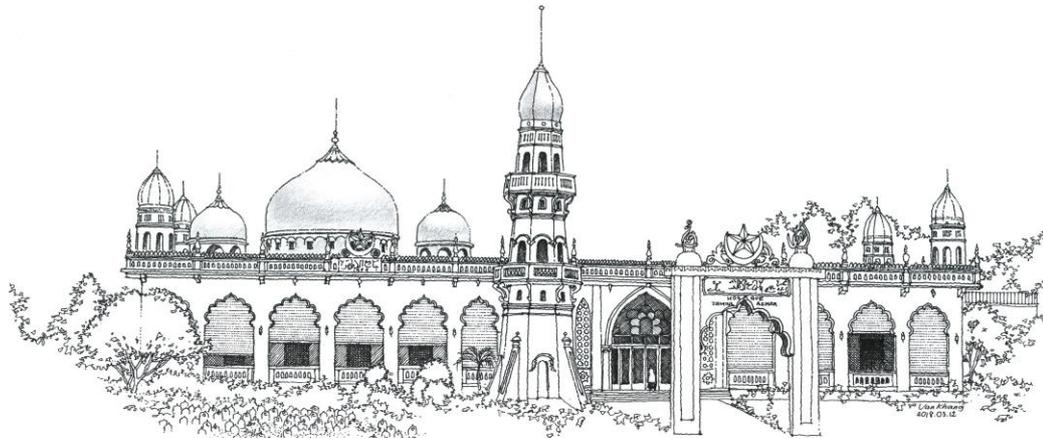


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THE FORMATION AND TRANSFORMATION OF CHAM MUSLIMS VILLAGES AND TRADITIONAL HOUSING IN THE MEKONG DELTA

メコンデルタにおけるチャム・ムスリム村と伝統的住居の
形成と変容に関する研究



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THE FORMATION AND TRANSFORMATION OF
CHAM MUSLIMS VILLAGES AND TRADITIONAL HOUSING
IN THE MEKONG DELTA

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Abstract

Architecture, for essence, is more than an expression of form, function and style, but also a product of historical flow, cultural and environmental aspects and an expression of the way of life of the people. The Mekong Delta has been a region inhabited by many ethnic communities since the 17th century. Therefore, the interference and influence of these communities on culture, society, beliefs, and architecture are evidents. In that context, the existence of the Cham Muslim communities in the Mekong Delta and their architecture, thus, is not only the buildings of the mosques, wooden stilt houses located next to the rivers, but the product of the historical sediment of the immigration process, interaction with other ethnic groups of Vietnamese, Khmers, Chinese, and the cohesion of the Islamic world.

This study aims to clarify the formation and transformation of the existing villages and the traditional houses of ethnic Cham Muslim in An Giang province in the Mekong Delta. The author has conducted extensive fieldworks from 2017 to 2019 to investigate current condition of nine Cham villages with 2,548 houses includes 2,042 houses within the villages and 506 units found outside the villages' boundaries. In particular, the database for 1,988 extant Cham Muslim houses and 151 house plan drawings was recorded and compiled. According to the survey's results, the extant Cham Muslim villages and their traditional houses, the *Sang* house, have unique characteristics that relate to the waterways and is influenced by Islamic principles. To this day, the *Sang* house remains an autochthonous type imported by the ethnic Cham Muslims without many transformations.

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Statement of Original Authorship

The work contained in this thesis has not been previously submitted to meet the requirements for and award at this or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

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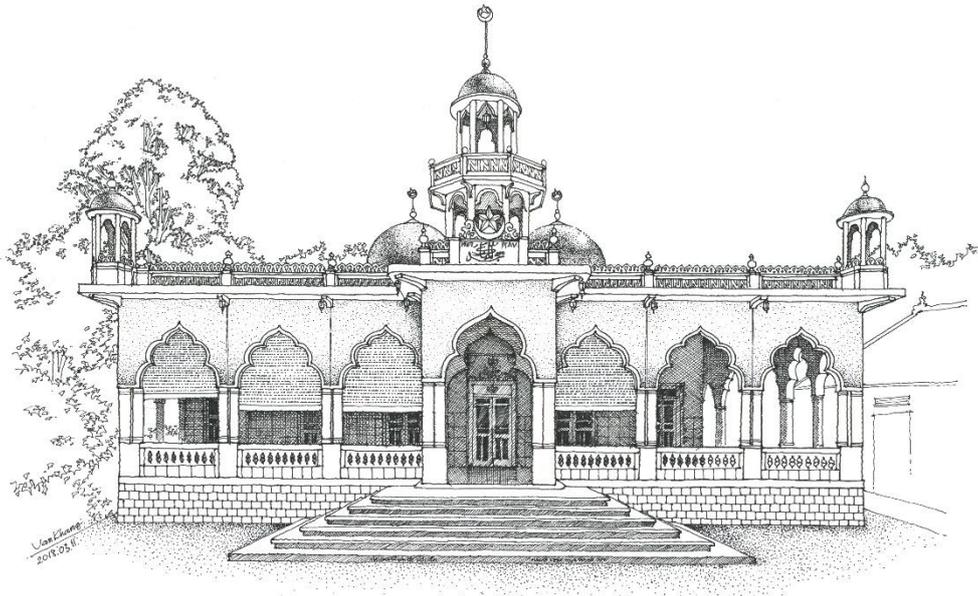
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CHAPTER 1

Introduction



- 1.1 Overall perspective of the ethnic diversity in the Mekong Delta and the Cham Muslim communities
- 1.2 Research questions
- 1.3 Research objectives
- 1.4 Research methods
- 1.5 Research boundary and the limits
- 1.6 Research contributions
- 1.7 Structure of the study

The identity and characteristics of a region, a city, or even a building is crystallized by the layering of different events over a long period of time. Therefore, in order to understand the culture of a minority group, one can consider their interactions with other races to clarify the origins of a region through the analysis of complex and overlapping historical events. Aside from this, the existence, development or destruction of a community is largely determined by the surrounding natural conditions. Nonetheless, political and economic policies of the ruling state is the determining factor as to whether or not development would flourish or weaken. In the context of the spread of modern Western architecture along with the current rural urbanization process, studies preserving the cultural identities within local architecture is absolutely necessary. Doing so not only helps to solve the problems of the physical characteristics of the urban layout, but it also retains the traditional ethnical values, spiritual structure and typical social nature of these communities.

The Mekong Delta is a large region with a combination of many ethnic groups: the Khmer, the Vietnamese (also called the Kinh), the Chinese and the Cham Muslims. The process of invading other countries' territories and migration paths is a social phenomenon in the history of nations which has taken place inevitably in this area. As consequence, the diverse ethnic groups settled together on the same land, interacting with each other, while also retaining separate cultural and religious identities. This has created a large multicolored picture, often given a common name by the dominating community. The ethnic groups are seen as endogenous cells: contributing to a perfect whole. It could be imagined that the Mekong Delta is a painting with a lining of the pristine land of the indigenous Khmer dwellers, who settled very early on in the hinterland along the Mekong River and Bassac River. By the middle of the 17th century, the first groups of Vietnamese people appeared at Prey Nokor (formerly Saigon, present day Ho Chi Minh City). They then gradually spread out and covered the territory of the Mekong Delta. Following after is the appearance of ethnic Chinese communities in the second half of the seventeenth century who chose to settle in concentrated urban areas near rivers and canals, which were convenient for trading activities. In comparison to the overwhelming expanses occupied by Vietnamese, Khmer and Chinese residents, Cham Muslim communities account for an extremely small proportion scattered along the Bassac River and canals in the province of An Giang in the middle of 18th century (Weber, 2011). Since then, their traditional housing has been developing according to its peculiar identity. Viewed from a distance, the clusters of villages are like tiny drops of color falling unintentionally in a large painting dominated by Vietnamese communities. Nonetheless, these tiny streaks of color are sharp and have a special mark, which cannot be mixed with the other colors. They were not drawn randomly. Contained inside these communities is the story of the lost Champa Kingdom that was strongly influenced by the third largest religion in the world - Islam. Islam is the core factor that defines the unique and distinctive urban and village structure of the ethnic Cham Muslim in the Mekong Delta. Behind the village clusters and peaceful rustic stilt houses are customary Islamic principles and doctrines that are applied skillfully and thoroughly, adapting to local circumstances. Albeit few in number, Cham Muslim communities in the Mekong Delta have close links with those in Cambodia. They are also intimately connected with Muslim Southeast Asian countries such as Malaysia and Indonesia, and are supported by international Islamic organizations. Within this context, the community of the Cham Muslims in the Mekong Delta region was established and transformed.

The author has based this study on historical documents, and intensive fieldworks recording the boundaries of nine Cham Muslim villages and the extant old houses located in An Giang province of the Mekong Delta. In terms of an urban area, Cham Muslim villages retain the unique and unified structural identity of their river-based livelihoods. All of the villages have defined boundaries, with the mosques located at the center of the communities as religious landmarks and emphasizes the dominating influence of Islam in the area. In addition, traditional houses of the Cham Muslims also follow Islamic principles. For these reasons, the study about the formation and transformation of the Cham Muslim villages and housing is essential to preserve the traditional values of the development of Cham Muslim communities and to fulfill the database of ethnic architecture in Vietnam. It is also important for the maintenance of their cultural diversity despite the rapid urbanization process that is taking place in the Vietnamese Mekong Delta. Furthermore, the study contributes new findings on local Islamic architecture in the Southeast Asian region.

1.1 Overall perspective of the ethnic diversity in the Mekong Delta and the Cham Muslim communities

This study focuses on the Mekong River Delta, which has a history of more than 300 years, starting in the 1750s when the Cambodia-Vietnam borders was established. The region is well-known for being ethnically and religiously diverse, home to communities of Khmers, Vietnamese, Chinese and Cham Muslims. However, this multiethnic background has been diminishing in significance due to the impacts of urbanization and concrete town houses. With a strong push for urbanization in the recent decades, especially in the 1990s, new economic policies have allowed the expansion of planning developments. Along with the popularity of concretization, the number of housing units increased uncontrollably in the Mekong Delta. Economic impacts, natural disasters, urban development, and the popularity of monotonous concrete townhouses act together as a wave erasing and submerging the cultural diversity that is essential to the identity of the southern region. In such context, the study of the characteristics of the architecture of ethnic groups in this region is crucial in order to generate the foundation for preserving the identities in its urban and village areas. Therefore, relearning the typical residential patterns associated with the culture and customs of each ethnic group and the re-systematizing of prototypes and variants of traditional house models are indispensable.

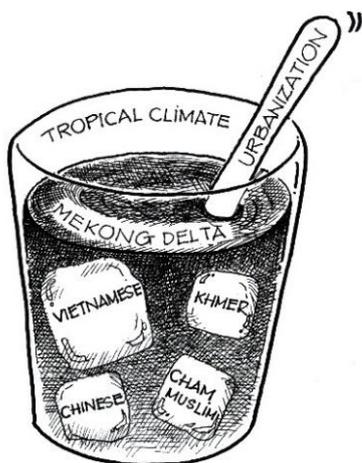


Figure 1 Situation of four ethnic groups in the Mekong Delta.

Until now, studies on village planning and traditional housing formats of ethnic minorities in the Mekong Delta have been fairly overlooked. The studies, if any, are only theoretical and synthesize information from old documents. One of the complications is the lack of actual measurements of the traditional houses of four ethnic groups, which makes it difficult to generate data analyses. For that reason, from August 2017 to January 2019, the author conducted intensive field surveys in 13 provinces of the Mekong Delta, and collected data of traditional housing typologies from four ethnic groups: the Vietnamese, the Khmers, the Chinese and the Cham Muslims. Through this method, the author found that, despite the existence of ethnic communities, there is a significant loss of traditional villages and houses with indigenous characteristics, especially those of the Chinese and the Khmers.

Along with historical documents, the author also based his work on intensive fieldwork, wherein he recorded the boundaries of nine Cham Muslim villages and extant old buildings located in the An Giang province of the Mekong Delta. In terms of urban areas, the Cham Muslim villages retain the unique and unified structural identity of the river-based livelihoods of its residents. Moreover, all of the villages have defined boundaries with mosques as their religious landmarks, which shows the strong influence of Islam. These unique characteristics stem from a difference of customs and beliefs, as well as religious and historical events and natural disasters. In addition, the author found changes in the features of traditional Cham Muslim houses, which are incorporate elements from Khmer and Vietnamese architecture and influenced by Islam principles. Community expansion also transformed due to the resettlement policies of the Vietnamese government after severe impacts from flooding in the Mekong Delta. For more objective and accurate assessments, a survey in the provinces of Phnom Penh and Kampong

Cham was conducted in order to find traces of the origins, as well as the relevance and connections between Cham Muslim villages in Cambodia and in Vietnam.

Because of time constraints, historical resources and on-site surveyed data, the study is divided into two parts. First is the clarification of the general perspective on ethnic diversity in the region. It describes and compares the settling formation and traditional housing typologies of four ethnic groups who migrated to the Mekong Delta during reclamation process (the Khmers, the Vietnamese, the Chinese, and the Cham Muslims). Secondly, the study researchs the formation and transformation of the villages and traditional houses of the Cham Muslim communities. This section considers the majority principles and the influences of co-habitation with the other ethnic groups, and of urbanization in the Mekong Delta. The final section presents proposals for the preservation of traditional villages and houses through the understanding and maintenance of the core values of the beliefs and culture of the Cham Muslim communities.

1.2 Research questions

Given the complex nature of the research problem, this study focuses on three questions:

- 1. What are the main inherent characteristics and differences of urban patterns and traditional housing architecture between ethnic groups in the Mekong Delta?*
- 2. What are the original formations and the transformations in the village planning and traditional housing architecture of the ethnic Cham Muslims in the Mekong Delta?*
- 3. How can the diversity of local architecture be preserved with the case study on the Cham Muslims communities in the Mekong Delta?*

1.3 Research objectives

The issues of multi-ethnic characteristics within the Cham Muslim communities in the province of An Giang will be investigated according to the following study objectives:

- (1) Systematize and compare the characteristics of settlement formations and traditional housing typologies of four ethnic groups in the Mekong Delta region;*
- (2) Identify the formation and transformation in the urban planning and the housing scale of Cham Muslim communities in the Mekong Delta;*
- (3) Propose strategies for preservation and development of Cham Muslim communities in future.*

1.4 Research methods

To attain the research objectives, the following methodology was used: 1) The compilation of documents regarding the historical evolution of the Cham Muslim settlements in the Mekong Delta; 2) the intensive fieldwork conducted from August 2017 to September 2019, the outcome of which constitutes the material for the database; 3) the planning of documents and survey maps drawn from satellite data, including on-site surveys conducted through direct interviews with the inhabitants of the Cham Muslim villages in order to gather anthropological

information. The extensive database of the whole area recorded from the fieldwork includes 2,042 residential properties, 1,988 Cham Muslim surveyed housing units, and 151 traditional house plans; and finally, 4) the statistical treatment, data mining, graphical database and analysis.

1.5 Research boundary and the limits

This study aims to discover the formation and transformation in urban planning and housing of ethnic Cham Muslim communities in the province of An Giang in the Mekong Delta with an overall perspective of its diversity. The housing prototypes and the shape of this group's villages are identified, categorized and compared with the formats of other ethnic groups. This is done in order to recognize the similar and unique features of each type via the cohabitant process. Moreover, this study does not delve into the architectural development in its history but only focuses on the existing states of village planning and housing. Additionally, the typical housing formats of other ethnic groups were also compiled and systematized according to information from references and from the on-site investigation. Due to limits of time, and distance, not all of the architecture in the Mekong Delta and the comprehensive comparison to the Asian Muslim architecture were considered.

1.6 Research contributions

The surveyed data and the onsite records were taken from surveys in the Mekong Delta from 2017 to 2019. Information from this study of Cham Muslim villages and traditional housing is expected to be essential in clarifying not only the origins and current states of its urban planning and housing formation, but also the transformation of the Cham Muslim villages during the rapid urbanization process. Until now studies on the traditional villages and houses of ethnic minorities in the Mekong Delta have been fairly overlooked. This is especially true of those of the Cham Muslims, who have the smallest population, accounting for only 0.09% of total Mekong Delta population. Other studies about this group, if any, are few and focus on ethnography and anthropology issues, but do not investigate the field of urban planning and architecture. Throughout the intensive on-site surveys, the villages and housing typologies of the Cham Muslims that have been documented are dissimilar from those of the other ethnic groups in the region. The formations adapt to the geographical conditions, the hot and humid tropical climate, and uses local materials without contradicting any Islamic principles. As a result of this study, a new type of ethnic architecture has been defined to fulfill the database of ethnic architecture in Vietnam that maintains the cultural diversity in the Mekong Delta, despite the rapid urbanization taking place. Furthermore, the findings of this study contribute to the understanding of Islamic architecture in the Southeast Asian region. Regarding the issue of preservation, this study supports the complete documentation of data that could help the restoration and renovation of degrading traditional houses in the Cham Muslim communities in the Mekong Delta. Moreover, the research helps to record the core principles of these buildings, both of its physical and social aspects, which could be used to preserve the distinct characteristics of the expansion process of Cham Muslim settlements in the future.

1.7 Structure of the study

The thesis comprises seven chapters organized according to the following structure (Figure 2):

Chapter 1: Introduces the research issues along with the goals for the study. It outlines the research questions, objectives and limitations, and the contributions to the development of the society.

Chapter 2: Summarizes the background, problems, and shortages of the previous researches that relevant to identify the characteristics of multi-ethnic settlements, and the traditional housing types of the Cham Muslim and other ethnic groups in the Mekong Delta.

Chapter 3: Outlines historical processes and settling formations of the four ethnic groups.

Chapter 4: Analyses traditional dwellings and social influences of the four ethnic groups.

Chapter 5: Presents findings from the data analysis of the formation and transformation of the Cham Muslim urban villages.

Chapter 6: Presents findings from the data analysis of the formation and transformation of the Cham Muslim housing.

Chapter 7: Consolidates the thesis by providing contributions to the knowledge of urban and housing, proposals for preservation and development methods for the ethnic Cham Muslim communities in the Mekong Delta, in addition to suggestions for future research.

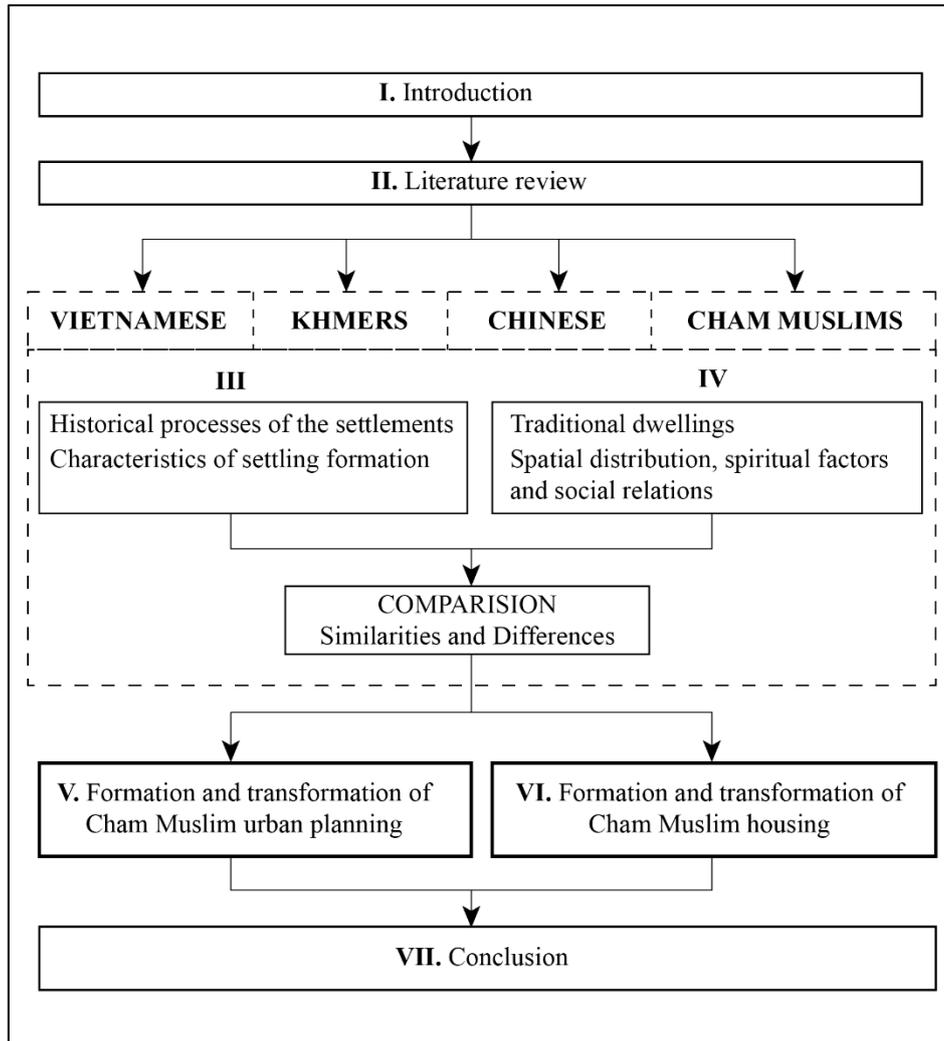
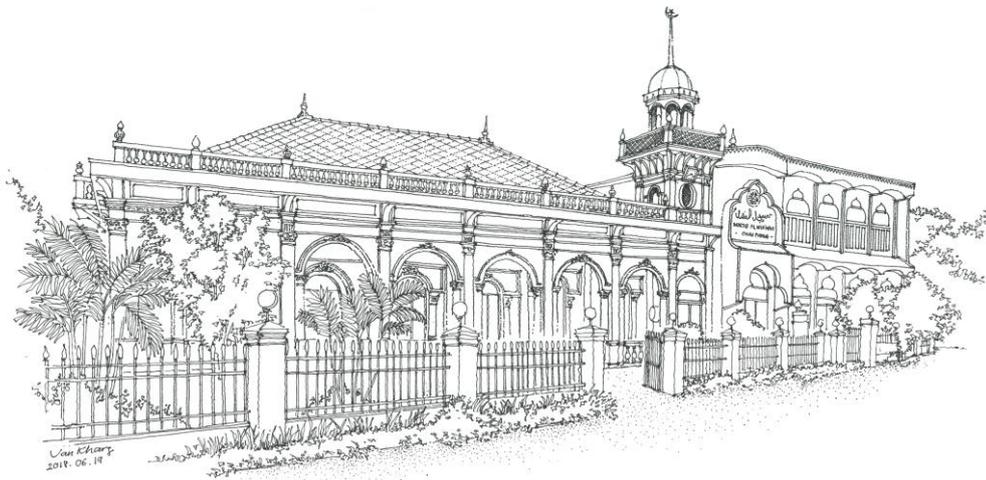


Figure 2 Structure of study.

CHAPTER 2

Literature review



All forms of vernacular architecture are built to meet specific needs, accommodating the values, economies, and ways of life of the cultures that produce them. They may be adapted or developed over time as needs and circumstances change (Oliver, 1998). As a result, in order to identify a kind of particular architecture, it should be considered to its context, which consists of complex elements, since architecture existed at the same time with the settlement (Figure 3).

Climate, history, and location are impossible to be altered, but the social revolution and the economy have been changed day by day. The factors that could be fluctuated and transformed based on the influences of external and internal impacts from time to time are the ideology and traditional values. It is a fact that a new lifestyle has changed along with the development of construction techniques and materials. Architecture, therefore, must also evolve to be compatible with the present era. Nonetheless, the so-called new architecture, or modern architecture that has appeared about half a century now, is it really a sustainable development or not, when it obliterates the values of culture and traditions that were formed over generations from hundreds of years ago. Therefore, traditional values must be respected and preserved. As a result, learning from the local architecture of the specified region to establish a foundation for development in the future is necessary to be considered.

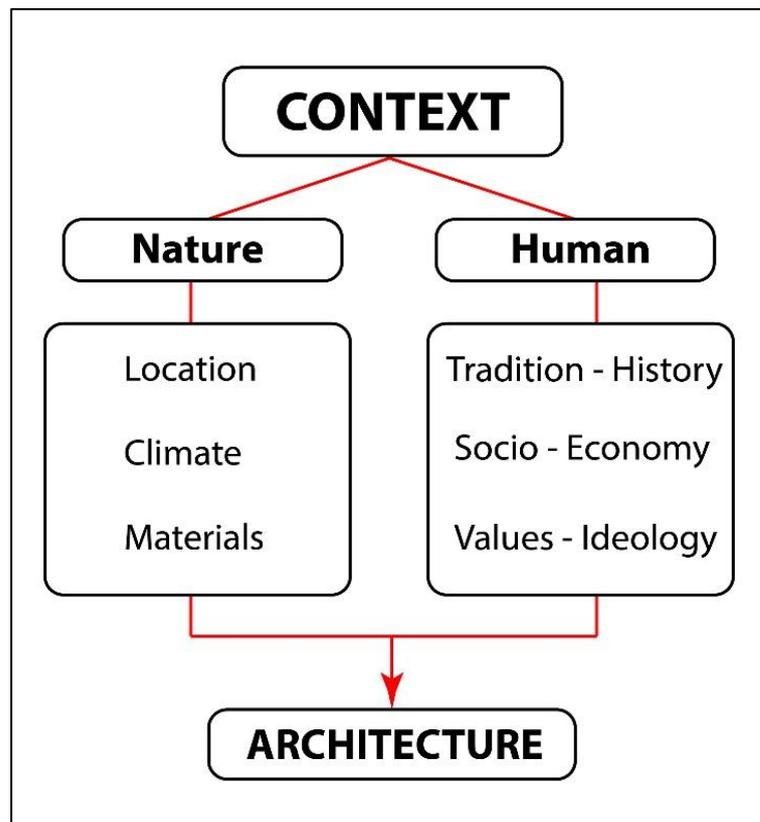


Figure 3 Architecture and context, adapted from (Ragette, 2012).

With a view of the diversity of ethnic cultures, the Mekong Delta is a region comprising the settlement of multi-ethnic groups inhabiting since the 17th century. Although each ethnic group has different settling and living formats depending on its culture. Nonetheless, because of co-inhabitant in the new social context, all ethnic groups in this land face common problems of economic, urbanization and global integration process. Following the integration trend, not only in the country boundary but also on the global scale, the process of absorbing and adapting new elements in the development process is indispensable for each ethnic community.

In the past, a subsistence economic way prevented the connection between villages and between ethnic groups living in the same region. Today, the process of urbanization and the effects of the global economy along with the development of science and technology and the advantages of transportation are erasing the boundaries of a small territory and even the national boundaries.

Obviously, with the system of thousands of rivers and canals in the Mekong Delta, living with water has become one of the most essential issues of the Deltaic people. Most of the researches about urban planning and architecture in Mekong Delta has been mainly focused on finding the solutions to deal with flooding impacts or how to exist in harmoniously with the water. However, the uncontrollable development in the housing sector and urban planning in the Vietnamese Mekong Delta has become a huge problem. The new concrete houses which have been constructed pervasive everywhere in the Mekong Delta where comprise distinct regional characteristics. These housing types lost the regional features, ethnic characteristics, even the responsibility to the local climate. Moreover, the current residential architecture, when viewed from the outside, could not be able to identify the unique identities that inherent in traditional architecture.

Nonetheless, until now, the issues of traditional architecture or diversity in ethnical architecture in Mekong Delta have not been fulfilling investigated and overlooked. Most of the studies in the Mekong Delta have focused on hydraulic systems, agriculture and flood disaster (Biggs, 2004) or the challenges of urban expansion adapting to floods (Pham Quang Dieu et al., 2015). Besides, there has been a wide range of research on climate change impacts and climate change response in the Mekong Delta. Those studies are mainly quantitative studies that focus on the interaction between socio-economic issues and natural hazards. Little has been found so far on the local built environment within which Deltaic residents cope with the water environment and flooding circumstances. Recently, there remains very little published research on the traditional architecture in the Mekong Delta.

Consequently, the Cham Muslim community in the Mekong Delta is currently facing problems in development in both scales of urban and housing. The review showed that limited detailed studies have been found in the original formation and transformation of the ethnical architecture in the Mekong Delta, especially the architecture of the Cham Muslim.

Studies related to ethnic groups residing in the Mekong Delta, only come from anthropology and sociology (Luận, 1974) (Nakamura, 2000) (Taylor, 2007) (Nakamura, 2016). Up to now, there has not yet a study specializing in architecture and urban. Other studies on traditional architecture in the Mekong Delta, such as (Tu, 2019) focused only on the comparison

and applied the Vietnamese traditional architecture into new residential design. The issue of preserving traditional architecture with the diversity of ethnic identities in the Mekong Delta, and studies on traditional architecture and planning of the communities of Khmers, Chinese and Cham Muslims were limited, with very few documents, if any, such as (Tung, 1993) (Canh, 1997) (Trang, 1987) also lack scientific information also consisted of imprecise information.

One study that is closely related to the study is research for the Material culture of ethnic groups in the Mekong Delta (Tuyet, 1992). This research gave the general synthesis included three main kinds of material cultures: Traditional dwelling, traditional cuisine and traditional costume of the four ethnic groups Vietnamese, Chinese, Khmers and Chams. This research, until now, is the only document that has found that providing information on the material culture of all four ethnic groups in the Mekong Delta. However, it is only limited to separately descriptions of each ethnic group without systematized comparisons. On the other hand, the given information especially, the descriptions about architecture were inaccurate, with the housing typology was random by showing only one model and concluded that it was a typical house model. Therefore, the results and conclusions of this study are only provisional and need to be verified by field surveys with comprehensive scope.

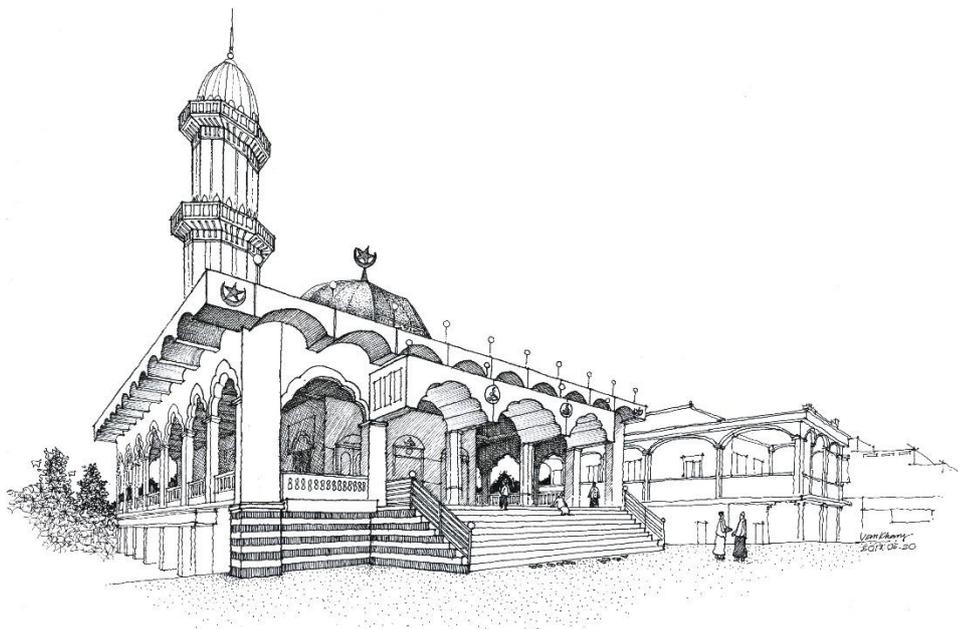
Moreover, many researchers stated that the settlement of Cham Muslim communities is isolated and secluded from other ethnic communities, mainly ethnic Vietnamese (Weber, 2011) (Taylor, 2007). However, although the proportion of the Cham community occupies a very small percentage compared to other ethnic groups in the Mekong Delta, they bring unique characteristics of exchange and integration in international links to the Southeast Asia area and the whole Islamic world. This revealed that, on the one hand, they settle within the separated community and follow Islamic regulations from generation to generation. On the other hand, during the process of settlement, they also absorbed and collected other compatible elements from their neighboring communities selectively. Besides, due to the Islamic culture of high international unity, the Cham Muslim community in the Mekong Delta has a close connection to the Muslim world.

This study, therefore, is conducted to comprehensively fulfill the gaps in the traditional architecture of ethnic groups in the Mekong Delta, especially in the architecture and planning of Cham Muslim villages and houses which is forgotten for so many years. Thus, it firstly aims to systematize the settlement formations and traditional housing patterns of the four ethnic groups in the Mekong Delta consist of the Khmers, Vietnamese, Chinese and Cham Muslims with consideration of influences from the historical immigrating process, customs, beliefs, spiritual life and livelihoods of ethnic groups. Secondly, the main part of this study clarifies the formation and transformation of village and housing architecture in the case of Cham Muslim based on the collected data of on-site surveys and fieldwork.

Through this study, the author wants to find out the core values in formation and transformation that make the similarities and differences between the Cham Muslim and the other ethnic groups, also consider the changes in the process of co-living in the Mekong Delta region. Besides, the core values of tradition and ideology of the Cham Muslim community are identified to make the foundation in order to preserve the existing status quo and helps to develop this community in a sustainable way in the future.

CHAPTER 3

Overview of the settlements of four ethnic groups with respect to their history, culture and social system



- 3.1 A brief history and settling formations of ethnic Khmer communities in the Mekong Delta
- 3.2 A brief history and settling formations of ethnic Vietnamese communities in the Mekong Delta
- 3.3 A brief history and settling formations of ethnic Chinese communities in the Mekong Delta
- 3.4 A brief history and settling formations of ethnic Cham Muslim communities in the Mekong Delta
- 3.5 Comparison and summary



Figure 4 Vietnamese Mekong Delta.

The Mekong River Delta (or Mekong Delta) (Figure 4) is a peninsula with a 400 km eastern coast and a 300 km western coast. Located in the southernmost part of Vietnam, it belongs to the lower part of the Mekong basin. The river flows through six countries: Myanmar, China, Laos, Thailand, Cambodia and Vietnam.

The area of the Mekong River basin is about 795,000 km². The river basin area is about 49,367 km², of which the Mekong River Delta accounts for about 40,604 km², equal to 5% of the total area of the Mekong basin, 79% of the area downstream, and nearly 1/8 of the area of Vietnam. The Mekong River Delta region is consisted of 13 provinces: Long An, Tiền Giang, Bến Tre, Vĩnh Long, Trà Vinh, Hậu Giang, Sóc Trăng, Đồng Tháp, An Giang, Kiên Giang, Bạc Liêu, Cà Mau and Cần Thơ (Figure 5).

This region is heavily influenced by the river's natural landscape in hot and humid tropical climate, with typical monsoon, warm and sunny year round. The average annual temperature is quite ideal around 27°C-28°C, the average humidity is 82%. The Mekong Delta rarely has erratic weather phenomena with two distinct seasons: the dry season (from May to the end of October) and the rainy season (from November until April).

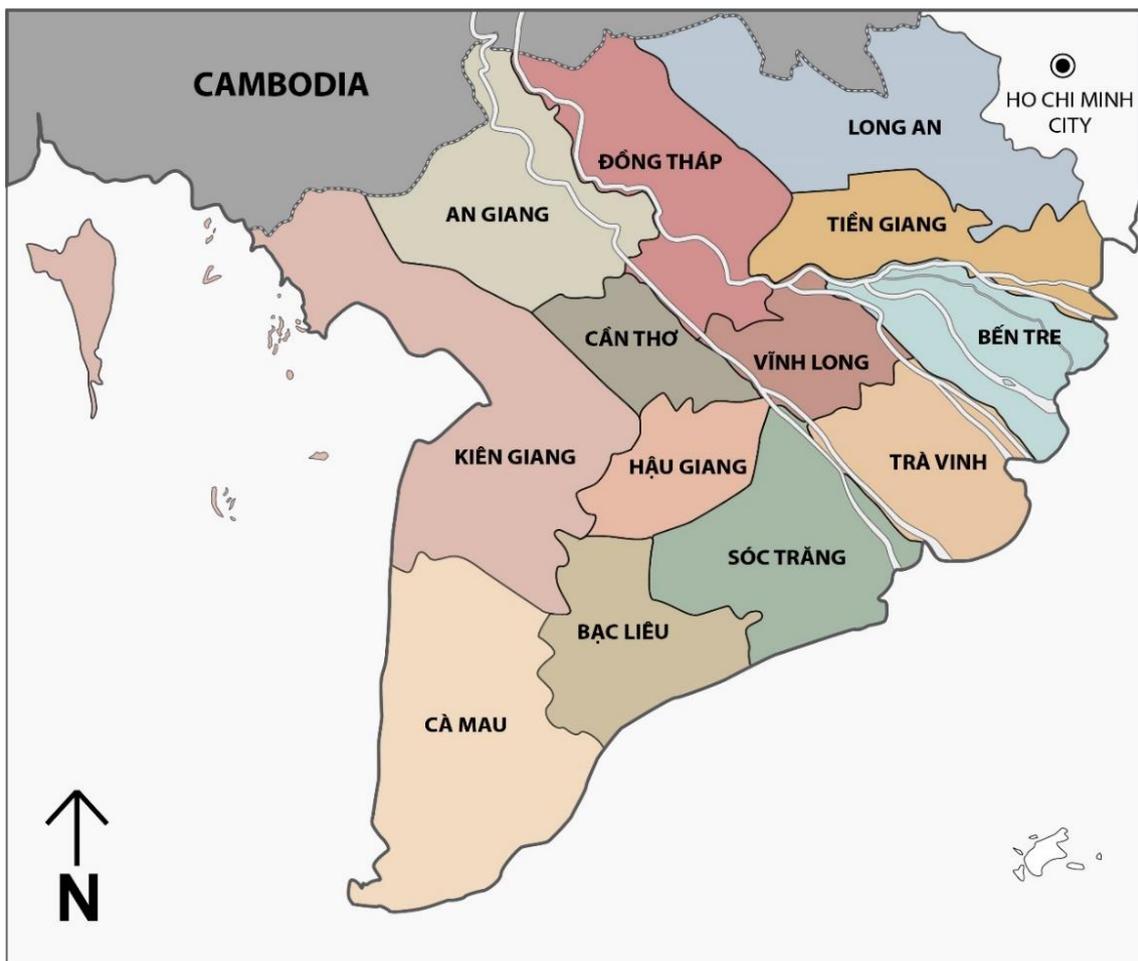


Figure 5 The Mekong Delta and 13 provinces.

Since the 17th century, the Mekong Delta has witnessed many migrations and settlements of various ethnic groups such as Kinh (or Vietnamese), the Khmer, the Chinese and the Cham Muslims in fluctuations. The existence of these settlements is considered as evidence of the complex history of emigration in the Mekong Delta (Figure 6). Among the four ethnic groups, the Khmer people are affirmed to be the first settlers in the Mekong Delta, which was a vicinity of the Khmer empire. They located themselves mainly in the provinces of Sóc Trăng and An Giang. The Kinh ethnic group, currently the dominant population in the Delta, were migrants from the middle of Vietnam, also during the 17th century. Their communities are scattered throughout the 13 provinces and occupy 92% of the total population of the Mekong Delta. The Chinese group emigrated from the southern regions of China during the Qing dynasty. They chose to settle near cities or towns, especially around markets, where it was convenient for commercial activities and economic development. They are located mainly in the provinces of Sóc Trăng, Mỹ Tho, Bạc Liêu, An Giang, Kiên Giang and Cà Mau. Only the Cham Muslims in the Mekong Delta are seen as a minority, with about 15.823 peoples (in 2010) in Mekong Delta region of around 17 million inhabitants (table 1, 2). They have been concentrated next to the rivers and canals in the An Giang province.

Table 1 Population of ethnic groups in Mekong Delta in 2009.

Ethnic groups	Vietnamese	Khmer	Chinese	Cham Muslim	Total
Population (person)	15811571	1183476	177178	15823	17191470
Percentage (%)	91,97%	6,88%	1,03%	0,09%	100%

(Source : Population and Housing Statistics 2010, page 134 – 146
www.gso.gov.vn/Modules/Doc_Download.aspx?DocID=11529)

Table 2 Population data among ethnic groups in the Mekong Delta (Unit: person).

	Ethnic groups	Vietnamese	Khmer	Chinese	Cham Muslim	Total
13 provinces in the Mekong Delta	Long An	1431644	1195	2690	218	1436066
	Tiền Giang	1667459	744	3863	72	1672271
	Bến Tre	1251364	578	3811	45	1255946
	Trà Vinh	677649	317203	7690	163	1003012
	Vĩnh Long	997792	21820	4879	91	1024707
	Đồng Tháp	1663718	657	1855	90	1666467
	An Giang	2029888	90271	8075	14209	2142709
	Kiên Giang	1446455	210899	29850	400	1688248
	Cần Thơ	1152255	21414	14199	173	1188435
	Hậu Giang	729502	21169	6363	81	757300
	Sóc Trăng	830508	397014	64910	106	1292853
	Bạc Liêu	765572	70667	20082	69	856518
	Cà Mau	1167765	29845	8911	106	1206938
	Total	15811571	1183476	177178	15823	17191470
Percentage	91,97%	6,88%	1,03%	0,09%	100%	

(Source: Population and housing statistics in 2010 (GSOV))

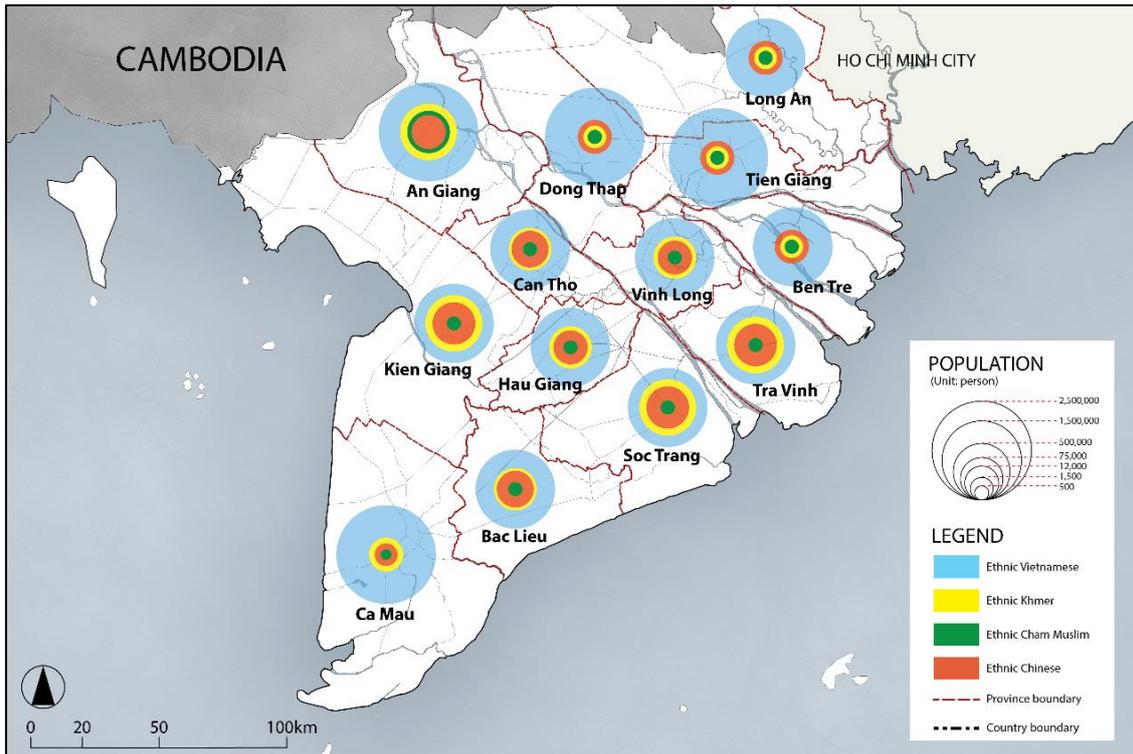


Figure 6 Map of ethnic groups' distribution in the Mekong Delta.

The ethnic Khmer people immigrated to settle in the Mekong Delta from end of 15 century to early 16th century. Following Theravada Buddhism, the Khmers built their villages on mounds of soil not more than 5 meters above the surface of the fields. The communities of the Khmer, called *phum* or *srok*, have clusters of houses built around big temples. Along the coastal areas, the Khmer live in the provinces of Trà Vinh, Sóc Trăng, Bạc Liêu and Cà Mau. In this region, there are groups of farmers with low standards of living, farming on poor saline soils, suffering barren trees due to a lack of fresh water, and raising cattle. As a result of these poor conditions, the Khmer in the Mekong Delta concerned themselves to the development of irrigation and dike systems in order to prevent salinity, and digging ditches to bring river water to wash off alum from the fields and raising up banks to keep fresh water. Meanwhile, the Khmer who resided in the southwest mountainous areas are located at the Seven Mountains of An Giang, the Long Xuyên quadrangle region, and along the Cambodian border in the An Giang and Kiên Giang provinces. These settlements are sparser with the *phum* and *srok* built on hillsides far away of each other. Growing rice is the main activity, playing a key role in the cultural and social lives of this group in the Delta. Fruit or vegetable monoculture is not given as much attention, happening in small productions for self-sufficiency. The commodity economy is not popular with exchanged goods being limited.

First settlements of Kinh people in the Mekong Delta from early of 17th century also have their own characteristics. The houses in the communes were not surrounded by fences of bamboo clusters, but built along the banks of rivers, canals, and ditches, and are surrounded by orchards and fields behind them. Kinh people in this area established their settlements to be suitable to the diverse natural conditions. They made independent, self-governing villages and communes with communal houses for public meetings.

Regarding the arrival of the Chinese, the first groups of Han immigrants who came to explore the region were soldiers from the Guangdong province. They were loyal to the Ming Dynasty, and thus did not obey the Qing court. They were allowed to enter the land of the Nguyen Dynasty to exploit the land now known as Tiền Giang and Đồng Nai in 1679 to 1680. In addition, a large migration of Chinese landed in the Hà Tiên area in 1671. Most of the Chinese in the Mekong Delta are of Chaozhou descent. They are nearly 300,000 in number, with most concentrated in the provinces of Sóc Trăng, Kiên Giang, Bạc Liêu, Cần Thơ, An Giang and Trà Vinh. The Chinese in this region account for 75% of those living in urban areas, which is favorable for trade, handicraft and industrial jobs. The remaining people of this group live in upland fields, growing crops such as Hòa Lựu (Vị Thanh – Hậu Giang); Vĩnh Châu (Sóc Trăng) and Bạc Liêu in the Mekong Delta.

The ethnic Cham Muslims who settled in communities in the Mekong Delta during the second half of the 18th century were from the Vietnamese South Central Coast and Cambodia. At first, part of the Cham people in Ninh Thuận, Bình Thuận and some localities in the South-Central Coast migrated to Cambodia. Following this, they then settled in Châu Đốc of the An Giang province from 1750 to 1757. Here, the Cham settled into villages along the Bassac River, on the islets of Châu Phú, Phú Tân and An Phú. After South Vietnam was liberated in 1975, some of them had set up businesses in the new economic zones and established new neighborhoods like in Châu Thành and An Giang district. The economy of the ethnic Cham in the Mekong Delta is dependent upon a combination of trading, fishing and craft weaving. The peculiarity of Cham trading is that many of them do not open shop in their residence, but rather in far distance elsewhere. A fairly developed craft of Cham people in An Giang is traditional weaving. Their looms are an improved model of the Cham loom from the South Central provinces. Cham women are limited in their participation in social activities because of Islamic customs, so most of Cham women do weaving cloths at home. In addition to weaving, Cham people also do freshwater fishing, especially those living on the banks of Bassac river. Islamic beliefs deeply influence the spiritual, cultural and socio-economic life of the Cham people in the Mekong Delta. For the Muslims, the Koran is not only a matter of life and morality, but also an expression of the manners and laws governing society. The Chams who follow Islam have to practice its theories, observe fasting on Ramadan, make pilgrimages to Mecca, and give to charities.

Thus, the Mekong Delta is a multicultural region with many residential communities with diverse histories and religions (Figure 7). The different peoples of this region settled together during the process of land reclamation. Each ethnic group has its own culture and unique characteristics from their origins that are preserved and promoted in their daily lives. However, through marriage, especially cross-cultural marriages, among the ethnic Kinh, Khmers, Chinese and Cham Muslims, many cultural exchanges took place that enriched the lives of the people.

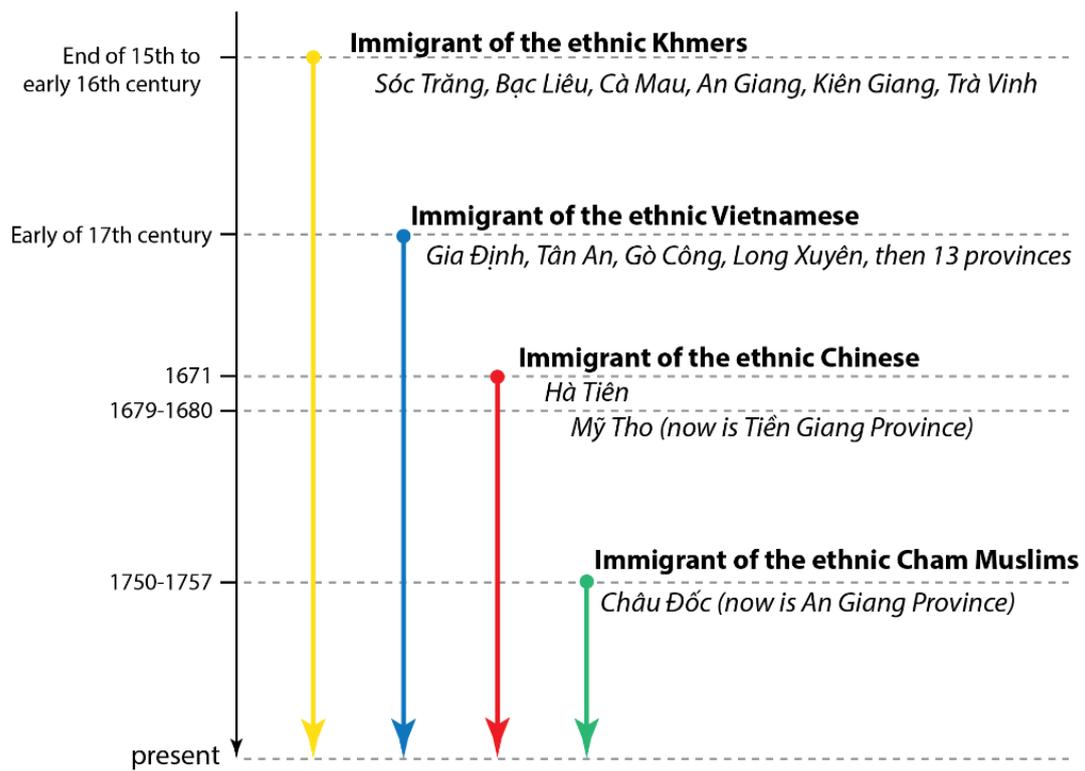


Figure 7 Chronological chart of immigration of the four ethnic groups to the Mekong Delta.

3.1 A brief history and settling formation of ethnic Khmer communities in the Mekong Delta

After the decline of Óc Eo culture between the 2nd and 8th centuries, the Mekong Delta became a wild and flooded region (Canh, 1997 p. 26). In the 10th century, due to the gradual withdrawal of seawater, a number of large sand ridges have emerged, which became fertile land that is very suitable for settlements and agriculture. Around the 12th century, the deprived Khmer farmers who could not withstand the harsh exploitation and heavy taxes of the feudal Angkorian forces fled and came to settle in the high grounds of the southern plain. Here, they lived on large sand dunes, residing in each one's area based on family and kinship relationships (Figure 8). When the Angkorian Empire collapsed in the 15th century, the people in the Khmer Kingdom fell into poverty and were severely suppressed by the Thai feud. To escape the oppression from pagan people, the Khmer migrated to the Mekong Delta. Around the end of the 15th and in the early 16th century, the Khmer in the Mekong Delta generally established themselves in three settlement areas:

1) The areas of *Sóc Trăng, Bạc Liêu, Cà Mau* (primarily along the coasts of *Sóc Trăng, Vĩnh Châu, Vĩnh Lợi, Mỹ Xuyên* district, *Mỹ Tú* district, *Long Phú* district, *Thanh Trì* district, *Kế Sách* district, *Sóc Trăng* town). The Khmer came later to the coastal districts of *Minh Hải* province (now called *Bạc Liêu* and *Cà Mau* provinces) as this was the following reclamation area. They resided mainly in *Vĩnh Lợi* and *Gia Rai* provinces. A residential area shared between the Khmer, Vietnamese and Chinese characterized this region.

2) *An Giang - Kiên Giang* region (mainly *Vọng Thê, Tri Tôn, Nhà Bàng*, then North-West *Hà Tiên, Huệ Đức, Châu Thanh, Gò Quao, Giồng Riềng, Hà Tiên, An Biên, Châu Đốc* border extends to *Rạch Giá*).

3) *Trà Vinh* area, part of *Vĩnh Long* (the largest in *Trà Cú, Châu Thành, Tiểu Cần* and *Cầu Ngang* districts). (Canh, 1997 p. 27)

Thus, it can be concluded that the Khmer are native to the Mekong Delta. These communities and those in Cambodia are fellow indigenous people who share the same language, religion and ethnic characteristics. However, since arriving in the Mekong Delta region, this group has lived independently and has no relationship with any country from that time. Because of this long separation from Khmer people in Cambodia, Khmer people in the Mekong Delta have since developed unique characteristics for their communities, economy, culture and society.

Table 3 Livelihood of the ethnic Khmer in the Mekong Delta.
(Source (Canh, 1997))

Percentage of livelihood of the ethnic Khmer in the Mekong delta			
Small trading	Rice cultivation	Wickerwork	Fishing
3%	90%	5%	2%

They settled in the Delta before the Vietnamese, the Chinese and the Cham Muslims. Since their main livelihood is agriculture (table 3), the Khmer in the Mekong Delta have long since lived by coastal rice fields. They chose to settle into areas with the highest elevations where they constructed houses and pagodas mainly on the sand ridges running parallel to the coastline. Beneath the nearby steep slopes were the rice fields for growing crops (Takada, 1995). The traditional houses were for the most part made from local materials.

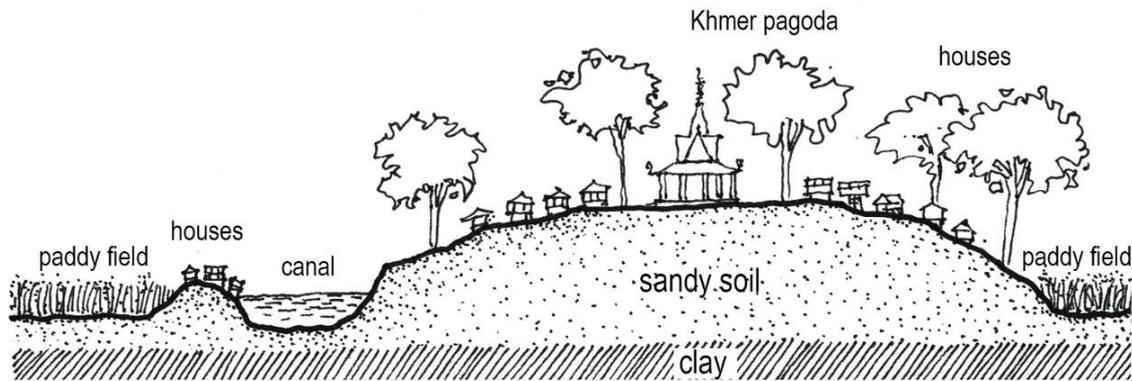


Figure 8 Khmer settlement on the ridge area.

Due to the climate in the Mekong Delta, there are only two seasons throughout the year: rainy season and dry season. At that time, there were no big typhoons. Thus, the housing architecture of the Khmer people was fairly simple and not solidly built, whose main function was protection from the harsh sun and heavy rain. It should be noted that although the Khmer people reside in coastal areas, they do not harvest any resources from the sea as sea fishing has not been developed in their community. Rather than making use of their proximity to the sea, they argue that the "saltiness" of the sea has instead hindered their agricultural activities. (Trang, 1987 p. 10).



Figure 9 A Khmer pagoda in Trà Vinh Province.

Overall, the Khmer people in the Mekong Delta, despite having lived there for a long time, have not taken full advantage of all of its natural resources as of yet. Their housing architecture is not developed, if not to say completely rudimentary and simple. Khmer people follow Theravada Buddhism, where it is believed that before marriage, every man must go through a period of spiritual practice at the temples. Therefore, the temples play a very important role in the Khmer communities (Figure 9). Be that as it may, the community spaces of the Khmer people are very monotonous, with the exception of their grand pagodas and festivals. Throughout their long history of settlement, the Khmer in the Mekong Delta have lived together as inhabitants in traditional self-governing social units within two institutions, the *Phum* and the *Srok* (called *Sóc* in Vietnamese).

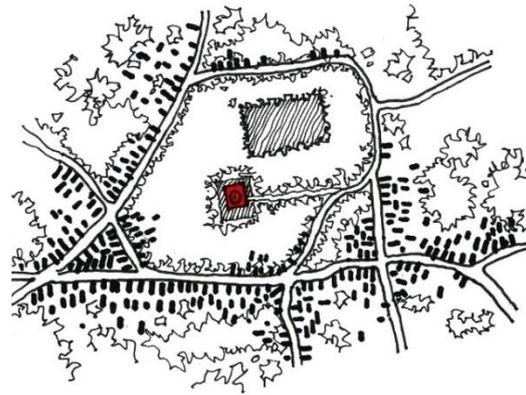


Figure 10 Typical settlement formation of Khmer community.

KHMER PHUM

The *Phum* is the most basic residential unit in a Khmer community. In Khmer, *Phum* means "land" or "garden". A *Srok* contains many *Phums*. In each *Srok*, the people build a large pagoda in the middle of a small forest (Figure 10). The pagoda is the most important building in Khmer communities. It is the center of religious, cultural and social activities, a place to preserve and communicate national culture (Tuyet, 1992 p. 83). The *Phum* and the *Srok* are not state administrative units. Rather they are traditional social units by the Khmer, where customs and rituals take place and in which temples exist as the centers of cultural activities. This is an important feature of the Khmer communities in the Mekong Delta.

Regarding scale, the *Phum* is a residential unit with at least 1 family, an average of 5 to 7 members per household, sometimes reaching 9 or 10. Members of these families have either a blood relationship or a marital relationship with each other. According to some studies, the Khmer *Phum* is a structure surrounded by bamboo piles with front and back gates. Around the houses there are straw mounds, buffalo stables, barns, bathrooms, wells, and warehouses to store farming tools. There are also small gardens to grow vegetables and fruit trees (Canh, 1997 p. 48). The barrier of bamboo, hemp, or cacti marking its boundaries were probably a remnant of an ancient practice to defend against wild animals. The *Phums* have no true fences, and even doors are left open. The management of a *Phum* is led by a *Me Phum*. A *Me Phum* is a prestigious man, or sometimes an older woman. This is the person who is responsible for domestic and foreign affairs: the *Me Phum* has the right and power over his relatives to distribute and utilize the residential property, resolve internal affairs, communicate with other communities, hold activities in pagodas, and commune government organizations. The *Me Phum* is also the one who organizes the donation of money and food to the temple, and urges other members to participate in public works in the *Srok*, such as the cleaning of *Phums* and the *Srok*, and construction of roads and public works. (Canh, 1997 p. 89)

In summary, a *Phum* is both a residential and a self-governing social unit by the Khmer in the Mekong Delta. It is composed of a number of families of different sizes, settling together within a certain boundary on the mounds. Each *Phum* has its own name, and is often taken from the name of its creator. In relation to kinship, *Phum* is a social unit based on two relationships: blood and marital relations among family members. If a *Phum* is a residential unit and considered as the smallest social unit, then a *Srok*, containing many *Phums*, is the most complete residential unit. In the Khmer language, *Srok* has many connotations. Nevertheless, in the broad sense of the word, it means 'region' and 'locality'. Every *Srok* normally occupies a segment of a mound of the ridge. Between them, there are clearly defined boundaries according to *Srok* conventions. Bamboos, cross-section trails, narrow spaces, and sometimes an old tree can act as the boundary.

KHMER SROK

The size of a *Srok* is equivalent to that of a hamlet in the Vietnamese administrative division system, including more than 100 to 300 households, with a population of between 1000 and 2000 people. Usually, a *Srok* is defined through the number of pagodas. Normally, every *Srok* has a pagoda. Sometimes, there are two, or some *Sroks* share one temple. The location of the temple is not fixed. It could be located in the middle of a *Srok*, occasionally at the beginning or at the end of a *Srok*. The pagoda is a distinct building within a *Srok*. It is not only a place to practice religious activities, but also the cultural and educational center of the Khmer community. Therefore, Khmer people do not regret spending their time and money to build and embellish their *Srok's* temples.

Nonetheless, through the fieldtrips and surveys in Khmer communities in Sóc Trăng, Bạc Liêu, An Giang, Trà Vinh, it was found that the formats of the Khmer *Phum* and the *Srok* is not clearly defined, and that there is no typical village structure. These communities simply consist of many houses near a Khmer pagoda. Aside from this finding, the housing format is also unclear.

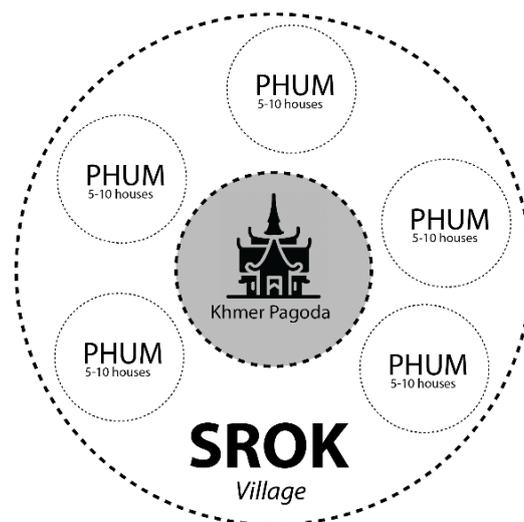


Figure 11 Structure of Khmer village.

3.2 A brief history and settling formation of ethnic Vietnamese communities in the Mekong Delta

Before Vietnamese immigrants moved to the Mekong Delta region, the Southern region was a unique area defined by the Oc Eo culture¹ of the Funan kingdom (Figure 12). After the Oc Eo culture waned in the first half of the 7th century, this land quickly withered and fell into a fallow process. The Funan Kingdom was conquered and annexed by its vassal state, Chenla (the predecessor to the Khmer kingdom). At this time, the Chenla dynasty was divided into two: Land Chenla and Water Chenla (Ooi, 2004 p. 325). Land Chenla was a highland upstream the Mekong River, while Water Chenla was located in the lower Mekong region, now the Mekong Delta.

Although it occupied the land of Funan, the Chenla dynasty could not exploit this deserted and flooded area. Therefore, the rule of the Land Chenla was entrusted to the indigenous nobles of Funan lineage who surrendered to the Chenla court. On the other hand, the land in Water Chenla became a site of struggle for the Angkor Empire and small Southeast Asian kingdoms, such as the kingdom of Srivijaya from the island of Java in Indonesia.

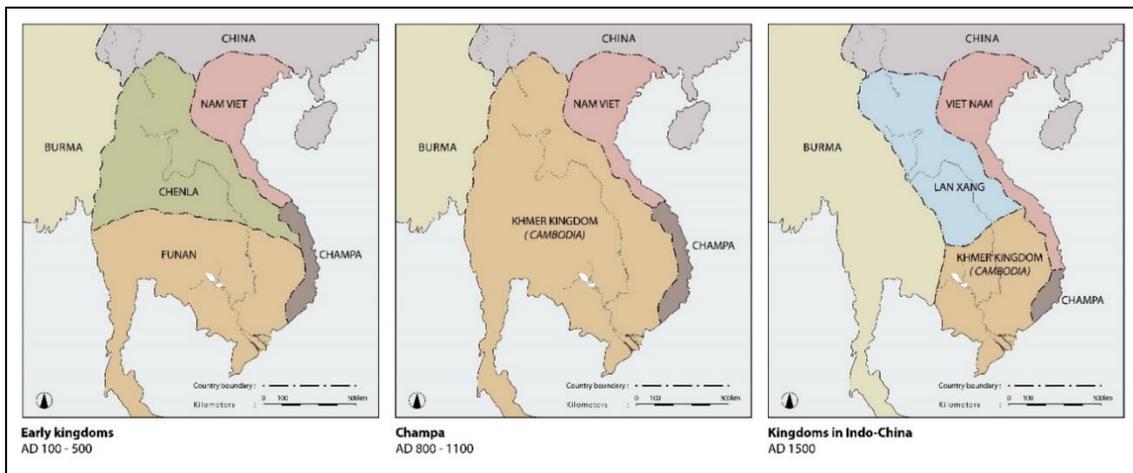


Figure 12 Vietnam, Champa and Khmer from AD100 to AD1500.
(Adapted from (Narankiri, 2000))

In 802, the Angkor court regained Water Chenla. However, due to the invasion by the Kingdom of Siam (now called Thailand), they were in no condition to construct in or manage the Water Chenla region (Them, 2014 pp. 78,79). In 1296, Zhou Daguan (周達觀) wrote 'A Record

¹ Oc Eo, sometimes spelled Oc-Eo or Oc-èò, is an archaeological site in Thới Sơn District in southern An Giang Province, Vietnam. Between the 2nd century B.C. and 12th century, Oc Eo was a large and thriving port city of the kingdom of Funan, in what is now known as the Mekong Delta on the Gulf of Siam. Established in the first century C.E., Oc Eo was a critical node on the international trade route between Malay and China. The Romans knew of Oc Eo, and the geographer Claudius Ptolemy included it on his world map in 150 C.E. as the Kattigara Emporium. Scholars use the term "Oc Eo culture" to refer to the archaeological culture of the Mekong Delta region typified by the artifacts recovered from the site through archeological investigations (Bourdonneau, 2007).

of Cambodia: The Land and Its People', which reports his findings as an envoy of the Yuan dynasty of China from his survey of the area from the East Sea through the mouth of the Mekong River to the capital of Angkor by ship. In his record, he notes that Water Chenla area was still a desolate land with dense trees, and that it was difficult for sailors to find the estuaries (Daguan, 1973 p. 23).

In 1431, the Khmer empire collapsed after an attack by the Siam kingdom. Many people have left Land Chenla and migrated to Water Chenla to evade oppression from Siam. At that time, Water Chenla was called Khmer Krom (*Krom* means "low" or "below") to distinguish it from Khmer Loeu (literally "highland Khmer", in reference to Land Chenla). Because of the tradition of residing in the highland from their time in Land Chenla, when they arrived in the new area, these migrants chose to reside on ridges at the mouths of the Bassac River and Mekong River, such as in the areas of Trà Vinh, Sóc Trăng province. Afterwards, the Khmer people extended their settlements to other highland locations such as An Giang, Kiên Giang, Bạc Liêu, Cà Mau, Vĩnh Long, Cần Thơ, and Hậu Giang (Them, 2014 p. 80) (Thuận, 2016 p. 330). Therefore, although the Kinh (Vietnamese) population currently accounts for a large portion of the population, the Khmer were the first immigrants in the Mekong Delta. The arrival of the Vietnamese in the region only began in the early 17th century, under the reign of Lord Nguyễn Phúc Nguyên (阮福源, 1563-1635).

In 1620, Lord Nguyễn Phúc Nguyên arranged the marriage of Princess Ngọc Vạn, his adopted daughter, and the Chenla king, Chey Chetta II. Three years later, Lord Nguyen asked the Chenla king to set up two tax collection stations in Prei Nokor (now Gia Định) and Kas Krobey (now Bến Nghé). The reason for this is the expansion of the border to the south as it was necessary to create the conditions wherein the people could turn the Southern region into a compact base against the Trinh Lord in the Northern Vietnam. In the new land, Lord Nguyễn implemented open policies, allowing residents to exploit the land at will with reports to the authorities after the completion of their mining.

In 1693, Lord Nguyễn Phúc Chu delegated Nguyễn Hữu Cảnh to occupy Champa, renaming the area as Thuận Thành Town. Some of the Cham people migrated to Chenla (Khmer kingdom), Malaysia and Thailand. The Cham group in Chenla was oppressed by the Khmer king, who was then supported by the Nguyen dynasty to occupy the southern region. Lord Nguyen then arranged for the migration to be most concentrated in Tây Ninh and Châu Đốc in order to guard the southwest border and protect the Vietnamese land (Them, 2014 p. 83).

In 1698, Lord Nguyễn Phúc Chu ordered Nguyễn Hữu Cảnh to manage the south of Vietnam. In the same year, the Gia Định government was established, and the Nguyễn dynasty set up the tax system and mobilized farmers to form villages in the whole southern land (Choi, 2019 pp. 40, 41). The Vietnamese immigrants who came to Đồng Nai and Gia Định numbered at around 200,000 people, around 40,000 households. With this group, Nguyễn Hữu Cảnh had sent Gia Định government workers, and military and record officers for their protection and management (Hiếu, 2017).

In 1756, in order to reconcile with Lord Nguyễn Phúc Khoát, Chenla King Outey Reachea II (or Ang Tong) offered him two districts: Tầm Bôn (now Tân An) and Lôi Lạp (now Gò Công).

By 1779, the area of Gia Định covered the whole southern region. Only the Trà Vinh and Sóc Trăng provinces where a large number of Khmer people resided were left to the Chela king for a short period of time. By 1835, it was also permanently merged into Vietnamese territory (Hiếu, 2017).

In 1757, the Tầm Phong Long region was given to Lord Nguyen Chenla by Outey Reachea II to as tribute in exchange for help in times of tribulation and in regaining the throne. The name *Tầm Phong Long* comes from the Khmer word, "*Kompong Luong*," which means "king's wharf, pool or river," and refers to the Long Xuyên Quadrangle. As a result of this tribute, the process of establishing the territorial sovereignty of Lord Nguyễn on the Southern lands was completed in 1757 (HKHLSVN, 2009 p. 148).

The southern region was re-declared as territory under the Nguyễn Dynasty from the 17th to the 18th century. The Nguyễn lords fortified the army, freeing the people to explore the south and subsidizing their exploitation of the land. King Gia Long ordered the digging of the Thoại Hà canal (1818, from Long Xuyên to Rạch Giá) and the Vĩnh Tế canal (1819 - 1821, from Châu Đốc to Rạch Giá - Hà Tiên). From 1831 to 1832, with the purpose of reclaiming and opening the lands, Emperor Minh Mạng established properties of later immigrant populations into "*dinh điền*," which allowed for large ownerships of land. The irrigation system, therefore, was very developed during the reign of King Gia Long and Minh Mạng.

In 1859, the French invaded the Gia Định citadel, which began the invasion of Vietnam. In 1862, the Hue court offered the three Eastern provinces of Cochinchine (Biên Hòa, Gia Định, and Định Tường) to be ceded to the French. In 1867, France unilaterally declared all 6 provinces of Cochinchine to be French territory. From then on, the Cochinchina region had colonial status, with a colonial government headed by a French governor. During the occupation of Cochinchina, the French exploited the natural and economic resources of the Mekong Delta to serve the war. In order to conquer and manage the remaining lands in the south, the French developed waterway transports on the southern bank of the Bassac River with the construction of a series of large canals: the Hà Tiên Canal, the Rạch Giá Canal, the Xà No Canal and the Bạc Liêu - Cà Mau Canal. At the same time, they organized to dredge and expand canals in the area between the Mekong and Bassac Rivers. The exploitation of the southern region under the French colonial period was conducted very quickly and thoroughly. From 1919 to 1929, the entire areas of Gia Định, Gò Công, Cần Thơ, Mỹ Tho, Tân An, Sa Đéc, Trà Vinh and Rạch Giá were fully explored.

From 1954 to after 1975, due to the introduction of construction materials and techniques, and new plans for residences from the West, the traditional houses of the Vietnamese changed to concrete frame houses with brick walls. Because of the utility and needs of the modern life, the

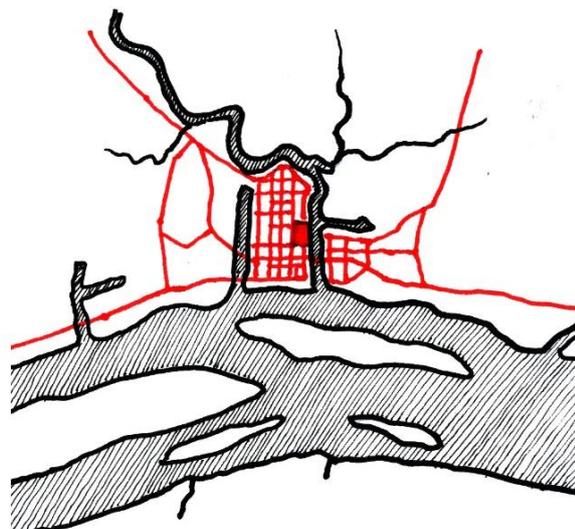


Figure 13 Typical formation of Vietnamese town.

urbanization of housing took place very quickly and widely, not only in urban areas but also in rural areas throughout the Mekong Delta region.

Regarding their settling formation, the ethnic Kinh considered rivers and canals similar to roads in the past when the road system was not as developed. Trịnh Hoài Đức noted, “In Gia Định, the boats are everywhere, either using boats as houses, either to go to the market, or to visit relatives, or to transport firewood for business. The rivers are full of boats, constantly moving in day and night [...]” (Duc, 1830). Therefore, the Kinh built their houses facing the river, exposed to the ‘road’, as it was convenient for travel, production, and life. The architectural form is simple for the poor, while the houses of the rich are ostentatious, expensive, and luxuriously furnished.

The livelihoods of the ethnic Kinh in the Mekong Delta are closely linked to water (figure 13) (Them, 2014 p. 656 to 662). For example, they mainly cultivate wet rice. Thus, due to close proximity to the intermittent system of rivers and canals, the settlements of the ethnic Kinh or Vietnamese in the Mekong Delta are mostly scattered in linear formats along rivers and roads with the market normally placed at the central location (Figure 14) (Pham Quang Dieu, Pham Thi Thanh Thao, 2011).

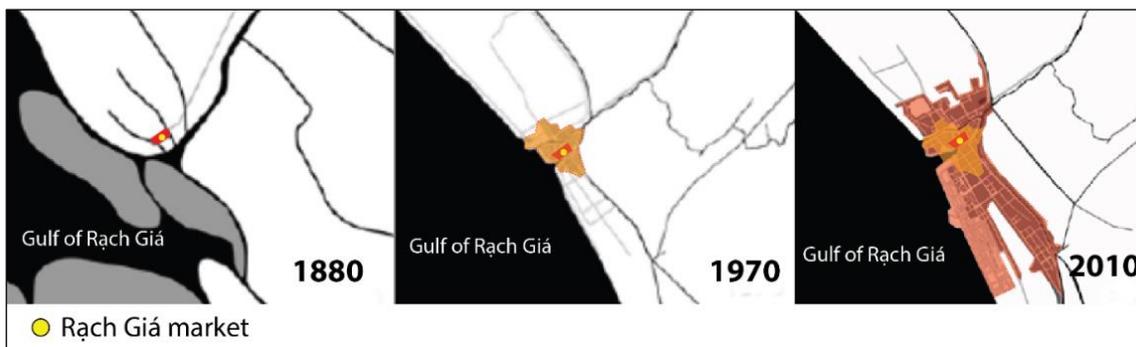


Figure 14 Market and the urbanization process of Rạch Giá City, Kiên Giang Province. adapted from (Pham Quang Dieu, Pham Thi Thanh Thao, 2011)

Houses distributed along rivers and canals

From the early days of land reclamation, to facilitate the clearing of forests for farming, the ethnic Kinh constructed their houses along existing rivers. Through the reclamation process, many canals have been dug to connect rivers and paddy fields. Consequently, the Vietnamese villages and the residential clusters have been organized linearly along the canals and gathered at traffic hubs, often at the intersection of rivers where the markets were established. Each house has boats for the main means of transportation. Houses on the ground have a yard in front.

On the river's edge, there is a marina or boat dock for collecting water, washing clothes and bathing. At the back end of the house, a floor called “*sàn nước*” is built, which is used for washing and drying clothes. This is also the space for the toilet and for raising cattle and poultry. Behind the house are the paddy fields. Earth for the building foundation and yard is taken from rivers and lakes. Construction materials for the building itself are mainly wood, nipa palm leaves, straw and other materials such as bricks or fiber cement tiles.

Houses with the road at the front and the river at the back

The road system for vehicles constructed later overcame the intermittent traffic during dry season or flooding season. The intricate canal system in conjunction with the development of road vehicles has created many advantages in terms of traffic in the Mekong Delta. By consequence, housing distribution is spontaneous and prolonged along the roads. The typology of houses with the road at the front and canal on the back side could be seen in almost every province in the Mekong Delta. These houses have gates, fences, large yards for plants or fruit trees, and behind the house is a floor for washing, bathing, the boat dock and orchards. People in such areas do many jobs such as gardening, farming and even trading. Subsequently, as the road traffic system developed, Vietnamese communities have been shaped along these roads.

