

Community Reconstruction from Flooding in Quang Phuoc Commune, Central Vietnam

Jun Oyane[†]

Abstract: This paper is a discussion of the realities of the impacts of flood and water damage on community life and how such damage is dealt with in the villages of Quang Phuoc Commune, located on the coast and lagoon near the city of Hue in Central Vietnam, through a standardized survey (questionnaire) and the author's fieldwork.

Forming the basis of daily life and disaster response in the fishing villages on Hue's lagoon are the communities' acceptance of its longstanding vulnerability to disaster (*Song Than*) and a social class of residents who live on the water. The government has turned its eye toward victims and affected areas and developed policy-based support for such communities, and in recent years, the international community has started to provide the area support in building disaster prevention systems.

However, partially due to global warming, the area continues to be repeatedly struck with various flood-inducing events, including storm surges, floods, and typhoons. For the residents of the local villages, the memories and awareness of such events cast a shadow over their entire life schedules year round and make life difficult.

In this paper, I will make clear the history and current state of disaster response in these village communities from survey data.

Keywords: Song Than, Flood, Lagoon, Resilience, Water-bound resident

1. Introduction

In this report, I will arrange and analyze data from a questionnaire and interviews in the fishing villages along the coast and facing the lagoon in the suburbs of Hue in Central Vietnam. This is done as part of "Collective Behaviors and Social Organization: Sociological Studies on Disasters (the Case of Rural Communities Affected by Natural Disasters in the Central Region of Vietnam)" (Oct. 2015), a study investigating the impact of flooding on community life in coastal communities in Central Vietnam.¹ After outlining the circumstances of how those affected by

[†] Editor-in-chief, *Senshu Social Well-being Review*, Researcher, Center for Social Well-being Studies, and Department of Sociology, School of Human Sciences, Senshu University. joyane@isc.senshu-u.ac.jp [date of submission: May 31, 2016] [date of acceptance: August 4, 2016]

¹ This paper is a summary of works from the author's perspective, centering on the research of Vietnam Academy of Social Sciences (VASS) researcher Ms. Dang Thi Viet Phuong and incorporating some survey

disasters are supported from quantitative data from a questionnaire survey of Central Vietnam coastal villages, including fishing villages outside Hue, I will note the history, current state, and issues with disaster prevention in the Hue district, as made clear through qualitative data from field investigation and interviews.

This empirical study is based on the following three theoretical frameworks, representing the interests of the three parties performing the survey. The first of these interests is the voluntary association in regional communities, a theoretical framework of VASS/IOS, the core local members involved in planning of the study. This theory studies the social significance and realities of the many fraternal, professional, mutually assistive, and fellowship groups which have spontaneously come about amidst the great social changes of the Doi Moi Policy in addition to the political (government-manufactured) social groups underlying Vietnamese society. The reciprocity, mandatory restriction, mutual benefit, and other features of these voluntary groups provide an essential life foundation for farmers who would be powerless outside their village, in effect prescribing the collective life of Vietnamese farmers.

Second is social capital studies and social well-being studies, from the perspective of the Senshu University Center for Social Well-Being Studies, which has co-planned and conducted this international comparative study with VASS/IOS. These theories seek to find the current sense of security and happiness (social well-being) of the people in the countries and regions of Asia as globalization progresses.

Finally, the third point is the author's thesis on disaster sociology (sense of recovery and reconstruction in disaster reconstruction studies). Study of recovery in disaster-affected areas acts as a bridge between the researches of the two entities mentioned above.

In a factor analysis of sense of recovery in disaster-affected areas in Japan, the factors found to be significant were recovery of daily life (regular eating habits, neighborhood interactions), recovery of work and income, recovery of residence (and/or prospects on recovering residence), and town infrastructural redevelopment. As a result, victims able to live at home in affected areas have a higher sense of recovery, and those who continue to live in temporary housing have a lower sense of recovery. Further, delays in town infrastructural reconstruction clearly decrease the sense of recovery (Nakabayashi 2016). Even so, there are vast differences in social structure and local socio-economic preconditions in Japan and Vietnam, as well as the legal frameworks regarding disasters and their recovery and reconstruction. Thus, the various stages, circumstances, and people's senses of recovery in disaster between the two

data planned as sponsored by the National Foundation for Science and Technology (NAFOSTED). This research is funded by Vietnam National Foundation for Science and Technology Development (NAFOSTED) under grant number I3.2-2013.06. When writing this paper, the authors conducted the first field survey from October 18-24, 2015 (with the aforementioned NAFOSTED funding), and the second from March 24-29, 2016, which is the result of the Grants-in-Aid for Scientific Research (JAPAN) (A) project "International Comparative Study of the Mega-Earthquake Disasters" (Prof. M. Takahashi, Nagoya University). Also, the author used grant aid from MEXT Industry to Support Private Universities Building up their Foundations of Strategic Research S1491003 for fiscal years 2014-2018 in compiling this paper. He is deeply grateful for these academic research grants.

countries are not immediately comparable.

Accordingly, in this paper, the author first wishes to introduce and summarize the aforementioned VASS/IOS survey data and then interpret it from the perspective of Japanese research on recovery in disaster-affected areas (sense of recovery and reconstruction research) to serve as a foundation for future research exchanges and international comparative studies.

2. *Song Than*, Global Warming, and the End of Water-Bound Lifestyles

In Japan, the term “disaster” originally referred to earthquakes, lightning, fire, typhoons and other seasonal storms, and floods, also alluding to the storm surges and ship damage resulting from such flood damage. Japan has doubled its efforts in tsunami measures due to concerns over a Nankai Trough megathrust earthquake roughly since the time of the Great East Japan Earthquake and the Fukushima nuclear disaster in 2011. Similarly, various other Asian countries are moving to mimic the Japanese disaster prevention system construction process, based on the catastrophic history of the 2004 Sumatra–Andaman Earthquake. For disaster response and prevention measures in the lagoon fishing villages of Hue, the author will focus on interpreting the Japanese tsunami, storm, and flood damage systems from the perspective of its history of building and accumulating disaster prevention knowledge and integrating it into local everyday life.²

First, I will review the phase and reality of storm and flood damage in Vietnam, the disaster culture, and disaster prevention systems in place for such damage.

2.1. *Song Than*

In Vietnamese, the term *Song Than* collectively refers to damage from water-related phenomena, including storm surges caused by cyclones, monsoons, and other such events; tsunami resulting from earthquakes; and flooding due to overflowing rivers from heavy rains. Traditionally, the term uniformly refers to phenomena resulting in higher water levels that obstruct daily life. However, it is likely that these *Song Than* events will gradually come to be strictly referred to by another term as they are recognized as disasters and become social problems to be prevented. This will happen when the mechanism behind the events is clarified and widely known, and disaster measure policy, meaning legal systems and physical defense systems, is constructed and spreads across the country.

For example, since the 1870s, Japan took up seismology and quickly became a world leader in the field. In addition to clarifying the mechanism behind earthquakes, Japanese seismologists in Tokyo also showed that tsunamis (津波) were caused by earthquakes. Thus, while the same word as used for the early summer storm surges was also used to describe tsunamis (海嘯) in Japanese up until about 100 years ago, the terms were separated as the

² Here, disaster prevention system construction is assumed to refer to the concept in disaster sociology of resilience (Urano 2007: 40), meaning the ability of people to flexibly react to and get past disaster and how disaster mitigation support systems should be internalized within community life. This definition is not bound to infrastructural development.

difference between the two became clear.

Also, in modern times, knowledge freely flows and spreads internationally between academically developed countries in terms of disaster prevention. In Indonesia, when the Sumatra–Andaman Earthquake hit, the average person only had vague recollections of the Acehnese word *ibuna* (literally “high water”) and did not recognize the disaster as a tsunami caused by the earthquake. Thus, many mistook the event as maybe being the *kiamat*, or end of the world as taught in the Quran in Islam. (Tanaka, et. al, 2012) Through such experiences, the world has become familiar with the term tsunami, a now internationally used academic term which originated in Japan.³

Returning to *Song Than*, this is a term for water damage which affects daily life, collectively referring to storm surges from cyclones, monsoons, and other such events; tsunami resulting from earthquakes; and flooding from heavy rains overflowing rivers. From our interviews with local fishermen and farmers (as detailed in Chapter 3), it became clear that people are dividing *Song Than* into two categories. The first category is large volumes of water (flooding damage) covering living areas, and the second is for typhoon disasters. This shows that water coverage of the first type is a yearly occurrence that can be waited out. Conversely, typhoons are to be feared; they can uproot and take lives in an instant and require people to gather information and evacuate quickly when one hits. For the first category, villagers make no real distinctions as to whether the water coverage is from fresh water flooding from the river or saltwater storm surges. From the Japanese perspective, saltwater damage means that farmland will have to be completely purged of salt content and cannot be farmed for several years. For Vietnamese, however, they are relatively unconcerned by damage from the rare typhoon, as they recognize that the yearly flooding of the rivers will simply wash away the salt content from the surface layer of their fields. Of course, based on their disaster experience over the past decades and centuries, they simply no longer have that many of their fields in the places that suffer from salt damage.

