)	Time to resource	Management and ownership issues	Environmental Benefits	Opportunities	Limitations
Forest (M)	Planted forest (acacia and cajuput)	Various names and locations	Good	20 minutes	Villagers		Increase incomes	Small area for each household
Forest (W)	Planted forest (acacia and cajuput)	Various names and locations	Good	30-60 minutes	Villagers	<ul style="list-style-type: none"> - Prevent erosion - Retain water and soil humidity - Prevent flood - Climate regulation 	Increase income (30-50 mil VND/ha/5 years)	<ul style="list-style-type: none"> - Unsustainable prices on inputs - Negative affected by extreme weather events (i.e storms may destroy the forest, hot spells may cause fire) - Planted only in rainy season
Forest (W)	Natural forest		<ul style="list-style-type: none"> - Few larger and high value plants - Limited number and species of animals 	2hours	Government	<ul style="list-style-type: none"> - Prevent erosion - Retain water and soil humidity - Prevent flood - Climate regulation - Diverse species 	<ul style="list-style-type: none"> - Firewood - Forest materials 	
Farmland (M)	Cultivation (rice and cash crops)	Bãi Nái Chu Khê Nhà Rau Bấp Muông Tùng Lụ Mít Khô Loài Oai	Water shortage allows only one crop/year	5-10 minutes	Villagers		Ensure food security	Lack of water

Land cover class	Community determined land use	Location Names	Current state (quality)	Time to resource	Management and ownership issues	Environmental Benefits	Opportunities	Limitations
Farmland (W)	Cultivation (rice and cash crops)		- Yield reduced due to farmland degradation - Area reduced due to housing and construction	5 minutes	Villagers		Increase household income	- Lack of water (rainfed) - Depends largely on weather
Telecommunication masts (M)	For phone use	Viettel, VinaPhone	Good	2 minutes (VinaPhone), 20 minutes (Viettel)	Vinaphone, Viettel		Communicate conveniently	
Electricity (M)	Household use and production		Poor conditions. No electricity in rush season		Ky Anh Department of Electricity			Usual blackouts due to falling trees and for safety during rainy season; low production in summer.

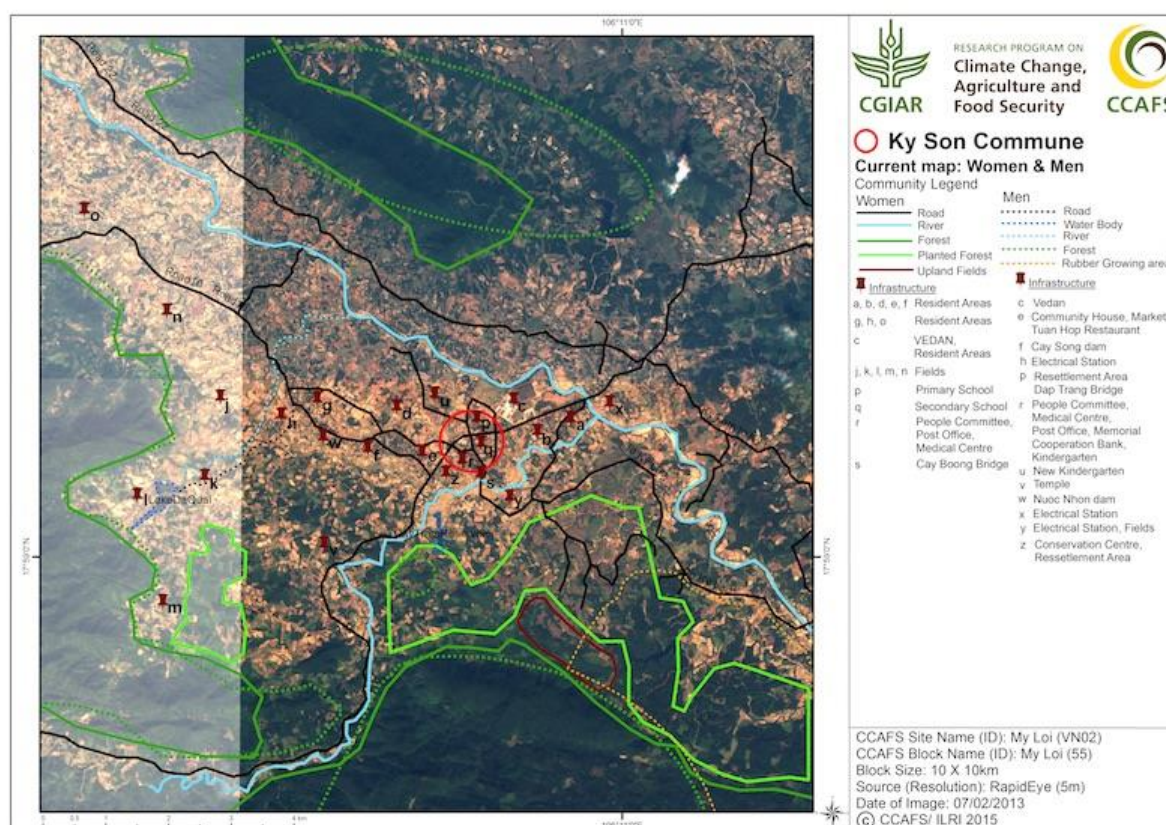
4.1.2 Gender-differentiated comparison of current conditions

Map 4 shows an overlay of the men and women's current maps. The male and female groups gave quite similar views of their community resources, in particular regarding the current state, management, opportunities and limitations.

The main differences between the group discussions were that the women mentioned economic matters more often than the men did, possibly as they usually manage the family budget. For example, the women said that school fees were higher than their average incomes and that renting a stand in Ky Son marketplace was expensive despite its poor facilities.

Regarding the current state and opportunities of community rivers, the men mentioned that polluted water and changing river flow are due to sand-mining. During the feedback meeting the women's group pointed out gold mining activities pollute the water and make people sick.

Furthermore, the men identified masts and the electrical system, as important resources in order to contribute to the development of the community while the women did not mention these.



Map 4: Overlay of current conditions, comparing men's and women's maps

4.1.3. Major changes of resources conditions

Participants discussed the history of land use, major changes that occurred in the landscape in the past, and the drivers of change that were drawn into the map. The year 1995 was used as a milestone as the school was split into primary and secondary schools in that year.

Roads

According to the FGD participants, the National Road 12 and Ho Chi Minh trail were unconnected before 1995, making travelling to and trading with Laos challenging. The inner-field and inner-village roads were only upgraded in 2008 through the government program. Both male and female groups pointed out improvement in road quality but noted problems. Some are not yet asphalted, or narrow and poorly maintained. These roads reduce the ability to transport goods.

Schools

Ky Son primary and secondary schools shared buildings until 1995; the facilities were in poor and inefficient condition with walls made of soil, straw and bamboo. In 1995 the schools were split in terms of administration and location. Currently, the schools are located opposite each other on each side of National Road 12. Through funds from the Government and parents, the school buildings meet the demands of teachers and students. The kindergarten used to be located where the Ha Tinh tapioca starch-processing factory (Vedan) now is. It moved to its current location in 2005 (VEDAN factory was established in 2007).

Market

Ky Son market place was established in 1997 due to increasing demand for trading. The women's group said that the former market was close to Rao Tro bridge, the centre point of three neighbouring communes.

Medical Centre

Ky Son Medical Centre was moved to its current location next to Ky Son Commune People Committee in 2007, due to land clearance for the construction of National Road 12. The former location of the Centre was at the intersection of Ky Son-Ky Lac inter-commune road and the National Road 12.

Ky Son CPC

Ky Son Commune People's Committee used to work in two buildings with poor conditions, one of which is still in use. The culture house was demolished; a new one funded by New Rural Program is expected to be in use in late 2015.

Rivers

The river system used to have a large flow, good water quality and was not polluted, according to the men's group. Before 1995, villagers were able to catch fish and shrimp in large amounts. They consider the rivers as drinking water source for both human and livestock. However, since the onset of mineral and construction sand mining the river flow and water quality has reduced. The construction of the National Road 12 exacerbated these problems.

Reservoirs/Dams

The women's group said that Cay Tram reservoir was built in 1962 from soil and stone. It was a challenge to reach the reservoir, as there was no road at that time. Villagers were concerned about their safety during floods, storms or heavy rains. Cay Tram dam was upgraded in 2013.