3.3 A brief history and settling formation of ethnic Chinese communities in the Mekong Delta

The ethnic Chinese in the Mekong Delta were originally immigrants in the 17th century from the southern coastal regions of China, mainly in the provinces of Guangdong, Fujian and Hainan Island. They migrating to Vietnam wanting to flee from the difficulties, poverty, epidemics, and insecurity from disputes between feudal forces in China at that time. The Chinese came to the south of Vietnam at different times throughout the centuries. They had known about the region quite early; some were merchants who often traded around the Southeast Asia region, and some were envoys sent by the Chinese court to work overseas. According to historical documents, Chinese merchants had known of the existence of the Chenla kingdom since the 12th and 13th centuries. In the 15th and 16th centuries, the Chinese traded in Đàng Trong (Southern Vietnam) (HVVHT, 2016 p. 12). In the book *The Record of Wind and Land of ZhenLa (Chân Lạp Phong thổ ký or Zhenla Feng Tu Ji)* written by Châu Đạt Quan (周達觀) at the beginning of the 13th century, it notes that the southern region of Vietnam at this time was still an uninhabited, sparsely populated area (Daguan, 1973). Therefore, it can be concluded that the settlement of the ethnic Chinese in the South of Vietnam must have occurred between the end of the 16th century to the 18th century.

The most important exodus of Chinese immigrants to Vietnam occurred in the 17th century. During this time in China, after the Manchu occupied and reigned the entire Chinese territories and following the establishment of the Qing Dynasty (1644 -1911), a number of former Ming deities who refused to surrender with a number of allied merchants established the resistance movement "Phản Thanh Phục Minh" (Subvert the Qing dynasty and recover the Ming dynasty) at locations near the border with Vietnam.

From 1679 to 1980, some former Ming officials tried to escape from China, bringing with them around 3,000 soldiers, most of whom were Cantonese and Fujian. They divided into two groups immigrating to Southern Vietnam (Phuoc, 2006). They came to Tư Dung and Đà Nẵng to take up residence temporarily under the Nguyen court. However, Lord Nguyen arranged for them to move to the lands of Đồng Nai and Cửu Long (now Mekong Delta) even though this region still belonged to the Chenla. The first group was led by Trần Thượng Xuyên (陳上川) (also known as Trần Thắng Tài) and Trần An Bình (陳安平), and moved upstream along the Dong Nai River. They settled in Cù Lao Phố (now Biên Hoà). The second group headed by the chairman Dương Ngạn Địch (楊彥迪) and Deputy General Hoàng Tiến (黃進) moved up the Tiền River (the Mekong River) and settled in Mỹ Tho (now is Tiền Giang). In a separate case, Mạc Cửu (鄭玖), a trader from Lei Zhou (雷州) in Guangdong province, along with about 500 people came to the land of Hà Tiên to settle in 1671 (Phuoc, 2006). They later expanded Hà Tiên to become a prosperous autonomous region (HVVHT, 2016 p. 17)

Aside from these three locations, ethnic Chinese settlements are scattered at a number of other estuaries and bays. For instance, in the province of Sóc Trăng, they reside at the mouth of Mỹ Thanh River, Vĩnh Thanh and Mỹ Xuyên areas along Mỹ Thạnh River, and the Bãi Xâu wharf in Mỹ Xuyên. They are also located in Rạch Giá, Bình An, commune of Ba Hòa district in Kiên Giang province.

The ethnic Chinese in the Mekong Delta prefer to reside in urban areas, towns, and townships where convenient waterways are available, residing in areas near markets, rivers, and main roads. The choice of such a residence is closely related to the main economic activities of the Chinese who are trading, selling, or producing handicrafts. In cities or towns in the Mekong Delta, it is easy to identify the Chinese settlements by their housing blocks next to the street, grocery stores, Chinese drugstore, and even shops of worship items (HVNHT, 2016, p. 21). The Chinese built large temples within their settling area for worship God and ancestors. The temple is also the community space to organize the cultural activities, important ceremonies and festivals (Figure 15).



Figure 15 A Chinese temple in Bạc Liêu Province.

Only a few Chinese groups chose to reside in rural and suburban areas such as Vĩnh Châu Town (Sóc Trăng province), Long Mỹ District (Hậu Giang province), Trà Vinh, Bạc Liêu, Rạch Giá (Kiên Giang) or the outskirts of Châu Đốc City (An Giang province), Cà Mau. They reside together with Kinh and Khmer people in hamlets.



Figure 16 Typical formation of Chinese community.

The Chinese families here mainly work in agriculture, farming vegetables, onions, garlic, fruits, or in a combination of agriculture and small businesses (Tuyet, 1992 p. 136) (HVNHT, 2016 p. 21).

In An Giang province, the ethnic Chinese livelihoods encompass many different occupations such as trading, small handicraft, and farming. However, among the mentioned careers, the most common job is in trade. Hence, most of their settlements are concentrated nearby the market in urban areas rather than rural areas (Figure 16). The regions with the highest populations of ethnic Chinese are Long Xuyên and Châu Đốc. These two are also considered as key centers and the largest trading hubs of the province. In addition, the ethnic Chinese also live in the towns and communes of An Phú, Tân Châu, Chợ Mới, Phú Tân, Châu Thành, Tri Tôn, Thoại Sơn, and Tịnh Biên. Aside from these, they are scattered in rural and border areas such as the Khánh Bình, Quốc Thái, Khánh An, Phước Hưng and Đa Phước communes (An Phú district), Phú Hiệp (Phú Tân district), Vĩnh Mỹ (Châu Đốc town), and Mỹ Đức (Châu Phú district).

3.4 A brief history and settling formation of ethnic Cham Muslim communities in the Mekong Delta

The Cham community is the only one of the 54 ethnic groups in the territory of Vietnam that follows Islam. They are also one of the five ethnic groups using the Malay language system in Vietnam, which includes the Churu, Ede, Giarai and Raglai (GCRAVN). From a historical point of view, the Cham used to belong to the Champa Kingdom, a prosperous country in central Vietnam, which existed from the 2nd century to the early 19th century (Figure 16). For that reason, most of them have considered themselves as descendants of ancient Champa Kingdom (Sakaya, 2010). In "Champa and Archeology of My Son", Rie Nakamura divided the Cham into two groups: one living in South Central of Vietnam who have concentrated in Ninh Thuận and Bình Thuận, and the second group located in the Mekong Delta (Nakamura, 2009 p. 79).

The history of the Cham Muslim community in the Mekong Delta is a complex issue. To this day, there are still many hypotheses and debates among historians and researchers about it. The aim of this study is not to focus on the history of Champa, but only to give an general overview and to gather historical events related to the village establishment of Cham Muslim communities in the Mekong Delta. In general, according to available historical documents and studies, the Cham Muslims in this area are considered to be descendants of the Chams who left Champa to immigrate to Cambodia. However, due to the impacts of historical events, especially the war between the Vietnamese court and the Khmer Kingdom, they moved back to the Mekong Delta region and settled mostly in the province of An Giang. Therefore, it can be said that the Cham Muslim community in the Mekong Delta is not an indigenous group, but was mainly formed by migrations of war refugees.

Before it was known as the Champa Kingdom, the area was called the Lin Yi Kingdom. The scholar Dohamide stated that according to the historical documents by Chinese author Đào Lê Nguyên, the Lin Yi Kingdom was probably established in 192 AD. However, in another Chinese document, the appearance of the Lin Yi Kingdom was first known officially in 220 - 230 (Dohamide, Dorohiem, 1965 p. 28). In the early 600s, the territory of Lin Yi underwent changes, and the name was altered to Champapura or Champa (Dohamide, Dorohiem, 1965 p. 45). In 1028, the Lý dynasty of Đại Cồ Việt (now Vietnam) from the north began to invade Champa (Dohamide, Dorohiem, 1965 p. 52). The war between Vietnam, Champa and the Khmer Empire lasted from then until the 18th century. After the attacks of the Khmer, the Champa Kingdom became a part of Khmer territory from 1203 to 1220. In 1226, Champa King Angcaraja Turaijiraja was moved to and raised at the Khmer Court under King Jayavarman VII. Based on this, it can be concluded that the war between Champa and Khmer had ended because the Khmer faced a new enemy, Thailand (Dohamide, Dorohiem, 1965 p. 68). These events show that the relationship between the Champa and the Khmer Kingdom was close during that time despite the lowered status of Champa when compared to its neighboring countries, Khmer and Vietnam.

Until 1305, the Đại Việt Court maintained a friendly relationship with the Champa through the marriage of Princess Huyền Trân of Đại Việt to King Jaya Simharvarman III (Dohamide, Dorohiem, 1965 p. 74). Following after, Champa ceded a part of its northern territory to the Đại

Việt. However, after the death of King Jaya Simharvarman III in 1307, the conflict between Champa and the Đại Việt resumed. In the end, Champa was completely dominated by the Đại Việt in 1471 under King Lê Thánh Tông (Dohamide, Dorohiem, 1965 p. 94).

From 1471 until 1543, although Champa still had a king, it was no longer supported by outside forces like China or the Khmer. The Champa had to then depend on a governing power with political influences from the Đại Việt Court. The Kingdom of Champa, therefore, went into recession. Because of its location in between Vietnam and Khmer, the wars between the Nguyen Dynasty of Nam Việt and the Khmer caused many difficulties for the Champa people, and they began to migrate elsewhere.

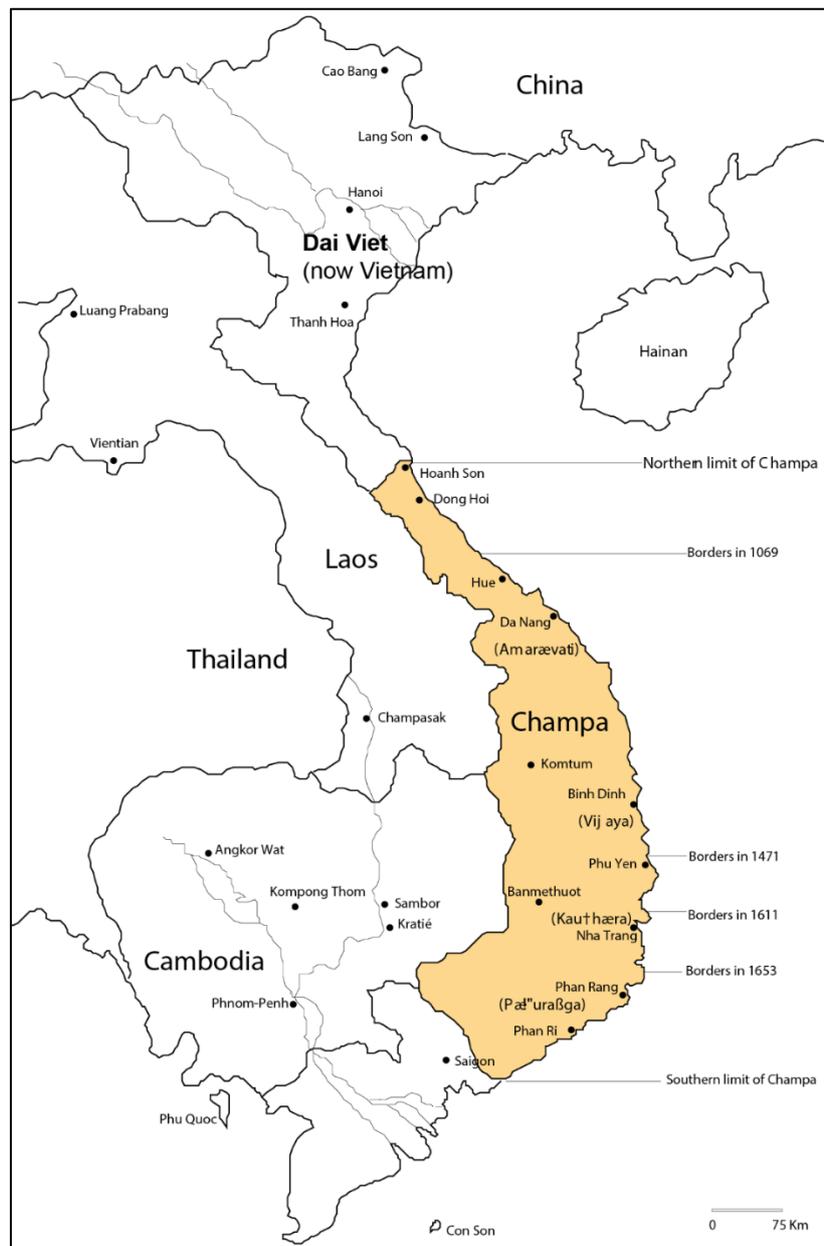


Figure 17 Champa borders sin the 10th century.
(Ken, 2007 p. 192)

The first migration was recorded in the 15th century when the Chams left their kingdom to reside in the Khmer Kingdom during the war between Champa and the feudal court of Vietnam from the 15th to 17th century. In 1623, after King Chey Chetta of the Khmer Kingdom married Princess Ngọc Vạn of the Nam Việt, the Nguyễn Dynasty expanded and consolidated its position in the region of Mekong Delta. In the years from 1787 to 1795, Nguyễn Ánh occupied the whole Champa Territory after the Tây Sơn Army controlled all of South Vietnam (Dohamide, Dorohiem, 1965 p. 107).

During the reign of Minh Mạng (1820-1840), under the pressure of the assimilation policy, King Po Chon, who practiced Islam, abandoned his throne and went into permanent exile in Cambodia with his courtiers and entourage in 1822 (Durand, 1907 p. 253). This event made the Champa people face many difficulties and reduced them to a minority group in the Ninh Thuận and Bình Thuận areas.

According to the chronicles recorded of the Vietnamese and the Cham (CAM 30-8), in 1832, King Minh Mạng of Vietnam abolished the autonomy of Champa and turned the Cham inhabitants into Vietnamese citizens, thus officially eliminating the Champa Kingdom's name on the administrative map. The former territory was divided into district units in the provinces of Ninh Thuận and Bình Thuận (Lafont, 2011). Also, during the reign of King Minh Mạng, the Vietnamese annexed a part of Cambodia's territory and imposed their regulation in this area. The Chams in Cambodia became political supporters of the Vietnamese feudal court by helping to prevent a Khmer uprising in Cambodia. As a result of the wars between the Vietnamese feudal court and the Khmer Kingdom, a large portion of the Cambodian Cham community who supported the Vietnamese Court retreated to the Mekong Delta. They were arranged by the Vietnamese government to settle on the banks of the Bassac River and the Katamboong islet. The Court tried to take advantage and stay connected with the mighty force of the Chams to defend the border in the South and quell Khmer rebellions that frequently occurred in Soc Trang and Trà Vinh provinces. But because of their belligerence during the wars in Cambodia, the Chams were not allowed to own land like the Vietnamese inhabitants in the Mekong Delta. The Vietnamese Court exempted Chams from all taxes and duties, but forced them to carry out military service, and to be prepared to fight when they receive the order (1902 pp. 76,77). During the course of these historical events, the ethnic Chams wandered through many different lands to create their own community with certain cultural and linguistic differences.

In terms of settling formations, the villages of the Cham Muslims in the Mekong Delta are scattered along the Bassac River and the canals. This composition was not made freely, but was based on the military policies of the Vietnamese Dynasty (Weber, 2011). The format of the villages comprises of mosques situated at a central position with residential housing blocks spread in both of its sides, creating a symmetrical formation (Figure 18). Regarding the population module, the basic residential unit of the Cham community is called *Palei*, which is equivalent to a village or a commune. Each *Palei* includes many *Puks*, which are similar to hamlets. This residential system is originally from the Champa Kingdom.

While it is a residential unit, a *Palei* is also an autonomous economic, cultural and religious unit. Each includes around 100 to 400 households, and possibly includes many *Puks* (Figure 19).

Although the hamlets are currently organized following administrative units of the Vietnamese government, the Chams still call their villages *Paleis*. For instance: *Palei* Châu Giang has 3 *puks*; *Palei* Châu Phong has 8 *puks*; *Palei* Koh Tambong has 5 *puks*; *Palei* Đa Phước consists of 2 *puks* (Tam, 1993, p. 22). Wherever the population grows, they build new houses in areas behind pre-existing blocks, such as in Châu Phong, Châu Giang and Đa Phước.

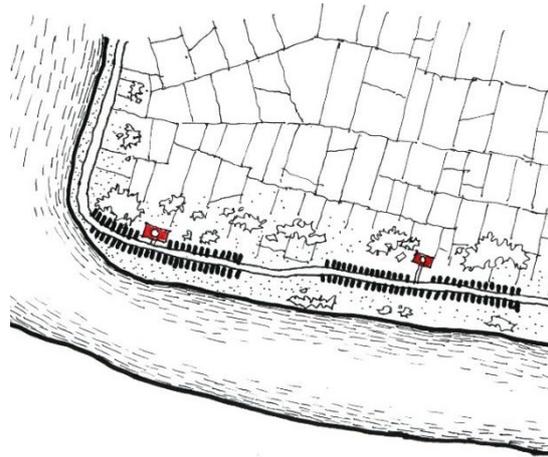


Figure 19 Typical formation of Cham Muslims community in the Mekong Delta.

Puk, the smallest residential unit, is considered as a remnant of rural communes and has a scale of around 30 to 50 houses. A *puk* is often called by its position, such as upper *puk*, lower *puk*, outside *puk*, inside *puk* or middle *puk* (Dóóp, 1993 p. 292). A village usually has 2 *puks*: *puk paoh ngoh* (upper *puk*) and *puk paoh là* (lower *puk*). The mosque is located between the two *puks*. The upper *puk* and the lower *puk* is determined based on the flow of the river: The *puk* located upstream is called the upper, while the one situated downstream is the lower. In a particular case, the Châu Phong village includes many *puks* because of its oversized scale.

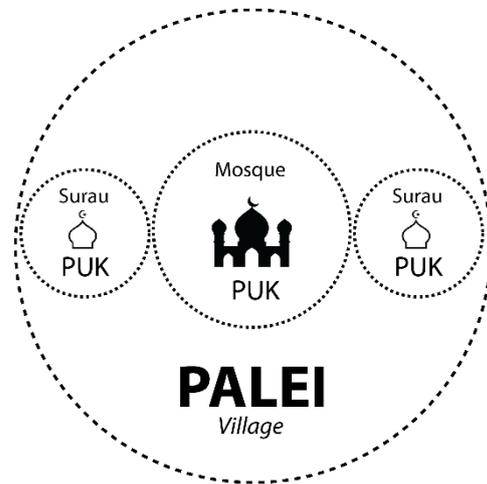


Figure 18 Structure of Cham Muslim village.

Each *Palei* usually has two names, one in the Cham language and one in Vietnamese given by the administrative unit of the Vietnamese government. However, because they do not meet the standards for population quantity and number of households, no Cham Muslim community in the Mekong Delta could establish a *Palei* unit. Another reason is that the population of the Cham Muslim in the Mekong Delta is not growing when compared to the population of the ethnic Kinh (Vietnamese), who had previously settled and migrated from other localities very quickly. The occupations of the Cham Muslims in the Mekong Delta are often homogenous within the same *Palei*, such as fishing in Quốc Thái Village, net fishing combined with trade in Vĩnh Trường Village, and weaving and trading in Đa Phước Village.

Regarding social organization, the Chams in the Mekong Delta follow Sunni Islam since the time when they moved to Châu Đốc in the Mekong Delta. As a Muslim community, every *Palei* has a mosque, or masjid, located in the middle of the village. In the case of a large *Palei* with many *Puks* or in later expansion areas, *suraus* (small temples) are added to facilitate daily prayer. All men from the age of 15 have to go pray five times at the mosque or the *surau* from Monday to

Sunday, excluding Friday. On that day, they must gather for prayer at the main mosque of the village called Friday mosque.

In the society of the Cham Muslims in Mekong Delta, parallel to the administrative system of the Vietnamese state called the People's Committee, there is also a traditional Cham social system called *Hakem*, or the administration of the mosque. The People's Committee is the official administrative group according to the policies and laws of the state of Vietnam. It includes elected heads and deputy heads, similar to hamlets in other provinces in Vietnam. The *Hakem* committee is composed of 5 to 7 community members depending on the size of the community, and is elected by the villagers for the purpose of looking after and managing issues of their customs and beliefs (Figure 20). The head of the Management Board in the mosque is called *Po Palei*, also known as *Hakem*, or the Village Chief. Therefore, the *Hakem* committee is also the self-governing system of a Cham Muslim village.

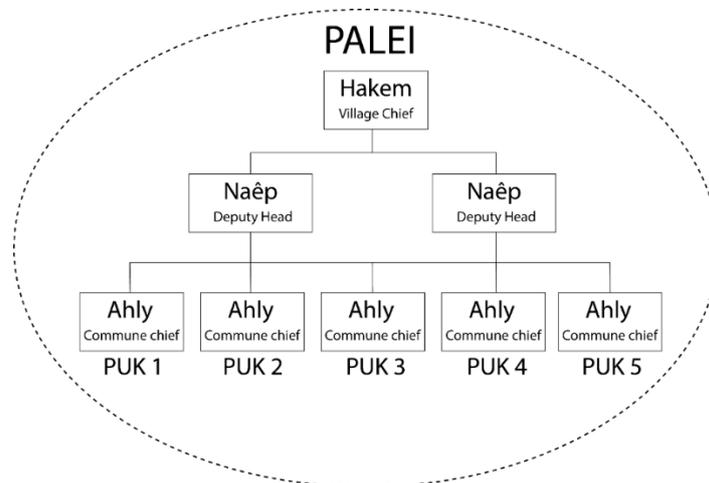


Figure 20 Organization of Hakem committee in Cham Muslim Palei.

The Management Board is operated in the village mosque, which is considered the center of community activities. The mosque is also used as the location for receiving important visitors, and the place to receive allowances and alms, or give material and spiritual support to its community. The management of this traditional social system are male Islamic officials. All members of the *Hakem* council are prestigious people in the village who understand clearly all of its customs and rules of etiquette. Elected by the villagers, the *Hakem* is considered to be the highest spiritual leader of the whole village. Hence, he is also known as the *Giáo Cả* in Vietnamese. Only men in the community are able to participate in this election. The person who is elected to the position of *Hakem* must be elderly, prestigious, ethical, knowledgeable of all the customs and traditions of the community and the Islam doctrine, and able to guide others. He must have participated in the *Hakem* committee in previous terms in the positions of *Naép* or *Ahly*. The *Hakem* has one or two assistants called *Naép*, meaning deputy head of the committee. The position of *Naép* is not selected by the community but by the *Hakem* with the consent of men in

the village. Representing the *püks* are the commune chiefs, called *Ahly*, who are also members of the *Hakem* committee. The head of the village is the person who directly manages the commune (*Puk*) and the *surau* within the village (Dốp, 2006 p. 36).

In the Cham Muslim communities in the Mekong Delta, both the *Hakem* and the *Hakem* committee are responsible for taking care of everything in the community, not just religious matters. This is because in Muslim communities, there is no separation between secular and religious issues. This shows how Islam dominates all customs, practices and activities of the people in the village. This very strict religious institution makes the Cham Muslim communities distinctly different from the other ethnic groups (the Vietnamese, Chinese, and Khmers) in the Mekong Delta.

In contrast to the Chams in Ninh Thuận and Bình Thuận or Tây Ninh who work in agriculture and traditional crafts such as brocade weaving, pottery making, and less in trade, the Cham Muslims in the Mekong Delta are less engaged in agriculture. If a household owns land, they often hire farmers, while they take care of the business and weaving. In the past, the few Cham families who possessed land often rented it. Thus, Cham women hardly participate in farming or hired labor, and only do other jobs such as trading, weaving, sewing clothes, embroidery to generate income (Dốp, 2006 pp. 29, 30). According to a report by Labussière in 1880, there were no Muslims in An Giang who worked as farmers or hired laborers (Labussière, 1880). The Cham Muslims in the Mekong Delta often trade items such as cloths, towels, ready-to-wear clothes, used clothes, mosquito nets, plastic slippers, and gas cookers. They bring goods for sale to remote rural areas, even to the Northern provinces, for inter-provincial trade. They come to each house to sell, and are willing to negotiate installments. They also offer deferred payments, and come back and receive money at a later agreed time. They can walk or ride on motorbikes or boats continuously for days, sometimes for months. When they run out of stock, they go to towns and cities to pick up more goods and then continue to trade.

Before 1975, most of the traders were men because of the dangers from war. After the independence of Vietnam in 1975, a whole Cham family could go down to the western provinces to sell household goods such as towels, medicine, traditional medicine, satin Mỹ A, and Tân Châu silk. After the war with Cambodia in 1979, the Chams sold goods imported from Thailand (clothes, hardware, etc.) or motorbikes imported from Japan and China. Even then, some households still engage in fishing and farming. Other families may do business by selling cattle, buffaloes, goats, or sheep, sell groceries, bakeries, coffee, rice, traditional cakes, or drive contract cars. During the surveys in 2018, many Cham Muslims households locked their doors when going out to trade. Only children and the elderly stayed at home, though some children may follow their parents in far-trading business. Currently, many of the Chams often ride their boats to rural areas in Cà Mau and Rạch Giá. Normally, when arriving to a location, the man will go up to the land to sell the goods while his wife and children stay in the boat. Sometimes they even move to Cambodia to buy or trade. The Cham Muslims who do trade return to the village on important holidays such as Ramadan and Royal Hadji.

According to a report by France in 1902, Châu Đốc was the major exporter of Cambodian goods, mainly from province of Takeo in the 18th and 19th centuries. During high water season from July to October, all wooden rafts and boats from Cambodia and Laos stopped by Châu Đốc. The popular trading goods were cattle, cereals, silk, cocoons fabrics, tobacco, indigo, fish, and oil. Cham Muslims mainly worked in these forms of trades (1902 p. 57). In a report of Labussière on the Cham Muslims in Châu Đốc in 1880, none of the Cham Muslims are farmers, but mostly

merchants who exchange goods with Cambodia such as tobacco, silk, dried fish..., and exchange for products of the French Cochinchine provinces such as betel nut, areca nut, rice, salt. Like the Chinese people, the Chams have a cooperation attitude by working together to purchase a boat to go and trade to Cambodia. (1902 p. 79) (Labussière, 1880 pp. 375, 376). This description shows that the Chams from that time were very persistent, difficult, frugal, and apt to cooperating with each other.

Like the Vietnamese, a small number of Cham people also catch freshwater fish during the flood season, but mainly for food rather than for selling. They mainly use fish to make fish sauce and stored it all year round (Dópp, 2006 p. 30). Fishing is the men's responsibility. In the past, freshwater fishing on the Bassac River, especially during the flood season used to be one of the important livelihoods of the ethnic Chams besides weaving and trading. The fishery had been popular when the number of aquatic goods in the Mekong River was plentiful, helping the economy of many Cham households to prosper. Nonetheless, according to the fieldwork in 2018, unlike in the past, very few Cham Muslim households fish currently. This suggests that due to the migration process and impermanent settlement, the Cham Muslims did not focus on farming or fish farming, which are highly stable livelihoods. Instead, their livelihoods focus on trade, which is flexible and characteristic of the migration process.

As was mentioned above, although their main source of income comes from trade, the ethnic Chams in An Giang also weave fabric. The most famous location for weaving is Châu Phong village, which makes the famous Tân Châu silk. The Chams sell their woven products in urban areas and even abroad such as Cambodia, Thailand, Malaysia and Indonesia. In the 1970s, most of the Cham families in An Giang worked in weaving, which had contributed significantly to their income. In the field trip to the nine villages in An Giang province in 2018, only the two villages of Châu Phong and Đa Phước maintained weaving activities, but mostly for selling to tourists. The trade of woven silk only occurred in the middle of the 20th century (Dópp, 2006 p. 31). Until the end of the 19th century, the Cham women often wove silk and cloth with very rudimentary tools in their free time after housework mainly for the use of the family rather (1902 p. 80) (Labussière, 1880 p. 376).

Due to the impacts of the war in 1972 to 1979, more than 80% of the weaving households in the villages of Châu Phong and Đa Phước removed their looms and switched to other jobs. Thanks to the increase in tourism to Cham villages, brocades has recently become a very popular souvenir. Consequently, the weaving industry has been recovered, mainly in the areas of Châu Phong and Đa Phước. The scale of production is still small and limited, and mainly focused in forms of cooperatives established in 1998 (Dópp, 2006 p. 32). According to the interviews in the 2018 survey, some livelihoods like farming and fishing, and even teaching the Quran now are insufficient for living in the Cham communities. Most men have to find work in cities outside of the An Giang province and send money back to their families. The tourism industry, such as in Đa Phước village, does not profit enough from the sale of textile products to tourists. According to a report by Labussière in 1880, making jewelry was the most frequently practiced work by Malay and Cham Muslims. However, according to the survey of 9 Cham Muslim villages in 2017 to 2019, the author did not find any households working in jewelry making.

From this, it can be concluded that ethnic Cham Muslims in the Mekong Delta organize their settlements separate from other ethnic communities. Regarding economic activities, they do trade to make a living instead of farming like the Vietnamese or the Khmer. The fishing is only a seasonal livelihood and not the main source of income. The roles of men and women are also clearly divided: Women look after the home, take care of the children, weave cloth, and do small

businesses at home, while men mainly trade far away from home, go to work in big cities, or do trading in foreign countries such as Cambodia, Malaysia, Indonesia. Cham Muslim communities in the Mekong Delta are closely linked to international Muslim communities in places such as the Kingdom of Saudi Arabia or Turkey. The Muslim organizations from these countries regularly support the Cham Muslim communities, especially in the Mekong Delta where they have the largest number in Vietnam.

3.5 Comparison and summary

As described in the previous section, the processes of settlement and living patterns of the ethnic groups of the Vietnamese, Khmers, Chinese and Cham Muslims in the Mekong Delta are diverse. Each has a different background originating from four nations: Vietnam, Chinese, Cambodia and Champa. Their settling patterns are therefore dissimilar, stemming from historical and social factors. With regards to the village establishment, the four ethnic groups have distinct principles dependent on their culture and customs.

The **Khmers** is considered as the first indigenous ethnic group, settling in the Mekong Delta since the 12th century. Therefore, the traces of their migration have been mostly lost, with only the spirit of community in the *Sroks* with Theravada Buddhist temples at the center positions remaining. With livelihoods associated with upland rice farming, the Khmer settled mainly on the *Phums* and the *Sroks* in high terrain areas rather than near rivers or canals.

The Khmer habit of living in small groups in mountainous areas has existed for centuries. An antiquated stereotypical personality of a Khmer by the French colonists at that time is lazy, hard-headed, lacking creative thinking and has not much difference from their Cambodian compatriots. They mainly reclaimed the forested land for growing crops. However, due to a lack of innovation, even though the land was fertile, the results of cultivation had very poor yield. The women often worked on the farm, while the men spent most of the time hunting and gathering together in pagodas, which they considered more valuable than their own houses. Collaboration between Khmer communities and the Vietnamese government is very limited because they generally do not concern themselves with and often oppose public works such as digging canals or building roads even in places where they lived. (1902 p. 74).

Although ranking second in terms of population in the Mekong Delta, with a number of approximately 1.2 million and accounting for 6.88% of the total population of the area (table 3), their settlements are concentrated in the provinces of Sóc Trăng, Bạc Liêu, Cà Mau, An Giang and Trà Vinh. The places where they chose to live are rural, situated far from urban areas and economic locations. In terms of their religion, the Khmer follow Theravada Buddhism, and contribute time and money to the religious activities. For example, they would rather give materials and finance the construction of temples in the village rather than invest in their own houses. Through the interviews from the on-site surveys, it could be stated that the Khmer in this area do not have a vision for economic development or create the characteristic housing architectures. Most of them work as a farmer or hired labor with a low monthly income of nearly 3 million VND (around 130 USD per month). Although they have regulations on the naming of villages (*Srok*) and hamlets (*Phum*), the physical settlement patterns of villages and houses of the Khmer community is not explicit. They live in small houses made with short-lived materials like trash timber and coconut leaves. They mostly focus on the construction of Theravada Buddhist temples, which play an important role as the center of belief in the community.

The ethnic Khmer now mostly live in poor areas, mainly surrounding Khmer pagodas. In the surveys, the Khmer villagers said they donated the materials of the houses such as wood and tiles to erect the pagoda. The Khmer consider donations towards the erection of the pagoda as a spiritual activity in Buddhism. As a result, their traditional houses have been changed a lot. Most of the poor Khmers live in the temporary wooden houses. If not, they do not build the houses in Khmer style, but rather in the style of the concrete houses of the ethnic Vietnamese.

The **Vietnamese** in the Mekong Delta region originally came from many places in Central and Northern Vietnam, migrating to the South at the end of 16th century. Their settlements are characterized by both independence and openness to suit with the conditions in the new land reclamation process. The Vietnamese community is the largest ethnic group with a population of nearly 16 million, accounting for 92% of the total population in the Mekong Delta. Although coming to the Mekong Delta relatively later, the Vietnamese have dominated the geography, economy, and politics of this river area. All administrative, social and political policies of the other ethnic groups are dictated and managed by the Vietnamese government since they appeared in the Mekong Delta. In other words, the Vietnamese themselves, with political domination, defined the settling areas of the other ethnic groups who came later, like the Chinese and Cham. They reside in both rural and urban areas, conducting a diverse array of economy activities such as farming, rice production, fishing, handicrafts and nearly all industries and commerce. Regarding their living patterns, the Vietnamese in the Mekong Delta always choose to reside in areas along rivers and canals, which are convenient for transportation, trading and even military policies. They normally establish markets near rivers to take the advantage of the waterways, which were the main means of transportation in the past (Figure 4). The urban area has been developing around the site of the market, spreading along the riverbanks (Pham Quang Dieu et al., 2015).

Since their first migrations to the Mekong Delta in the 17th century, **the ethnic Chinese** have maintained a habit of settling centralized in the urban area, especially near markets in central areas or rivers in order have convenience in doing business. Compared to the other groups, they have a stronger community and competence in commercial business. Their communities are located not in separated zone, but mixed in in Vietnamese areas. Most of the Chinese in the Mekong Delta are native to the southeastern regions of China that is characteristic of small trading and farming. Because of this, although they reside in both rural and urban areas, they preferred to locate in urban areas. The Chinese townhouses are always situated in the large streets near the markets, with large spaces on the ground floor for displaying and storing goods. The structure of the townhouses is similar to any Chinese townhouse in other provinces such as Bạc Liêu, Cà Mau, Hà Tiên, Sa Đéc and Ho Chi Minh City. The blocks of these townhouses are visible having two stories with a commercial ground floor. The Cantonese who came from Guangdong preferred to reside in urban areas near markets and rivers, which is convenient for trading. The Chinese from Chaozhou and Fujian tended to reside in rural areas and small towns, suitable for a combination of farming and small businesses. The rural houses of the Chinese are quite discrete, not typical clusters of villages.

Among four ethnic groups in the Mekong Delta, **the ethnic Cham Muslims** is the only group to retain their distinct identities in the settling formation. The Cham are not only conveying Cham and Islamic cultural elements from generation to generation, but they had also absorbed the cultural elements of the other groups in the area in the span of over three centuries. For example, they live in stilted houses derived from Khmer architecture, and acquired compatible features from traditional Vietnamese architecture. Their daily language is Cham and Vietnamese, while Arabic is used for reading the Qur'an. Although the Champa Nation has not existed on the world map since the 17th century, and having a population of 16,000, the smallest fraction of the population in the Mekong Delta with 0.1%, the Cham Muslims are not an isolated ethnic group like the Khmer. They have wide connections to the Muslim world, have relations to Muslims in Southeast Asia and countries in the Middle East, such as the United Arab Emirates or Kingdom of Saudi Arabia. It can be said that the Cham people in the Mekong Delta chose Islam as an international connecting element, using its spiritual and social structure to build a community

with strong cohesion. As a result, it is difficult to assimilate their settling patterns and social ideology by the impacts of outside forces, especially the Vietnamese government.

Historically, the ethnic Cham Muslims set foot on the Mekong Delta in the 1750s for political reasons. Regarding the origin of the Cham community in the Mekong Delta today, there are still many theories. Many studies and historical documents claimed that they came from Champa kingdom, practiced Islam, immigrated to the Khmer Kingdom, and then settled in the province of An Giang in Mekong Delta. Their villages are scattered along the banks of upstream Bassac River, with the mosques being the village's most important religious, cultural and social landmarks. Their economy is mainly dependent on trading and handicrafts. According to a monography from 1902, the French described the Cham communities in the Châu Đốc area (now the province of An Giang) as simple, austere, patient, hard-working and economical. They are also well-known as mortgage lenders with very high interest rates. In the Cham villages, there were no beggars on the streets because the elderly and disabled people who could not earn a living were provided with necessary things by the villagers. The Cham Muslim lived harmoniously with one another, and theft or robbery in the community was rare (1902 p. 78). Currently, the structure of their society and religion have remained intact.

Concerning their religion, before they had practiced Islam, the Chams of the past in the Champa country were polytheistic, following Hinduism that had blended elements of Buddhism. When the Cham moved to the Khmer Kingdom, Islam completely dominated the spiritual life of their communities. Islam is the sole religion to unify on all aspects of the Cham Muslim life: ontological, social, political. To Cham communities, Islam is not only a religious system, but a way of life. As an example, like other Muslim communities in the world, they follow a strict schedule of prayer at different times of the day, showing how Islam influences and dominates their life and customs. When they later immigrated to Vietnam, the Cham Muslims at that time followed completely the principles of Islam, a monotheistic religion. Because of the strict rules and customs of Islam, the Cham Muslims have clearly defined village boundaries that easily identifiable from the other ethnic communities in the Mekong Delta. On the other hand, the Khmer and Chinese communities live within Vietnamese residential areas. Differences are not only found in the distinct boundaries, but also in social activities and customs, as Islamic beliefs are completely different from the rest of the communities that follow Buddhist beliefs.

In terms of expression, the mosques and traditional stilt houses influenced by Islamic principles have created their unique identities. The Cham minority in the Mekong Delta, therefore, are considered as communities that exist with a specific cultural life formed to preserve the cultural values of the Cham people and Islamic beliefs. Thus, the architecture of the Cham Muslims needs to be studied and given appropriate conservation policies not only to fulfill the ethnic architecture in Vietnamese architecture, but also contribute to the Southeast Asian local architecture.

In short, the ethnic Vietnamese groups are the largest population, scattered in all 13 provinces of the Mekong Delta. The ethnic Chinese communities normally choose to locate on the large streets of the towns near the rivers to establish rows of townhouses, where it is convenient for doing business and trading activities. Conversely, the ethnic Khmer has always clung to the fields near the mountainous region and maintained their hunting livelihoods from the past without any change. The ethnic Cham, however, from the very beginning, built their villages on the Bassac River to protect the Vietnam-Khmer border as by the Vietnamese feudal court order. Unlike the other ethnic minorities, the Cham in the Mekong Delta did not focus on

farming but was active in long-distance trading. They moved to the cities in other provinces, even to neighboring countries like Cambodia, to trade goods. For this reason, the urban morphology of each ethnic group is different. The Vietnamese villages and houses radiate along rivers and roads with the markets at a central position. The Chinese community prefer to settle in urban areas near the markets and transportation road to conveniently do business. The temples and pagodas of the ethnic Vietnamese and Chinese are interlaced with residential clusters and not located at a central position in an urban setting. By contrast, the pagodas and mosques of the ethnic Khmer and Cham Muslim communities play the most important role in the village, and also influence most of the activities of the villagers. However, the ethnic Khmer choose to settle far on higher grounds for cultivation of shallow paddy fields. They do not prefer to reside next to rivers where the terrain is low or flood-prone. Although a great Theravada pagoda is located at the heart of a Khmer settlement, their village pattern is fragmented without any unifying rule, and they are unable to realize a connecting principle between the pagodas and houses. Meanwhile, for the Muslim Cham community, mosques are placed at the center as the key landmark of the village. From the mosque's location, the Cham houses are arranged symmetrically on both sides up to a certain boundary set by the walk to the mosques for the time of mandatory prayer during the day as prescribed by Islamic laws. The cultural and social characteristics of four ethnic groups in the Mekong Delta are summarized in table 4:

Table 4 Religious, settling areas and livelihood of four ethnic groups in the Mekong Delta.

Ethnic groups			KINH	KHMER	CHINESE	CHAM MUSLIM
Religion			Buddhism (Polytheism)			Islam (monotheistic)
			Mahayana	Theravada	Mahayana	
Settling areas	Land	Urban	●	X	●	X
		Mountain	△	●	X	X
		Plain	●	●	△	●
	Water	River/ Canal	●	△	△	●
		Sea	●	X	△	X
Livelihood	Farm	Shallow field	X	●	△	△
		Deep field	●	X	X	X
	Trading	Land	●	X	●	●
		Water	●	X	●	●
	Fishing	River/Canal	●	●	△	△
		Sea	●	X	△	X
	Handicraft		●	●	△	●
	Hired hand		●	●	△	△

●: always △: occasionally X: rare

This chapter aims to introduce the scenarios of the settlements of the ethnic groups to the Mekong Delta region, to raise the issue of diversity, and to find out the characteristics of the urban patterns and traditional housing architecture of each group in the area. The differences between each group's way of creating living spaces stems from ethnic factors, beliefs, and customs. However, their living patterns also have similarities since they had settled in the same land, and faced the same geographical conditions and tropical climate. Due to their co-living of more than 300 years, interferences and influences have emerged and changed the residential patterns. This is evident in the absorption and integration of compatible elements into the architecture of each ethnic group.

This chapter analyzes the main features of housing architecture along with cultural and spiritual factors in the traditional houses of the Vietnamese, Khmer, Chinese and Cham Muslim ethnic groups. The residential architecture of each ethnic group will be presented at a fundamental level, focusing on the distribution of living space and the variations in the spatial organization rather than the structures and detailed elements. The analysis of this living space would then support an overview of the spatial composition for each ethnic group. Moreover, the differences and similarities in the ethnic architecture in the Mekong Delta can be seen.

4.1 Traditional housing and social influences of the ethnic Vietnamese in the Mekong Delta

In the Mekong Delta, the main house and annex are organized in horizontal or vertical axes. In addition, the trusses of traditional houses in Southern Vietnam, which includes the Mekong Delta, often have large spans (Ha, 2008 p. 49). The depth of the house is double in comparison to the traditional houses in the north and center of Vietnam. The height of the Vietnamese traditional houses in the Mekong Delta is approximately 5 meters higher than the houses in North and Central Vietnam since the provinces of the Mekong Delta are not impacted by the severe tropical cyclones and storms like the northern and central areas.

In the formation of the Southern region under the reign of Lord *Nguyễn Phúc Khoát* (1738-1765), the *Nguyễn* Dynasty selected Confucianism as the official ideology for the establishment of a stable social institution. Nonetheless, the Confucianism in the Southern region only played a role as a system of social norms. Working-class people only accepted Confucianism on matters of spirituality, such as morality, rituals and conduct. Confucianism in the South was popularized by its scholars from the popular class (Thuận, 2016, pp. 149, 154). Due to the coexistence of many peoples with diverse cultures and religions, Confucianism was unable to be developed universally for all people. Meanwhile, the Buddhism became popular and accepted in the southern region. Many Nguyen Lords proclaimed themselves as Fairy (*Tiên*) or Buddha, such as Lord of Fairy (*Chúa Tiên Nguyễn Hoàng*), or The Lord of bonze (*Chúa Sãi Nguyễn Phúc Nguyên*). In the book *L'Ancienne historiographie d'e'tat au Vietnam*, Philippe Langlet pointed out the influence of ancient Southern ancestral worship in the 19th century under the *Nguyễn* Dynasty (Choi, 2019 p. 26). In this custom, Vietnamese people in the Mekong Delta believe that ancestors are the people who gave birth to grandparents and parents. Therefore, people should set up altars to worship them regularly and celebrate their death anniversaries annually. Rich or the poor, both have a worship space and an altar in the living room of the house (Them, 2014 p. 209).

These polytheistic religious systems are the core value in Vietnamese housing architecture. The altar is placed in the middle of the main house based on the principle of Taoism and the doctrine of Yin Yang and the Five Elements, a philosophic perspective originating from ancient China. On the altar, there are usually photo images of ancestors, God, typically Buddha, or a painting of the landscape, plus an incense burner and two candle stands. On two sides of the altar, two couplet sentences are usually hung as gratitude to ancestors. The front of the altar is covered with a large, curved mango-shaped plank divided into three intricate carvings. The altar is only open on the sides, never in the front, as homage to the ancestors. The inside of the cupboard is used to store worshiping objects such as incense, fruits, jug, precious wine bottles, administrative papers, civil status documents, relics, and family trees. The precious wooden altar is decorated with nacre carvings as in the Chinese relics of "The Twenty-four Filial Exemplars", "Three Kingdoms." The altar is positioned in the main house facing the main doors. On the altar, there are incense burner bowls, copper incense burners in the middle, the two candlesticks put on both sides symmetrically; the vases on the left; five kinds of fruits on the right; a betel nut areca, wine, tea and offerings are placed in the middle. In some houses, a smaller table is placed in a lower level behind altar to put photos of the grandparents or family relative. In addition, a glass picture with the Triple Chinese Deities — God of Happiness (*Phúc*), God of Wealth (*Lộc*) and God of Longevity (*Thọ*) — or a landscape picture, a symbol of the wishes of the descendants for the deceased to have a peaceful life, is displayed at the backside. On the top of the altar, a horizontal lacquered board engraved with Chinese characters is hung on top with a couplet sentence, also in Chinese characters, that praise the ancestors' merits and express the gratitude of the descendants (Them, 2014 p. 210).

After ancestral worship, the ethnic Vietnamese in the Mekong Delta worship the God of Sky and Earth. They put an outdoor altar of the God of Sky (*Bàn Thờ Thiên*) in the yard in front of their houses. The altar's form is comprised of a square symbolizing the earth, representing the negative element. A circular incense burner symbolizes the sky, representing the positive element. It is a spiritual connection between people with the Sky or Heaven, and also express the relationship between Life and Death (Them, 2014 p. 212). Besides worshipping the God of Sky, the Vietnamese in the Mekong Delta region also worship the Land Genie, *Ông Địa*. This is a variation of *Ông Táo* in the beliefs of the Northern and Central Vietnamese people (Them, 2014 p. 214). The altar of *Ông Địa* in the South is placed close to the ground, showing the connection with the Earth. Another god who is often worshiped together with *Ông Địa* is the God of Wealth, *Thần Tài*, who is the god who looks after money. He is very famous in Chinese folk religion and Taoism. In addition to the beliefs concerning household matters, Vietnamese people in the Mekong Delta also worship other gods such as *Bà Chúa Xứ* and *Thành Hoàng*. Besides Confucianism and Buddhism, the Vietnamese religious system of the Mekong Delta region also includes many new local beliefs such as *Bửu Sơn Kỳ Hương*, *Tứ Ân Hiếu Nghĩa*, *Hòa Hảo Buddhism*, and *Khất Sĩ Việt Nam Buddhism*. Some who establish such sects call themselves *Ông Đạo*. These religions are variations of Buddhism, attracting many followers from the peasantry of southern Vietnam. Due to the variety of religions and beliefs present in the area, it can be concluded that Vietnamese beliefs in the Mekong Delta are religious pluralism.

The format of traditional houses in the Mekong Delta, large or small, generally consist of one main house with a single ground floor (*nhà trên*), no attic and lean-tos (*chái*) or annexes (*nhà dưới*). Vietnamese houses are usually oriented to the south, southeast or southwest. However, if a house is located along a road or along a river, its main facade will face the road or river (Hao, 1999 p. 28). The traditional houses are built with two very steep roofs, swooping low to protect the interior from heavy rain. Consequently, they look dark from outside. Regarding the spatial division, the main house has an odd number of compartments of three, five or seven. The three-compartment house (*nhà ba gian*) is the most basic and common housing unit in the Mekong Delta, in which the main house consists of three compartments (*ba gian*) and lean-tos or annex. In addition, all Vietnamese traditional houses also include large verandah, called *hiên*, *hàng hiên* or *hàng ba*, at the front of the house to shade from the sun and protect from heavy rain. The house with three compartments and two lean-tos is normally for the upper class, while the house with only one compartment with or without a lean-to is for the poor labors. Meanwhile, the few five- or seven-compartment houses are usually owned by officials and nobles (Figure 21).

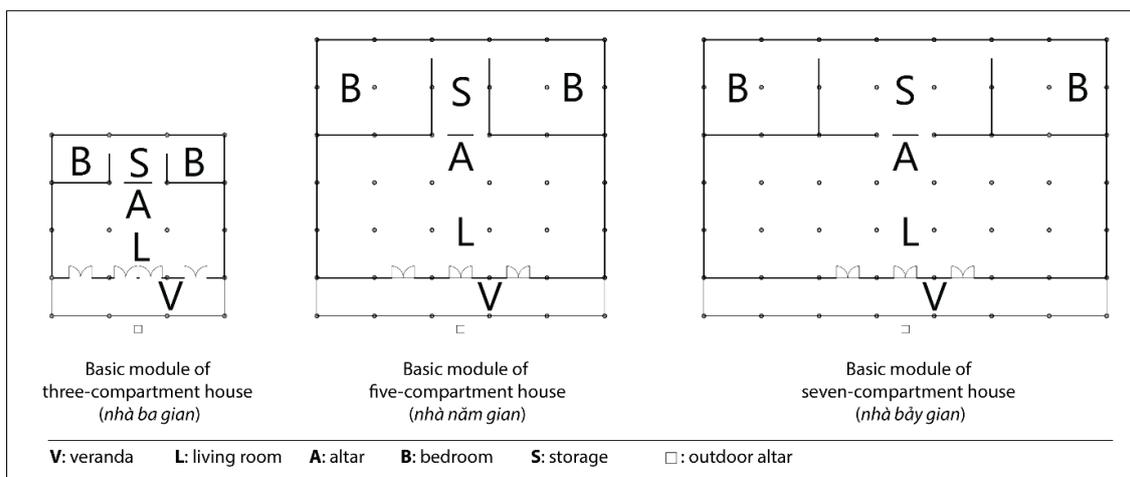


Figure 21 Basic modules of Vietnamese traditional houses in the Mekong Delta.

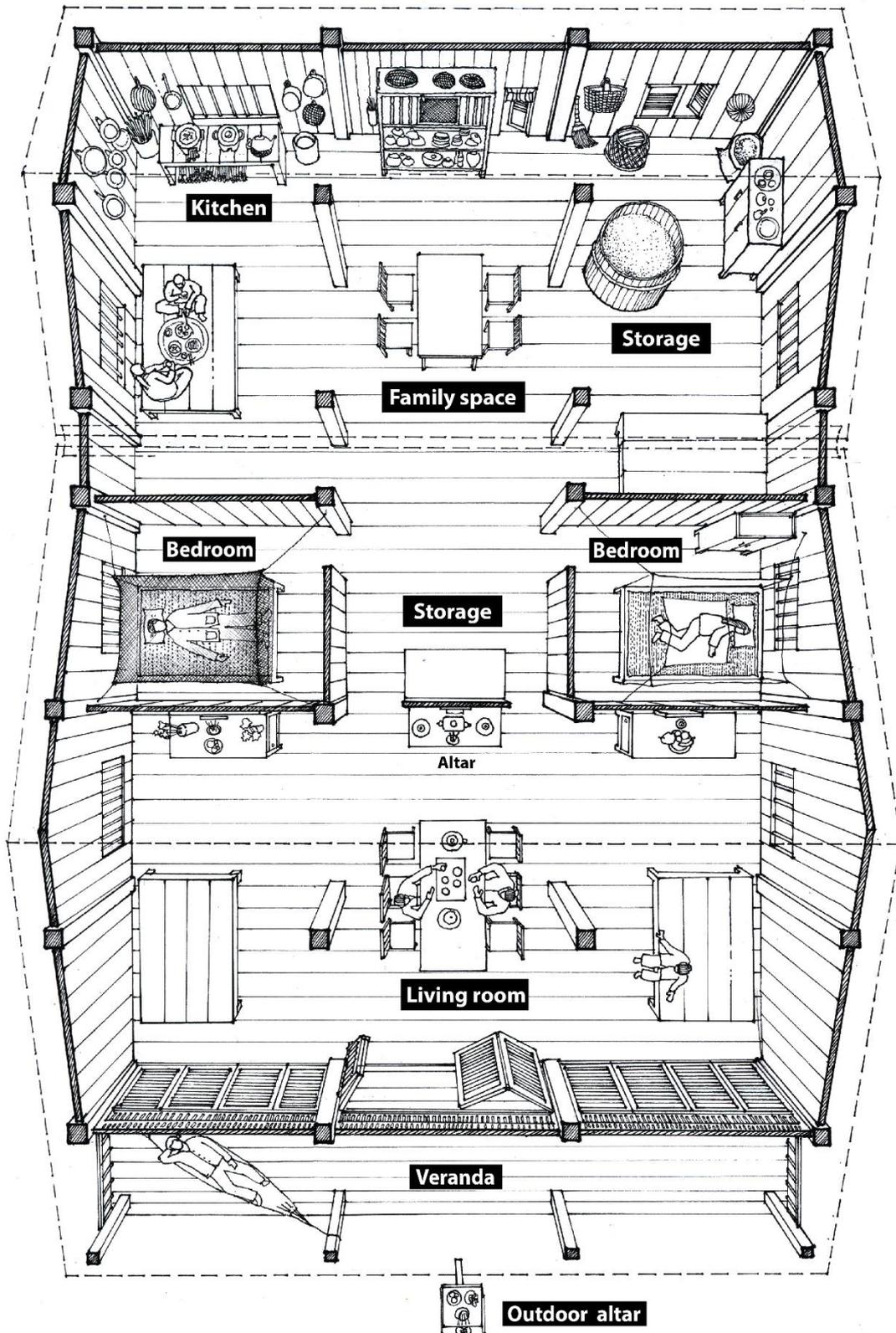


Figure 22 Three-compartment Vietnamese house.

The spatial layout of the basic three-compartment house (*nhà ba gian*) and its variations are analyzed as follows:

The three-compartment house (*nhà ba gian*) is the most basic and typical model of the ethnic Kinh in the Mekong Delta (Figure 22). The house is usually divided into two parts: the main house, *nhà trên*, and the annex, *nhà dưới*. In terms of distribution of functions, the main house is considered more important, containing the areas for worship, welcoming guests and private rooms. On the other hand, the annex or lean-to contains the service functions: cooking, family activities, and storage of agricultural tools and rice. Toilets and bathrooms are not usually included within the house, and are located near rivers or canals. In terms of material, the main house is usually larger and constructed with better materials than the annex. For example, the main house may be built with brick, while the annex might be built with wood. However, in poorer families' houses, the main house and annex are both built of wooden panels.

The house is built with the compartments in odd numbers. Therefore, the spatial layout in plan and the façade as viewed from outside express symmetry and balance (Figure 23). Coming from an agricultural culture and influenced by the philosophy of Yin and Yang, the Vietnamese people believe that the odd numbers bring growth and luck. Thus, the compartments and the staircase or steps must follow odd numbers. The roof tiles are also made in the principle of Yin and Yang with its supine and prone position (Them, 1999 pp. 224, 225). The division of main and auxiliary spaces also indicates the social position and role of men and women in the Eastern feudal patriarchy. The main house represents the important position of the man, while the annex is the place for women (Tuyet, 1992 p. 33) However, this delineation is subjective and not strictly applied, and the use of space is flexible according to the needs of each family. In some cases, women can still welcome their guests in the main house at a small table or on a plank bed. In a party, older women can also sit and eat at the plank bed in the main house. In addition, grandparents or parents can sleep in the main house to give the bedroom to the children and grandchildren.



Figure 23 Basic module of three-compartment house with veranda at the front.



Figure 24 Wooden doors with louvres in a three-compartment house.

The space of the main house covers an average area of about 40m² to 100m² (Hao, 1999 p. 29), with a total of sixteen columns divided into four rows of pillars. Each span has four columns, dividing the space into three spans horizontally and three compartments. The main facade of the house has large open doors, while the inner space is divided by wooden boards (Figure 24). The top of the panels is normally left empty or decorated with hollow carvings to increase ventilation and indirect light in the interior space. In general, the central space in the main house is

considered as the most important and solemn position. The Vietnamese often set ancestral altars, a set of tables and chairs in the middle of the main house, and two private rooms are located symmetrically at the back of the altar. A cabinet for storing precious things or money is put at the space between two private rooms. The annex house is used for kitchen, storage, and family activities, built in a smaller building, linked to the main house in many different ways, but regularly put behind or on both sides of the main house.

The spatial layout of a traditional *nhà ba gian* house includes the following elements:

In front of the house, a small altar is erected to worship the God of the Sky, *Thiên* (also called *bàn thờ Thiên* or *bàn thờ Ông Thiên*) (Figure 25). This altar is placed in the corner of the yard or garden, but usually it is located in the central axis of the house on a pillar of about 1.5 metres in height that can be made of wood, brick, stone or concrete, supporting a square pedestal with sides of approximately 40 to 60 centimetres. On the pedestal, incense sticks, vases, one or three (must be an odd number) cups of water or white wine are displayed. The square shape symbolizes the Earth, and the circular incense burner indicates Sky. The dualistic view in Vietnamese ideology represents the spiritual connection between the divine world and humans, the Sky and the Earth, the human and their ancestors, and the living and the dead. This is manifested by the frequent burning of incense sticks, the changing of flowers, which are normally from the garden, and the replacement of the glasses of rainwater every day at dusk at the moment of intersection between day and night (Them, 2014 p. 212).



Figure 25 Altar of God of Sky.



Figure 26 Three compartment house with colonnade.

Before entering the house, in front of the house is one of the important and always present elements in the ethnic Kinh's housing in the Mekong Delta: the veranda (*hiên* or *hàng ba* in Vietnamese) (Figure 23). This is a buffer zone between the inner and outer space. Besides shading, protecting from rain, and reducing the heat coming from outside, the *hiên* is also a place for elderly people to rest on the hammocks, for intimate conversations with neighbors, and a place for children to play. The "openness" characteristic of the communication culture of the ethnic Kinh in the Mekong Delta is expressed by the doors with louvers fully opened along the facade. Thus, the *hiên* is tied to the altar space, connecting the interior and exterior spaces to each other, and enhancing ventilation and visibility throughout the house. At the veranda, round wooden tables are set up to use in the occasion of a festival, party or family gathering.



Figure 27 Living room and altar in the main house.

In some wealthy houses, a colonnade (called *Thảo bạt*) with a separate roof and walls is built with bricks with many carvings and decorations instead of the veranda in order to broaden the front space of the main house (Figure 26). The

structure of the *thảo bạt* is connected to the third row of columns of the main house, so it has only one row of columns along the facade. The width of the *thảo bạt* may be shorter or longer than the main house. The *thảo bạt* can be seen as a form of porch attached to the facade, used as an area for welcoming guests without having to go into the main house. Moreover, it is the extended space to host many guests in case of parties or anniversaries. For houses to be built with adjacent walls, it can only build a *thảo bạt* in front of the main house for trade and welcoming guests. Because the function of *thảo bạt* is just an extension the front of the house, all housing types can attach a *thảo bạt*. Especially in the riverside areas, house with *thảo bạt* becomes very popular as they can connect the main house built on a high-stilt floor to a road or land. As for the houses near the market, the *thảo bạt* functions as a place for trade.

The activities held in the main house are worshipping God, ancestors, and family members who passed away, receiving guests, and organizing parties for holidays, New Year festival, anniversaries, and weddings. Rich or poor, both have a space for worship and an altar in the living room of the house (Them, 2014 p. 209) (Figure 27).

In addition to worship, the main house is also the place to welcome guests. In front of the altar, a long table with a set of six wooden chairs are placed to welcome elderly guests or those with important family roles. On the two sides of this setup are two sets of wooden plank beds called *bộ ngựa* (Figure 28). Looking from the entry, the plank bed on the left side is the place for women to welcome friends. The right one is used for male guests to rest and having meals. During a meal, the guests and the house owner sit cross-legged on the plank bed. In case there are no guests, the plank bed is rarely spreading the tatami above. (Ngan, 2014 p. 14). After the worship space are two private rooms, called *buồng riêng*, positioned behind the altar. These two rooms are used as bedrooms, changing clothes, and storage for valuable items and money. Family members could sleep in the living room or in private rooms. If there are grandparents living together, they would sleep on the plank bed in front of the altar in the main house. Parents sleep in the annex near the kitchen, and the children sleep in the private rooms. If there are no grandparents, then the parents sleep on the plank bed, while the bedroom is used by the children. Another possibility is that parents sleep near the kitchen in the annex, and the children sleep in the private rooms. In the case of a family with adult sons and daughters, the daughters are given priority to the private rooms. If there is a daughter-in-law or son-in-law, they will sleep in the private rooms. The Vietnamese usually use the mosquito nets when sleeping, which also keeps the space well ventilated (Figure 28).



Figure 28 Wooden plank bed.



Figure 29 Annex.



Figure 30 Kitchen.

Most of ethnic Kinh houses in the Mekong Delta has an annex often called *nhà dưới* (Figure 29). It has an area smaller than the main house's, about 15m² to 60m² (Hao, 1999 p. 31). It functions as a kitchen and storage for food, rice, and farm tools. It is also used as a family room. In the annex, there is usually a wooden plank bed set near the door, which is a place to welcome and chat with neighbors and friends of women. The beds are also placing for the family's daily meals. The clay stove is made out of a wooden board with a height just about right for standing people to cook (Figure 30). Above the wooden board is a solid clay layer. Three or four clay ovens are placed on the stove over firewood or charcoal. A rice husk stove has two output holes. Rice husks are used as fuel in the case the family runs out of firewood. In addition, rice husks are used to cook dishes that take a long time to cook, and there is no need to keep watch of it the entire time. Saucepans, pots, and pans are hung on the wall, not placed inside a cabinet. The kitchen is usually located separately in the annex to prevent odors and smoke from entering the main house.

For the house with lean-tos, the kitchen and the storage will be placed at the lean-to. The cages for cattle and poultry are also placed in the annex. In the past, cattle cages were often placed next to the main house, adjacent to the owner's bedroom to prevent thefts. In this configuration, the owner had to bear the stench of animal manure. Today, with better security conditions, the stables are located more than 10m away from the house on the side or the back. The poorly invested toilet is located far from the house, and is built in makeshift construction. Most common lavatories are built on fish ponds, rivers or canals. In addition, the toilets may only be open pits that can be replaced if they become too dirty. Nonetheless, in this current day, the toilet, which is included in the bathroom, is erected within the annex.

The analysis of the formations and transformations of the Vietnamese traditional houses.

Throughout their lives, as their needs for living and storage for farming tools and rice grew, Vietnamese traditional houses underwent many transformations with housing compartments were always odd numbers. The three-compartment house (*Nhà ba gian*) and its transformations are popular in the Mekong Delta since they have moderate scales for typical farmer families. On the other hand, houses with five compartments or seven compartments, which contain a large worship space and living room, are less in number. They are often the houses of wealthy landlords or feudal Mandarins. Currently, there are many ways to name Vietnamese houses, such as three-compartment house (*nhà ba gian*), five-compartment house (*nhà năm gian*), seven-compartment house (*nhà bảy gian*), three-compartment house with one-lean-to (*nhà ba gian một chái*), three-compartment house with two-lean-tos (*nhà ba gian hai chái*), continuing roofs house (*nhà kiểu xếp đọi*), 丁-letter-shaped house (*nhà kiểu chữ Đinh*), 工-letter-shaped house (*nhà chữ Công*), 口-letter-shaped house (*nhà chữ Khẩu*), house with a colonnade at the front (*nhà có thảo bạt*), house with hip gable roof (*nhà Bát dân*), and house with corridors on four sides (*nhà tứ vi thông hành*).

The current classifications of housing types are inconsistent in definition because they are based on many different evaluation bases like the spatial layout of the houses, extension parts, roof shapes and roof structure. Nonetheless, although traditional Vietnamese houses encompass various types of houses, all of them are made by combinations of arrangements between the basic module of the main house and the annex or lean-to in the longitudinal axis (to the rear of the main house) and the horizontal axis (on the left, right, or both sides of the main house). It can also be an extension of the veranda into a large colonnade, or the separation of the main house and the annex with a yard or corridor. The three housing types which are shown below are the most common types in the Mekong Delta (Figure 31).

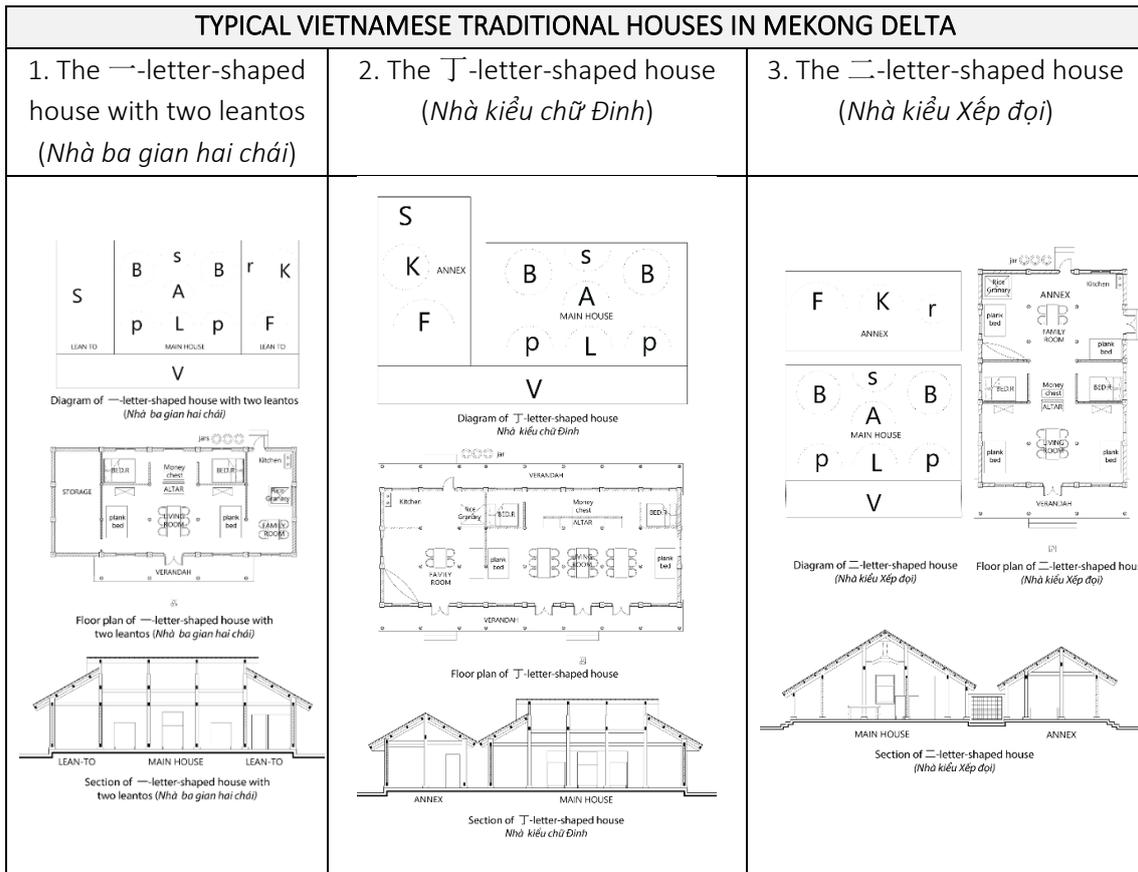


Figure 30 Typical Vietnamese traditional houses in the Mekong Delta.

The typical transformations of the traditional Vietnamese house are transformed in two axes: horizontal and vertical (Table 5).

A. Transformations in the horizontal axis

The 一-letter-shaped house with lean-tos (*Nhà chữ nhất có chái*) normally consists of an annex attached to the main house on one side. In this case, the ridgepole extends from the main house to the annex. The main house could be the three, five or seven compartments, including worshipping space, living room, and private rooms for sleeping and storing precious objects. Meanwhile, the lean-tos are put on the left, right, or both sides of the main house, which is the place using for family activities, the kitchen, storage, the rice granary, and farm tools. The veranda extends around the façade, connecting the main house and the annex. This housing type is quite popular in the Mekong Delta since it is convenient and reasonable in its spatial layout.

The 丁-letter-shaped house (*Nhà chữ Đinh*) is also a very common housing transformation in the Mekong Delta. This type consists of a basic three or five-compartment house and one annex organized along the side (left or right) and adjacent to the main house. In this housing type, the ridgepole of the annex is perpendicular to the ridgepole of the main house. Viewed from the top, these two ridgepoles form the shape of Chinese letter 丁. Although the main house and the annex house are perpendicular, the doors of the main house are located on the long edge, while the doors of the annex house are on the short edge. Therefore, the doors of the main house and the annex open in the same direction towards the street.

Regarding its function, the main house retains its important role as a place of worship,

welcoming guests, private rooms for sleeping and storing the valuable things. The annex is used for the family's daily activities, cooking, storage, and as a rice granary. There is a veranda in front running between the main house to the annex, creating a homogeneous facade when viewed from the outside. This move also reduces the gap between the main house and the auxiliary house.

Activities in the main house and the annex become more flexible due to the easy access with the layout of the 丁-letter-shaped house. Therefore, this type of house became popular, accounting for 44% of the houses in a survey of 401 traditional Vietnamese houses (Nguyen Van Quyet, Vo Nu Hanh Trang, 2016 p. 125).

The 丁-letter-shaped house can be a main house with five compartments and an annex, or a three-compartment house with two wings and an annex. It has three variations (Table 6):

1) The 丁-letter-shaped house separates the main house and the annex with a small gap, or with a row of clay jars to collect rainwater.

2) The 丁-letter-shaped house has a courtyard with a distance of about 2 to 3 meters wide between the main house and the annex with a low wall connecting the two houses called *nhà chữ Đinh có sân trong*. This courtyard is also used to enhance natural lighting and natural ventilation for the annex.

3) The 丁-letter-shaped house has a roofed connecting bridge house (*nhà chữ Đinh có nhà cầu nối*) between the main house and the annex.

B. Transformation in the vertical axis

The 二-letter-shaped house (*Nhà xếp đọi*) is also known as *nhà sắp đọi*, *nhà nối đọi*, *nhà nối mái*, *nhà chữ Nhị*. This housing type has a composition of a main house and an annex arranged parallel to each other, similar to rice bowls in a cupboard (*Đọi* means a bowl in ancient Vietnamese). The front of the main house is narrow but the space is extended to the rear side. The annex has a ridgepole that is parallel to the main house. Between the two blocks, there is a gutter to collect the rainwater. Regarding the spatial distribution, the 二-letter-shaped house is similar to the 丁-letter-shaped house: The main house is used for worshiping, welcoming guests, private rooms and storing the precious objects, while the annex is used for the kitchen, dining area, family activities, and storing rice and farm tools.

The width of the main house and the annex is the same, and one needs to go through the main door to access the service area (kitchen, dining space and storage) in the annex. Since the main house and the annex are built adjacent to one another, it usually lacks natural light and ventilation. Due to this drawback, the annex is occasionally extended longer than the main house. In the extension, windows or doors are added to catch more natural light. From the annex, one could easily and directly observe the yard or gate. As a result, the security of the house is enhanced. The access to the service area becomes more flexibility with a separate corridor along the side of the house. It is noted that, in some cases, this housing type can attach lean-tos on the side and a large veranda at the front.

Another variation of *Nhà xếp đọi* has that the main house and the annex separated by the courtyard (called *sân trong*), and a bridge house (called *nhà cầu nối*) is built to connect the two. This way, the 二-letter-shaped house has two variations (Table 5):

1) The 丁-letter-shaped house (*nhà chữ Công*): This housing type has the main house and the annex separated by a courtyard and connected by a 2- to 3-meter-long bridge house.

2) The 口-letter-shaped house (*nhà chữ Khẩu*): This housing type contains a main house and a parallel annex, but there are two bridges houses located on both sides, surrounding a courtyard. The four surrounding roofs create the shape of the character of letter 口.

By enhancing the courtyard in between the main house and the annex, natural light and ventilation are increased for both the private rooms and the annex. In these kinds of transformations, the building area is larger than typical houses. Therefore, similar to the five compartments and seven compartments, these housing types are possessed by wealthy families.

In short, due to its flexibility and the ability to be built backwards, the *Nhà xếp đọi* type has become very popular in the Mekong Delta. Other transformations, though they are almost nonexistent, are not housing types used by the common people in the Mekong Delta.

Regarding geographical conditions, the traditional houses of the Vietnamese in the Mekong Delta have two types: the houses built directly on the ground in the hinterland, and the houses on stilts located next to the riverbanks. Although there are differences in the topography, the traditional houses built on the ground or on stilts comprise the same spatial organization. Nonetheless, there are more typologies of the houses on ground than those built on stilts (Table 5).



Figure 31 Vietnamese house on stilts.

The houses on ground have three basic modules: 3-, 5- and 7-compartment houses, and the extension of the annex on the horizontal or vertical axis or both. Houses on stilts are based on the 3-compartment house only (Table 5). Houses on stilts also do not have a courtyard between the main house and the annex as it is limited by its structure and its location on the riverbanks. Due to weak soil and landslides, the stilt houses in the Mekong Delta are often small in size (figure 32). They are used mainly by poor farming families whose livelihoods are close to the rivers. The original formations of the Vietnamese traditional houses are based on a module of odd compartments, wherein the most popular is the 3-compartment house (*Nhà ba gian*). This is a typical scale for a middle-class family in the Mekong Delta. The housing modules of 5 and 7 compartments are possessed by middle class families and wealthy landlords where the living space needs to be spacious in order to show off their wealth and social status. Most of the houses of these types are built on ground in towns and are made of precious wood, with red roof tiles and tile floor. The three-compartments on the other hand are usually made of wood, leaf roof and wooden floors. The core of the formation is created by the main house, the most important space, which includes the outdoor altar, veranda, living room, indoor altar, bedrooms and storage for precious items. The outdoor altar and the indoor altar are always located along the central axis to show solemnity and balance in the living space. The two private rooms or bedrooms are designed symmetrically behind the living room and worship space. These fundamental elements unify the Vietnamese traditional houses in the Mekong Delta, whether the main houses are made by 3, 5 or 7 compartments.

Among the three basic housing modules in Table 5, the three-compartment includes a total of eight types of transformations (V-G3H1, V-G3H2a, V-G3H2b, V-G3H2c, V-G3V1, V-G3V2a, V-G3V2b, V-G3V2c) with the annexes not exceeding 2 spans to maintain the balance for the main house and the sub-areas. This type is the most popular in the Mekong Delta because its scale is suitable for most families.

The housing module of five-compartments has the most transformations with 14 types of transformations (V-G5H2a, V-G5H2b, V-G5H2c, V-G5V2b, V-G5V2c, V-G5H4a, V-G5H3b, V-G5H3c, V-G5V3b, V-G5V3c, V-G5H2V2b, V-G5H2Vc, G5H3V3b, and G5H3V3c). In this type of module, the annex could include three compartments in the horizontal and vertical axis. This type occupies a large proportion of the Vietnamese traditional houses in the Mekong Delta, but is normally possessed by middle class families.

The seven-compartment housing type includes only eight transformations (V-G7H2a, V-G7H2b, V-G7V2b, V-G7V2c, V-G7H4a, V-G7H3b, V-G7V3b, V-G7V3c) since the main house is the largest among the modules. This type, therefore, has the smallest number in the Mekong Delta since it belongs to the feudal government officials or rich landlords.

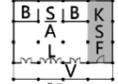
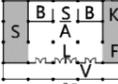
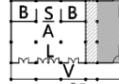
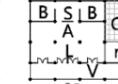
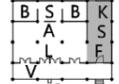
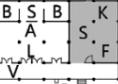
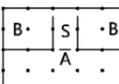
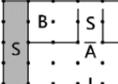
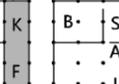
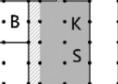
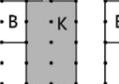
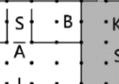
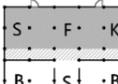
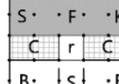
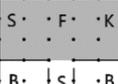
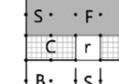
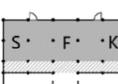
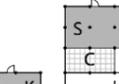
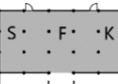
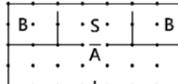
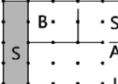
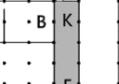
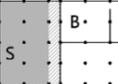
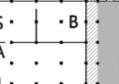
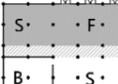
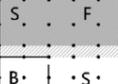
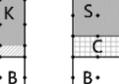
The subtypologies of the houses on stilts, which is comprised of only four (V-S3H1, V-S3V1, V-S3H2a, V-S3H2b, V-S3V2) are lesser than those on ground. The main house includes only the three-compartment type. The houses with five or seven compartments are larger and heavier, which makes them difficult to be built on the soil near the riverbanks. As a consequence, the houses on stilts have only a maximum of two spans in its annex extension in the horizontal and the vertical axis. There is no courtyard between the main house and the annex due to limitations of its topography and materiality. In addition, the houses are normally owned by farmers and fishermen whose livelihoods are based on growing paddy fields and fishing on the rivers. Therefore, the house on stilts is built in a typical scale, just enough for basic necessities.