2.2. Sea Levels Rising due to Global Warming

The areas surveyed in this study were small fishing villages on a lagoon (areas to be described in detail in Chapter 3). With sea levels rising little by little due to global warming in recent years, here we will discuss how the lagoon is impacted by global warming.

³ Patrick Lafcadio Hearn (aka Koizumi Yakumo in Japanese) learned of the news of the many casualties in the 1896 Sanriku earthquake-tsunami disaster and then wrote a novel based on anecdotes passed down to that point from the evacuation of villages in the 1854 Nankai earthquake. Later, the novel was rewritten by a local elementary school teacher in Wakayama Prefecture as *Inamura no Hi* (lit. "The Burning of The rice Field"), which was submitted and accepted as a Japanese language textbook in 1934. For 10 years before and during WWII, it was listed as a nationally recognized reader for fifth graders. In Japan, *Inamura no Hi* continues to be heralded as a wonderful disaster prevention text for teaching the terror of tsunamis and the importance of quick evacuation following earthquakes. After the 2004 Sumatra-Andaman Earthquake, the Asian Disaster Reduction Center in Kobe translated the book into nine languages for distribution in eight countries as a tsunami disaster textbook.

The lagoon and surrounding area consist of a low-lying lakeside, delta, sandbars, and other lowlands close to sea level, all made of soft deposited sediment. Thus, it is feared that higher sea levels in the future will lead to more severe natural disasters, such as flooding in the lowlands, erosion of the lakeside and seashore, and yet higher lake water levels when flooded and a longer flooding period. Also, higher sea levels are expected to increase lake salinity concentrations. This would either shrink or eliminate the current brackish waters, in turn changing the lagoon ecosystem and wiping out its biodiversity. Further, there are concerns that saltwater seeping into the groundwater would adversely impact resident life and irrigation water (Hirai, et. al, 2004).

From the above summary on the impact of global warming on the lagoon, the following points (1)-(3) have been extracted as areas related to the interview data to be summarized below in Chapter 3.

First, (1) sea levels are rising due to global warming. With the confluence of seawater and freshwater from the river, residents currently fish and cultivate various aquatic life.⁴ Higher water levels, however, would cause several issues. First, the relative power of the annual storm surges will increase. This will break the levees for fish ponds every year, resulting in stringent repair costs for aquaculture. Second, (2) rising seawater levels in the lagoon will increase the relative salinity levels, in turn degrading the taste of the cultivated fish and driving down their value. Third, (3) residents in some of the lagoon-area villages have given up on restoring their fields that have suffered salt damage from the storm surges and are shifting from agriculture to aquaculture. Given the high-risk, high-return nature of aquaculture, with its high initial investment and various associated costs, business conditions are getting worse.⁵

2.3. The End of Water-Bound Lifestyles⁶

Since 1975, in order to prevent human casualties from typhoons and other *Song Than* damage, as well as to provide a more modern social environment in terms of child education and other

⁴ The Ministry of Environment in Japan website describes aquaculture in the Hue lagoon as follows: "Environmental fishing: the Hue lagoon remains brackish due to the balance between freshwater from the river and saltwater flowing in the estuary. Salinity is 0-1 percent during monsoon season, but increases to 28 percent in the dry season. In the dry season, they artificially cultivate tiger prawn and other sealife with fix nets; in the monsoon season, they farm black sea bream, snook, and other fish with the nets. With the special fishing established to use the seasonal changes in water quality, the local environment must be protected in order to maintain sustainable use of natural resources and local livelihoods ... Given the short history of lagoon fishing, the residents need to be educated in the ways of sustainable use of natural resources."

<http://www.env.go.jp/nature/satoyama/satonavi/initiative/kaigai/108.html> (Accessed Apr 8, 2016)

⁵ While Hirai, et. al (2004) speaks of the impacts of global warming on lagoons in terms of transition from farming to aquaculture, as mentioned above, we heard of no such trend in the lagoon-area communities surveyed in this study.

⁶ Several forms of water-bound lifestyles have been confirmed. 1) Living on moored houseboats; 2) living in floating houses, similar to land-based housing in structure, but floated on the water with buoyant materials; 3) Houses built on stilts atop piles driven into shallow waters; 4) Standard seaside housing with the residence on the second floor and a dock on the first floor for convenient mooring. The water-bound living addressed in this paper is 1) above, moored houseboats.

facets, the Vietnamese government has promoted policies to get those living on the water dwelling to settle in land-based housing.⁷ Generally, the floating communities of Hue are thought of as a community numbering approximately 19,000 residents on roughly 2,000 boathouses, living in communities near the ancient Hue Imperial Palace (As of 1972, representing 9.6 percent of the total Hue population of 197,500 at the time (Nguyen, 2012)). The Hue lagoon floating communities addressed in this paper reside on the seaside and lagoon some 30 km (40 minutes by car) to the east of the ancient Hue Imperial Palace. As no documentation on the history and present state of these lagoon floating communities exists, this representation of the Hue Imperial Palace floating communities will be used as a general summary of similar floating communities.

At the start of the 19th century, Hue, located at the border of then Đại Việt (official name of Vietnam from 1054-1804), had a great number of residents living along the nearby river and in floating communities due to a mass immigration from the north.

The Hue floating communities were likely populated by fishermen who migrated from the north by sea and land, land dwellers forced to live there due to poverty, and former soldiers and exiled former prisoners looking for ways to make a living on the water (Nguyen, 2012: 614)

Also,

The residents of the floating communities are not well educated and lead an unstable life, always just “following the fish” and never quite sure when they will return to land or go back to the water. Many of them do not clearly remember where their ancestors are buried. It is difficult to maintain community stability. (Nguyen, 2012: 614)

Given the above, out of convenience in terms of oversight, these residents were organized into floating communes called *van* at the start of the 19th century when Hue became the Vietnamese capital. In the late 19th century, the floating communities on the river and lagoons in the Hue area increased in number to 16, classified into three kinds of villages: *thon*, *ap* and *giap*. The communities went through several changes in management system and shape, but

⁷ While there were water-bound lifestyles in Japan, they were viewed and handled differently than in Vietnam. There was a system for houseboats called *ebune* in Japan until about the 1960s. As Japan modernized, its economy and the freight ships calling to port in Japanese cities became progressively larger, barges became popular for water transport and distribution about the ports. Some of the longshoremen moving from port to port who had barges started building living quarters into the barges, housing their families on the boats. In Tokyo, there were just under 10,000 residents in the vicinity of Tsukuda and Tsukishima living on boats. These residents were documented without omission in the national census. For the census, there was a water-dwelling category (in addition to the general and special census districts), surveying residents in the port area, fishing ports, estuary, and surrounding waters. Given this, a floating meeting hall and waterfront school (a boarding school built on land) were built in a welfare program for those properly determined as water dwellers. A special police station for maintaining public order and other facilities were also established for these people. As container ships emerged from the late 1960s, barge numbers lowered as their importance in distribution dwindled, and those living on boats drastically decreased. By the 1980s, the barges had worn out to the point of being unusable and are rarely seen today.

continued to exist through the French occupation at the end of the 19th century, independence in 1946, Hue reoccupation by France in 1947, and the Geneva Convention in 1954. In 1972, 11 floating communities were determined with the issue of Vietnam Ministry of Home Affairs Protocol No. 553, and in 1976, in the socialist republic, the floating communities were directly managed by land administrative units with the issue of Vietnam Government Protocol No. 164.

In 1979, some of those living on the water were moved to the upper Perfume River with the transplant of construction immigrants to new economic regions. Next, from 1983 to 1995, many in the Hue water communities were made to leave their boats and settle on land in permanent housing districts due to national resettlement policy. In 2004, a project to settle those living on the water and stabilize their lives was started.

The above is a chronology of government management and oversight of the floating communities around the Hue Imperial Palace, and how the national settlement policy developed there. From our interviews at the local commune offices on March 28, 2016, the history and current status of the floating communities of the Hue-area lagoon are similar.

Thus, disaster response for the Hue-area lagoon fishing villages is based on a vulnerable social environment (Song Than) and social class (floating village residents), with governance (the managed and monitored van) and disaster policy (resettlement policy) thrown in. On top of this is overlaid drastic changes in livelihood (farming, fishing, and aquaculture fishing) based on recent global environmental change and rising sea levels.