Forests

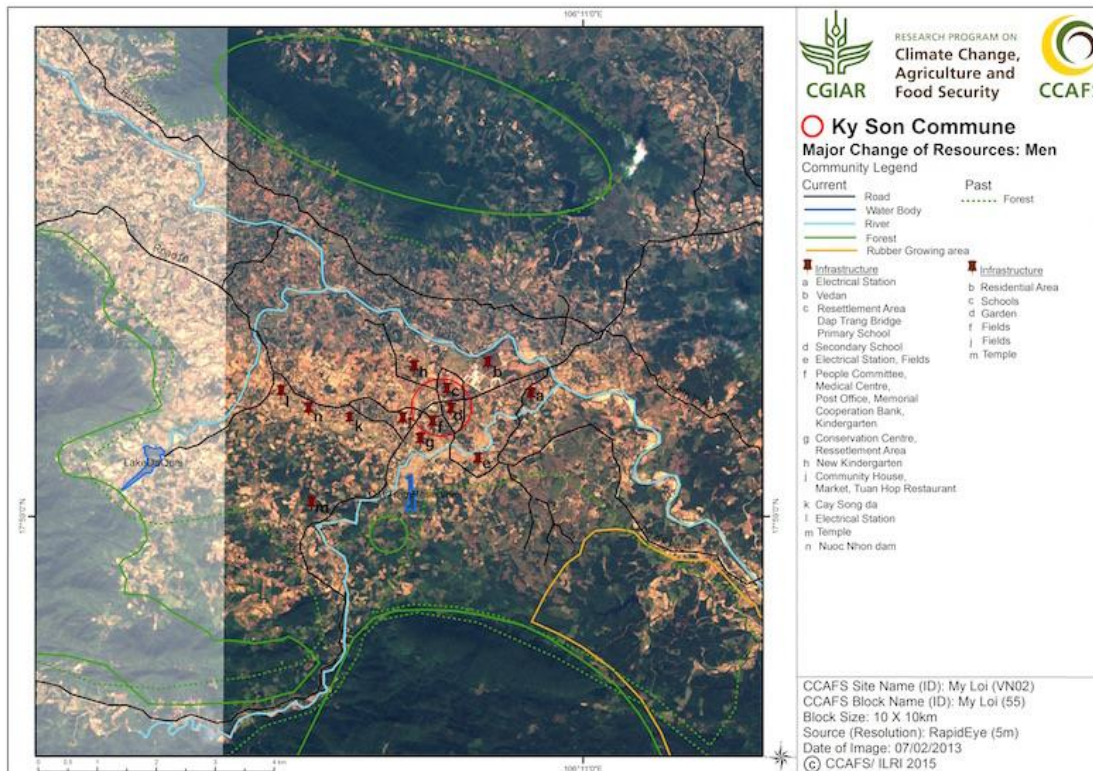
Only the men's group indicated changes in natural and planted forests, probably because mainly men are working in the forest. In 1995, the area of natural forest was much larger than the planted one. The natural forest area has since reduced due to deforestation for agricultural production (cassava), timber exploitation (acacia and cajuput) and the expansion of Cay Tram reservoir. The forest plantation area is increasing for wood for pulp production.

Electricity System

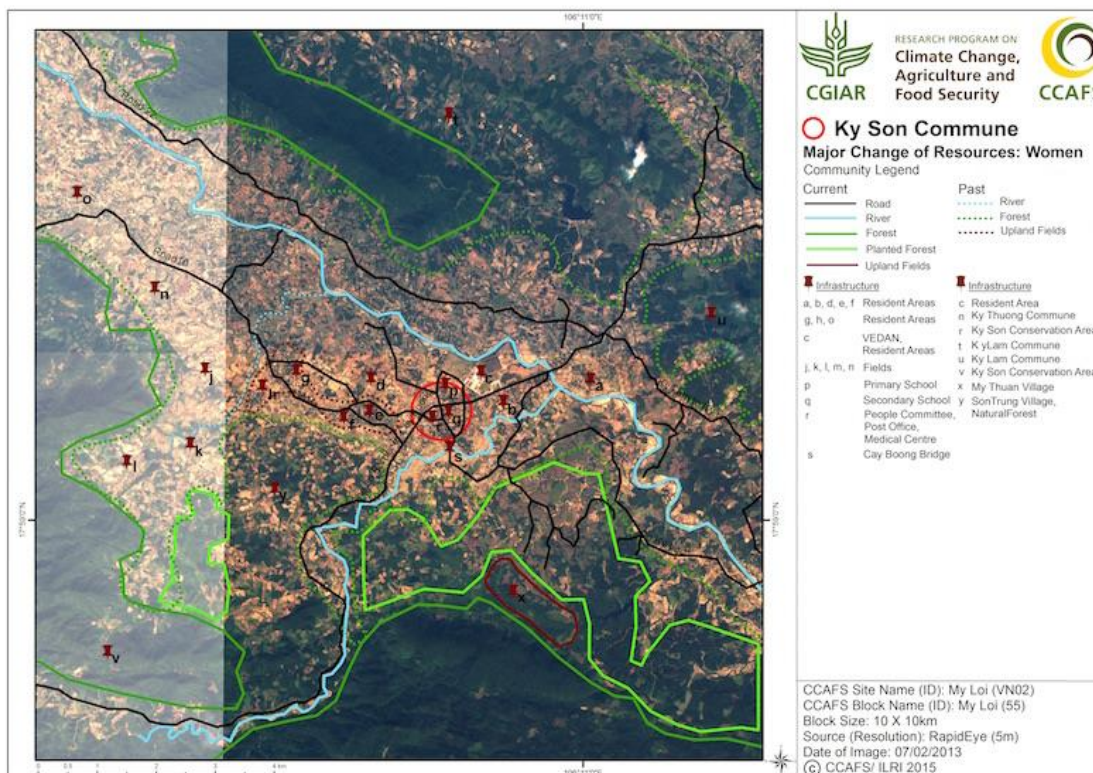
The village was not connected to the national grid until 1999, so before then the villagers used battery only for lights and radio. Since the village was connected to the grid, households use more electrical devices such as TV and refrigerator.

Telecommunication masts

In 1995 few village residents owned or used cellphones and there was no telecommunication mast in the community. However, the increasing demand of using cellphones led to the set up of two telecommunication masts (Viettel in 2007 and VNPT in 2010) in Ky Son commune. The telecommunication infrastructure meets the demand, now with approximately 95% of villagers owning a cellphone.



Map 5: Major changes in resources (comparing past and present) for men



Map 6: Major changes in resources (comparing past and present) for women

Table 2: Major changes and drivers of change in the last 10 years, as perceived by men (M) and women (W)

Land cover class	Community determined land use	Location Names	Past state (quality)	Time to resource	Drivers of change	Management and ownership issues	Environmental Benefits
Roads (M)	Travel, trade	National Road 12	Made of soil, low quality, 6m width	10 mins	Funded by government	Ky Anh Department of Road management	
Roads (M)	Connect communes	Inter-commune roads	Made of soil and stone	Run through	Funded by government	Government	
Roads (M)		Road 10	Made of soil and stone				
Roads (M)	Connect villages, fields	Intra-village roads	Small, made of soil and stone	Run through	Funded by government and villagers	Village	
Roads (W)		National Road 12	Small, made of soild and stone, big vehicles could not run though		Funded by government		
Roads (W)		Intra-village and inter-commune roads	Made of soil and stone, small, can not use during heavy rain or flood, big vehicles could not run through		Policies on support cement to upgrade rural roads		
Schools (M)		Kindergarten in Mỹ Lợi, Son Trung 2	Good	Centre of the village	Increasing demands of teaching and learning/ Increasing population	Ky Anh Department of Education/ Ky Son CPC	
Schools (M)		Ky Son Primary School	Small, cottages, walls made of straw and soil	5-20 mins	Increasing demands of teaching and learning/ Increasing population	Ky Anh Department of Education/ Ky Son CPC	
Schools (M)		Ky Son Secondary School	Use the same infrastructure with Ky Son primary school	5-10 mins			
Schools (W)		Kindergarten	Upgrade from commune warehouse, more buildings built in 2009.		Increasing number of children		

Land cover class	Community determined land use	Location Names	Past state (quality)	Time to resource	Drivers of change	Management and ownership issues	Environmental Benefits
Schools (W)		Ky Son Secondary School	Split from Ky Son Primary school		- Government policies - Increasing number of children		
Market (M)		Ky Son Market	Built in 1997	10 minutes	Increasing demand of trading	Ky Son Cooperative	
Market (W)		Ky Son Market	Was close to Rao Tro bridge 20 years ago		Market plan of government		
Health Centre (M)	Examine and treat medically	Ky Son Health Centre	Poor conditions/facilities	10 minutes	The construction of the National Road 12	Ha Tinh Department of Health and Medical	
Health Centre (W)		Ky Son Health Centre	Poor condition, located 1km far from current locaiton		The construction of the National Road 12		
Ky Son Commune People Committee (M)	Working	Ky Son CPC	Grade IV building	Centre of village		Ky Son CPC	
Commune Hall (M)	Meeting, performance	Culture house		Centre of village	Funded by government	Ky Son CPC	
River (M)	Irrigation and daily use for human and animal	Rào Mợn/Rào Mốc	Wide, more water, clean and not polluted, source of fish and prawns	5 minutes	- The construction of the National Road 12 - Sand and stone mining	Ky Son CPC	Climate regulation /Provide fertility
River (M)	Irrigation and daily use for human and animal	Rào Trỏ		20 minutes		Ky Son and Ky Lam CPCs	Climate regulation /Provide fertility

Land cover class	Community determined land use	Location Names	Past state (quality)	Time to resource	Drivers of change	Management and ownership issues	Environmental Benefits
River (W)	Irrigation and daily use for human and animal		Narrow flow, lots of trees on river banks, no erosion, low flow		- The construction of the National Road 12 - Sand and stone mining		
Reservoirs (M)	Irrigation	Cây Trâm	Made of soil and stone	10 minutes		Ky Son CPC and My Loi village	Climate regulation
Reservoirs (M)		Đa Quai	Have not built yet	40 minutes		Ky Son CPC	
Dams (M)		Cây Sòng	Made of soil and stone	20 minutes		Ky Son CPC	
Dams (M)		Tráng	Made of soil and stone	20 minutes			
Dams (W)		Cây Trâm	Built in 1962 by soil and stone; small and not able to control flood; hard to access		Funded by government		
Forests (M)	Natural forest - Provide firewood	Hon De	Large area with diversification of species	30 minutes	Expanding and upgrade of Cay Tram reservoir	Ky Anh Forest Ranger	Retain water/ Climate regulation /prevent erosion
Forest (M)	Planted forest (acacia, cajuput)	Various	Planted since 1990s	20 minutes	Increasing population and demand for incomes	Villagers	
Forest (W)	Planted forest (acacia, cajuput)		Uncovered mountain leading to erosion		Alternative tree in order to increase incomes		