In summary, the transformations in the Vietnamese traditional housing typologies are created by the arrangement of the main house and the annex or lean-to in the horizontal and vertical axis (Figure 33). The main house is created by an odd number of compartments and functions as the space of worship and living, while the annex or lean-to is used as the area used for the kitchen, storage and family space. Depending on the limit of the plot area, the house plan is either extended on its sides or depth. The annexes or lean-tos could be added on either the left or right side or both of the main house. The typical annex normally includes one or two compartments. Only in the houses of wealthy families, the annex could be extended to three or four compartments, but it is not larger than the main house. In some cases, a courtyard with a bridge house is added between the main house and the annex to enhance the ventilation and natural light in the living space. Moreover, in all transformations, the outdoor and indoor altars are kept along the middle axis of the house as an indispensable element. The bedrooms are resigned symmetrical on the left and right sides at the back of the living room. Moreover, the veranda is extended to connect the main house and the annexes to demonstrate unification and continuity on the façade.

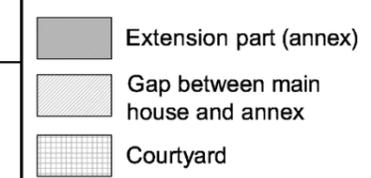


Figure 32 Principle of transformation in the Vietnamese traditional houses in the Mekong Delta.

Table 5 Formations and transformations of Vietnamese traditional houses in the Mekong Delta.

BASIC MODULE		HOUSES ON GROUND			HOUSES ON STILTS						
		1-span annex extension	2-span annex extension		(3+)-span annex extension	1-span annex extension	2-span annex extension				
3-compartment house (Nhà ba gian) 	3-compartment housing unit Nhà ba gian	HORIZONTAL AXIS	 V-G3H1	 V-G3H2a	 V-G3H2b	 V-G3H2c	HORIZONTAL AXIS	 V-S3H1	 V-S3H2a	 V-S3H2b	
		VERTICAL AXIS	 V-G3V1	 V-G3V2a	 V-G3V2b	 V-G3V2c		VERTICAL AXIS	 V-S3V1	 V-S3V2	
5-compartment house (Nhà năm gian) 	5-compartment housing unit Nhà năm gian	HORIZONTAL AXIS		 V-G5H2a	 V-G5H2b	 V-G5H2c	 V-G5H4a	 V-G5H3b	 V-G5H3c		
		VERTICAL AXIS		 V-G5V2b	 V-G5V2c		 V-G5V3b	 V-G5V3c			
		HORIZONTAL + VERTICAL AXIS		 V-G5H2V2	 V-G5H2V2c		 G5H3V3b	 G5H3V3c			
7-compartment house (Nhà bảy gian) 	7-compartment housing unit Nhà bảy gian	HORIZONTAL AXIS		 V-G7H2a	 V-G7H2b		 V-G7H4a	 V-G7H3b			
		VERTICAL AXIS		 V-G7V2b	 V-G7V2c		 V-G7V3b	 V-G7V3c			

LEGEND
a: Outdoor altar
V: Veranda
L: Living room
A: Altar
B: Bedroom
F: Family room
S: Storage
K: Kitchen
r: Bridge house connect main house and annex
C: Courtyard



SCALE 0 1 3 5m

4.2 Traditional housing and social influences of the ethnic Khmers in the Mekong Delta

Through research papers of Tung and Tuyet (Tung, 1993) (Tuyet, 1992) and field surveys conducted by the author from 2017 to 2018, it is concluded that the houses built on ground of the ethnic Khmer in Mekong Delta are very simple, with less typologies than the Vietnamese. In addition, the traditional Khmer stilt houses are also rare: only two of this type had been found in the trips, mixed among the houses on ground. Currently, most of the Khmer living in single span concrete houses built on ground, which are the same type as modern Vietnamese houses that do not follow traditional Khmer architectural styles.

The basic space of the Khmer is divided into two parts: the main house and the annex or the lean-to. Similar to the Vietnamese houses, the main house of the Khmers is used for social and religious functions. This space is comprised of the altars, cabinets, a set of table and chairs, wooden couches, and religious decorations. The annex consists of two bedrooms arranged symmetrically on both sides. The kitchen and warehouse are located in one of the two bedrooms if the house has no lean-to or annex (*rôn* house) at the back. The typical layout of Khmer house is often arranged as follows:

The altar is located in the center of the main house with a statue or a photo of the Theravada Buddha or ancestors and parents who passed away. This custom is similar to the Vietnamese traditional houses, though the Vietnamese in the Mekong Delta practice Mahayana Buddhism and a local variant. In some Chinese-Khmer families, the altar may have a photo of Guan Gong and the pillars with sentences written in Chinese characters, and on the altar there might be hanging verses as in a Chinese house (Tuyet, 1992). The acceptance of elements of the religions and customs of other ethnic groups into the Theravada Buddhism of the Khmer has shown a relatively liberal view of religion among the Khmer.

The living room of the Khmer house is set with traditional wooden or bamboo furniture. Symmetrical glass cabinets are put on both sides of the altar showcasing different types of cups and embroidered pillows. At the two ends near the side of the house are sets of wood or bamboo couches used to accommodate the elderly and young people. Meanwhile, the rooms behind the altar are used by women and couples. With most having an agricultural livelihood, the Khmer often erect a warehouse for storing farm tools. In order to expand the living area, the Khmer also build large eaves in front of the house similar to the veranda space (*pteáh nùm hơl*) in Vietnamese architecture, or one or two lean-tos are built on the side next to the main house to use as a kitchen or storage. However, the most common solution for expanding living spaces is the addition of an extra house continuing at the back of the main one. Such type of construction is called a continuing-roofed house (*nhà xếp đọi*), which has parallel ridge beams.

Through the division of space above, the Khmer house has clear positions for the main living area and the service area, the place for worship and family activities, the separation of the sleeping quarters for men and women, as well as the warehouse, a proof of agricultural settlers. In addition to the permanent and stable housing types, the Khmer houses also have different types of tents and huts for living temporarily. For example, small huts with a dimension of 2 x 3m (called *tóp* or *liêu*) in the form of stilt houses are used for dwelling by the monks in temples. These houses have simple leaf, bamboo or plank floors, which are refurbished each year before the holidays. In addition, there is a *tum* house, which has a round roof shape like a boat's bow and a bamboo floor placed on the ground. This is used for temporary residence to guard the sugar cane and rice fields. There is also a hut type called *Thala*. This type of house is located on the paths to

a Phum. The *Thala* usually has four square roofs and no surrounding walls. It functions as a public house by the people in the *Srok*. This is a meeting place, a ceremonial space, a resting area for pedestrians, or functions as a small market in a *Phum* or a *Srok* (Tuyet, 1992).

Overall, the settlement of the Khmer in the Mekong Delta has the following characteristics:

- 1) The Khmer was the first immigrants in the Mekong Delta, settling on coastal land and using local materials to build houses.
- 2) The structure of the Khmer housing is similar to the traditional Vietnamese
- 3) The Khmer houses made of coconut water leaves are very simple, monotonous in the structure and layout of living spaces.

Regarding the systematic categorization of the housing formats, the Khmer house is temporarily classified into two categories: houses on the ground and houses on stilts (Table 6).

Houses on the ground

In general, the houses on the ground of the Khmer are similar to Vietnamese houses in the Mekong Delta. Viewed from the outside, most of the middle class and upper-class houses of the Khmers are constructed in two blocks with parallel ridge beam and purlins. Small houses have a short front roof and a long rear roof, while larger houses are comprised of two large main roofs and two smaller secondary roofs on the back. The floor is designated on the surface of the soil with sand. All of the columns are put on stones in order to avoid the humidity from the ground. The main material for the construction of traditional houses is wood, bamboo, and water coconut leaves. Depending on the roofing technique, coconut leaves can be quite durable. They can tolerate heavy rain and harsh sun for five to ten years before needing to be replaced. As for the pagodas and later built houses, the construction materials are mainly wood, stone, brick, cement, and iron sheets. The house on land can be classified into the three types based on structure and scale: one-compartment house, two-compartment house and three-compartment house (Figure 34).

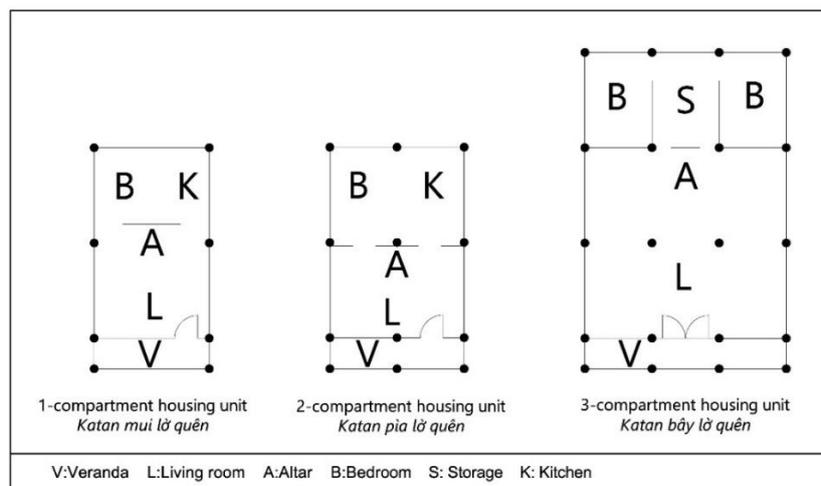


Figure 33 Basic modules of Khmer traditional houses in the Mekong Delta.

One-compartment house (*Katan mui lờ quên*) (Figure 35): The one-compartment house is usually erected on an embankment above the surrounding ground. The house has small windows. As a result, the interior is dark and has weak ventilation. This housing type is built with rudimentary materials such as bamboo or wood, which is common for poor Khmer families. The structure of the house is similar to the *nọc ngựa* housing type of the Vietnamese with a straight main column from the ridge beam into the ground and two secondary columns on either side. The pillar supports the ridge beam and the four trusses of the two roof supports. The construction of this housing type is therefore simple. The rafters and columns are cut short, pegged or tied with wire, or coconut strings. The house has two slightly sloping roofs. The front roof is lowered to cover part of the main door. Similar to a hut, the two-sided roofs cover the sides of the house and lead rainwater away to protect the lower parts of the walls. The lean-to in some cases is attached on one side of the house to raise poultry or place water jars.

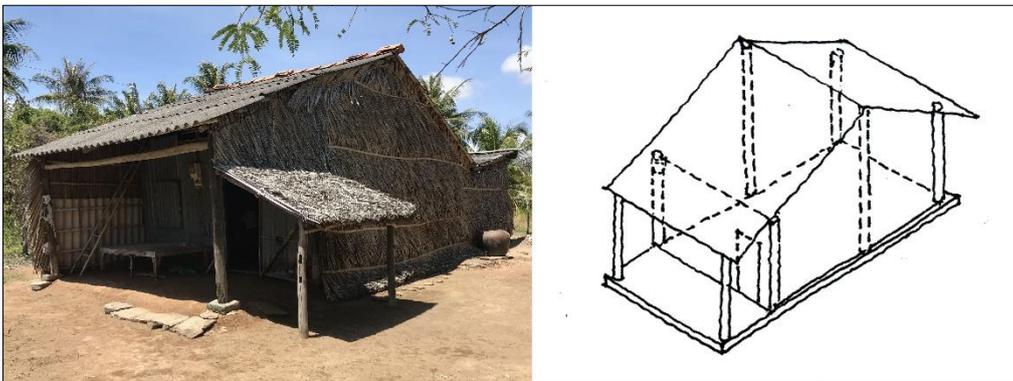


Figure 34 One-compartment Khmer house.

Two-compartment house (*Katan pìa lờ quên*) (Figure 36): this housing type has the same structure as a one-compartment house. However, one compartment is added to enhance the space. The two-compartment house is comprised of a total of 3 trusses and 9 columns on a 3x3 grid. The ridge beam and purlins also have the same structure as the one-compartment house. The door is put on one side but not at a central position. The house has a living room with a Buddhist altar put on the middle of the main space and a bedroom located behind the living room. The service area for the kitchen and toilet is placed in the annex on the left or right side, or is situated at the back of the main house.

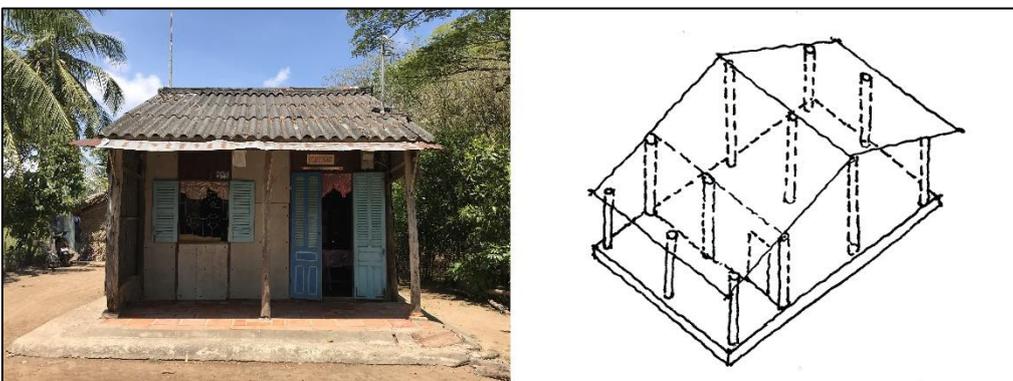


Figure 35 Two-compartment Khmer house.

Three-compartment house (*Katan báy lờ quên*): Similar to a two-compartment house, this is the type of house that extends from the variant of a basic module. The house consists of 3 sets of rafters, 12 columns (4 main columns extending from the ridge beam to the ground, 8 columns are symmetrical on both sides of the house). The spatial dividing in three-compartment house of the Khmer is illustrated as the figure 20. The house includes three compartments on the horizontal axis by 4 rows of columns. Similar to the three-compartment house of the Vietnamese, in the Khmer house, the Buddhist altar is placed at the central position in the main house. A set of long table and chairs put in the middle axis and two couches sited symmetrical on the left and right emphasize the solemn and important of the living room. The service area including the kitchen, the family space, and the storage is put at the back. This space is mainly used by the women.

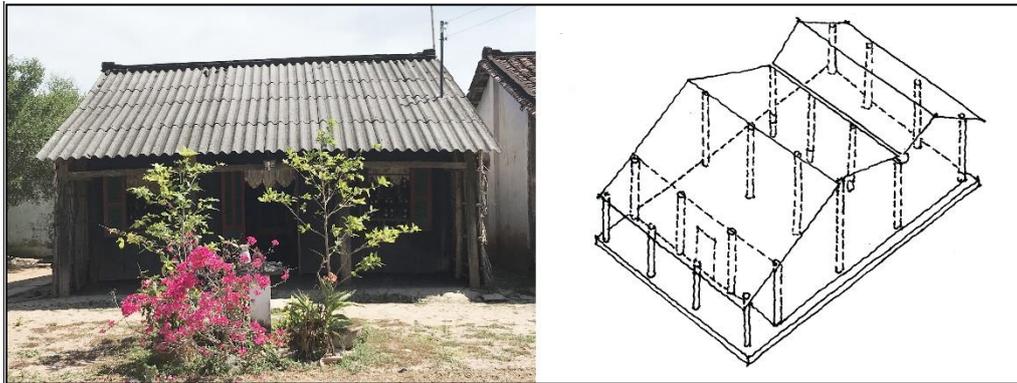


Figure 36 Three-compartment Khmer house.

T-letter shape house (*Rôn stưng thngay*): Depending on the area of residential land, whether it is a one-, two- or three-compartment house, it can be expanded on the horizontal sides to increase the spaces as it suits each household. Expansion in the horizontal direction forms a housing type that resembles a Vietnamese three-compartment house. The Khmer call this type of house *Rôn stưng thngay* (Huynh Ngoc Trang, Van Xuan Chi, Hoang Tuc, Dang Vu Thi Thao, Phan Thi Yen Tuyet, 1987, p. 34). This housing type usually has a main house and an annex. In addition to the wooden houses with coconut leaf roofing, there are also those built with brick or tile roofs. These types have the same structure as Vietnamese ones, including three-compartment houses with 8 main columns and 12 minor columns (2 rows of main columns with 4 columns on each side, 2 rows of minor columns, with 4 columns on each side and one row of 4 columns on the front porch). The trusses are made with a mortise and locked with a solid wooden pin. Two skewers are threaded into the mortise at two rows of the main columns. However, the *Rôn stưng thngay* house typology has now disappeared in the Mekong Delta. Only some houses remain, located in temples for accommodating the monks. For this reason, this housing type is not analysed in depth in this thesis.

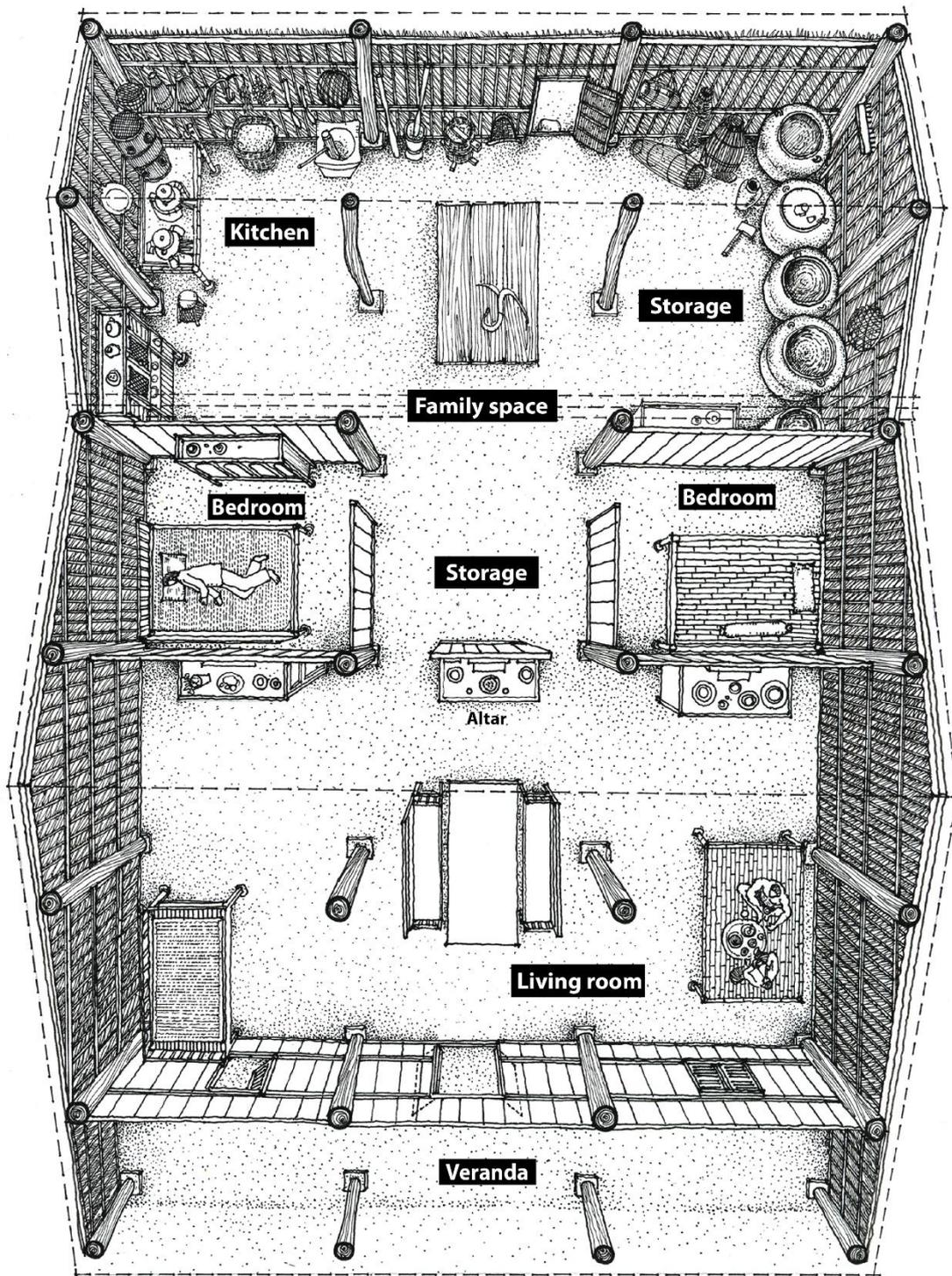


Figure 37 Three-compartment Khmer house.

House on stilts

Since the 12th century when they were inhabitants of the Khmer Kingdom, the Khmer have had a preference of living on houses on stilts. However, traditional Khmer stilt houses in the Mekong Delta today are almost completely lost, replaced by houses built directly on land. It is important to mention that the traditional Khmer stilt house was not built with the purpose of dealing with flooding as it is often built on high ground. In addition, if given the option to live in flood areas, Khmer in rural areas always choose to reside on higher land (e.g., the fields of land, dykes, river banks that rarely flooded). Perhaps, they do not have a habit of living in flood-prone areas. They believe that a residence with an elevated floor is cooler, airier than those closer to the ground. These houses can be easily ventilated through the floor, and avoid wild animals and insects. Therefore, Khmer stilt houses are very appropriate for hot and humid tropical environments. They can also take advantage of the abundant local sources of wood and bamboo. One of the other reasons why Khmer people choose to live on stilts is that they want to avoid constructing houses close to the ground or low stilt houses because they think that gods often move underground and in spaces close to the ground. It is necessary for them to build tall stilt houses to avoid obstructing the gods (Tuyet, 1992 p. 85) (Delvert, 1961).

There are only a few stilt houses in the An Giang province, previously built to cope with the annual flood season (Figure 39). But currently, due to the construction of the dike systems, the residents in this area are no longer impacted by the annual flooding season from May to October. The construction of the stilt houses, therefore, is no longer essential.



Figure 38 Stilt house of the Khmer in Sóc Trăng province.

In terms of its structure, the number of spaces in the stilt house is also varied, with forms in one, two and three compartments. The space underfloor often functions as a place for weaving clothes and brocades, and raising animals such as cows and chickens. The space above is used for sleeping and setting the altar. In the house, there is no separate living and sleeping spaces for men and women. The stairway's position, though most of it is placed directly in front of the the door, is in the middle of the front of the house. It is not always meant to be in the middle of the house as it can be located on the right, left, and sometimes even the side of the house. The number of steps is always odd for luck (Tong, 1977). The pillars are placed on millet stones and not put directly into the ground. The stones are more or less carved, not rough. The main house with larger roof is used for the main living space, while the annex with smaller roof is used for the kitchen and storage located in the back.

Currently, the Khmer houses on stilts are quite rare. The author has found only two stilt houses in the survey, one in the province of Sóc Trăng and one in An Giang. Houses with one-compartment and two-compartments are also very few. Most Khmer are live in brick houses with one compartment, a basic Vietnamese urban housing. According to Tuyet, the traditional stilt houses of the Khmer only exist very rarely as a cultural remnant through a number of *sala* houses used to store scriptures or to accommodate monks in the Khmer temples in the Mekong Delta. The disappearance of Khmer stilt houses in the Mekong Delta is probably due to the following reasons (Tuyet, 1992 p. 86):

1) The Mekong Delta is a plain and has less forests to get wood to build houses like in Cambodia.

2) The rainforest in the Mekong Delta is also diminishing due to the reclamation process of immigrant communities, war, and urbanization.

3) Due to the long-term community process, which is mainly for Vietnamese and Chinese people to adapt to the social and economic circumstances, most Khmer people have moved to build houses on ground instead of residing on stilt houses like the Cambodian Khmer.

In short, the traditional houses of the Khmer in the Mekong Delta consist of three kinds of housing modules: one-compartment, two-compartment and three-compartment houses. In the three housing modules, the house retains a symmetrical structure with the altar located in the center (Table 6).

The one-compartment house is the basic module with the minimum area for a poor Khmer family. The main house has only one compartment, just enough for the very basic living area for the altar, sleeping space and kitchen. This house has only two transformations, one in the horizontal axis (K-G1H1) and one in the vertical axis (K-G1V1) done by erecting a lean-to on one side or adding an annex at the back for storage and cooking.

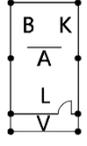
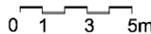
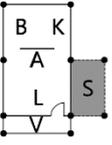
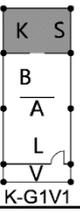
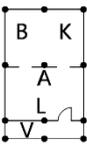
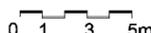
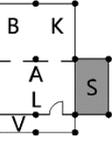
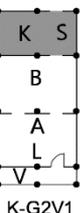
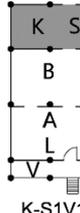
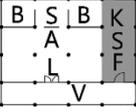
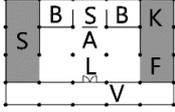
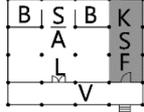
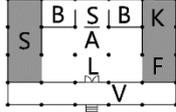
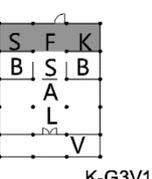
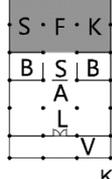
The structure of the two-compartment house is similar to the one-compartment house's layout, but developed to extend one more compartment on the horizontal (K-G2H1) and vertical axis (K-G2V1) for storage and cooking. However, the two-compartment housing module also has a house on stilts version (K-S1V1). This type was found often in Cambodia during the onsite survey in April and June 2018. These houses in Cambodia are built with elevated floors with a staircase put directly in front of the main door, without the veranda as the Khmer houses in the Mekong

Delta. Although deeply influenced by Theravada Buddhism, the appearance of the two-compartment houses shows that the structure of Khmer houses is not dependent on even or odd numbers like the Vietnamese and the Chinese houses. Instead, the living area and the structure of the house depends on the needs of the dwellers. The transformation principles of the one and two-compartment houses are few and simple, mainly to add one annex or lean-to on one side of the main house for the storage agricultural tools or the kitchen (Figure 32). Otherwise, an extra space is built in the back of the main house. Meanwhile, according to the field trips to the Mekong Delta, the author recognized that almost all of the middle-class Khmer inhabitants in three-compartment houses have the same spatial divisions as traditional Vietnamese housing.

There are six typologies of spatial transformations for the Khmer three-compartment house (K-G3H1, K-G3H2, K-G3V1, K-G3V2, K-S3H1, K-S3H2). These additions are developed on the horizontal and vertical axis by adding an annex on one side or both sides of the main house. This type is similar to the Vietnamese three-compartment house, but the spans of the annexes include just one compartment at the horizontal axis. When extended to the back, the annex can have two spans. The three-compartment house of the Khmer also has no courtyards like in Vietnamese houses. It consists mainly of a main house with an annex at the rear.

In summary, traditional Khmer housing typologies are limited and less in number than the Vietnamese since most ethnic Khmers are poor farmers or hired-hands from the first immigration period to this day. (Figure 40). Moreover, based on the above analysis, although Khmer communities still exist in the Mekong Delta, the author could not find a unique characteristic for the Khmer housing structure or village formation. The traditional stilt houses, which are a characteristic of Khmer culture, exist only as a cultural remnant in Khmer pagodas. Thus, the urbanization of the concrete townhouses these days has put an end to Khmer architecture in the Mekong Delta region.

Table 6 Formations and transformations of Khmer traditional houses in the Mekong Delta.

BASIC MODULE		HOUSES ON GROUND		HOUSES ON STILTS	
		1 extended part	2 extended parts	1 extended part	2 extended parts
 <p>1-compartment housing unit <i>Katan mui lờ quên</i></p> 	HORIZONTAL AXIS	 <p>K-G1H1</p>			
	VERTICAL AXIS	 <p>K-G1V1</p>			
 <p>2-compartment housing unit <i>Katan pia lờ quên</i></p> 	HORIZONTAL AXIS	 <p>K-G2H1</p>			
	VERTICAL AXIS	 <p>K-G2V1</p>		 <p>K-S1V1</p>	
 <p>3-compartment housing unit <i>Katan bây lờ quên</i></p> 	HORIZONTAL AXIS	 <p>K-G3H1</p>	 <p>K-G3H2</p>	 <p>K-S3H1</p>	 <p>K-S3H1</p>
	VERTICAL AXIS	 <p>K-G3V1</p>	 <p>K-G3V2</p>		
<p>LEGEND V:Veranda L:Living room A:Altar B:Bedroom S: Storage K: Kitchen  Extended part</p>					

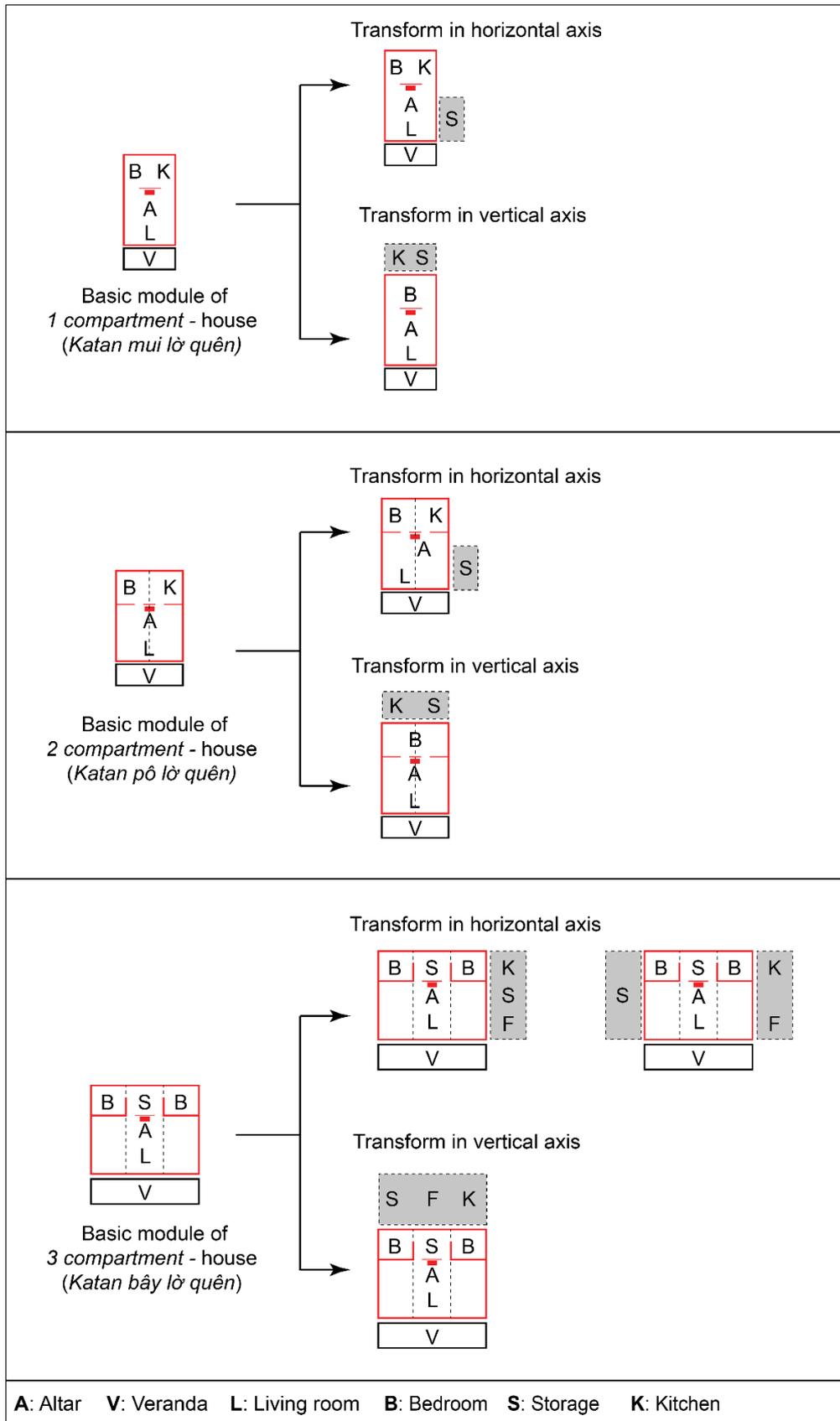


Figure 39 Principle of transformation in the Khmer traditional houses in the Mekong Delta.

4.3 Traditional housing and social influences of the ethnic Chinese in the Mekong Delta

In general, the Chinese houses in the Mekong Delta consist of two types: the traditional house in rural areas and the townhouse in urban areas (Tuyet, 1992). The rural houses consist of single-story houses built of wood with three or five compartments. Meanwhile, the brick townhouses are built side by side with two-stories and only one compartment.

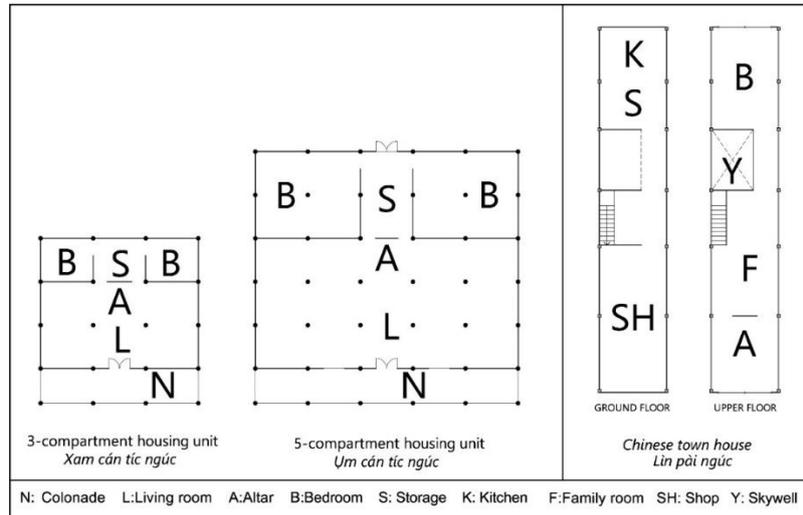


Figure 40 Basic modules of Chinese traditional houses in the Mekong Delta.

The Chinese houses in rural areas:

The ethnic Chinese settled in rural and suburban areas who work in the fields or farms often live in one- or three-compartment houses built of simple or semi-permanent materials. (Figure 42). Though there are still some Chinese houses in good condition, most of them are clan ancestral houses. On the other hand, the everyday houses have been transformed a lot due to the dwelling process (Tuyet, 1992). The spatial layout in Chinese houses on ground is divided into odd compartments - one, three or five - and built one to three rows in depth, with the annexes placed on either side or the back of the main house (Tuyet, 1992 p. 138). Normally, the average Chinese rural house has one compartment and two lean-tos. The spatial distribution of the space is still kept in the traditional Chinese home style, including the space for welcoming the guests at the front part of the living room (客堂) and the main space at the back of the house (正堂). The guest space, which is more spacious than the main space, is normally used to welcome guests and worship ancestors. This space holds the altar of Buddha, gods and ancestors. The altar is placed close to the wall facing the main doors. The word 'God' (神) or *Tổ Đường* (祖堂) is written large in black ink on a red background and hung on the wall. Depending on the wealth of the family, the ancestor altar can be carved and decorated by gilded gold. On the altar, there are ancestral tablets, incense bowls, vases, glasses of water, and candles. The ancestors' altar may be located lower than the Buddhist altar, or placed symmetrically on two side walls. Some Chinese houses also have an altar of the Buddha, or Bodhisattva, *Bà Thiên Hậu*, *Quan Công* or the other gods (such as *Tế Công*, *Thổ Địa*, *Thần Tài*, *Ông Táo*, *Môn Thần*).

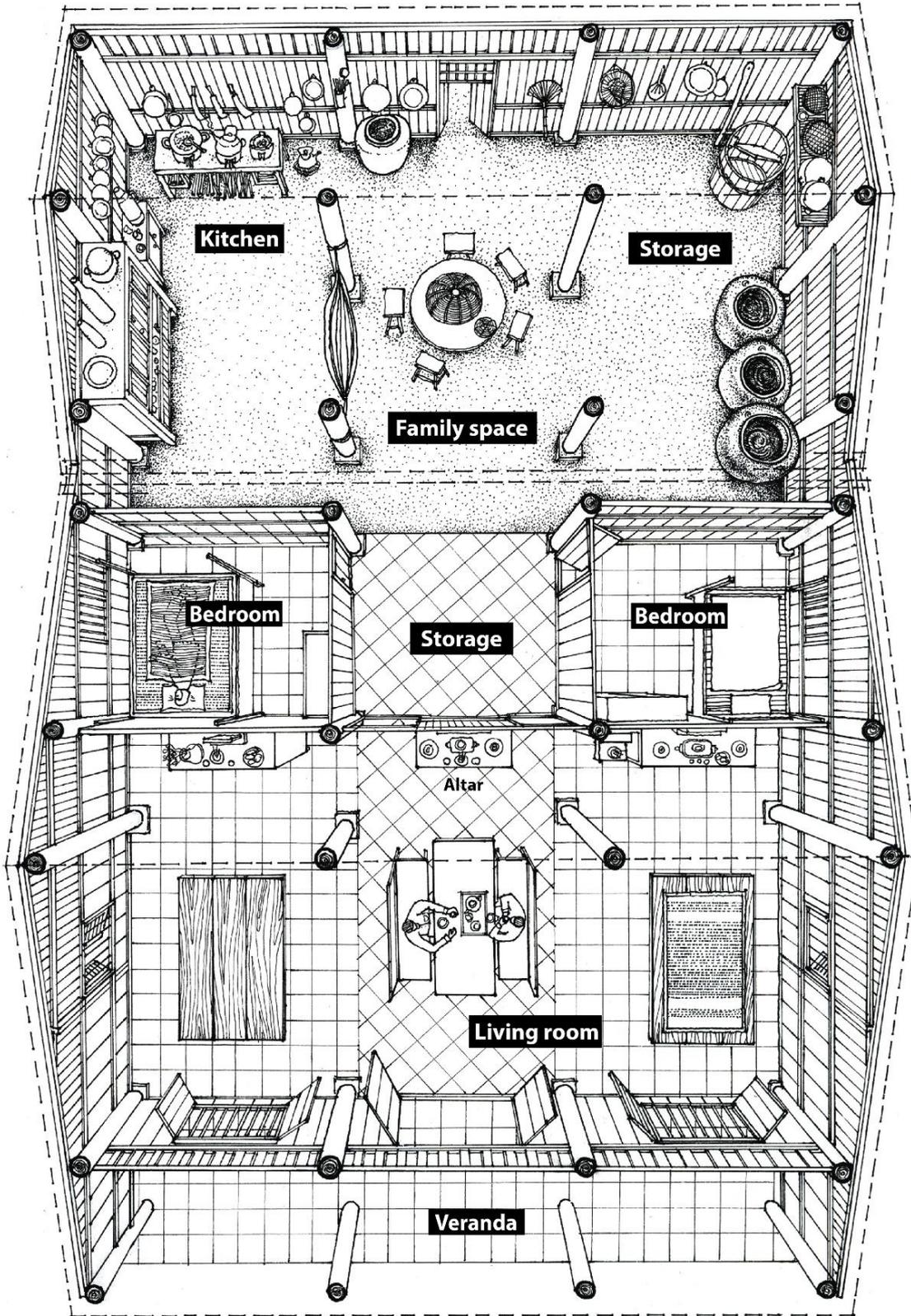


Figure 41 Three-compartment Chinese house.

Families of the ethnic Chinese in the Mekong Delta are patrilineal. It means the children carry their father's surname. Regarding the social status within the family, the father takes the highest position and decides everything for the family. The son also has the right to inherit his parents' property. The eldest son has a higher priority and heavy responsibilities. He can replace the parents in deciding the family's works and often receives more inheritance than the smaller siblings. A Chinese family can consist of four to five generations living together. If the number of people reaches ten people, it is called 'the four or five generations under one roof' (*Tứ đại đồng đường* 四大同堂 or *Ngũ đại đồng đường* 五大同堂). This was verified in the onsite survey in Hà Tiên; many ethnic Chinese families consist of three or four generations with grandparents, parents, grandchildren, uncles, and aunts inhabiting the same house.

In front of the door of the townhouses, or in the yards of Chinese people in the countryside, there is sometimes an altar erected to worship the God of Sky (*Thiên* or 天). Also known as the Jade Emperor, he governs the affairs of the world and the destinies of the people (HVVHT, 2016 p. 121). The altar is a pillar constructed with brick with a 200 x 200 mm cross section. At about 1m high is a small plane of concrete called *tran* with a square cross section of 400 x 400mm. On the altar, one places a small incense burner, vase, and small glass of water. In addition, there are four Chinese characters, *Thiên Quan Tứ Phúc* (天官賜福), or simply the word *Thiên* (天). However, this custom is inconsistent because it is not found in all of the surveyed Chinese houses in the Mekong Delta. Therefore, it could be concluded that the spiritual system of the Chinese is generally founded upon polytheism and the worship of ancestors.



Figure 42 A rural Chinese house in the Mekong Delta.

Similar to the traditional Vietnamese house, the Chinese rural house (Figure 43) can have a veranda at the front of the house. Nonetheless, in most Chinese houses, colonnades are built instead to expand the trading space or storage. The colonnade is protected by parallel wooden bars that can be easily disassembled, ensuring the security, natural lighting and ventilation of the house. Therefore, viewed from the outside, the house with colonnade looks more firm and safer than the veranda houses. Due to business and their trading tradition, the Chinese people seriously consider security and privacy. This custom is different from the openness of the Vietnamese farmer's house in the Mekong Delta.

A set of table and chairs is put in the middle of the main house to welcome guests. If the guests come from lower classes or are younger than the homeowner, they will be welcomed at small tables and chairs. In the guest space, there is also a bed for guests resting or staying overnight. The main hall consists of rooms of family members according to the principle of "The left side is for males, the right side is for females" (男左女右 in Chinese). This is also a place to store belongings and family possessions. The kitchen is located at the back, separated from the main hall space, which is also used for dining. The position and direction of the kitchen must be chosen according to the principles of Feng Shui and Bagua. Therefore, there is a different spatial layout for each household. The Chinese are very reluctant to move or alter the kitchen's position because they fear the affecting the luck, happiness and stability of their family. Similar to the Vietnamese, in the past, the Chinese also put toilets and bathing areas near the canals and rivers. However, thanks to the development of the infrastructure, they have recently built toilets and bathrooms with bricks and use supply water.

Regarding the structure, most of the wealthy Chinese temples and old houses in the Mekong Delta built about a century ago use the *chông trính*, a kind of post and cross beam structure. This type of structure consists of king posts called *Cổ* (mortars) that support an upper cross beam. At the the two ends where the posts and beam intersect are levers. For this type of structure, the number of levers must match the number of cross beams. The wooden jags assembled in the head is very complicated and precise. The short pillars supporting the cross beam are only limited to about 70 to 80cm high because it could be collapsed by the roof pressure due to strong winds if made higher. This is a stable structure suitable for stormy areas. This kind of truss without rafters is often comprised of two rows of main pillars, similar to the structure of the Vietnamese communal house. However, at present, Chinese houses in the Mekong Delta are no longer constructed in this style because of the complex construction and the need for lots of wood. In addition, the climate in the Mekong Delta is mild with no severe typhoons, so it is not necessary to use such bearing structures. Therefore, the Chinese in this area use simple rafter structures for housing, and even for temples, shrines and communal houses. The form is of a short king post (mortar) supported by a rifle pole and fake pillars overlap the old one with the addition of two rafters. This can be considered as a cultural interaction with Southern Vietnamese architecture.

Regarding stilt houses, there are also Chinese variation of these houses in flooded areas in the Mekong Delta, concentrated in An Giang and Đồng Tháp. Using the frame structure to layout the living space, these Chinese houses is similar to that of Vietnamese stilt houses (Tuyet, 1992 p. 141). It is a type of house built on piles with the main door on the long side of the house facade. The stairs are put on the left or right, leading up to the front porch. The house has a wooden balcony approximately 800- 900mm high. The spatial distribution in a Chinese stilt house is similar to that of Vietnamese people. The living room includes a large wooden table, chairs, a wooden coach, and an altar. Behind the living room are the bedrooms. In addition, the Chinese built more lean-tos in order to increase the usable area for living, cooking and storage.

In general, Chinese people in the flooded areas in the Mekong Delta live in stilt houses. It is the necessary adaptation to be able to reside given the conditions of annual floods. However, the stilt house is a form of residence still unfamiliar to the Chinese, who traditionally settled in urban areas and near roads. The layout and the frame structure of these houses are also different from the traditional Chinese houses (Tung, 1993 p. 283). One of the important things to mention is that, except for houses functioning as clan ancestral houses, the majority of ordinary Chinese

people pay less attention to the form of houses. They are mainly concerned about business and commerce. Regarding locations for business-related receptions, the ethnic Chinese often go to tea shops or restaurants and rarely conduct them at home. Although the Chinese are generally well off economically, they often save money for doing business rather than repairing or upgrading houses (Tuyet, 1992 pp. 144,145). Therefore, it is hard to assess the relationship between the economy and the Chinese houses in the Mekong Delta.

The Chinese townhouses in urban area

The prominent features of Chinese houses in the cities and towns are that they are built to be similar and close to each other, and they face rivers or main streets, which are convenient for trading, transporting goods. Rows of townhouses are a typical housing chosen by Chinese people. In addition, in provinces and cities like Trà Vinh, Sóc Trăng, Rạch Giá (Kiên Giang), Long Xuyên (An Giang), there are still some houses located around religious buildings such as temples of *Bà Thiên Hậu*, *Guan Gong*, and *Ông Bồn*. In the surveys, most of the Chinese townhouses have been changed inside. The main reason is that these houses have been sold and changed by many owners. The following owners have different needs and have renovated the house accordingly. Therefore, it is difficult to find a house intact as it was originally. Nonetheless, based on surveys and records of residual houses, common characteristics of Chinese townhouses can be drawn as follows:



Figure 43 Shop houses in Hà Tiên.

Facing streets are the pavilions with a ground floor and an upper floor. Houses built in a row may vary in color, but are similar in appearance and structure (Figure 44). One of the main reasons for this similarity is that they are built at the same time and are the property of the same owner. However, over time, due to the division of properties across family generations and the resale to different owners, the interior spaces of the house have been altered. Most of the ground floor area at the front of the townhouse is used as a shop for trade and business. The Chinese trade a lot of things, from groceries to household items and traditional Chinese medicine. That is why many often leave the front space empty for business and storage. In the side of the shop is a wooden staircase leading to the upper floor. It is placed on either the left or right side of the house and not in the center to save the usable space in the narrow shophouse. The rear area on the ground floor is used for the kitchen, dining room and the toilet (Figure 45).

The altar is put at the front of the upper floor in a central position, while the bedroom and family room are located behind the altar. The upper floor space stretches from the façade adjacent to the road to the back, with a atrium in the middle for increasing illumination for the ground floor. The windows are designed to be large and high to receive more daylight and natural ventilation. At the bottom of the window, there is usually a nameplate of the business or

manufacturing facility. If the house is made of wood, people make their own name tag with a wooden signboard, while in a brick house, the people made the signboard using cement and hanging it on the wall. The letters on the signboard are usually the names of the homeowners, written in Chinese characters accompanied by a Vietnamese translation. Writing nicknames on the door is for people to identify businesses or owners easily or for convenience when they need to contact and transact with each other in the community. In addition, the inscription of the landlord's name also carries meaning in asserting his ownership of the property while also showing his social status in the community (Dung, 2012 p. 779). The Chinese townhouses are built of brick walls and the structure is not constructed using a truss system. The roofs of the Chinese townhouse are tiled and gables. According to the survey in mainly Hà Tiên, Bạc Liêu, Sa Đéc and Cà Mau, many houses have replaced their roof tiles with corrugated steel or fibrocement because the tiles have been damaged a lot and the owners could not find compatible tiles to replace them with.

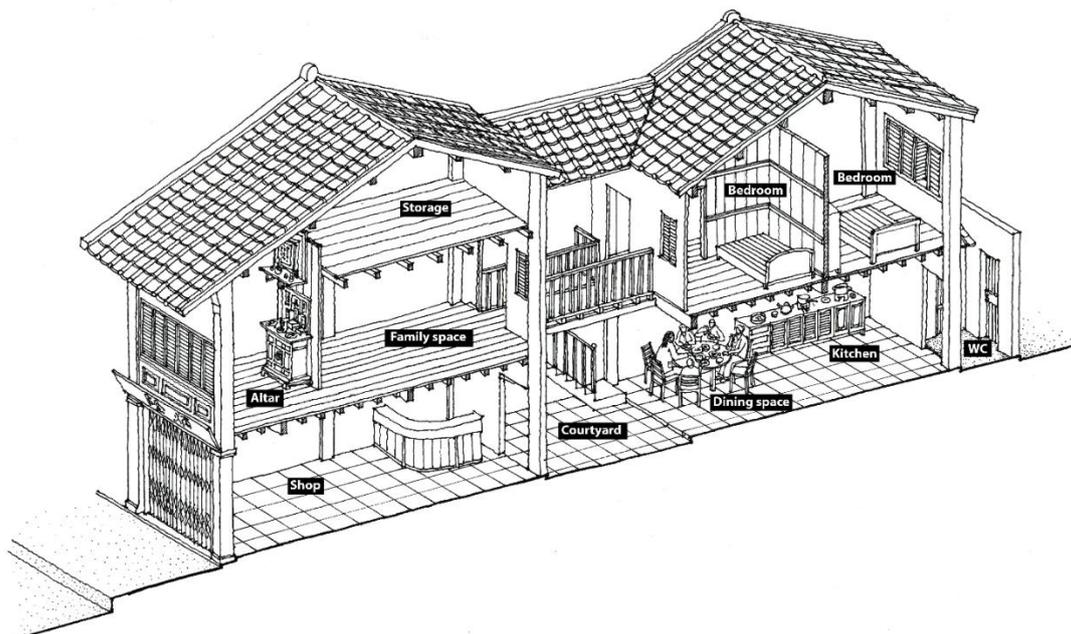


Figure 44 Section of a Chinese townhouse in Hà Tiên.

In summary, the original formations of the traditional Chinese houses in the Mekong Delta are similar to the traditional Vietnamese house by being based on modules of odd compartments, such as the three- and five-compartment house. The five-compartment house is rare and built mostly as an ancestral worship house. On the other hand, the three-compartment house (*Nhà ba gian*) is considered as a typical scale for a moderate rural Chinese family in the Mekong Delta (Table 7). The format of the three-compartment house is composed of a main house that includes a veranda (which is normally upgraded into a brick colonnade), a living room, altar, bedrooms and storage for precious items. The altar is always located at the central axis of the house, showing solemnity and balance in the living space. The two private rooms or bedrooms are located symmetrically behind the living room and worship space.

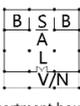
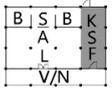
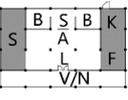
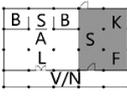
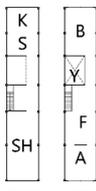
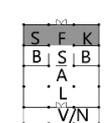
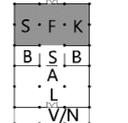
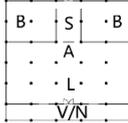
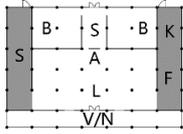
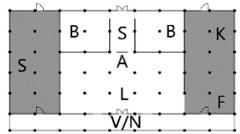
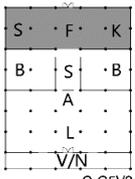
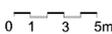
Regarding its transformation, the Chinese rural house in the Mekong Delta is extended by adding annexes in the horizontal and vertical axes (Figure 29). Similar to the Vietnamese and the

Khmer houses, the main house of the ethnic Chinese is considered as the most important space, while the annex is used as the service area. The annexes could be added on one side (left or right), but usually it is added to both sides of the main house to maintain the symmetry of the house. The transformation of the three-compartment house is comprised of five typologies: C-G3H, C-G3H2a, C-G3H2b, C-G3V1, and C-G3V2. C-G3H, C-G3H2a, and C-G3H2b are transformations on the horizontal axis, which includes a one or two-span annex located on one or both sides of the main house. C-G3V1 and C-G3V2 are transformations on the vertical axis.

The transformations of the five-compartment house fall under three typologies: C-G5H2, C-G5H4, and C-G5V2. C-G5H2 and C-G5H4 are transformations on the horizontal axis, which includes a one - or two-span annex located on one or both sides of the main house, while C-G5V2 is the transformation along the vertical axis.

While the Chinese rural house has several transformations, the Chinese townhouse in urban areas have only one unify format, C-T1. The townhouse has two storeys and a 4- to 5-meter-wide facade with a long rectangular shape stretching from the front to the back. They are built in rows along roads in towns and cities. These housing blocks characterize the Chinese settling area with their uniform façade design.

Table 7 Formation and transformation of Chinese houses.

BASIC MODULE	RURAL HOUSE			TOWN HOUSE
	1-span annex	2-span annex	(3+)-span annex	
 <p>3-compartment housing unit <i>Xam cân tic ngúc</i></p>	HORIZONTAL AXIS  <p>C-G3H1</p>	 <p>C-G3H2a</p>	 <p>C-G3H2b</p>	 <p>C-T1</p>
	VERTICAL AXIS  <p>C-G3V1</p>	 <p>C-G3V2</p>		
 <p>5-compartment housing unit <i>um cân tic ngúc</i></p>	HORIZONTAL AXIS  <p>C-G5H2</p>	 <p>C-G5H4</p>		
	VERTICAL AXIS  <p>C-G5V2</p>			
<p>LEGEND V/N: Veranda or Colonade L: Living room A: Altar B: Bedroom S: Storage K: Kitchen F: Family room SH: Shop Y: Skywell  Extended part</p>				
				

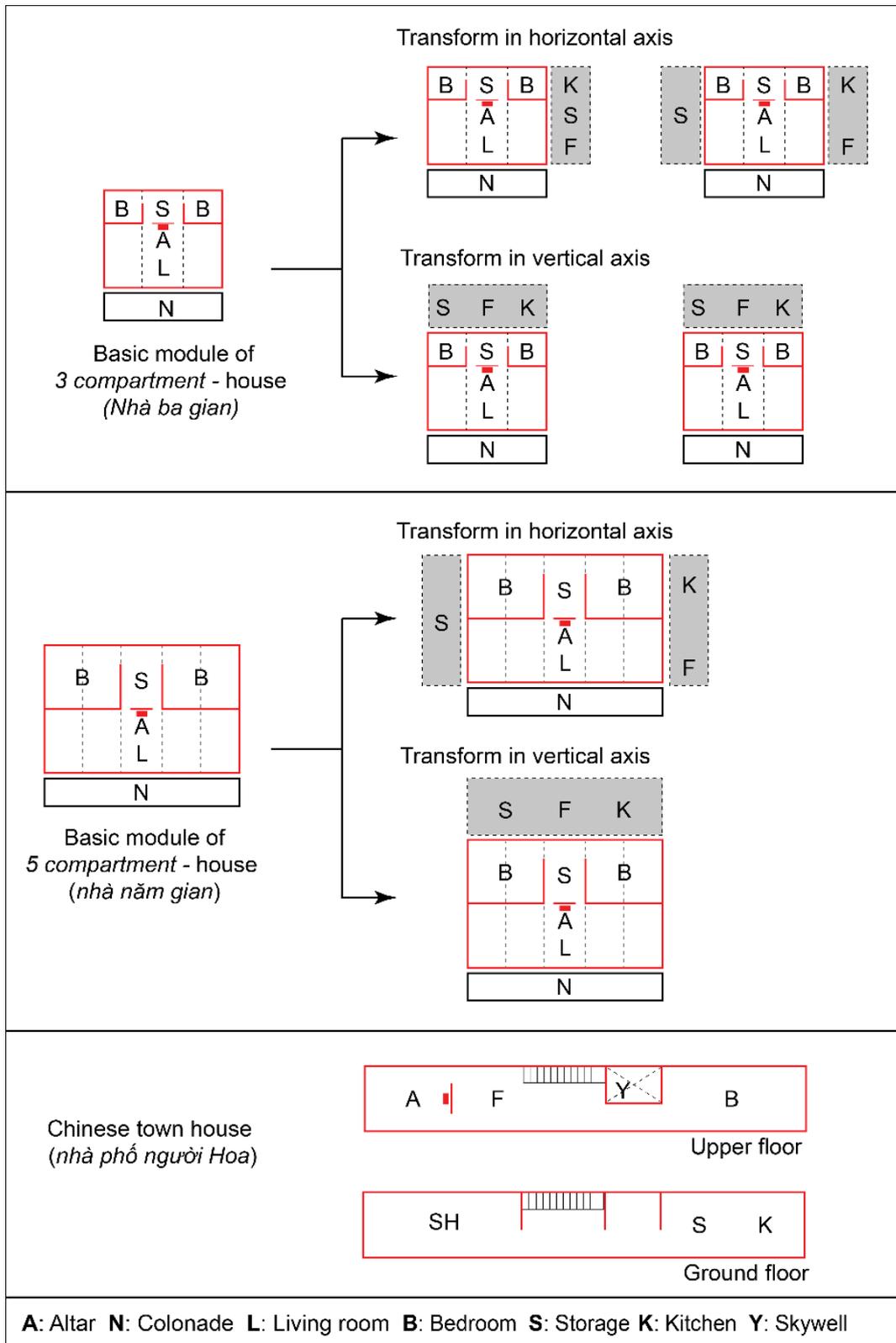


Figure 45 Principle of transformation in the Chinese traditional houses.

4.4 Traditional housing and social influences of the ethnic Cham Muslim in the Mekong Delta

One of the dominant factors influencing Cham Muslim communities in the Mekong Delta, there is none of greater significance than Islam. Its rules and principles have shaped the configuration of the settlements and set the pulse of villagers' time. In a Cham Muslim community, villagers practice the Five Pillars of Islam. The First Pillar is *Shahada* or the profession of faith, the Second Pillar is *Salat* or prayer, the Third Pillar is *Zakat* or almsgiving, the Fourth Pillar is *Sawm* or fasting, and the fifth Pillar is the *Hajj*, or pilgrimage. They are acknowledged and practiced by Muslims throughout the world. In the Second Pillar, before a prayer is observed, ablutions are performed, which includes the washing of one's hands, face and feet. A caller (*Muezzin* in Arabic) chants aloud in from a minaret in the mosque. These prayers are done five times a day at set times, with the individual facing towards Mecca. The *Fajr* (dawn) is performed before sunrise. *Dhuhr* (noon) is performed midday after the sun has surpassed its highest point. *Asr* (afternoon) is the prayer before sunset. *Maghrib* (evening) is the prayer after sunset, and *Isha* (night) is the night prayer. Each session lasts about fifteen minutes, except on Fridays when the main ceremony is conducted at the Friday Mosque, which lasts from 45 minutes to one hour. The daily life of a Cham Muslim in the Mekong Delta can be described as follows:

Table 8 Daily routine of Cham Muslims in the Mekong Delta.

Time	Routine of Cham Muslim male	Routine of Cham Muslim female
3:30 – 4:00	Wake up, personal hygiene	Wake up, personal hygiene
4:30 - 5:10	Walk to the Mosque or Surau, practice the morning prayer <i>Fajr</i>	Practice the morning prayer <i>Fajr</i> at home
5:30 – 6:00	Have breakfast	Have breakfast
6:00 – 12:00	Work	Do household chores
12:00 – 13:00	Practice the noon time prayer <i>Zuhr</i>	Practice the noon time prayer <i>Zuhr</i>
13:00 – 15:00	Work	Work
15:00 – 15:30	Practice the late afternoon prayer <i>Asr</i>	Practice the late afternoon prayer <i>Asr</i>
15:30 – 18:00	Relax	Relax or do household chores
18:00 – 18:30	Practice the sunset prayer <i>Maghrib</i>	Practice the sunset prayer <i>Maghrib</i>
18:30 – 19:30	Wait for the next prayer	Wait for the next prayer
19:30 – 21:00	Practice the late evening prayer <i>Isha</i> . Learn Islamic doctrines.	Practice the late evening prayer <i>Isha</i> . Learn Islamic doctrines
21:00 – 3:30	Sleep	Sleep

In cases of trading away from home, the Cham bring mats to perform the rituals punctually in any place, even when traveling on a boat. During the holy month of Ramadan of the Muslim calendar, the Cham Muslims abstain from eating and drinking, and work less during the day. They only eat after sunset.

In an Islamic family, men are always considered to be the head and main wage-earner of the. However, the family position of men also depends on the customs and habits of each country (Esposito, 2003 p. 74). For example, the Cham Hinduism in central of Vietnam who practiced Brahmanism is matrilineal and inheritance is passed through the mother. In the Cham Muslim community, the fathers and sons are the main wage-earners, doing long-distance trading and being part of the army. On the other hand, the mothers and daughters do housework or raise silkworms at home, and therefore have the highest authority when it comes to deciding everything in the house. The family of the bride arranges the marriage the husband and the groom has to come and stay in the bride's house. While the husband is the main worker, the capital is inherited by the wife.



Figure 46 A Cham Muslim man



Figure 47 A Cham Muslim woman



Figure 48 A Cham Muslim boy

Because Cham Muslim families in the Mekong Delta are in a transition between a matriarchy to a patriarchal system, women have not lost all their power as those living in purely Islamic societies found in Arab countries (Luận, 1974). This is called a semi-matrilineality regime (*Chế độ Bán Mẫu hệ* in Vietnamese). As a result, in a Cham Muslim family, the male or husband acts as the head of the family, taking a higher position, deciding everything for the family, and is more respected than the women. However, due to remnants of the matrilineality, although the husband is in charge of the business as the main economic earner of the family, he must stay in the wife's house (Luận, 1974 p. 78).

In addition, while living with his parents' family, the couple has to use their own kitchen per the custom of "kitchen detaching," or *chia bếp*. The husbands are not be able to be supported by their parents nor allowed to share meals with their families with their wives. It means the families of the parents and their married children do not have meals together. Instead, they have separate meals within each family, different from the traditions of the ethnic Vietnamese, Khmer and Chinese. When their financial position is stable enough, the young couple will build and move

into a separate house. Therefore, if a family has many daughters, that family will have many sons-in-law living within the same house.

By this rule, decision-making is divided equally among the smaller families within the house. The Cham Muslims call the custom of many families settling together within the same house as *các tiểu gia đình trong một đại gia đình* ("small families in a big family"). The custom of detaching the kitchen comes from the matriarchal regime. Nowadays, in the city, Cham Muslims also organize the marriage according to traditional matriarchal practices. However, the groom only stays with his wife's house for a few days. He then stays at another home, or stays at his in-law's house.

Remnants of the matriarchal regime is represented by the Mother Pillar, called *Kheng krah*, erected in the middle of the living room, called *Bilik twei*. The Cham Muslims believe that this pillar symbolizes the woman as the main breadwinner in the family. This is quite similar to the beliefs of the matriarchy of the Central Cham people (Tuyet, 1992). It also shows the influence of the ancient ethnic Cham belief in the land goddess. This belief is still held true by many Muslim Cham families in An Giang. For example, every night, they place beside the trunk of the pillar in the living room a betel nut tree with enough betel nut, lime, floss, and even a spittoon to invite the goddess (Tuyet, 1992 p. 116).

Another custom related to the matriarchy is the limiting of the daughters' contact with the outside world. In traditional Cham Muslim houses, there is an attic located above the bedroom. It is used for storage and protected by a triangular wooden baffle covered with geometric motifs separating the attic space and the living room. A small secret window is cleverly designed on the baffle. In the past, daughters had to stay in a private room behind the living room under the strict supervision of their family in order to preserve her dignity by restricting contact with the outside society. At the time of her married, the family of the groom has to come to the bride's house. While the parents are conversing, the daughter opens the small window at the attic to observe the man who came to marry her from afar. This can be considered as a proof of the imprint of matriarchy in the An Giang Cham Muslim community.

In addition, an element related to the remnants of the matriarchy is inheritance. The inheritance law is completely different between the ethnic Cham Muslims in the Mekong Delta and the ethnic Cham in the middle of Vietnam. Due to matriarchal customs, a man in the Vietnamese central region is not allowed to inherit his parents' property (houses, land, valuable items, etc.); only daughters can inherit. If the wife passes away, the husband must leave his wife's house to return to live in his mother's house. On the other hand, in the ethnic Cham Muslim community in the Mekong Delta where the patriarchal customs are dominant, only a son can inherit and often twice the fortune of a girl. In other words, the son inherits almost the entire property of his parents (Luận, 1974 p. 82). In the case when the wife passes away or divorces, the husband has the right to manage the house, whether or not it was built on the land of the wife's family, or even if it was erected by the wife's parents. According to Islamic laws, the children are named after saints, not after parents. In the Cham Muslim community, the son is named after one of 25 angels (*Nabi*) and the daughter will be named after the mother, wife, girl or sister of the

angels. In a Muslim society, the status of a woman is very low. Consequently, women in Cham Muslim villages in the Mekong Delta spend most their lives within the house and are less involved in social activities. Every day, they take care of housework, and weave or trade to help with family's finance. However, when the men go to the mosque to worship, after finishing their housework, the women and girls can visit each other at their homes or somewhere in the village (Luận, 1974 p. 79).

Unlike the ethnic Vietnamese and Chinese who always focus on the customs of building houses, due to the influence and strict regulations of Islamic law, the Cham Muslims abolished most of the traditional customs in building their houses. The house is built according to the homeowner's budget and materials, and is done without selecting dates or directions. The construction of the house is done by qualified carpenters with the help of relatives and neighbors in the village. However, they still preserve some ancient Cham beliefs combined with elements from Islam. During the construction, there are two main ceremonies: *pâu sang* or the ceremony of erecting the column, and *ta kuh sang* or the ceremony to celebrate the new house. The making of pillars has symbolic meaning. For example, before setting up columns, a few green beans, squash seeds or long gourds must be left under each column. By doing this, the Cham Muslims believe that the environment inside the house will be comfortable; people living in the house will not be hot-tempered and will avoid bickering. In some cases, they also put a few small blue stones meant to prevent lightning from hitting the house (Tuyet, 1992 p. 115).

In some rich households, they add a little of gold, then set up the pole to imply that the family lives in harmony and prosperity. After the column is built, the ridgepole on the top of the house is usually left with ends that are 10cm long. An elder who is healthy and prosperous will cut the extra part of the ridgepole to make the balance, and then the roof is covered with tiles. After the house is finished, the Cham Muslims often put two talismans with two sentences from the Qu'ran at the front and back doors to eliminate demons, avoid bad luck and pray for good luck from God (Tuyet, 1992). This is a transformation of Cham folk beliefs under Islam.

Almost all of the Cham Muslims in the Mekong Delta settled next to the Bassac River and canals in the province of An Giang. It is an annually flooded area with flooding seasons from August to November and rainy seasons that lasts from May until November. The houses are built out of unpainted wood, always near water, using pre-assembled wooden panels for walls that are hoisted into place on the wooden posts, with a multi-purpose space beneath. The floor is raised 2m above the ground as an adaptation to heavy rain and floods, and to allow people to walk underneath. It is also a protective measure against unwanted pests like centipedes, rats, snakes and termites. In the sunny season from December to April, the ground is dry. Thus, during this time the villagers normally use the underfloor space for gathering to chat, setting looms for weaving cloths, or raising chickens. The structural frame of the house is stable with many details required for an accurate and skillful implementation.

A master carpenter and his assistants prepare most of the components of the house, such as the wall panels, wooden floorboards, doors, windows, roof structure in advance, before the

house is built. For assembling the pieces, joineries are used instead of metal nails. This makes the structure sturdier since it is unaffected by the expanding and contracting of the wood in response to changes in humidity and temperature. Walls are constructed fast and sturdy by using modular wooden panels, which are pre-assembled by carpenters. The panels are transported to the building site and lifted into place on the posts, allowing a house to be erected in several days. This way, the panels can also be taken down quickly to be detached and reassembled in another place. Some of the houses from the on-site surveys were reconstructed using panels from elsewhere.

Compared to the stilt houses of the ethnic Vietnamese and the Khmer, the majority of Cham Muslim stilt houses are larger with the ridgepole perpendicular to the direction of rivers or canals. The traditional houses of the Cham Muslim in the Mekong Delta are wooden stilt houses with tiled roofs, 5 to 6 meters wide and 12 to 15 meters long. Some houses go up to 20 meters long with 5 to 6 column spans.

Regarding its structure, the house has two compartments created by three rows of pillars along the horizontal axis. However, the front and rear facades is made of four columns, forming three compartments with the main door in the middle and two identical windows on either side of the main door. The steps at the front and rear facades are put at the center, even though this could make the using space narrower than put it on the left or right side. This demonstrates how symmetry is considered seriously in the spatial composition of the traditional Cham Muslim house.

In terms of the spatial organization, the basic space is unified in one house, and the inner space is divided into two parts: the front space (called *nhà trước*) and the backspace (called *nhà sau*). Similar to the traditional houses of the other ethnic groups, the main house which is large and almost empty used for social functions like welcoming guests, the religious practices of Islam and also the sleeping places for men. It is also a solemn space for practicing their belief and conducting events such as weddings and funerals. The interior decoration in Cham Muslim houses is greatly simplified due to the influence of Islamic principles. Idolatry or photos of human and animal figures are strictly prohibited. There is no furniture such as beds, tables or chairs, or even an altar to worship. The Cham Muslims use carpets for welcoming guests and for prayer.

The backspace is also divided symmetrically into two compartments. The bedrooms for the women are located on one side, and the remaining space forms a common corridor for family activities. The kitchen, dining space and storage are located at the back. At the rear facade, a staircase is erected for the use of women. The attic is located above the daughters' bedrooms and used for storage, especially during ceremony days. After preparing the food and drink the day before the ceremony, they put the cooked dishes in the attic. The veranda on the front facade is added later, and does not exist in the original housing prototype.

There are three typical formats of traditional ethnic Cham Muslim houses in the Mekong Delta (Figure 50). The housing typologies maintain similar characteristics in their spatial layout. In this plan, it is designed with a living room of two compartments in width and in depth. This room

is considered the most important and the core space of the house. The usable space is expanded by extending into the back space. Depending on the owner's financial condition, bedrooms are added to extend the depth and enlarge the housing.

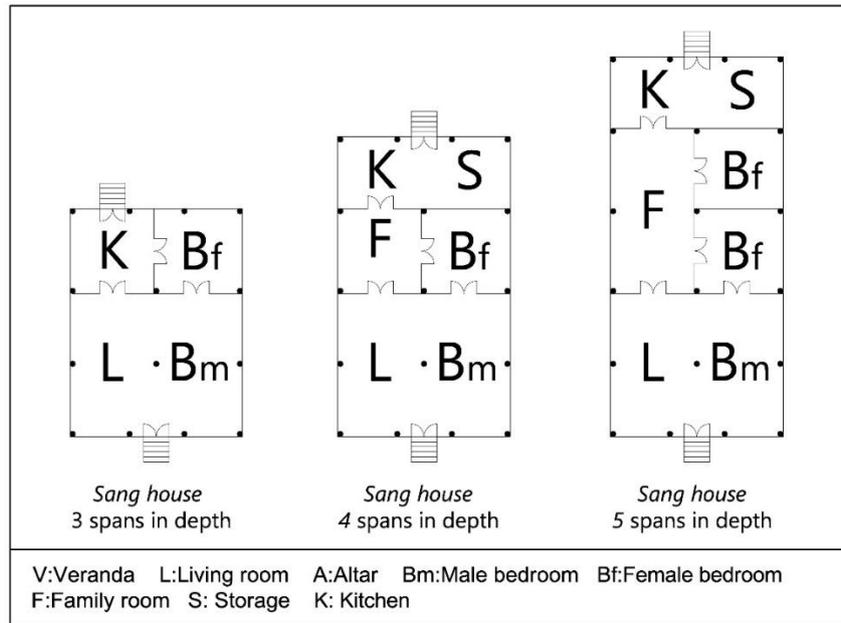


Figure 49 Typologies of Cham Muslim traditional houses.

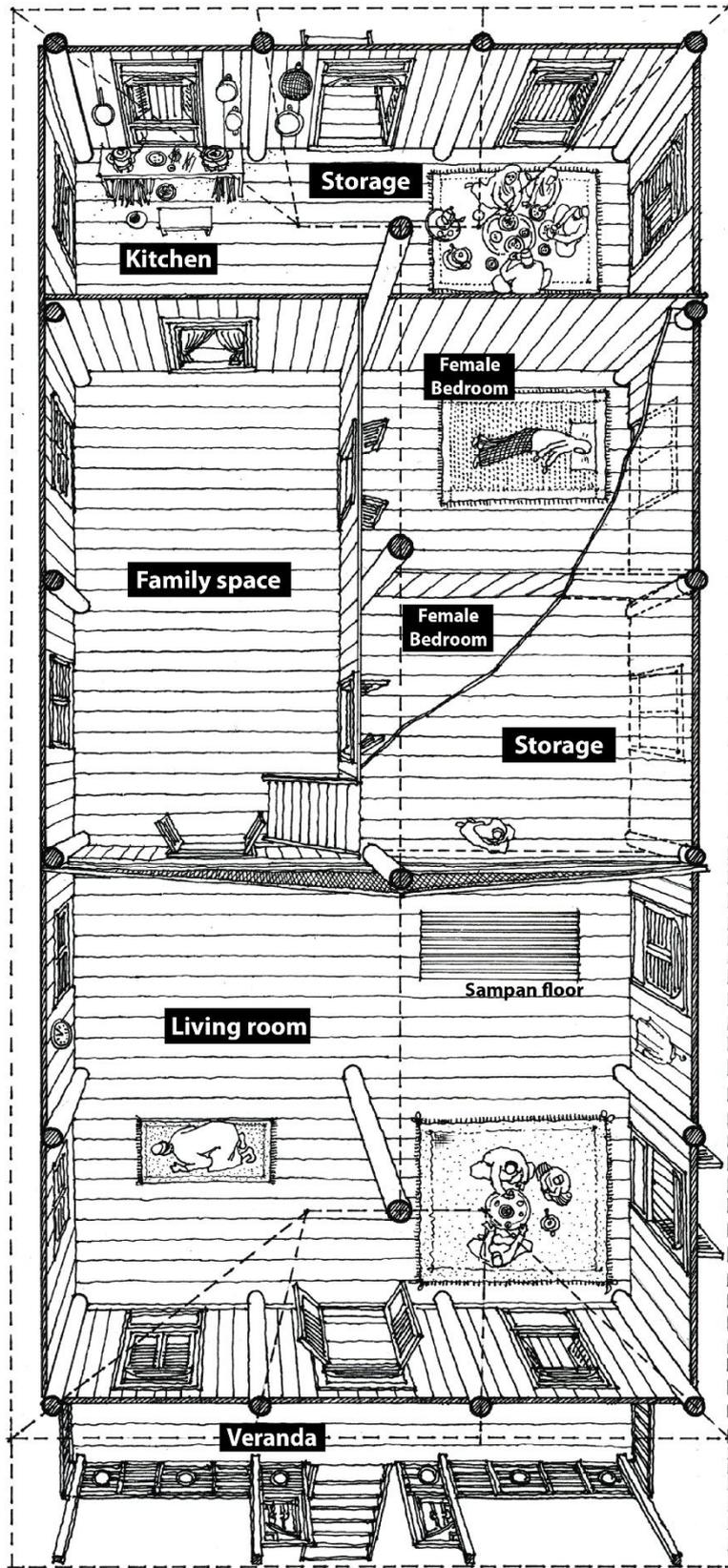


Figure 50 Traditional house of ethnic Cham Muslims.

With a basic housing module of three spans in the long axis (CM-S2V3) which includes a living room, a bedroom, and a kitchen space, transformations are made mainly in extending to the back, making four (CM-S2V4), five (CM-S2V5), six (CM-S2V6) or seven spans (CM-S2V7). This is done to increase the number of bedrooms. The living room and the kitchen almost remain the same area. The houses with three-, four- and five-spans (CM-S2V3, CM-S2V4, CM-S2V5) are the typical housing units in the Cham Muslim communities, whereas in the on-site survey, the author found only one house in village of Châu Giang (CG118T) which was comprised of seven spans (CM-S2V7) (table 9). The module of six spans was not found in the surveys.