In the next chapter, we will examine how area residents, including those who live or have lived on the water, have confronted storm and flood damage based on a social environment weak against such environmental change. First, we will introduce an excerpt from the relevant sections of the survey entitled “Collective behaviors and social organization: Sociological studies on disasters (the case of rural communities affected by natural disasters in the Central Region of Vietnam).”

3. Collective Behaviors and Social Organization: Household Survey (Excerpt)

A summary of the survey “Collective behaviors and social organization: Sociological studies on disasters (the case of rural communities affected by natural disasters in the Central Region of Vietnam)” follows, with a discussion of selected the simple tabulation for the items mentioned in this paper.

Two communes in Central Vietnam hit by disaster were selected for this survey: Quang Phuoc and Quang Nam. A total of 400 responses were given, with 200 coming from each commune. This paper focuses on surveys of three villages in Quang Phuoc, for which the author was present. The other surveyed commune is in a province next to Hoi An past Da Nang, which is 100 km south down the coast from Quang Phuoc. The survey period for Quang Phuoc was five days, from October 20-24, 2015. Of the seven villages (Thu Le 2, Thu Le 3, Khuong Pho, Ha Do, Phuoc Lap, Lam Li, and Mai Duong) in Quang Phuoc along the Hue-area lagoon, Thu Le 2, Phuoc Lap, and Mai Duong were selected for the survey, taking 65-70 responses in each of the three villages. The survey party consisted of seven local lecturers from the Hue University

of the Sciences and the three attending from Hanoi, including the author.

An overview of the survey question items is given below:

A. GENERAL INFORMATION

A1. Year of birth

A2. Gender

A3. Education

A4. Marital status

A5. Ethnic minority

A6. Religion

A7. What is your major occupation currently?

A8. Please tell us about your household and household member

A9. Does your household belong to the following policy family?

A10. Please tell us the estimate income from the following sources of your household over the last 12 months?

A11. Housing condition

A12. Is there any relatives living in this village?

A13. How often do you meet your relatives?

A14. How do you say about the relationship between your family and neighborhood, would it be

A.17. Is any one in your family (including you) member(s) of the following organization/ associations?

B. DAMAGES DUE TO DISASTERS

B1. Over the last 10 years (2005), did your household damage from which of the following disasters?

B2. The (estimate) number of times of damages on the following items?

B2-1. House being destroyed/corrupted

B2-5. Crops plants/domestic animals being drown/drifted/dead/rotten

C. INFORMATION, PERCEPTION

C1. From which following sources does your household receive information on disaster in the locality)

C2. In general, how do you think of such sources of information?

C3. Has any one in your household (including you) ever participated in the following activities?

D. PREPARATION, EVACUATION

D1. Before the last disaster in this commune, did your household prepare anything in advance for prevention?

D2. What did you prepare?

D3. If disaster occurred that makes your household being separated, would your household have enough food and material goods to maintain the household within at least 3 for days

D4. Over the last 10 years (2005), did your household have to evacuate?

D5. How many times did you evacuated?

D6. Where did you household often evacuate?

D7. Who chose the place of evacuation?

D8. In case your household has to evacuate, where would you want to evacuate?

D9. The location that you want to evacuate

E. SUPPORT IN DISASTER

E1. When the disaster(s) came, did your household receive the following item(s) by the following institution/groups?

E2. Have you and/or your household member participated in the following activities to help others when disasters occur?

E3. According to you, in general, how is the relationship between villagers during disasters compare to that in daily context?

F. IMPACTS, CHANGES

F1. Over the last 10 years, has there been any change in your household's production due to disasters/ climate change

F2. How the change in such production activity(ies) affect your household?

F3. Do you intent to change your job in the future?

F4. Over the last 10 years, was there any member of your household going to school (from primary school to high school)?

F5. How was the education of your household member(s) affected by disasters?

F6. According to you, who is the most vulnerable to climate change/ disasters?

G. EVALUATION OF RISKS, STRATEGY OF RESPOND)

G1. According to you, compare to 10 years ago, how dangerous are disasters today?

G2. According to you, disasters are mostly because of? (choose one option only)

G3. In general, what do feel when the flood season comes?

G4. Do you think you will live your whole life in here?

G5. If, because of disasters, your household was forced to move to another place to live, where would you want to move to?

G6. According to you, who should take the responsibility of disaster prevention and rescue? (please choose 3 options at most, and put in priority)

Of the above question items, the items relevant to the analysis in this paper will be selected to discuss a simple summary of the results. Of question items A-G above, the underlined items will be examined below.

General Information

Looking at the age of respondents (A1, Table 1), the sample taken was almost uniform across each generation with 21 percent under age 40, 29.5 percent in their 40's, 22.5 percent in their

50's, and 27 percent 60 or older, but is not necessarily representative of the actual age composition of village residents. For this sampling, a village register of all households was created, taking one representative for each household, switching between male and female representatives at regular intervals, each five households. The sampling is limited to the household representative; children and elderly dependents were not included. Given the timing of the survey, most of the younger generation were away from home working (taken in the fallow periods between the semi-annual crops), so a larger percentage of respondents were actually the elderly.

For respondent education levels, more than half had no schooling or were only educated through primary school. Those who completed their compulsory education (primary and secondary school) were 64 percent (Table 2).

For respondent occupation, 70.5 percent responded with "Agricultural/Livestock" (includes fishing and aquaculture), followed by "Commerce/Service" at 12 percent (Table 3).

Of the families, a full 90 percent had 2-3 generations living together (Table 4) with 4-5 household members total (Table 5), which is consistent with explanations from the vice leader of the commune of approximately 5 members per household (detailed in the next chapter).

The majority of households had incomes between 5,000,000 VND and 10,000,000 VND at 71 percent (Table 6).

For housing construction, 89.5 percent were of solid construction with concrete and other materials. Only 7 percent lived in tents or temporary huts, and a mere 3.5 percent had two-story housing (Table 7).

The majority of respondents (73 percent) have relatives living in the same village (Table 8), and 68.5 percent regarding their relationship as intimate (Table 10), with 63 percent meeting every day and 15 percent meeting several times a week (Table 9).

Table 1 A1. Year of birth

	Frequency	Percent
Under 40 years old	42	21.0
From 40 - < 50 years old	59	29.5
From 50 - < 60 years old	45	22.5
60 and above	54	27.0
Total	200	100.0

Table 2 A3. Education

	Frequency	Percent
No schooling/Illiterate	50	25.0
Primary school	68	34.0
Secondary school	60	30.0
High school	19	9.5
College/University and above	3	1.5
Total	200	100.0

Table 3 A7. Major occupation currently

	Frequency	Percent
Agricultural/Livestock	141	70.5
Commerce/Service	24	12.0
State officer/worker	3	1.5
Wage worker outside state sector	1	.5
Daily worker outside agricultural sector	9	4.5
Retired	2	1.0
Old/Not working	14	7.0
House-wife/husband	2	1.0
Other	4	2.0
Total	200	100.0

Table 4 A8.1. Number of generation

	Frequency	Percent
1	19	9.5
2	136	68.0
3	44	22.0
4	1	.5
Total	200	100.0

Table 5 A8. Total household members

	Frequency	Percent
2	23	11.5
3	32	16.0
4	48	24.0
5	55	27.5
6	25	12.5
7	11	5.5
8	3	1.5
9	1	.5
10	2	1.0
Total	200	100.0

Table 6 A10. Average income per capital per month

	Frequency	Percent
Under 500000 VND	75	37.5
From 500000 - under 1000000 VND	67	33.5
From 1000000 - under 1500000 VND	35	17.5
1500000 VND and above	23	11.5
Total	200	100.0

Table 7 A11. Housing condition

	Frequency	Percent
Tent	14	7.0
Semi-solid house	139	69.5
Solid house	40	20.0
Two-storey and above house/villa	7	3.5
Total	200	100.0

Table 8 A12. Relatives living in this village

	Frequency	Percent
A half and more	146	73.0
About a half	10	5.0
Less than a half	42	21.0
No one/Almost no one	2	1.0
Total	200	100.0

Table 9 A13. How often do you meet your relatives

	Frequency	Percent
Frequently (daily)	126	63.0
Quite frequently(some times/week)	30	15.0
Sometimes (some times/month)	27	13.5
Rarely(some times/year)	17	8.5
Total	200	100.0

Table 10 A14. Relationship between your family and neighborhood

	Frequency	Percent
Intimate	137	68.5
So so	61	30.5
Not intimate	2	1.0
Total	200	100.0

Disaster Damage in Past 10 Years

In the survey, respondents were asked about their disaster experience over the past 10 years, between 2005 and 2015. Nearly 80 percent were affected by a typhoon (or tropical low pressure storm) and nearly 70 percent experienced flooding (B1)(Table 11). Also, while the majority responded that their house was destroyed or damaged 1-3 times (B2.1), we can see that there were also households affected by disaster almost every year, or in some cases multiple times per year, with eight responses for 10 times and two responses each for 20 and 30 times (Table 12). The distribution for damage to crops and livestock (B2.5) was similar (Table 13).