Land cover class	Community determined land use	Location Names	Past state (quality)	Time to resource	Drivers of change	Management and ownership issues	Environmental Benefits
Forest (W)	Natural forest		Large area with diversification of species and high value plants		- The construction of roads - Forest material exploitation		
Farmlands (M)	Cultivation (cash crops)	Bai Nai Chu Ke Bap Muong Tung Lu Mit Kho Loai Oai	Large area in various locations	5-10 minutes	- The construction of roads - Erosion - Housing as a consequence of increasing population	Villagers	
Farmland (W)	Cultivation (cash crops)		- Large area in various locations - Fertility		- The construction of roads - Housing as a consequence of increasing population - Floods		
Telecommunication Mast (2) (M)	For communication	Viettel, Vina	Not available in 1995	Ky Son CPC (VinaPhone) Inter-Commune Road 10 (Viettel)	Increasing demand of using cellphone	Vinaphone, Viettel	
Electricity (M)	Light and production		Not available in 1995		Government support	Ky Anh Department of Electricity	

4.1.4. Vision for the future

A mixed group of men and women developed a map of the village's resources and human wellbeing as they envisioned it for the 2030s. The purpose of this exercise was to better understand their aspirations for the future and perceived opportunities and constraints for development. This exercise builds on the previous FGD as well as eleven photographs taken by two young villagers (1 female and 1 male) showing what they are proud of and things that need to be improved in the future. The photos were shown (using a projector) and explained (justified) to the groups of women and men. Some photos are included in the map "Envisioning the future".

The map that encapsulates My Loi villagers' vision of the future can be seen below (Map 9) and a summary of the aspects is presented in Table 3. A few of the photographs taken by the male and female youths can also be viewed below.

Roads

The villagers want an upgraded National Road 12 with 2 lanes in each direction and permanently separated by a strip in the middle. They want damages on the National Road 12 to be rehabilitated and the road to be maintained, and not to be damaged by overweight trucks. Similarly, upgraded and connected inter-commune and inter-village roads are expected. That is, the villagers hope that the 2km out of 6km dirt road would be cemented in 2015.

Bridge

The Cau Boong bridge, which connects Ky Son and Ky Lac communes, is below the annual flooding level. The villagers hope that the bridge will be elevated and widened so that it can be used during flooding periods, especially for transportation and emergency situations. This would also allow small trucks and other vehicles to transport fertilizers and agricultural products directly to the fields.

Market

The villagers said that improving services at the market centres would create new jobs and delivery of farm goods and products. They also expect the market to be equipped with facilities such as fire alarm system and waste management.

Rivers

On several occasions men and women, separately and jointly, indicated that the sand and stone mining slowed down the river flow and caused water pollution. Mining activities should therefore be limited and monitored closely by the responsible authorities.



Map 7: Future map of the community

Agricultural outputs from degraded forest and agricultural land and home gardens

The villagers would like more of the natural forest area to be allocated to households for planting acacia and cajuput, protection and harvesting. Acacia is currently used for the poorest soils. They said that rubber had low economic value in the area due to frequent storm damages and wanted to replace rubber by other higher value and sustainable plants. Tea is already popular and familiar. To meet the feed demands of the expected increasing number of cattle, grass could be planted to also prevent soil erosion in the sand mine.

Currently uncultivated or low-productivity farmlands such as in Loai Oai, Buc Muong, Tung Lu, Cay Cam and Cay Gia were expected to be in use with secured access to water and irrigation systems/channels to the fields.

During the feedback meeting, the farmers mentioned a number of higher-value perennial species they would be interested to test, if they were suitable such as macadamia, avocado, local varieties of citrus (quyt, cam trang) as well as shorter term plants such as vegetables and continue with maize, soybean and peanuts that could be sold at local markets. Farmers were interested in growing a local variety of sweet potato (which sells at VND 10,000/kg compared to the usual variety that sells at VND 7,000/kg)

Medical Centre

Improvement in facilities and equipment at the medical centre was also hoped for by the villagers. Capacity development should be pursued. Staff should be sent to larger medical centres, hospitals or universities for further training. This will redounded to improved health care services in the medical centre. This will attract more patients to seek care in the medical centre rather than migrate to other areas to seek care.

Ha Tinh tapioca starch processing plant (VEDAN)

The plant is expected to continue playing a significant role in building partnerships between VEDAN and the farmers. The farmers, however, expect that VEDAN's waste management would be improved in the near future.

New Industrial zone

The FGD participants envisioned a new industrial zone located in Hon De mountain area with a paper pulp factory to process products from acacia and cajuput. This will create local jobs and reduce the large number of commune citizens who currently are migrating to Ha Tinh city, Ha Noi, Ho Chi Minh City and overseas (Africa, Middle East, East and Southeast Asia). However, neither an industrial zone nor paper pulp factory appear in any commune or district/province plans.

Table 3: Visions for the future by mixed group of women and men

Items	Preferred condition for 2030	Opportunities	Constraints
Cay Boong bridge	Higher and wider		
Inter-commune, inter-village roads	100% are covered in asphalt	Whole-year access	
Uncultivated fields (Loại Oai, Bực Muộng, Tùng Lũ, Cây Cam, Cây Gia)	Fields will have enough water for irrigation to support two crops per year.	Two crops per year	Lack of water for irrigation
Erosion on riverbanks	Mitigated by stopping construction sand and stone mining	Clean water	
Market	Larger scale with sufficient facilities (fire alarm, toilets, better waste management)	More jobs, more goods	
Medical Centre	Sufficient facilities, improved staff capacity	Job creation, closer access to medical care	
VEDAN	Better waste management. Larger scale.	Outputs for cassava	
Natural forest	Bigger area allocated to farmers	Exploit materials for homecraft	
Planted forest	Planted to acacia and cajuput instead of rubber tree	Increase household incomes	
Industrial zone	A planned industrial zone to create jobs for local people; to reduce migration	Local job creation	
National Road 12	Better management. Prevent overweight trucks		
Factories	A paper pulp processing factory operating in industrial zone	On- and off-farm job creation	

4.2. Topic 2: Organisational landscapes

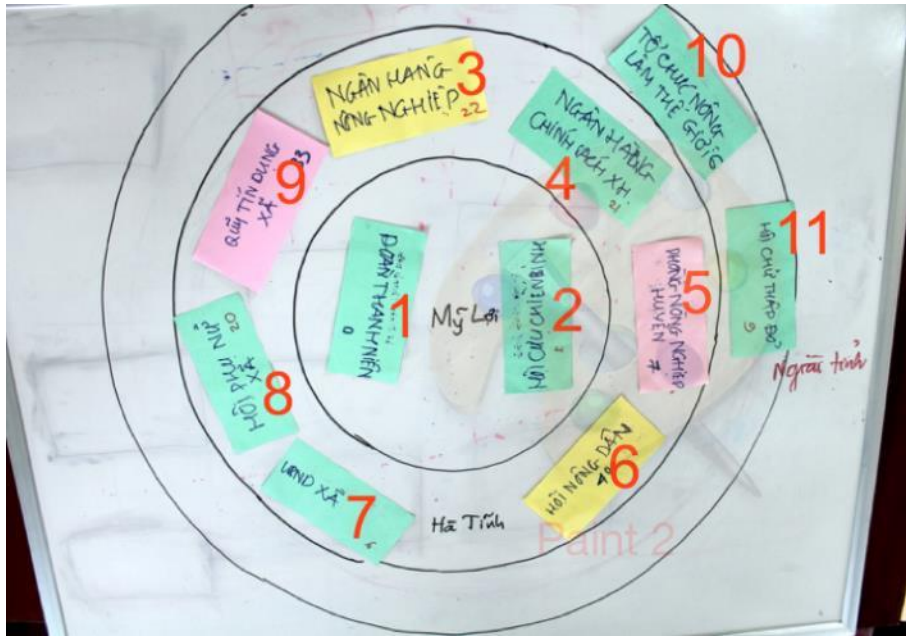
The aim of this exercise is to understand what different organisations are involved in the community, particularly those related to food security, food crisis situations, and natural resources management. Understanding the current organisational landscape can help make good predictions about the community's capacity to adapt to future challenges or mitigate climate change. The purpose of this exercise was not only to know what organisations are present, but also in what types of activities they engage in, who are the members, and who benefits from those activities.

4.2.1. Basic spheres of operation

The participants were asked to draw three large circles on the ground with the inner circle representing the community (village), the middle circle the locality⁴ (province) and the outer circle beyond the locality (beyond province). Participants then wrote names of organisations working in the area on cards and placed the cards in the appropriate circle. Comments after the feedback meeting were incorporated where feasible.