The veranda has not existed in the original form. It was added unto the main facade approximately 100 years ago. The veranda is an element borrowed from the other ethnic groups' housing architecture. Nonetheless, unlike the Vietnamese and Khmer stilt houses, the staircase in the Cham Muslim house is put in the middle of the veranda to keep the symmetry of the house (Figure 39). Most of the Cham Muslim houses currently have an attached veranda in front of the main façade (CM-S2V3+V, CM-S2V4+V, CM-S2V5+V, CM-S2V6+V, CM-S2V7+V) (table 9).

Generally, the housing typologies of the Cham Muslim are unified by the characteristic two-span structure on the horizontal axis. The transformations are only done by extensions to its depth, with the purpose of increasing the space for bedrooms and the service area. In addition, the veranda is an additional element which came from the houses of the other ethnic groups, and was a result of the co-habitation in the Mekong Delta. Nonetheless, the Cham Muslims adjusted the position of the staircase to be at the center to maintain a symmetrical composition. This is unlike the verandas in Vietnamese houses with the staircase normally put on the left or right side to enlarge the usable area for the veranda (Figure 52).

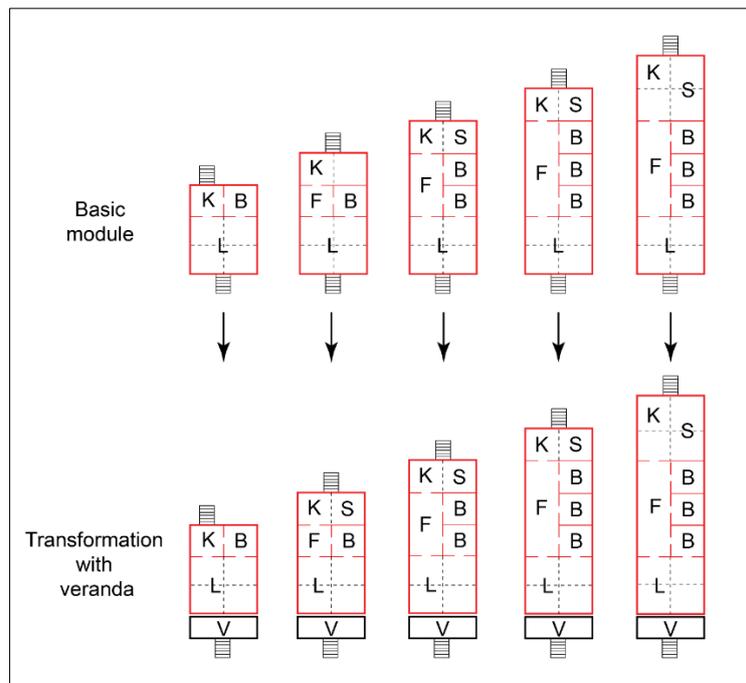
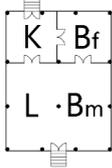
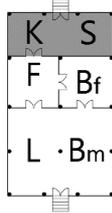
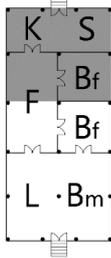
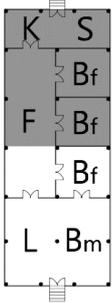
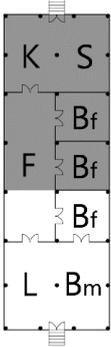
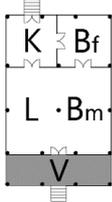
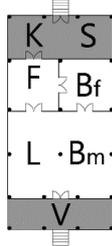
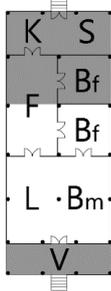
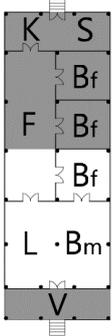
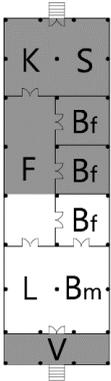
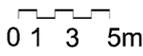


Figure 51 Transformation principle in the Cham Muslim house.

Table 9 Formation and transformation of the Cham Muslim houses.

BASIC MODULE	Transformation in depth axis			
	3 spans	4 spans	5 spans	6 spans
<p>2-compartment housing unit <i>Sang house</i></p>  <p>CM-S2V3</p>	 <p>CM-S2V4</p>	 <p>CM-S2V5</p>	 <p>CM-S2V6</p>	 <p>CM-S2V7</p>
<p>2-compartment housing unit <i>Sang house with veranda</i></p>  <p>CM-S2V3+V</p>	 <p>CM-S2V4+V</p>	 <p>CM-S2V5+V</p>	 <p>CM-S2V6+V</p>	 <p>CM-S2V7+V</p>
<p>LEGEND</p> <p>L: Living room Bm: Male bedroom Bf: Female bedroom F: Family room  0 1 3 5m</p> <p>K: Kitchen S: Storage V: Veranda  Extended part</p>				

4.5 Comparison and summary

The traditional houses of the four ethnic groups in the Mekong Delta have similarities and differences. Influenced by the same conditions of climate, topography, and local materials, the houses of these ethnic groups show common characteristics such as the use of wood, roofs with large slopes to deal with heavy rain, and wide doors and windows for natural ventilation. In flooded areas, the houses are built with elevated floors to avoid the impacts of annual floods during August to November. In the process of co-living in the Mekong Delta since the 17th century, the housing architecture of the ethnic groups also transforms according to their needs. Nonetheless, the differences generally come from customs, beliefs, ideologies, livelihoods and the demands of the usable living space. Religious beliefs in particular have clearly defined the layout of the space and building's forms.

Houses can be divided into two groups based on their spatial structure. Traditional Vietnamese, Khmer and Chinese housings display similar characteristics in spatial composition and architectural form, whereas the ethnic Cham Muslim housing is quite different from the rest. The similarities and differences between these two architectural groups will be analyzed in order to clarify the original characteristics of the architecture of Cham Muslim houses in the Mekong Delta and the variables coming from co-living with the remaining ethnic groups.

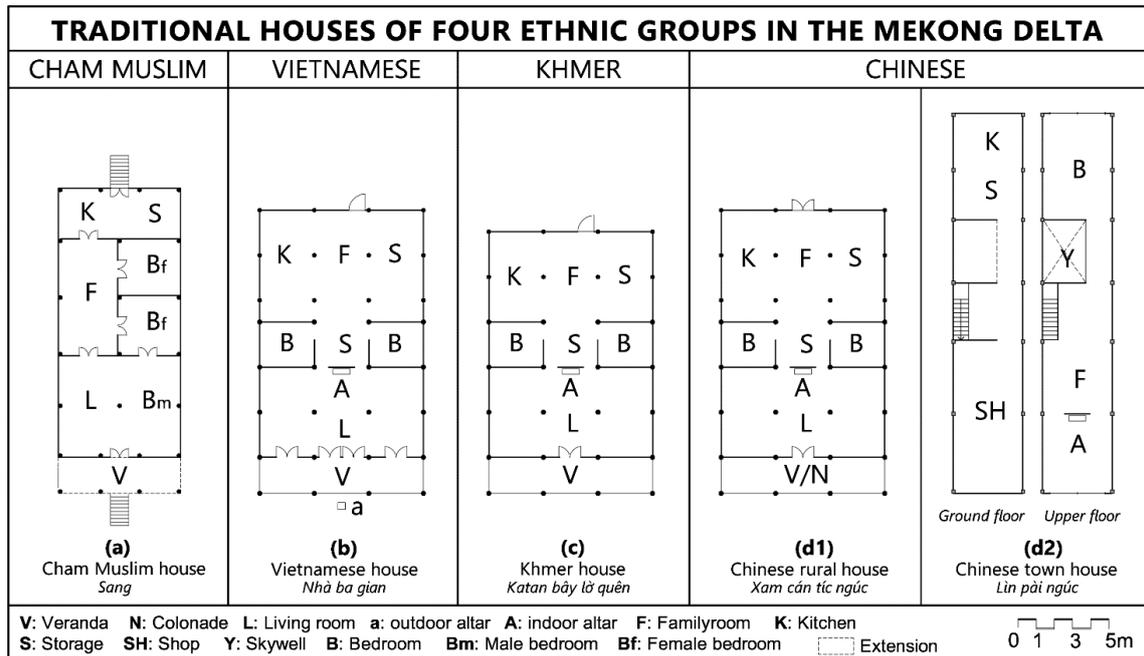


Figure 52 Traditional formation of four ethnic groups.

Religion and beliefs are major factors to social forms, architectural forms and the spaces of the ethnic groups in the Mekong Delta. The Vietnamese, Khmers and Chinese practice Buddhism, while the Cham Muslims practice Islam. To be more specific, the Khmer practice Theravada Buddhism, which originated from the Khmer Kingdom (now Cambodia), in Khmer style pagodas. People of the Vietnamese and the Chinese are Mahayana Buddhists and are also influenced a lot from Taoism, even though there are local variations of Buddhism in Vietnam such as Hòa Hảo and Cao Đài. The characteristics of the residential architecture of the four ethnic groups in the Mekong Delta are described in the table 10:

Table 10 Characteristics of the residential architecture of the four ethnic groups.

ETHNIC		CHAM MUSLIMS	VIETNAMESE	CHINESE	KHMER
RELIGION		 Islam	 +  Mahayana Buddhism + Taoism	 Theravada Buddhism	
BELIEF SYSTEM		Monotheism	Polytheism	Polytheism	Polytheism
CHARACTERISTICS IN TRADITIONAL HOUSING	PRIVACY	●●●	●	●●	●
	SYMMETRY	●●●	●●●	●●●	●●●
	HIERACHY	●	●●●	●●●	●●●
	UNIFICATION	●●●	●●	●●	●
	CONCEPTS OF EVEN AND ODD	●	●●●	●●●	●●●
	FLEXIBILITY	●	●●●	●●	●●●
	CONCEPTS OF YIN-YANG	X	●●●	●●●	X
	CONCEPTS OF FIVE-ELEMENTS	X	●●●	●●●	X

Influenced by the doctrines of Buddhism and Taoism, these three ethnic groups pay great attention to the spiritual elements within their houses. In the houses of the ethnic Vietnamese, Khmer and Chinese, the Buddhist altar is positioned in the middle of the living room, which is considered as the most solemn place in the house. The hierarchy of Buddhism is displayed by the installation of statues and images of the Buddha along with symmetrical arrangements of offerings on the altar in the middle of the room, above the ancestor worship area (Figure 54). The altar's shape and the layout of the offerings on the altar of these three ethnic groups have similarities. The Vietnamese, Khmer and Chinese normally put on the alter images of the Buddha and an image or spirit tablet of their ancestors, possibly their grandparents, parents or relatives who have passed away. On the other hand, Muslims are not allowed to arrange any images or idols in the house because of their religious principles. This difference between the two groups 'altars come from the characteristics of polytheism in a Buddhist system and monotheism in an Islamic system.

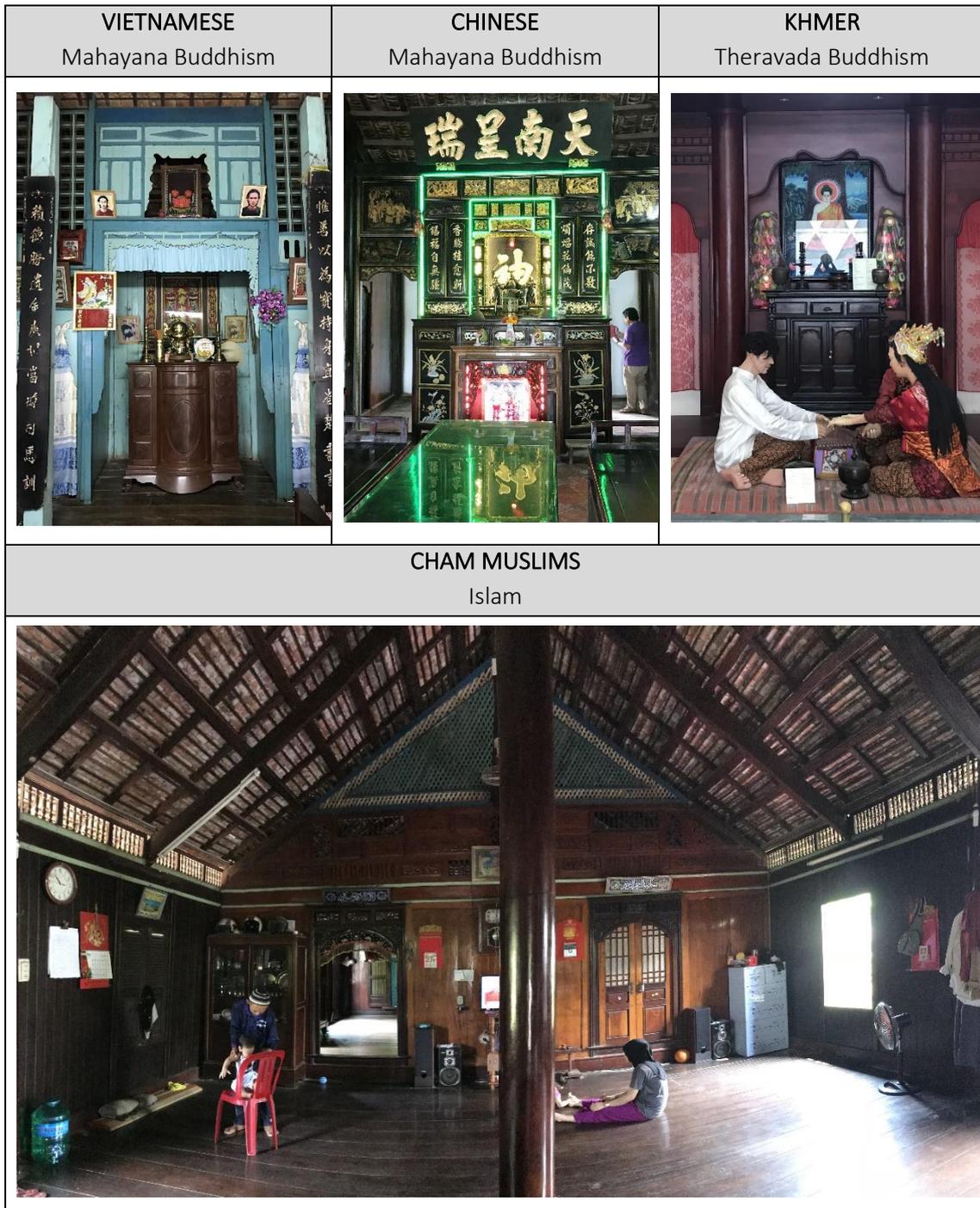


Figure 53 Altar spaces of four ethnic groups in the Mekong Delta.

Syncretism is a belief in or worship of multiple deities. This is evident in the houses of the ethnic Vietnamese and Chinese, which contain not Buddhist and ancestral altars, but also other altars and symbols such as those of the Bodhisattva (*Bồ Tát*), Land Genie (*Ông Địa*), Lord Guan (*Quan Công*), the God of Fortune (*Thần Tài*), and the Triple Chinese Deities of Happiness (*Phúc*), Wealth (*Lộc*) and Longevity (*Thọ*). Aside from this, another striking feature coming from the Vietnamese belief system is the outdoor altar called *Bàn thờ Thiên*, which is located in front of

the veranda outside the courtyard and arranged along the main axis of the house. This altar comes from Taoism and is constructed with the purpose of spiritually connecting the Great Triad of Heaven, Man, and Earth. It embodies the idea that Heaven is high above, the earth is below, and the human is the point of equilibrium between the two. With the altar positioned in the center of the living room and the two bedrooms placed symmetrically behind the worship space, a balanced composition is created in the living room of the ethnic Vietnamese, Chinese and Khmer house. The kitchen, dining and storage areas are situated in the annex. Regarding spatial transformations in the architecture of these houses, the main house is considered as the most important element and is always placed in the core position. Meanwhile annexes are considered as secondary and given less investment and care, holding service area functions such as cooking and storage. Annexes are placed on one side, both sides, or behind the main house. Regulations on the division of space between men and women are not too strict. In addition, with influences from the theory of the Five Elements (called *Ngũ Hành*), the dwelling architecture of the ethnic Vietnamese and Chinese gives great importance to the concept of Yin 陰 and Yang 陽 (called *thuyết Âm Dương*), which symbolizes the two basic energies in harmony in the universe. Feng Shui (called *Phong Thủy*) also impacts the principles of locating, orienting and ordering space to optimize positive energies (Ross, 2009 p. 329). It also gives priority to odd numbers in elements of the house.

Odd numbers are tied to growth, and is believed to bring luck and development. Because of this, the Vietnamese and Chinese prefer to build houses with odd numbers of compartments, coming in three, five or seven. Viewed from the outside, the compartments are arranged in a balanced layout. From inside, the division of compartments along with the altar at the center reflect the number of bays on the facade. On the other hand, the interior in the Cham Muslim house consists of two compartments made by three rows of columns, while the facades at the front and back is comprised of three compartments created by four columns. In addition, with the horizontal transformation in the Vietnamese and Chinese houses, the 丁-letter-shaped house (called *Nhà chữ Đinh*) is created and become a very common housing type in the Mekong Delta. This type consists of a main house and an annex is organized along the side and adjacent to the main house. In this housing type, the ridgepole (*cây đòn dông*) of the main house perpendiculars to the ridgepole of the annex. Viewed from the top, these two ridgepoles form the shape of Chinese letter 丁 (Figure 55). The Vietnamese and Chinese believe this arrangement makes the harmony of Yin and Yang, and therefore brings happiness and luck to the people living within.

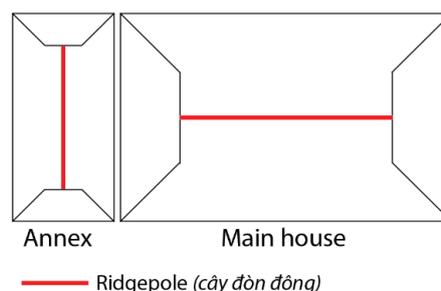


Figure 54 Composition of ridgepoles in T-shaped house.

With the flexibility of the Southern Vietnamese (Them, 2014), they are able to create various kinds of plans for the main house and annex, and also the placement of stairs in the stilt houses. The entrance in the Vietnamese stilt houses is located to one side to maximize the usable area. This is in contrary to the houses of Cham Muslims in the Mekong Delta, which always places the ladder in the middle, even with the addition of the veranda. The ladder causes the functional area to be separated into two parts. Most doors in traditional Vietnamese houses can open the entire facade to broaden the living area, enhance the view, and improve greatly the quality of natural light and ventilation. With an open mind, the Vietnamese do not seem afraid that people from outside can look inside the house. This can be contrasted to the houses of the Chinese and Cham Muslims who prefer more privacy.

Vietnamese also often build a brick colonnade to expand the living room. Meanwhile, the construction of colonnades in Chinese houses is not only for the expansion of the living space, but also for creating privacy. Therefore, the Chinese often build the colonnade with parallel wooden rows to enhance safety, blocking the view from outside but still ensuring ventilation and natural light could enter into the inner living space. It should also be added that despite the fact that the ethnic Khmer practice Theravada Buddhism, they are not influenced by the Taoist doctrine and the concepts of Yin and Yang and Five Elements. As a result, in the Khmer housing architecture, the odd or even number of compartments does not matter. This is why a two-compartment house exists in Khmer dwelling architecture. Moreover, the position and direction of the stairs of the Khmer house are located freely in the middle or from the side. This can be clearly seen in the Khmer houses in Cambodia. By contrast, the Cham Muslims in the Mekong Delta practice orthodox Islam, which is a monotheistic system. The Muslim the belief in the existence of only one all-powerful god that created and intervenes in the world (Zalta, 2020). *Allah*, or God, is an omnipotent, omniscient being who is the origin of everything other than itself. Therefore, the worship of only one supreme being in the Cham Muslim house is strictly regulated.

On the subject of structure, the traditional houses of the ethnic Vietnamese, Khmer and rural Chinese are almost similar in terms of the use of frames and columns (Figure 42). The house is composed of odd compartments and the columns form a rectangular grid with approximately 3-meter compartments in width and 2.5-meter span in depth. The column layout in the traditional Cham Muslim house is completely different from the other three. The houses are made up of two compartments throughout the inner space made by three rows of columns, with the living room space in the most important location. The front and rear facades consist of three compartments created by four columns. The main door is located in the middle and two windows are positioned symmetrically on the left and the right sides. For that reason, the rafters transfer from the middle column in the second and second to the last rows of columns to the system of four columns on the front and rear facades.

Regarding spatial layout, all four ethnic groups divide their houses into two parts: the main area and the service area (Figure 56). The Vietnamese, Chinese and Khmer put the worship space, living room, and bedrooms in the main house, and the annex is used for cooking, dining, and storage. In the past, the toilets and bathrooms of the houses of the four ethnic groups were normally located near rivers or canals. Nonetheless, with the unification of housing typology and

fewest transformations, the Cham Muslim traditional house is compact compared to the other three, having the service area within the same structure rather than detached as an annex.

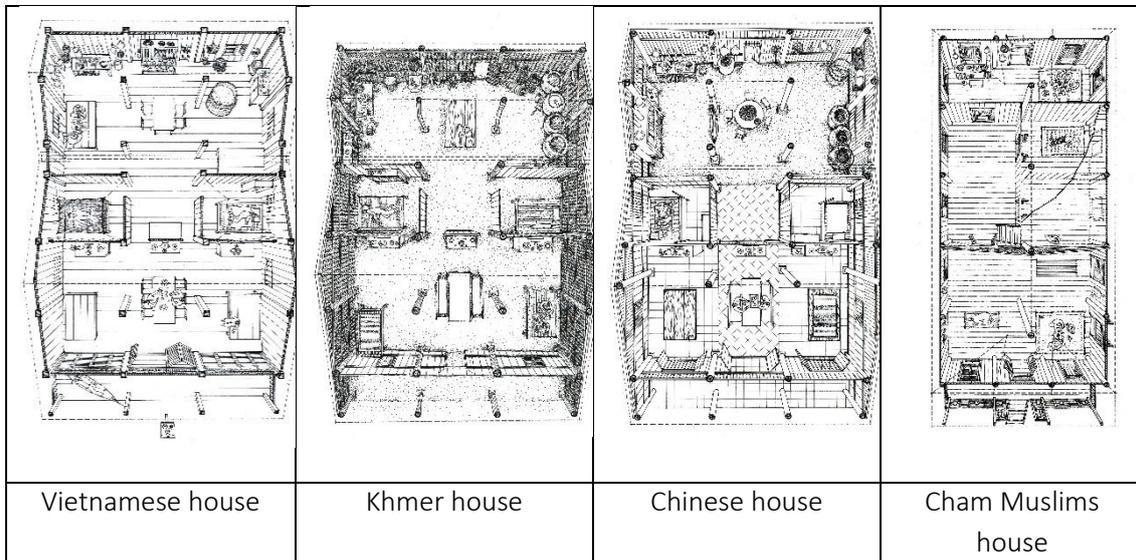


Figure 55 Spatial layout of traditional rural houses of four ethnic groups.

With regards to the roof orientation, the houses of Vietnamese, Chinese and Khmer have a long facade and ridgepoles parallel to the roads and the rivers. Meanwhile, the Cham Muslim house positions the short end as the front, so that the long side and the ridgepole is perpendicular to the road and the river. With such layout, the house is less exposed to pedestrians than the houses of Vietnamese, Chinese and Khmer. This characteristic is compatible with privacy in Islamic culture. This is contrary to the Vietnamese in the Mekong Delta who prefer to show openness in social communication and architecture.

With the stretched façade as the main entry, the houses of the Vietnamese, Chinese and Khmer can display the affluence and social position of the homeowner. The larger the facade of the house, the higher the owner's social status. Therefore, Vietnamese, Chinese and Khmer often focus on the appearance of the façade and build as many compartments possible. In addition, the houses of Vietnamese and Chinese people are painted in cool colors like blue, and have decorations above the door frames. In contrast, the Cham Muslim houses have only one form of façade, whether the owner is rich or poor. From the outside, the formation of the Cham Muslim houses is similar and unified in expression. The house is constructed with bare unpainted wood, making it look simple and rustic. The short length of the façade and the rough materials of the Cham Muslim house are in line with the principles of privacy, the simplicity of the outside and introversion in Islam.

One of the distinctive features in the houses of the four ethnic group is the furniture. In the houses of the Vietnamese, Chinese and Khmer, regardless of whether the owner is rich or poor, there is always a Buddhist altar, an ancestral altar with a long table and chairs located in the

center of the living room, and a large wooden plank called *bộ ván ngựa* placed on either side of the set of table and chairs. Poor farmers' houses usually have only one plank in the living room, while the wealthy have at least two sets of wooden planks arranged symmetrically in the two compartments. The wooden platform can also be placed at the veranda and the annex. It is a multi-purpose furniture; it could be used as a place for rest, having meals, sitting and sleeping. Children can also play on this plank. In addition, the plank is also a place to welcome guests and serves as a place to have meals together with guests (Them, 2014 pp. 478, 479). The size and style of the altar and the tables and chairs also express the wealth and social status of the homeowner. In contrast, the interior in the Cham Muslim house, especially in the living room, is almost empty. It is without altars or sets of tables and chairs like the Vietnamese, Chinese, and Khmer houses. For Cham people, the living room is a solemn place, almost like a miniature mosque, so the emptiness is also maintained strictly.

The Vietnamese are a overreaching ethnic group, accounting for the largest proportion of the population in the Mekong Delta (Them, 2014), residing in most vicinities, as well as diverse in social standing and economy status. They are also flexible, able to adapt their living conditions. This is why the Vietnamese have the greatest number of housing transformations in the groups studied. These transformations are done by arranging the position of the main house and the auxiliary house along the horizontal and vertical axes. The number of basic Vietnamese house modules is also plentiful, having samples with three, five and seven compartments.

The annex also vary case to case in the number of columns and spans, which could consist of one, two to three compartments. In addition, a variation to the house is the addition of a courtyard between the main house and the annex to increase the quality of ventilation and natural lighting. The other ethnic groups of Khmer and Chinese have similar variations to the Vietnamese, but in smaller number because they often do not have a courtyard between the main house and the annex. The Chinese townhouse is a separate housing typology. Constructed of brick and located in urban areas with limited space, the Chinese townhouse has only one form where there is one compartment throughout the house. In the case of the traditional housing architecture of Cham Muslim in the Mekong Delta, there is also only one form, with the living room being the principal space made up of two compartments in width and depth. The only transformation in Cham housing is the expansion of the rooms to the back in order to increase the number of bedrooms and the space for the kitchen area.

An important architectural element in tropical architecture in the Mekong Delta is the veranda. In the housing architecture of the Vietnamese, Chinese and Khmer, the presence of veranda is considered as inherent and integral. The veranda is built two or three meters wide and stretched along the whole facade for blocking heavy rain in the rainy season and direct sunlight into the house in the dry season. The veranda is open and extended throughout the front of the house, so it does not impact the ventilation efficiency. People often hang hammocks on the veranda for rest and put bamboo cots or a set of wooden planks to have meals and welcome familiar guests like neighbors. As a consequence, the veranda becomes an intermediate space connecting the indoor and the outdoor space, and also a link between the dwellers and the outside world. It creates an “*openness*” in the architecture of traditional houses in the Mekong

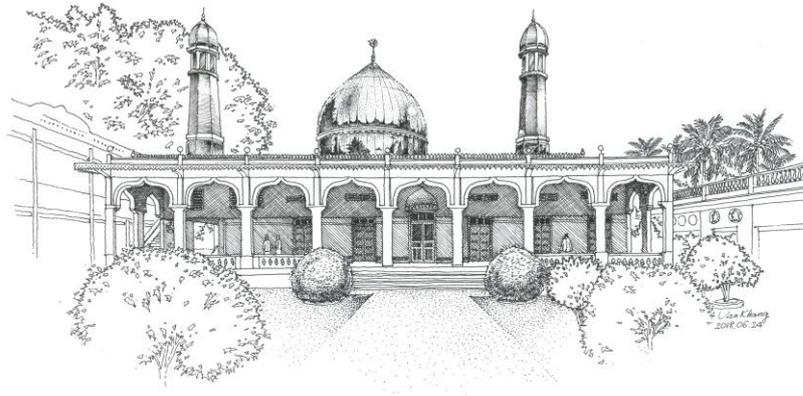
Delta. However, the element of veranda had not always existed in the houses of the ethnic Cham Muslim. The staircase leading to the house is placed directly in front of the main doors without any transitional space. This architectural element is similar to the Khmer houses in Cambodia. The veranda has only recently appeared in the Cham Muslim houses.

During the survey, the author found that most of the Cham Muslim houses in the Mekong Delta added a veranda to their front facade. Differing from the houses of the other ethnic groups whose verandas are used for openness and connection to the outside, the Cham Muslims erected the veranda with the aim of increasing the privacy of the house. The veranda restrains the view of the people looking from outside. The veranda, which is normally two meters deep, creates shade so that the interior of the house becomes more difficult to see. Moreover, the Cham also hang large cloths or curtains along the facade to block not only sun and rain, but also the view from outside to ensure privacy for the house. The Cham Muslims rarely hang hammocks at the veranda like the Vietnamese because Cham men often have to work far away or go to the Mosque, while the Cham women are prescribed to working or living within the boundaries of the house and restrained from contact with the outside.

It could be concluded that the Cham Muslims have absorbed architectural elements from other ethnic groups, especially the Vietnamese, the largest ethnic group of the Mekong Delta. However, they modify these features such as the veranda to be compatible with Islamic beliefs. With significant differences from the formations of Vietnamese, Chinese and Khmer houses in the Mekong Delta region, the architecture of the Cham Muslim displays unique, unified, and distinctive characteristics which come from the traditional beliefs and especially the principles of Islam.

CHAPTER 5

Formation and transformation of the Cham Muslims urban patterns in the Mekong Delta



- 5.1 Encounter with Islam and the exodus of Cham Muslims to the Mekong Delta
- 5.2 Formation of the Cham Muslim villages
- 5.3 Mosque and urban patterns of the Cham Muslim villages
- 5.4 Transformations of the Cham Muslim villages
 - 5.4.1 Transformation in period of time
 - 5.4.2 Transformation in structure and material
 - 5.4.3 Transformation in building storey
 - 5.4.4 Transformation in building function
- 5.5 Summary



Figure 56 Distribution of ethnic Cham Hindus and Cham Muslim in Vietnam and Cambodia.
(Adapted from Indochina Atlas (1970))

5.1 Encounter with Islam and the exodus of the Cham Muslims to the Mekong Delta

The Cham Muslims in the Mekong Delta practice Sunni Islam and followed Shafi'i school but retained many of their own traditional beliefs. They were settled around the Châu Đốc area in the province of An Giang in the first half of the 18th century (Figure 58). However, up to now, there is very few information and studies about the formation of village and residential architecture of the Cham Muslim in the early period and the current period. In order to identify the formation of the Cham Muslim villages in the Mekong Delta, it is necessary to understand the appearance of Islam of the Chams in the Champa Kingdom, also their migration process from Champa to Cambodia and then to the Mekong Delta through historical events.

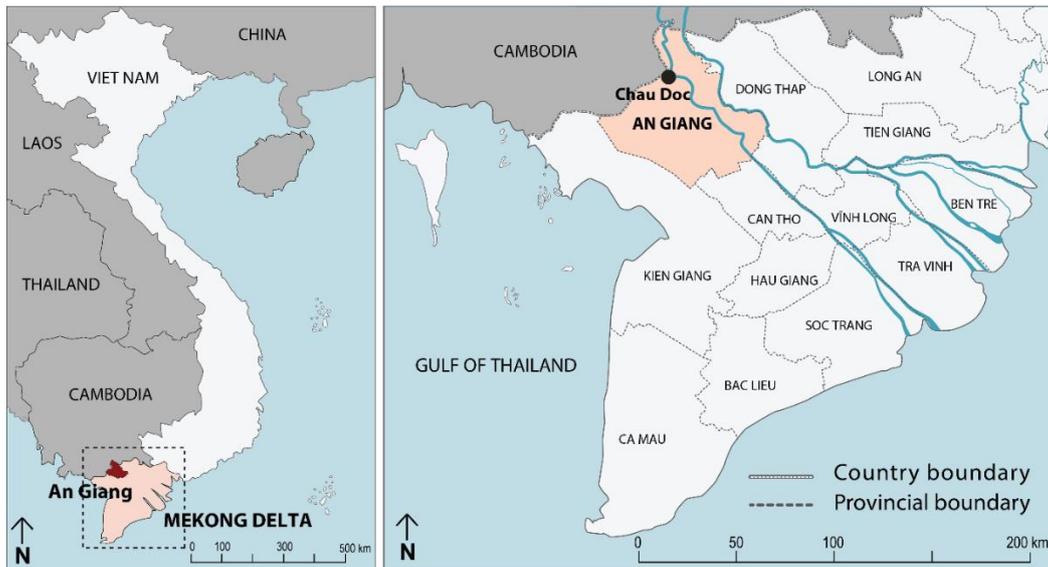


Figure 57 Location of the Mekong Delta and the province of An Giang.

The former kingdom of Champa, one of the oldest kingdoms of Southeast Asia, was located in the central and southern Vietnam from approximately the second century before being absorbed and annexed by Vietnamese Emperor Minh Mạng in 1832 (Lafont, 2011). In the early centuries, the Champa people were influenced by the Indian civilization. Their religion was predominantly Hinduism, although there were periods influenced by the Mahayana Buddhism. The Champa worshiped the gods Brahma, Visnu and Shiva. This information is still retained through the inscriptions and temples that remain in central Vietnam. Even now, there is still no exact answer as to when Islam was indoctrinated in Champa. However, according to Raymond Scupin, Muslim peoples were existed in Champa Kingdom in the eight centuries (Scupin p. 304), while Tasaka indicates the existence of Islam in Champa must have occurred to the tenth century (Tasaka, 1952). Besides, two Arabic inscriptions which were deciphered by Ravaisse in the 1920s point out that the existence of a Muslim community around the latter half of the tenth century or early eleventh century in the southern of Champa Kingdom, at *Panduranga* (now is *Phan Rang* and *Phan Ri*). Moreover, in Chinese records, many merchant Muslims were sent to the Chinese court as tributary envoys by the Champa court during the North Song Dynasty from the tenth to the twelfth centuries (Chang, 1974). As well in the region of Phan Rang, Phan Ri of Vietnam, Islam had been present since the middle of the 10th century. However, it did not become significant

among the Cham people until after the 11th century. The arrival of Islam was due to the frequent travels to the shores in the Indochina Region by Arab traders.

According to E. Aymonier, King Po Ovloah, also known as Allah who reigned from 1000 to 1036, went on a pilgrimage in Mecca (Dohamide, Dorohiem, 1965 p. 20). The assimilation of the God (Allah) and the leader of the country strongly influenced Islam in Champa at this time. Therefore, although there are many hypotheses, nonetheless, the Muslim in the Champa Kingdom could be concluded to be existed by the tenth century. In addition, according to some documents, at the time of King Po Chon's exile in Cambodia from 1822 to 1823, the Chams lived alongside Malay Muslims. These people were merchants from Borneo, Sumatra, Singapore, and Kava Kur, and were descendants of Malays and Khmer people in Cambodia. As a result, the Cham people in this area gradually converted and practiced their faith in a more orthodox way than the Cham Bani (localized Muslims) in Ninh Thuận and Bình Thuận.

According to Nakamura, there are three different religious groups among the Cham community: the Cham Balamon who follow indigenized form of Hinduism; the Cham Bani who follow both Hinduism and the Sunni sect of Islam; the Cham Muslims who are the followers of orthodox Sunni Islam (Nakamura, 2000). The Cham Balamon and Cham Bani settle in the two provinces of Ninh Thuận and Bình Thuận at the south-central coast of Vietnam. Whereas, only the Cham Muslims live in the Mekong Delta, scattered mainly on the Bassac River and near the Châu Đốc city in the province of An Giang. Nonetheless, the Cham Balamon and the Cham Bani have different dialects and religions from the Cham Muslims in the Mekong Delta (Nakamura, 2000). For that reason, this research is not included the Cham Balamon and Cham Bani, but focuses only on the Cham Muslim communities in the province of An Giang who were the first orthodox Islam followers and also have the largest population of Muslims in Vietnam.

Regarding to the appearance of the Cham Muslim community in the Mekong Delta is still in the debates. To this day, there are still many hypotheses and debates among historians and researchers about this issue. The first testimonials of the Cham migrations from the Champa to the Khmer Kingdom (now is Cambodia) dated to about the tenth century, and the migrations have often been linked to politics and were caused by the conflicts between Champa Kingdom and the Vietnamese court (Weber, 2011 p. 742). Other migrations of the Chams from Champa to Cambodia from the 15th to 17th century (Dống, 1993 p. 123). Although the exact date of the Chams converted to Islam in Cambodia could not be defined, but when the Cham refugees came to Cambodia, they were not Muslims but Brahmanist (Nakamura, 2000). Additionally, the Cham refugees were officially converted to Sunni Islam by Malaysian Muslims in Cambodia (Cabaton, 1960 p. 1209) who had been trading and settling before in Khmer (Luận, 1974), because the entire Cham population in Cambodia has become Muslim while the Cham in the south central of Vietnam still practice Hinduism (Marespo, 2002 pp. 17-18). Nakamura explained that the conversion to Islam among the native Cham population in Champa was occurred right before the decline of their kingdom reigned by kings who followe Hindu, and before the Champa was conquered by Vietnam. Nakamura also asserted that the Cham Muslims in the province of An Giang in Vietnam located at the border area with Cambodia, have a close connection with the Cham Muslims in Cambodia (Nakamura, 2000).

This part of the study aims to clarify the village establishment of the ethnic Cham Muslim in the Mekong Delta by merging the related historical events to the current conditions of the Cham villages. Furthermore, the facts and information provided by from interviews or the villagers are also gathered to reinforce the conclusion about the establishment of Cham villages in the Mekong Delta.

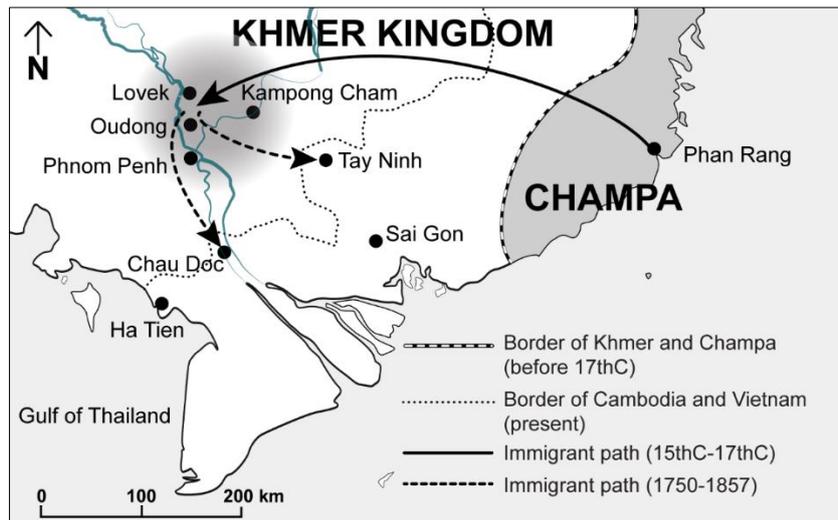


Figure 58 Cham Muslim movement to the Mekong Delta.

The first settlements of the ethnic Chams occurred in the second half of the 18th century and continued throughout the 19th century by the controlling of the Vietnamese (Weber, 2011 p. 740). At the end of the 16th century, the Vietnamese settled in the Mekong Delta. At that time, Châu Đốc had not yet formed and organized villages, but only garrisoned at the border to defend Hà Tiên and support Phnom Penh (Don, 1974) There were only a few Khmer and Cham residents with some Vietnamese military families (Lau, 1994). Subsequently, the migration of the Cham Muslim from the Khmer Kingdom to the South of Vietnam happened during the war between the feudal court of Vietnam and the Khmer Kingdom from the middle of the 18th century to the 19th century, during the time of Võ Vương Nguyễn Phúc Khoát (1738- 1765). General Nguyễn Cư Trinh recruited a number of Cham people² from the Khmer Kingdom to settle at the foot of the Bà Đen Mountain in Tây Ninh and in the areas of Hồng Ngự and Châu Đốc (figure 59). For that reason, the Chams who moved to the Mekong Delta has to be understood in the context of the colonial policies of Vietnamese feudal court. With the settlement of the Chams, the Vietnamese court were able to defend their frontier and administrative centers in Prey Nokor (later is *Sài Gòn*, and now is *Hồ Chí Minh City*). Moreover, according the chronicle record of the French in the Châu Đốc area in 1902, there were no traces of civilizations before 1800 because this area was flooded for

² The ethnic Cham is accounted for both groups of the Cham Muslims and the Malays Muslims who originated from Cambodia, then moved to Châu Đốc area from the 18th century. Since, the population of the Cham was dominant while the Malays was minor in the report of the French in 1902 (Indochinoise, 1902).

most of the year, not suitable for cultivation (Indochinoise, 1902 p. 65). Until 1840, according to an official report, the population of the Vietnamese numbered only eighty persons (DNNTL, 1991). These factors showed that the area of Châu Đốc was a desolate area, without any traces of Vietnamese villages, as well as other ethnic groups. Therefore neither the Vietnamese nor the Cham Muslim communities were not the indigenous groups existed at the beginning in the Châu Đốc area.

The first Cham settlement in the Mekong Delta at Châu Đốc was founded in 1750 to 1757 during the reign of Võ Vương Nguyễn Phúc Khoát (1738-1765) (Weber, 2011). Châu Đốc area, called Moat Chrouk by the Khmers was the key location that had to be consolidated and controlled by the Vietnamese court in the war with Khmer Kingdom. According to Vietnamese records, in 1757, the king of Khmer, Nặc Tôn (or Outey Reachea II) (1739-1777), dedicated the land of Tầm Phong Long (Kompong Luông in Khmer), including the present-day provinces of An Giang, Đồng Tháp, Cần Thơ, Sóc Trăng, to the Nguyễn Dynasty. The military troop of Châu Đốc was established administratively several month later (DNNTL, 1991 p. 166) and located on the banks of the Bassac River (called *Hậu Giang* in Vietnamese), played an important role in the defense of the Bassac River (Dung, 2005 p. 13). Located on the banks of the Bassac River, Châu Đốc was well placed to enable the quick dispatch of Vietnamese troops to Phnom Penh in Khmer Kingdom in case of rebellions and provide fortification in case of military withdrawal. In addition, the mosque Al- Mubarak in the Châu Giang village was erected in 1750 according to the records from the survey. Nonetheless, the mosque in this time was just a small sanctuary, not the current concrete mosque³. Therefore, the village of Châu Giang with the mosque Al-Mubarak built in the same year was the first Cham Muslim village in the Mekong Delta.

In 1788, Nguyễn Ánh occupied the lands of Gia Định and Châu Đốc. From 1757 to 1816, the Nguyễn Court considered Châu Đốc an important position on the southwest border, so they frequently sent troops to govern the area. In 1817, the Châu Đốc Fortress was completed (Duc, 1830 p. 115). In 1818, Nguyễn Ánh, known as King Gia Long then, saw a lot of abandoned land behind the Châu Đốc Fortress. He ordered the recruitment of Chinese, Khmer and Cham Muslims to reside and renovate this territory. These immigrants were exempted from taxes and allowed to set up settlements to reclaim the wasteland. Vietnamese people were ordered not to harass them. However, until 1830, the area of Châu Đốc was still a desolate place, with only 41 villages and more than one thousand people. A lot of land was yet to be reclaimed (DNNTC, 1965 p. 317). The relocation of the Cham Muslims in the Mekong Delta was intertwined closely with several historical events caused by the war between Vietnamese and Cambodia. In this period of time, the Vietnamese controlled and manipulated the entire Cambodian government.

In 1834, the Vietnamese Regiment of Pacified Barbarians (called *An Man cơ*) was created in Phnom Penh which composed of Chams and Malays from Cambodia for the purposes to be

³ According to Islamic rule, if there are three or more households, they can construct a small wooden sanctuary for worship. That is the initial shape of the mosque. It will be renovated into the large brick mosque if the community becomes wealthier. The mosque was constructed at the same time as the community.

used in case of upheavals, internal unrest, or Khmer revolts (MMCY, 1974 pp. 6:147-8). In 1835, another corps was established with the reassigned Chams merged to the first and the second group while the Malays was incorporated into the third groups (DNLT, 1991 p. 4:800).

In 1835, after the death of King Ang Chan, the Vietnamese put the Princess Ang Mei on the throne of Cambodia as a puppet leader as a way to undermine the Khmer monarchy and also eliminate the impact of the traditional Khmer elites and political families, ignoring Kmer traditional laws of succession which forbade a woman from governing the nation (Weber, 2011 p. 751). However, after few years, the Prince Ang Duong with the support of the Siamese general Bodin led armies against the Vietnamese in the wars between Siam and Vietnam (1833-1847) (Vella, 1957). By this reason, the Vietnamese forces had to retreat to Châu Đốc area.

In 1840-1841⁴, the Khmer Royal Chronicles record that General Trương Minh Giảng⁵ removed the group of about two thousand Cham Muslim from Phnom Penh and transferred them to the fortress of Châu Đốc (Chandler, 1973). They settled on the left bank of Bassac River (now is *Châu Giang* village) and at the *Koh Tamboong* islet (now is *Khánh Hòa* village) (Labussière, 1880 p. 373), also on the banks on the river⁶ connecting the Bassac River and the Châu Đốc River (now is *Nhơn Hội* village) (Weber, 2011 p. 751). Furthermore, 1841, a famous rebellion in the Southern Vietnam was led by a Khmer named Lâm Sâm in Trà Vinh. The Vietnamese King Thiệu Trị (1807-1847) had to transfer troops from the Khmer area back to the Mekong Delta to quell the rebellion. The Chams who were recruited into the Nguyễn army also participated in this battle. Official Vietnamese sources state that, the Cham soldiers and their leaders belonging to the Regiment of Pacified Barbarians were moved to Châu Đốc with their families (DNLT, 1991 pp. 23:343-344).

Weber claimed that the Vietnamese court was afraid to lose the support of the Chams who were essential to the Vietnamese territory in the Mekong Delta. Therefore, the moving of the Chams Muslim from Cambodia to Châu Đốc by the Vietnamese is considered to be integrated to the military colonies with the purpose to consolidate the Vietnamese troops in counter-attacks against the coalition of the Khmer and the Siamese. Since the Chams is not only the native to the area whose understanding and knowledge of eastern Cambodia, but had also developed wide networks of trading, family connection, political alliances and allegiances (Weber, 2011 p. 753). For these reasons, the Cham Muslim was proved to be great benefit to the Vietnamese authorities in the Mekong Delta.

In 1843-1844, another group of more than a thousand Cham Muslims civilians were forced to move to Châu Đốc. This event occurred while the Vietnamese still kept their control of

⁴ In 1841, the King Minh Mạng (1820-1841) died, his son King Thiệu Trị succeeded the throne. However, Thiệu Trị did not have as much of the territory's ambition as his father. At that time, the situation in *Trấn Tây* (before was the territory of Chen La, precursor of the Cambodia) was complicated because of the fierce opposition of the Chen La, King Thiệu Trị decided to withdraw the troops and leave *Trấn Tây* (now is *Phnom Penh*). General Trương Minh Giảng had to withdraw troops to defend Châu Đốc.

⁵ Trương Minh Giảng was a famous general of the Nguyễn Dynasty. He was considered to be the most magnificent of the Nguyễn Dynasty, both a martial art general and a historian. He died in the September in 1841 after withdraw his forces from Phnom Penh to Châu Đốc.

⁶ This river is Búng Bình Thiên Lớn, where the village of Nhơn Hội established in the 1841.

the eastern area of the Mekong and were also trying to win back their positions in Cambodia (Weber, 2011 p. 753). When arrived in Châu Đốc, the Chams were posted to the Lam Ma (now is *Koh Plao Ba* or *Vĩnh Trường*), Puk Paok (now is *Châu Phong*) and Kapu (now is *Koh Kapoak* or *Hà Bao*) which were located settlements of the Viet-populated villages.

In fact, the locations of these three villages are concentrated in locations close to each other. In which, the Châu Phong is the largest community sited at the acute corner between the Vĩnh An canal and the Bassac River with the mosque and houses are prolonged the length of the Vĩnh An Canal. The Vĩnh An Canal which was dug from the October of 1843 to the April of 1844 (DNTL, 1991 p. 2:229) with 17km long and 16m wide by the suggestion of by Nguyễn Tri Phương and Nguyễn Công Nhân⁷, in order to connect two trading areas Châu Đốc and Tân Châu (Indochinoise, 1902 p. 27). The mouth of the canal is located at the village of Phum-Soài (now is *Châu Phong* village) and the other canal mouth is situated in Long Phú, 100m from the Tân Châu market. As a continuation of the Vĩnh Tế Canal, the Vĩnh An Canal had a vital position to use for ships and boats from the routes of Châu Đốc and Phnom Penh to move to the Mekong River. Because the companies of the Chams and the Malays were forced to participate to the canal digging. Therefore, it could be concluded that the Cham Muslim community in the Châu Phong village was established in the period from 1843 to 1844.

Moreover, in 1843, the Vietnamese also asked for permission to relocate 2,383 Cham Muslim from Cambodia to settle at Châu Giang on the bank of Bassac River (Weber, 2011 p. 754). The migration of the Cham Muslim from Cambodia to Châu Đốc takes place in the following years, for example in 1846, Châu Đốc continued to receive the groups of Cham who had been prisoners of the war in Siam with their families.

After that, from 1854 to 1858, the next important migration which included about five thousands Cham people was conducted (Labussière, 1880 p. 373). They moved from the Khmer Kingdom and settled in Châu Giang and Khánh Hòa Villages, then continued to expand to neighboring villages of Châu Phong, Đa Phước, Vĩnh Trường, Nhơn Hội, Quốc Thái and Khánh Bình. All of the eight Cham Muslim villages were located on the river stretch from Koh Tamboong islet until the border of Vietnam and Khmer.

From 1860, after the conflict to the Cambodia, the Chams was recruited to build a fortress under the leadership of Nguyễn Công Nhân. Then, the Chams was rewarded and allowed to return the non-military scheme (DNTL, 1991 p. 29:136). However, between 1862 and 1867, they were asked again to fight against the assaulting French and Spanish armies (Weber, 2011 p. 762). Apart from the military obligations, the Chams was engaged mainly in trade, exchanging the products of Cambodia, such as tobacco, silk, dried fish, etc., and the products from the provinces of the Mekong Delta like: betel, areca nuts, rice, salt, etc (Labussière, 1880 p. 376).

Unlike the Vietnamese settlers who were allowed to settle anywhere, the establishment of Cham Muslims were indicated and remained strictly under the control of by the Vietnamese authorities (Indochinoise, 1902 p. 37). The Vietnamese court also defined clearly the rules on

⁷ Nguyễn Tri Phương was the governor of Vĩnh Long. Nguyễn Công Nhân was the governor of Châu Đốc.

intergrating the Cham settlement and the Vietnamese-populated areas. Under the reign of King Minh Mạng (1820-1841), the policy Vietnamizing ethnic groups was implemented to unify the government's control of the Nguyen Dynasty on the land of the Southern Vietnam (Choi, 2019 pp. 32,217).

In various areas of the Mekong Delta, the Khmer and the Vietnamese villages were combined to generate a new Vietnamese administrative unit as cantons (called *Tổng* in Vietnamese). The other ethnic villages were attached to Vietnamese districts or attached the Vietnamese villages to the ethnic districts. They also established the Vietnamese villages within the ethnic villages. As a result, the ethnic Khmer and the Chinese villages were almost disappeared (Choi, 2019).

One of the most effective assimilation policies was the “transformation of the customs” by integration of religion and beliefs of non-Vietnamese peoples in common with Vietnamese beliefs. In other words, localizing the religion and ancestral beliefs of the ethnic groups, for example by organizing Vietnamese-style worship rituals for the deceased leaders of ethnic minorities. By this way, Vietnamese authorities convinced that the cultural and religious differences of the scattered non-Vietnamese villages would be erased. They hoped the non-Vietnamese ethnic groups would emulate the Vietnamese customs and gradually alter their customs and culture in the co-inhabitant process.

As result, many Khmer communities in the upper Mekong Delta from the 30s and 40s of the 19th century disappeared by this assimilation policy. The Vietnamese government demolished the original Khmer pagoda and built a Vietnamese pagoda on the same land (Choi, 2019). Following the Khmer custom of residence, their village always exists around a Khmer temple. Subsequently, when the temple was lost, it was not difficult for many Khmer people to leave their land. Obviously, there were still existed Khmer people who continued to settle, but certainly, their descendants have been assimilated by time. In case the religious buildings could not be demolished, the Vietnamese government adjusted and absorbed the worship system, even idols of other ethnic groups. For instance, the statue of God of Chúa Xứ (*Bà Chúa Xứ*) at Sam Mountain, Châu Đốc, which was named after a Chen La woman who had been converted to Vietnamese custom, because the Vietnamese who lived in this region believed she was Vietnamese or Chinese (Choi, 2019). This approach had been successful when implementing to the Khmer and Chinese communities. Nonetheless, there was no record for the assimilation of the Chams in the Mekong Delta. The assimilation by religion seemed ineffective in the case of the Cham Muslim. Since Islam is a monotheistic religion, thus the Cham Muslims do not accept the integration of other religions and systems of beliefs except Islam. The serious conflicts from the difficulties of cohabitation between the Cham Muslims with the Vietnamese were raised. These problems regarding the dispute and enmities between these communities were recorded detailed in the Cham manuscripts (Weber, 2011 p. 760).

In addition, the population of the Muslim and Malay populations was minor compared to the populations of the Khmer and the Chinese in the Mekong Delta. For these reasons, the Cham Muslim communities in the Mekong Delta were existed and maintained from the 1750s until now, although the Vietnamized policies of the Nguyễn Dynasty. Nonetheless, the Cham Muslim villages,

at the beginning, were positioned in political-strategic areas and the assimilation policies of the Vietnamese government had also more or less impacted to their communities. Replacing by the names of a Vietnamese villages instead of the names of the Cham Muslim villages in An Giang is the evidence for this impact. As a result, all of the Cham villages in An Giang comprise two names, one in Cham language and one in Vietnamese. The population of the Cham Muslim communities in 1902 is summarized in the table below:

Table 11 Cham Muslim villages and population in the Mekong Delta in 1902.

No	Cham Muslim Villages		Population (Unit: person)
	Vietnamese name	Cham name	
1	Châu Giang	Moo Chruck	1073
2	Nhơn Hội	Koh Koi	448
3	Khánh Hòa	Katamboong	931
4	Châu Phong	Puk Paok/ Phũm Soài	1280
5	Vĩnh Trường	Koh Plao Ba/ Lama	364
6	Đa Phước	Koh Kapoak	369
7	Quốc Thái	Koh Kokia	425
8	Khánh Bình	Prek Sabau	564

Source: (Indochinoise, 1902).

The newest village of Vĩnh Hanh was only officially established in 1979 due to the war between Vietnam and the Khmer Rouge from 1972 to 1979 (Döpf, 2006 p. 23). In addition, the mosque Jamiul Mukminin in commune of Vĩnh Hanh was also erected in 1979. However, this village takes only one Vietnamese name.

In terms of settlements, the Cham prefer to settle near the rivers because they need to wash hands and legs before the prayers every day. Moreover, many Cham families do fishing on the river. Also due to residing in the river environment, in the past, almost every Cham houses had a boat for moving or transporting and fishing in the flooding season. Therefore the boatmen's craft was quite developed, although the Chams did not erect large boats. In 1880, out of 1100 Cham households in Chau Doc (nowadays An Giang) there were 754 boats, accounting for 68.54% of the total households (Labussière, 1880 pp. 376,378). In addition, in the book written by Dohamide, a scholar specializing in Cham Muslims in Southern of Vietnam, recorded the scene of Cham Muslim villages from the early 19th century as follows: "From this side of the river looking to the across side, not too far away, only about 50 meters, the sound of children playing still echoed to across side of the riverbank, but that was the two completely different worlds. The houses of the Vietnamese who settled across the river were often erected by columns and wooden walls, on the ground and inside of the house were the ancestral altars, furnished tables, chairs, beds with high legs. Almost the Vietnamese houses had small outdoor altars in the garden in front of the house. On this side of the river, however, all of the Cham houses were erected on the stilts made by wooden pillars stripped of their bark and smoothed with high floors, higher than the human' heads to compatible with the flooding season which occurred annually. In the

early 19th century, the Cham houses were mostly built in close distance, the person if open the window could be able to talk with the neighbors “ (Dohamide, 1965).

Regarding society and custom, in Cham Muslim village at that time the theft was rare, and there were no beggars on the street, because the villagers provided the necessary things enough for the elderly or disabled who could not earn a living. The villagers inhabited in harmony with their neighbors and even the other minorities. All the Chams in Châu Đốc area are Muslim, therefore the villagers often get married to each other. In case a Cham man married a Khmer woman, the bride must follow Islam. The Cham woman did not allow to get married to the man of other races (Indochinoise, 1902 p. 78). In the colonial French in the Indochina, on September 1867, the Admiral de La Grandière officially abolished the military colony system and dismantled the existing network of the Cham colonies. As a result, the military role of the Chams was also ended. The French also endeavored to segregate the non-Vietnamese ethnic groups from the Vietnamese communities (Labussière, 1880 p. 379). Labussière remarked that several Cham Muslim villages were scattered and separated from the Vietnamese hamlets.

The above descriptions can lead to the conclusion about the Cham villages in the Mekong Delta region. On the aspect of the village, the Cham Muslim villages in the Mekong Delta had a clear boundary with the Vietnamese communities. The boundary was delimited by the geography of both sides of rivers or islets.

Summary, from 1750 to 1857, the Chams moved to two locations in Vietnam: the mountainous area of Tây Ninh and the Châu Đốc area in the Mekong Delta (Figure 59). It can be understood that the settlement of the Cham Muslims in the Mekong Delta was not originally due to the mere establishment of new settlements. The emergence of the Cham Muslim in the Mekong Delta can be attributed to the establishment of military colonies under the control of Vietnamese court in Southwest Vietnam in order to defend Vietnam’s frontier in An Giang province, as well as to consolidate the Vietnamese positions in Eastern Cambodia.

There are nine villages of ethnic Cham Muslims in the Mekong Delta: Châu Giang, Nhơn Hội, Khánh Hòa, Châu Phong, Vĩnh Trường, Đa Phước, Quốc Thái, Khánh Bình, and Vĩnh Hạnh (Figure 60). The main historical events are described under the following periods:

a) 1750-1757: In Châu Giang, across the river from the town of Châu Đốc, the earliest settlers were four Cham families⁸ who founded the Châu Giang village. In 1750, they constructed a small sanctuary, Al-Mubarak, for worship. Later on, in 1757, the Châu Đốc region was offered to the Vietnamese lords by the Khmers. The military force of Châu Đốc was established several months later and was situated on the banks of the Bassac River for the purpose of establishing military outposts and colonies. The Vietnamese authorities identified the Cham settlements of Châu Đốc as military colonies that were meant to be dispatched to the areas controlled by the Vietnamese, especially Phnom Penh and Hà Tiên.

⁸ Based on the genealogy of the vice chief of the mosque Al- Mubarak in village of Châu Giang.

b) 1820-1841: The Cham Muslims were evacuated from Phnom Penh and relocated to the area near the Bassac River, establishing two new settlements. One is Nhơn Hội, located to the north on the banks of the Bình Di River, which connects the Bassac River to the Châu Đốc River. The other is Khánh Hòa to the south on Koh Tam Boong Island.

c) 1843-1844: Over a thousand Cham inhabitants moved from Cambodia to Châu Đốc, and settled in three new villages: Châu Phong, Vĩnh Trường and Đa Phước. Wherein, the village of Châu Phong was established in 1843 after the construction of the Vĩnh An Canal which was dug in 1843 in order to connect two trading areas: Châu Đốc and Tân Châu. In addition, in the fieldwork in April 2018, the chief of hamlet of Đa Phước stated that this village was established by several families had come from village of Châu Phong. They had moved due to the rapid growth of the population and the insufficiency of cultivated land in the Châu Phong area. The villages of Châu Phong, Đa Phước and Vĩnh Trường were also military posts that same year.

d) 1854-1858: Approximately five thousand Chams who participated in the revolt in Cambodia were pardoned and permitted to return to An Giang. They were first settled in Bình Di River, and then distributed into seven villages: Châu Giang, Khánh Hòa, Châu Phong, Vĩnh Trường, Nhơn Hội and the two new settlements of Quốc Thái and Khánh Bình.

e) 1972-1979: Since the military invasion by the Khmer Rouge at the frontier between Vietnam and Cambodia, a large number of Cham Muslim inhabitants from Nhơn Hội, Khánh Bình and Quốc Thái migrated to the Vĩnh Hanh to establish a new village. The mosque Jamiul Mukminin in commune of Vĩnh Hanh was erected in 1979.



Figure 59 Sattelite map of nine Cham Muslim villages (adapted from Google map).

5.2 Formation of the Cham Muslim villages

The Cham Muslim villages in An Giang were not gathered in large areas but dispersed along rivers and canals. This distribution could be explained by the “divide and conquer” policy of the Vietnamese court in the 18th century. This meant that the Chams did not have the freedom to settle in one place. Instead, they were scattered into small linear clusters and integrated within Vietnamese villages in all localities by the provincial officials under the order of the Vietnamese court. This was done in order to prevent organized uprisings or protests and to avoid trouble. The largest hamlets, Châu Giang and Châu Phong, were also divided into several small groups of communities and separated from each other by Vietnamese hamlets.

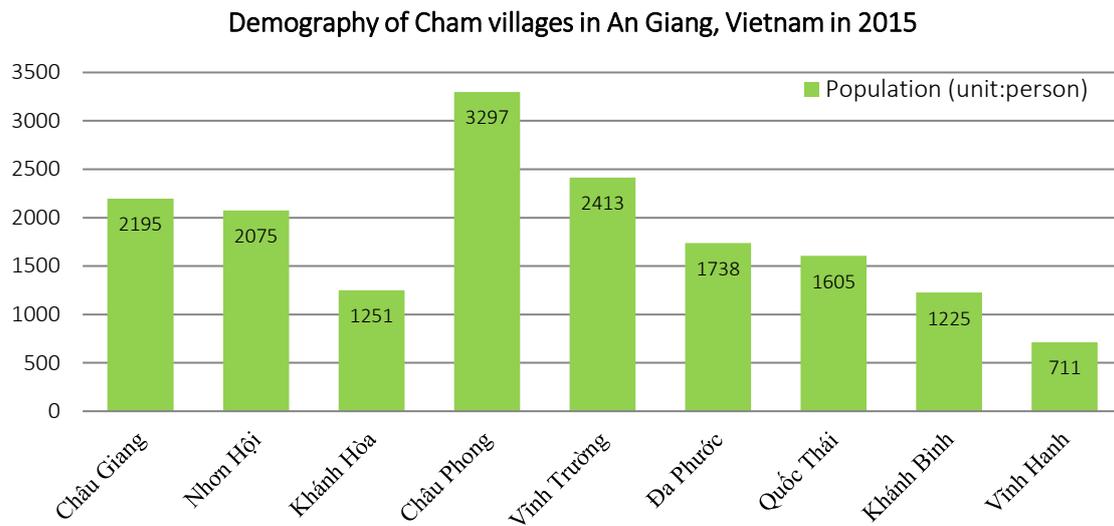


Figure 60 Population of Cham Muslim in nine villages in the Mekong Delta (Vietnamese Census Bureau, 2015)

According to the results of the Vietnamese Census Bureau in 2015, the total population of nine villages was 16,510 people, as shown in Figure 61. In particular, the village of Châu Phong has the highest population ratio with 3,297 people. Next is Vĩnh Trường Village which includes population of 2,423 peoples. The villages of Châu Giang, Nhon Hội, Đa Phước, and Quốc Thái have approximately equal population with about 1,600 to 2,200 persons. Meanwhile, the two villages with the lowest population are Khánh Hòa with 1,251 people and Vĩnh Hạnh with 711 persons. Among the nine villages, Châu Phong is identified as the village with the most complex population distribution system.

Through out the extensive on-site survey, the author examine the current conditions of nine Cham Muslim villages in the An Giang province (Figure 62). In detailed, there are 3 villages that have 1 mosque (Quốc Thái, Khánh Bình, Vĩnh Hạnh), 2 villages with 1 mosque and 1 surau (Nhon Hội, Vĩnh Trường), 1 village with 1 mosque and 2 suraus (Khánh Hòa), 1 village with 2 mosques (Đa Phước), 1 village with 2 mosques and 3 suraus (Châu Giang) and 1 village with 2 mosques and 8 suraus (Châu Phong) (Figure 63).

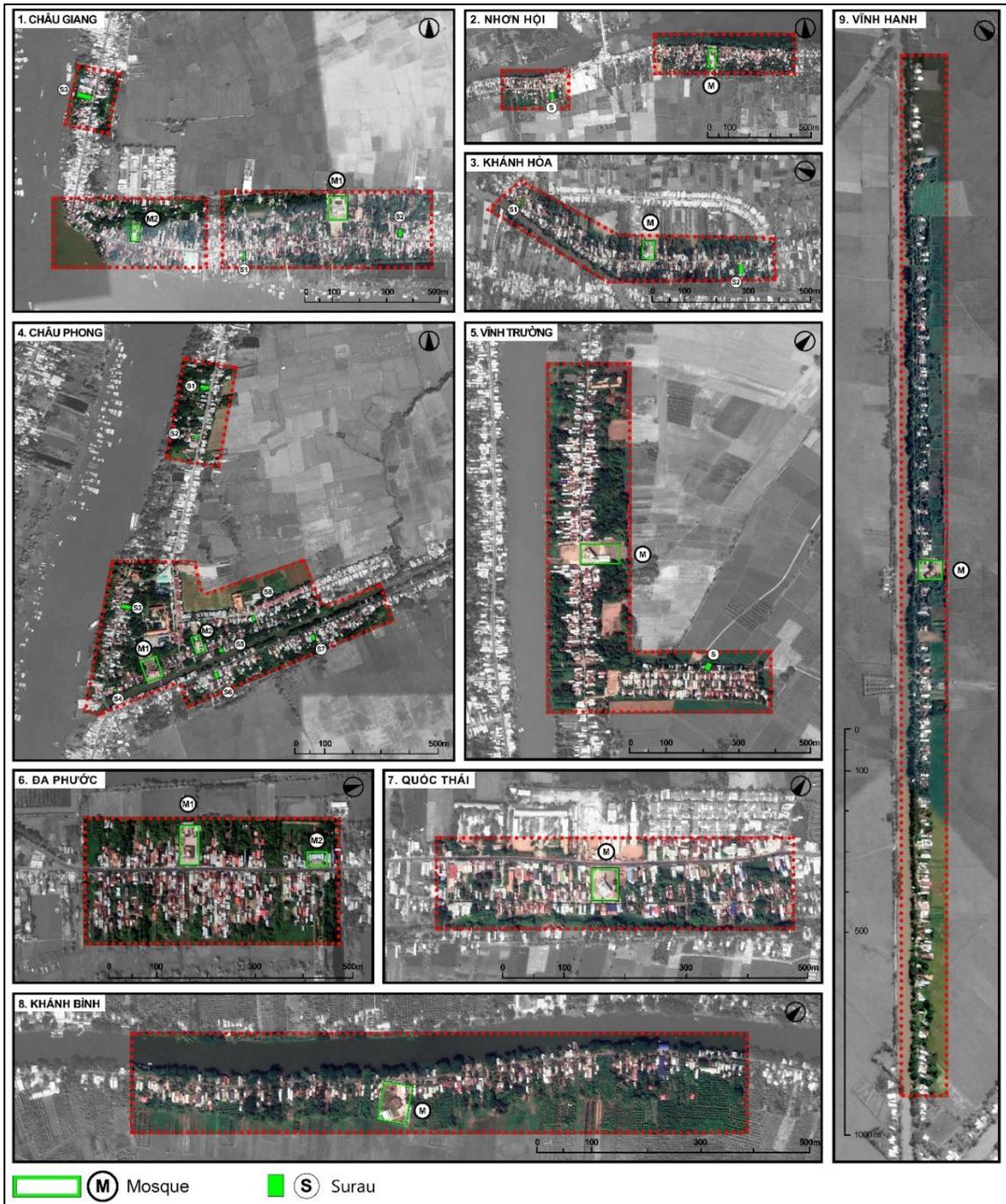


Figure 61 Detailed maps of the nine Cham Muslim villages with mosque and surau (Adapted from Google map).

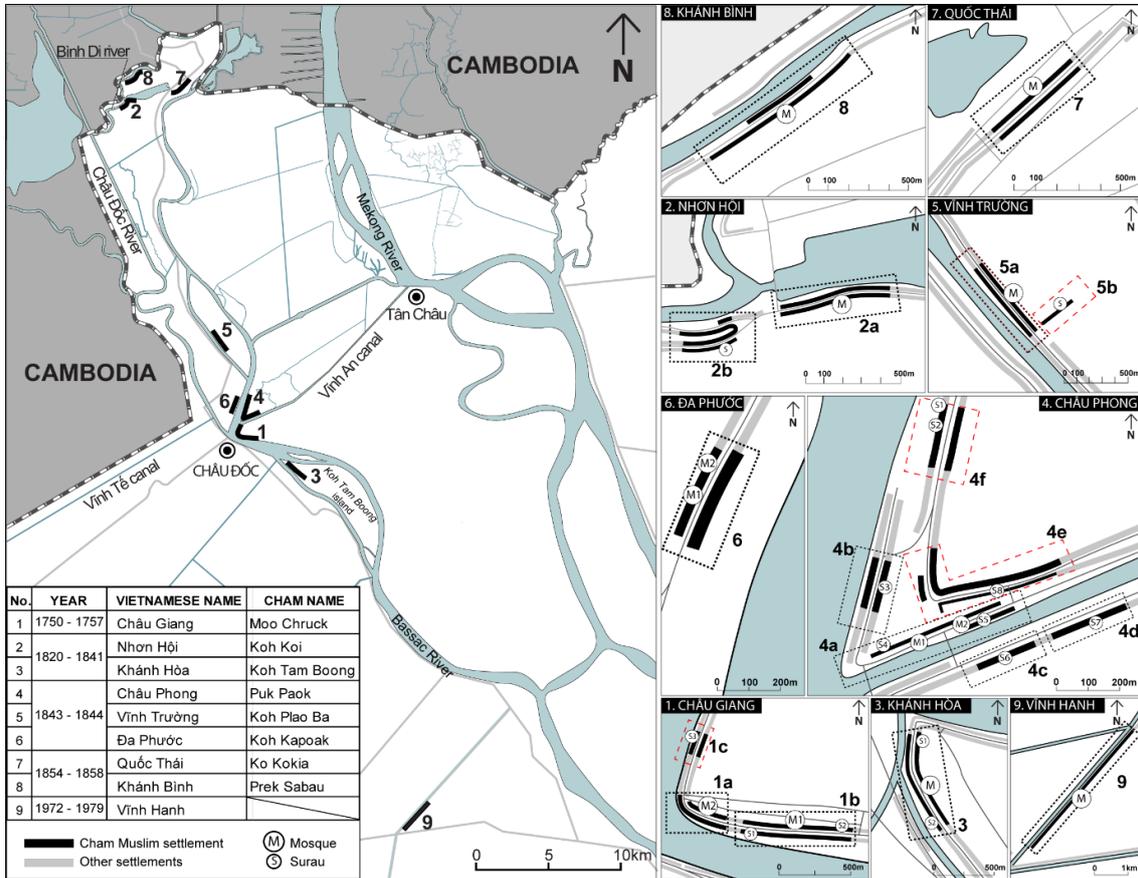


Figure 62 Locations of Cham Muslim villages in the Mekong Delta.

The current formation of the nine Cham Muslim villages in the province of An Giang are depicted in detailed as follows :

1) The village of Châu Giang

The village of Châu Giang (or Palei Châu Giang) is the oldest one among nine villages and established from 1750 to 1757 (Figure 64). It is located in Châu Giang hamlet, Phú Hiệp commune, Phú Tân district. The village has a stretching layout along the Bassac River, near the Châu Giang Ferry and comprises many old traditional houses within. In the Cham language, it is named *Mout Chruck* (means a pig mouth) since the shape of this location is similar to the image of a pig mouth.

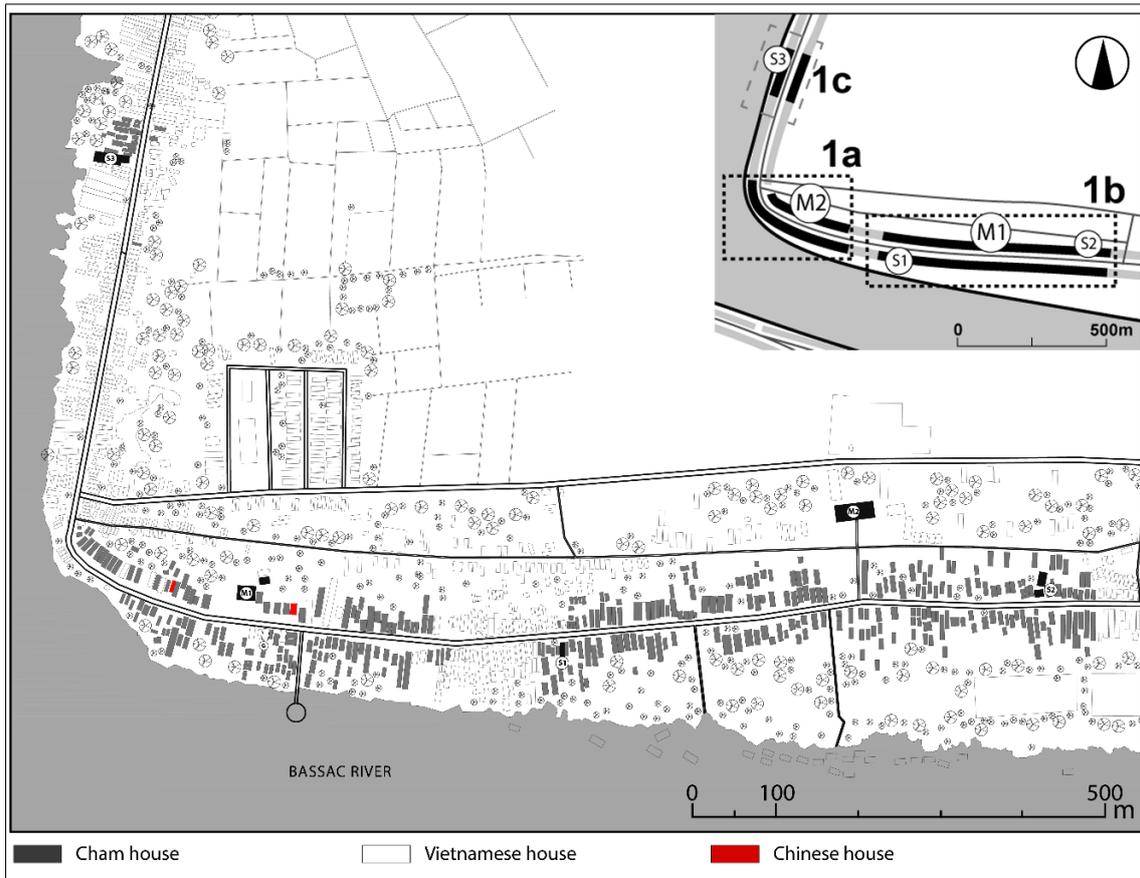


Figure 63 Village of Châu Giang.

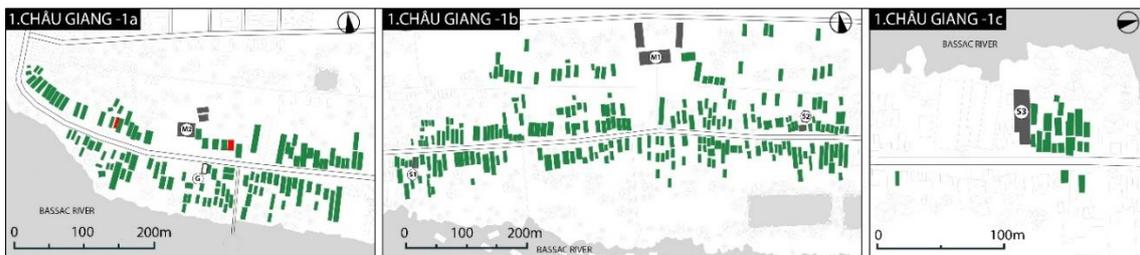


Figure 64 Groups of Cham Muslim communities within the village of Châu Giang.

This village is the most developed economy village compared to the remaining villages, because it is located on the Châu Giang ferry, so it is easy to trade with Châu Đốc market across the river. The village comprises total population of 2,195 peoples (Population statistics of Cham Muslim Administration in the Mekong Delta 2015), including three hamlets (Puk) of the Cham people.