When asked how many times their household was forced to evacuate (D4), about half of the households had not been evacuated and half had (Table 14). Of those evacuated, households evacuated once (15 percent) or twice (6 percent) were most frequent, although some households were evacuated ten times (5 percent), 15 times (1.0 percent), or 20 times (1.5 percent)(D5) (Table 15). In the post-interviews, there were households that evacuated due to flooding almost every year and received ration support. Of those who evacuated, 41.5 percent each fled to a relative's house or neighbor's/villager's house (Table 16).

Table 11 B1. Over the last 10 years, did your household damage from which of the following disasters?

		Yes	No	Total
Storm/Tropical low pressure	Count	158	42	200
	%	79.0	21.0	100.0
Flood/Submerged	Count	138	62	200
	%	69.0	31.0	100.0
Landslide/Riverslide	Count	35	165	200
	%	17.5	82.5	100.0
Whirlwind	Count	28	172	200
	%	14.0	86.0	100.0
Drought	Count	57	143	200
	%	28.5	71.5	100.0
Salt-marsh	Count	38	162	200
	%	19.0	81.0	100.0
Lightning	Count	2	198	200
	%	1.0	99.0	100.0
Other	Count	9	191	200
	%	4.5	95.5	100.0
No damage	Count	24	176	200
	%	12.0	88.0	100.0

Table 12 B2.1. House being destroyed/corrupted

	Frequency	Percent
0	40	20.0
1	54	27.0
2	31	15.5
3	18	9.0
4	7	3.5
5	7	3.5
6	2	1.0
7	2	1.0
10	8	4.0
20	2	1.0
30	2	1.0
Total	173	86.5
Missing Not applied	24	12.0
Missing Do not remember	3	1.5
Total	27	13.5
Total	200	100.0

Table 13 B2.5. Crop plants/domestic animals being drown/drifted/dead/rotten

	Frequency	Percent
0	65	32.5
1	28	14.0
2	21	10.5
3	24	12.0
4	7	3.5
5	11	5.5
6	4	2.0
7	2	1.0
9	2	1.0
10	8	4.0
15	1	.5
20	1	.5
Total	174	87.0
Missing Not applied	24	12.0
Missing Do not remember	2	1.0
Total	26	13.0
Total	200	100.0

Table 14 D4. Over the last 10 years (2005), did your household have to evacuate

	Frequency	Percent
Yes	94	47.0
No	106	53.0
Total	200	100.0

Table 15 D5. Times that the household evacuated over the last 10 years

	Frequency	Percent
1	30	15.0
2	12	6.0
3	7	3.5
4	6	3.0
5	3	1.5
6	1	.5
7	4	2.0
8	3	1.5
9	1	.5
10	10	5.0
12	1	.5
14	1	.5
15	2	1.0
20	3	1.5
30	1	.5
40	1	.5
Total	86	43.0
Missing Not apply	106	53.0
Missing Do not remember/Do not know	5	2.5
Missing No answer	3	1.5
Total	114	57.0
Total	200	100.0

Table 16 D6. Where did the household evacuate

	Frequency	Valid Percent
Relative's house	39	41.5
Neighbour/Villagers	39	41.5
School, people's committee, communal house	11	11.7
Other	5	5.3
Total	94	100.0

Sources of Disaster Information

When asked where they received disaster information from (C1), most responded “Mass media” at 86.5 percent, followed by “Local authority/local organizations” at 86.0 percent and “Villagers” at 39.5 percent (Table17). From this, we see that all water-bound residents have been wiped out and electric appliances are equipped in every house, with mass media informing those in areas with reception and direct help from local government and villagers.

Table 17 C1. Sources of information the household receive on disaster in the locality

		Yes	No	Total
Mass media	Count	173	27	200
	%	86.5	13.5	100.0
Local authority/mass organizations	Count	172	28	200
	%	86.0	14.0	100.0
Relatives	Count	60	140	200
	%	30.0	70.0	100.0
Villagers	Count	79	121	200
	%	39.5	60.5	100.0
Friends	Count	0	200	200
	%	.0	100.0	100.0
Voluntary associations/clubs	Count	5	195	200
	%	2.5	97.5	100.0
Social network (ie. Facebook, Twitter,..)	Count	2	198	200
	%	1.0	99.0	100.0
Other	Count	1	199	200
	%	.5	99.5	100.0

Attending Disaster Prevention-Related Training Courses

Household members attending training courses on climate change, disaster prevention, and/or rescue (C3) numbered 34 percent (Table 18). As this included prayers for a good harvest and religious rituals, however, attendance for pure disaster prevention training and activity is likely lower. We note here that 10 percent of residents participated in the village disaster prevention activity (“Doi Xung Kick” activity) established and performed since the flooding of 1999 (refer to the ‘3-1. Oct. 20’).

Table 18 C3.1a. Attending training courses on climate change/disaster prevention/ rescue

	Frequency	Percent
Yes	68	34.0
No	132	66.0
Total	200	100.0

Preferred Evacuation Location and Place to Move

When asked where they would like to evacuate to in a disaster (D8), distribution was roughly even between “relatives” (29 percent), “neighbor/villagers” (28 percent), and “school, people’s committee, communal house” (25 percent) (Table 19), but a great majority (77.5 percent) wished to be evacuated within the village (D9)(Table 20). When asked if they intended to live their whole life in the village (G4), 75 percent responded “yes” (Table 21). If forced to move due to disaster (G5), the majority wished to stay near to their current area despite the flooding risks, with 58 percent responding “another location in this village” and 15 percent responding “another commune in this district” (Table 22).

Table 19 D8. In case your household has to evacuate, where would you want to evacuate

	Frequency	Percent
Relative's house	58	29.0
Friend's house	1	.5
Neighbour/Villagers	56	28.0
School, people's committee, communal house	50	25.0
Other	35	17.5
Total	200	100.0

Table 20 D9. The location that you want to evacuate

	Frequency	Percent
This village	155	77.5
This commune	19	9.5
This district	18	9.0
Other	5	2.5
Total	197	98.5
Missing Stay here, no evacuation	3	1.5
Total	200	100.0

Table 21 G4. Do you think you will live your whole life in here

	Frequency	Percent
Definitely yes	150	75.0
Perhaps	34	17.0
Definitely no	16	8.0
Total	200	100.0

Table 22 G5. If, because of disasters, your household was forced to move to another place to live, where would you want to move to

	Frequency	Percent
Another location in this village	116	58.0
Another commune in this district	30	15.0
Another district in this province	9	4.5
Another province/city	8	4.0
Another village in this commune	2	1.0
Stay here,do not move	9	4.5
Other	13	6.5
Do not know where to move	13	6.5
Total	200	100.0

10-Year Impact on Livelihood by Disaster and Climate Change

When asked the impact of disaster and climate change on their livelihood in the past 10 years (F1), impact was low with very few having quit farming rice fields (3 percent)(Table 23) and some having changed their harvest (26 percent) or planting (28 percent) periods (Table 24 and Table 25, respectively). When asked about impacts to the productivity and quality of their crops and/or livestock (F2), 20.5 percent reported an impact in productivity (Table26) and 19.5 percent in quality (Table27), but 79.5 percent said “Definitely no” (Table 28) when asked if they intended to change careers in the future (F3). Together with the previous question (G5)(Table21), this shows that villagers strongly intend to continue living in their villages despite disaster or climate change making their work and lives harder.