During the FGDs, the women identified 11 organisations (Photo 2) while the men identified 14 organisations in the community. At the feedback meeting, two groups of farmers identified four other organisations operating at the community level and three at the province level. Hence, the total number of identified organisations increased to 16 for the men (Figure 1) compared to 12 for the women (Figure 2). The difference seems related to the fact that men generally attended more trainings conducted by organizations than the women. The men and women's groups ranked the five most important organisations based on the value and trust placed on these organisations in the community (see detailed information in Tables 4 and 5; note that these were not changed after the feedback meeting). It should be stressed that the information about the organisations reflects the understandings of the participants of the FGDs. In particular, the women identified more organisations in the village (inner circle) while the men identified more in the locality (middle circle). During the feedback meeting, it was shared that that while the FGD participants were certain about the roles of the organisations, but there was confusion about the operational scope of the organisations.

⁴ Locality: In this report, it refers to the sphere of operations within the province



- Legends:**
- 1: My Loi Youth Union
 - 2: My Loi War Veterans Association
 - 3: Vietnam Bank for Agriculture and Rural Development (AgriBank) in Ky Anh
 - 4: Vietnam Bank for Social Policies in Ky Anh
 - 5: Ky Anh Department of Agriculture and Rural Development
 - 6: Ky Son Farmer's Association
 - 7: Ky Son Commune People's Committee
 - 8: Ky Son Women's Association
 - 9: Cooperative Bank in Ky Son
 - 10: World Agroforestry Centre (ICRAF)
 - 11: Red Cross

Photo 2: The organisational landscape by the women group

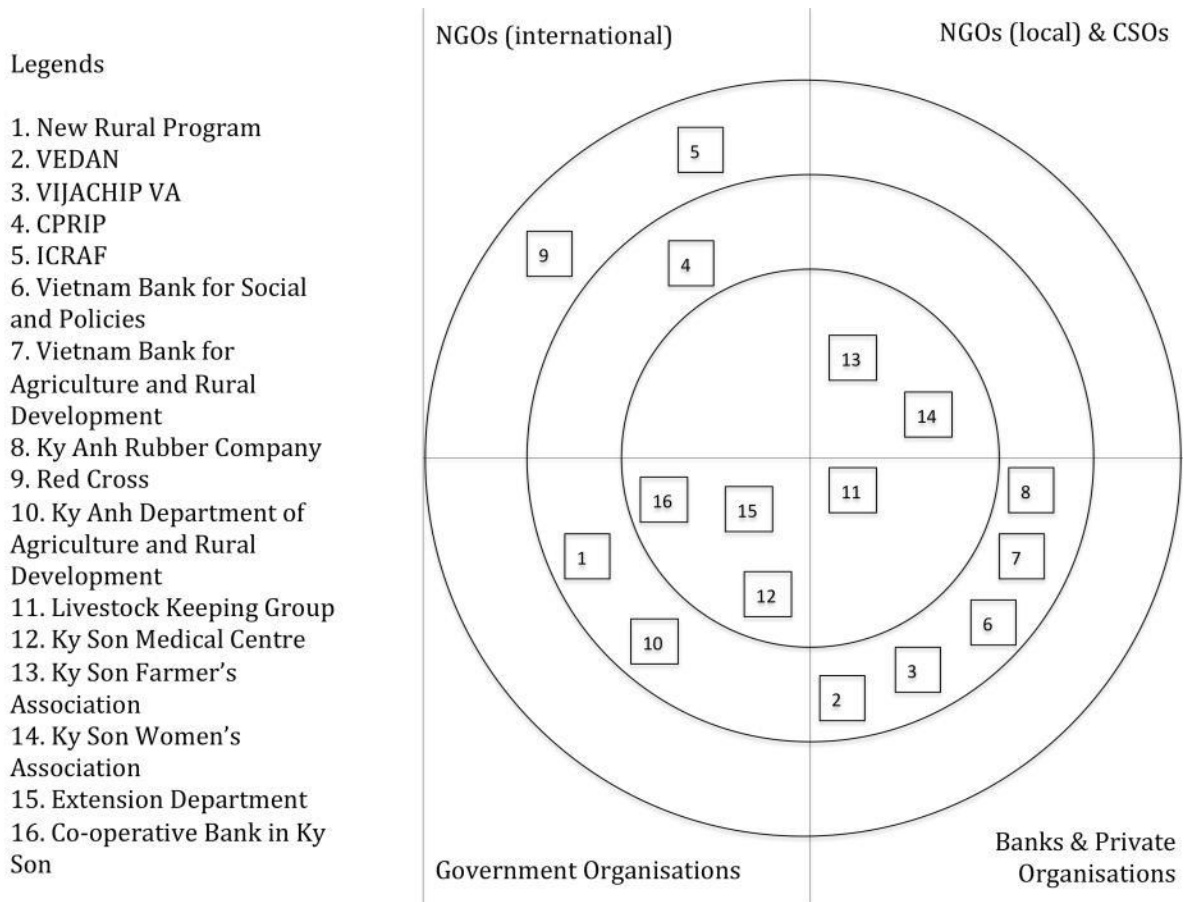


Figure 1: Organisational landscape of the men's group

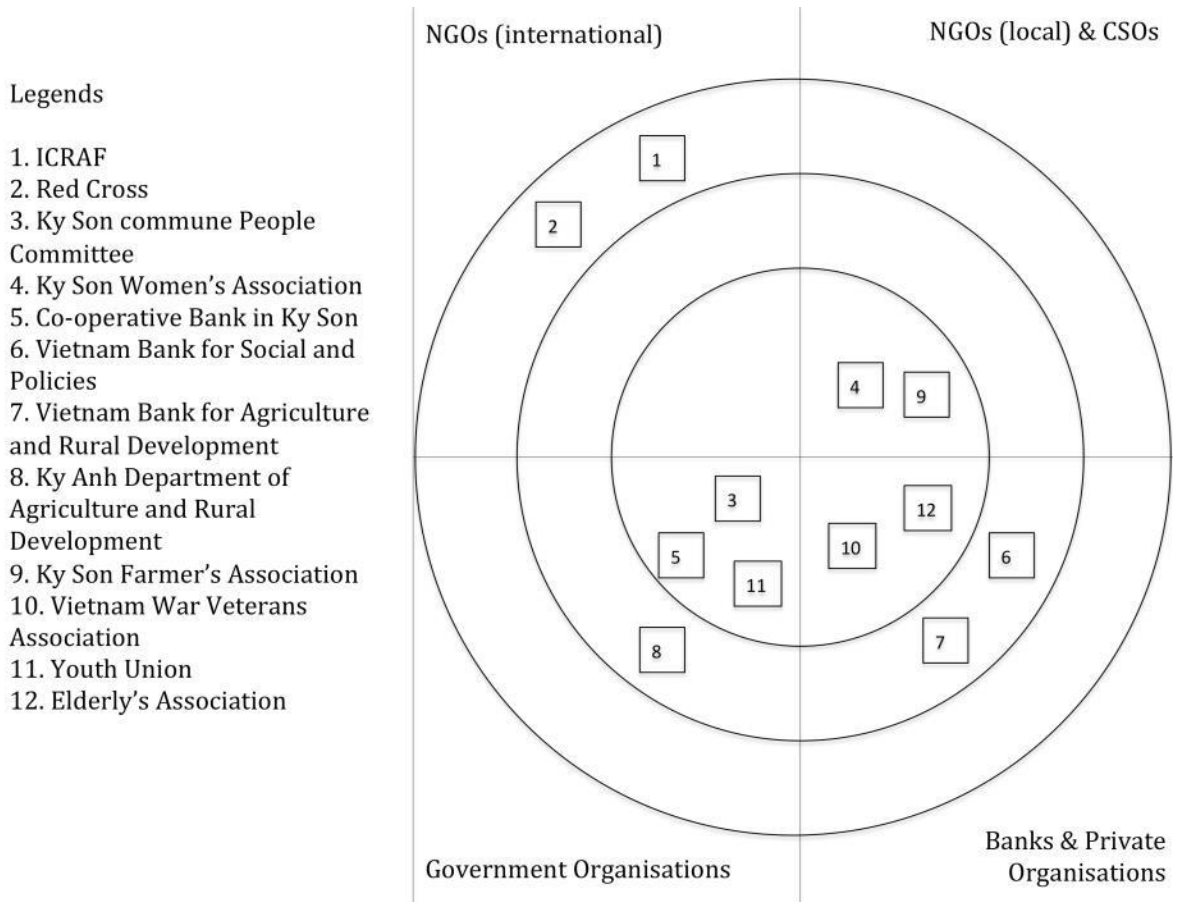


Figure 2: Orgsanitional landscape of the women' group

Table 4: The five “most important” organisations ranked by the men

For community groups								
Organisation name	Main activities	Number of members of members (estimate)	Access (open or restricted to farmers)	Origin (indigenous, state, NGO, project)	Sphere of operation: community, local, beyond local	Sources of funding (members, external, both)	Existed how long	Formal or informal
1	Medical Centre	Medical examination and treatments		Public		Community	>5 years	Formal
2	Co-operative Bank	Provide loan	9 (5 men, 4 women)	Restricted to member only		Local	>5 years	Formal
3	Agribank Ky Anh	Provide loan	10	Open		Local Bank	>5 years	Formal
4	Farmer Association	- Provide seeds, fertilizer - Provide training on farming practices	12 (4 women, 8 men)	Open		Local Bank, Government, private sector	>5 years	Formal
5	ICRAF	Raising awareness on agriculture and climate change	6 (3 men, 2 women)	Open		Beyond local Non-Government	3 years	Formal

Table 5: The five “most important” organisations ranked by the women

Organisation	Main activities	Number of members of organization (estimate)	Access (open or restricted to farmers)	Origin (indigenous, state, NGO, project)	Sphere of operation: community, local, beyond local	Sources of funding (members, external, both)	Existed how long	Formal or informal
1 Farmer's Association	- Provide seeds, fertilizer - Provide training on farming practices	12 (8/4)	Open		Local	Members	> 5 years	Formal
2 Cooperative Bank	Provide loan	8 (4/4)	Open		2 Communes	Government and members	> 20 years	Formal
3 AgriBank	Provide loan	N/A	Open		District	Government and members	> 30 years	Formal
4 Viet Nam Bank for Social and Policies	Provide loan	N/A	Restricted		District	Government	> 20 years	Formal
5 Women's Association	- Provide loan - Informe about government policies - Rasing awareness on family planning, gender etc.	Village level (0/3) Commune level: 27 (0/27)	Open for Women		Community	Government		Formal

4.2.2. Organisational landscape of food security⁵

The aim of the activity was to get an improved understanding of how the organisational landscape contributes to food security as perceived by the women and men in the village.