According to the survey, in the Châu Giang village, there are Vietnamese communities existed interleaved among the Cham communities but has clear separation. This is the result of the policy of the Vietnamese court in the 18th century. The Cham communities are scattered into small linear clusters and integrated within Vietnamese villages and are controlled by the Vietnamese provincial officials. The boundary of the villages is also defined and easy to find at the end up at a corner or a crossroads.

The two largest Puks which have same names of the mosques Jamiul Azhar (M1) and Al-Mubarak (M2) were established at the same time in the years 1750 to 1757. (Figure 65). Both of two Puks follow Sunni Islam. According to the survey, the Puk of Jamiul Azhar includes groups of 145 houses, while the Puk Al-Mubarak has 74 houses. The third Puk with the surau Jamiul Wustgo (S3) was established recently in 1956, including only 11 households.

In terms of layout, the mosque Jamiul Azhar is positioned in the middle with the rows of houses spread symmetrically on both sides. Two Surau Al-Mubarakyah (first built in 2004, upgraded in 2019) and Al-Azharyah (built in 2007) were added later to facilitate daily prayer for the community. However, every Friday, all of the man must gather to pray at the mosque Al-Mubarakyah. The cluster of surau Jamiul Wustgo is not follow the symmetrical composition, since it was establish recently within a high density of Vietnamese houses. Therefore the area was inadequate to maintain the symmetrical layout as the Puk Jamiul Azhar and the Puk Al-Mubarak.

Although the houses of three Puks are distributed in a linear format along the Bassac River and roads, the mosques and the suraus, however, are oriented to the West, the direction of the Mecca. After the severe flooding in 2000, the dyke system and roads of Châu Giang village have been upgraded since then, so the houses in this village take advantage of the floor space to renovate and enhance more living space at the ground floor.

In Châu Giang, the two groups of Cham Muslim villages with 230 houses (94.3%), are positioned separately by a group of Vietnamese people established gradually from about 50 years ago until now. Moreover, there are also an amount of 12 Vietnamese houses (mostly from the 2000s), occupied 4.9% and two Chinese houses (existing between 1972, 1975 and 2000) accounted for 0.8% intermingled in the Cham Muslim settlement.

According to the survey, the homeowners told that when they came to Chau Giang to find a place to settle, a few Cham people sold the land to them. There is absolutely no Khmer house in this village. Therefore, it can be concluded that Cham Muslim in Châu Giang village which has the longest history completely separate from clusters of villages of other ethnic groups, although the presence of Vietnamese and Chinese families is minor and unnoticeable.

According to the the map of land use (AGG2020), the Cham Muslim villages in Châu Giang (1a, 1b, 1c) are distributed in the urban residential zone (code: ODT). The mosques are belonged to the religious zone (code: TON). However, from 2020, the clusters of (1a) and (1c) is belonged to the embankment reinforcement area due to landslides on the banks of the Bassac River (Figure 66).

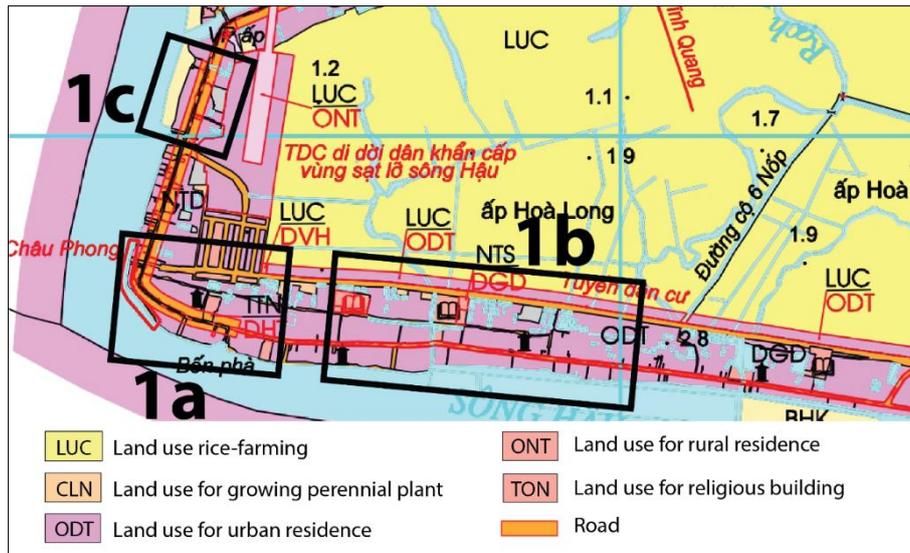


Figure 65 Land use in Châu Giang village.

Source: Department of Natural Resources and Environment of An Giang Province, 2020.

2) The village of Nhon Hội

The village of Nhon Hội (or Palei Nhon Hội) is located along the Lake Bung Binh Thiên connecting the Bassac River and the Châu Đốc River, near the Vietnam-Cambodia border in the period of 1840 to 1841 (Figure 67). This village was established by the group of Cham Muslim transferred from Phnom Penh by the order of Vietnamese feudal court. Nonetheless, the Nhon Hội village and the nearby villages of Khánh Bình and Quốc Thái were heavily vulnerable by the impacts of the Khmer Rouge in 1972 to 1979. Therefore, only the makeshift houses made by trash timber have existed in the current state.

The Nhon Hội village has the population of 2,075 persons (Population statistics of Cham Muslim Administration in the Mekong Delta, 2015), and consists of two Puks: the Puk of Khoiriyah and the Puk of Al-Nouridin (Figure 68). The mosque Khoiriyah is rebuilt in 1992 and then renovated in 2011, sited at the central position creating a symmetrical pattern with the houses are scattered on the both side of the mosque. The Puk Khoiriyah comprises 93 housing units distributed in a linear format along the Lake Bung Binh Thiên. Similar to the village of Châu Giang, all of the houses in Nhon Hội village are distributed to the Lake Bung Binh Thiên and roads, however, the mosques and the suraus are oriented to the West, the direction of the Mecca.

The Puk of Al-Nouridin Ehsan (Shia Islam) was established in 1992 and comprises 100 housing units. The Puk of Al-Nouridin Ehsan (Shia Islam) is unfollowed the symmetrical format as normal but comprises three rows of houses. It has a clear boundary at the T-junction and a small road which is considered as the element to separate from the Vietnamese hamlets.

There is no existence of Chinese and Khmer houses in village of Nhon Hội. According to the survey, the groups of Vietnamese houses have been existed from about 1975 to 2000, and sited isolatedly from the Cham Muslim clusters (193 houses). Therefore, Cham Muslim village in Nhon Hội has retained its unity because there is no interlaced existence of other ethnic groups.

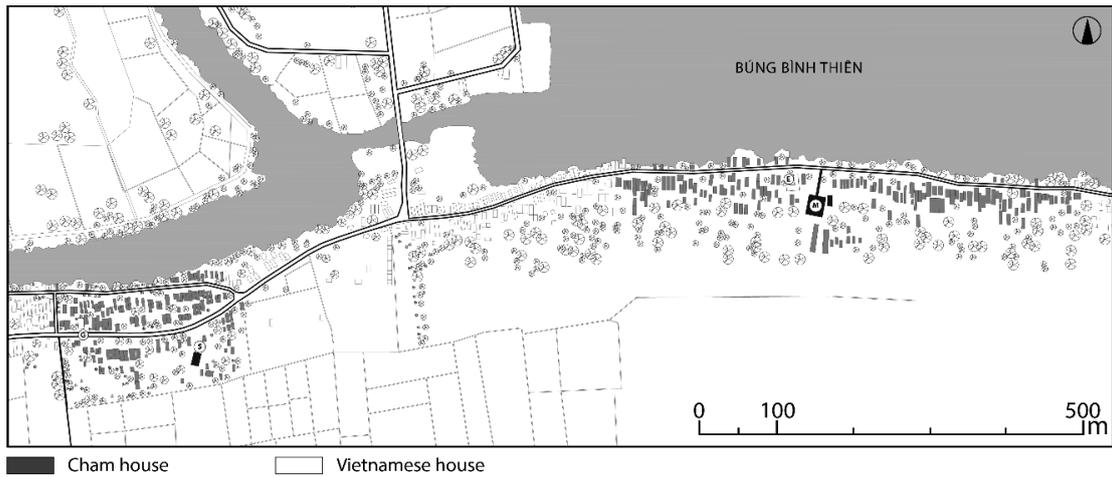


Figure 66 Village of Nhơn Hội.

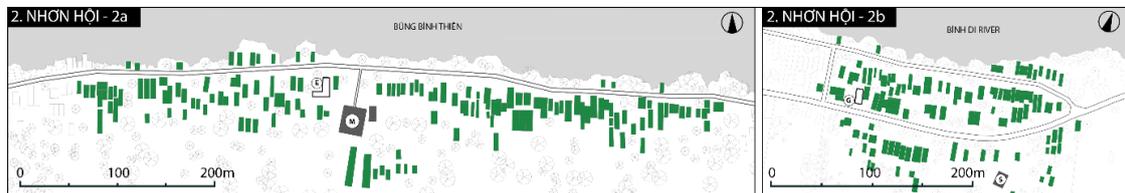


Figure 67 Groups of Cham Muslim communities within the village of Nhơn Hội.

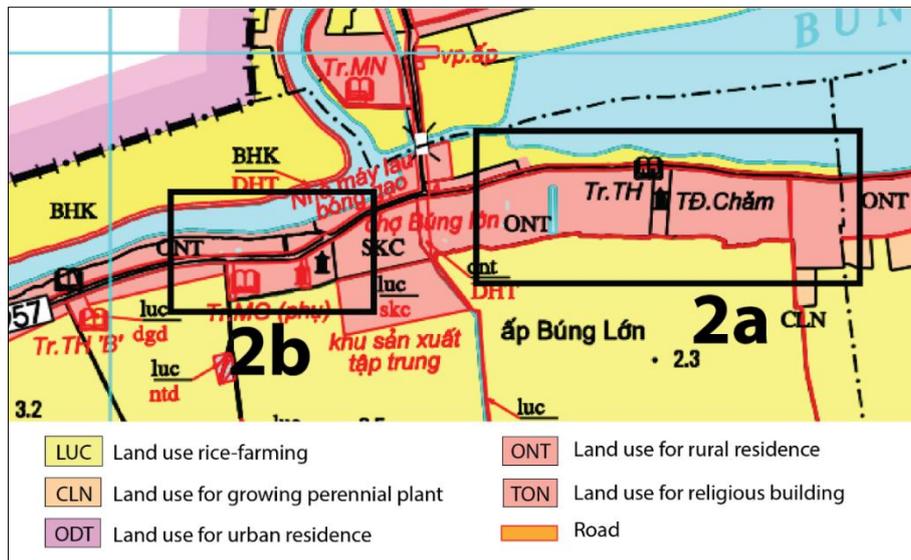


Figure 68 Land use in Nhơn Hội village.

Source: Department of Natural Resources and Environment of An Giang Province, 2020.

According to the the map of land use (AGG2020), the Cham Muslim villages in Nhơn Hội (2a, 2b) are distributed in the rural residential zone (code: ONT). The mosques are belonged to the religious zone (code: TON) (Figure 69).

3) The village of Khánh Hòa

The Khánh Hòa village (also called Palei *Koh Tam Boong*) was established on Koh Tam Boong Islet at the same time to the village of Nhơn Hội in the period of 1840 to 1841 (Figure 70).

The Khánh Hòa village comprises total population of 1,251 people (Population statistics of Cham Muslim Administration in the Mekong Delta, 2015) and includes three Puks: the Puk of Al-Aman Ehsan (Sunni Islam), and two Puks of surau number one, and the surau number five located symmetrical on the both sides.

The Puk Al-Alman is used to serve for three groups of Jam'ah⁹ (Jam'ah 2,3,4) which located in the middle of the village, wherein the Puk number one and number five serve for Jam'ah 1 and 5 at the village head and village end correspondingly. According to the survey, this community comprises 166 housing units with a large amount of old traditional houses. The Friday mosque Al-Alman was built in 1840-1841 then rebuilt in 1965 while suraus of number 1 and surau number 5 were erected in around 1970s.

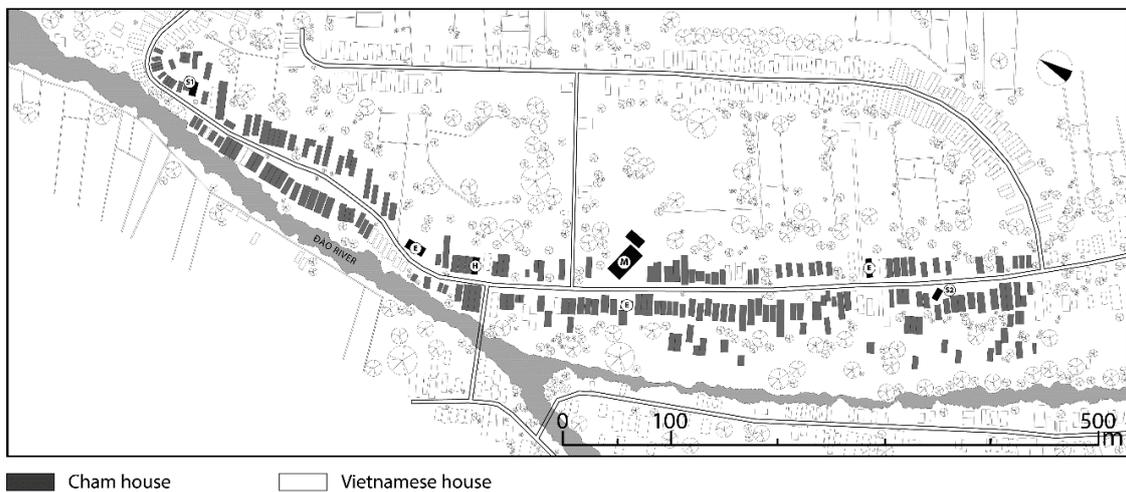


Figure 69 Village of Khánh Hòa.

Regarding orientation, all of the houses within Khánh Hòa village are distributed along the Đào River and small roads, while the mosques and the suraus have the East-West axis in order to keep the orientation to Mecca. The village is shaped in a linear format and has a clear boundary at the three-way crossroads and at a road corner as a kind of landmark to split from the Vietnamese hamlets.

The Khánh Hòa Muslim village with 166 housing units (86%) maintains its unity since it is isolated from the resident clusters of Vietnamese people. There are no any Chinese or Khmer houses in this area. The Vietnamese houses also appeared mainly in the 2000s, and some appeared in 1992 and 1998. However, the overall density of Cham houses is still dense and overwhelming (86%), while only 27 Vietnamese houses account for only 14%.

⁹ In order to distribute the number of prayer people, the Cham community organized the distribution of residences in the form of Jam'ah. Each Jam'ah is a religious community consisting of people living together in a masjid or surao. As a result, Jam'ah is a form of residential unit that is religious in nature, not limited by specific barriers or regulated by the administrative boundaries of local governments.

According to the the map of land use (AGG2020), the Cham Muslim villages in Khánh Hòa (3) are distributed in the urban residential zone (code: ODT). The mosques are belonged to the religious zone (code: TON) (Figure 71).

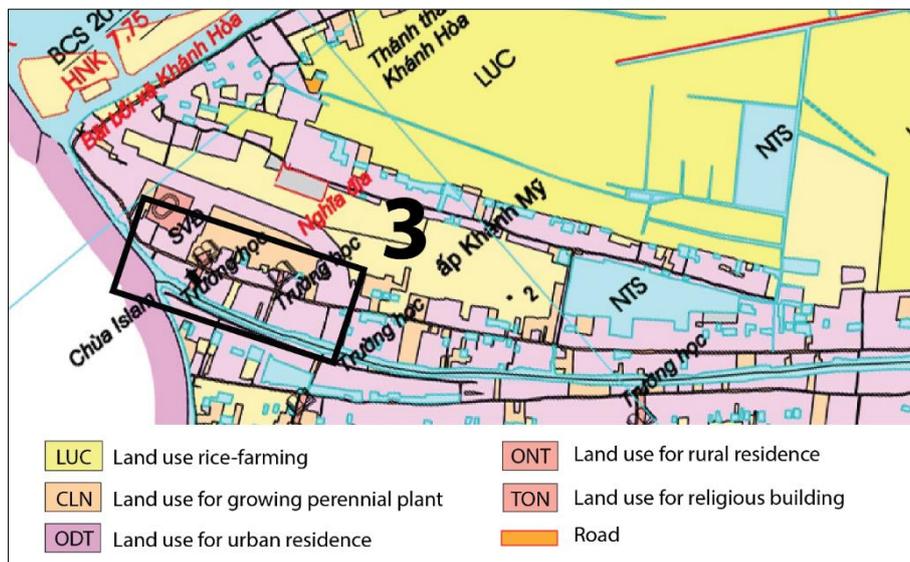


Figure 70 Land use in Khánh Hòa village.

Source: Department of Natural Resources and Environment of An Giang Province, 2020.

4) The village of Châu Phong

The village of Châu Phong (or Palei Puk Paok) is the largest and most complicated among nine villages and established in 1843 and 1844 ((Figure 72). It is also called Palei Phũm Xoài since there were grown many mango trees (the mango is called *Xoài* in Vietnamese). It is sited at the acute corner between the Vĩnh An canal and the Bassac River. The village comprises total population of 3297 peoples (Population statistics of Cham Muslim Administration in the Mekong Delta, 2015), including ten Puks with two mosques and eight suraus. The survey recored 390 housing units in this village. There is no official record of the year built of the mosque Al Nia'mah and the Muhamadiyah. However, the mosque Al Nia'mah (Sunni Islam) could be established in 1843 to 1844 because the village was established in this period of time. It was rebuilt in brick in 1930. The mosque Muhamadiyah (Shia Islam) was erected in 1963 and renovated in 1993.

The eight Puk with eight suraus (S1:Hayatus Sunnah, S2:Maskir Rohmah, S3:Darussalam, S4: Sariful Islamyah, S5: Nurul Islam, S6: Hayatul Islam, S7: Jammadul Islam, S8: Hajjah Fatimah) were built recently due to population growth (Figure 73).

Regarding to boundary, the Châu Phong village has a linear format and a certain boundary at the three-way crossroads and at a road corner as a kind of landmark to separate from the Vietnamese communities. Châu Phong is also the village where the Cham communities settled interlaced with the Vietnamese community because the poor Cham households sold their land to the Vietnamese. In addition, in order to expand the population, the resettlement houses were built, as a result, it makes the structure of Châu Phong village become more complicated. However, according to the survey results, the clusters of Cham Muslim houses are completely

separate, and there is no confusion of Vietnamese people. There are no Chinese or Khmer house existed in this village. The survey results shows that only one Vietnamese house (built in 2003) located in the group of 4c accounts for 0.3%. Therefore, it can be concluded that Chau Phong village still maintains a coherent and uniform layout, without the influence and interlacement of Vietnamese groups.

According to the the map of land use (AGG2020), the Cham Muslim villages in Châu Phong (4) are distributed in the urban residential zone (code: ODT). The mosques are belonged to the religious zone (code: TON) (Figure 74).

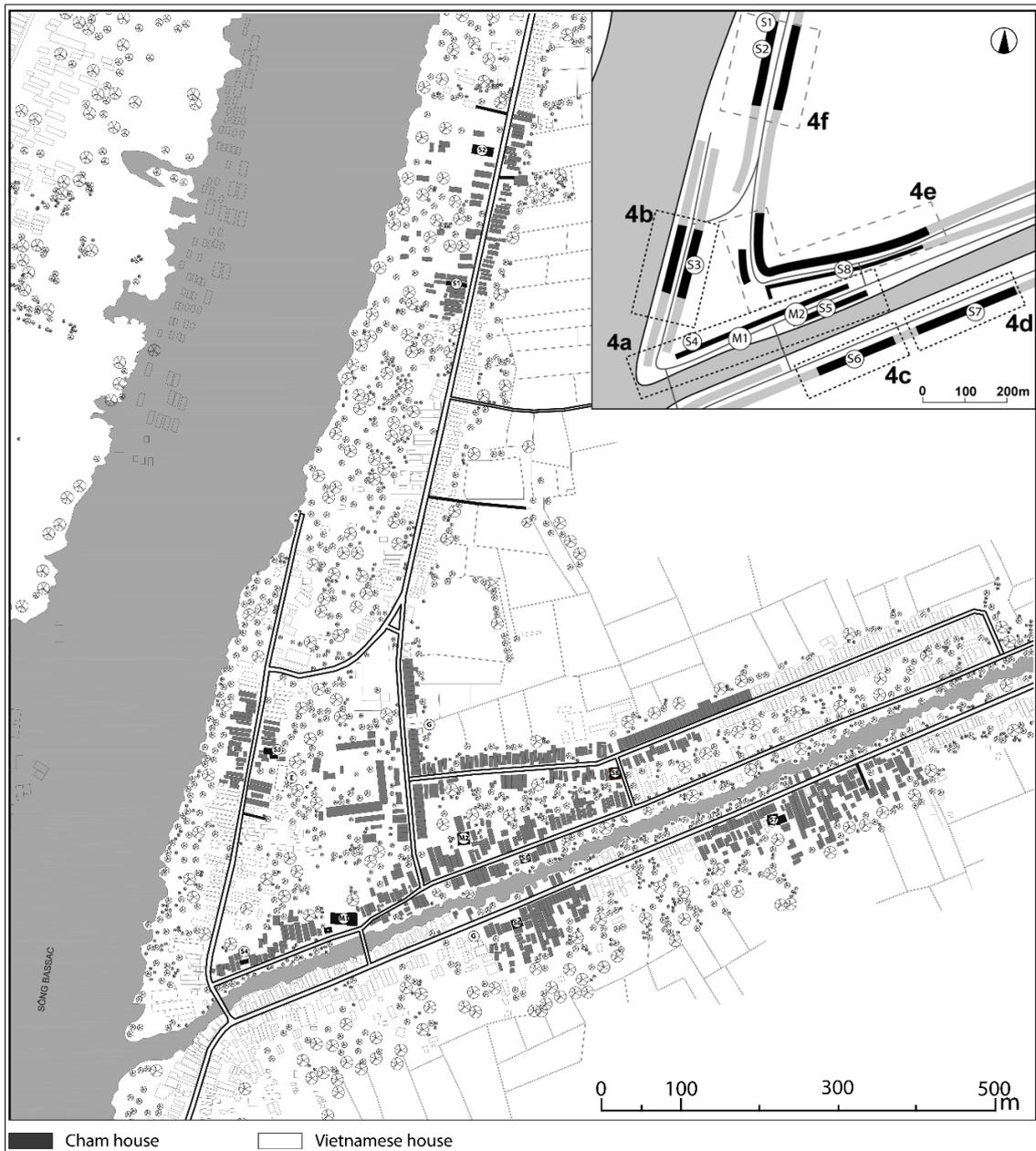


Figure 71 Village of Châu Phong.

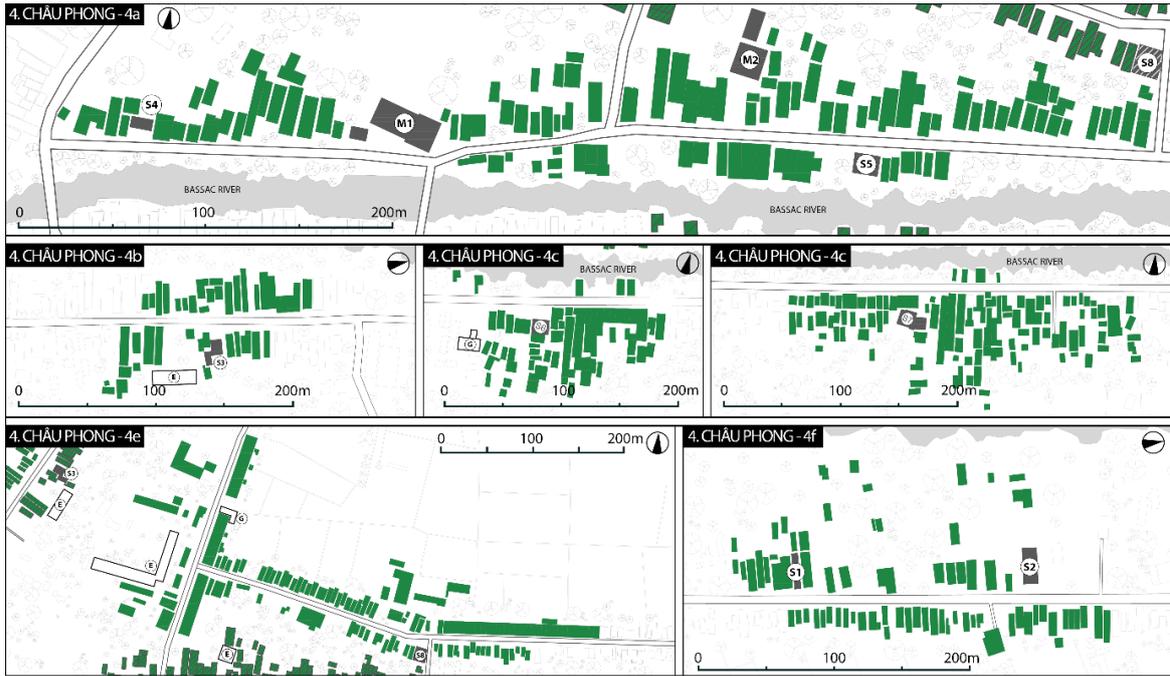


Figure 72 Groups of Cham Muslim communities within the village of Châu Phong.

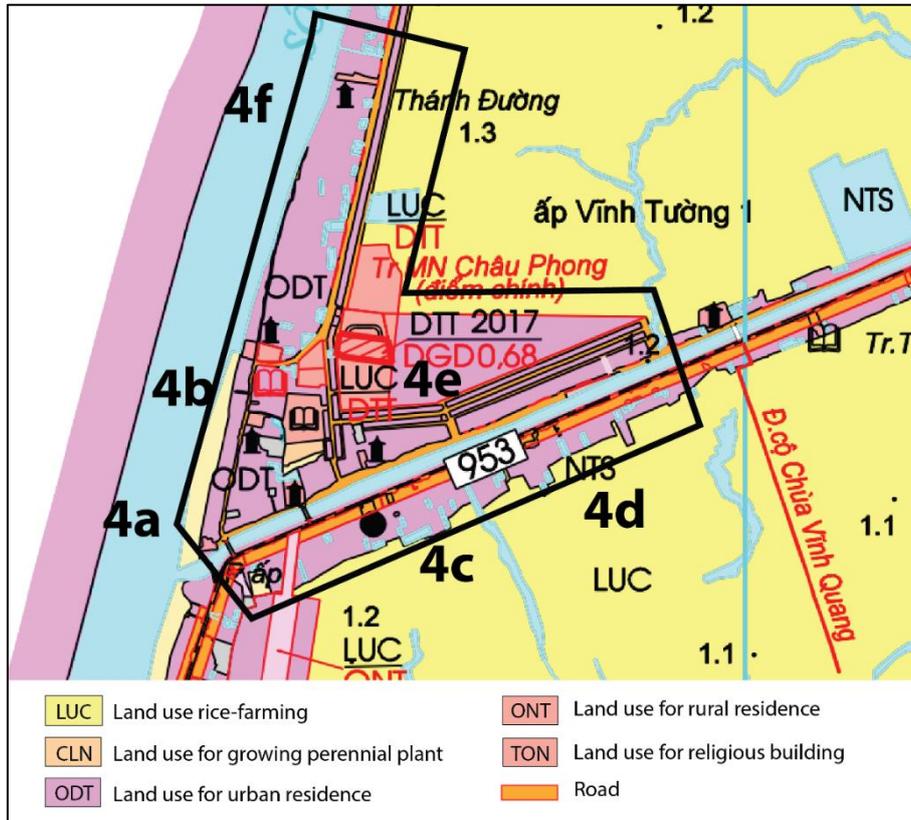


Figure 73 Land use in Châu Phong village.

Source: Department of Natural Resources and Environment of An Giang Province, 2020.

5) The village of Vĩnh Trường

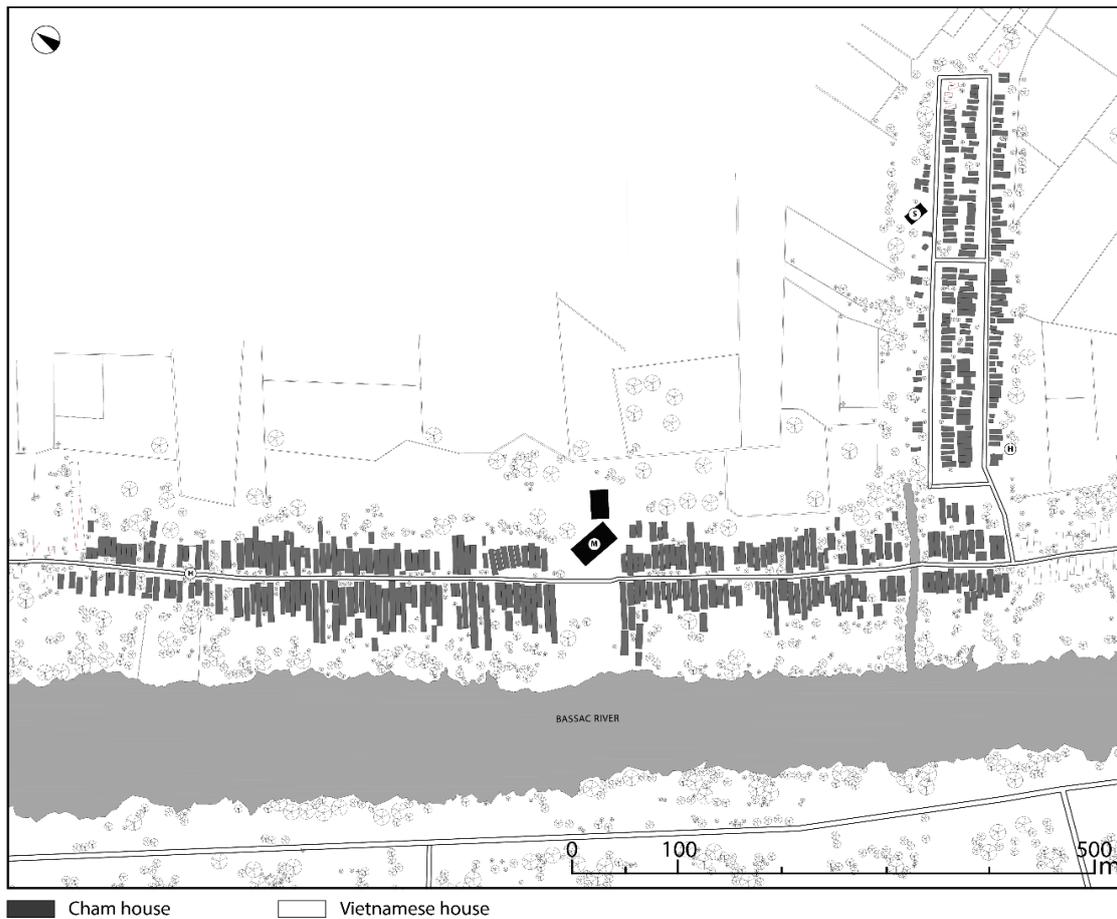


Figure 74 Village of Vĩnh Trường.

The village of Vĩnh Trường (or Palei La Ma) is located along the Bassac River in the period of 1843 to 1844 (Figure 75) which has the population of 2,413 persons (Population statistics of Cham Muslim Administration in the Mekong Delta, 2015), and consists of two Puks: the Puk of Ar-Rohmah and the Puk of Ar Rohim. The mosque Ar-Rohmah is rebuilt in 1966 and then renovated in 2016, sited at the central position creating a symmetrical pattern with the houses are scattered on the both side of the mosque. The Puk Ar-Rohmah comprises 215 housing units. While with the support of Vietnamese government, the Puk of Ar Rohim was established in 2012 and comprises 181 resettlement housing units.

The Vĩnh Trường village has a linear format with a clear boundary at the T-junction and a small road which is considered as the element to separate from the Vietnamese hamlets. All of the houses are distributed along to the Bassac River and roads, however, the mosques and the suraus are oriented to the West, the direction of the Mecca.

The number of Cham Muslims houses in the Vĩnh Trường village is 396 houses, accounting for 99.7% of the total number of houses in the village. Without the existence of Chinese and Khmer houses, only one Vietnamese house existed about 100 years ago outside the border of

Cham resettlement houses in 2007. Therefore, overall, the Cham Muslim village of Vĩnh Trường also preserves a high level of unity due to its clear range and complete separation from other ethnic groups' houses.

According to the the map of land use (AGG2020), the Cham Muslim villages in Vĩnh Trường (5a, 5b) are distributed in the rural residential zone (code: ONT). The mosques are belonged to the religious zone (code: TON) (Figure 76).

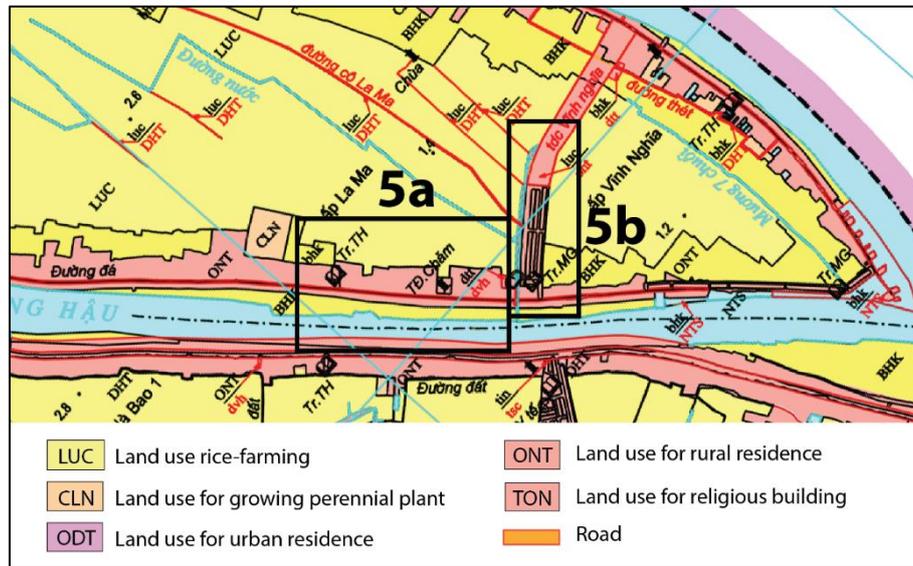


Figure 75 Land use in Vĩnh Trường village.

Source: Department of Natural Resources and Environment of An Giang Province, 2020.

6) The village of Đa Phước

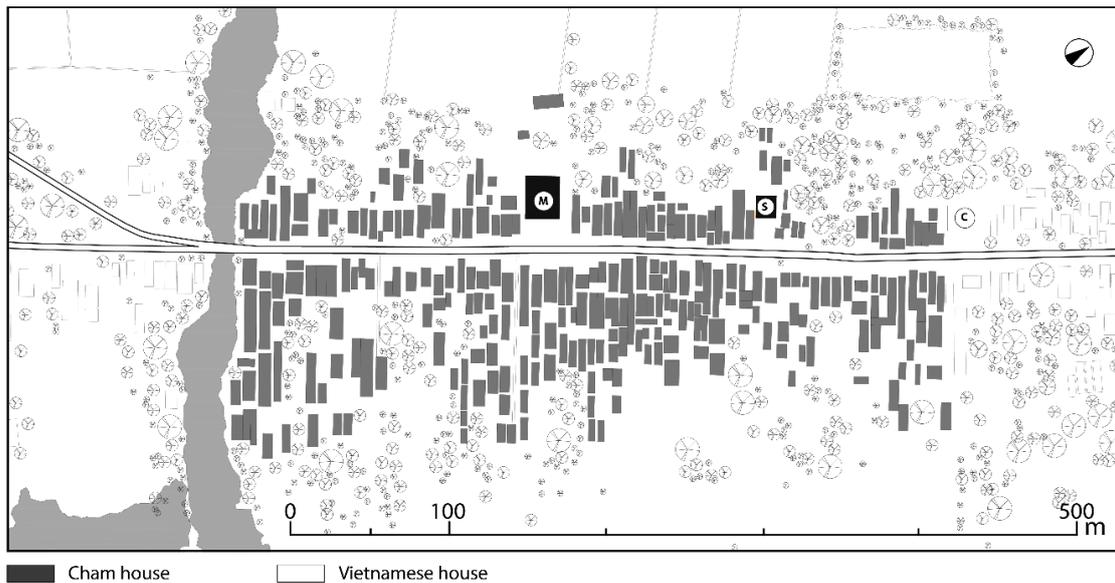


Figure 76 Village of Đa Phước.

The village of Đa Phước (or Palei Kapoak) is located along the Bassac River in the period of 1843 to 1844 (Figure 77) which has the population of 1,738 persons and 215 housing units (Population statistics of Cham Muslim Administration in the Mekong Delta, 2015), and consists of two Puks: the Puk Al-Ehsan (Sunni Islam) and the Puk Jamius Sunnah (Shia Islam). The mosque Al-Ehsan is rebuilt in 1937 and then renovated in 1992, sited at the central position creating a symmetrical pattern with the houses are scattered on the both side of the mosque. The Puk of Jamius Sunnah was established in 1982 by a group of villagers followed Shia Islam school who came back after studied abroad in Arab. This village is famous for weaving cloths and traditional brocade products.

The Đa Phước village has a symmetrical pattern and shaped in a linear format, with the Friday Mosque Al-Ehsan located in the middle position and the houses are distributed on two sides along the street. The village boundaries is separated with Vietnamese communities nearby by starting from a small canal and ended by a Cham cultural center which was abandoned for many years. Both the mosques Al-Ehsan and Jamius Sunnah are oriented to the West, the direction of the Mecca.

In terms of population distribution, Đa Phước village also shows a high uniformity and unify layout with 100% of the Cham Muslim houses without any interlacement of Vietnamese, Khmer or Chinese households.

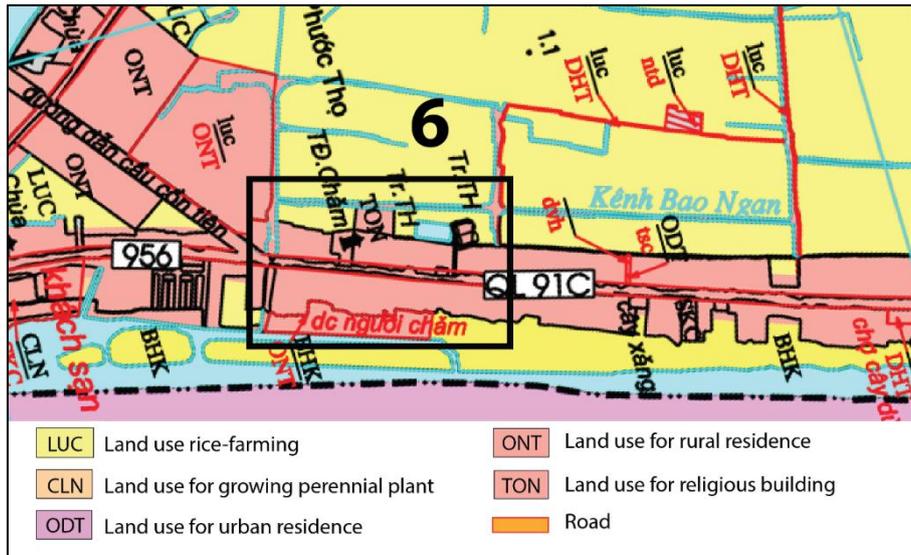


Figure 77 Land use in Đa Phước village.

Source: Department of Natural Resources and Environment of An Giang Province, 2020.

According to the the map of land use (AGG2020), the Cham Muslim villages in Đa Phước (6) are distributed in the rural residential zone (code: ONT). The mosques are belonged to the religious zone (code: TON) (Figure 78).

7) The village of Quốc Thái



Figure 78 Village of Quốc Thái.

The village of Quốc Thái (or Palei Koh Kokia) is located near Quốc Thái market and between the Lake Búng Bình Thiên and the Bassac River in the period of 1854 to 1858 (Figure 79). With the position near the Vietnam–Cambodia border, Quốc Thái village was devastated heavily by the Khmer Rouge in 1972 to 1979. Therefore, all of the houses within this village were rebuilt recently by trash timber.

The village has the total population of 1605 persons (Population statistics of Cham Muslim Administration in the Mekong Delta, 2015), and consists of only one Puk Jamiul Muslimin (Sunni Islam). The mosque Jamiul Muslimin is rebuilt in 1933 and then renovated in 1994. The mosque’s axis is oriented to the East-West toward the Mecca. With the central position, the mosque creates a symmetrical format with the houses are scattered on the both sides and shaped in a linear format.

In terms of population distribution, the village of Quốc Thái also maintain a unify layout with 151 Cham Muslim housing units accounted for 98.1%. There are only three Vietnamse house built recently and occupied 1.9% and without the existence of the Khmer or Chinese households.

According to the the map of land use (AGG2020), the Cham Muslim villages in Quốc Thái (7) are distributed in the rural residential zone (code: ONT). The mosques are belonged to the religious zone (code: TON) (Figure 80).

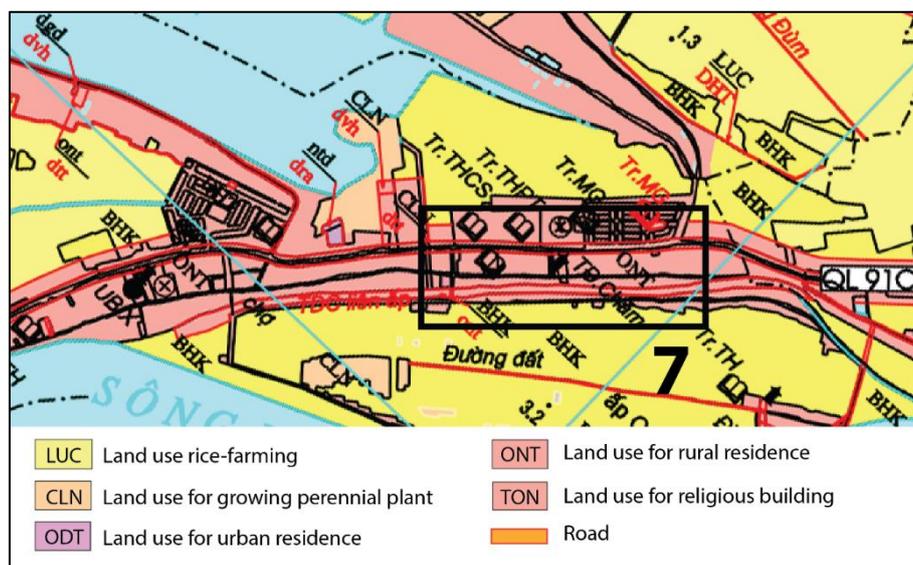


Figure 79 Land use in Quốc Thái village.

Source: Department of Natural Resources and Environment of An Giang Province, 2020.

8) The village of Khánh Bình



Figure 80 Village of Khánh Bình.

The village of Khánh Bình (or Palei Prek Sabau) is the nearest to the Vietnam-Cambodia border. It is located along the Binh Di River in the period of 1854-1858 (Figure 81) which has the population of 1,225 persons (Population statistics of Cham Muslim Administration in the Mekong Delta, 2015). Similar to Nhơn Hội and Quốc Thái, the Khánh Bình village was also received strong impacts by the Khmer Rouge in 1972 to 1979. The village was rebuilt after the war, therefore all of the houses were built makeshift trash timber and steel sheets. The village consists of only one Puk Mukarromah (Sunni Islam) which was rebuilt in 1990. The mosque Mukarromah is oriented to the West (direction toward Mecca) and sited at the central position creating a symmetrical pattern with the houses are scattered on the both sides in a linear format stretched along the Binh Di River.

In term of ethnical population distribution, the Khánh Bình village comprises 145 Cham Muslim houses occupied 100%, completely separated with the Vietnamese communities. There is neither Khmer nor Chinese houses existed within the village.

According to the the map of land use (AGG2020), the Cham Muslim villages in Khánh Bình (8) are distributed in the rural residential zone (code: ONT). The mosques are belonged to the religious zone (code: TON) (Figure 82).

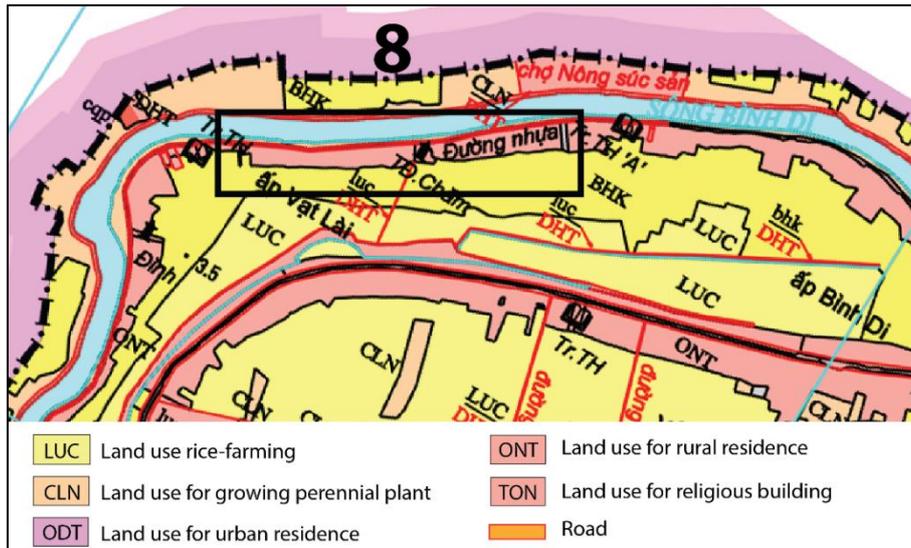


Figure 81 Land use in Khánh Bình village.

Source: Department of Natural Resources and Environment of An Giang Province, 2020.

9) The village of Vĩnh Hinh

The village of Vĩnh Hinh is located along the Núi Chóc Nặng Gù Canal in the period of 1972 to 1979 (Figure 83, 84) which has the population of 711 persons and 188 housing units (Population statistics of Cham Muslim Administration in the Mekong Delta, 2015). This village was established by the villagers came from Nhơn Hội, Khánh Bình and Quốc Thái who evacuated from the war Khmer Rouge. The mosque Kamiul Mukminin (Sunni Islam) was constructed in 1979 and sited at the central position creating a symmetrical pattern with the houses are scattered on the both side of the mosque. The mosque is also oriented to the West (the direction of Mecca). This village with the linear format along the canal is the one that has the longest boundary of 1,5km. In terms of population distribution, the village of Quốc Thái also maintain a unify layout with 151 Cham Muslim housing units accounted for 98.1%, 8 Vietnamese houses occupied 4.1% and without the existence of the Khmer or Chinese households.



Figure 82 Village of Vĩnh Hinh.



Figure 83 Two parts of Vĩnh Hinh Village (Above and below from the mosque).

According to the the map of land use (AGG2020), the Cham Muslim villages in Vĩnh Hinh (9) are distributed in the rural residential zone (code: ONT). The mosques are belonged to the religious zone (code: TON) (Figure 85).

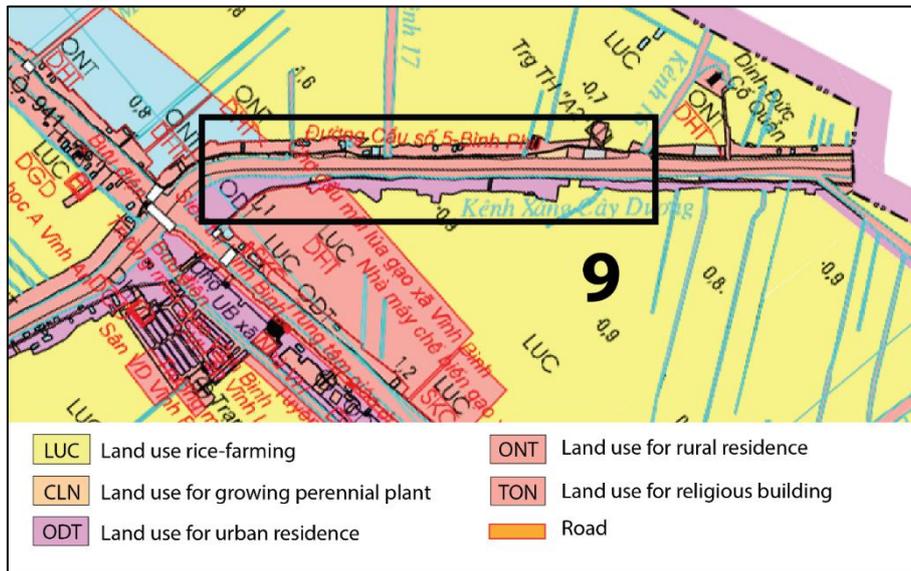


Figure 84 Land use in Vĩnh Hinh village.

Source: Department of Natural Resources and Environment of An Giang Province, 2020.

Regarding to land-use (Table 12), according to the map of land use Department of Natural Resources and Environment of An Giang province in 2020 (AGG2020), the village of Châu Giang (1), Khánh Hòa (3) and Châu Phong (4) are belonged to the urban residential zone (code: ODT). Since they are located near the Châu Đốc city with developed infrastructure and main streets of the province. While the remaining villages of Nhon Hội (2), Vĩnh Trường (5), Đa Phước (6), Quốc Thái (7), Khánh Bình (8) and Vĩnh Hanh (9) are belonged to the rural residential zone (code: ONT).

Table 12 Land use zoning of nine Cham Muslim Villages in the Mekong Delta.

CHAM MUSLIM VILLAGE AND LAND-USE ZONING			
N.o	VILLAGE	Code of Land-use zoning	Land-use zoning
1	Châu Giang	ODT	Urban residential zone
2	Nhon Hội	ONT	Rural residential zone
3	Khánh Hòa	ODT	Urban residential zone
4	Châu Phong	ODT	Urban residential zone
5	Vĩnh Trường	ONT	Rural residential zone
6	Đa Phước	ONT	Rural residential zone
7	Quốc Thái	ONT	Rural residential zone
8	Khánh Bình	ONT	Rural residential zone
9	Vĩnh Hanh	ONT	Rural residential zone

Summary, according to Table 13, it is clear that there are a small number of houses of other ethnic groups intermingled in 2,042 surveyed houses within the nine Cham Muslim villages in the Mekong Delta. All of the ethnic Cham houses is 1,988 units occupied 97.4% in the nine villages, while the Vietnamese houses (52 units) account for 2.5% in all of the settlements. There are only two ethnic Chinese houses (0.8%) existing in the village of Châu Giang. Furthermore, in case of the village of Vĩnh Trường, the only Vietnamese house existed before the resettlement in the area. Moreover, there are no any Khmer houses within the Cham Muslim villages.

Table 13 Proportion of ethnic groups' houses in nine Cham Muslim villages.

Ethnic Village	Cham Muslim		Vietnamese		Chinese		TOTAL
	Surveyed houses	%	Surveyed houses	%	Surveyed houses	%	Surveyed houses
1) Châu Giang	229	94.2%	12	4.9%	2	0.8%	243
2) Nhơn Hội	194	100.0%	0	0.0%	0	0.0%	194
3) Khánh Hòa	165	85.9%	27	14.1%	0	0.0%	192
4) Châu Phong	387	99.7%	1	0.3%	0	0.0%	388
5) Vĩnh Trường	414	99.8%	1	0.2%	0	0.0%	415
6) Đa Phước	114	100.0%	0	0.0%	0	0.0%	114
7) Quốc Thái	152	98.1%	3	1.9%	0	0.0%	155
8) Khánh Bình	145	100.0%	0	0.0%	0	0.0%	145
9) Vĩnh Hạnh	188	95.9%	8	4.1%	0	0.0%	196
TOTAL	1988	97.4%	52	2.5%	2	0.1%	2042

Therefore, as a whole, within all of the Cham Muslim villages in the Mekong Delta, the proportion of Cham households dominates the largest amount; while the appearance of the other ethnic groups' houses occupies a minor rate (Figure 86).

The main reason for the appearance of the other ethnic groups in the Cham communities is that the poorer Cham settlers sold their houses to the Vietnamese and Chinese. Nonetheless, mixing within the settlement is restricted since it is not compatible with customs and principles of Islam. For instance, the Cham have to eat halal food, do not eat pork, are not allowed to raise dogs, are prohibited from drinking alcohol and gambling, pray five times daily, marry within their religious community and do not eat in Vietnamese-owned establishments. These kinds of stringent rules make it hard for the Cham Muslim communities to associate with other non-Muslim communities.

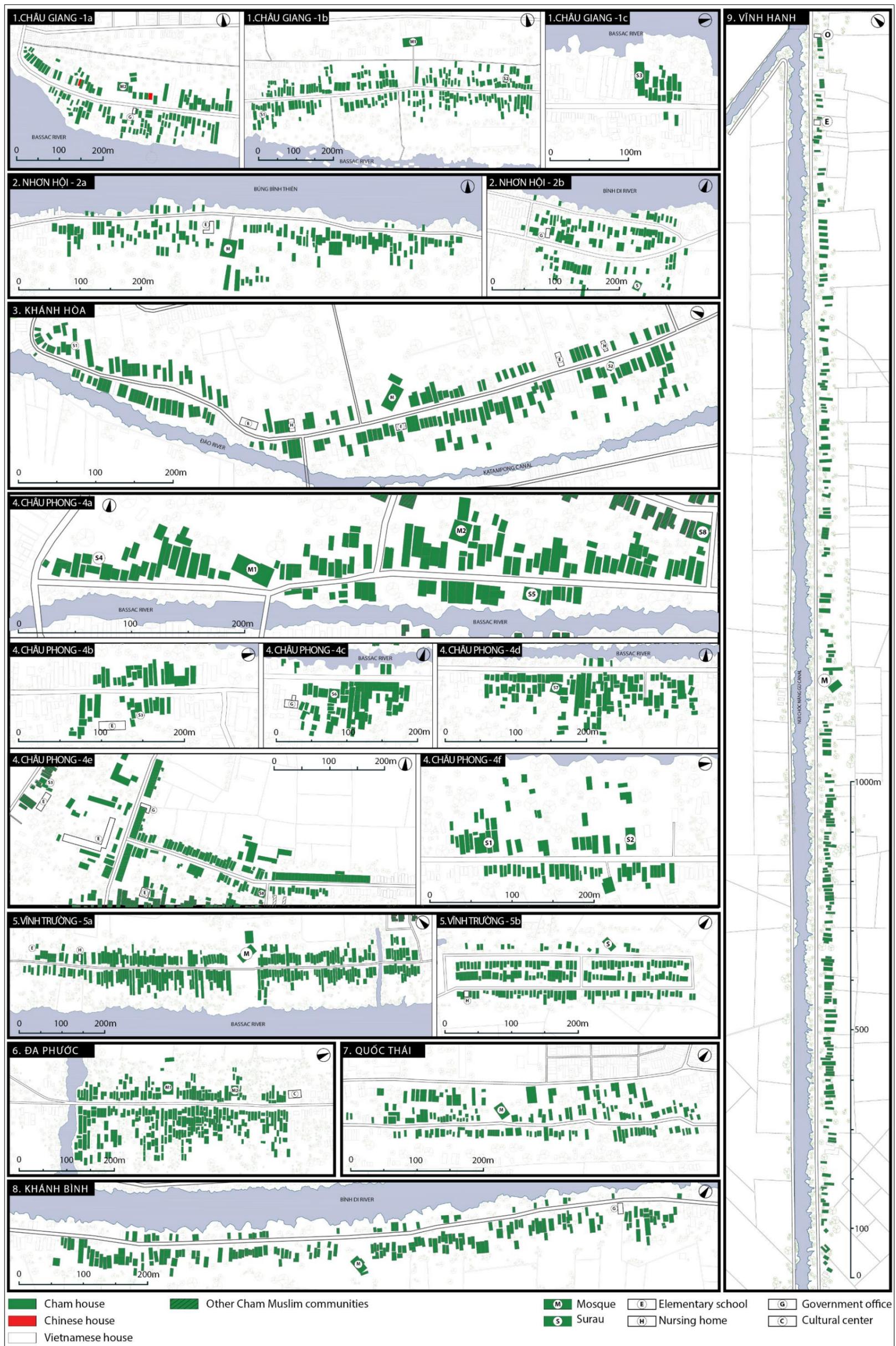


Figure 85 Distribution of Cham Muslim houses in nine villages.

5.3 Mosque and urban patterns of the Cham Muslim villages

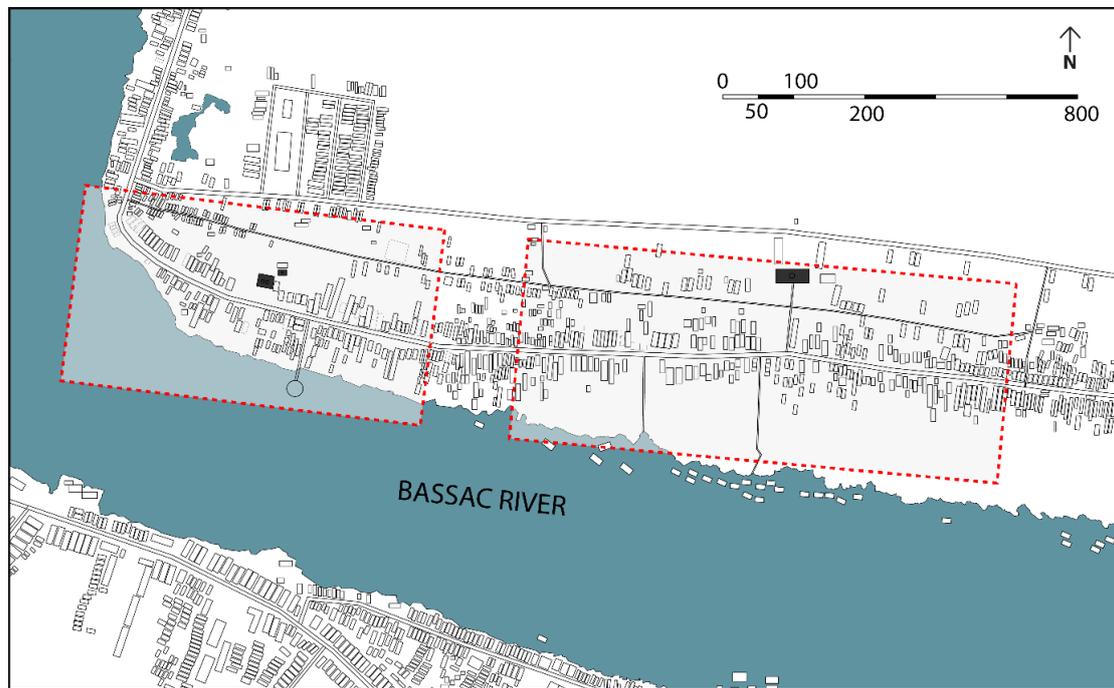


Figure 86 The mosques in the village of Châu Giang.

At the beginning when migrated to the Mekong Delta, the minority Cham have brought an absolute belief in Islam. The Cham community have not diminished their religious beliefs and piety in Islam among the other ethnic groups of Vietnam, Chinese and the Khmer who have followed Buddhism for a long time. Up to 1902, many Cham villagers in Châu Đốc went on the pilgrimage to the Mecca (Indochinoise, 1902 p. 79). The Chams in the Mekong Delta did not use the existing pagodas and churches to renovate them as the mosque, but they always built new ones according to Arab Islamic principles and then upgraded them gradually (Figure 87). The mosques were constructed at the same time as the village were founded. According to Islamic rules, if there are three or more households, they can construct a small wooden sanctuary as a temporary place for worship. That is the initial shape of the mosque in the Cham Muslim villages in the Mekong Delta. From the middle of the 18th to the 19th centuries, when the villages were first established and since had no financial conditions, the Chams in the Mekong Delta built temporary wooden sanctuaries with the roofs made of tiles or straw (Figure 88). According to the 1902 ethnic chronicle, the French described the Cham mosques at that time more like warehouses than worshiping facilities. These temples, although shielded on all four sides, still have rainwater leaked inside. The interior of the temples were completely empty, without any decoration to attract attention (Indochinoise, 1902 p. 79). If the community becomes wealthier, the temporary wooden mosques are demolished and renovated by a large and firm mosque made of bricks and concrete (Figure 89) with the donations from the villagers and the support of international Islamic organizations from the Middle East, Turkey and Asean countries like

Malaysia. According to the French records in 1902, until the late 19th century that the Cham community in Châu Giang had just able to erect a brick mosque and a few spacious houses showing the prosperity of their communities.

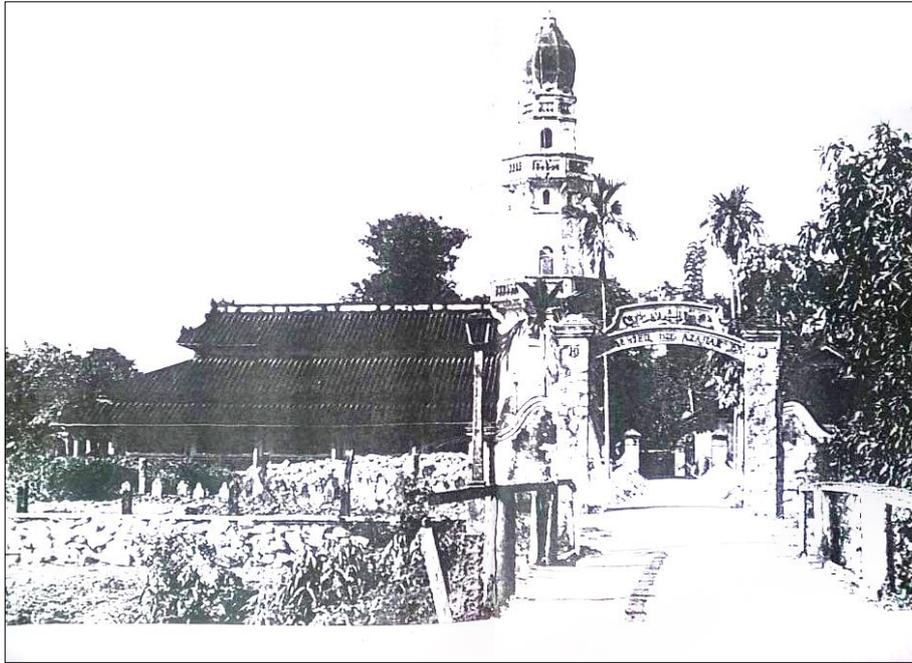


Figure 87 Jamiul Azhar Mosque made by wood in Châu Giang in 1808-1958.
(Source: A family photo supported by a villager in Châu Giang village)



Figure 88 Jamiul Azhar Mosque rebuilt in concrete in 1959.

In any Muslim communities, as the most important landmark, the Friday mosques influences to the formation and the boundaries of the Muslim villages. Consequently, in the Cham Muslim village, the Friday mosque in the Mekong Delta adheres to the laws of construction from Islamic principles.

As other mosque in the world, the Cham Muslims mosque is also considered as a multipurpose space (Figure 90). It is functioned as a place for worship, as an assembly hall, as court, as a learning and teaching center of community and as a place of rest, all at the same time. By attaching many social amenities, the mosque become the place where villagers gather for praying, meditation, Islamic teaching, and especially a place for self-realization. As a result, the mosques bring to the Cham Muslim communities solidarity, religious faith, and secular education. The Cham Muslims put the name of their mosques by Arabic language as Masjid.

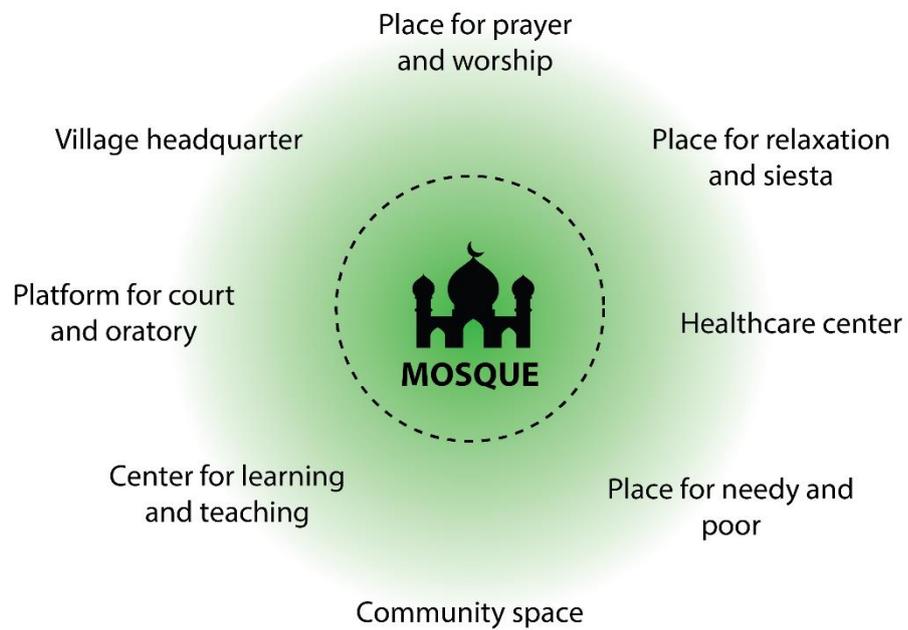


Figure 89 Mosque and its functions.

Regarding to the architectural style, according to the survey, the Cham Muslim mosques in the Mekong Delta have been designed after Arab style with centre dome and arcade made by rows of arches in the facade. The whole complex of the mosque is protected by boundary walls and a large gate with many Arabic decorations and patterns.



Figure 90 Al-Mubarak Mosque and cemetery in Châu Giang Village.
(Source: Vietnam Television VTV, 2016)

The mosque is placed in the middle of the village with a rectangular plan with a long axis of the building towards Mecca, creating a symmetrical composition in urban pattern. The construction site of the mosques were chosen in a large area, enough space for graveyard for the whole villager. The cemetery is located at the front or the rear of the mosque (Figure 91). These mosques have spacious veranda with tiled floors. The windows and doors all constructed by the Middle Eastern Islamic style.

One of the most visible elements of the mosque is the tower adjacent or attached to the mosque called *minaret*, from which the call to prayer (*adhan*) is announced by a *muezzin*. After the renovation, seven villages built their mosques with minarets. In detailed, the mosques Al-Mubarak (Châu Giang), Khoiriyah (Nhơn Hội), Al-Aman (Khánh Hòa), Al Nia'mah (Châu Phong), Ar-Rohmah (Vĩnh Trường), Al-Ehsan (Đa Phước) were rebuilt with the minaret attached to the mosques while the Jamiul Azhar and Jamiul Muslimin (Quốc Thái) consists of the separated minaret. However, the appearance of loudspeakers in these days have erased the original function of the miraret. Although lost the uniquely purpose, the minaret serves as a powerful visual landmark that prove the presence of Islam in the Cham Muslim community.

Another striking feature of most of the mosques is domes that called *qubba* in Arabic (Figure 92). A dome, although does not have ritual requirement like the *mihrab* but take a role as a symbolic representation of the vault of heaven (Figure 93). In early times, a dome was functioned to amplify the sound echo with the purpose that the voice of the Imam¹⁰ reciting the prayer can be heard all over the mosque (Khan, 2018 p. 41). Similar to the *minaret*, by the introduction of microphones and loudspeakers, the initial purpose of the *qubba* is lost and just remained as a symbol of the mosque.

Inside the Mosque, there is absolutely no any image, statue or decoration other than a *Mihrab* (Figure 94) (a semicircular niche in the wall indicates the *qubba*; that is, the direction of the *Kaaba* in Mecca and hence the direction that Muslims should face when praying (Figure 95)).



Figure 91 Qubba and minaret in Jamiul Azhar Mosque in Châu Giang Village.

¹⁰ Imam is an Islamic leader position who led Islamic worship services, serve as community leaders, and provide religious guidance.



Figure 92 Dome of Jamiul Azhar Mosque in Châu Giang Village.



Figure 93 *Mihrab* in Mukarromah Mosque in Khánh Bình Village.



Figure 94 Praying time in Al-Ehsan Mosque in Đa Phước Village.

If a community becomes larger, small temples called suraus will be built to facilitate the needs of the ritual and community activities. Similar to the mosque, the surau is initially built by wood (Figure 96), then rebuilt or upgraded in concrete building with large scale (Figure 97) if the community become wealthier. The surau serves as an additional weekly prayer spot, convenient for the families who live nearby and would not have to go as far as the Friday Mosque. However, everyone gathers at the Friday mosque every Friday. Some suraus are also situated in the direction towards Mecca, but this rule does not necessarily apply absolute and strict as for the mosque. However, when praying, the villagers must stand in a diagonal line with the sanctuary toward the West, the direction of Mecca. In the surau, there is no *mihrab* but there is a wooden platform as high as the normal seat used as a *minbar* for the *Khotib* (Luận, 1974 p. 207).



Figure 95 Wooden surau in Khánh Hòa Village.



Figure 96 Concrete surau in Nhơn Hội Village.

For normal urban areas, the markets are first formed in urban development, playing a central role in economic activities and a focal point of trade. However, unlike Vietnamese, Chinese settlements in the Mekong Delta, where the market is always centrally located at an important location, normally close to ferries and riverbanks, there is not exist fixed market in the of Cham Muslim villages. This is also a remarkable feature in the structure of Cham Muslim village in the Mekong Delta. Food and daily necessities are provided through market stall as movable market (Figure 98). In addition, another source to support food is street vendor (Figure 99), a kind of mobile market. Since the Cham Muslim only eat the foods which are prepared according to a dietary standard for Muslims, as prescribed in the Qur'an. For them, Islam is not only a religion it is a way of life with protocols, rules and manners governing every facet of life. Therefore, eating is considered to be a matter of worship of God like prayer, fasting, alms-giving and other religious activities. With Islamic regulations, the Cham Muslims is not permitted to not eat pork and drink alcoholic beverages, nor raising dogs. Therefore, the Cham also want to live separately from other communities, especially the Vietnamese villages where they often eat pork, raise dogs and drink alcohol. Therefore, these two communities are not compatible in cohabitation, because of differences in rules and social laws.



Figure 97 A market stall in Vĩnh Trường Village.



Figure 98 A street vendor in Đa Phước Village.

Regarding to the urban formation, unlike urban pattern of Islamic town in Arab, in which the streets like a system of blood vessels, branch out from a central square (called *maidan*) to become lanes and narrow alleys (Ragette, 2012 p. 50), the nine Cham Muslim villages in the Mekong Delta display a different structural urban configuration: a linear and symmetrical format spreading out from the mosque, which acts as the central religious landmark. Although the houses are attached and oriented to the roads that stretched along the rivers or canals. All of the mosques in the Cham Muslim villages have rectangular floor plan with the East-West axis oriented towards Mecca. Observed modern-day transformations include the expansion of villages by the creation of new communities, which also maintained the symmetrical format extending from the mosques or suraus as their religious landmarks.

Nonetheless, in Arab region, the pattern of lanes created by the gap of the irregular shape of houses is organical and disorganized. The whole town is considered as a pedestrian zone, where trading takes place in the narrow streets (Figure 100, 101). Arab town has no formal town-square as in the western urban (Ragette, 2012 p. 51). The main and largest landmark in Arab urban is the Friday mosque. The street system spread in a random pattern. The trading takes place in narrow lanes and protected by movable canvas shades or permanent roofing.



Figure 99 Urban pattern of Fez, Morocco.
(Mortada, 2003 p. 78)

Figure 100 Urban pattern of Medina, Saudi Arabia.
(Mortada, 2003 p. 78)

In the Mekong Delta, since long-distance trading is the primary activity of the Cham Muslim villages in the Mekong Delta (Taylor, 2007), the locations of their settlements were close to the rivers or canals. Regarding to the typical formation of the Cham Muslims has a composition with the mosque was built on the large plot at the middle and the housing units are spreaded symmetrically along the road, the river or the canal on the both left and right direction. Moreover, the linear configuration of the villages and their extensions are parallel to the roads and waterways.

As the mosque is located at the central of the village, as a result, the inhabitants could be able to access easily by walking in a suitable period of time.

Based on this information, four cases of spatial configurations are determined (Table 14):

1) Villages wherein housing aligned along both sides of the road, and the mosque (or surau) is located far from the river. This is the most common case.

2) Villages wherein housing aligned along both sides of the road, and the mosque (or surau) is located on the riverside.

3) Villages wherein housing and mosque (or surau) aligned on only one side of the road and river.

4) Villages wherein housing and mosque (or surau) situated inland, without connection to the waterways.

5) In many cases, the boundaries between village and the rest of housing area identified by small streets perpendicular to the main roads.

Table 14 Urban patterns of the Cham Muslim village in the Mekong Delta.

TYPE		TYPE 1		TYPE 2		TYPE 3		TYPE 4	
URBAN PATTERN									
No	VILLAGE	MOSQUE	SURAU	MOSQUE	SURAU	MOSQUE	SURAU	MOSQUE	SURAU
1	Châu Giang	M1, M2	S2		S1, S3				
2	Nhon Hội	M							S
3	Khánh Hòa	M	S1		S2				
4	Châu Phong	M2	S3,S6,S7		S1,S2,S5	M1	S4		S8
5	Vĩnh Trường	M							S
6	Đa Phước	M1, M2							
7	Quốc Thái							M	
8	Khánh Bình	M							
9	Vĩnh Hạnh					M			

Housing units Mosque, Surau River, canal

In addition, regarding to formation of the Cham Muslim villages in the Mekong Delta, the issue of acoustic is taken into consideration. This factor is relevant to the *adhan* sound intensity of the mosque. For that reason, by measuring the distance from the mosque and the surau with the village boundary, the rule of the distance has been found.

In Islamic tradition, the muezzin (called *mu'addin* in Arabic) is the official person appointed at a mosque to proclaim the call to the daily prayer (*ṣalāt*) five times a day on a strict and righteous schedule at dawn, noon, midafternoon, sunset, and nightfall and to prayer (*adhān*) for the public worship on Friday (al_Modarresi, 2018 p. 470). To summon worshippers, the Muslims use the human voice instead of the bell or trumpet. Historically, a muezzin would have recited the call to prayer atop the minarets in order to be heard by those around the mosque. The Muslim community depends on him for an accurate prayer schedule. After minarets became customary at mosques, the position of muezzin in cities was sometimes given to a blind man, who could not see down into the inner courtyards of the citizens' houses and thus could not violate the privacy. Thus, the call to prayer and Qur'an recitation is served as a phenomenon called "soundmark" which created the unique soundscapes of Islam in the Muslim communities (Lee, 1999 p. 87). As a result, the sound intensity has identified the boundary of the Islamic community, based on the area over which the muezzin's voice could be heard. Thus, with the strong influences of the Islamic laws and religious activities regulated by Islam, the matter of distance between the mosque, surau and the houses, therefore, is always considered in the boundary and also the process of expanding the scope of the village (Figure 102).

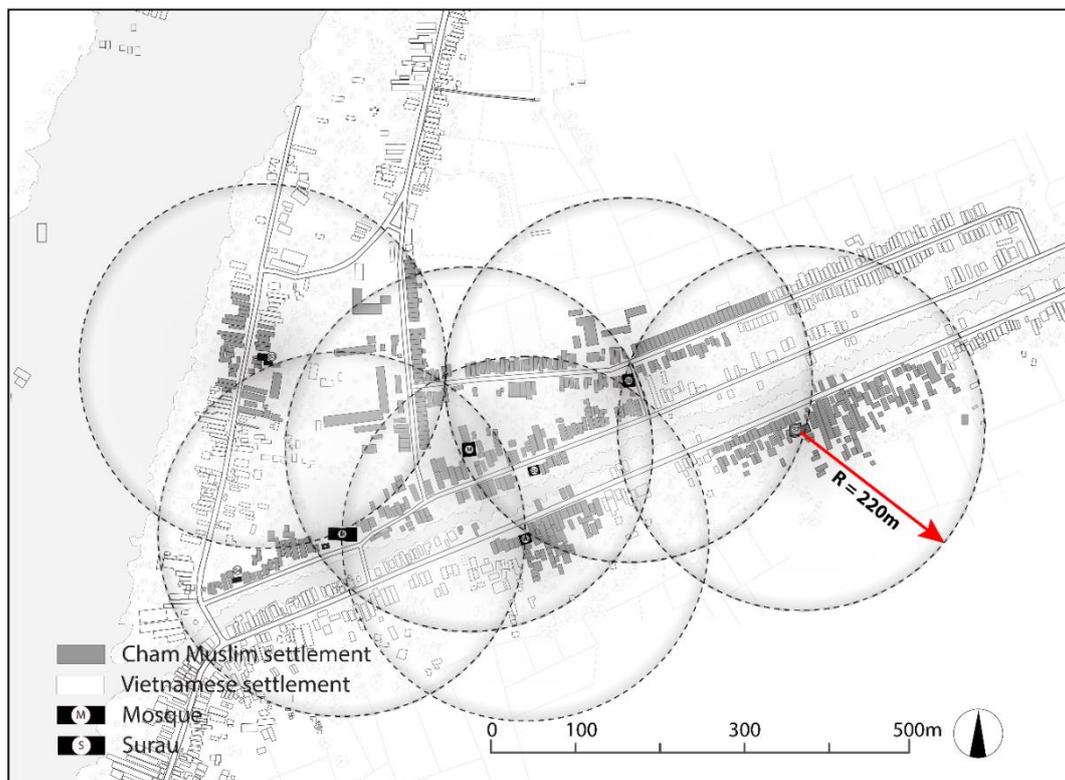


Figure 101 Circles of sound and the boundaries in Châu Phong village.