Table 23 F1.1a. Sell/Quit rice land

	Frequency	Percent
Yes	6	3.0
Yes, but not related to climate change/disaster	18	9.0
No	142	71.0
Not applicable	33	16.5
Do not answer	1	.5
Total	200	100.0

Table 24 F1.2a. Change the crop time

	Frequency	Percent
Yes	52	26.0
Yes, but not related to climate change/disaster	6	3.0
No	122	61.0
Not applicable	20	10.0
Total	200	100.0

Table 25 F1.3a. Change in seed/fish

	Frequency	Percent
Yes	56	28.0
Yes, but not related to climate change/disaster	17	8.5
No	99	49.5
Not applicable	27	13.5
Do not answer	1	.5
Total	200	100.0

Table 26 F2a. Productivity of agriculture, livestock

	Frequency	Percent
Increase	41	20.5
Not changing	21	10.5
Decrease	16	8.0
Not applicable	11	5.5
Total	89	44.5
Missing System	111	55.5
Total	200	100.0

Table 27 F2b. Quality of agriculture, livestock

	Frequency	Percent
Increase	39	19.5
Not changing	24	12.0
Decrease	13	6.5
Not applicable	11	5.5
Total	87	43.5
Missing System	113	56.5
Total	200	100.0

Table 28 F3. Intending to change your job in the future

	Frequency	Percent
Definitely yes	13	6.5
Perhaps	21	10.5
Definitely no	159	79.5
Not applicable	7	3.5
Total	200	100.0

4. Life and Community Reconstruction from Typhoon Damage: Interview Results

4.1. Overview of the Two Field Surveys

The 2015 questionnaire we have discussed asked respondents about changes in the disaster management system and their awareness in the past 10 years, but did not touch on anything before that period. Hue was hit with a 100-year flood in 1999, which brought about massive damage.⁸ Life reconstruction and the government support at the time are thought to form the basis for the current disaster prevention structure and awareness. Thus, over the two field surveys, the author interviewed residents with memories of this history, as introduced by the vice commune leader Mr. Son. The interviewees were asked how they reacted to and overcame the past catastrophe to arrive where they are today, and what kinds of disaster support systems the community had accumulated for the recently annual damage from floods, storm surges, and typhoons. A timeline of the two field surveys and a record of the interviews follow below.

The first field survey was for four days, from Tuesday to Friday, October 20-23, 2015. The author flew from Tokyo to Hanoi on Sunday, October 18, gathered materials in Hanoi on October 19, and then flew from Hanoi to Hue on October 20 together with Ms. Phuong, VASS/IOS researcher, and Lecture of sociology, Ms. Van, from the Academy of Journalism and Communication (AJC).

On the day of the 20th, the above three members held a meeting and instructional session at their Hue hotel with the local survey team, led by Ms. Dao and comprising members from the Hue University of Sciences Faculty of Sociology (Picture 1). The instructional session was run carefully, checking the questionnaire along the interview guidelines (Picture 2).

From the afternoon of the 20th, the survey team (the author's team from Hanoi, and the seven local members from Hue University of Sciences) moved from the Hue hotel to Mai Duong in Quang Phuoc on Tangiang Lagoon outside Hue. The Hue University members rode into the village gallantly, two to a scooter. The Hanoi team used a taxi.

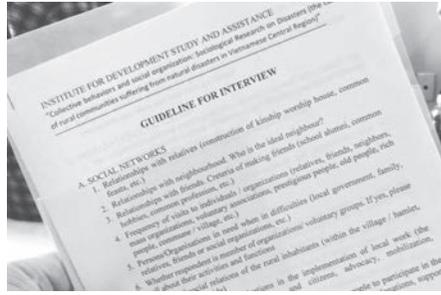
Oct. 20: Overview of Disaster Victim Support by Vice Commune Leader

Vice Leader Mr. Son came to meet us in Mai Duong (Picture 3) and guided the survey team to each house according to an informant list prepared in advance (Picture 4). Small boats strewn about the alleys stood out (Picture 5). The boats normally serve as small fishing boats, but double as evacuation boats in floods. As evening came, there were street vendors and people starting to prepare dinner (Picture 6)(Picture 7). The survey team started the first interview under the eaves of the first house guided to (Picture 8), completing one survey for the day. In the evening, the survey team returned to their room at the village mayor's home, borrowed as a field office, and surround Ms. Van to intently study her technique as she surveys the village mayor (Picture 9). The sun sets, and the survey team leaves Mai Duong to return to Hue past 8 pm.

⁸ Typhoon rainfall killed 621 in November 1999, and flooding that December claimed another 322 lives. In Vietnam, 45 percent of the total population lives in lowlands at elevations of 5 m or less, leaving it indicated as highly susceptible to flood damage (Terakawa, et. al, 2014).



Picture 1 Instruction session



Picture 2 Interview guideline



Picture 3 Mr. Son and research team



Picture 4 Sampling list



Picture 5 Small boat in front of houses



Picture 6 Street vendors

At 8 am the next morning, the team gathers at the Quang Phuoc Commune Office. While explaining the survey items to commune leaders, centered on Vice Leader Mr. Son and the police chief, the team asks for an overview of commune features and disaster measures (Picture 10). The details given follow below.

Quong Phuoc (Map 1) is composed of seven *thon*, or villages: Thu Le 2, Thu Le 3, Khuong Pho, Ha Do, Phuoc Lap, Lam Li, and Mai Duong. The commune has 8,306 residents registered in total, with roughly five per household. The commune has a system of mutual assistance for crop raising called *Guipdo*, and they grow two crops per year. One season is four months long. In the remaining months, residents generally leave to find work, although some fish as a second occupation instead. Thus, resident and household numbers are fluid, with about 1,000 of the



Picture 7 Preparing dinner



Picture 8 Interview under the eave



Picture 9 Watching the interview



Picture 10 Quang Phuoc Commune leaders

over 8,000 residents leaving the commune in the off-season for work.

In recent history, the commune experienced a flood in 2010 in which as many as 20 percent of residents were evacuated. Looking further back, damage was extensive in 1985 and 1999. The typhoon of 1985 claimed 47 lives, 45 of which were water-bound residents in Phuoc Lap. Thus, a Resettlement Plan (*Ke hoack tai chnh cu*) was enacted. The plan was to transfer the lagoon shore lands to the residents, free of charge, and have them perform the landfilling themselves, then settle on the land permanently. The plan, part of *Doi Moi* Policy, had three purposes: 1) protect the lives of water-bound residents, 2) find them steady employment on land, and 3) educate the children on land. The reclaimed lands were once allotted to farmers in 1993. At that time, each person was allotted 600 m² in a system called Protocol 64 in Vietnam.

Two people were lost in the flood of '99. Then, under provincial guidance, all the able-bodied young villagers were gathered to form a disaster prevention group called the *Doi Xung Kick* and trained. For the *Doi Xung Kick*, 5-7 men aged 18-45 were selected from each village to participate in the training. The budget was provided by NGOs from several countries as a global warming support fund; funding for Quang Phuoc came from Finland. To date, 10 percent of the resident men of age participate in the group.

Also, as global warming has made flooding more frequent in recent years, the group is aware of the number of commune residents requiring evacuation. As of 2015, the count numbers 288 persons in 74 households, with commune stores cooperating to reserve supplies for evacuees



Map 1 Central Vietnam, Hue – Hue Lagoon and Quong Phuoc commune

Taken from Google Maps (<https://www.google.co.jp/maps>)

of 2 kg of rice per person, 1,000 L of water, 100 L of oil, 100 L of gas, and more. The commune has 100 kg of rice on hand in a storage warehouse. The Commune Office, meeting house, and elementary school are set as shelters for these people. In terms of typhoon information, the villagers gather and react based on their own experience, but there are commune correspondence including e-mails, phone contact, and municipal-level communication between commune and villages as well.

Oct. 21: Group Interviews – Residents Coming Ashore

After the morning meetings at the Commune Office finish, the team has lunch at the Mai Duong mayor's house (Picture 11). After lunch, the team inspects and completes the questionnaire from the previous day (Picture 12), then sets out to conduct the afternoon's surveys.

The author's Hanoi team remains at the office in the mayor's house with Ms. Dao to conduct a group interview, as arranged by the mayor (Picture 13). Ms. Van asks about the household, basically following the questionnaire.

The family originally lived on the water, but settled ashore after the typhoon of '85 and currently run a general store. Their children were not attending school when they lived on the water. The family shares that events only spread by word of mouth, and thus memories get scattered and lost when elders pass. With no one to retell their experiences of past disasters, they wind up being forgotten.

The family has repeatedly had to evacuate with the annual flooding, even since moving ashore. When they evacuate, the family goes to a neighbor's house or the meeting house for 2-3 days and eats instant ramen brought from their store. They are always with several families at their shelter, but have fond good memories from such communal living despite the hard circumstances in being evacuated. Everyone in the village has low income, so they cannot afford to provide each other supplies in disasters. Thus, the villagers typically barter with their labor to help each other around the neighborhood. Roads in the area have recently been paved, little by



Picture 11 Team lunch together



Picture 12 Inspect the questionnaires



Picture 13 One group interview



Picture 14 Ship for aquaculture

little. The school has started swimming classes teaching the proper way to swim, which they see as useful when evacuating. Since moving ashore, their children were able to attend elementary school, but the family is disappointed that there is no way for them to attend junior high school after finishing elementary school. With no junior high school nearby, they could maybe attend on an irregular basis for one month out of the year.