The facilitators explained food security as “stability over time for food availability, food access and food utilisation”. Food availability refers to physical availability that is food is available in positive amounts to the villagers. . Food access refers to the social and economic aspects of how people secure t food, including consideration for the quantity, quality and type that people might prefer. Food utilisation is the capacity to utilise the food effectively. The FGD participants discussed the concepts before reviewing each organisation they had previously identified and marked those organizations that related to food security. Revisions from the feedback meeting have been included in this report, where feasible.

Twelve out of the 14 organisations identified by men and eight out of the 11 identified by women were engaged in some aspect of food security. The men identified nine organisations that address food availability and food access, respectively, while only three were identified to be related to food utilisation. The women identified five organisations addressing food availability and food access, respectively, while no organization was identified to have activities related to food utilisation. During the the feedback meeting the following organisations were added: the Red Cross, Cooperative Partnership, Farmer Support Center (Farmer Union Ha Tinh), Son Phat Agricultural Services Cooperative, My Loi War Veterans Association, My Loi Elderly Association, My Loi Youth Union (Figure 3 and 4).

In general, most organizations identified are active in agricultural production. Three organisations including AgriBank, Vietnam Banks for Social Policies and Cooperative Bank in Ky Son independently provide loans to farmers. The Women’s Association and Farmer’s Association act as intermediaries coordinating loans between AgriBank, VBSP and Cooperative Bank, and the farmers.

Ky Anh Department of Agriculture and Rural Development and Ky Son Farmer’s Association provide training on farming practices and supplying agricultural materials with the cooperation of the Women’s Association.

The farmers were not able to identify organisation with activities that support marketing of r agricultural produce. Prices of farm outputs were set by middlemen, putting the farmers in a disadvantage position. For example, the Ha Tinh tapioca starch processing plant (Vedan) and the paper pulp processing factories purchase cassava and acacia, directly or via middlemen. They decide on prices. The farmers have little negotiation power. The men and women’s groups believed that negotiated contracts could improve the partnership between farmers and buyers..

⁵ Food security has three aspects: (i) food accessibility: refers to the social and economic aspects of how people get food, including consideration for the quantity, quality and type that people might prefer. It includes affordability, allocation and preference; (ii) food availability: refers to physical availability; i.e. the amount of food that the village has available. It includes food production, food distribution, and food exchange; and (iii) food utilisation: is the capacity to utilise the food effectively. It includes nutrition value, food safety, and social value

There were no organisations with activities in food safety or nutrition. This opens up chances for CCAFS and its partners to explore further. For example, during the feedback seminar the leaders stated that an ambulant food safety and nutrition specialist should be available to examine food quality and give nutrition advice. This may be coordinated with Ky Son Medical Centre, which has regular health care programs for children, elderly, disabled persons, and other social welfare beneficiaries; but needs more organised activities. The women’s group and leaders further suggested that a veterinarian should visit farms to examine and treat livestock frequently; this can organized through Farmers’ Association, Extension department or the Livestock Group. At the feedback meeting the group of women said they did not know of anyone who knows about diseases that could be transmitted from crops to animals or humans, such as aflatoxin.

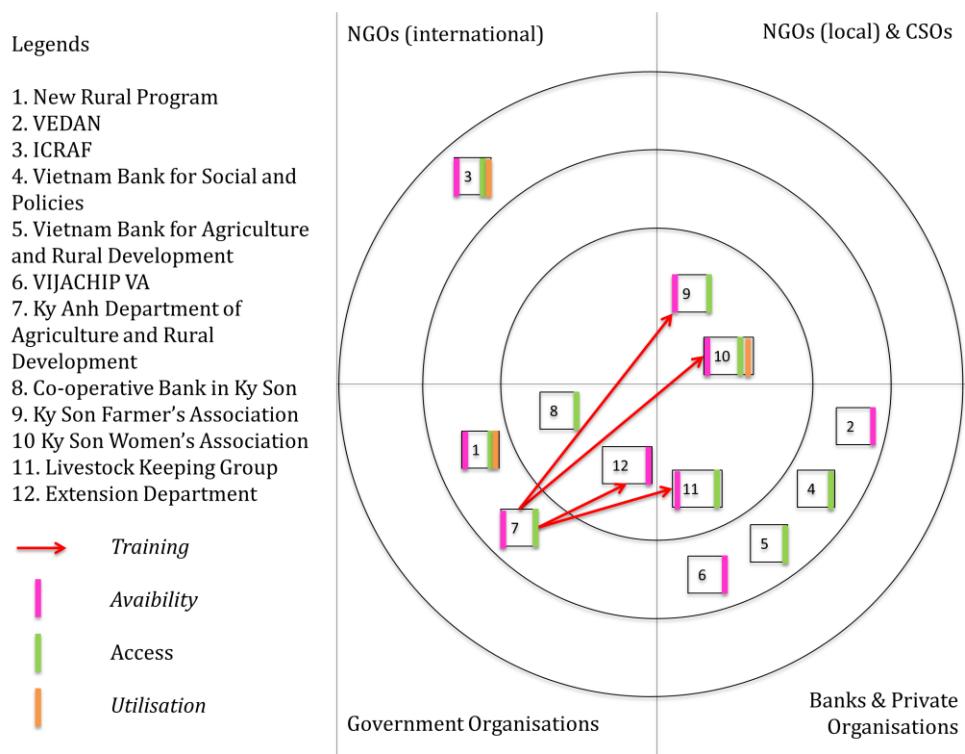


Figure 3: Organisational landscape of food security - men

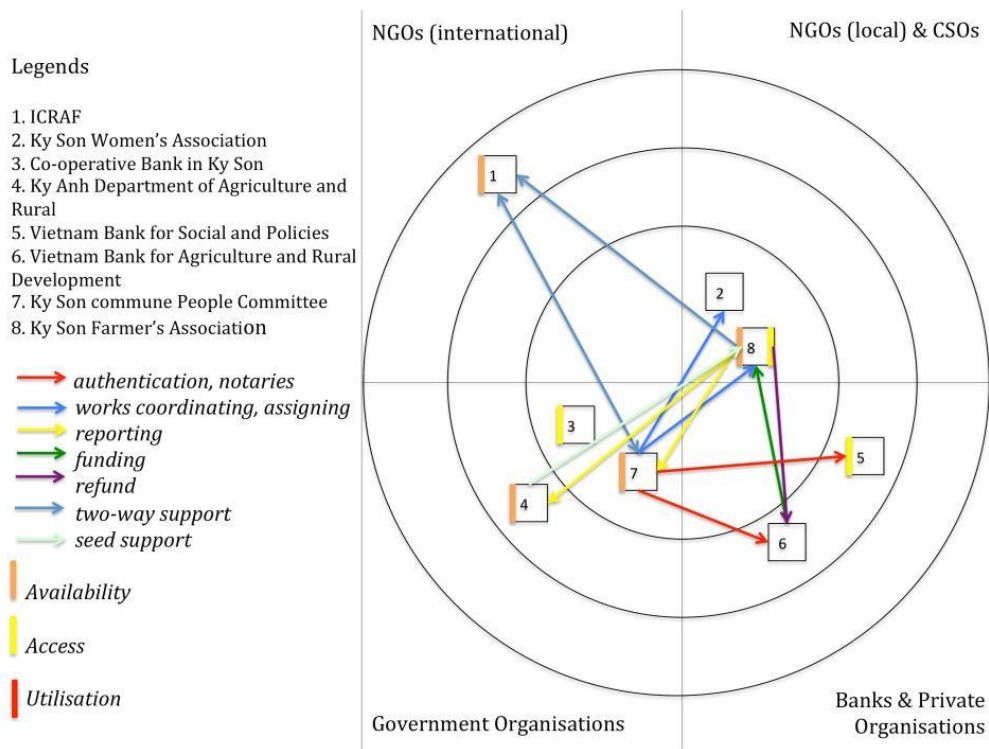


Figure 4: Organisational landscape of food security – women

4.2.3. Organisational landscape of food crisis

The purpose of this exercise was to understand how organisations help people cope during a food crisis. The participants agreed to refer to a particular food crisis in the community, and identified the organisations that were involved in providing support during that period, and their role.

The men's group defined food crisis as "food shortage (especially rice) or difficulties purchasing food that may be due to flooding or crop failure". The women's group defined food crisis as "lack of food and staples due to storm and flood". Both groups took as example a major recent food crisis in 2007 after a strong typhoon overflowed the river that flooded the whole village and destroyed all crops. During the feedback meeting, the women's group added that similar situations were experienced in 2012 and in 2013.