According to the survey results, the boundaries of the Cham Muslim communities are based on distances of approximately 220 metre from the Mosque or the surau which located at the central points. Therefore, selecting the mosques and the suraus as central points and measuring the distances to the periphery of the villages, the boundary circles made have radii of 220 metre. By this distance of 220 metre, every household could be able to hear the recitation of the Qur'an by the muezzins that is called out from the mosque in the village five times a day (Hwaish, 2016). Moreover, the villagers could easily walk away to go to the mosques without any transportation vehicle (Table 15).

The sound pressure level is calculated using the formula by Eberhard Sengpiel of $L_2 = L_1 - \left| 20 \cdot \log \left(\frac{r_1}{r_2} \right) \right|$, with $r_1 = 1\text{m}$, $L_1 = 90\text{db}$, $r_2 = 220\text{m}$, and $L_2 = 43.15\text{ dB}$. The source of the sound of a muezzin from the mosque is assumed as 90 dB, which corresponds to loud sounds. After it reaches to the farthest houses, the sound pressure level decreases to the average listening threshold at 43.15 dB, which corresponds to a quiet conversation (Figure 103). In addition, Akeel Noori Almulla Hwaish described in his study about the concept of the Islamic house that the maximum walking distance to the mosque in an Islamic residential area does not exceed 250 meters (Hwaish, 2016 p. 19). For that reason, the original Islamic villages and cities were pedestrian zones where the residents had convenient access to all the services, like mosques or schools by walking (Nu'Man, 2016). Related to this theory, the principle of limit within this periphery of 220 metre is accurate for the old Cham Muslim villages in the Mekong Delta. The borders of the sound circles with mosques or suraus at the central point cover the entire bounds of the communities, and intersect at the positions of the other mosques or suraus (Figure 102).

1 Châu Giang	218 M1 228	29 S1 375	M2 229	S2 63	163 S3 66
	1a	1b		1c	
2 Nhơn Hội	320 M 291	168 S 78			
	2a	2b			
3 Khánh Hòa	305 S1 195	M 292	S2 87		
	3				
4 Châu Phong	182 S4 180	M1 180	M2 63	S5 145	70 S3 70
	4a		4b		
	53 S6 105	110 S7 185	237 S8 193	221 S1 50	S2 0
	4c	4d	4e	4f	
5 Vĩnh Trường	415 M 405	254 S 138			
	5a	5b			
6 Đa Phước	192 M1 142	M2 140			
	6				
7 Quốc Thái	245 M 300				
	7				
8 Khánh Bình	479 M 499				
	8				
9 Vĩnh Hạnh	1185 M 1300				
	9				
M Mosque S Surau 000: Distance (Unit: metre)					

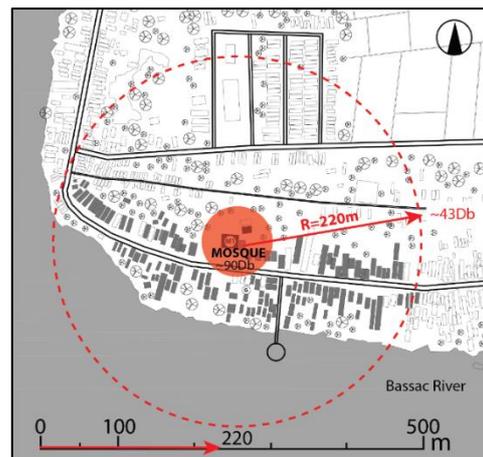


Table 15 Distances from mosques and suraus to village's boundaries.

Figure 102 Sound pressure and the length of village boundary.

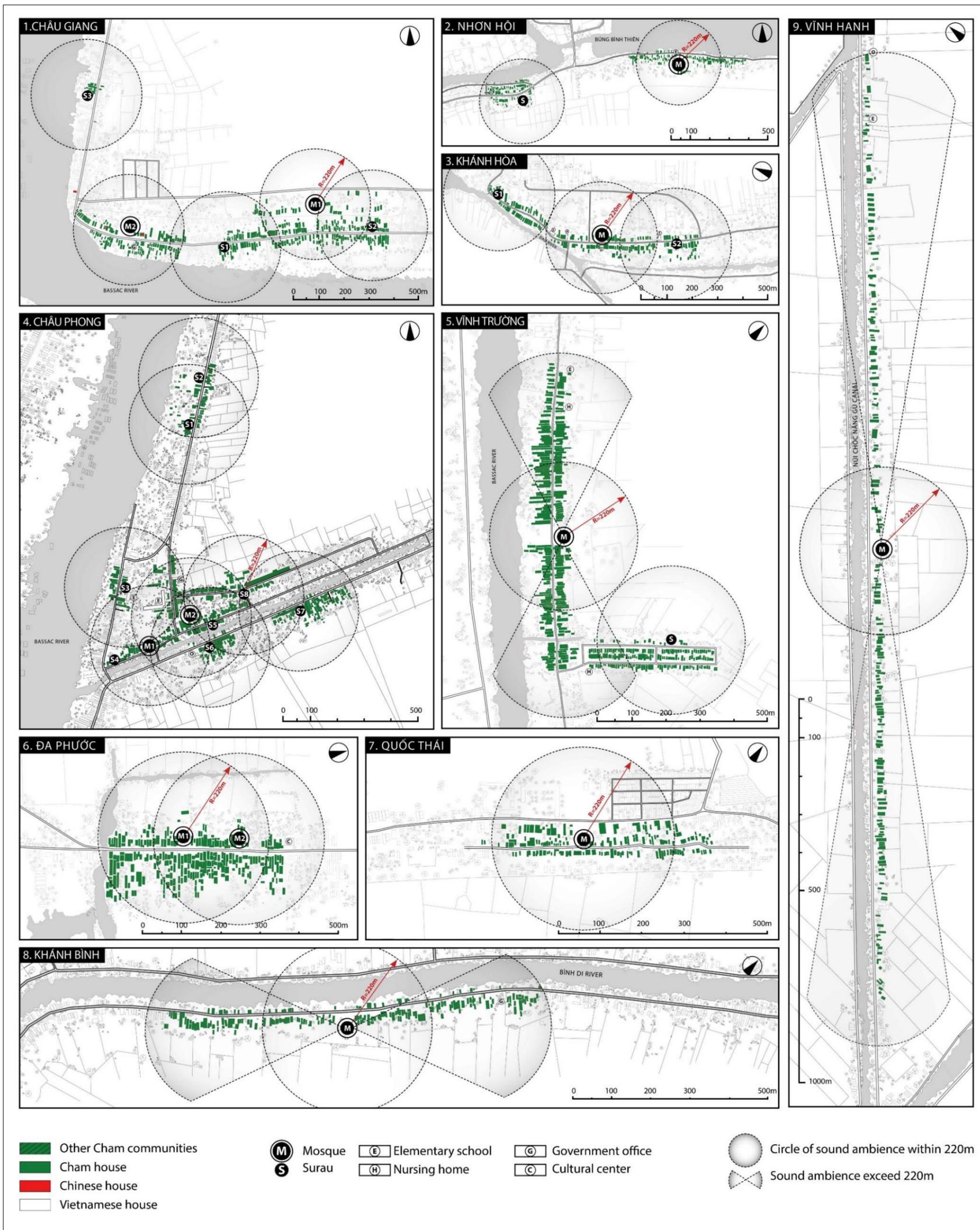


Figure 103 Circles of sound pressure and the boundaries in nine villages.

As the village expands, suraus will be built to support the ceremonies of new communities (new *Puks*), and new houses are also arranged within the limit of 220 metre. However, the boundaries of the nine villages have still maintained in a symmetrical and linear layout (Figure 104). The villages were extended by spreading symmetrically on the both sides with the mosque or surau at the central points. This hypothesis of the sound amplitude principle is appropriate to the early communities: Châu Giang (1a, 1b, and 1c), Nhơn Hội (2b), Khánh Hòa (3), Châu Phong (4a, 4b, 4c, 4d, 4e, and 4f), Vĩnh Trường (5b), Đa Phước (3).

Whereas traditionally the muezzin, or reciter of the *adhan*, would recite the call from the top of the minaret. However, in recent times, many mosques in the world have installed electronic recordings of the call to prayer, amplifiers and microphones have been used to displace the muezzin. In addition, unlike walking to the mosque in the past, the villagers nowadays can ride motorbikes to reach to the mosque or surau. The effects of these innovations are evident in reestablished villages Vĩnh Trường (4a), Quốc Thái (7), Khánh Bình (8) and in the new village of Vĩnh Hạnh (9), which surpass the boundary of 220m.

For historical reasons, the villages of Nhơn Hội (2a), Vĩnh Trường (5a), Quốc Thái (7), and Khánh Bình (8) were severely damaged even destroyed in the Khmer Rouge and were rebuilt from 1979 (Döpf, 1993). The village of Vĩnh Hạnh (9), was also officially established in 1979 by the refugees who had come from the villages above. Rebuilt from the empty land, thus the village boundaries surpass the limit of 220 m, larger than the old villages where the boundaries were defined and limited by the adjacent Vietnamese villages from the past. Moreover, by using the amplifiers and microphones and the motorbike as transportation mean to approach the mosque, as a result, the construction of suraus to serve as additional prayer spots have become unnecessary. Nevertheless, even the village boundaries have been extended farther distances than in the past, the symmetrical characteristic of the urban pattern of the Cham Muslim villages with the mosque as a central religious landmark has remained.

In terms of urban, by this formation, the Cham Muslim villages in the Mekong Delta maintain the essential characteristics of an ideal urban village (Scanlon, K., Sagor, E., Whitehead, C., & Mossa, A., 2016). Firstly, the Cham Muslim villages were generated in small-scale areas (approximately 500m in linear configuration), so that the village's boundary can comfortably be covered on foot. In addition, the daily moving distance of a normal villager is about 220m to reach to the mosque, which located the the middle point of the village. Beside in a moderate residential density, the scale of the one-storey traditional houses makes inhabitants comfortable and intimate. Secondly, the villages area has defined boundaries with the mosques are the identifiable centers (the mosque is large scale with about 30-meter-tall minarets) and considered as the community landmarks where the regular community events and festivals taken place. Therefore, the mosques which were built from the beginning of the village establishment, create the collective memories for the residents within the villages. Thirdly, regarding to gathering places within the village, the mosques and the suraus provide the meeting places for prayer as daily activity. They consist also the school with the mosque campus, where the people, especially the children study the languages of Arab, Cham and Islam theory. Consequently, with walkable routes, the mosques generate the social interaction among the villagers. In addition, the village chief (called *Hakem*) represents the community and the *Hakem* committee the self-governing system

responsible for dealing with and taking care of everything in the village, not just religious matters. Furthermore, since the villages are located along the riverbanks, the people are easily accessible in both the waterway and roads by the boats and the road transports. Beside the multi-function for religious, culture and society of the mosques, the street vendors who provide the food and daily necessities for each house within the village. Finally, there is a mix of ages, incomes and housing tenures within the community, where the residents know and trust each other with the absolute belief in Islam.

With all of these characteristics, the Cham Muslim villages in the Mekong Delta possess a unique sense of community and environmental sustainability.

5.4 Transformations of the Cham Musim villages

Up to now, the Cham Muslim villages in the Mekong Delta have been transforming due to the population growth and the policy of resettlement. There are 10 groups of old settlements¹¹ with expansions and 8 groups of completely new settlements (Table 16).

The new settlements were established in two ways. One is establishment a new community in a separate location. For instance, in Châu Phong village, the new communities (Châu Giang 1c, Châu Phong 4b, 4c, 4d, 4e, 4f, Nhơn Hội 2b) or the resettlement area (Châu Phong 4e, Vĩnh Trường 5b). In addition, the other one is expanding the village' boundary (Châu Giang 1a, 1b, Nhơn Hội 2a, Khánh Hòa 3, Châu Phong 4a, Vĩnh Trường 5a, Đa Phước 6, Quốc Thái 7, Khánh Bình 8, Vĩnh Hạnh 9).

Table 16 Old settlement and new settlement of Cham Muslim communities.

No	Cham Muslim communities in the Mekong Delta							
	Village	Old settlement		New settlement				
1	Châu Giang	1a	1b	1c				
	Year built	1750 - 1757		1956				
2	Nhơn Hội	2a		2b				
	Year built	1820-1841		1992				
3	Khánh Hòa	3						
	Year built	1820-1841						
4	Châu Phong	4a		4b	4c	4d	4e	4f
	Year built	1843-1844		2005	2002	2005	2008	1941
5	Vĩnh Trường	5a		5b				
	Year built	1843-1844		2012				
6	Đa Phước	6						
	Year built	1843-1844						
7	Quốc Thái	7						
	Year built	1854-1858						
8	Khánh Bình	8						
	Year built	1854-1858						
9	Vĩnh Hạnh	9						
	Year built	1972-1979						

¹¹ Since the Cham Muslim communities were established in the same period of time with the mosque. Thus, the year built of the communities is taken according to the year built of the mosque or surau which were written on the top of the gate in front of the mosque.

The transformation of the nine villages is described as follows:

5.4.1 Transformation in period of time

The formation and transformation of Cham Muslim villages and houses were impacted by five main phases of time (Table 17). The first period is the initial formation of the village in the 18th century. Nonetheless, according to the survey, it was difficult to identify the construction year of the old houses. Most of the homeowners stated that their houses were built from 150 until about 200 years before. Consequently, the author classified these old houses in the period before the 1900s (Figure 105).

The next phase that impacted the village restructuring is the year 1964. The severe flood in that year caused serious damages for not only Cham Muslim communities but also the whole of the Mekong Delta. Actually, flood is the main factor that influenced the inhabitant in the Mekong Delta. However, in the year 1964, all three effects were present: high water levels on the Mekong River, high tides in the South China Sea, and heavy rainfall in the whole area (Bruun, 2013). After this period, many houses were destroyed and rebuilt.

The following phase that significantly affected the reformation of Cham Muslim villages was the period of 1978 and 1979 since the war between Vietnam and Cambodia. Under the attack and devastation of the Khmer Rouge, the villages near the border areas of Vietnam and Cambodia were severely damaged. There were almost no houses left in its entirety. The remaining houses also had to be rebuilt again. Therefore, although it was formed in the middle of the 18th century, the houses in Nhơn Hội, Khánh Bình, and Quốc Thái were reconstructed from this time. The immigrants from these three villages established the village of Vĩnh Hạnh. They built a mosque and created a new village in 1979.

The most recent phase affecting the Cham villages was the year of 2000. In that year, a severe flood heavily damaged the whole Mekong Delta (Le, Haruyama, Nguyen, Tran, & Bui, 2007). As a result, the houses were once again repaired and upgraded. For that reason, the Vietnamese local authorities had issued policies to upgrade the system of dikes and roads in the whole Mekong Delta region, including An Giang Province. In 2004, the Prime Minister's Decision No. 134/2004 / QĐ-TTĐ established the communities who settled near the edge of the Bassac River in Vĩnh Trường, Châu Phong on the supportive policies for productive land, residential land, houses and tap water for the poor ethnic minority households.

In conclusion, by the impacts of floods, natural disasters, wars and urban policies, the format of Cham villages, therefore, has been greatly affected and most houses have been rebuilt or renovated. However, the position of the mosques is unchanged from the first built location. In addition, the houses have a life span of more than 100 years, although there have been many changes; the location has been preserved up to the present time. The author's records in the map of time distribution documented the current condition of the nine Cham villages in An Giang province (2018). For these reasons, the original format of the villages could not be determined. However, based on the current distribution by time, two conclusions can be drawn.

Firstly, the old village clusters contain the number of old houses more than the later established villages. The areas near the Vietnam-Cambodia border and in resettlement areas comprise only the houses built from the 2000s.

Secondly, old and new houses are scattered and intertwined, not following any rules. The reason is that in the 19th century, when the residential land was prescribed width of 10m and a depth of about 100m (Indochinoise, 1902), the Cham Muslim house was built with a width of about 6 meters, each side leaving about 2m. Very few houses are surrounded by fences. However, the area in residential areas today is 5 meters wide and 20 to 50 meters deep. Therefore the house was later built with a 4-meter wide facade, leaving 0.5m on each side of the plot.

Currently, due to the increasing population, the demand for housing construction increases, but the scope of the villages has a certain limit regulated by the Vietnamese government. Therefore Cham people build new houses among the old ones. In addition, some old houses have been relocated to new locations depending on the needs and division of property of the house owner. Furthermore, the houses are built into the rear of the houses adjacent to the road (such as the villages of Châu Giang, Đa Phước, Vĩnh Trường). According to Table 18, the village of Châu Giang consists of the largest number of old houses than in comparison to remaining villages (87 houses built before 1979, of which 5 houses were erected over 150 years old, 53 houses were built between 1900 and 1964 and 29 were built after 1965). Châu Phong Village has 84 old houses, of which four houses dated before the 1900s and 80 housing units were constructed between 1900 and 1978. Khánh Hòa Village comprises 56 houses built between 1900 and 1978. The remaining villages have fewer ancient houses with 33 houses in Đa Phước and 21 houses in Vĩnh Trường. Meanwhile, the villages of Nhơn Hội, Quốc Thái, and Khánh Bình consist of new houses. The remnants of the old houses in these villages have also been greatly damaged, almost without integrity. Since Vĩnh Hạnh village was established in 1979, thus all of the houses have been constructed within around 40 years.

Table 17 Cham Muslim houses by period of time (unit: house).

VILLAGE	Code	before 1900s	1900s - 1964	1965- 1978	1979 - 2000	2000- now	Total
1. Châu Giang	1a	2	23	4	5	40	74
	1b	3	28	21	19	74	145
	1c	0	2	4	0	4	10
	Total	5	53	29	24	118	229
2. Nhơn Hội	2a	0	4	3	37	50	94
	2b	0	0	2	4	94	100
	Total	0	4	5	41	144	194
3. Khánh Hòa		0	30	26	25	84	165
4. Châu Phong	4a	3	18	29	6	33	89
	4b	0	5	5	13	8	31
	4c	0	1	5	6	13	25
	4d	1	9	7	6	25	48
	4e	0	1	0	0	141	142
	4f	0	0	0	1	51	52
	Total	4	34	46	32	271	387
5. Vĩnh Trường	5a	0	9	13	74	137	233
	5b	0	0	0	0	181	181
	Total	0	9	13	74	318	414
6. Đa Phước		1	16	17	25	55	114
7. Quốc Thái		0	2	0	44	106	152
8. Khánh Bình		0	2	2	14	127	145
9. Vĩnh Hạnh		0	0	0	21	167	188
TOTAL		10	150	138	300	1390	1988
Percentage		0.50%	7.55%	6.94%	15.09%	69.92%	100%

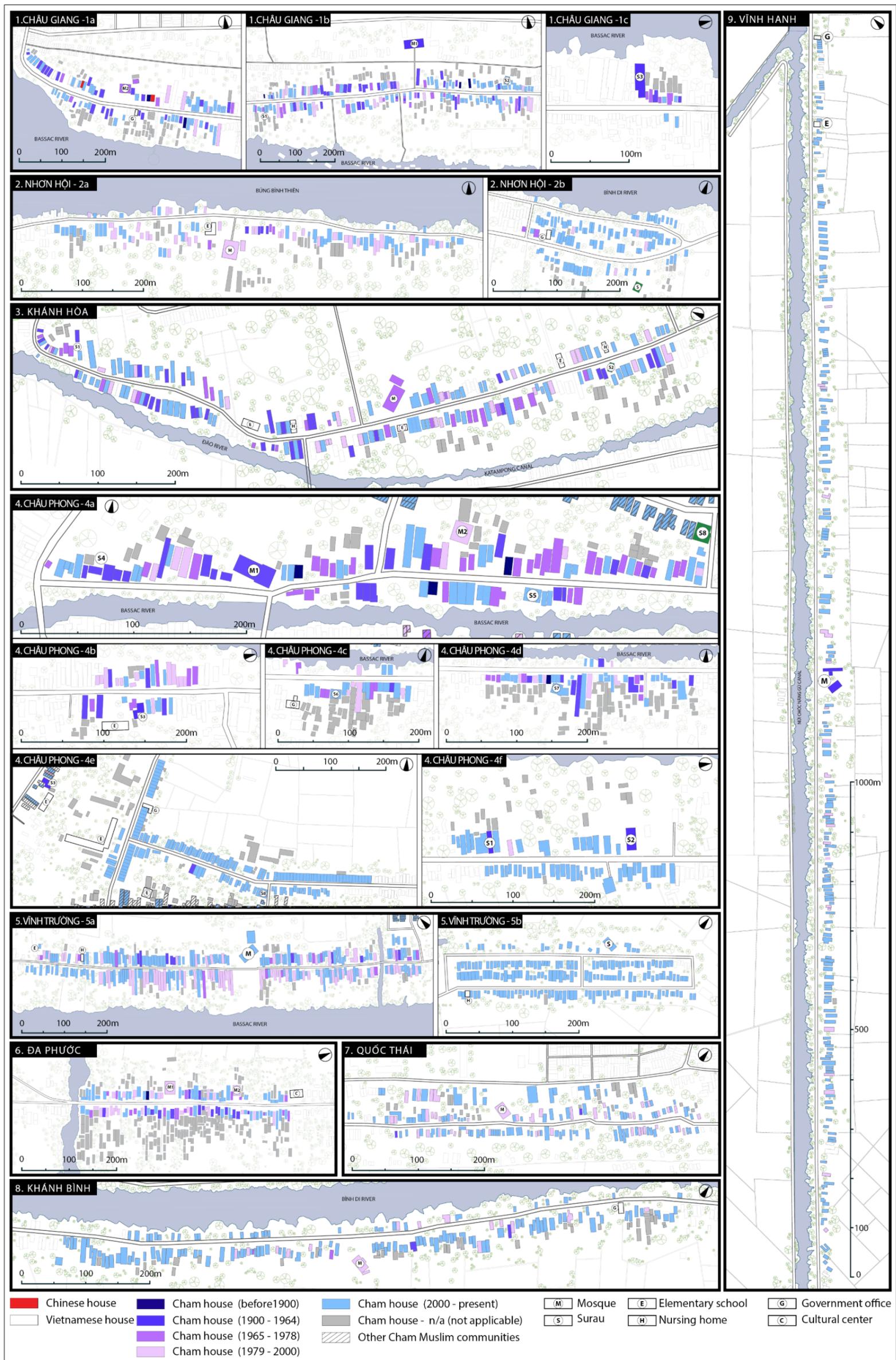


Figure 104 Distribution of Cham Muslim house in period of year built.

5.4.2 Transformation in structure and material

Since the trees that have good quality are not available in the Mekong Delta, almost the columns used for the construction of traditional Cham Muslim wooden stilt houses were transported from Cambodia during the flooding seasons. However, by the impacts of natural disasters and wars, many houses have been rebuilt with poorer quality wood, and, concrete has been used to construct structures and bricks to build walls recently. The types of wood used in recent times are also unstable and have a small size. Therefore, the wooden houses built from 50 years ago did not use by large round columns like the previous days, but only built by square wooden pillars with sides about 150mm.

Table 18 Cham Muslim houses by structure and material (unit: house).

VILLAGE	Code	Wood (W)	Concrete (C)	Concrete + Wood (CW)	Wood + Steel (WS)	Concrete + steel (CS)	TOTAL
1. Châu Giang	1a	30	28	6	10	0	74
	1b	62	61	18	3	1	145
	1c	3	5	0	2	0	10
	Total	95	94	24	15	1	229
2. Nhơn Hội	2a	53	22	0	19	0	94
	2b	94	5	1	0	0	100
	Total	147	27	1	19	0	194
3. Khánh Hòa		128	36	0	0	1	165
4. Châu Phong	4a	67	21	0	1	0	89
	4b	6	25	0	0	0	31
	4c	9	15	0	0	0	24
	4d	25	23	0	0	0	48
	4e	4	134	2	2	0	142
	4f	10	41	0	2	0	53
	Total	121	259	2	5	0	387
5. Vĩnh Trường	5a	129	45	15	44	0	233
	5b	31	143	4	3	0	181
	Total	160	188	19	47	0	414
6. Đa Phước		91	18	0	5	0	114
7. Quốc Thái		85	65	2	0	0	152
8. Khánh Bình		117	27	0	1	0	145
9. Vĩnh Hạnh		29	55	95	8	1	188
TOTAL		973	769	143	100	3	1988
Percentage		48.94%	38.68%	7.19%	5.03%	0.15%	100.00%

According to the statistics of structure and materials (Table 18), half of the houses surveyed (973 units) were made of wood, accounting for 49%. The houses made of concrete include 769 units, accounting for 38.7%, while the houses made from a combination of concrete frames and wooden walls or sloping frames account for a very small proportion (7.2% for concrete and wood, 5% for Steel and 0.15% for concrete and steel).

The distribution of houses by structure and materials is shown in Figure 106. In particular, wooden houses always account for the highest proportion in most villages. However, the concrete houses built in the recent period are concentrated in resettlement (Châu Giang 4e, Châu Phong 4f, and Vĩnh Trường 5b). The village of Vĩnh Hanh has the proportion of houses made of concrete and wood, accounting for approximately 50% with 95 units out of 188 houses in the village. From the time of the 1979s, almost the houses constructed by concrete.

According to the survey, many villagers said that they preferred living in wooden stilt houses because of the feeling of familiarity, and better thermal comfort than in concrete houses. However, due to the effects of floods and landslides in the riverbank, many houses were rebuilt with more concrete for safety purposes.

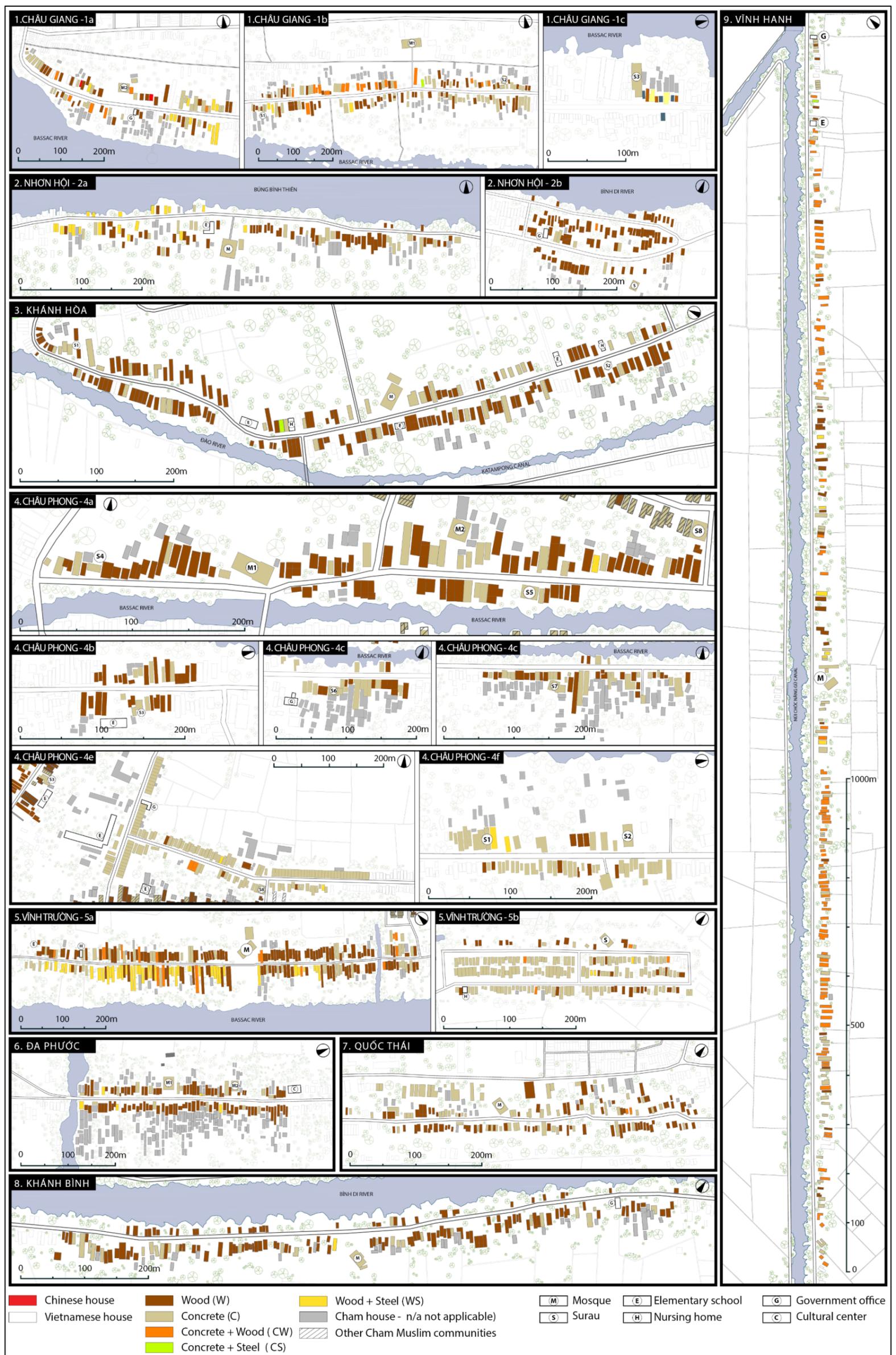


Figure 105 Distribution of Cham Muslim house by structure and material.

5.4.3 Transformation in building storey

All traditional Cham Muslim houses in the Mekong Delta are single-story stilt houses. Newly built houses and resettled houses, even though made of concrete, they were mainly built in one-floor. According to the survey results, the number of single-storey houses is 1714 units, accounting for 86.22%, while that of two-storey houses is 260 units, accounting for 13.08%. The number of three-storey houses is very small, only 14 units account for 0.7% (Table 19).

In terms of distribution, the number of one-story houses accounts for the highest number of all villages (Figure 107). However, the two villages with the most two-story houses are the villages of Châu Giang and Châu Phong. These two villages have the largest amount of population and higher income than the remaining villages, due to its location nearby to the Châu Đốc city, therefore convenient for trade. In addition, all of the 2 and 3-storey houses are made by concrete in the 2000s.

Table 19 Cham Muslim houses by structure and material (unit: house).

VILLAGE	Code	1 Storey	2 Storeys	3 Storeys	TOTAL
1. Châu Giang	1a	40	33	1	74
	1b	94	49	2	145
	1c	5	5	0	10
	Total	139	87	3	229
2. Nhơn Hội	2a	84	9	1	94
	2b	98	2	0	100
	Total	182	11	1	96
3. Khánh Hòa		155	9	1	194
4. Châu Phong	4a	79	9	1	89
	4b	28	2	1	31
	4c	17	7	1	25
	4d	35	11	2	48
	4e	71	71	0	142
	4f	46	6	0	52
	Total	276	106	5	387
5. Vĩnh Trường	5a	218	11	0	229
	5b	180	5	0	185
	Total	398	16	0	414
6. Đa Phước		96	14	4	114
7. Quốc Thái		143	9	0	152
8. Khánh Bình		144	1	0	145
9. Vĩnh Hạnh		181	7	0	188
TOTAL		1714	260	14	1988
Percentage		86.22%	13.08%	0.70%	100.00%

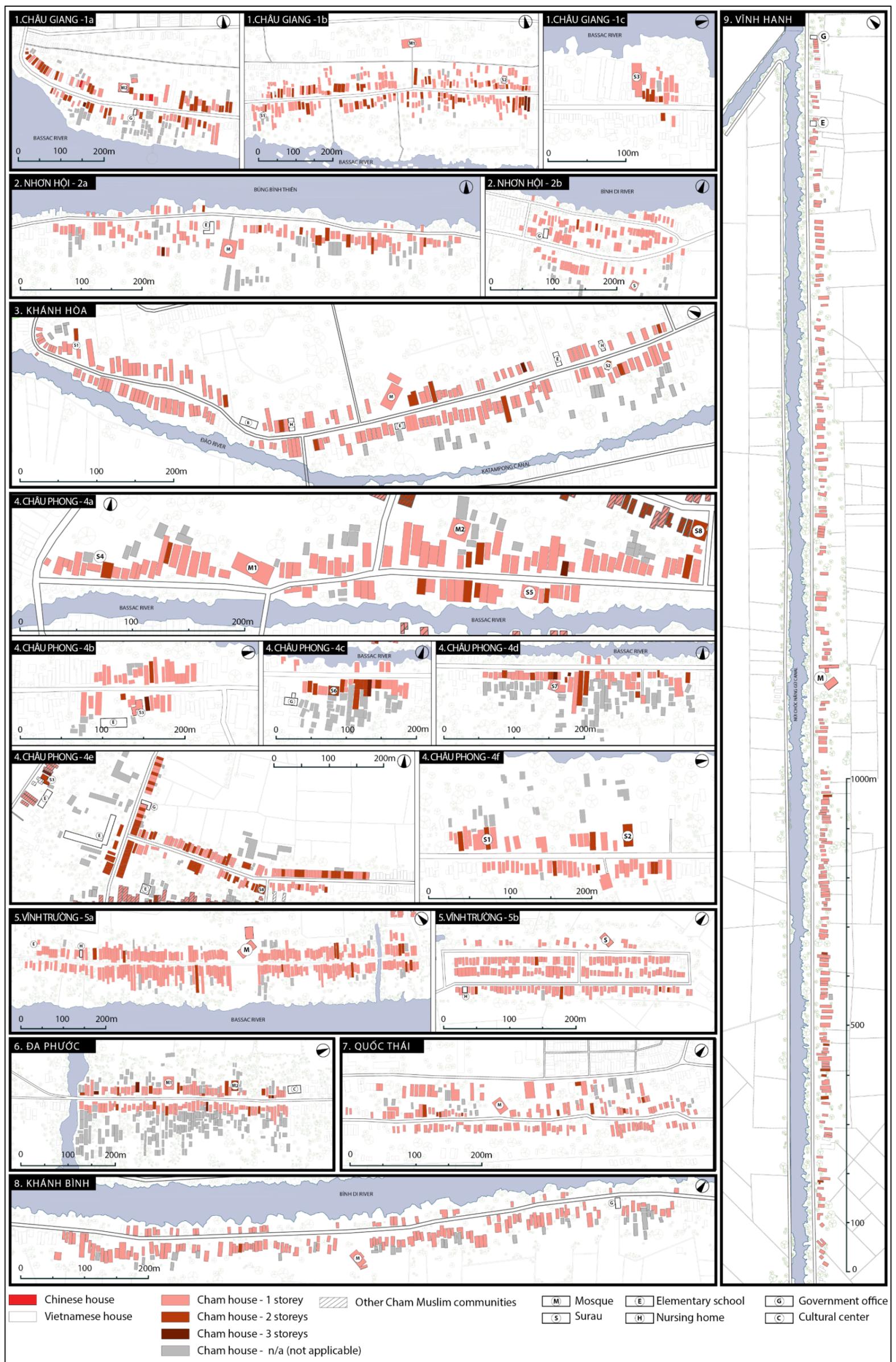


Figure 106 Distribution of Cham Muslim houses in housing storey.

5.4.4 Transformation in building function

In the Cham Muslim village, except mosque, surau, schools and local administrative offices, all of the buildings are residential units. In terms of land use planning, the Chams villages are located in the urban land (Châu Giang, Châu Phong, and Khánh Hòa villages) and rural residential land (the remaining villages). Particularly, there are two housing types: 92% in residential houses and 8% residential combined shop houses of the 1988 surveyed houses (Table 20). The housing type that consists of the shop is also a small retail section that comes from the expansion of the house's façade, rather than a typical commercial building (Figure 108). The shops also mainly sell grocery stores and spices for cooking. Since the Chams have a tradition of long trading far away rather than doing business at home like the Chinese community, nor they do farm like the Vietnamese or the Khmer (Taylor, 2007). The village with the highest proportion of houses combining shops is Đa Phước with 28 units, accounting for 24.5%. This village is famous for the traditional Cham silk and brocade trade, so it attracts domestic and foreign tourists. However, these products are also shrinking, because of the Kinh industrial products (Luận, 1974).

Table 20 Cham Muslim houses by function (unit: house).

VILLAGE	Code	Resident (R)	Resident + Shop (RS)	TOTAL
1. Châu Giang	1a	59	15	74
	1b	133	12	145
	1c	8	2	10
	Total	200	29	229
2. Nhơn Hội	2a	79	15	94
	2b	96	4	100
	Total	175	19	194
3. Khánh Hòa		151	14	165
4. Châu Phong	4a	79	10	89
	4b	25	6	31
	4c	19	6	25
	4d	45	3	48
	4e	134	8	142
	4f	49	3	52
	Total	351	36	387
5. Vĩnh Trường	5a	226	7	233
	5b	177	4	181
	Total	403	11	414
6. Đa Phước		86	28	114
7. Quốc Thái		141	11	152
8. Khánh Bình		136	9	145
9. Vĩnh Hạnh		187	1	188
TOTAL		1830	158	1988
Percentage		92.05%	7.95%	100.00%

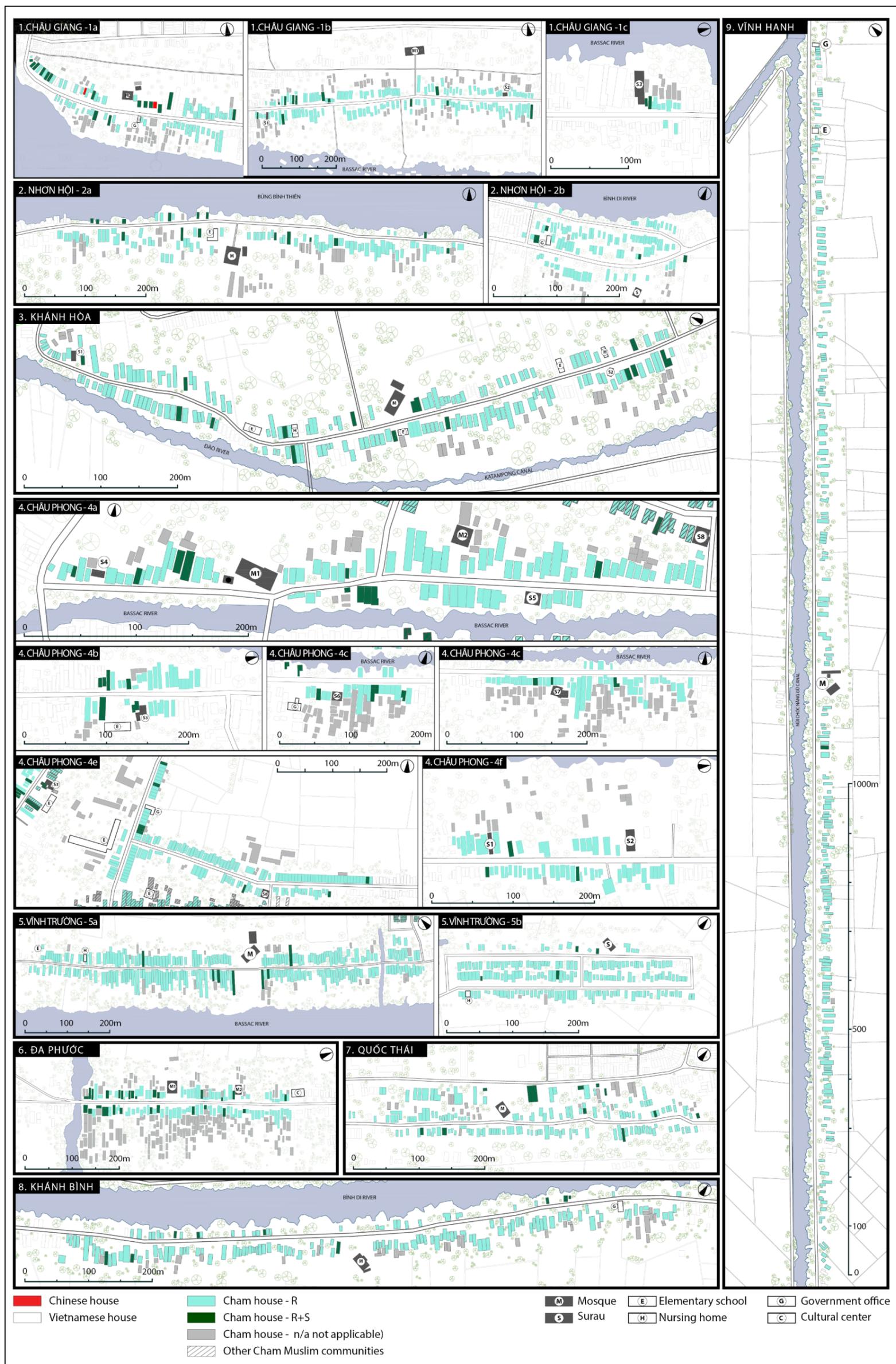


Figure 107 Distribution of Cham Muslim houses in using function.

5.5 Summary

With the characteristic features above described, the formation of the Cham Muslim villages in the Mekong Delta is concluded by the following points:

- 1) The Cham Muslim villages were established in the 18th century in the Mekong Delta, and interspersed among Vietnamese populated communities by the Vietnamese court as military colonies to control the southern frontier with Cambodia.
- 2) The urban form of the villages depends on the geographical conditions. It follows a linear format along with the waterways and roads, at first for military purposes, and then for long-distance trading.
- 3) The patterns of the villages and their extensions are compact and symmetrical with the mosques or suraus oriented towards Mecca as the central physical and religious landmarks.
- 4) The distance from the centers of the villages to the boundaries correlate with the sound ambiance coming from the mosques and suraus.

Although scattering along the Bassac River, the Cham Muslim villages are closely linked through the trade link and by the cohesion of the Islamic administrative boards. The religious activities aimed at strengthening the solidarity of the villages are held annually through festivals and the meetings of the Hakem villages. In addition, unlike the other communities, especially the Khmers who are indigenous peasants who depend on natural conditions, without economic improvement and lack of interconnection between communities, the Cham Muslims, in contrast, connected and received the supports from international Islamic countries. Especially the support from Malaysia have played a main part in influence the Cham Muslim, both for its historical role in promoting Islam and for being an Islamic country of rapid economic growth. The international Islamic organizations support the Cham Muslim communities in the Mekong Delta in construction and upgrading mosques and suraus, as well as helping to build houses for new established communities.

In addition, since Vietnamese education policy does not provide higher education and higher levels of education in Islam, the young people of Cham Muslim communities after graduation from high school, normally move to Islamic countries study abroad. In particular, most of them move to Muslim majority nations in Southeast Asia such as Malaysia and Indonesia, even to Saudi Arabia to study Master degree or equivalent course after receiving the scholarships or supports funded by Islamic foundations. Moreover, the children from the poor villages could go to study the Arabic and Cham language in the larger villages. For example, in the on-site survey, the author recorded that the children in Vĩnh Trường village attend boarding school at Jamiul Alzahr mosque in Châu Giang village.

In conjunction with the population growth, the expansion of the Cham Muslim communities is indispensable. Nevertheless, the following issues need to be considered in deciding to develop the physical boundary and social aspects of the Cham Muslim villages in the Mekong Delta.

Firstly, as a consequence of the differences in customs and beliefs, the Cham Muslim community with special characteristics is prescribed by Islamic principles, hence they must reside separately from other ethnic groups. The case of other ethnic groups' households appearing within the Muslim Cham community will cause conflicts resulting from differences in customs and way of life. For instance, domestic animals such as dogs and pigs are strictly prohibited in the Muslim community, while other ethnic groups raise them as normal pets or to take meat. In addition, alcoholic beverages are absolutely prohibited within the Muslim community, but other ethnic groups have a habit of drinking beer during meals and to celebrate on ceremonies and holidays.

Secondly, considering the village boundary, with the current modifications, the boundary of expansion is disordered and exceeded too much compared to the original models in cases of Quốc Thái, Khánh Bình, and Vĩnh Hanh villages, which has lost the characteristics of a sustainable village model in urban areas. In addition, the issue of the distance between the Mosque and the houses should be considered and calculated appropriately. The call for prayer from the Mosque is a characteristic and inherent feature of the Muslim community. However, the use of loudspeakers and microphones, although brings benefits because of solving the problem of expansion of village boundary, however if used with high sound intensity, beyond the most distance, will cause noise pollution to residents living nearby the mosque. On the other hand, it also affects surrounding communities, especially in urban areas, where the population density is high, and thus communities locating in narrow zones. This issue is also raised in Muslim communities around the world, where Muslim communities sited close to and interspersed with non-Muslim resident groups.

Furthermore, according to the rule between village boundary and sound intensity, moving to the mosque or surau from the house within a reasonable distance of 220-250 meter, just by walking is convenient. In a research about Muslim community, Sabir Nu'man stated that the boundary of the community should be created so that people could easy access to mosques, markets, and schools. This implies that inhabitants are able to leave their home and walk to the public buildings within a period of twenty to thirty minutes (Nu'Man, 2016 p. 107). However, as the distance becomes broader than usual, such as the case of Khánh Bình Village (500m) and Vĩnh Hanh Village (approximately 1200m), the access by walking as a traditional way is difficult. As a result, moving to the mosque five-time every day, the villagers whose houses are located farther than the distance of 220m must use vehicles such as bicycles or motorbikes.

Thirdly, in terms of landscape, although the establishment of the Cham Muslim villages is largely due to historical events, the isolated villages with a moderate scale have created a characteristic for the Cham Muslim community in the Mekong Delta. The houses are arranged along rivers and canals, which are convenient for circulation and travel by boat. This is also characteristic of the Mekong Delta resident communities with dense river and canal systems. In

addition, the landscape of the Cham Muslim villages along the river has become a unique familiar image and shaped the cohesion of villagers and the river. Therefore, the recently established residential areas located inland have lost the landscape that linked to the water element as before.

In terms of the symmetrical layout of formation, the traditional villages have been shaped in linear symmetrical and configuration with mosque and surau at the center. This symmetric characteristic is formed due to the relationship between the sound pressure and walking distance from house to mosque and surau. Therefore, when expanding the scope of the village, or creating new residential areas, the symmetrical properties around the mosque and surau must be preserved.

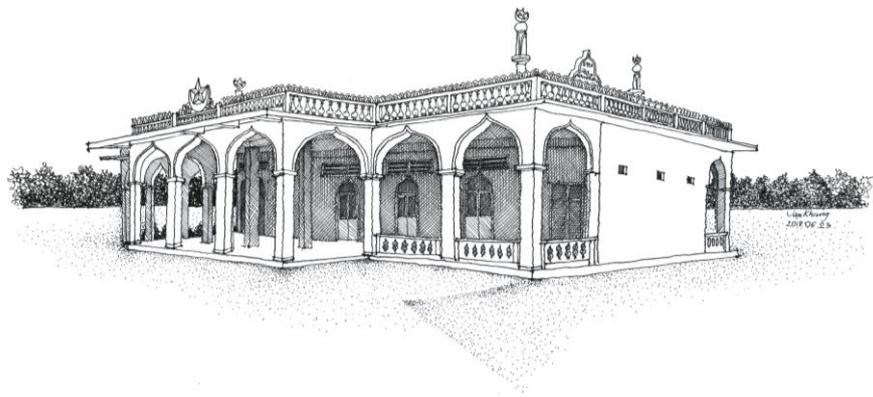
The residential areas where mosque is located deflected such as Châu Giang 1c, Nhơn Hội 2b should also be considered for expanding in the future in order to keep the composition balanced with the appropriate distance from the house to the mosque. The proposal is as follows: the Châu Giang 1c cluster could extend to the left of Surau Jamiul Wustgo (S3), and the area of Nhơn Hội 2b could expand to the right of surau Al-Aman.

In terms of population density, due to restrictions within the Vietnamese government, the Cham villages cannot expand along roads and rivers. On the other hand, Vietnamese communities also established next to the borders of the Cham villages. This assignment is determined by traffic factors such as intersections, or public buildings (schools or local government offices). As a result, the new houses were built at the rear of the houses adjacent to the roads, accordingly creating small roads connecting the main road to the rear area. This makes the structure of the community become complicated and difficult to access from the main road.

Regarding the safety of landslides in the flood season, the government has policies to upgrade dike system to reduce the vulnerability in the annual flooding season. As a result, houses along the banks of the river are easy to be eroded was moved into inland areas and formed new residential clusters. The majority of relocated households are encouraged to reside in the rows of resettled houses supported by the Vietnamese government. These resettled houses were partly built by the local government. For instance, the government supported the housing frame by concrete with a steel roof. Depending on the economic conditions of each family, there are suitable changes in materials and infrastructure such as erecting the brick walls and interior. Nonetheless, many resettlement houses were abandoned because people did not have enough finance conditions to upgrade. This issue is also needed to be considered in the housing development in the future.

CHAPTER 6

Formation and transformation of the traditional Cham Muslims housing in the Mekong Delta



- 6.1 Formation of Cham Muslim traditional house
 - 6.1.1 Typical formation of Cham Muslim house
 - 6.1.2 Islamic principles in Cham Muslim house
 - 6.1.3 Family structures of ethnic Cham Muslims
 - 6.1.4 Cham Muslim traditional *Sang* house and its origins
- 6.2 Transformations of Cham Muslim housing
 - 6.2.1 Classification of housing types
 - 6.2.2 Transformation of *Sang* house
- 6.3 Summary

6.1 Formation of Cham Muslims traditional house

Four ethnic groups coexist in the Mekong Delta: Vietnamese, Khmer, Chinese and Cham Muslims. The houses of the first three ethnic groups are mixed among those of others. The Cham Muslims, however, do not dwell among the other ethnic groups¹². Instead, they live in compact villages embedded in housing areas along the roads parallel to the rivers and canals. Vietnamese, Khmer and Chinese ethnic groups have adopted a common type of dwelling based on the format of the traditional house in the Mekong Delta, called *Nhà ba gian*. The houses of the ethnic Cham Muslims in the Mekong Delta, on the other hand, are based on a unique traditional type named *Sang* (Fig.109, 110).



Figure 108 Original *Sang* house.



Figure 109 *Sang* house with veranda added recently.

The traditional *Sang* houses of the Cham Muslims community in the past were described in the documents of the French as follows: "According to the rule of the French colony, the size of a residential land plot was usually 10 meters wide and 110-meter depth. Small alleys separated the Cham houses with the distance of the two adjacent houses is about 1 meter, so the neighbors can easily talk to each other through the windows. There was no type of cultivation nearby their houses. It was very rare to see a few small cornfields behind the village. Every Cham Muslims' house is built on a set of stilts with a length of 1.5m to 2m above the ground in order to avoid impacts during the flooding season. The underfloor space is used for family activities, storing or weaving clothes in the dry season. The traditional house of the Cham was spacious, with a steep roof like the Cambodian traditional house. The gable and the balcony were elaborately and elegantly and oriented to the street" (Indochinoise, 1902 p. 78).

¹² Poor Cham settlers sold their houses to the Vietnamese and Chinese. In addition, the association with other non-Muslim communities within the Muslim village is restricted since it is not compatible with customs and principles of Islam.

6.1.1 Typical formation of Cham Muslim house

The *Sang* is a wooden house on high stilts, approximately 2 meters from the ground. During the dry season, the ground level can function as a space used by women for working on a traditional loom for weaving clothes. The main living activities take place at the higher floor. The access to the higher floor is made through the *Kanyan*, a centered ladder leading up to the entrance at the main façade. According to the survey results, the original *Sang* house had no veranda but only stairs placed directly into the main door on the front of the house. The veranda is an adaptation element added later in the process of co-living with Vietnamese people (Figure 114).

In the spatial layout of the Cham Muslim house, the function and the space are clearly delimited (Figure 111). The spatial structure of the *Sang* house is divided into 2 main parts:

- 1) Front space (called *Bilik twei*) is a spacious space for multi-functions used as a sacred space for daily worship, a living room, an area for welcoming male guests and the sleeping area for males.
- 2) The rear space, considered as private area, includes the bedrooms for females (*Bilik anak dara*), an area for family activities (*Lakuk*), an attic (*Para*) for storing and accessed through a wooden movable ladder, and a service area (*Sang ging*) that comprises the kitchen and dining space.

Regarding to structure, the *Sang* house has only one typical formation which consists of 2 compartments in horizontally axis (called *rawang*) (Figure 112 ,113). The living space is extended in vertical axis by enhancing the number of pillars and spans backwards. The three-compartment house in depth is called *Sang kalau rawang*, the four-compartment house is *Sang pak rawang*. Similarly, the five compartment is called *Sang lima rawang*, the six compartment is called *Sang nam rawang*, the seven compartment is called to *tajuh rawang*. The house has more or less spans in the vertical axis, depending on the economic conditions of the house owner. Nonetheless, the Cham Muslims never built their houses more than seven compartments. Because according to Islamic beliefs, the number Seven represents the seven levels of heaven. For that reason, a seven-compartment *Sang* house is said to be very perfect and fortunate. In Islam, there are no rules or restrictions on odd or even numbers. However, in the traditional beliefs of the Chams, the odd numbers are supposed to be lucky numbers. Therefore the Chams still choose odd numbers to apply for the width of the house, the number of steps in staircases, and three compartments in the façade. In some case, the length of the facade is also designed in odd numbers like 5.1m or 6.1m.

Regarding the housing plan, the *Sang* house comprises a rectangular shape with short edge consisting of two compartments facing the outside, while the long edge consists of three or more compartments extending backwards by adding the spans in a row along the vertical axis (Figure 111). Since the Chams conceives of the house as a private space. Therefore, the house must be restrained to observed from the outside. By extending the living space backwards, the Cham increase more privacy for their house.

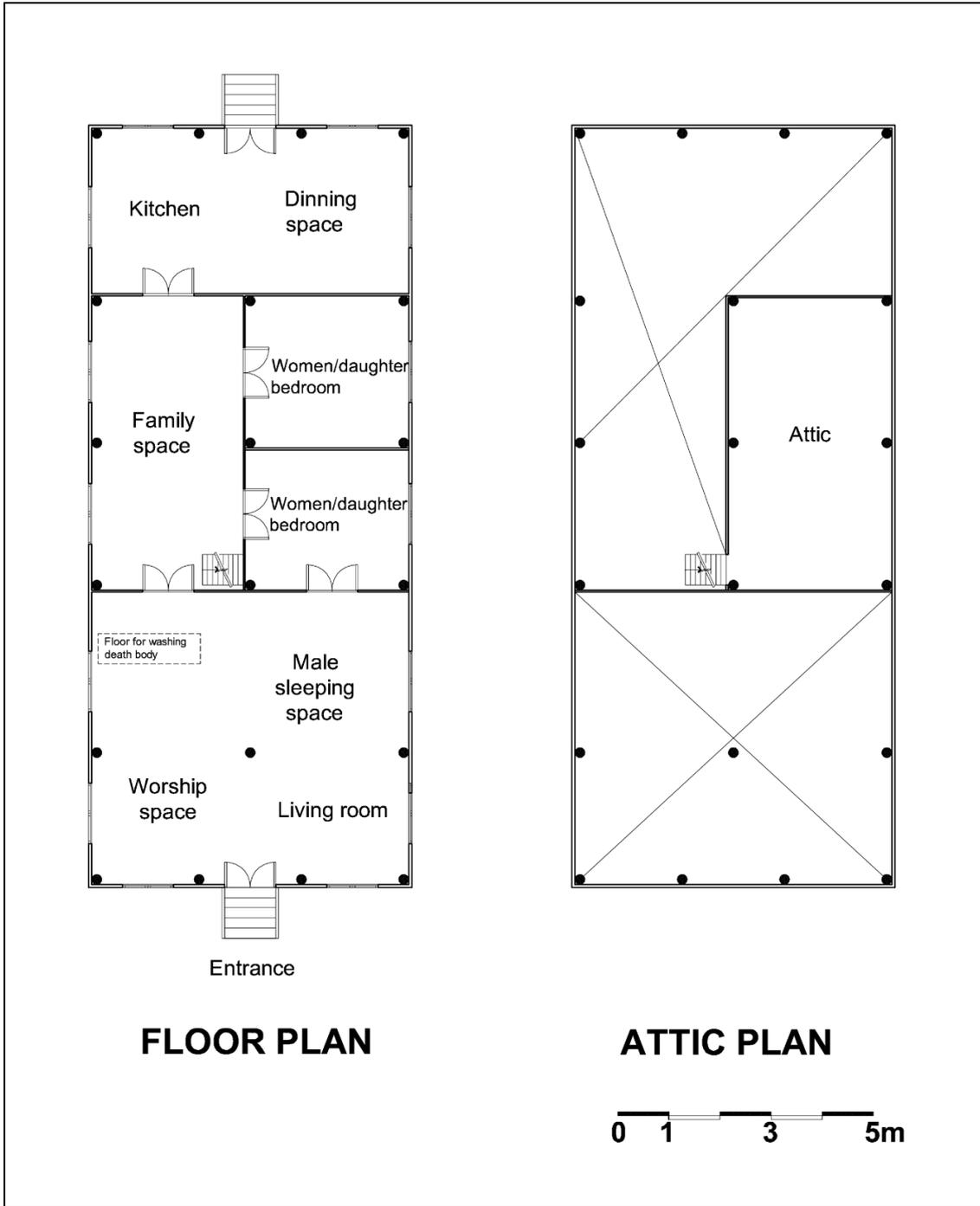


Figure 110 Housing plan of Cham Muslim *Sang* house.

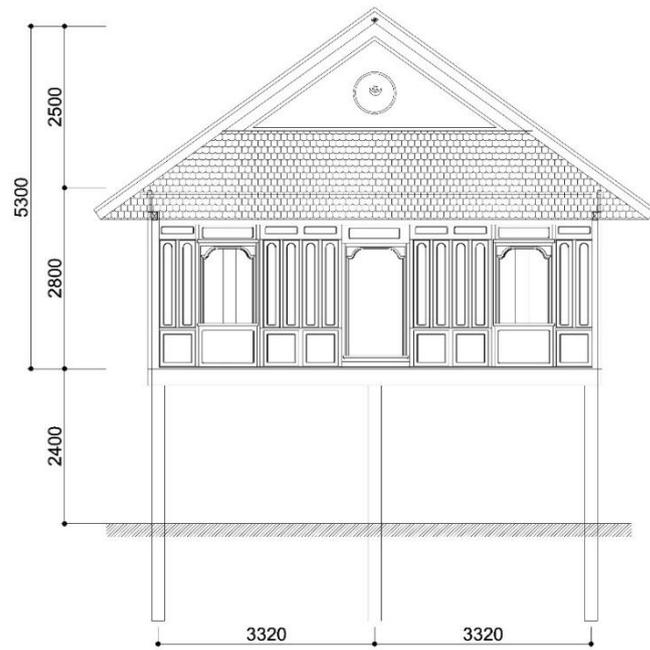


Figure 111 Elevation of Cham Muslim *Sang* house.

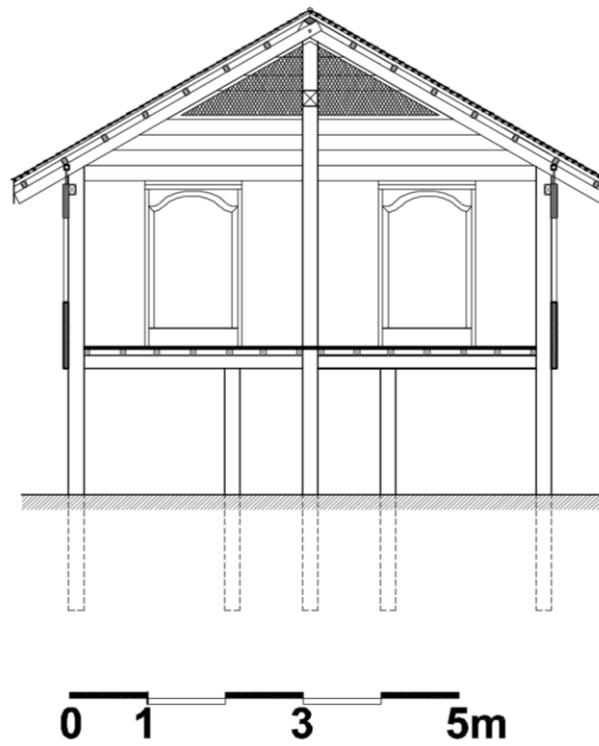


Figure 112 Section of Cham Muslim *Sang* house.

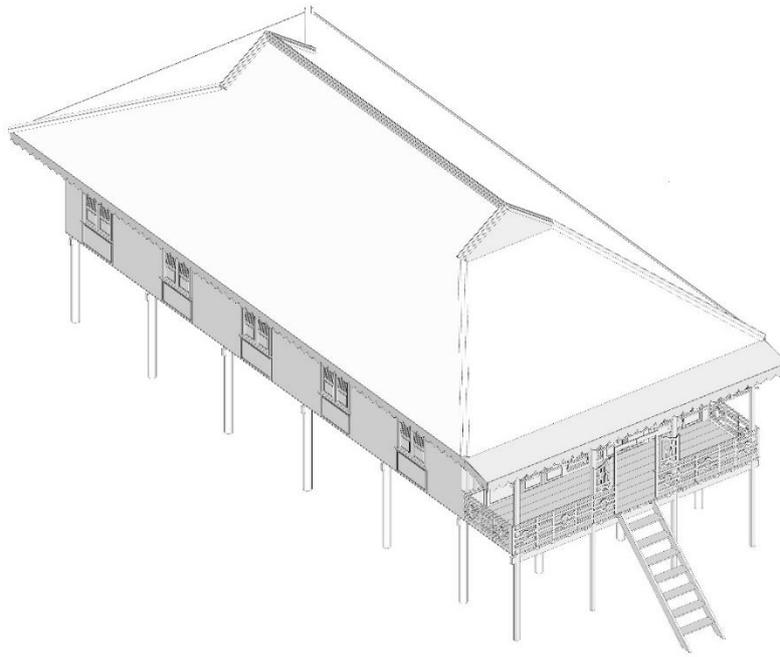


Figure 113 Traditional *Sang* house with veranda.

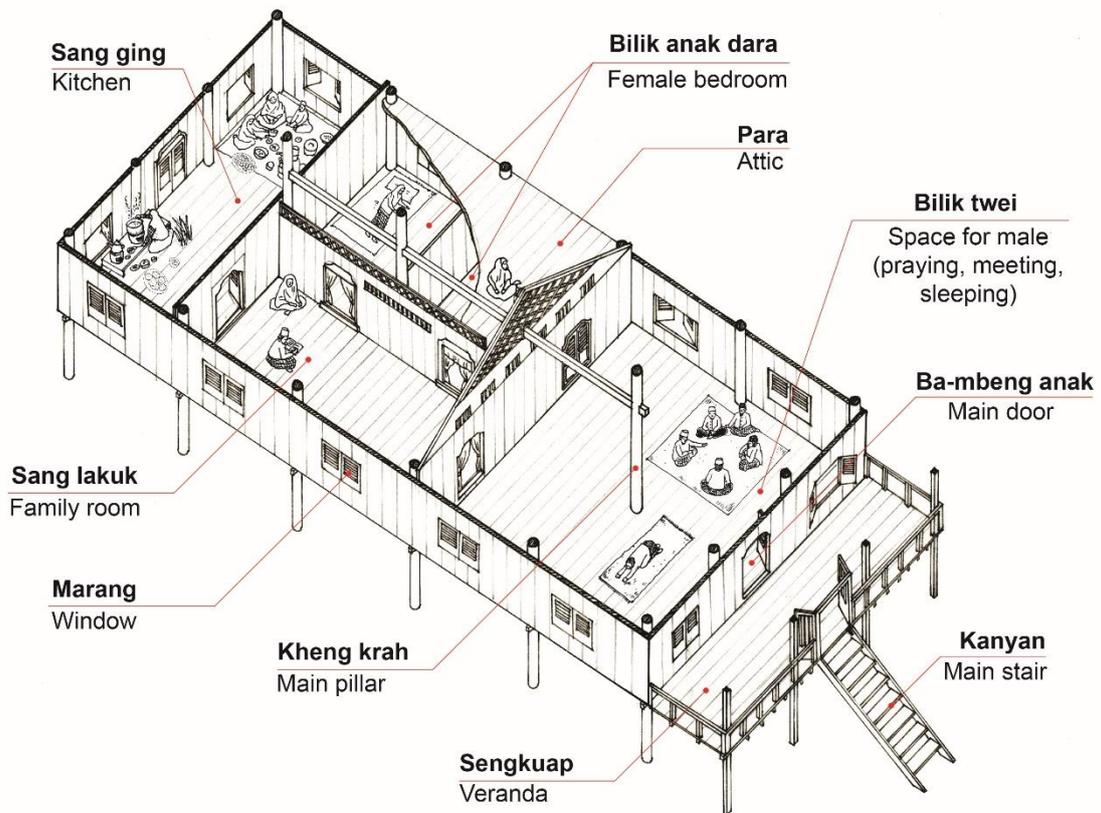


Figure 114 Spatial organization in a traditional *Sang* house with veranda.

The spaces of traditional Cham houses will be described in order from the front to the back as follows (Figure 115):

The living room space (*Bilik twei*) (Figure 116, 117) is not only a place to welcome guests, a living place and a sleeping place for men, but also a place for traditional religious activities and ceremonies such as weddings and funerals, also a space where women gather to pray in the month of Ramadan¹³. Because of the solemn and sacred space, Cham Muslims consider the living room to have the characteristics of a miniature mosque. For that reason, the interior decoration within the house of Cham Muslims, especially the living room, is greatly simplified, due to the influence of Islamic principles. Idolatry or pictures of human figures are strictly prohibited, thus there are no altars in Cham Muslim houses, even Allah because Islam stipulates that Allah does not have a specific image.

Therefore, unlike the ethnic Vietnamese, Khmer and Chinese who always put the altars of Buddhist and ancestors within the living room, in Cham Muslim houses, there is also no ancestor altar, nor images of grandparents, parents or relatives. The annual death anniversary form has been simplified into a prayer for everyone in the family. As for the prayers for the spirits of the newly dead, they conduct immediately after the funeral ceremony and on the day of 10th, 40th and after one year (Luận, 1974 pp. 172,173).

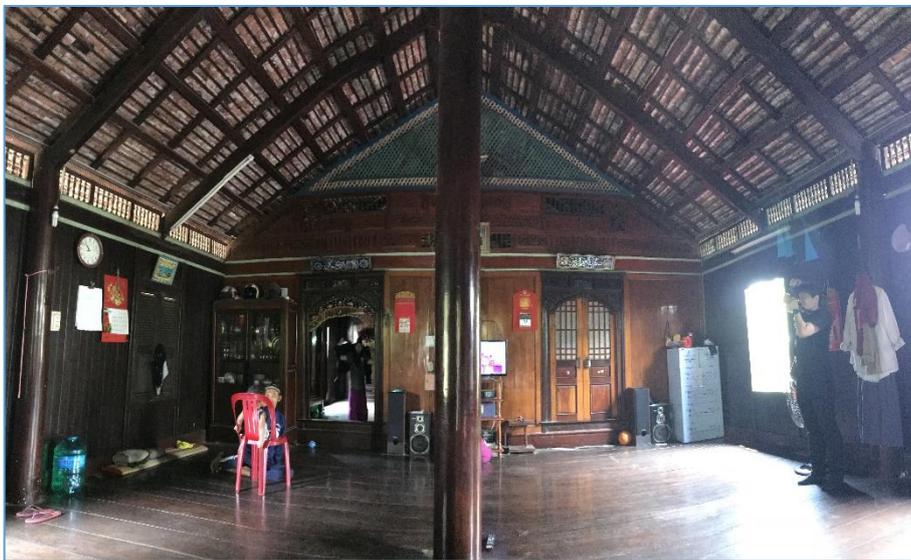


Figure 115 Living room in Cham Muslims house in Châu Giang (viewed from the entrance door).

¹³Ramadan is the ninth month of the Islamic calendar, observed by Muslims worldwide as a month of fasting, prayer, reflection and community.



Figure 116 Living room in Cham Muslim house in Châu Giang (viewed from the opposite side).

The decoration of animal images is also prohibited. Only the motifs of plant or geometrical patterns are allowed to use in Islamic building. On the walls, the clock is usually hung with Islamic calendars, and decorated with some pictures of Mecca or a verse of praise of Allah written in Arabic calligraphy, which are transformed into patterns. In general, the Cham living room space is created and almost empty with the purpose to express an absolute devotion to faith of Islam. This is completely different from the houses of the Vietnamese, the Chinese and the Khmer, always having an altar in the middle of the house.

At the center of the living room, a large wooden pillar is placed, dividing the living room into four equal parts. This is an unique and different feature compared to the residential architecture of the Vietnamese, Khmer and Chinese ethnic groups. This pillar is called Mother Pillar (called *Kheng krah* in Cham language), a remnant element of the matriarchy of the Chams. The Chams believe this pillar is sacred and must be erected in the middle of the living room. In the Chams legend, this pillar is the abode of the goddess (named *Patri*) dwelling inside who protects, as well as brings luck and prosperity to the house. Therefore, hammock hanging is not allowed, and absolutely must not be nailed to this pillar, because if nailed, the fairy *Patri* will leave the house. The pillar with circular cross-section diameter from 200mm to 300mm, must be selected with the best quality, intact, not assembled. It must be buried on the ground and connected directly to the rooftop. However, in the houses built from the 1960s, most columns were built with square cross-sections with sides about 150mm long, due to lack of good wood resources. In addition, the columns in the Cham Muslim houses are built inside the cover wooden panels to keep the house unpretentiousness of the outside which regulated by Islamic laws. By this way, the columns are also protected from moisture during the rainy season and against termites.

In addition, in daily life, the Chams uses this pillar to divide spaces when welcoming guests and in funerals. The living room space is normally divided into two parts, the guest space is

specified in the upper half, near the door; the second half near the inner door is used as a sleeping place for men and used in the funeral occasions. The sleeping position is also specified on the left and right of the main door, not in the middle of the door because the Chams believe that the door is the path of the devil. In the funeral, the dead person is placed on the left and right of the middle axis.

When guests visiting, the house owner often spread mats or carpets near the door, where is considered the most solemn location in the living room. The householder and the guests sit cross-legged on the carpet in clearly defined positions. The visitor sits with his back to the back of the house, facing the front door. He is not allowed to pass through a door with a curtain that is decorated according to the level of wealth of the landlord, separated from the backspace as a private area after the living room. The house owner sits with his back to the door, facing the inside of the house so that he could observe and easily make signal the family members to prepare food or drink.

The main door in the living room is typically placed in the middle of the facade, only a few houses put the entrance door deviating to one side of the middle axis. According to the Chams customs, when entering the house, the guest should put the first step by the right foot, then the left foot. When leaving the house, the first step is left foot, then the right foot, to show respect and homage. When meeting the house owner, the guest will greet first by saying, "*Salamu alaykum*", then the house owner will respond by saying "*Wa alaykum salam*". There are no furniture within the house such as beds, tables and chairs, only a few glass cabinets against the wall to display embroidery pillows, fans and Coranian bible, souvenirs of grandparents and parents who passed away. This detail is probably due to the influence of the Khmer (Tuyet, 1992 p. 114). In addition, there are also several cabinets to store clothes, blankets, mosquito nets. Today, they often put television cabinets in the middle wall of the house (Figure 118). There are two doors in the living room which leading to the middle space. One door leads directly into the hallway to the rear space. The other one leads directly to the bedroom of daughter. In daily activities, the family only uses the entrance to the corridor leading to the back house, while the door to the daughter's bedroom is closed, only use this door in case of wedding.

The Cham Muslims men go to the mosque to pray as daily activities. Whereas the Muslim Cham women perform rituals in their bedrooms at home. In the month of Ramadan, women are not going to the mosque but often gather to perform prayer in a house with a large living room. In some cases, it is impossible to go to the mosque and pray at home, the Chams spread a piece of cloth or a carpet with a size of 0.8m width and 1.2m long to identify the direction and boundary for worship. The faithful stands on the edge of the carpet, facing west is the holy place of Mecca, and then quiet for a moment to pray (called *niya*), meaning to say to themselves: I pray "*Alla hu akbar*" for Allah (Luận, 1974 p. 212).



Figure 117 Living room with modern furniture in Châu Giang village.

The floorboards are normally split into a long panels, with a slit about 1cm, to let the wind blow up cool and easy to clean (Figure 119). However, some house built up the closed floorboards without gaps¹⁴. In these houses, at a corner near the door connecting the living room and the rear area, a small part on the floor is reserved for lining thin boards, or solid boards but not nailed so that it can be easily to remove. It is called *sampan* (or *sàn thưa* in Vietnamese) is functioned to wash the dead and shroud before being buried at the cemetery (Figure 120). It is designed with gaps in floorboards with average size 0.6 to 0.8m wide and 2m long, oriented towards the windows and located near the door connecting the living room and the rear area. The *Sampan* is used to make it easy to drain the wash down to the ground below the floor. Nonetheless, in the floor with floorboards with gaps, the water could drain through the gaps between the floorboards, therefore do not need to build the *sampan*.

In addition, there are also put the *sampan* in the elderly's room. It is the place where the elderly and sick people staying. When sleeping, the mats are spread on the floor. Since the elderly or sick people cannot easily walk, therefore the purpose of the *sampan* is to help with hygiene such as bathing and urination. When this person died, the funeral rite for the dead was also performed at the position of the *sampan*. In addition, a piece of solid floor board (about 1-2m long, about 20cm across) can be pried and used to conduct the ritual of body wash. After the funeral rites are completed, the floor board is put back in same place. The people, who is imminent death, is placed with heads toward to the west also the direction of Mecca. The dead people are normally buried in the afternoon if died in the morning, or the next morning if died from the previous afternoon (Luận, 1974 pp. 158,159).

¹⁴ In the period between 1940 and 1945, due to the impacts of the Long Châu robbery, a complication from Hoà Hảo Buddhism, the thieves used knife to stab from the floor to kill people who sleeping on the floor, therefore the houses later often built up the closed floorboards without gaps to ensure safety.



Figure 118 Floorboards with gaps.



Figure 119 *Sampan* floor.

The middle space (*Sang krah*) (Figure 121)

Sleeping areas of men and women are clearly delineated in the Cham Muslim houses. Men and sons sleep in the living room. While the women and daughters sleep at the backside area. The space behind the living room called middle space (called *Sang krah*) is divided into two equal parts. One side is a large corridor for family activities, also the place wher women weave cloth, spinning, etc. The other part is divided into the bedrooms for women and girls. The walls of the women's bedroom are carved and decorated.



Figure 120 Middle space with women bedrooms, corridor and attic above.

Bedroom (*Bilik ndih*)

The first bedroom (called *Bilik ndih*) is located behind the living room, is the daughter's bedroom (called *Bilik anak dara*). The daughters are not allowed to go outside, only living inside the room to embroider and weave clothes. The Cham Muslim does not sleep in bed like other ethnic groups, but spread sleeping mats on the floor. They only use the bed when the house is married. On the day of getting married, the daughter's room is decorated with splendid colors, and a bed is arranged within this room. The newlyweds will sleep in bed until having a baby or until they go out to live in a new home. Until the new couples has the first child, the bed is taken out and a mat is replaced. The next bedroom is used for mother or the other daughters.

Attic (*Para*)

Above the bedrooms is the attic (called *Para*). It is used as a space for containing unused items and storing prepared food trays in a party or ceremonies like a wedding. This attic space is covered by a triangular panel close to the roof which divides the living room and the living space behind. The triangular panel is located on the upper part of the partition in the front space are made of wood. This triangle panel is made in a semi-enclosed style with many different patterns. The pattern motifs have many kinds, but the most common is the trellis type or the sun ray motif. Regardless of the pattern, the triangular panel is designed with small gaps among the wooden slats, which is not only used for enhancing natural ventilation of the indoor space, but also related to the privacy custom of Cham Muslims. In the past, the daughter was banned to go outside, under the strict supervision of her family. Because the daughter is not allowed to go out, the groom has to visit the bride's house. The girl will look at her future husband from this attic, through a small window on the triangle panel. This custom is a consequence of privacy in Islamic culture. The staircase leads to the attic is a separate ladder, used only in necessary, and normally it is stored neatly in a corner of the house.