In the evening, Vice Leader Mr. Son plans for the team to board the boat of some aquaculture fishermen to inspect a fish farm on the lagoon (Picture 14). The team returns to Hue that night.

Oct. 22: Phuoc Lap

The team assembles early at 8 am at the Commune Office. On this day, the survey team is spread out in a different commune village to survey: Phuoc Lap. Meanwhile, the Hanoi team surveys several households in the village, with Ms. Van as the interviewer.

The first surveyed household works in aquaculture. They fish from January to July on the lunar calendar, so are at home, not fishing at this time of year (October 22, 2015 on the solar calendar is roughly September 10 by the lunar calendar). In terms of flood prevention activity, the area holds prayers for a bountiful catch and safety on the seas in February or March (lunar calendar), at which time they teach swimming. The village also has small boats for flood evacuation that are also used for aquaculture. When the villagers are not out fishing because of typhoon season, the boats are brought ashore and prepared for evacuation use. Evacuations last a few days, so they also keep lights for the nights (Picture 15).

Before noon, children walk home from the elementary school. All students are required to wear red lifevests as part of their school uniforms (Picture 16).

Before lunch, the team leader inspects all the surveys taken, then eats. In the afternoon, the Hanoi team listens to the story of a family that moved ashore from life on the water a few years back. While still living on the water, the husband lost his mother, wife, and two children in the typhoon of '85. He then repaired his boat and rebuilt his life, remarrying in 1987 and having another child. They lived on the water until 2009, then they moved ashore. They now



Picture 15 Light for evacuation in the night



Picture 16 Lifevest with school uniform

spend their days watching their new grandchild.

In the flood three years ago, the husband stayed in the house without evacuating. While he has moved off the boat and onto land, they are not properly informed or experienced in how to evacuate in a flood; they simply do not know exactly what to do in such situations. During flood season, the family receives instant ramen and other food support. The path in front of their house is impassable in floods, so they get rescued by boat.

That evening, the whole team checks the questionnaires at the village mayor's house, then returns to Hue.

Oct. 23: Thu Le 2

The team assembled at 8 am at the Commune Office again on the 23rd. Riding three to a scooter (Picture 17), the team heads to Thu Le 2 for this day's surveys. Ms. Phuong and the author listened to the story of one household along the river in Thu Le 2.



Picture 17 Let's go to the interview



Picture 18 Former wooden house for shed



Picture 19 New house build in 2012



Picture 20 Mezzanine floor for flood



Picture 21 Evacuation boat in front of the house everywhere in the commune



Picture 22 Pave given up land

The man was born in 1957. The house was inundated by 1.5 m of water in the floods of 1999. The family subsisted on farming with the damage, until 2002 when his wife was killed in a traffic accident. Since then, he has raised the five children himself. Currently, he farms and manages farmland. The eldest son is grown and lives with the family, currently working at the hospital and providing him with living expenses. The second son is off in Ho Chi Minh studying agriculture.

In 2012, the family finally built a new house (Picture 19). They still use the former wooden house as a shed (Picture 18). The former residence was built on a 420 m² plot, 100 m² of which has since been given up as land for a road. The current 100 m² residence is built on the remaining 300 m² (Fig.1 : Housing Floor Plan). The man's father passed away in 2013, and he currently lives together at the house with his mother, eldest son, and youngest child.

Upon inspection, the house has a second floor, mezzanine to escape in a disaster (Picture 20), and an evacuation boat is sitting in front of the house (Picture 21). Along the river, where the risk of flooding is high, there are flooding measures in place. All the nearby houses have given up land for the road, which is elevated and paved (Picture 22).

The survey team eats lunch at the same eatery as the day before, then sets out to take surveys until the evening. Team members order and clean up questionnaires as they return to the mayor's house and return to Hue past 6 pm,

The author stays in Hue that night, then flies to Hanoi in the morning of the 24th and back to Japan on the 25th.

Next, a description of the second field survey will follow.

DATE/NO.

TITLE

2015. 10/23

Le Hiep tv (58X)

9:45 ~ 11:20

新・旧宅間取り

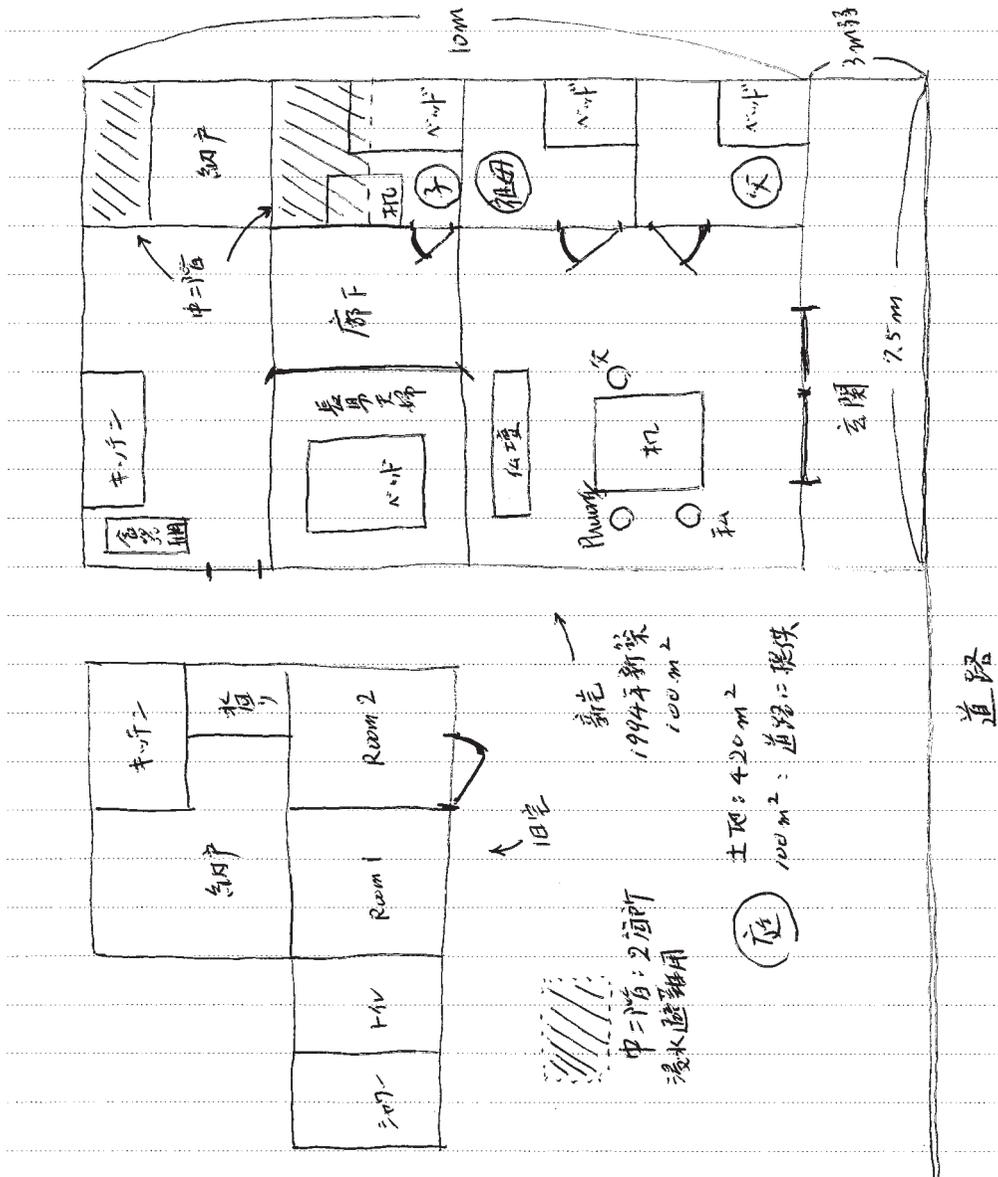


Fig. 1 House floor plan (Mr. Le Hiep household)

Sketch taken during fieldwork on Oct. 23, 2015 = Pic.18 & Pic.19 & Pic.20

4.2. Reconstructing Life for Farmers

Second Field Survey (Interviews)

Using the semester break in Japan, the author visits Vietnam again March 24-29. Flying out of Narita, he arrives in Hanoi that night via Incheon in Korea. The next morning, he attends a Hue field survey planning meeting at VASS-IOS.⁹ Ms. Van, who also came to Hue on the first field survey in October 2015 (questionnaire survey), is present at the morning meeting on the 25th at VASS-IOS, and gives a summarized report of the tabulations from the previous survey.