Out the three organisations identified by the men's group, one is focused on food availability, two have activities on food access, and two were working on food utilization in food crisis situations (Figure 5). Among the organizations identified by the women's groups, three address food availability, six on on food access and six have activities related to food utilization (Figure 8). After the feedback meeting the leaders suggested adding the Preventive Medicine Center in Ky Anh and Ha Tinh, Ky Son Women's Association, Ky Son CPC and Ky Son Communist Party Committee, marked with a star (*) in Figure 6; while the femal farmers made no changes.

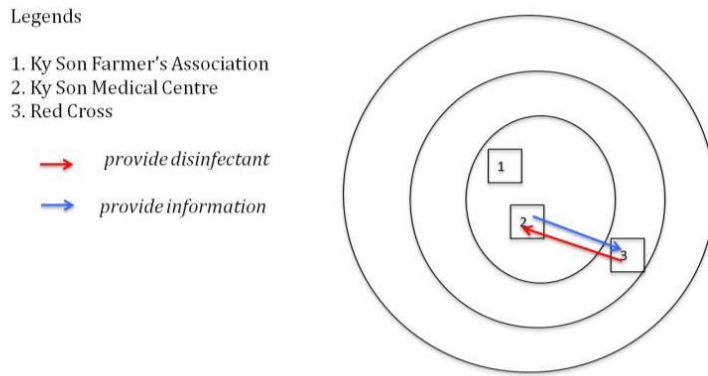


Figure 5: Original organisational landscape of food crisis identified by men

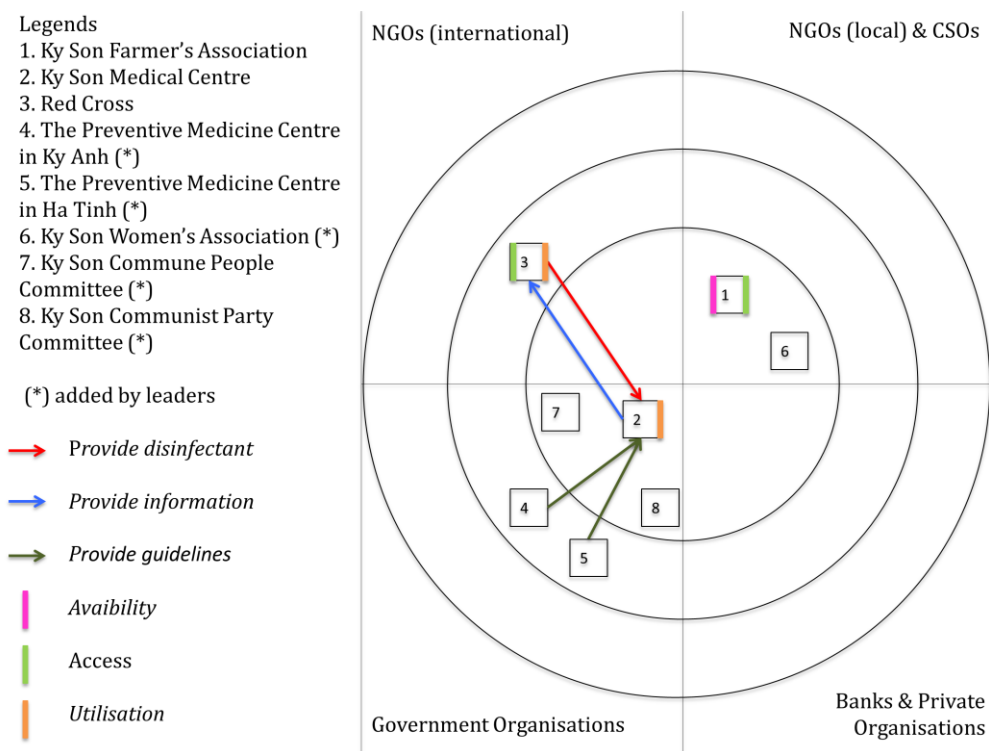


Figure 6: Final organisational landscape of food crisis as agreed by men

The men's group highlighted the role of the local Medical Centre and Red Cross during food crisis situation in providing disinfectant medicine to avoid the spread of disease the women's group added that the Red Cross provided clothes, noodles, medicine and rice after the emergency.

The women also identified the organisations related to small credit schemes after extreme events (flooding, storms and droughts) that provided loans via the Women's Union. Furthermore, Ky Anh district DARD provided training on farming practices. During the the

feedback meeting, the women’s group added the Youth Union also help during emergency situations such as helping farmers in their daily tasks, or with rescuing and evacuation work.

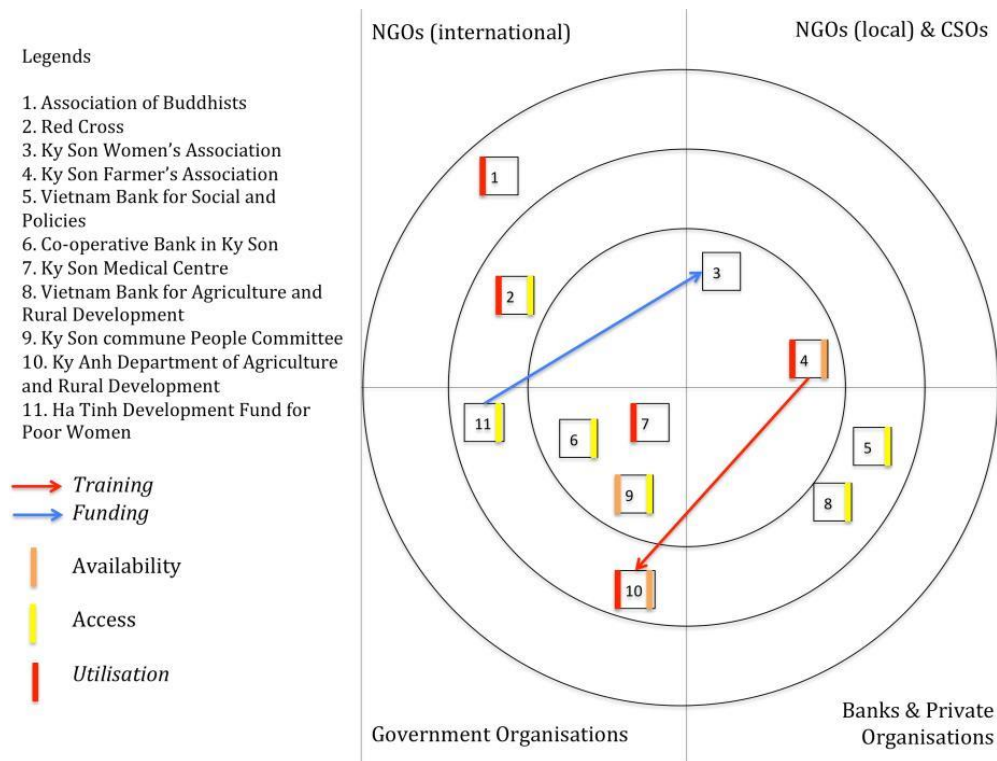


Figure 7: Organisational landscape of food insecurity - women

4.2.4. Organisational landscape of natural resource management

On organisations involved in natural resource management (NRM), the e groups draw up a list of natural resources important to the livelihoods in the community. They wrote each natural resource on different coloured cards. For each card, they placed a symbol on top to represent the organisation(s) that carries out activities related to that particular natural resource and what the specific activity is.

The men’s group identified four organisations (Figure 7) engaged in natural resource management. Three of these organizations operate in the locality (province) including Ky Anh district DARD, Ky Anh Forest Ranger and Ky Anh Rubber Company. The women identified five organisations (Figure 8), of which four (Ky Son Medical Centre, Ky Anh district DARD, Ky Son commune People’s Committee (PC) and Ky Anh district department of Natural Resources and the Environment) were operating in the province. Both the men and women identified that the Ky Anh Rubber Company and Ky Son commune PC to have activities in the village. No changes were made after the feedback meeting.

According to the men, both the Ky Son commune PC and Ky Anh Forest Ranger have related activities promoting forest protection and control. For example, commercial timber

trucks apply for a permit from Ky Son commune PC to pass by the control gate at Ky Anh Forest Ranger. In contrast, the women's group were not able to identify links among the organizations they have identified.