Kitchen (*Sang Ging*)

The area behind the bedroom is used for cooking and also for the family's dining space (called *Sang ging*) (Figure 122). However, in cases of guests coming or ceremonies, the guests will be treated in the living room to show the respect of the houseowner. Like the followers of other religions who have specific slaughtering rituals, Muslims also have explicit rulings for slaughtering particular animals to make it lawful. The Chams only eat foods which are *halal*. Therefore, the meat, such as chickens, ducks, cows, and sheep, must be purchased while they are still alive to cut blood in special methods in order to eat. In addition, the Cham Muslims is accustomed to eating by bare hand, so the food is usually dry dishes. As other Muslims, the Chams in the Mekong Delta uses three fingers of the right hand to pick up rice to eat. There are more plates on the tray than bowls in other ethnic groups. The Cham Muslims uses a plate to hold the meat, fish or vegetables and a large dish to hold rice, even porridge also uses a plate instead of a bowl. To eat soup or porridge, they use a spoon to slurp (Luân, 1974 p. 94). The staple food is meat, fish, soup and vegetables. Regarding to the sitting position during the meal, family members sit on the floor and eat together. In the case of guests or parties, the men and the women sit separately.



Figure 121 Kitchen in the Cham Muslim house.

Bathroom (*Bilik aia*)

In the past, the Cham Muslim used use the jars to collect rain water for bathing was, especial at low tide when ebb tide when the water was rare. In addition, the typical Chams had a habit of washing clothes, bathing, and toilet in the river. And the women and girls are only allowed to bathe at night time. Therefore, sewage was discharged directly into the river.

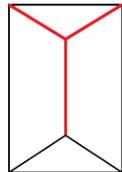
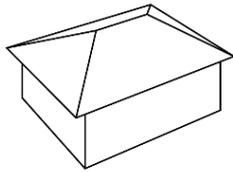
The space on the floor is frequently clean and airy. In the old days, a traditional weaving loom was put on the ground below the floor and was hidden behind a curtain where women and girls weave in the dry season (Dohamide, 1965). In the flooding season, the loom is moved to the house, placed in the left side of the living room.

Roof (*Bung sang*)

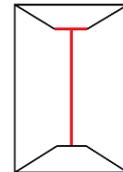
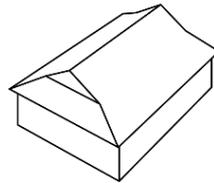
Regarding the roof form, according to the survey results, the roofs in traditional Sang house are not thatched roofs, but always tile roofs, sloping on all four sides for drainage. There are only two types of roofs: the hipped roof (Y-shaped roof) and the hipped-gable roof (T-shaped roof) (Figure 123).

The hipped-gable roof type comprises of a hip roof that slopes down on all four sides of the house and integrates a gable on two opposing sides. It is constructed with two large sloping roof sections in the front and back respectively, while each of the two sides is usually constructed with a smaller roof section. The pediments that enclose the gable ends to protect the interior space from the sun, wind and rain are made of bricks and furnishing by light color paint with Islamic pattern, for instance: the symbol of the crescent moon and the star, or the year built and the renovation year of the house, or Arabian characters. The enclosing perdiment could trap the hot air not get away from the upper part of the house.

The roof is designed in high steep with five-meter height that helps not only to cope with heavy rain but keeping the inner space cooler. There are no ceiling panels in the Cham Muslim original houses. This could reduce the load on the structure and reveal the underside of the tile roofs and helps to repair or preserve easier. Moreover, the large space under the roof allows hot air to rise up, and the cooler air layer stays on the average level of the body. The veranda, which was added into the main façade recently is covered by steel sheets.



Y shape: Hip roof type



T shape: Hip gable roof type



Figure 122 Roof types of *Sang* house.

6.1.2 Islamic principles in Cham Muslim house

The Cham Muslim villages though occupies a very small percentage of the inhabitants in the Mekong Delta region, but it is actually a branch of the spread of the Muslim world. In fact, in the Islamic world, universal Islam values emanating from the Quran and Sunnah are incorporated into the life of the Muslim community. Thus, architectural forms in Islam are transient, only Allah, who is shapeless and everlasting (Kuban, 1979). The architecture of Islam absorbs and transforms the regional elements appropriately to persist, and retains all the characteristics of the Islamic spirit. By this way, Islam come to be guidance in architecture, which based on the concept of unity, balance and harmony that are the pillars of Islami ethics (Yusof, 2011). Therefore, Islam permits and accepts all housing types as long as they do not conflict with shari'ah, which is the Quran and Sunnah. Since both the Quran and Sunnah have delivered the principles that guide the housing architectural design. In other words, the Muslim house should be considered as the product consists of the Islamic beliefs and the value of the dwellers.

It is a fact that cultural customs changes from time to time and from one place to other. In the case of the Cham Muslim in An Giang who followed orthodox Islam when arrived to the Mekong Delta, it should be considered Islam as foremost background when interpreting and identify the architecture of the Cham Muslim. Although the mosques and surau play an important role in religious life, the house is considered a mini mosque and therefore, also be consisted of the values of Islam by a clear conception according to Islamic teachings. In fact, Muslims can still pray at home, just need a rug and determine the direction to Mecca to establish a sacred space. The rug is a useful tool that works like a mobile mosque (Figure 124). Since, the Muslim could bring the rug to pray in any place, whether on road or boat. So as to, the nature and behaviors of an Islamic family as well as its social role has generated the Islamic attitudes regarding the housing function.

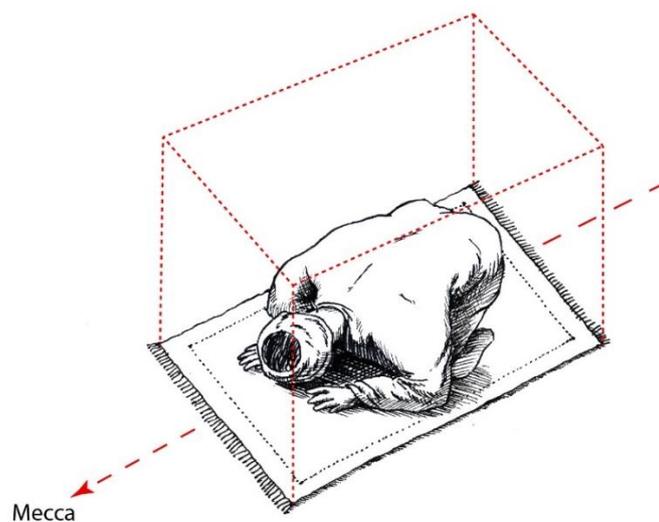


Figure 123 Space of carpet as “mobile mosque”

There are some basic principles in Islamic housing related to the verses of Qu'ran and Sunnah such as: privacy, cleanliness, modest, safety, house interior decoration and several more (Hwaish, 2016) (Yusof, 2011 pp. 19-33). In addition, the basic concepts of an Islamic house are: Centrality, Introversion, Unpretentiousness of the outside, the importance of privacy, and the environmental, climatic and regional adaptability as Amini defines in his research for Islamic architecture (Amini, 1991 p. 156). Consequently, the Islamic principles also present clearly in the case of Cham Muslim traditional *Sang* house, through physical architecture form in both exterior and interior as well as organization of living space. The Islamic characteristics of the Cham Muslim in the Mekong Delta are appraised and analysed as follows:

Privacy

One of the most striking factors in Islamic architecture is the focus on the enclosed space or the privacy. Since Islam recognizes the right of every individual to be free from undue encroachment on the privacy of his or her life. The Islamic principle of the house privacy is an affiliation of the principles that separate owners' private life and public intercourse as a part of the Islamic system of sex segregation. Therefore, the issue of privacy in Islamic house is the major reason for the spatial organization in interior and the expression of exterior.

The traditional Islamic house in Arab region is built with enclosed space which is defined by high windowless walls, arcades and vaults. The Muslim house organized around an inner courtyard; it presents to the outside world interrupted only by a single low door. Often several houses are collected together into a single low doorway, which leads to an inner private passageway from which the individual dwellings can be reached. By wall-to-wall construction of adjacent buildings, the traditional Arab houses eliminate wasted space between buildings, decrease external heat gain or loss, and above all, preserve the privacy of each family (Michell p. 10) (Ragette, 2012). The right and responsibility of the householders and family members should live in an enclosed space that separate clearly between public and private life, the most essential social characteristics of Islamic culture (Hwaish, 2016). The privacy used to become a serious issue in the Arab region, after minarets became customary at mosques, the office of muezzin in cities was even sometimes given to a blind man, who could not see down into the inner courtyards of the citizens' houses and thus could not violate privacy. Whether factual or not, the blindness of muezzin is claimed as almost universal at certain periods (José, 2000).

Although with different climate and regional conditions, the houses of the Cham Muslim in Mekong Delta, look from outside, are also closing wooden boxes, while the privacy in the Vietnamese house or Khmer house and Chinese house in Mekong Delta is not considered as a vital matter. This could be seen in the houses of the Vietnamese, Khmer and Chinese in the Mekong Delta that often have a long façade spread out along the road. In the three-compartment or the five-compartment houses of the Vietnamese, Khmer and the Chinese, the main doors are fully opened to the street. From the outside, the entire living room, which is the most important space of the house can be easily to observe. Additionally, in the Chinese townhouses the ground floor is also opened maximized to use as commercial space. In contrast, the privacy is paramount

in the Cham Muslim houses. There is a significant separation of the male and the female areas within the house, although differentiated by scale and area. The Cham Muslim divides the *Sang* house into two main zones (Figure 125):

- 1) Public zone in the front space of the house used as a sacred space for daily worship, a living room, an area for welcoming male guests and the sleeping area for males.
- 2) Private zone in the rear space used for female and family activities and service area that comprises the kitchen and dining space.

As regards roof orientation, the houses of Vietnamese, Chinese and Khmer have a long facade and ridgepoles parallel to the roads and the rivers, while the Cham Muslim house positioned the short-edge to the road and river, so the long-edge and the ridgepole is perpendicular with the road and the river. With such layout, the Cham Muslim house is less exposed to the external than the houses of Vietnamese, Chinese and Khmer. This characteristic is compatible with the privacy in Islamic culture.

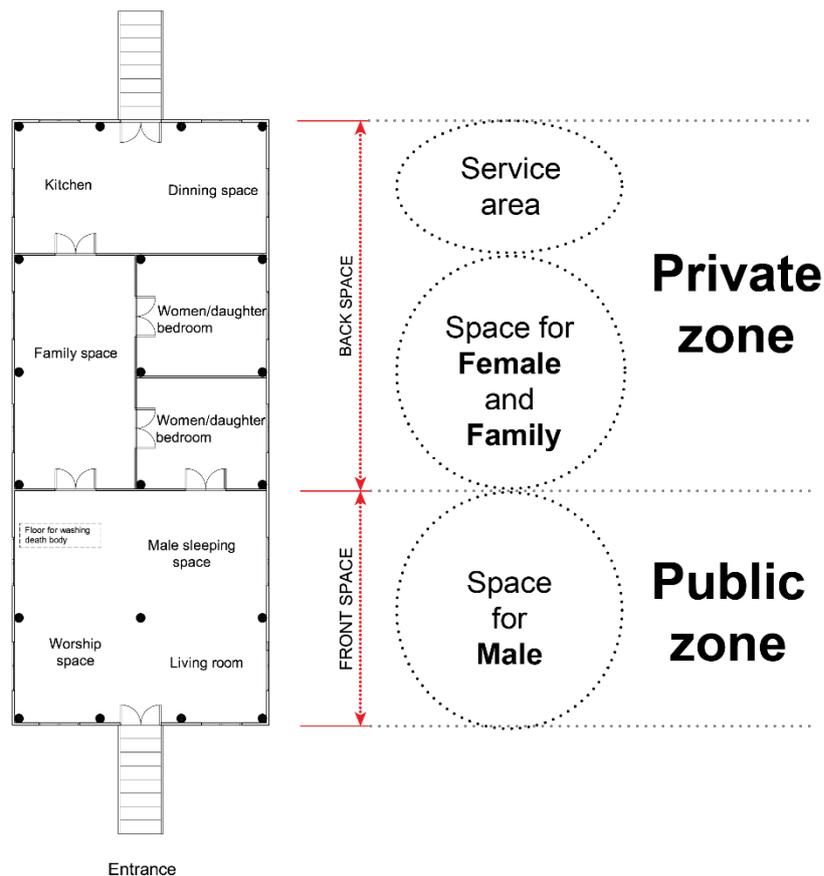


Figure 124 Spatial organization in Cham Muslim *Sang* house.

According to the survey results, 88% of Cham Muslims houses in the province of An Giang added the veranda into their traditional houses since the 1950s. This is an element that has been absorbed and adapted during the process of co-living with ethnic Vietnamese in the Mekong Delta. However, Vietnamese people use the veranda as a way to connect with the outside world as well as enhance social interaction. Therefore, the veranda in Vietnamese architecture is Openness. In contrast, the Cham Muslims uses the veranda as a Closeness attribute, which increases the privacy of the house. In essence, the Cham Muslim house consists of one door and two windows on both sides. While the houses of the remaining ethnic groups, especially the Vietnamese, often exposed the entire façade. When adding a veranda to the house, the Chams has changed the nature of the “Open” element of the veranda into a closed component. Therefore, the way of using veranda element in the Cham Muslim house has shown a difference in the habit of discreet residence and emphasis on privacy.

Privacy in the living space of the Cham people is shown through three levels (Figure 126). Firstly, the privacy is clearly defined between men and women by dividing the living spaces within the house. Cham Muslim women always cover their faces by cloths and almost stay in the back area separated to the men living space at the front space. Secondly, the house is rotated short edge to the street to reduce the area of extrovert, subsequently the privacy is assured. Then, the veranda is added as an attribute in accordance with the privacy of the Cham house. The veranda has a width of about two meters, creating shade on the façade and as a result, blocking the view from outside into the indoor space. Furthermore, many Cham houses also hang curtains to block the impacts of severe sunlight and heavy rain, also partly to facilitate shading to prevent people from looking at the house (Figure 127).

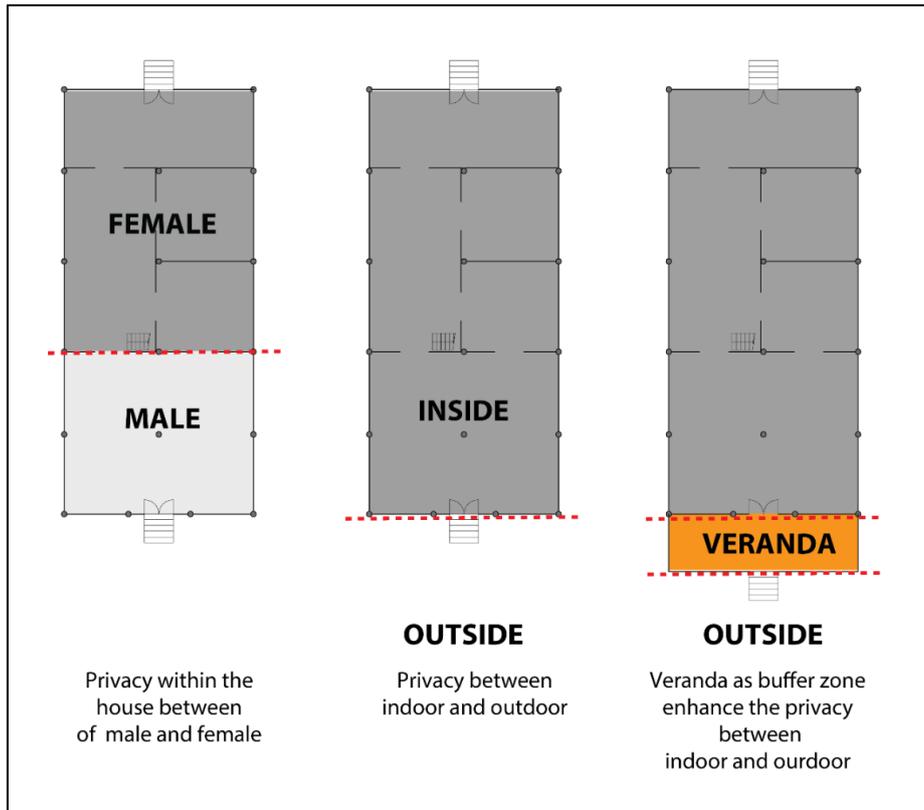


Figure 125 Privacy in Cham Muslim house.



Figure 126 Cham Muslim house with façade covered by curtain in Khánh Hòa Village.

Balance by symmetry

In Islamic architecture, the conception of symmetry is applied in exterior and interior buildings. The symmetry is the strength of the centrality that is strongly expressed even in Islamic town layouts and buildings, such as the mosque, palace, fort (R.Khan p. 33). Likewise, the balance by symmetry is also seen in the elevation and the housing plan in the Cham Muslim house (Figure 128).

Symmetry and balance are shown uniformly from the facade, to the dividing partitions and the frame structure of the house. Although the interior space is divided into two compartments symmetrical by a row of pillars is also the main structure of the house (Figure 129). The main façade is organized symmetrically, with the stair and the main door positioned on the central axis. Two windows are put symmetrical on both sides of the main door. In addition, decorative motifs are also designed symmetrical, creating a visual equilibrium for the house. The veranda which was added in a recent period also built symmetrically similar to the façade. Part of the stairs attached to the veranda is also placed on the main axis of the facade. This is different from Vietnamese or Khmer houses. Most Vietnamese and Khmer stilt houses allow the staircase to be set up freely; even the stair could be put from the side of the house. In a Vietnamese house, the staircase is usually located on one side of the veranda, rarely on the central axis, in order to increase the area of living space. This kind of layout is come from the flexibility and adaptability of the ethnic Vietnamese. Meanwhile, the symmetry uniform for both exterior and interior and become a very prominent feature in the house of the Muslim Cham people. The interior of the house is also symmetrically placed with two doors to the inner space. Moreover, the doors and windows of the Cham house are also completely symmetrical (Figure 129).

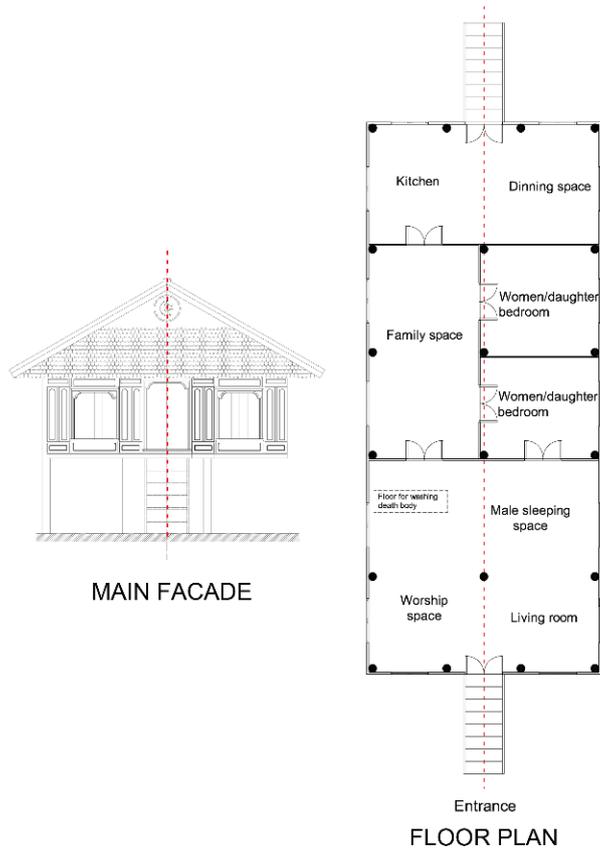


Figure 127 Main facade and floor plan of Cham Muslim house.

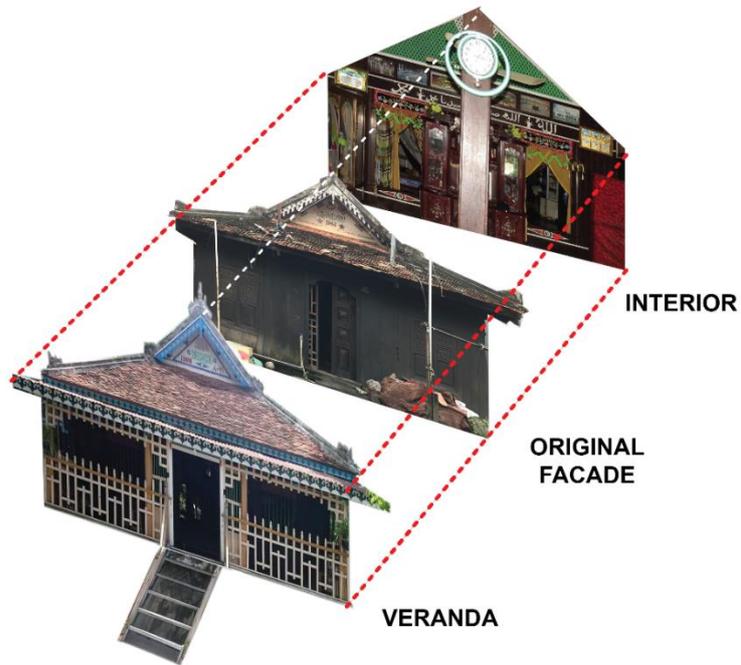


Figure 128 Symmetry in veranda, facade and living room in Cham Muslim house.

Unity

Regarding to dwelling, the Muslim houses of the rich and poor people are alike. "All people are equal. They are equal as teeth in a comb. There is no claim of merit of an Arab over a non-Arab, or of a white over a black person, or of a male over a female. Only the level of submission to Allah is a preference with Allah." (The Prophet's Saying). Therefore, the differences in social status and economic can hardly distinguish from the outside. This is because the uniform height of buildings assures privacy for each house. All Cham Muslim houses in the Mekong Delta are built on stilts and uniform in size and expression of the façade. Whether rich or poor, it is difficult to distinguish from the outside, because the houses are similar in proportion and style. There are no houses much taller than other houses, but the elevation of the houses is usually the same. This factor also enhances the unpretentiousness of the house viewed from outside. Decorative motifs also unify the use of geometric shapes and Arabic letters.

The layout of the interior space is completely similar, in the order of the living room at the front, while the private area of the family is designed at the back. In particular, all living rooms are empty, not decorated nor set up furniture. Therefore, when entering a Cham Muslim house, it is difficult to evaluate the level of wealth or the social position of the house owner. The sleeping space of the women at the back is also arranged uniformly on the half of the house. The bedrooms are added in the house, which has many daughters. But the bedrooms are only added to meet the needs of living, but not build any other spaces. Unlike other ethnic groups who often construct houses with different number of compartments on the façade such as three, five compartments depending on the financial conditions and social status of the house owner, the house of the ethnic Chams, however, differ in the number of compartments in vertical axis but unify in two spans in the facade, ensuring homogeneity of urban space.

Emptiness and cleanliness

For Muslim, the purification is important, since the Quran emphasis about the cleanliness in keeping the body, clothing, house, and street clean (Yusof, 2011). Moreover, according to the Quranic verse (96/2) "The first house appointed for men was that of Mecca: Full of Blessing and of guidance for all kinds of beings" and the basic format of the Kaaba ¹⁵ indicate the clear correlation between the spatial distinctive of the typical Islamic house in Middle East and the spatial structure of Kaaba in Mecca. In the center of Kaaba, the central cubic symbolizes for the presence of Allah in the world, while the emptiness of the space or Void in the Islamic house symbolizes Allah transcendence and presence in the house. That is the reason why the Muslim never has any symbols, decorations, or statues in their house. The position of the void at the very center of the house reflects the symbolic central position of Allah in the universe, and the fact that everything from Allah and at the same time returning to Him (Amini, 1991 p. 155).

When penetrated to the Cham Muslim house, the very characteristic of Islamic space appears, no furniture, no human photos or ordinary decoration, except a large and blank space,

¹⁵ Kaaba is a large cube-shaped building inside the mosque known as al-Masjid al-Haram in Mecca.

which is the Emptiness. By the principle of the emptiness, the Chams in the Mekong Delta organizes their house with the main space for main activities of the male, which is empty with a circular column at the central point, deprived of any decorations, images or figures, even the photos of family or spaces for worshipping the ancestor. While the rooms in other ethnic groups Vietnamese, Khmer and Chinese houses in Mekong Delta are usually allotted to a specific activity, for instance, bedrooms, living rooms, dining rooms, the divisions in Cham Muslim houses have the meaning for both private and public. The flexible use of living space is reflected in the absence of the cumbersome furniture like tables, chairs or cupboards as usual (Figure 130).



Figure 129 Interior of Cham Muslim house (left) and Vietnamese house (right).

Responsibility to local environment and regional conditions

The Islamic house adapted to climate by employing the climatic possibilities of its form and materials and by utilizing the natural forces such as light, wind and water. In hot and dry climate, the traditional courtyard Islam house is designed with mud brick with trees and water fountains to provide shades. However, the traditional houses of the Cham Muslims in the Mekong Delta are also well-designed with a good understanding about the response to the tropical climate and surrounding environment. The climate of the Mekong Delta is classified as hot-humid equatorial, characterised by high temperatures and too much humidity. The air temperature averages between 25°C and 30°C, and the mean temperature is 28°C. Humidity is quite high throughout the year, averaging around 79%, with the precipitation is 46.0 mm. The wind velocity is 2,77m/s (Dat Tam Ngo, 2012). With such high humidity also cause rotting, rusting and the growth of algae and mould.

In order to understand the climate responsive factors in the Cham Muslim houses, the climatic design strategies of the traditional Cham Muslim houses are analysed as follows:

1) Housing layout: the traditional Cham Muslim houses are erected linear and next to the rivers or canals. The gap between the houses is around 4,5 meters. Therefore it ensures that the natural ventilation is good and easy to reduce the heatgain in the house. However, the modern houses which have been erected later are layout in rigid grid patterns with no distance between the houses, also the concrete houses which added later between the gap of the old houses create a long barrier that block the passage of wind to the house in the latter path of the wind.

2) Building materials: the Cham Muslim houses were built by the lightweight construction of unpainted wood. The hypothesis in the surveyed stated that the high quality wood was transported from Cambodia by the Mekong River. The lightweight construction of low thermal capacity holds little heat and cools adequately at night. The high ceiling with an attic floor is an excellent thermal insulation. It is seldom to found the glaze beam from the sun in the Cham Muslim houses. Nonetheless, the modern housing type, in contrast, are constructed by bricks with concrete structure, used glass windows, and covered by flat roof. These elements store up heat on daytime and reradiate the heat into the house at nighttime. Since the glass was used for windows and doors, glazed areas are usually abundant, especially the rooms next to the frontages and near the streets.

3) Cross ventilation: the houses with a lot of large doors and windows, also the lattice panels of the attic allow the passage of natural wind and optimum cross ventilation through all of the spaces within. Minimal interior partitions among the rooms and no interior items due to the Islamic influences, make the inner space larger and unblock the air movement and cross ventilation in the house. The small openings at the top of the walls also provide cross ventilation effectively.

4) Wind velocity gradient: Since the velocity of wind increases significant with the height, the traditional Cham Muslim houses were built on stilt (2m height from the ground), therefore able to capture the winds with higher speed at the high level. Nonetheless, the streets were upgraded by the government from the year 2000 in order to protect the living areas from annual flooding, have blocked the air movement below the floor. As a result, the wind velocity is decrease significantly.

The body level is the most essential area for ventilation that make the comfort for the people who live inside the house. With the shape of the elongated plan, the Cham Muslim traditional house allows ventilation at the body level (0.9m) by having many large and openable windows and doors at body level. Moreover, the shutter panels between the windows and doors could allow ventilation all the time, even at closing time for protecting from the heavy rain or the security purposes. The openings or windows in modern concrete houses are normally designed at the higher level for privacy and security purposes. Consequently, the efficiency of the ventilation in the house is only directly flow on the upper part of the body

5) Orientation: Traditional Cham Muslim villages in Mekong Delta are scattered along the rivers, the houses, therefore, always oriented one side to the waterside. That could allow the nocturnal breeze from the rivers or canals at nighttime, and the wind velocity could be enhanced when flow through the elongated shape of the house.

6) Veranda: The original structure of the traditional house of the Cham Muslim in An Giang has no large overhangs on the fronts. However, from around one hundred year ago the verandas have been added later from the influences of Vietnamese traditional houses. The two-meter depth overhang cover with tiles or steel sheets, they provide good protection against heavy rain, block the direct solar gain, create a buffer zone with shading for relaxing activities, and also allow the windows on the main elevation to open most of the time for natural ventilation.

7) Natural lighting: The lighting in the traditional houses of the Cham Muslim in Mekong Delta comprises almost the indirect light from the small openings between the roof and the top of the wooden walls, and the direct light from the windows. Therefore, the inner spaces are maintained the comfort of the psychological effect of coolness. In order to increase the intense of illumination for living activities, some of the houses detached several roof tiles and replace by the glass panels. By this solution, the house could be well-illuminated by daylight, a free and plentiful source from the tropical sun, for that reason, the need for using of artificial lighting is reduced.

In conclusion, Islamic influences in the Cham Muslim house could be categorized in three levels: God, Human, and Environment (Figure 131).

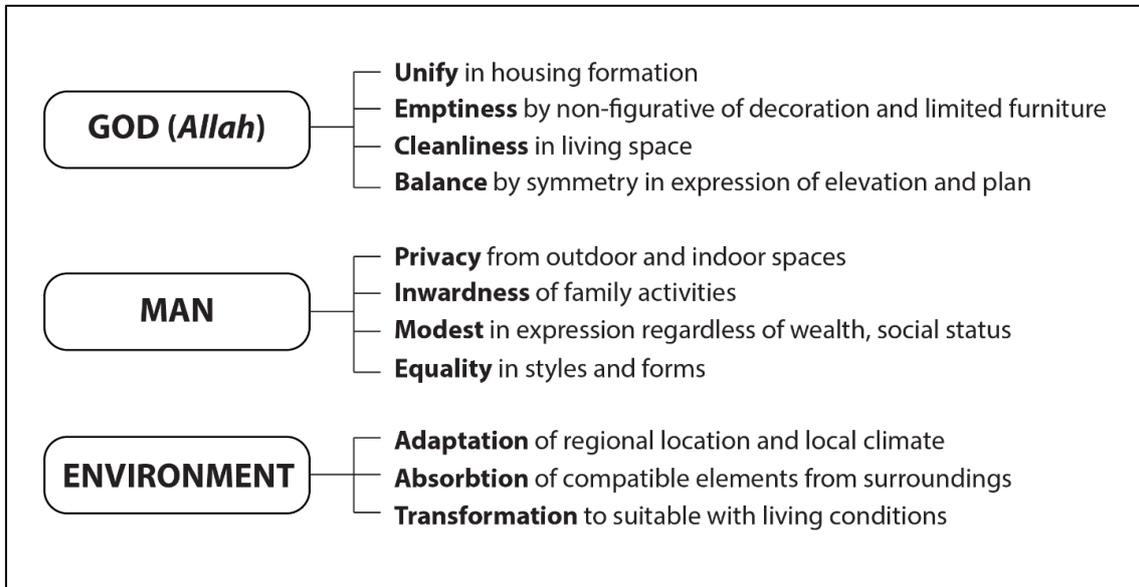


Figure 130 Three levels of Islamic principles in Cham Muslim house.

Firstly, in the Islamic world, after the mosque, the houses are regarded as the second most important places in the community. The features that symbolize for God (Allah) are represented by applying the concept of the house as a mini mosque since it shares an analogous function to the mosque but in a smaller scale to worship Allah (Nu'Man, 2016). The four elements of unity, emptiness, cleanliness, and balance are existed to present the existence of God within the house. In particular, all of the traditional *Sang* houses were unify in architecture and interior formations. Therefore, the expression of the houses in the Cham Muslim community looked similar in both exterior and interior.

Moreover, the emptiness and cleanliness at the front space symbolizes Allah transcendence and presence in the house. Consequently, the house is organized with the front space as a sacred space maintained in blank, no cumbersome furniture like tables, chairs or cupboards as usual, deprived of any decorations, images or figures of human or animal, even the photos of family or spaces for worship the ancestor. Moreover, the house is designed in balance composition in both overall shape, façade and spatial layout. The veranda that was added later is also maintained with the staircase and the veranda's door in symmetry. Additionally, the symmetry on the façade and the living room space makes a solemn characteristic for the house.

Secondly, in the represent for man level, the house is inwardness and ensures the privacy of people who live within the inner spaces. The house in the Islamic world is basically designed to protect women. The elements of privacy, compartmentalization, and inwardness are clear characteristics of female (Amini, 1991 p. 204). There is a clear separation between the public and the private in the Cham Muslim houses. Moreover, the privacy is praised not only between the house and the outside world, but also between male and female within. That is mean the space for male and female in a Cham Muslim family is clearly distinguished. The front space is intended for male, and the rear space is used for female and family activities. Moreover, the parents have to hide their private life from children's sight, husband's guests should not see the house owner's wife and the children, and female children are not allowed to sleep in one space with male children. This individualistic privacy has led to the compartmentalization of the Cham Muslim house, which is totally contradiction with the spatial structure of a single open space of the Vietnamese house. The appearance of the veranda which have been added later, that could be considered as buffer zone and helps to enhance the privacy from the outside. Furthermore, the characteristics of modest and equality are also shown by the simple and homologous form and scale regardless of the wealth and social status of the householder. The expression of the exterior is simplified to make the unpretentious outside.

Finally, in the level of environment, the house of Muslims, as envisaged in the Islamic paradigm must show responsibility to the environment in its regional location, local climate, and building materials. As a result, the shape of the Cham Muslims house is adapted and compatible with the conditions of river topography and hot-humid tropical climate in the Mekong Delta. In detailed, the houses are scattered along the rivers and canals. In this way, it is easy to access water resources, also get advantages by transportation by waterways. In addition, it is erected by wooden material, sloping roof to adapt to heavy rain and raised-floor type with the height of the underfloor is approximately two meters to prevent the floods in high-water season from August until October annually in Mekong Delta. Furthermore, the house on stills with many windows captures breezes of higher speed and therefore enhancing the natural ventilation for the inner living spaces. The lightweight construction of low thermal capacity holds little heat and cools adequately ay night. The high ceiling with an attic floor is an excellent thermal insulation. It is seldom to found the glaze beam from the sun in the Cham Muslim houses. The houses with many large windows, also the lattice panels of the attic allow the passage of wind and good cross ventilation through all of the spaces within. Minimal interior partitions among the rooms and no interior items due to the Islamic influences, make the inner space larger, unblock the air movement, and cross ventilation in the house. The small openings at the top of the walls also provide cross ventilation effectively.

As essential condition to survive and develop, the Cham Muslims in the Mekong Delta always absorbs the compatible elements and transform their architecture. For instance, in the

past when moved from Champa Kingdom to Cambodia, the Chams did not use the original Chamic architecture, but conveyed a housing type in their new land (This factor is described in the part 6.1.4 of this chapter). When located in the Mekong Delta, the veranda, an element in traditional architecture of the ethnic Vietnamese, was added to enhance the privacy and to protect the house from the impacts of solar and rain. Now, it is difficult to find the original house without veranda at the front of the house. The veranda has become an indispensable attribute in the Cham Muslim house. Moreover, on these days, by the changing of infrastructure and with modern lifestyle, the new house was built in concrete and the modern technique. Nonetheless, the Islamic principles are still applied in the new house. In detail, the interior has expressed the emptiness and cleanliness with no human or animal figures, that similar in the traditional house. In addition, the spaces of males and females are also separated by floor: men living on the ground floor while the upper floors are used for women and family activities.

In brief, the elements of Islamic beliefs within the Cham Muslim housing architecture are summarized as in the figure below (Figure 132). The God (*Allah*) is put at the central position as the core of all expressions; the elements of Man are located in the second layer with a connection to the first layer. Finally, the layer presented for movement of physical elements that always adapts in regional condition, absorbs suitable features and transforms in order to compatible with the surrounding environment with the core values of God and Man. These layers are not clearly separate, but they coexist and integrate into a unified whole, in order to present the existence of Allah.

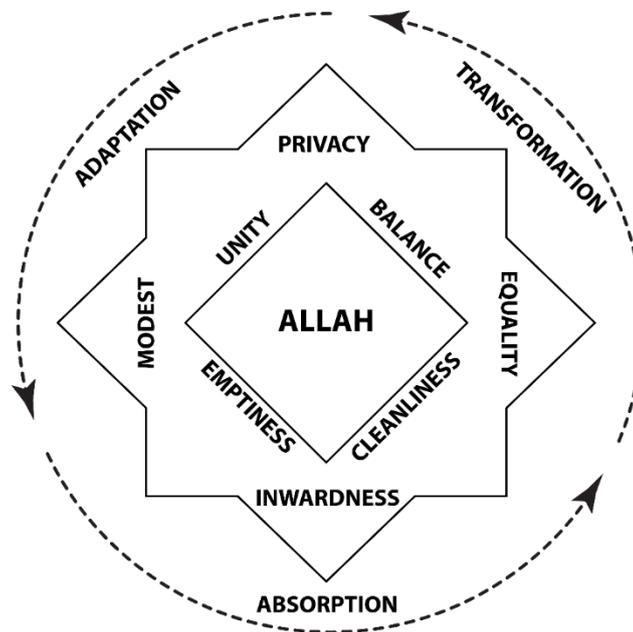


Figure 131 Primary characteristics with Cham Muslim house.

6.1.3 Family structures of ethnic Cham Muslims

In Cham household, there are often many members inhabitant together, contributing to the economic income and sharing of family expenses. These members may or may not co-live in the same house for a variety of reasons, usually in the case of people working far away but still having a contribution to the income of the family. At the end of the 19th century, the Cham resided in a large family, from parents to great-grandchildren. There are about 1100 houses, each family ranging from 18 to 20 people, an average of 12 to 15 people. On average, if account for 12 person in a Cham houses, the total number of population is approximately 13200 people in the province of An Giang (Dốp, 2006 p. 45). Therefore, the family structures of the ethnic Cham Muslims are classified into four types as follows (Dốp, 2006 p. 44):

1. **Nuclear family:** This type includes a husband, a wife, and their unmarried children. This type could comprise the households that have one husband or one wife, or only two spouses without children.

2. **Extending family:** This type includes a nuclear family plus one or some other relative members live together in the same house. However, these people do not constitute another nuclear household (complete or incomplete).

3. **Stem family or combined family:** This type includes the family members make up at least two nuclear families within a family. This stem family is developed from a nuclear family after one of the children gets married. The households with two or more nuclear families with one spouse (one husband or one wife) also accounted into this category.

4. **Non-family:** This type includes one or many people co-inhabitant but not spousal or family relation therefore not constitute a nuclear family.

Table 21 Distribution of Cham Muslim family types. *Source: (Dốp, 2006 p. 46).*

	Types of families				
	Nuclear family	Extending family	Stem family	Non-family	Total
Amount (unit)	159	13	25	3	200
Percentage (%)	79.5%	6.5%	12.5%	1.5%	100%

Table 22 Household size by type of household. *Source: (Dốp, 2006 p. 51).*

	Types of families				
	Nuclear family	Extending family	Stem family	Non-family	Total
Persons per house	4.6	5.23	5.92	2.33	4.78
Total of households	159	13	25	3	200
Total of persons	732	68	148	7	955

According to this survey, the proportion of nuclear family type with four or five persons living together within the house occupies nearly 80%, the largest rate compared to the remaining types. The extending family type is accounted for only 6.5% while the percentage of type of stem family is double at 12.5%. The smallest type is the non-family, which occupies only 1.5% in total. This is clear that the typical types of the Cham Muslim in the Mekong Delta are the nuclear family type with four or five persons living within included parents and two or three children.

6.1.4 Cham Muslim traditional *Sang* house and its origins

With the unique characteristics and dissimilarities with the traditional houses of other ethnic groups (Vietnamese, Khmer, Chinese), the origin of the Cham Muslim house is an issue that needs to be examined and studied. Regarding historical aspect, the Cham Muslims, who were residents of the Champa Kingdom (Figure 133), later moved to Cambodia between the 15th and 17th centuries, and then settled in the Mekong Delta from the middle of the 18th century. Therefore, the housing architecture of the Chams in the Central of Vietnam and the Cham Muslims in Cambodia is reviewed to understand the origin and succession of housing forms of the Cham Muslim in the Mekong Delta.

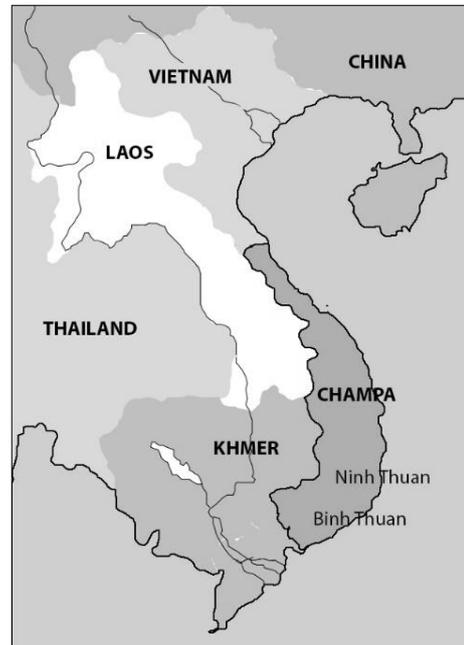


Figure 132 Map of Champa Kingdom, adapted from Po Dharmad (1999).

The Champa people in central Vietnam in the provinces of Ninh Thuận and Bình Thuận mainly follow Hinduism or Brahmanism (called Balamon) (Dharma, 1989). They lived in villages, each village comprises about 100 families settle together in clans. Ancient villages and traditional houses of the Cham Hindu people no longer exist (Tung, 1993 p. 28). However, based on recorded documents, the basic properties of Cham Hinduism houses are recorded as follows:

The traditional housing campus of the Cham Hinduism consists of many small families and generations living together within. Therefore, the traditional campus includes separating houses with various kinds of functions and dimensions, but there is a strong link regarding to function. Around the campus is walled with the gate facing south or southwest (Đai, 2011). Each traditional housing campus consists of seven dwelling units: Five main houses and two annexes. The Cham believe that 7 houses symbolizing the number 7 which is consider as a perfect number in the traditional Cham beliefs. The five main houses include ceremony house (*Sang ye*), adjacent house (*San mayau*), horizontal house (*Sang gen*), high stilt house (*Sang ton*) and kitchen (*Sang ging*). Two annexes for storing rice, mill and agricultural tools (Đai, 2011). The houses are built of wood, bamboo, clay, and straw. In particular, each house has different specific functions (Figure 134):

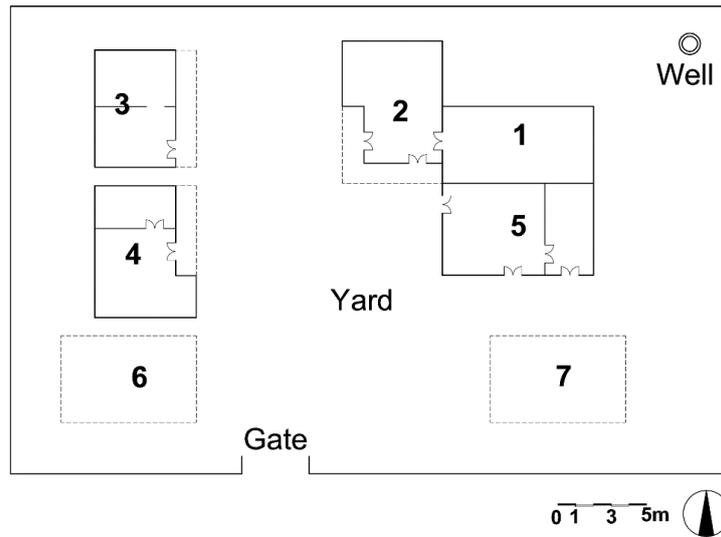
1. Ceremony house (*Sang ye*) is built after the kitchen. This house is used for ceremonies such as weddings, funerals, important family days. The family resides primarily in this house, before the daughter gets married.

2. A horizontal house (*Sang gen* or *Sang lam*) is a house built when a girl gets married. Parents surrendered the *Sang ye* house to their first daughter and her husband, and then moved to *Sang gen*. For the aristocracy, they built the *Sang lam* house instead of the *Sang gen*.

3. Kitchen (*Sang ging*) is built initially, located in the northwest corner where cooking and storing rice.

4. High stilt house (*Sang ton*) is a building located in west side of the campus with the façade oriented to the east. Only the old persons allowed living in this house.

5. An adjacent house (*San mayau*) was built when the younger sister got married. At this time, the older sister's family gave up the *Sang ye* house to their younger sister's family and moved to live in *San mayau* next to *Sang ye*'s house to the south. In addition, the Chams also has a well and two annexes to store agricultural tools rice mills and mortars.



- 1- Ceremony house (*Sang ye*)
- 2- Horizontal house (*Sang lâm/ Sang gen*)
- 3- Kitchen (*Sang ging*)
- 4- High stilt house (*Sang ton*)
- 5- Adjacent house (*Sang mayau*)
- 6- House for storing mill, mortar (*Sang lithung chai*)
- 7- House for farming tools (*Sang caik lingal ayau*)

Figure 133 Traditional house of Cham Hindu in middle of Vietnam.
Source: adapted from (Đài, 2011).



Figure 134 Cham Hindu traditional house in middle of Vietnam.
Source: The Vietnam museum of ethnology.

The architectural form, frame structure and spatial layout of the ethnic Cham Hindus are completely different from the traditional house of the Cham Muslim Mekong Delta (Figure 135, 136). In terms of scale, the house of the Cham Hindus is a complex of seven housing blocks built in a 25.5m wide and 40.5m long campus for well-off houses, while the average home campus is 21.5 wide and 30.5 long (Đài, 2011 pp. 61,62). Four houses are built directly on the ground, only one is erected as a high stilt house (*Sang ton*). Nonetheless, the spatial layout of the *Sang ton* house is completely different from the house of the Cham Muslims. The *Sang ton* house is not an ordinary house but used for the elderly or those with a high social position in the village. Moreover, the positions of doors and arrangements of furnishings in the Cham Hindus houses are also diverse, unlike the Cham Muslim house that is not allowed to decorate and arranged furniture such as beds, or altars.

From the above analysis, the author concludes that the formation of the traditional house of the ethnic Cham Muslims Mekong Delta is completely different from the housing of ethnic Cham Hindu in Central Vietnam.

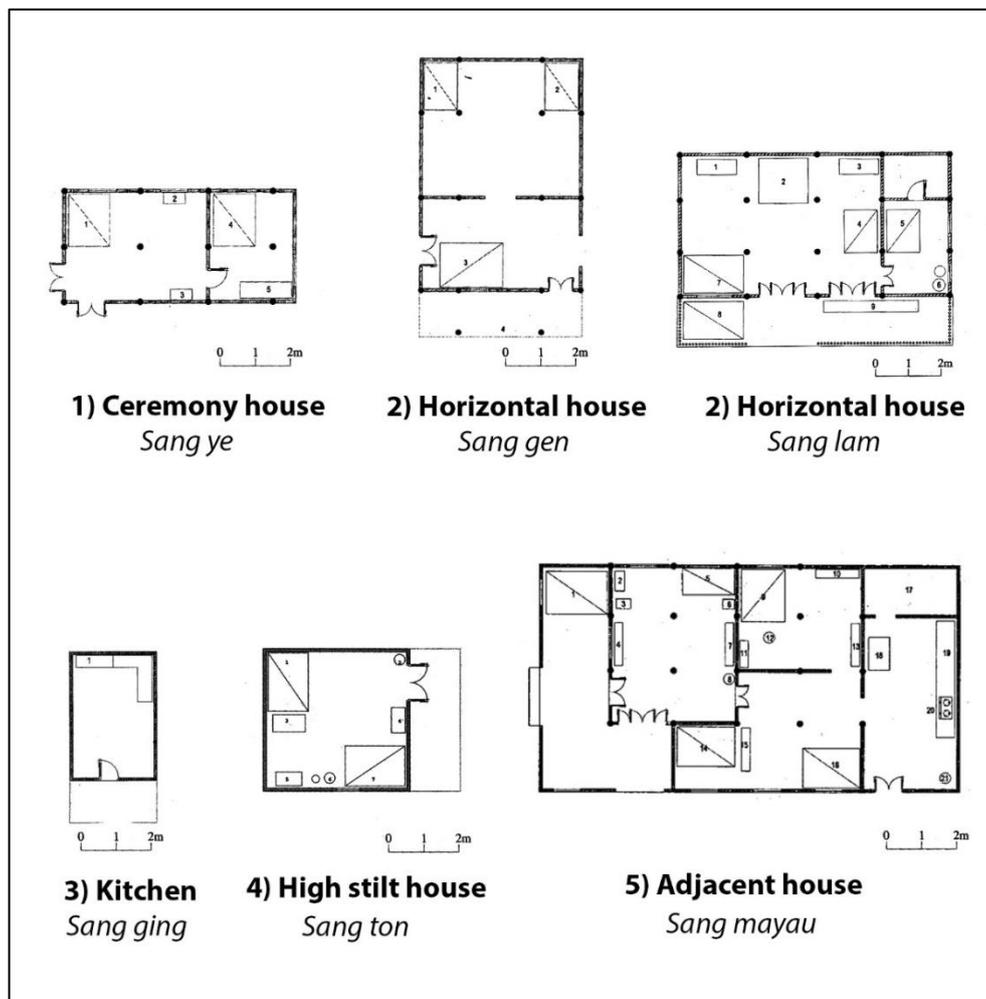


Figure 135 Formation of Cham Hindu traditional houses.
Source: Adapted from (Đài, 2011).

Thus, even though it originated from the Champa Kingdom, the housing architecture of the Cham Muslims in the Mekong Delta is completely different from the traditional architecture of the Hindu Cham people in the middle of Vietnam. Housing form is an expression of the regional culture (Funo, 1991). Therefore, a general comparison to the indigenous housing system in South East Asia helps to identify similarities and differences to the typology of *Sang* house in the Mekong Delta (Figure 137). These categories show that the *Sang* house is similar to the typology (number 28 in Figure 137) of Penang in Malaysia. Nonetheless, the author did not notice any relations about the architecture between the Chams in Mekong Delta or Cambodia and the Penang region in Malaysia. In the research about typical Malay houseforms, no existing any model similar to the *Sang* house in the Mekong Delta. Moreover, the formation and transformation of the typical typologies in the traditional Malay houses also displays different details about floor plan, roof shape and frame structure (Figure 138, 139). Because there is no historical or geographical connection also architectural correlation, the author decided not to go into depth to research about this coincidence.

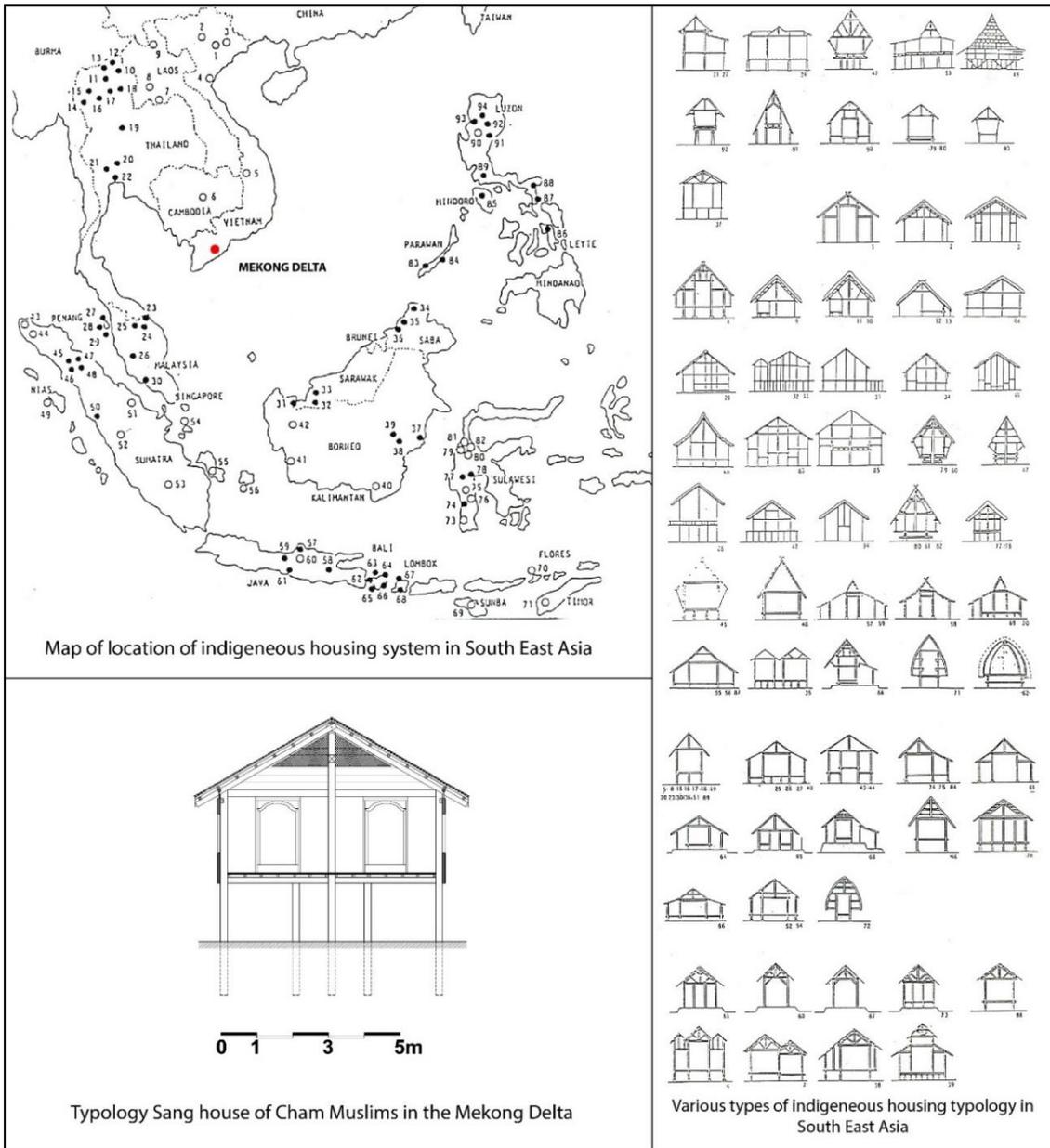


Figure 136 Sang house and indigenous housing system in South East Asia.

Source: adapted from (Funo, 1991 pp. 12,13,14).

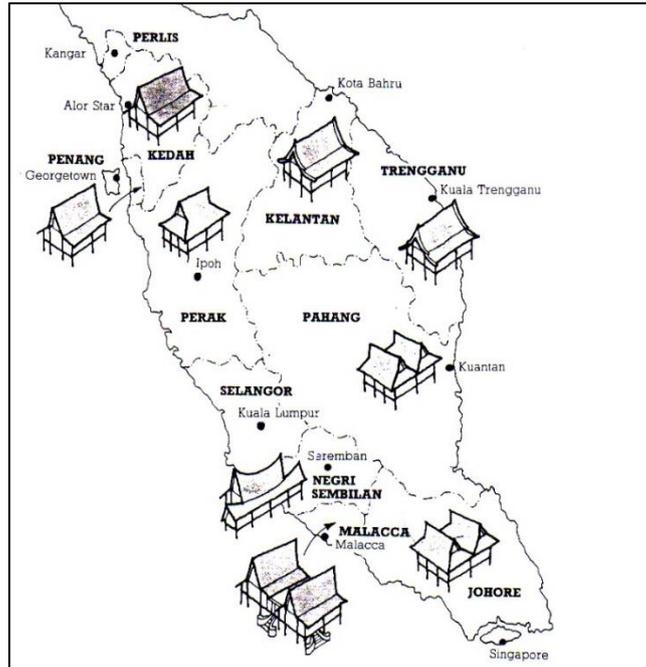


Figure 137 Common Malay house forms found in Malaysia (Yuan, 1991 p. 27).

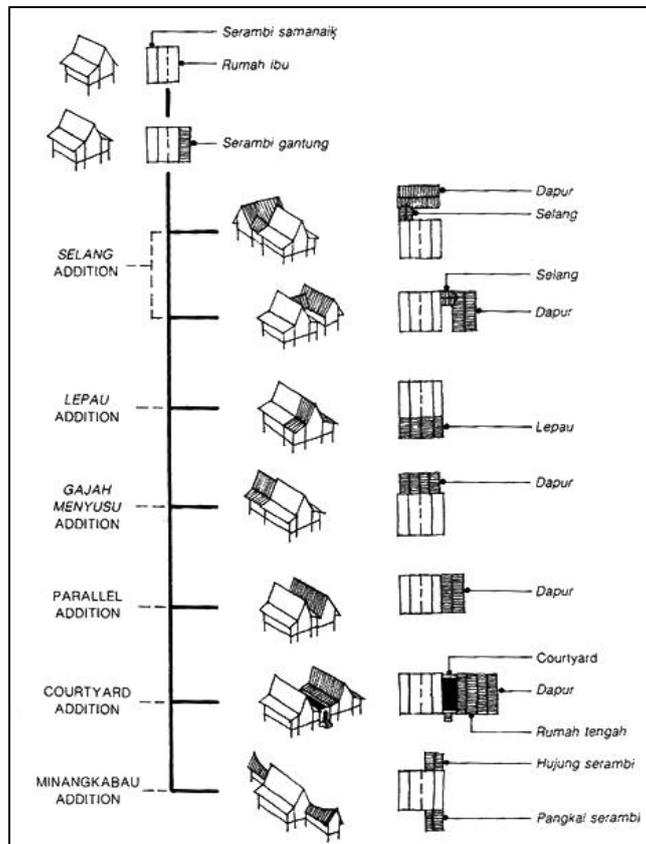


Figure 138 Formation and transformation in traditional Malay houses (Yuan, 1991 p. 119).

By considering the historical factor that relevant to the immigration of the Chams to Cambodia in the 15th to 17th century (D'Óp, 1993 p. 123), the traditional housing architecture of Cham Muslims in Cambodia is important to evaluate the origin of traditional Cham Muslim house architecture in the Mekong Delta.

After the Champa Kingdom perished by the invasion of the Vietnamese in 1471 (Dohamide, Dorohiem, 1965 p. 94), and the Cham were scattered in many places, especially Cambodia where the Cham Muslim communities have close relationship to the Cham Muslim in the Mekong Delta by the Mekong River (Taylor, 2007). As analyzed in chapter 5.1, both ethnic groups share the same religion as Islam, as well as having residence relations in the historical process of emigration from the Champa Kingdom, then residing in the Khmer Kingdom from the 15th century. The author conducted the fieldwork in the Cambodia at the provinces of Phnom Penh and Kampong Cham (Figure 140). According to the survey results, a connection between the housing architecture of the Cham Muslim in the Mekong Delta and the Cham Muslims in Cambodia has been found. The formation of traditional house of the Chams in the Mekong Delta is similar to the houses in the the village of Krouch Chhmar¹⁶ the Phum Trea hamlet in Kampong Cham Province¹⁷ (Figure 141).



Figure 139 Distribution Cham Muslims in Cambodia, adapted from Indochina Atlas (1970).

¹⁶ Krouch Chhmar is a district in Tbong Khmum Province, Cambodia, located in the Northeast of Kampong Cham town by waterway. People in the area often settle on the river bank, and boats are the main transportation means.

¹⁷ Kampong Cham Province is an Eastern province of the Cambodia. The name Kampong Cham means “the port of the Chams”. The word Kampong means "harbor", and the word of Cham mentions to the Chams who settling in this area.

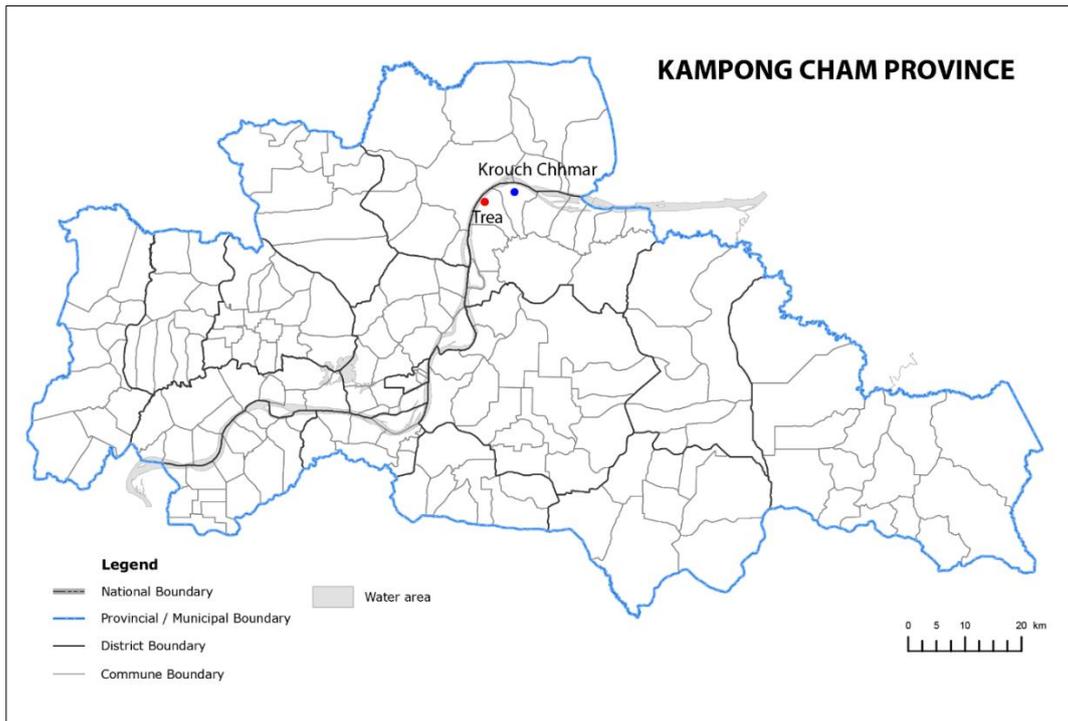


Figure 140 Communes of Trea and Krouch Chhmar in Kampong Cham Province. (Adapted from Statistics Bureau of Japan, Ministry of Internal Affairs and Communications (1996))

The Cham Muslims in Cambodia are deeply rooted in orthodox Islamic culture and customs, and they live in the traditional stilt wooden houses. Regarding to village format, the residential clusters of the Cham Muslim community in the Kampong Cham region also spread along the flow of the Mekong (Figure 142). The locations of the mosques are also located in the middle of the village. Therefore, the formation of the Cambodian Cham Muslims similar to the Cham Muslim villages in the Mekong Delta. However, the boundary is longer and comprise many functions with house, stores, and schools (Figure 143).

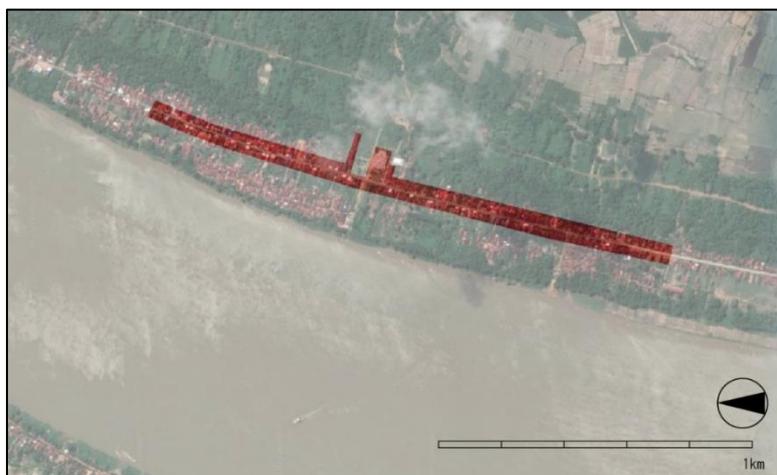


Figure 141 Cham Muslim village in Trea Commune in Kampong Cham Province (Shibata, 2020).

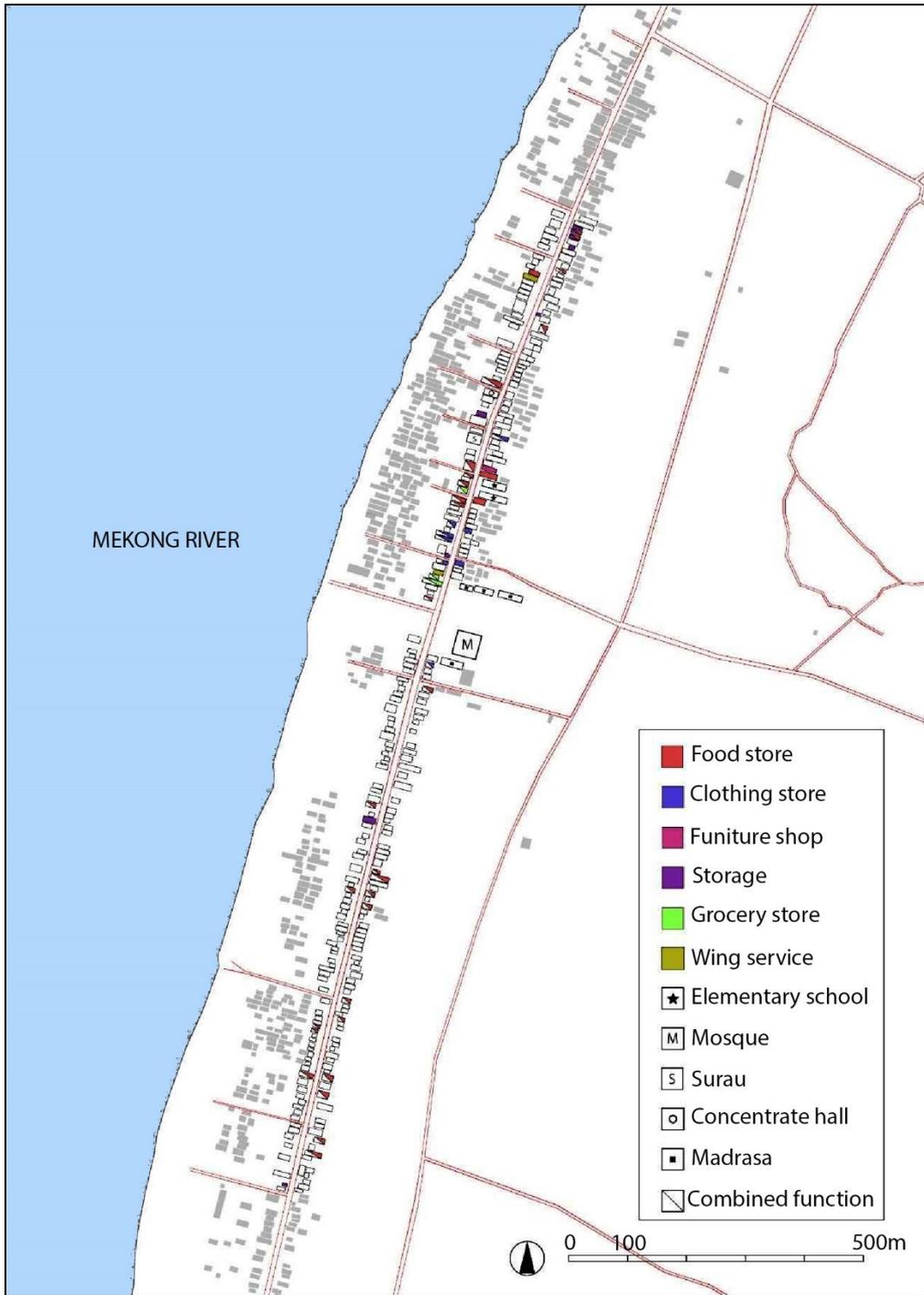


Figure 142 Map of building function in Trea Commune, Kampong Cham (Shibata, 2020).

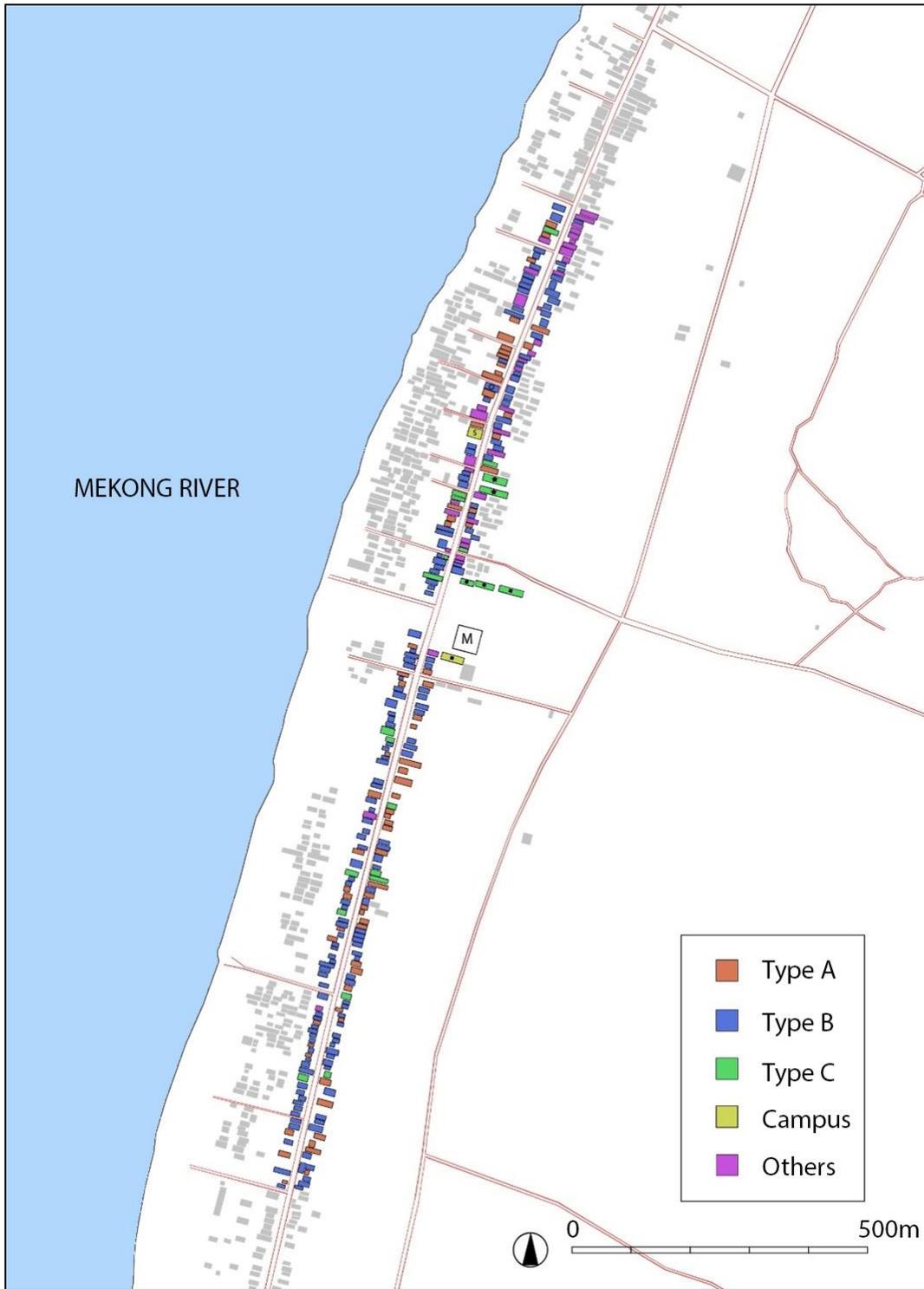


Figure 143 Map of housing type in Trea Commune, Kampong Cham (Shibata, 2020).

The format of this village is linear and symmetry with the mosque located at the middle position. There is one surau on the right side of the mosque. The area on the right side also showed the higher density than on the left side. Moreover, the boundary is longer than the distance of 220 to 250m without any surau on the left side. The total number of facilities surveyed in Trea Commune is 300 units (Figure 143). In particular, the number of residential building are 36 units (80.0%), house combined shop are 36 units (12.1%), shop 6 (2.0%), warehouse 6 (2.0%), store with warehouse 2 (0.7%), religious facilities 7 (2.3%), school 2 (0.7%). There were 5 building was under construction. Residential buildings are the largest, with 269 (91.2%) including those used in combination with store, and most of the buildings in the settlements are residential.

Regards to the housing typology, the roof shape of the buildings in the village of Trea is classified into 3 roof type of with gabled roofs with wives, continuous gabled roofs with flats, single gabled roofs with wives, ridged roofs, mosques, and other forms. The houses with roof types are distributed as the figure 144. In detailed, the gable hip roof is type A, the continuous gable roof is type B, and the single gable roof with eave is type C (Figure 145). The type B and the type C have the same type of gable roof, but the type B is classified as different types because it includes from one to five continuous spans while the type C is simple and only one roof stretched from the front to the back. Other housing types are not relevant to the traditional formation; thus, it is no need to be included in this research.

Regarding to the rate of distribution, the houses type A has 75 units (occupied 23.4%), the house type B has 161 units (accounted for 55.6%), while the house type C has only 20 units (7.5%). The other roof types are accounted for 13.5%. As a result, it could be considered that the roof of the Cham Muslim *Sang* house in Mekong Delta show similarity to the house type A in Phumtrea commune in Kampong Cham Province.

In terms of foremost features, these three housing types are high stilt houses, with ladders that are arranged in different positions, for instance in front of or from the side of the house. It is worth to note that the veranda element, which existed in the Cham Muslim houses in the Mekong Delta, absented in the Cambodian housing models.

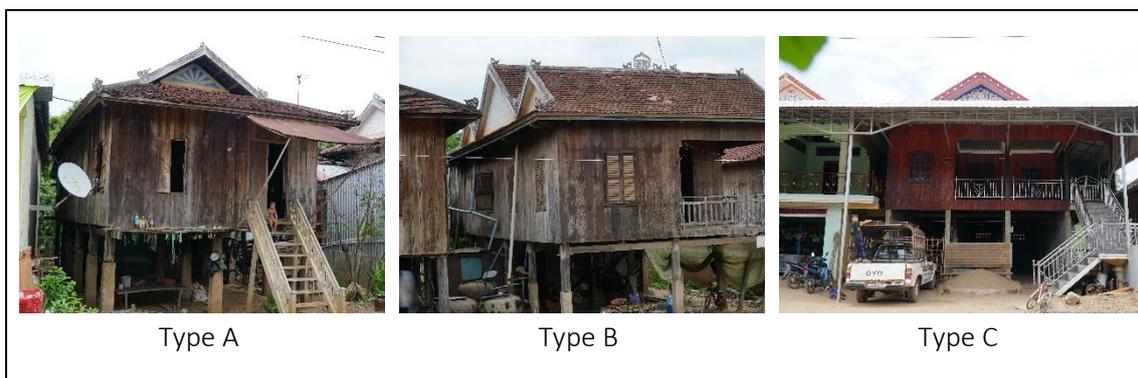


Figure 144 Typical housing type in Trea Commune.

In addition, the stilt house type A in the commune of Trea shows the equivalent spatial layout (Figure 146). The living room is located at the front space, while the sleeping space and kitchen are located at the back. However, the sleeping space of women is not divided but mixed with the kitchen space. The main door is located at one side, in this case, is on the left. In addition, the door leads to the back area also put on the same side to the main door. The arrangement of the structural frame also unifies with three pillars from the main façade throughout the inner space.

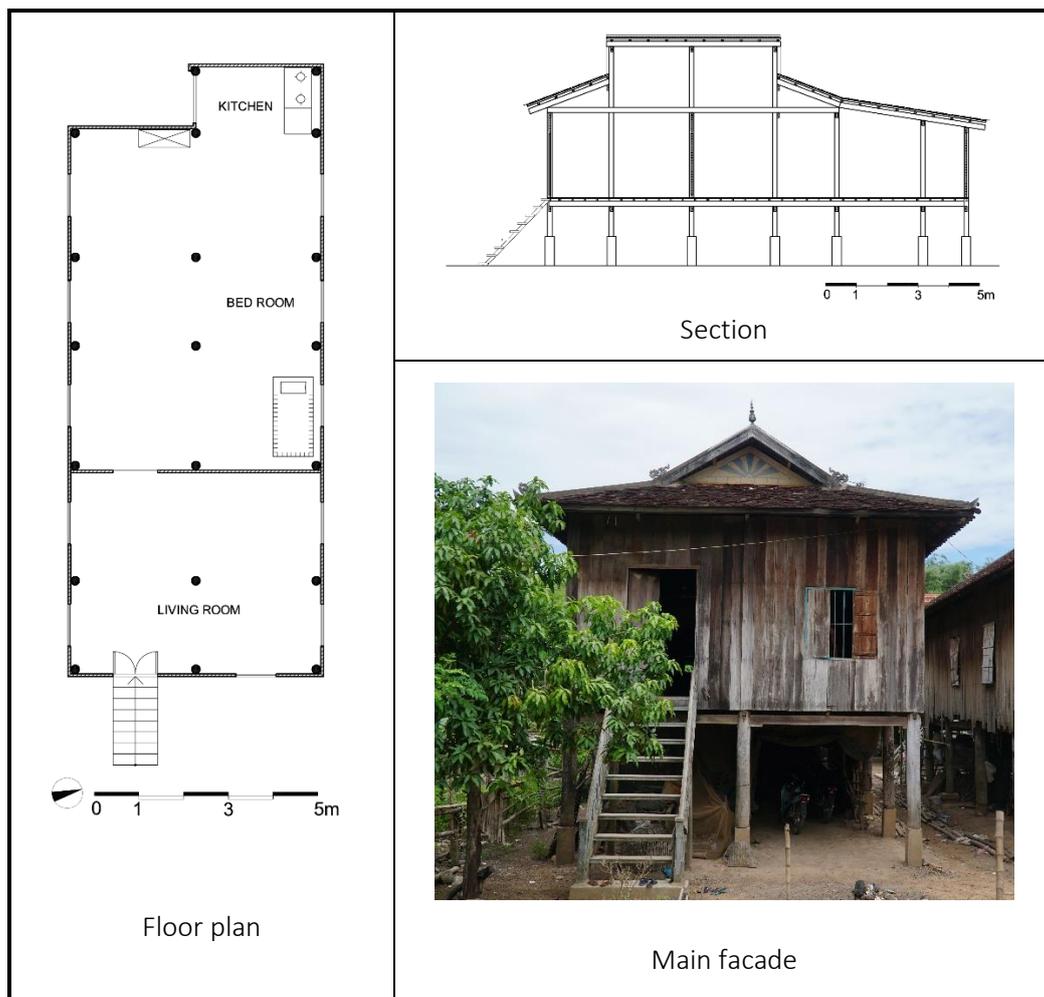


Figure 145 Traditional house in Trea Commune, Kampong Cham Province, Cambodia.