On the morning of the 26th, there is another meeting before leaving Hanoi at the author's hotel with Ms. Phuong, Ms. Van, and the Japanese-Vietnamese interpreter, Ms. Huyen. Ms. Huyen has just returned to Vietnam that March 23 from studying at the author's Senshu University Sociology Department in the School of Human Sciences as a special auditor for a year from the University of Social Sciences and Humanities, Vietnam National University-Hanoi. The author asked her to serve as interpreter for the Hue research. After the meeting, the author purchases a map and other materials at a larger bookstore in Hanoi.

That night, the author and Ms. Huyen take an overnight train from Hanoi to Hue, arriving in Hue the next morning. Upon checking in at their Hue hotel and dropping off their luggage, the two meet with Ms. Dao from Hue University of Sciences. The three then take a taxi out to Quang Phuoc Commune on the lagoon outside Hue.

In Quang Phuoc, Vice Leader Mr. Son meets the team at the entrance gate of Phuoc Lap village and quickly guides them to the house of the first interviewee.

While in Hue, the author carefully interviews two residents in Phuoc Lap, a village in Quang Phuoc near the lagoon, in the afternoon of the 27th and all day the 28th. The author had told Vice Leader Mr. Son that he desired to talk to someone who had been affected by the floods and typhoons of the 1980s and 1990s and had since moved ashore and/or changed professions to discuss how they had rebuilt their lives after the disaster. With the help of Vice Leader Mr. Son, Ms. Dao delivered to make the following two interviews happen.

Upon completing the second field survey (interviews) in Hue, the author again boards the sleeper train back to Hanoi on the evening of the 28th. The next morning, he arrives in Hanoi, reports to Ms. Phuong at VASS-IOS that the fieldwork has completed, and returns to Japan on an afternoon flight.

Below is a summarized account of the two interviews.

The Interviewee and Interview Conditions

At 2:30 pm on March 27, 2016, the author listens to the story of a farmer from Phuoc Lap village as introduced by Quang Phuoc Commune Vice Leader Mr. Son. The subject is Mr. Van Ty

⁹ At the start of the meeting, researcher Ms. Phuong was awarded a doctorate diploma, as granted by Senshu University on March 23. Ms. Phuong's thesis, entitled "Sociological Monograph on Voluntary Associations in North Vietnamese Rural Areas," is the empirical study that forms the foundation for this field study and survey. This time, she planned to extend the scope to Central Vietnam and study disaster response and prevention measures in the communes.

Nguyen (52). The interview is conducted at the Nguyen residence in Phuoc Lap by the author, Ms. Dao, and the interpreter, Ms. Huyen.

Mr. Nguyen currently lives with his wife, two sons (24, 22), daughter (26), and her child (Mr. Nguyen's grandchild). His eldest daughter married six years ago and lives separately. Their current house was built in 2008. In the interview, we discuss the events from when they were hit by the floods in 1999 through 2008 in building the new house and to present day.

Response to 1999 Floods

In November 1999, the Nguyens heard there was a danger of flooding, first on the radio and then from the Commune Offices and the village administration. Mr. Nguyen sent the children away to a safe relative's home days before the floods struck. Before that, in the floods of 1985 and other disasters, for instance, there was no information given, but the village administration got word out in 1999 and Mr. Nguyen safely evacuated his family. Many in the neighborhood lost their homes, but there were no casualties.

From a Temporary Hut to Rebuilding a Permanent Home

With their home washed away, the Nguyens spent the first 45 days living in a bamboo hut they had built. The children return home from the relatives after about a week. The Nguyens had no financial support in building the bamboo hut, but managed to raise 50,000,000 VND (250,000 JPY¹⁰) on their own. Their relatives could only provide words of encouragement, not financial support.

After 8-9 years, the Nguyens saved money from their farming and fishing to fund the construction of their own new house in 2008 with 100,000,000 VND (500,000 JPY). When



Picture 23 Life buoy for disaster relief group

¹⁰ From this point in the paper, amounts given in Vietnamese currency (VND) will be noted in terms of the exchange rate in October 2015 of 10,000 VND to roughly 50 JPY. Naturally, exchange rates have varied greatly over the past 10-20 years, but the current exchange rate is used for convenience in discussing details today.

building the new house, the Nguyens spent 40,000,000 VND (200,000 JPY) laying the foundation, raising the land just under 1 meter for themselves.

In addition to the raised foundation, the house is also equipped with a boat in the front yard (also used for fishing), evacuation space in the attic, and a reserve life buoy for the village disaster relief group in the event of another disaster (Picture 23).

Current Livelihood

Mr. Nguyen has always been a farmer first. As November is the off-season, the 1999 floods did not damage their crops. Crops are grown in two seasons, from January to May and from May to September. Mr. and Mrs. Nguyen manually cultivate 2,500 m² of rice paddies. They borrow machinery only for harvesting. Their annual income from farming is 15,000,000 VND (75,000 JPY). As a second job, Mr. Nguyen fishes 2-3 days a month for an additional 10,000,000 VND a year (50,000 JPY).

Village Origins

The village was established by national policy after the floods in 1985, which claimed the lives of 45 living on the water. The lake was filled in with public funding to build the village so that those living on the water would move ashore. Called the Resettlement Project, this project continues to this day, now as a part of Doi Moi Policy. Protocol No. 64 acts as support for resettlement, grading the land with public funding for allotment as rice paddies to the local residents.

Until 1985, Mr. Nguyen lived in the nearby village of Phuoc Lam, but married in 1986 and relocated his family to this village, built on reclaimed land. Since the move and to current day, Mr. Nguyen is mainly a farmer.

Many in the village lived on water until 2004, but these numbers then drastically reduced due to the Resettlement Project.

There are 824 villagers in 167 households in the village. Of these, only three households are farmers, whereas 120 are strictly fishermen and the remaining 44 households work in aquaculture raising fish on the lagoon. Approximately 200 of the more than 800 villagers also sometimes leave the village for work.

While Hirai (2004) stated that a certain class of villagers have abandoned lands rendered uncultivable by salt damage from typhoons and shifted to the high-risk, high-return aquaculture, when asked, Mr. Nguyen says that no such trend exists in this particular village. Aquaculture requires great costs with high initial investment. Costs arise from feed costs, disease, and the lack of freshwater from the river to the lagoon impacting the taste of the fish, lowering their value. With global warming, saltwater levels in the lagoon are perpetually rising. Ironically, residents need more water to flow in from the river in terms of flavor and value of the fish, which would require flooding.

4.3. Permanent Settlement of Water-Bound Residents

The Interviewee and Interview Conditions

At 10:30 am on March 28, 2016, the author listened to the story of Ben (husband, 68) and Thi Be (wife, 67) Nguyen, in their home in Phuoc Lap. The interview was conducted by the author, Ms. Dao, and the interpreter, Ms. Huyen.

Damage Experienced in the 1985 Typhoon

In the typhoon on September 2, 1985, the couple's three-month-old daughter was lost.

At the time, the couple were aged 37 and 36 with six sons and the daughter who was lost. Since then, the Nguyens have been blessed with five more children, currently living with their second-youngest son (32), his wife, and their child (the Nguyens' grandchild). The youngest son (26) is officially registered as living with them at present, but has gone to Hanoi for work.

At the time of the typhoon, the family of nine lived on the water on a 11 m x 4 m boat. The Nguyens built the boat themselves by hand in 1975 over four days at a cost of 10,000,000 VND (50,000 JPY).

Moored in the lagoon, the houseboat was sunk by 2-meter waves in the typhoon.

With help from their relatives, the Nguyens repaired the boat in two days and returned to continue living on the water.

Housing Reconstruction and the Transition to Life on Land

While staying on the repaired houseboat originally, the family of eight decided to move ashore the next year in 1986. That year, the national government provided them a bamboo house.

Then in 1989, the family returned to their houseboat when that house was destroyed in a flood. Over time, the family had grown. Finding it difficult to continue living on the boat, the family moved ashore in 2004. They currently have 11 children.

Their current house, built in 2004, cost a total of 100,000,000 VND (500,000 JPY). The Nguyens were assigned a water plot for free and filled the land themselves over the course of 20 days. First, they spent 10,000,000 VND (50,000 JPY) of their own money to elevate the land by 60 cm, then received 4,000,000 VND (20,000 JPY) from the government and another 2,000,000 VND (10,000 JPY) in compensation for victim farmers.

Starting in Aquaculture

In 1996, the Nguyens acquired 5,000 m² of space in the lagoon and started aquaculture. It took 60,000,000 VND (300,000 JPY) to build dams for aquaculture, so they got a loan for 40,000,000 VND (200,000 JPY) and paid the remaining 20,000,000 VND (100,000 JPY) from their own savings. Unable to fully repay the loan, it was extended for five additional years, and they are still in the process of repaying it.