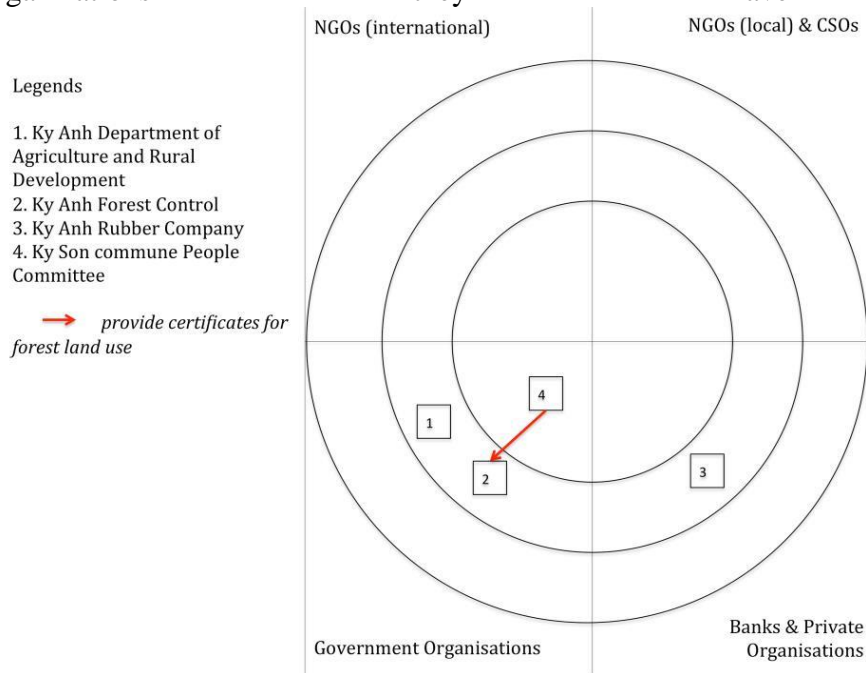


Figure 8: Organisational landscape of natural resource management - men

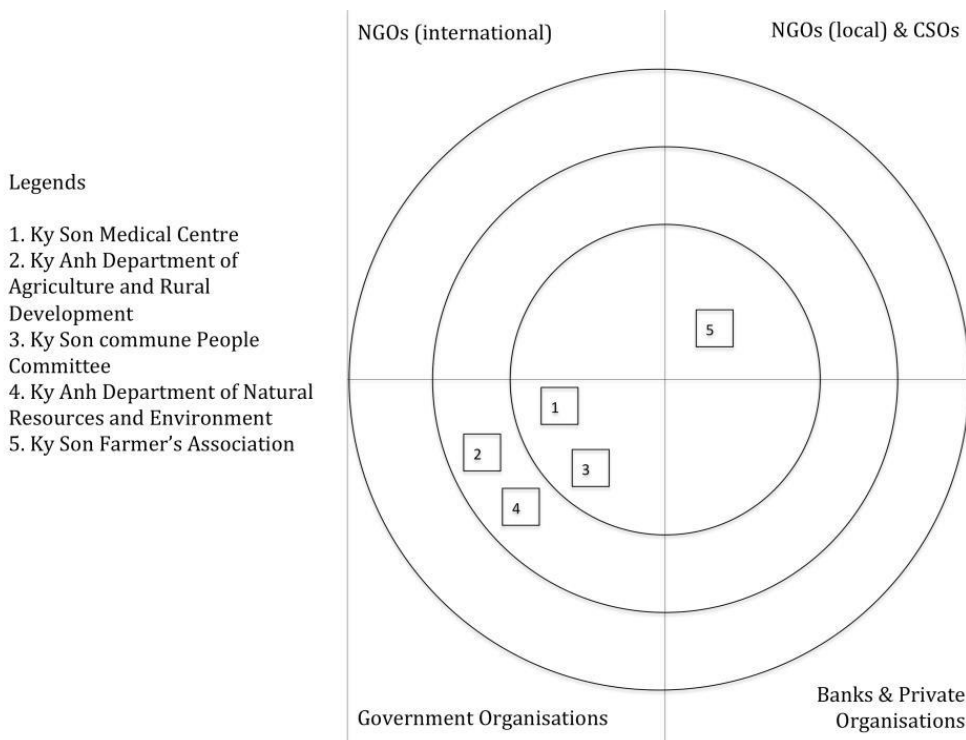


Figure 9: Organisational landscape of natural resource management - women

Table 6 summarizes information on the organisations by gender (this table has not been changed after the feedback meeting). The organisations are classified according to their role in supporting food availability, access and/or utilization, provisioning relief in times of food crisis, and natural resources management. The table shows that of the 12 organisations identified by the men, 10 have activities related to food security, three works on natural resource management, and only one is active under food crisis situations. Of the 12 organisations identified by women, eight and four organisations have activities in food security and natural resource management, respectively, while seven were active during food crisis situations. Most of organisations are operating within the province area.

Table 6. Information on highlighted organisation of men and women

Name of organization	Identified by men	Sphere. 1=village 2=locality 3=Beyond locality	Food security	Food crisis	NRM	Identified by women	Sphere. 1=village 2=locality 3=Beyond locality	Food security	Food crisis	NRM
1. Ky Son Farmer' Association	1	1	1	1	0	1	1	1	1	1
2. Cooperative Bank in Ky Son	1	1	1	0	0	1	2	1	1	0
3. Agribank Ky Anh	1	2	1	0	0	1	2	1	1	0
4. Vietnam Bank for Social Policies	1	2	1	0	0	1	2	1	1	0
5. Ky Anh Department of Agriculture and Rural Development	1	2	1	0	1	1	2	1	0	1
6. World Agroforestry Centre (ICRAF)	1	2	1	0	0	1	2	1	0	0
7. Ky Son Women' Association	1	1	1	0	0	1	2	1	0	0
8. Ky Son Commune People Committee	1	1	1	0	0	1	3	1	1	0
9. Ky Son Medical Centre	0	0	0	0	0	1	1	0	1	0
10. Red Cross	0	0	0	0	0	1	2	0	1	0
11. Association of Buddhists	1	1	0	1	0	0	0	0	0	0
12. Ky Anh Department of Natural Resources and Environment	0	0	0	0	0	1	2	0	0	1
13. Livestock Keeping Group	0	0	0	0	0	1	1	1	0	0
14. Ky Son Extension Department	0	0	0	0	0	1	1	1	0	0
15. Ky Anh Rubber Company	1	2	1	0	1	0	0	0	0	0
16. Ha Tinh Tapioca Starch Processing Plant (VEDAN)	1	3	1	0	0	0	0	0	0	0
17. Ky Anh Forest Ranger	1	1	0	0	1	1	2	0	0	1

4.3. Topic 3: Information networks

The aim of this exercise was to understand the diversity of options that people use for accessing information on agriculture and weather in the village; how people take advantage of available sources of information, and to identify reasons for not accessing sources of information, when available. Describing the networks for how people access and share information within the community is useful for better decisions about farmer's production and farming.

The participants were asked how they access information related to agricultural production (inputs, seeds, prices, etc.) and to the weather (i.e. information about forecasts, warnings about extreme weather events, or other weather related information). They were then divided into groups to discuss about categories of sources of information including individuals, organisations, media, and others.

A number of options for accessing information on agriculture and weather exist in the village. Details are provided in Table 7. Although the women's group also mentioned agri-outputs as a topic, their accumulated number of information sources was fewer than the men. Women had identified at least one information source for water management and harvest and post-harvest (one) while the men had three or more per topic. The men's group had most information sources (six) for farming calendar, while the women for seeds and breeding.

The most popular sources of information were the Farmers' Association (men) and the relatives and neighbours (women). Men receive information more from the community while the women receive more information at the market.

Meanwhile, public loudspeakers exist in each village and being used daily to roadcast government announcements and weather forecasts for agriculture production. Village leaders are responsible for the loud speakers, and therefore play an important role in providing information and feedback between villagers and commune leaders, especially on farming calendars and weather forecasts.

Around 95% of the villagers have easy access to a mobile phone while only a few have smart phones. Mobile phones were the most frequently used and trusted means to obtain weather information, technical support or to call or text to middlemen/women for agricultural inputs, prices, etc. As no organisation provides information about market prices or farm outputs to farmers, they rely on mobile phones for calling middle men/women for price information even on agricultural inputs such as seed, fertilizers and other materials.

Approximately 95% of the households have television and watch programmes related to weather and technical support. For example, "Làm bạn với nhà nông" on VTV2 provides information about weather, regionally suitable crops and demonstration models. Weather forecast updates are provided on VTV1 news.

Few use or own a radio; these are mainly used by men when they work in the forests or by the elderly with poor eye sight and typically only for weather forecasts. Nobody was using newspapers for information, mainly because they were unavailable in the village.

Internet still has limited uptake. Although the two masts enable Internet access, few have smart phones and only teachers and government officials have computers and Internet access. Furthermore, farmers cannot yet afford smart phones and/or the Internet and may lack technical skills.

The Farmers' Association was the most popular information source, possibly because they have a staff at the commune and village levels. Both Ky Son Farmer's Association and Ky Anh DARD (extension service) provide annual technical training courses to farmers and provide advice to farmers. For example, Farmers' Association has a vocational training school in Ha Tinh town and offers ambulant training for farmers. Men sought information from the Farmers' Association about all their listed topics except for weather and prices. In contrast to women they also received information about water management. In addition, DARD was identified not providing information on prices. The women also shared that they do not receive information from DARD on water management, pests and diseases or harvesting. This could be due to the fact that men are usually responsible for irrigation and spraying.

Table 7: Networks of information for women and men

Source	Individuals			Media			Organisations			Others	
	<i>Village leaders</i>	<i>Middle men/women</i>	<i>Family/ Friends/ Neighbour</i>	<i>TV</i>	<i>Radio</i>	<i>Newspapers</i>	<i>Farmer's Association</i>	<i>Ky Anh DARD</i>	<i>Agribusiness</i>	<i>Market</i>	<i>Community</i>
Seeds	W	MW	W	M			MW	MW	M	W	
Agro-calendar	MW		M	M			MW	MW			M
Farming techniques			MW	MW			MW	MW			MW
Harvest			MW				M	M			M
Fertilizers		MW	W				MW	MW		W	
Water management	MW						M	M			
Prices		MW	MW						MW	MW	MW
Weather information	MW		M	MW	MW						MW
Input prices		M	M				M			M	M
Agri-outputs									W	W	
Pests and diseases			W	W			W				
Total	7	7	12	7	2	0	12	10	4	6	9

Note: Blank= no mentioned; M=topics mentioned by men and W = topics mentioned by women

5. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

5.1.1. Community resources

The resource mapping identified a number of strengths and weaknesses regarding the infrastructure and natural resources in My Lo village. Strengths and opportunities of the village are 1) access to road and telecommunication networks, 2) proximity to several industrial zones that can encourage agricultural post-harvest production and to new service industries (may increase the demand for local production), 3) increase in livestock production to improve livelihoods and offers the potential for growth of local feed production using, for example, crop residues from legumes, rice straw or cassava and grass plantations.