Now having been in aquaculture for the past 20 years, the Nguyens currently make an annual income of 10,000,000 VND (50,000 JPY). They also make another 30,000,000 VND (150,000 JPY) with regular fishing. However, their dams are damaged every year from flooding

and otherwise, costing them 5,000,000 VND (25,000 JPY) each time to repair.

Their current boat is a class smaller than their previous houseboat at 8 m x 3 m, with an outboard motor.

Preparations for Typhoons

The Nguyens work to harvest and ship the seafood they raise before typhoons hit. They get information on typhoons via radio and by word of mouth from the commune administration. If there is a flood warning, they put a board up on a beam and put their rice and television on it as not to get wet due to their importance. They borrow a ladder from neighbors. They have done so about once a year.

5. Conclusion

Forming the basis of daily life and disaster response in the fishing villages on Hue's lagoon are the communities' acceptance of its longstanding vulnerability to disaster (*Song Than*) and a social class of residents who live on the water. The government has turned its eye toward victims and affected areas and developed policy-based support for such communities, as seen in their development of new protected economic sectors for management and control of such areas as part of Doi Moi Policy. Also, in recent years, the international community has started to provide the area support in building disaster prevention systems.

However, due to global climate change and rising sea levels, the area is repeatedly struck with various flood-inducing events, including storm surges, floods, and typhoons. For the residents of the local villages, the memories and awareness of such events cast a shadow over their entire life schedules year round and make life difficult.

Moving these water-based communities ashore and building sturdy housing to settle these new residents in permanent homes to overcome their vulnerabilities to flood damage is still an ongoing process. Still, there is significance to academically researching these disasters from a humanities and social science perspective to properly record the recent history of these catastrophes (the typhoon of 1985 and floods of 1999) and the people who live with memories and experiences of these disasters etched into them. The memories of how the disasters were handled will fade with time; it is thus necessary to carefully re-examine and continue discourse on this history, both as results and issues of disaster policy development, and as a record of the struggles of the victims themselves. It is there that we will find the real challenges and limitations of policy, and that we will determine the region's ability to prevent disasters by applying the concept of resilience to "uncover the community's motivations to recover and rebuild from within their innate, embedded culture." (Urano, 2007: 40)

Incidentally, when examining residential migration or disaster reconstruction based on radical environmental transformations, including disaster, we must first pin down the default migration trends in that society. As a scientific process and awareness, we must note the significance of displacement from an identified background. In Vietnamese society, the residential movement, discussed in this paper, in the disaster-stricken areas can only be discussed

upon determining the general trends for the residential migration that has occurred over the past decades. More specifically, the agricultural collectivization and systematic development migrations that have developed since the late 1950s (a radical agricultural policy through mass mobilization (or movement) for organized migration to sparsely populated, undeveloped new economic zones from densely populated areas and building cooperatives) have been reformed from the ground up based on resistance and objections from residents and farmers, converting the system from group-run structures (shared land and group cultivation) to family-run (land allotments and single-family farming). The formation of this product contract system, a forerunner of Doi Moi Policy, and the many farmers “voluntarily migrating” (in order to find work away from home) due to the shift to a market economy (Iwasa, 2006: 89-102), are examples of this.

The systematic resettlement plans of the Doi Moi era looked to form comprehensive regional development plans by combining socio-economic development programs for minority resettlement, collective farming, and poverty elimination. With the resulting sudden increase in voluntary migration of farmers, however, voluntary migration for those who left their homes for personal reasons is now legally recognized if a temporary absence is reported (Iwasa, 2006: 103-109). Is the residential migration to rebuild lives from flood disasters as discussed in this paper anywhere to be found in the framework of national migration regulations? Once this is determined, how effective is the legal system in responding to disasters? Or if it is insufficient in this regard, what are the barriers to doing so? We must probe these questions, one by one. In that sense, the two field studies mentioned in this paper are just the beginning. We must continue our pursuit of the reality of how lives and communities are reconstructed in disaster sites.

Reference

- Akira Terakawa, Akihiko Nunomura, Minoru Kuriki, Tatsuo Kano, Yoshiaki Motonaga. 2014. “Betonamu Phuong gawa ni okeru kouzui kanri sisutemu no kaihatu” (A Development of the Prototype of Flood Management Information System for the Huong River, Vietnam). in *Kasen jouhou shinpojuumu kouen shuu* (Lectures Collection of Symposium on River and Basin Integrated Communication).
- Dang Thi Viet Phuong. 2015. *The Collective Life--The Sociology of voluntary associations in North Vietnamese rural areas--*. Vietnam National University Press.
- Ikuo Takeuchi. 2006. “Doi moi ka no betonamu ni okeru nouson kara toshi heno jinkou idou to kyoudoutai no yakuwari shiron” (The Population Movement from Rural to Urban in Doi Moi Policy and the Preliminary Essay on the Community Role). in *Doi moi betonamu no kokka to shakai wo megutte* (Nation and Society in Vietnam under Doi Moi Policy). Institute of Developing Economies.
- Isao Kishi. 2012. “Betonamu no kokunai ijuusha ni taisuru kyojuu touroku ni kansuru housei no hennyou” (Transition of Legislation Relating to Registration of Residence for Domestic Migrants in Vietnam). *Review of Asian and Pacific Studies*. No.36.
- Itsuki Nakabayashi. 2016. “Saigai fukkou kenkyuu no igi to tenbou—Higashi nihon daishinsai no fukkou douji shinkou kenkyuu kara—” (Significance and Prospects of Disaster Recovery Research). in *Fukkou* (Disaster Recovery and Revitalization Review). 7(3).

- Jane Singer. 2012. “Intabyuu—Kankyō nanmin to kaihatsu ni yoru kyousei ijuu—” (Interview : Displacement by Development and Forced Emigration). *Kyoto University Graduate School of Global Environmental Studies*. <https://www2.ges.kyoto-u.ac.jp/faculty/interview/interview-singer-jane/>
- Katsuhiko Ishibashi. 2012. *Genpatsu shinsai—Keishō no kiseki--* (Combined Earthquake and Nuclear Power Plant Disaster). Nanatsumori-Shokan.
- Masaki Urano. 2007. “Saigai shakaigaku no kiro—Saigai taiou no gouriteki seigyō to chiiki no zeijakusei no keigen—” (Crossroad in Disaster Sociology). in *Saigai shakaigaku nyūmon* (Introductory Textbook on Disaster Sociology). Koubundo.
- Misaki Iwasa. 2006. “Soshikiteki ijuu seisaku ni miru betonamu no kokka to shakai no kankei—Fon gawa deruta kara shin keizai ku heno kaitaku ijuu--” (The relationship between nation and society in Vietnamese emigration policy). in *Doi moi ka no kokka to shakai wo megutte* (Nation and Society in Vietnam under Doi Moi Policy). Institute of Developing Economies.
- Miura, N. and Harasawa, H. ed. 2000. *Data Book of Sea-Level Rise 2000*. Center for Global Environmental Research.
- Nguyen Quang Trung Tien, Yasuko Yoshimoto. 2012. “Hue shuhen ni okeru suijou kyojuu min no seikatsu youshiki to bunka seikatsu ni tsuite” (The Lifestyle and Cultural Life of Boat Dwellers in Hue and Surrounding), in *Hue no rekishito bunka* (History and Culture in Hue). ed. Masaya Nishimura. *Kansai University East Asian Cultural Interaction Studies* 7. 613-624.
- Nguyen Thi Thanh Thuy. 2013. “Gendai betonamu ni okeru jinko idou no youin to chiiki kan kakusa” (Regional Disparities and Factors of Migration in Contemporary Vietnam). in *Tokyo Keidai gakkai shi* (The journal of Tokyo Keizei University). 279. 139-158.
- Shigeyoshi Tanaka, Makoto Takahashi, Irfan Zikri. 2012. *Ootsunami wo ikinuku*. (Surviving Massive Tsunami). Akashi Shoten.
- Tetsuji Ito. 2012. “Byoudou no nakano hinkon—Betonamu Hue no suijou seikatsusha tachi--” (Poverty in the Context of Equality : Families Living on the Water in Hue, Vietnam). *Hattatsu shinrigaku kenkyuu* (The Japanese Journal of Developmental Psychology). 23(4). 375-383.
- Yukihiro Hirai, Van Lap Nguyen, Oanh Ta Thi Kim. 2004. “Betonamu chuubu Hue raguun ni okeru 1999 nen kouzui go no kyūugeki na kankyō henka” (Rapid environmental changes after the flood in 1999 in the Hue lagoon area of the Middle Vietnam), in *LAGUNA II* (Transactions, Japanese Geographical Union). 25(3). 293-294.