Several constraints for agricultural development and livelihoods regarding natural resources involve soil-and-water issues. First, most of the irrigation channels and dams are in poor state, which leads to inefficient water use and possibly the loss of one harvest per year. The limited water supply restricts agriculture to rainfed crops (sweet potato, maize, bean, cassava and rice), with acacia on the poorest soils. Farmers had some experience trying new varieties and adjusting farming calendars to improve the situation. New climate-smart solutions may include identifying rainwater-harvesting technologies, and land-water use planning. Second, upstream sand and rock mining activities have caused serious erosion on riverbanks, loss of farmland area, and health effects. Possible solutions include 1) regulating water use; 2) planting of bamboo near the mine to reduce soil erosion as planned by the local government; 3) use of sloping land technologies and agroforestry systems. Third, the poor diversity of tree species contribute to short-cycles of monoplantations that are sensitive to extreme weather events. They are easily replaced by cassava rather than diversifying into permanent mixed higher-value perennial systems. The farmers' suggested varieties such as macadamia, avocado and local mandarin need to be confirmed with local plans and suitability. Training farmers in nursery and grafting techniques could be one way to increase incomes and support local demand.

5.1.2. Organisational landscape

The women and men identified at least 24 organisations involved in agricultural production. Most of the organisations were addressing food security, such as providing training or information on seeds, fertilizers and farming practices. Three organisations provided small credit schemes. There were more middlemen than agribusinesses trading with farmers.

All households are generally food secure, except for temporary situations such as the storm and flood in 2007. The organisations provide various types of help from work and rescue force to credits.

In terms of food safety, more basic understanding is needed about what specific problems exist, as well as what organisations to contact. Awareness raising campaigns can be done via ambulant nutrition specialists and veterinarians and on-the-job-training for staff at the medical station about diseases and health impacts.

Few organisations were identified as involved in the management of natural resources. This could be due to limited awareness of or perceived capacity to influence actions to address the problem.

The farmer groups identified most linkages between organisations representing technical training. CCAFS may play an important role in connecting farmers and organizations from the community level and more widely.

5.1.3 Information networks

The villagers source information mainly through social networks (via direct contact and mobile phones) and TV. Loud speakers enables most villagers to rapidly and equally access agricultural information, weather forecasts, and early warning information. The village leader is an important node for weather information and contact point with authorities.

There is a demand from farmers for information related to local market prices to reduce dependence on middlemen, and for localized weather forecasts.

The high frequency of mobile phone use and availability of telecommunication masts suggest that Internet will become a more important channel for information in the future.

5.2 Implications for CCAFS

- At the feedback meeting, the group of leaders said that in order to be a climate-smart village it is important that the farmers are actually doing agriculture “smarter” than others before scaling out to other villages. This requires that the CCAFS projects (1) and their recommendations for land use and species are aligned with existing Masterplans and land use plans, e.g. Decision 1373/QĐ-UBND of Ha Tinh People’s Committee of 19 May 2014 and New Rural Development (Nong Thon Moi) (from province to village level), (2) availability of support training and information to organisations/agencies that reach the farmers.
- The capacity of the Farmers’ Association and DARD extension to reach farmers with information is a major strength for the climate-smart village. Their existing training programmes may be complemented with farmer field schools on nursery development, grafting, and tree domestication and agroforestry technologies. (Flagship (FP) 1.1 and collaboration with e.g. ICRAF projects AFLI and Smart-Tree Invest)
- On water-smart. The water management issues need attention from relevant authorities where CCAFS may assist in identifying technical solutions, such as local and district adaptive water management and land use planning (FP 1.2).
- On nutrient smart. The proposed bamboo-plantation to reduce soil erosion from the sand mines should be studied for technical feasibility. CCAFS can investigate if planting trees and grass strips could help bind the soil near the mines as well as providing animal feed. (FP1.1)
- On climate-smart technologies. Identifying stress tolerant varieties or shorter-term varieties are in the farmers’ list of top priorities, including drought-tolerant varieties (especially peanut) and developing water-harvesting techniques. Adjusting the

farming calendar may help plants avoid hot or cold spells during pollination stage that avoid crop failure and spread harvest. (FP1.1)

- CCAFS and partners may test agroforestry or intercropping systems to improve soil fertility, avoid soil erosion into the dams and reservoir and reducing wind damages on crops. Climate-smart agroforestry models that exchange 5-7 year cycles of monoculture acacia for selective or sequential cutting to more permanent tree-based systems should be explored. There are opportunities to explore the suitability of new perennial cash crops, e.g. avocado. Training on nursery development and grafting techniques can help farmers start using their home gardens as experiment sites (FP1.1)
- On weather-smart. More accurate weather forecasts with adaptation options and water management are needed. (FP2)
- On market-smart. To build a sustainable partnership between farmers and agribusiness, the value-chain needs to be better understood. For example, are there small-scale post-harvest processing activities in the village or commune?
- Once the dams are sufficiently upgraded some farmers have expressed an interest in fish cage farming in the reservoir. CCAFS and its partners could support the technical training via Farmers' Association.
- CCAFS can help bridge the farmers and agribusinesses, exploring a more diverse portfolio of suitable crops and agroforestry systems. Considering the lack of organisations active in food and feed safety or environmental health issues, CCAFS could collaborate with relevant organisations to build capacity or design support programs in this sector.
- On nutrient-smart. Farmers would like to raise more livestock, in particular pigs, which could provide a more stable income throughout the year. (Given the hot summers with maximum temperature exceeding 40 degrees, feasibility studies are necessary to ensure sufficient ventilation systems.) CCAFS may play an important role in implementing waste management for bio-energy and small-scale compost production.
- More information is needed on the potential to produce feed from cassava by-products. (FP1.1)
- On gender. The study finds many similar answers from women and men. However, the mapping exercises and organisational landscape disclosed that men seem to attend training more often than women, especially related to forestry and water management. Women's access to training opportunities should be carefully monitored, and include offering training and project activities that do not cause additional burden to women's work (FP1.1, FP2).
- On CSV-management. The CSV Team will need to ensure they get regular updates on changes in policies, master plans and road quality as this will affect farmers' ability to reach the markets. (FP1.2, CSV-Team, Project Management Board)

Table 8: Potential CCAFS Partners

ORGANISATION	SPHERE OF OPERATION	ACTIVITIES	STRENGTH
Ha Tinh Farmer's Association	Locality	Support farmers/ Training	Build demonstration model/ Training
Ha Tinh DARD	Locality	Agricultural extension	Technology and crop/livestock variety research and development
Ha Tinh Centre for Hydro- Meteorological Forecasting	Locality	Weather forecasting	Provide weather forecasting
Ha Tinh Provincial television	Locality	Information and progananda	Provide technical information on agricultural production; Distribute weather information to audience including farmers
Ha Tinh Centre for Seed Research (Trung tam nghien cuu giong cay trong)	Locality	Agricultural extension	Provide seeds/plants and technology
New Village Program (Chuong trinh nong thon moi)	Beyond Locality	Various activities including infrastructure, agriculture, education	Rural development planning
Agricultural Science Institue Northern Central of Vietnam (ASINCV - Viện Khoa học nông nghiệp Bắc Trung Bộ)	Beyond Locality	Agricultural research and extension	Technology and crop variety research and development
Hue University of Agricultural and Forestry	Beyond Locality	Education/ Agricultural research and extension	Technology and crop/livestock variety research and development

5.3 Recommendations

Table 9 summarizes major gaps in knowledge and other current constraints that could provide opportunities/niches for CCAFS partners in terms of research, action/research and development interventions.

Table 9: Recommendations for major opportunities

Gaps in knowledge/ current constraints that could provide opportunities/niches for CCAFS and partners	Opportunities for research (CCAFS)	Opportunities for Action Research (CCAFS partners)	Development Interventions (Partners)
1. Suitable crop varieties (Drought-tolerant varieties, esp. peanut)		x	
2. Adapting farming calendar to avoid crop failure and spread harvest time (e.g. cassava)	x	x	x
3. Improved weather forecast	x	x	x
4. Enhance soil and water conservation (i.e Soil sample test)		x	
5. Water harvesting methods and crop combinations for rainfed upland fields	x	x	
6. Water management and land use planning (i.e specialized area for mass production of vegetable and fruit trees)	x		
7. Testing cage-fish in the reservoir		x	
8. Demonstration models for keeping livestock (cattle, pigs and chicken)	x	x	
9. Train farmer or staffs of Ky Son Farmer' Association for better management of livestock diseases and food safety	x	x	
10. Introduce new higher value plants, i.e Macca, Avocado and Mandarin, custard-apple		x	
11. Waste management for bio-energy, small scale compost production		x	
12. Range of products made from acacia (i.e plywood)			x
13. Food and feed safety/Environmental health (i.e pest monitoring, aflatoxin content in peanut and rice)		x	