Another location where consisted a large of Cham Muslim communities is Krouch Chhmar Commune in Kampong Cham Province. The traditional houses in Krouch Chhmar mainly comprise two types: three-compartment house (Figure 147) and two-compartment house (Figure 148). It could be considered that the spatial arrangement in the two stilt housing types in the village of Krouch Chhmar that similar to the house in the Mekong Delta. The housing space is divided into two main parts in the vertical axis: the living room is a large space used for welcoming male guests, and space behind used for bedrooms, storing and kitchen. Both of the façades are faced to the

main road. The staircases are put directly to the narrow main doors in the central position. In the living room, there are three or four pillars divide the space into two or three compartments, however there is only one door to access the space behind. Moreover, there is no attic within the Cham Muslim houses in Cambodia. There was few large furniture in the room, and even if they were placed, they were generally moved to the edges. A removable hammock is placed between the pillars. The bedroom is used for women only and not opened directly to the living room. This space is private and covered by solid wooden boards. The kitchen and washing place are located at the back of the bedroom. Basically, the men are limited to enter the bedroom as well as the kitchen.

Nonetheless, one striking factor needed to note is that the element of veranda does not appear in these typologies. The facade of the house opens directly to the outer space. This element is also found in Khmer traditional architecture.

By analyzing the characteristics of Cham Muslim Cambodian houses, the author has found the similarities in architectural form and spatial layout with Cham Cham houses in the Mekong Delta. The Cham Muslim traditional houses in Kampong Cham and Mekong Delta are similar in architectural forms of the roof, wood materials, building scale, and spatial distribution layout. However, there are differences as follows:

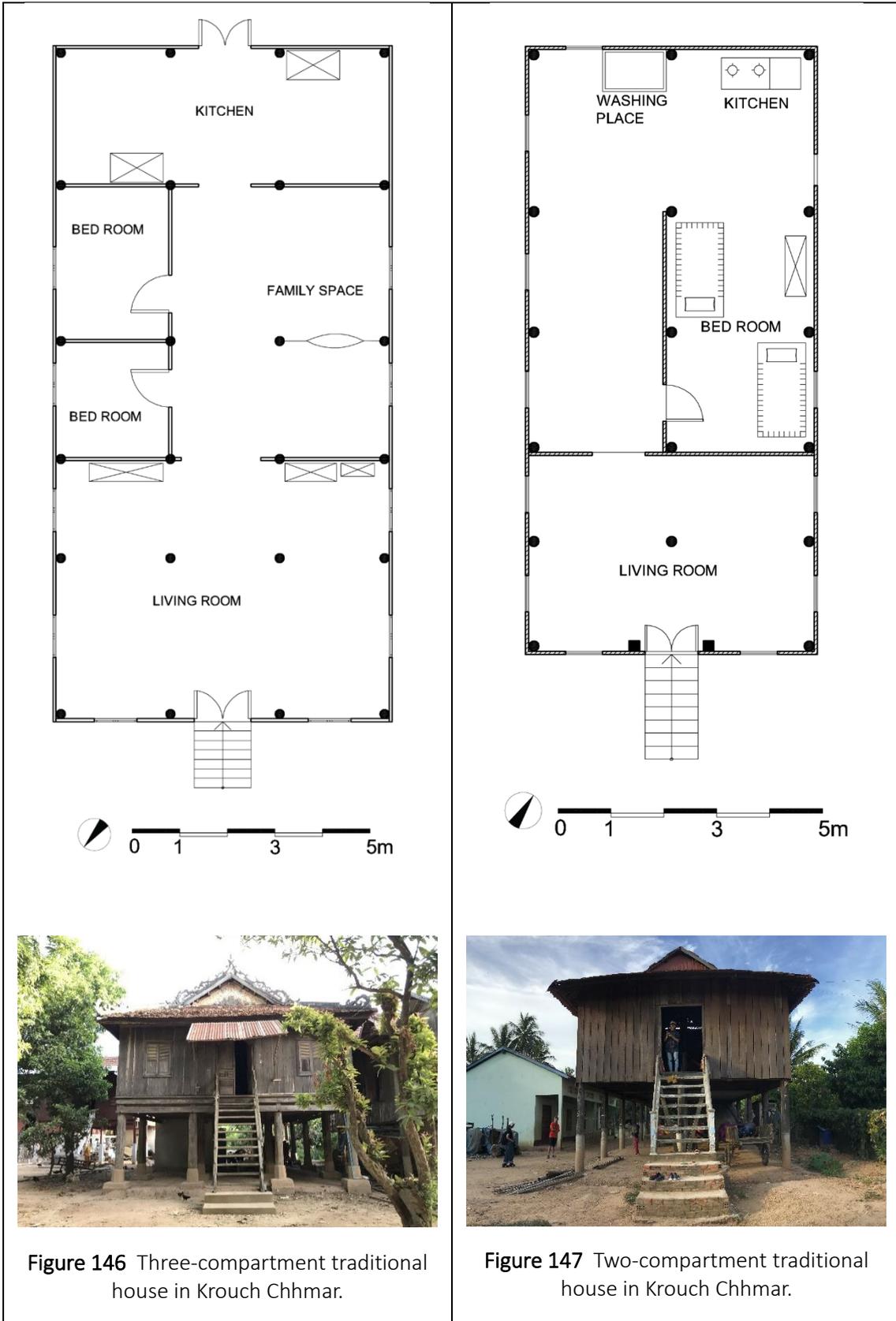
Firstly, in terms of planning, the houses, which have a similar formation as depicted above, scattered and interspersed with other housing typologies within the same village, not constant architectural formation like in the Mekong Delta.

Second, the positions of ladders and main doors are not strictly defined. They can be arranged in the center, left or right, depending on the demands of the house owner.

Thirdly, the bedroom at the backspace is also more freely divided than the Cham Muslim *Sang* house in the Mekong Delta. In addition, the living space can be divided into two or three compartments, depending on the financial conditions of the householder. Moreover, the veranda element does not exist in the residential architecture of Cambodian Cham Muslim.

Therefore, it is possible to consider the diversity of the space expansion by increasing the column system in the Cham Muslim stilt house in Krouch Chhmar and Trea. Furthermore, although the exterior and interior composition of Cambodia house expresses many similarities to the houses in the Mekong Delta, the space for men and women is not clearly separated, and the privacy is not strict as in the Mekong Delta.

In summary, it can be concluded that the Cham Muslims, after migrated to the Mekong Delta in the middle of the 18th century, borrowed the architectural forms of the Cham Muslim houses in Cambodia. However, the houses of the Cham Muslims in the Mekong Delta are uniform in architecture format. In addition, in the Mekong Delta, the Chams also borrowed the elements of veranda from Vietnamese architecture in the process of co-living.



6.2 Transformations of Cham Muslim housing

6.2.1 Classification of housing types

The 151 surveyed traditional *Sang* houses plans within nine Cham Muslim villages in the province of An Giang in the Mekong Delta (Table 23) were classified according to the categories of housing typologies. The classification of the houses is done by architectural elements, such as the number of spans, type of roofs, position of entrances, and extension of verandas (Figure 149). This method gives an overall view of the survey samples and easily identifies the most common characteristics of a typology and categorize any variation. The common typology will have similar and repeated features and occupy the largest percentage of the survey, whereas, unique typologies will be identified through fewer common features and lower percentages.

Table 23 Surveyed houses and traditional house plans of 9 Cham Muslim villages.

Ethnic groups	Cham Muslim		Vietnamese		Chinese		TOTAL	
	Surveyed houses	House plans						
1) Châu Giang	229	33	12	0	2	0	243	33
2) Nhon Hội	194	4	0	0	0	0	194	4
3) Khánh Hòa	165	22	27	0	0	0	192	22
4) Châu Phong	387	27	1	0	0	0	388	27
5) Vĩnh Trường	414	36	1	0	0	0	415	36
6) Đa Phước	114	21	0	0	0	0	114	21
7) Quốc Thái	152	10	3	0	0	0	155	10
8) Khánh Bình	145	7	0	0	0	0	145	7
9) Vĩnh Hạnh	188	0	8	0	0	0	196	0
Total	1988	151	52	0	2	0	2042	151

In detailed, the x-axis of this table is defined by the depth of the house according to the number of bays demarcated by corresponding columns. Only the spans of the original structures were considered for classification, which are important for spatial formation. The verandas and extensions added later to the house were not included. The subdivisions are classified in terms of the roof type: hip roof (type Y) and gable roof (type T). The y-axis is divided into two groups: the presence or the lack of a veranda. In addition, to consider the influence of the symmetry in the *Sang* house, the main elevation has been subdivided by the entrance position: M (middle), L (left) and R (right) sides.

By categorizing as the method above, the transformations of the *Sang* house are identified by one main classification and three sub-classifications.

- a) The main classification is based on its spatial organization, which is related to the number of spans and the structure. This way, it is clear to determine the most typical formation and its variations. In all of the 151 plans, the *Sang* house is comprised of two spans in horizontal

axis. Moreover, a majority of the Sang houses comprised of 3 spans and 4 spans in depth. From these findings, it is concluded that the typical *Sang* house is comprised of a basic structure of 2 spans on X-axis, and commonly 3 or 4 bays in depth. The percentage of houses with depths of over 5 spans is minor. Therefore, these houses are not considered common, but as special cases. In addition, the typical *Sang* house would have the bedrooms located after the front space on one half of the house. The service area, which includes the kitchen, toilet and storage, is positioned at the rear of the house.

b) The first sub-classification is the presence of a veranda, which indicates a transformation influenced by other ethnic groups. The addition of a veranda enhances the intermediate space into the façade of the *Sang* houses.

c) The second sub-classification is the roof type, which helps to recognize the typical roof shapes of the *Sang* houses.

d) The third sub-classification concerns the location of the entrance (middle, left, right). This characteristic emphasizes the role of symmetry in Islamic custom in influencing Cham Muslim housing. It could be concluded that the main façade of the typical *Sang* house is symmetrical with the main entrance placed in the middle, with the front façade divided into three spans.



Figure 148 Original Sang house and extension parts.

Currently, the remaining number of old traditional *Sang* houses built before 1979 is 298 units, which accounts for 14.99%; while the number of the new house is 1,690 units accounted for 85.01% of total 1,988 surveyed houses (Table 24).

Table 24 Old Cham Muslim *Sang* houses by period of time. (Unit: house)

VILLAGE	before 1900	1900 - 1964	1965-1978	1979 - 2000	2000- now	Total
1) Châu Giang	5	53	29	24	118	229
2) Nhơn Hội	0	4	5	41	144	194
3) Khánh Hòa	0	30	26	25	84	165
4) Châu Phong	4	34	46	32	271	387
5) Vĩnh Trường	0	9	13	74	318	414
6) Đa Phước	1	16	17	25	55	114
7) Quốc Thái	0	2	0	44	106	152
8) Khánh Bình	0	2	2	14	127	145
9) Vĩnh Hạnh	0	0	0	21	167	188
TOTAL	10	150	138	300	1390	1988
Percentage	0.5%	7.6%	6.9%	15.1%	69.9%	100%

The structural elements and dimensions of 151 surveyed *Sang* houses in 9 villages are summarized in the table 25. Overall, all of the houses contain the unified internal organization of *bilik twei*, *bilik anak dara* and *sang lakuk* and *sang ging*. The *bilik twei* is invariable in all houses, formed by a space of 2 spans on the x-axis and 2 spans on the y-axis. The *bilik anak dara* and *sang lakuk* area have variations on their dimensions, from 2 spans on the x-axis and 1 to 4 spans on the y-axis. The *Sang ging* area originally has 1 span.

Regarding to structure, the *Sang* house has a basic format of 2 spans on x-axis (100%) with most having 3 bays in depth (69 houses, accounting for 46%) or 4 bays in depth (71 houses, accounting for 47%). While the number of houses with 5 bays in depth is 10 units, occupies 7%, and the 7-bay house is only 1 house (1%). In addition, the common length of the span in depth is approximately 3m. This is the result calculated from the average of seven spans of 151 surveyed houses.

In terms of the roof, the Y-shaped (or hip roof) is 88 units covered 58% of the surveyed houses, and the T-shaped (or gable roof) is 63 units, covered 42%.

The average length of the main elevation is 5.2m. While the average depth size of the house is 14.9m, that includes 10.6m of the main part of living room and sleeping room and 4.3m of the extension part that was rebuilt by concrete and brick recently. In the past, the toilet and bathroom were separated in another annex. Nowadays, they are attached at the back as an extension building (123 units, accounting for 81%). As a result, the area of an average *Sang* house is totally 78.5m² which included 56.4m² of the main house area (living room and bedroom) and 22.1m² of the extension parts. The verandas (present in 133 houses, accounting for 88%) are another extension that did not exist in the original *Sang* structure (Figure 150).

Most of the *Sang* houses (135 units, occupied 89%) are symmetrical with the *Ba-mbeng anak*, the main entrance, located at a central position, with 3 spans in front façade and the entrance door placed at the middle position. Ninety percent of the houses surveyed follow this arrangement. 6% (9 units) of the houses have entrances on the left side, while 5% (7 units) have entrances on the right side.

Table 25 Architectural and structure elements in nine Cham Muslims villages.

No	Name of villages	Number of measured houses	Number of roof type		Average length of the span in depth (m)							Average of façade length (m)	Average of depth (m)	Average housing area (m2)	Average depth of extension (m)	Average area of extension (m2)	Number of vertical span							Main door position (M:Middle, L:Left, R:Right)			Average of veranda length (m)	Average of floor height (m)	Average height from floor to ridgepole (m)
			T	Y	1	2	3	4	5	6	7						2	3	4	5	6	7	M	L	R				
1	Châu Giang	33	21	12	2.9	3.2	3.0	3.0	3.1	3.3	2.6	6.1	12.1	75.1	5.1	28.6	33	10	15	7	0	1	27	4	2	2.2	2.4	4.7	
	Percentage		64%	36%													100%	30%	45%	21%	0%	3%	82%	12%	6%				
2	Nhơn Hội	4	0	4	2.3	2.9	2.5	2.7	0	0	0	5.1	9.0	47.9	3.2	15.7	4	2	2	0	0	0	3	0	1	2.3	2.2	4.0	
	Percentage		0%	100%													100%	50%	50%	0%	0%	0%	75%	0%	25%				
3	Khánh Hòa	18	10	8	2.9	3.1	2.8	3.4	0	0	0	5.1	10.9	56.3	4.9	24.4	18	6	12	0	0	0	13	3	2	2.2	2.2	4.4	
	Percentage		56%	44%													100%	33%	67%	0%	0%	0%	72%	17%	11%				
4	Châu Phong	24	16	8	2.8	3.0	3.0	2.8	3.7	0	0	5.9	11.7	69.8	4.7	24.0	24	4	18	2	0	0	23	0	1	2.2	2.3	4.5	
	Percentage		67%	33%													100%	17%	75%	8%	0%	0%	96%	0%	4%				
5	Vĩnh Trường	36	11	25	2.9	3.2	3.0	3.1	0	0	0	4.7	10.0	47.2	5.3	25.1	36	26	10	0	0	0	36	0	0	3.5	2.5	4.0	
	Percentage		31%	69%													100%	72%	28%	0%	0%	0%	100%	0%	0%				
6	Đa Phước	21	0	21	3.3	3.4	2.9	2.9	3.2	0	0	5.5	11.4	64.0	5.6	30.5	21	10	10	1	0	0	20	1	0	2.4	2.6	4.4	
	Percentage		0%	100%													100%	48%	48%	5%	0%	0%	95%	5%	0%				
7	Quốc Thái	10	0	10	2.4	2.9	2.9	4.0	0	0	0	4.6	8.7	39.5	3.5	16.2	10	9	1	0	0	0	10	0	0	2.5	2.3	3.8	
	Percentage		0%	100%													100%	90%	10%	0%	0%	0%	100%	0%	0%				
8	Khánh Bình	5	5	0	2.7	3.0	3.5	3.4	0	0	0	4.6	11.3	51.1	2.4	12.2	5	2	3	0	0	0	3	1	1	2.5	2.1	3.8	
	Percentage		100%	0%													100%	40%	60%	0%	0%	0%	60%	20%	20%				
9	Vĩnh Hạnh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Percentage		0%	0%													0%	0%	0%	0%	0%	0%	0%	0%	0%				
TOTAL		151.0	63.0	88.0	2.8	3.1	3.0	3.2	3.3	3.3	2.6	5.2	10.6	56.4	4.3	22.1	151	69	71	10	0	1	135	9	7	2.5	2.3	4.2	
Percentage		100%	42%	58%	average length of the span (m)							average length (m)					100%	46%	47%	7%	0%	1%	89%	6%	5%	average length (m)			

6.2.2 Transformation of *Sang* house

Currently, in the villages of Châu Giang, Châu Phong, Khánh Hòa, Vĩnh Trường, Đa Phước, there are still many traditional houses dating back over a hundred years old. However, most of them have been transforming for the two following reasons:

A) Transformation due to the demand of enhancing living space (Figure 151):

1. As the population growth, the traditional house is not enough space for living area. This problem has led to the situation that the house is extended in the vertical axis by erecting additional spaces. An auxiliary part is built at the back of the original house. In addition, due to the need to use domestic water and toilet, the kitchen, toilet, and bathroom, as a result, were built by concrete and brick with a septic tank underneath as an extension the back of the house (Figure 151, A2).

2. Extending the annex for kitchen and toilet, the veranda is added as a buffer zone to increase the living space and enhance the privacy from the outside (Figure 151, A3). The prototype traditional houses of the Cham Muslims in the Mekong Delta have no space of the veranda as the Vietnamese housing architecture. The veranda is an element that has been added in the last 50 years during house renovations. Later, because the veranda was attached at the front of the house, the stair therefore was moved, but it was still located in the middle of the veranda, keeping the layout symmetrical for the house.

3. Since the dike system was built, houses are no longer affected by floods. As a result, many houses have taken advantage of the space under the floor to make storage for tools or rising poultry (Figure 151, A4).

4. The wooden pillars that make the supporting structure from the old days are decay over time. For that reason, the wooden pillars are raised up and cement pillars are added to the lower part to prevent the penetration of water during flooding season as well as the impact of floods. Furthermore, some houses take advantage of the under floor area by erecting walls to enhance the ground floor area. As a result, the house is transformed into two-storey building, with the lower floor is built by brick and the upper floor retains the wooden structure (Figure 151, A5).

A) House far from river/ canal

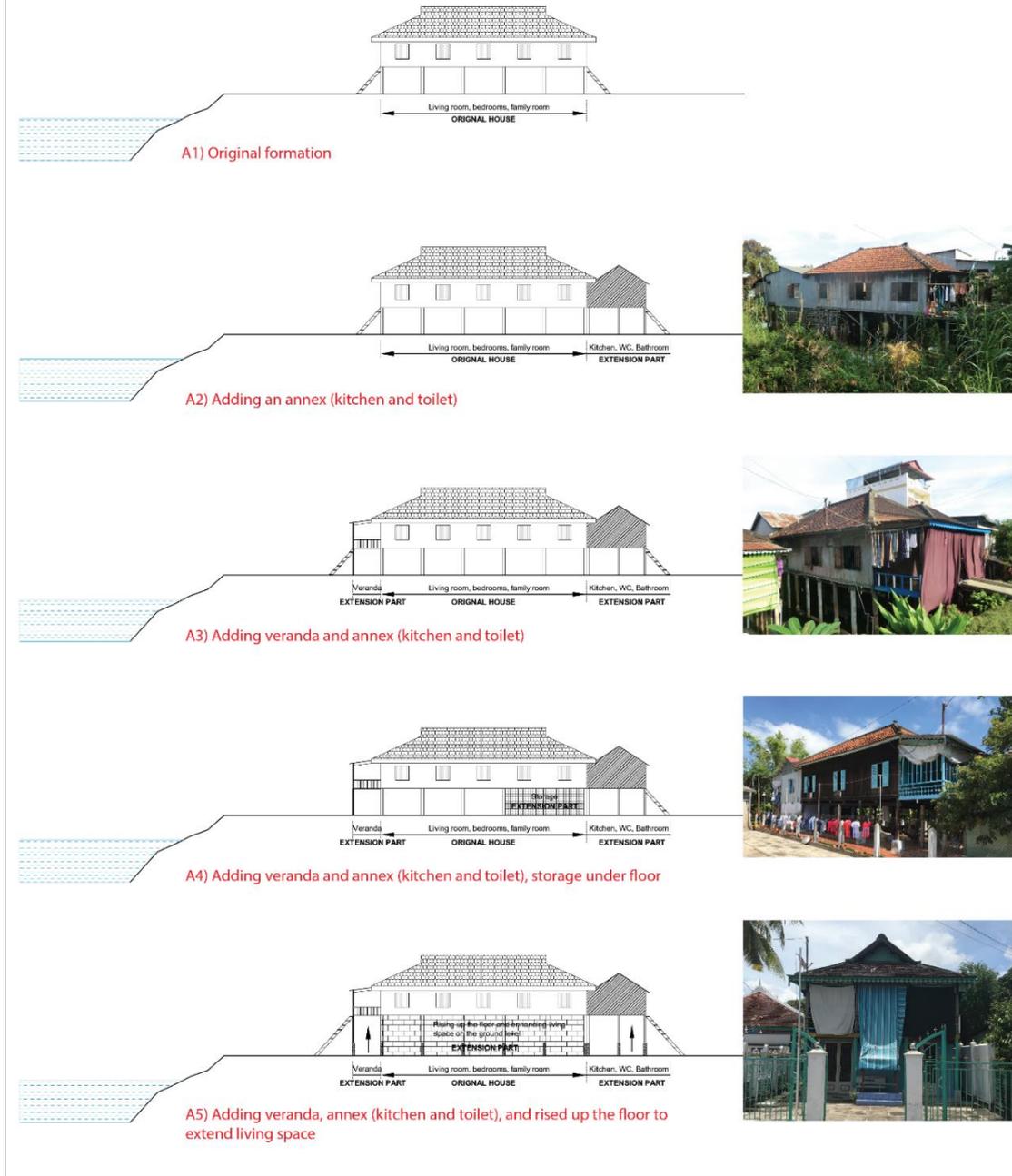


Figure 150 Transformation of Cham Muslim Sang house by using demand.

B) House near river/canal

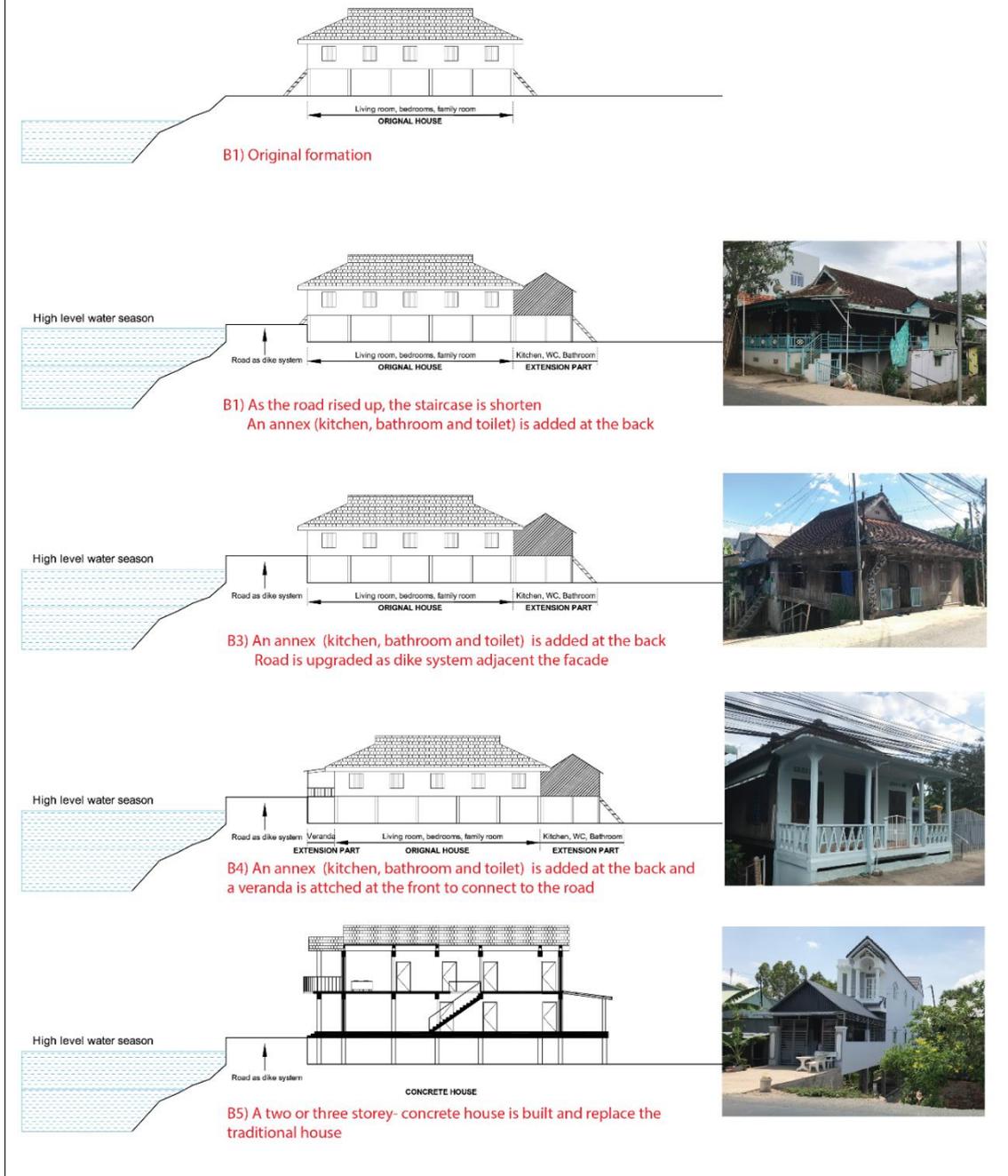


Figure 151 Transformation of Cham Muslim Sang house by the change of infrastructure.

B) Transformation due to infrastructure upgrading (Figure 152):

1. Due to the government has upgraded roads a dike system surrounding the banks of canals and rivers to prevent floods from 2000 to 2006, the roads are leveled and higher than before, some location is raised up more than 2m. As a result, the stilt houses here are no longer effective against floods. This change is mainly due to the increasing road surface making the house near the road become lower than the road surface. As a result, the staircase was removed and the main door was connected directly to the road. Moreover, the underfloor space became unusable. The underfloor space is left vacant, or covered by walls. Some houses shortened the stair to be able to access to the street (B2, B3 of Figure 152).

2. As the roads are leveled up, some houses have moved wooden ladders in front of the house to the side of the house or connected to the road surface by constructing additional veranda (in the case of Châu Phong village) or by constructing bridges connecting directly to the house (in the villages of Đa Phước and Vĩnh Trường) (Figure 152, B4).

3. The traditional stilt houses or the renovated houses to expand the usage space is not many, the main improvement mainly concentrates in the houses made of high quality wood. For houses made of regular wood, the house has a short use time and is easily damaged. Therefore when the house is degraded, the house owner could not rebuild by using good woods due to the extremely high cost. Instead, the new house is constructed by brick walls and reinforced concrete frame, with flat roofs or sloping roofs like a Vietnamese town house (Figure 152, B5).

Concrete houses have the advantages of being less expensive to build, on the other hand the houses are more stable. However, the new concrete house of the ethnic Cham is heavily influenced by Vietnamese town houses. Therefore, from the outside, it is indistinguishable which houses are Cham houses, except for decorative motifs in Arabic. Although the architectural form has changed and is suitable with today's modern architecture, the Chams' houses still retain the Islamic principles of Emptiness and Cleanliness. In the living room, there is still no space for ancestor worship or any human and animal figures, also very few interior furniture. In addition, the living space of men and women is divided by height. Accordingly, men use the ground floor for living, sleeping and receiving guests. Whereas women use the upper floors (B5 of Figure 153, Figure 154).

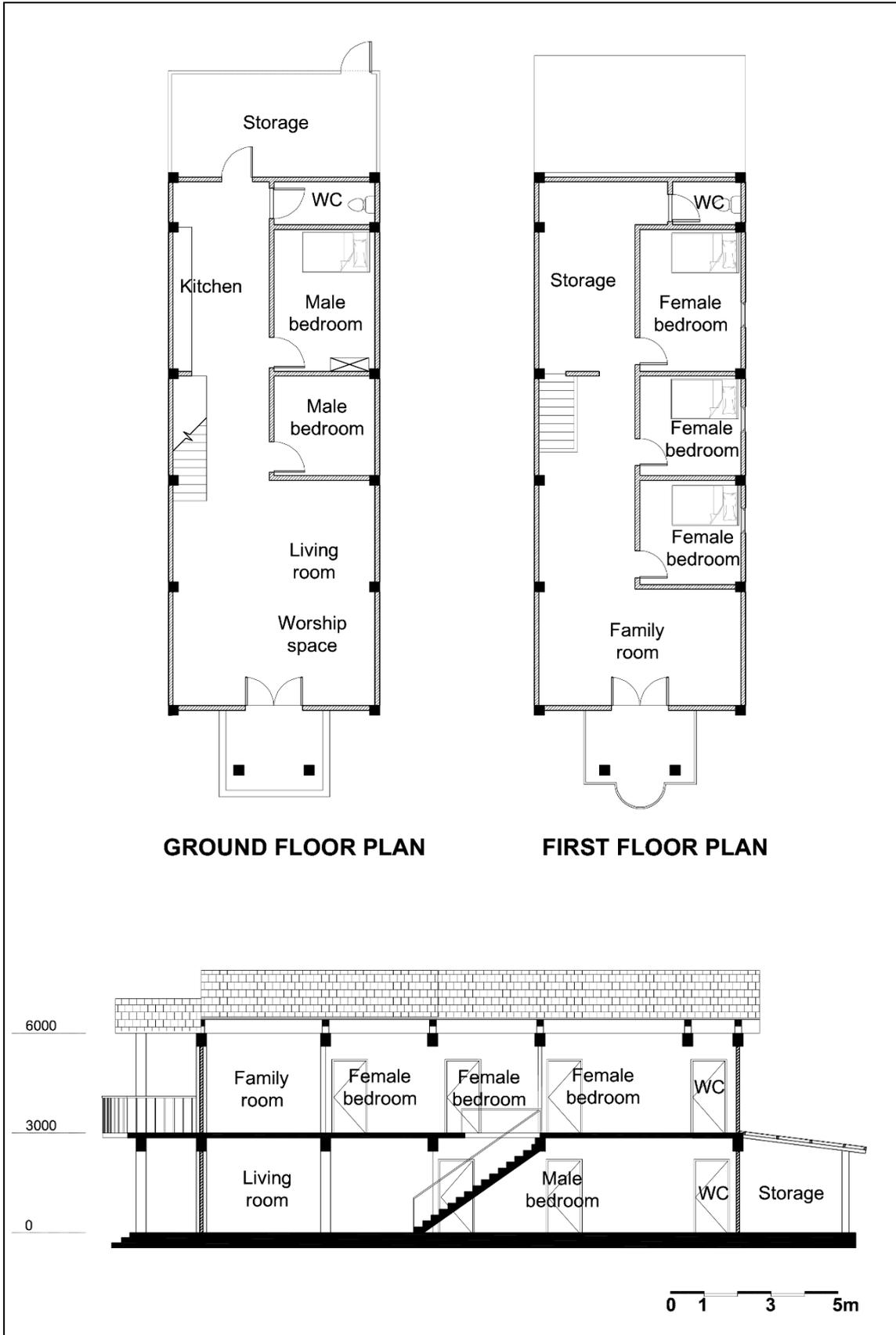


Figure 152 Concrete house of ethnic Cham Muslims in Châu Giang Province.

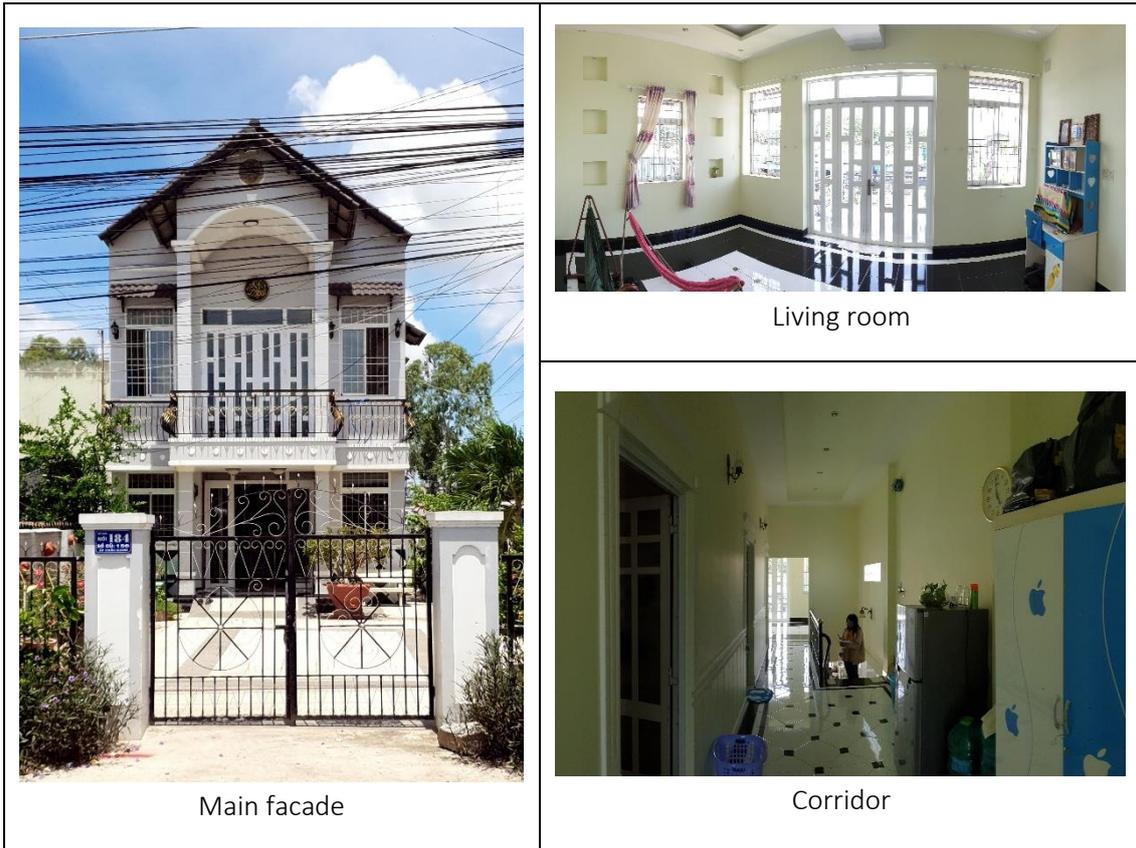


Figure 153 Concrete house of ethnic Cham Muslims in Châu Giang.

Another transformation is the type of resettlement house (Figure 155). This housing type was built on concrete stilts in concrete frame structures which was supported by the international Islamic organizations or Vietnamese government from 2006 and 2007.

The area of the floor plan is 6m width x 18m length, with a staircase put on one side of the veranda of the facade. The size of the house is similar, although there is no much division like in the traditional wooden house. Moreover, due to the frame of the house made of concrete, the pillar in the middle of the living room no longer had any bearing effect, so it was removed as well. The kitchen, toilet, and bathroom are located at the end of the house. Many resettlement houses make use of the underfloor space to enhance the living space.

Nonetheless, since the limitation of the housing area, both of men and women use the living room as a family space. In this way, the custom of separating the social vicinities of males and females within the Sang house has been lost in the resettlement house.



Figure 154 Resettlement house in Châu Phong Village.

6.3 Summary

The following points were concluded in terms of the formation and transformation of the Cham Muslim traditional housing in the Mekong Delta:

Regarding the formation, the *Sang* is the traditional house of the Muslim Cham villages. To this day, the remaining old traditional Sang houses are 289 units, accounted for 15% of all houses of the ethnic Cham Muslims. It is a wooden house constructed on high stilts with a clear spatial organization following the Muslim concepts of privacy, balance by symmetry, unity, emptiness, and well-responding to the local environment.

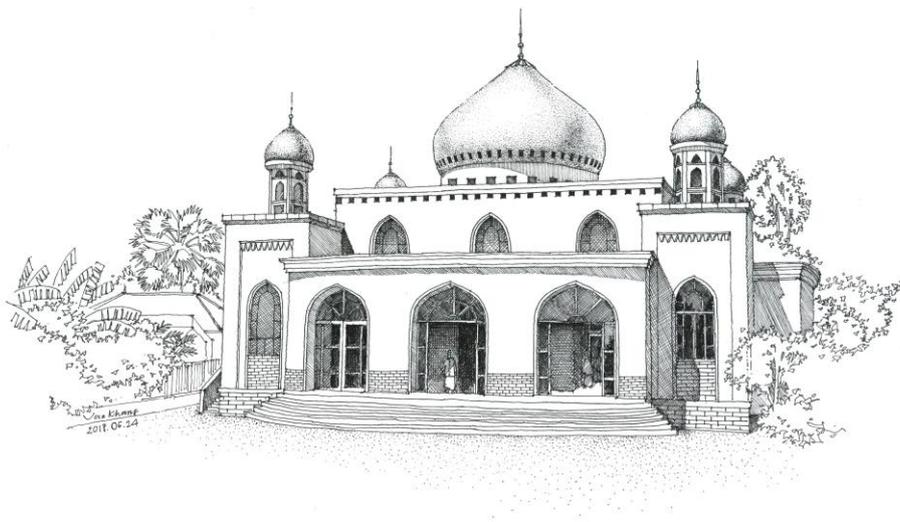
For origins, the *Sang* house of the Cham Muslim in the Mekong Delta is an autochthonous type originated from Kampong Cham area in Cambodia. Their modern-day transformations are minimal and limited only to the inclusion of the veranda from the local Vietnamese architecture and the extensions of the service areas (kitchen, toilet and bathroom). The veranda is attached to the facade since the 1950s for the purpose of enhancing the privacy of the house.

As for the transformation, the traditional *Sang* house altered by two main factors: the demand for extending living space and the upgrading of infrastructure. Consequently, the house is extended in the vertical axis by erecting an auxiliary part built by concrete and brick at the back which is mainly used for toilet, bathroom, and kitchen. Moreover, since the dike system was upgraded, the house is no longer affected by floods and therefore transformed into a two-storey building, with the lower floor is covered by brick and the upper floor retains the wooden house. In addition, the staircase is removed and the main door is connected directly to the road or constructing veranda to connect to the street.

However, the Cham Muslims also live- in resettlement houses supported by the international Islamic organizations or Vietnamese government, or they built a new concrete house similar to the Vietnamese townhouse but retain their traditional customs as emptiness, and also separating the living space of men and women by the vertical storeys.

CHAPTER 7

Conclusion



- 7.1 Knowledge contribution to preserving ethnical diversity in architecture in the Mekong Delta in the case of ethnic Cham Muslim
- 7.2 Future research
 - 7.2.1 Limitations of this study
 - 7.2.2 Recommendations for future research

This study addressed and clarified two main issues. The first issue is systematic the settlement formations and traditional housing patterns of the four ethnic groups of the Khmer, Vietnamese, Chinese and Cham Muslim in the Mekong Delta. Chapters Three and Chapter Four of this study classify and compare traditional residential formats and urban patterns of residence according to historical progress together with consideration of influences from customs, beliefs, spiritual life and livelihoods of ethnic groups. As a result, the similarities and differences of the residence models are taken into consideration in the scale of village and traditional housing.

Based on the background of the first issue, the second issue is deeply analyzed to comprehend and clarify the formation and transformation of Cham Muslim village and housing architecture. Based on the collected data of on-site surveys and fieldwork, Chapter Five and Chapter Six of this study records the current status, analyses and explores urban patterns and the Islam principles influenced to the formation and transformation of the Cham Muslim villages and traditional housing in the Mekong Delta. There remains very little published research on the traditional architecture in the Mekong Delta. The previous studies were mostly focused on understanding the urban planning transformations associated with the Mekong River as an inherent feature in the Mekong Delta. Several other studies addressed the problem of flooding and its impacts to the living of people in flooded areas. Nonetheless, there has never been a study of traditional architecture and residence patterns of ethnic groups in the Mekong Delta in an overview of the whole including physical architecture and social issues. In particular, most of the studies, if any, have focused on the Vietnamese architecture. The studies and architectural data of ethnic groups in the Mekong Delta are few, sporadic, lack of systematic and data sources, also not developed for many years. In particular, the Cham Muslim ethnic group, with a population ratio of 0.09%, accounts for a very small percentage in the Mekong Delta region has been completely omitted.

The reorganization of the residence patterns and housing structure systems of the four ethnic groups in this study has helped to fill the gap in the preservation of ethnic diversity in the architecture of the Mekong Delta region. In addition, the most important is that the study has supplemented data sources on village planning and housing of Cham Muslims along with historical values, traditional customs and influences of Islamic beliefs. Moreover, by considering and comparing the similarities and differences as well as exploring the origin of urban and architectural elements in relation to the spiritual and social life of the Cham Muslims, the interaction with Vietnamese architecture in the process of co-living have been revealed, as well as the association and the successor elements from traditional Cambodian Cham architecture is also clarified.

Three research questions were used to investigate the main characteristics and differences of urban patterns and traditional housing architecture between ethnic groups, as well as how the formations and the transformations in the village planning and traditional housing architecture of the ethnic Cham Muslims to preserve the diversity of local architecture in the Mekong Delta.

To answer these questions, the author has compiled and analyzed information from official historical documents and data along with statistics aimed at systematizing the main characteristics of traditional houses of the four ethnic groups residing in the Mekong Delta. The information is verified by conducting extensive fieldworks and surveys (10 trips from March 2018 to September 2019) in the Mekong Delta. The author has also created current status maps of housing for nine Cham Muslim villages in the province of An Giang. The maps were generated from satellite photos then compiled and modified by computer drawings with the purpose of identifying and understanding the current situation according to the ethnic distribution within the villages, the period of time of the year built, and the using functions, along with the use of materials and the height of the house.

The data of 1,988 housing units with 12 mosques and 15 suraus on 9 Cham Muslim villages were analyzed. By assessing the status quo database, combined with social factors and Islamic theory, the arguments are made with verification by theories and scientific bases from the relevant studies. In addition, in order to identify the origin of the traditional house formation and its transformations, the comparison to the traditional housing forms of neighboring ethnic groups was accompanied. In addition, the author also conducted surveys in Cambodia to clarify the origin of the architecture of the Cham Muslims in the Mekong Delta.

The Cham Muslim villages are scattered at the frontier vicinity between Vietnam and Cambodia because of historical developments from the Champa, the Vietnamese court and the Khmer Kingdom. In addition, the Cham Muslim community, due to its origins in Champa, remains the characteristics of Champa cultural remnants. In addition, Islam is a large religion that has wide and international influence, so religion is a factor that influences the layout of villages, houses, and dominates the living activities of the Cham Muslim villagers. Therefore, the author has incorporated specific physical characteristics in the connection and influences of spiritual and social factors in order to give evaluations and conclusions for this study.

The results of this study, therefore, have fulfilled the database of a new type of ethnic architecture in Vietnam that maintains the cultural diversity in the Mekong Delta, despite the rapid urbanization taking place. Furthermore, the findings of this study contribute to the understanding of Islamic architecture in the Southeast Asian region. Regarding the issue of preservation, this study supports the complete documentation of data that could help the restoration and renovation of degrading traditional houses in the Cham Muslim communities in the Mekong Delta. Moreover, the research helps to record the core principles of these buildings, both of its physical and social aspects, which could be used to preserve the distinct characteristics of the expansion process of Cham Muslim settlements in the future.

7.1 Knowledge contribution to preserving ethnical diversity in architecture in the Mekong Delta in the case of ethnic Cham Muslims

Four ethnic groups Vietnam, Chinese, Khmers and Cham Muslims in the Mekong Delta are not indigenous minorities who originate from different origins. Thus, their settling patterns are different, based on historical and social factors. In particular, the ethnic Vietnamese groups scattered and spread on the whole vicinities in the Mekong Delta. Whereas the ethnic Chinese located mainly on the cities or the towns nearby the rivers where convenient for doing business and trading activities. On the contrary, the ethnic Khmers preferred to settle surround their pagoda in the ridge area and mountainous region. The ethnic Cham Muslims, who established the villages on the Bassac River which at first for the military purpose controlled by Vietnamese court then for the livelihood of long-distance trading. This allows the conclusion that ethnical architecture in the Mekong Delta is not indigenous but only adapted to natural conditions. Because of no inherent foundation, the ethnical architecture of the Mekong Delta although has its own characteristics but from the locations where they come, however, it is transformative and adaptable quickly in the new land. This kind of characteristic is appropriate for undertaking business and settlement in the new place, but on the contrary, since the change and adaptation, as a result, the ethnic housing in the Mekong Delta is easily affected and mixed, especially in the rapid urbanization today. As a result, the traditional architecture of the ethnic groups in the Mekong Delta has been almost vanished, especially the architecture of the Khmer and Chinese communities.

Nonetheless, the traditional housing architecture for the Cham Muslim community in the Mekong Delta still has the opportunity to preserve, as well as establishing the new unique communities with their own unique characteristic. Thus, it is important to comprehend the core characteristics of its variants. Architecture transformations of the village and traditional dwelling of the Cham Muslims are based on the principles and influences of Islam. The results of this study provide an essential foundation for both of physical format and the social values of the Cham Muslim village and traditional housing in the Mekong Delta, which has closely linked of geographical conditions and historical events to the Bassac River, long-trading livelihood, and especially the social context prescribed by Islamic principles and the remnants of traditional Champa beliefs.

The ethnic Cham Muslims who have an origin from Champa then immigrated to the Mekong Delta from the 18th century because of the historical upheaval. The architecture of the Chams, therefore, is not the indigenous architecture, but rather the architecture of absorption, adaptation, and transformation. Moreover, regarding the formation and transformation, there are three main factors that impacted their village planning and housing architecture: History, Religion, and Environment and are summarized as follows:

- The distribution of Cham Muslims village locations on the banks of the Bassac River at the southern frontier with Cambodia and the fragmentation was formed due to military purposes and political factors dictated by the Vietnamese court in the 18th century.

- The formation and transformation of the old and new settlements is strongly influenced by Islamic principles with the dominance of mosque and surau. The village patterns and their extensions are compact and symmetrical with the mosques or suraus oriented towards Mecca as the central physical and religious landmarks. The urban form of the villages follows a linear format along with the waterways and roads, at first for, and then for long-distance trading. In addition, the distance from the centers of the villages to the boundaries approximately 220m, correlate with the sound ambiance coming from the mosques and suraus. Moreover, the shape of the mosque has also been transformed from a wooden house to a brick structure of Arabic style as it is now, an adaptation to the initial conditions and gradually changing over time.
- The formation of the traditional houses was conveyed from Cham Muslim architecture in Cambodia, then modified to adapt to the conditions in the Mekong Delta. In the living process in the Mekong Delta, the Cham absorbed the veranda (an open characteristic) from the Vietnamese traditional architecture and then changed into a closed characteristic by adding to the front of the house with the purpose to increase the privacy for the indoor space, which is a prominent trait in Islamic beliefs.
- Besides, although originated from a traditional Khmer wooden house, the Chams in the Mekong Delta organized using the layout that comply with Islamic principles. This is illustrated in the division of living space for men and women at the front and the backspace within the house. Moreover, the new houses built recently which influenced from the Vietnamese townhouses style, the Chams have also altered the using space to ensure Islamic rules with the utmost respect of Allah in daily life, such as the living room are clean and undecorated human or animal figures, which presented the two striking elements in Islam: Emptiness and Cleanliness. Besides, the living space of men and women is also preserved by the division of floors, where men live on the ground floor, and women living on the upper floors.
- The traditional wooden houses of the Cham Muslim are also constructed with a well-understanding in responding to the tropical climate in the Mekong Delta. The house is built on pillars to prevent the impacts from annual floodings, with many windows allowed cross ventilation and natural lighting. The veranda is added from the influences of Vietnamese houses to protect heavy rain and solar gain.

Based on the above factors, it could be concluded that the Islam principles and customs penetrate the whole space of the buildings and houses within the village as well as the daily activities of the Cham Muslim community. Because for them, the most important is only Allah, who is the One, formless and eternal (Prophet Muhammad's saying). Therefore, as other Muslim communities, for Cham Muslim community in the Mekong Delta, **the architecture forms are transient, only Islam principles are existed.**

How to preserve Cham Muslim village and housing in an urbanization period?

The Cham Muslim villages and traditional housing are facing the risk of losing identity in both physical and spiritual aspects in rapid urbanization process currently, it is essential to propose conservation policies to retain traditional values for this ethnic community. Some factors are needed to be considered in preservation and development.

Regarding the development of new settlements and new villages, the distance between mosque, surau and public facilities, if any, must be considered to easy accessibility to the villagers. These distances should be organized within an appropriate range so that the sound effects of loudspeakers do not affect the surrounding living areas.

In terms of housing in renovation or new construction, the characteristics in the space organization must be researched to preserve the habits and spiritual life of the Cham Muslim, since the house is a complex of spaces including all functional spaces that meet the needs of both material and spiritual activities of people. For example, the living room area where the man lives must be considered to locate in a place adjacent to the outside society, and the area of women like the bedroom and kitchen should be separated. Moreover, it is necessary to implement a policy of preserving houses dating back more than one hundred years. The houses with traditional architectural forms still intact should be recognized as cultural and historical heritages. This recognition will help to establish appropriate policies and legal for conservation the degrading old houses.

The architecture of the Cham Muslim is adaptive so that it can be changed to suitable for the Muslim spiritual life in new context. Due to the uniformity is one of the characteristics of the housing formation, the modularization solution may be an optimal and suitable solution in generating a new housing model. Nonetheless, this needs to be done in the social survey and ensure the spiritual factors as analyzed in the previous sections.

7.2 Future research

7.2.1 Limitations of this study

Due to limitations on time and distance, in addition the scale of the research issues and the large data source, as a result, the compilation and analysis, took a lot of time in the research process. Though the clarifications of the initial issues have been clarified, and the research objectives have been resolved, there is still a lack of correlative comparisons with the Cham Muslim architectures in the surrounding countries and areas. This study also has not yet proposed compatible solutions to improve the quality of housing for Muslim Cham people, but only to understand the core values and foundations of the formation and transformation in village and traditional houses. In addition, due to the large amount of housing units in nine villages, which scattered far from each other, the study thus only focused on areas close to the main road. For that reason, the additional houses in the back required expand study to examine comprehensively research problem.

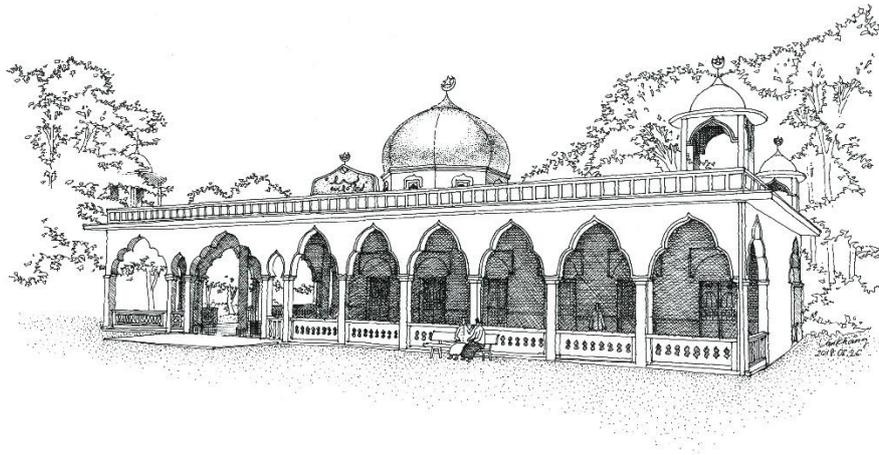
7.2.2 Recommendations for future research

As mentioned in the study limitation, the evaluation and consideration in a large scale related to the Islamic architecture and Cham Muslim communities in the Asean area need to be conducted. Therefore, in further research, it needs more research about generating the database, the systemizing, making comparisons for the Cham Muslim in terms of formation and transformation in urban and architecture on the scale of Southeast Asian countries like other nations of Cambodia, Thailand, Indonesia, Malaysia where have historical connection with the Kingdom of Champa is necessary. Although this work will require a lot of time and workload, the research results will be valuable in contributing to the Southeast Asian ethnic architecture, as well as the architecture system of indigenous Islam in the world.

Further studies or solutions to propose changes, expansion, upgrade, relocation, or development of Cham Muslim villages and houses in the future must be based on Islamic characteristics as analyzed in this study, for instance: Privacy, Balance by symmetry, Unity, Emptiness, Inwardness, Responsibility to environmental climate and regional. Without the basis of these Islamic principles, the unique identity of the Cham Muslim community will be lost.

The method of classifications and key findings of this study could be applied to studies for the theory of Muslim architecture, as well as to use in comparison when studying the formation and transformation of other Muslim communities in other areas, especially Cham Muslim communities who located along the Mekong River in Cambodia. Due to the close connection of historical factor and architectural forms, research on the structure of the Cambodian Cham Muslims needs to be conducted in the future to be able to comprehend and clearly define about the systematization of the formation and transformation of the village and housing architecture of Cham Muslim community whose settlement connected to the Mekong River.

Future research could use the housing distribution maps and the findings in the social structure and physical formation of the Cham Muslim in the Mekong Delta to conduct the other studies for urban planning design or social organization in using spaces by identifying changes in social interactions and changing of the living lifestyle of the villagers. The results of this study can be compared of other Muslim communities. In addition, it can also be applied in the planning and construction of residential areas for Muslim Cham people in Vietnam and in Muslim communities around the world.



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Appendices

Appendix A. Survey and fieldtrip outline

No	Survey fieldworks	Participants	Survey period
1	Field trip survey in the Mekong Delta – Cần Thơ, An Giang, Kiên Giang, Tiền Giang, Hà Tiên.	Author, Prof. Jimenez Verdejo Juan Ramon, Prof. Troy Dino Elizaga, Prof. Ashizawa Ryuichi, Prof. Kawai Misao, students of University of Shiga Prefecture.	August, 2017
2	Field trip survey in the Mekong Delta – Cần Thơ, Cà Mau, Bạc Liêu, Sóc Trăng, Sa Đéc, Hậu Giang, Trà Vinh, An Giang.	Author, Prof. Jimenez Verdejo Juan Ramon, Prof. Troy Dino Elizaga.	February to March, 2018
3	Survey measurements of dwelling types in Cham Muslim village in Châu Giang, An Giang Province.	Author, Prof. Troy Dino Elizaga, students of University of Architecture Ho Chi Minh City, E.T.S Architecture of Seville, University of Shiga Prefecture.	March, 2018
4	Survey measurements for environmental condition (temperature, humidity and wind) in traditional houses of ethnic Vietnamese and ethnic Cham Muslim in An Giang Provinces.	Author, Prof. Kaneko Naoshi, students of University of Architecture Ho Chi Minh City, University of Shiga Prefecture.	March, 2018
5	Survey measurements of dwelling types in nine Cham Muslim villages in An Giang province: Châu Giang, Châu Phong, Đa Phước, Vĩnh Trường, Quốc Thái Nhơn Hội, Khánh Bình, Khánh Hòa, Vĩnh Hạnh. Survey measurements of Khmer traditional houses in Tri Tôn, An Giang province. Survey measurements of Chinese rural traditional houses in Khánh Hòa, An Giang province.	Author, Teacher Sorole, Students of University of Architecture Ho Chi Minh City, Hanoi Architectural University.	June, 2018
6	Survey measurements of dwelling types in s in An Giang province: Châu Phong, Đa Phước, Vĩnh Trường, Quốc Thái Nhơn Hội, Khánh Bình, Khánh Hòa.	Author, University of Architecture Ho Chi Minh city students.	July, 2018
7	Interview in Ho Chi Minh City.	Author, Teacher Sorole.	September, 2018
8	Survey measurements of housing types in Cham Muslim villages in Tây Ninh province.	Author, University of Architecture Ho Chi Minh city students.	January, 2019
9	Field trip survey and measurements of new housing types of Cham Muslims in Châu Giang, Châu Phong, Đa Phước, and Chinese townhouses in Hà Tiên.	Author, University of Architecture Ho Chi Minh city students.	June, 2019
10	Field trip survey and measurements of villages and housing types in Khmer Cham Islam villages in Phnom Penh, Kampong Cham, Krouch Chhmar, Trea in Cambodia.	Author, Prof. Jimenez Verdejo Juan Ramon, University of Architecture Ho Chi Minh city students, University of Shiga Prefecture students.	June, 2019

Appendix B. List of names of elements in the Cham Muslims house

ENGLISH	CHAMIC	VIETNAMESE
Cham house	Sang	Nhà
Compartment	Rawang	Gian nhà
Awning	Sengkuap (atap sengkuap)	Mái hiên (phần mái chìa ra ngoài nhà)
Veranda	Ran	Hàng ba (không gian phía hiên)
Room	Bilik	Phòng (nói chung)
Living room (front space)	Bilik twei	Phòng khách (nhà trước)
Bedroom	Bilik ndih	Phòng ngủ
Daughter bedroom	Bilik anak dara	Phòng ngủ con gái
Family room	Sang lakuk	Phòng sinh hoạt gia đình
Working space	Labik ngap gruk	Chỗ làm việc (buôn bán, đọc kinh)
Kitchen	Sang ging	Nhà bếp
Bathroom	Bilik aia	Phòng tắm
Toilet	Jamban/ Jaman	Nhà vệ sinh
Middle space (the space comprises bedrooms and family room)	Sang krah / Krah sang	Nhà giữa (không gian bao gồm phòng ngủ và gia đình)
Attic	Para	Gác lửng
Stair	Kanyan	Cầu thang
Stair in the front	Kanyan anak	Cầu thang trước
Stair in the back	Kanyan lakuk	Cầu thang sau (thang sau bếp)
Floorboards	Papan rwak	Ván lót sàn
Roof	Bung sang	Mái nhà
Main pillar (in the living room)	Kheng krah	Cột cái (phòng khách)
Door	Ba-mbeng	Cửa
Room door	Ba-mbeng bilik	Cửa phòng
Main door	Ba-mbeng anak	Cửa đi chính
Sub door	Ba-mbeng pa-pen	Cửa hông
Window	Marang	Cửa sổ
Floor	Mala ton	Sàn
Floor with gaps in floorboards	Sampan	Sàn thưa
Dead body washing floor	Sampan pamanei aia mayit	Sàn để tắm cho người chết
Bath	Manei, pamanei	Tắm, được tắm

Source: Rumi Cam EFEO system ¹⁸,1997

¹⁸ The Rumi Cam EFEO system (Phonetic, 1997) is based on the scientific basis of the Cham Thrah word origin. Rumi Cham EFEO has quickly been widely used in research, learning and communication. Currently, the Rumi Cam EFEO system has been officially used in the compilation of Cham language documents in Europe and Southeast Asia. Most Cham intellectuals at home and abroad have quickly approached and used this Rumi system.

Appendix C. List of Mosques in the nine Cham Muslim villages in An Giang Province

A: The first time of year built of the mosque

B: The second time of year built to renovate or rebuilt the mosque

C: The third time of year built to renovate or rebuilt the mosque

Village		Mosque	Year built
1	Châu Giang	Al - Mubarak	 A.1750 - 1757, B.1967
		Jamiul Azhar	 A.1750-1757, B. 1989, C.2012
2	Nhơn Hội	Khoi riyah	 A.1820-1841, B.1992, C.2011
3	Khánh Hòa	Al - Aman	 A.1820-1841, B.1965
4	Châu Phong	Al Nia' mah	 A.1843, B.1930
		Muhamdiyah	 A.1963, B.1993

5	Đa Phước	Al - Ehsan		A.1843, B.1937, C.1992
		Jamius Sunnah		A.1982, B.2000
6	Vĩnh Trường	Ar - Rohmah		A.1843, B.1966, B.2016
7	Quốc Thái	Jamiul Muslimin		A.1854-1857, B.1933, C.1994
8	Khánh Bình	Mukarromah		A.1854-1857, B.1990
9	Vĩnh Hạnh	Jamiul Mukminin		A.1979, B.2005

Appendix D. Table of structural elements in 151 measured Cham Muslims Sang houses

N.o	Code	Roof type (Y/T)	SPANS IN DEPTH							Façade length (m)	Depth (m)	Area (m ²)	Extension length (m)	Extension area (m ²)	Orientation	Number of span in horizontal axis	Number of span in vertical axis	Door position	Length of veranda (m)	Floor height (m)	Floor to roof heights (m)
			1st	2nd	3rd	4th	5th	6th	7th												
1	CG150	T	3	2.6	2.5				5.6	8.1	45.4	5	28	SE->NW	2	3	M	2.2	2.8	4.3	
2	CG156	T	2.5	2.5	2.6				5.5	7.6	41.8	4.5	24.75	S->N	2	3	M	3	1.8	4.4	
3	CG86	Y	3	3	3.1				5.7	9.1	51.9	0	0	SE->NW	2	3	M	2	1.8	4.2	
4	KH6	Y	2.85	2.95	3.2				5.9	9	53.1	4.1	24.19	SE->NW	2	3	M	2.1	2.4	n/a	
5	KH14	Y	3.2	3.3	2.4				4.7	8.9	41.8	4.1	19.27	NW->SE	2	3	M	2	2.15	n/a	
6	KH45	Y	2.8	3	2.4				4.5	8.2	36.9	6.5	29.25	NW->SE	2	3	M	1.9	2.2	4.1	
7	DP11A	Y	3.55	3.7	2.9				5.2	10.2	52.8	0	0	NE->SW	2	3	M	3	2.8	4.5	
8	CG135	T	3.3	3.3	3.1	3.2			6.9	12.9	89.0	3	20.7	S->N	2	4	M	3	2.8	5.6	
9	CG141	T	2.6	4.1	3.5	3.7			6.1	13.9	84.8	7	35.06	S->N	2	4	M	2	2.3	5	
10	CG156	T	2.9	4	3.4	3.4			6.6	13.7	90.4	7.3	48.18	S->N	2	4	M	1.9	2.5	5.3	
11	CG245	T	2.6	3	2.6	2.8			5.9	11	64.9	4.8	28.32	N->S	2	4	M	1.8	2.4	4.8	
12	CG290	Y	2.7	3.5	2.7	2.8			5.6	11.7	65.5	5.5	25.04	N->S	2	4	M	2.2	2.2	4.7	
13	CG298	Y	2.5	3	3	3.3			6.1	11.8	72.0	8.1	46.46	N->S	2	4	M	2.3	2.2	4.8	
14	CG53	Y	3	3	3	3			6	12	72.0	3.3	19.8	SE->NW	2	4	M	2	1.85	4.6	
15	CG54	Y	3	3	3	3			6	12	72.0	0	0	SE->NW	2	4	M	2.3	2	4.3	
16	CG165	Y	3	3	3	3			6.9	12	82.8	0	0	S->N	2	4	M	2	2.4	5.3	
17	CG186	Y	3	3	3	3			5.8	12	69.6	0	0	N->S	2	4	M	2	2.4	4.3	
18	CG69	T	3	2.8	2.8	2.8	2.9		6.6	14.3	94.4	10.5	58.02	SE->NW	2	5	M	2.8	3.4	4.8	
19	CG110	Y	2.8	3.1	2.7	2.7	3.4		5.6	14.7	82.0	1.7	9.52	N->S	2	5	M	2.2	2.4	4.7	
20	CG118	T	2.6	3.3	2.8	2.8	2.8	3.3	2.6	6.2	20.2	125.2	3.5	21.7	S->N	2	7	M	1.2	1.8	4.2
21	CG170	T	2.5	2.5	2.5				6	7.5	45.0	4.6	27.6	S->N	2	3	M	2	1.85	4.6	
22	CG171	T	3	3	3				7.3	9	65.7	2.1	15.33	S->N	2	3	M	1.8	2.8	5.2	
23	DP16	Y	4.9	5	4.8				5.2	14.7	76.4	3.1	16.12	NE->SW	2	3	M	2.3	2.25	4.2	
24	DP17	Y	3.2	3.35	2.3				5.1	8.85	45.1	3.8	19.38	NE->SW	2	3	M	1.2	3	4.4	
25	DP19	Y	3.3	3.4	2.3				4.4	9	39.6	4.1	18.04	NE->SW	2	3	M	2	2.3	n/a	
26	DP29	Y	3.2	3.3	3.4				6.1	9.9	60.4	4	24.4	NE->SW	2	3	M	2.3	2.9	4.8	
27	DP30	Y	2.5	2.7	2.8				4	8	32.0	3	12	NE->SW	2	3	M	4	2.3	3.15	
28	DP33	Y	3.1	3.2	3.15				4.85	9.45	45.8	8.9	56.53	NE->SW	2	3	M	2.55	2.6	4	
29	CG57	T	3	3	3.5	2.6			5.9	12.1	71.4	0	0	SE->NW	2	4	M	2	2.25	4.3	
30	KH15	T	2.7	2.8	2.6	2.7			5.2	10.8	56.2	3.1	16.12	SE->NW	2	4	M	3.3	1.1	n/a	
31	KH39	T	3.35	3.5	3.75	4.1			6.1	14.7	89.7	2.2	17.50	SE->NW	2	4	M	1.9	2.5	4.8	
32	KH44	T	3.3	3.2	2.6	3.4			6	12.5	75.0	5.7	41.04	NW->SE	2	4	M	2.2	2.6	4.6	
33	CG233	Y	3	3	3	3			6	12	72.0	2.5	15	N->S	2	4	M	2	3	5.2	
34	CG316	Y	3.05	2.95	2.95	3.05			4.8	12	57.6	6	28.8	NW->SE	2	4	M	1.4	2.2	4.4	
35	KH7	Y	3.4	3.5	3.1	2.5			5.5	12.5	68.8	5.2	28.6	SE->NW	2	4	M	2.9	2.3	4.8	
36	KH13	Y	2.5	2.6	2.25	2.5			4	9.85	39.4	2.6	10.4	SE->NW	2	4	M	2	2.4	4	
37	KH39	Y	2.6	2.7	2.3	2.4			4.5	10	45.0	2	9	NW->SE	2	4	M	2	2.2	4.2	
38	KH68	Y	2.7	2.7	2.7	5.2			5.2	13.3	69.2	0	0	NW->SE	2	4	M	2.2	2.2	4.5	
39	CP18	Y	1.9	2.8	2.6	2.2			4.3	9.5	40.9	0	0	S->N	2	4	M	2.1	1.9	3.5	
40	CG152	T	2.5	4.6	3.2	3.3	3.4		6.7	17	113.9	8.3	28.90	S->N	2	5	M	2.1	2.4	5.4	
41	VT68	T	3.1	3	3				4.7	9.1	42.8	8.1	38.07	SE->NW	2	3	M	3.4	2.5	4.2	
42	VT69	T	2.5	2.3	2.8				4.6	7.6	35.0	5.3	24.38	SE->NW	2	3	M	3.1	2	n/a	
43	VT79	T	3	2.9	3.9				5	9.8	49.0	3.9	19.5	SE->NW	2	3	M	5.9	2.9	n/a	
44	DP36	Y	3.6	3.6	3.6				4.7	10.8	50.8	3	14.1	NE->SW	2	3	M	2	2.7	n/a	
45	DP7	Y	4.25	4.4	2.95				5.2	11.6	60.3	6.1	28.75	SW->NE	2	3	M	2.7	2.8	4.4	
46	VT100	Y	2.9	2.9	2.5				4.4	8.3	36.52	2.7	11.88	SE->NW	2	3	M	1.9	2.7	3.5	
47	VT11	Y	2.2	3.95	2.6				4.7	8.75	41.1	7	32.9	NW->SE	2	3	M	3	2.3	3.6	
48	VT9	Y	2.6	3.6	2.7				4.5	8.9	40.1	6.3	28.35	NW->SE	2	3	M	2.5	2.3	3.9	
49	VT18	Y	3.4	3.3	2.8				4.7	9.5	44.7	3.5	16.45	SE->NW	2	3	M	2.5	2.6	4	
50	KH52	T	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a	n/a	NW->SE	2	4	M	0	n/a	n/a	
51	KH67	T	3.1	3.2	3	3.1			5.6	12.4	69.4	4.7	26.32	NW->SE	2	4	M	2.3	2.4	n/a	
52	CP2	T	3.15	3.3	3.6	3.05			5.6	13.1	73.4	0	0	S->N	2	4	M	2.3	2.2	4.1	
53	CP3	T	3.1	3.3	4.8	4.7			6.7	15.9	106.5	0	0	S->N	2	4	M	1.5	2.5	5.2	
54	CP111	Y	2.5	2.6	2.4	2.5			5.1	10	51.0	7.2	36.72	SW->NE	2	4	M	2	2.6	n/a	
55	CP17.1	Y	3	3.2	2.8	2.9			6.4	11.9	76.2	3.6	23.04	N->S	2	4	M	1.9	2.1	4.8	
56	DP11B	Y	3.8	3.8	3.5	4.1			5.7	15.2	86.6	2	11.4	NE->SW	2	4	M	2	2.8	4.6	
57	DP28	Y	2.8	4	4	3.9			7	14.7	102.9	0	0	SW->NE	2	4	M	1.8	2.8	4.8	
58	DP35	Y	3.2	3.3	1.9	1.9			5.1	10.3	52.5	4.4	22.44	SW->NE	2	4	M	2.2	2.45	4.2	
59	DP37	Y	2.55	2.7	1.8	2			4.9	9.05	44.3	7.5	36.75	NE->SW	2	4	M	1.8	2.5	3.9	

60	DP38	Y	3	2.9	3.2	3.1				5.9	12.2	72.0	0	0	NE->SW	2	4	M	2.6	1.8	n/a
61	CG215	T	2.7	3	3	3	2.9			6.4	14.6	93.4	0	0	N->S	2	5	M	3.1	2.7	4.7
62	CG241	T	3	3	3	3	3			7.3	15	109.5	0	0	N->S	2	5	M	2	3.6	5.3
63	CP75	Y	3	3	3	2.9	4.3			5.7	16.2	92.3	3.3	18.81	N->S	2	5	M	2.4	2	n/a
64	VT24	T	2.5	2.3	3.2					4.1	8	32.8	10.8	44.28	SE->NW	2	3	M	3.2	2.4	3.8
65	VT28	T	3.5	3.1	3.8					5.4	10.4	56.2	6.3	34.02	SE->NW	2	3	M	3.2	2.5	n/a
66	VT37	T	3	2.9	3.3					5	9.2	46.0	7	35	SE->NW	2	3	M	3.5	2.6	n/a
67	VT59	Y	3.3	3.2	2.7					4.7	9.2	43.2	7.3	34.31	SE->NW	2	3	M	6.8	2.4	4.2
68	VT70	Y	2.5	2.4	3					4.5	7.9	35.6	3	13.5	SE->NW	2	3	M	3.8	2.1	n/a
69	VT6	Y	3.3	3.1	2.7					5	9.1	45.5	13.6	68	SE->NW	2	3	M	2.4	2	4.1
70	VT7	Y	3.2	3.2	2.6					4.5	9	40.5	5	22.5	SE->NW	2	3	M	2.4	2.4	4.2
71	VT8	Y	3.3	3.2	2.7					4.6	9.2	42.3	5.7	26.22	SE->NW	2	3	M	2.5	2.4	4
72	VT10	Y	4.6	3.2	2.6					4.5	10.4	46.8	4.6	20.7	NW->SE	2	3	M	8.2	3.4	3.7
73	CP17	T	2	2.7	2.3	2.1				4.3	9.1	39.1	0	0	S->N	2	4	M	2	1.9	3.6
74	CP3	T	3.2	3.4	3.3	3.1				6.8	13	88.4	0	0	S->N	2	4	M	1.8	2.5	5.3
75	CP5	T	3	3.2	3	2.8				6.6	12	79.2	0	0	S->N	2	4	M	2.2	2.2	n/a
76	CP24	T	3	3.1	2.7	2.9				6	11.7	70.2	0	0	S->N	2	4	M	4	2.8	4.4
77	DP3	Y	3.3	3.5	3	3.4				5.1	13.2	67.3	10.5	53.55	S->N	2	4	M	2.2	2.3	n/a
78	DP16A	Y	3.4	3.6	2.8	3				6	12.8	76.8	12.4	68.06	SW->NE	2	4	M	2.9	2.55	4.8
79	DP16B	Y	3.3	3.85	2.6	2.7				6.9	12.5	85.9	8.75	60.375	SW->NE	2	4	M	2.9	3.3	5.6
80	VT42	Y	1.9	5	3.4	3.3				5.6	13.6	76.2	5.6	31.36	NW->SE	2	4	M	5.3	2.1	n/a
81	VT53	Y	3.55	3.45	3.35	3.45				4.7	13.8	64.9	5.4	25.38	SE->NW	2	4	M	3.6	2.5	4.3
82	VT28	Y	2.4	3.5	2.6	2.85				4.5	11.4	51.1	6.2	27.9	NW->SE	2	4	M	3.3	2.7	4.1
83	CG289	T	2.6	2.95	3.1	3.1	3.2			6.6	14.9	98.3	7.3	48.18	N->S	2	5	M	4.3	1.9	4.7
84	CG303	T	2.8	3.4	3.1	3	3.3			7.4	15.6	115.4	4.3	31.82	N->S	2	5	M	2.1	2.9	4.6
85	KH46	T	2.5	3.3	3					5	8.8	44.0	6.1	30.5	NW->SE	2	3	M	2.1	2.45	4.3
86	CP44	T	2.5	2.6	4.4					6.1	9.5	58.0	8	48.8	SW->NE	2	3	M	2.2	2.3	4.8
87	VT41	Y	2.8	4	3.15					5	9.95	49.8	5.5	27.5	NW->SE	2	3	M	3.5	2.8	4.3
88	VT80	Y	2.4	3.9	2.4					4.5	8.7	39.2	6.6	29.7	NW->SE	2	3	M	3.9	2.6	3.8
89	VT85	Y	2.8	3.6	3.2					5.1	9.6	49.0	6.1	31.11	NW->SE	2	3	M	3.5	2.8	4
90	VT62	Y	2.8	3.4	2.9					4.5	9.1	41.0	4.1	18.45	NW->SE	2	3	M	4.6	2.3	3.85
91	VT63	Y	2.7	4.1	2.9					4.7	9.7	45.6	5.8	27.26	NW->SE	2	3	M	4.1	2.4	3.9
92	VT64	Y	2.4	3.2	4.3					4.9	9.9	48.5	6.8	33.32	NW->SE	2	3	M	3.9	2.75	4.1
93	CP52	T	2.6	3.6	3.6	2.6				6	12.4	74.4	2	12	N->S	2	4	M	2.1	2.6	4.5
94	CP64	T	3.2	3.3	3.3	3.2				7.8	13	101.4	10.9	56.22	N->S	2	4	M	2.1	1.8	5.5
95	VT97	T	2.9	2.8	4.6	3.7				4.6	14	64.4	3.8	17.48	SE->NW	2	4	M	4.4	2.4	4.5
96	VT11	Y	3.3	3.1	2.5	2.6				4.6	11.5	52.9	5.1	18.9	SE->NW	2	4	M	2.8	2.4	4.1
97	VT24	Y	2.5	3.4	2.6	3.5				4.5	12	54.0	3.5	15.75	NW->SE	2	4	M	3.3	2.3	3.8
98	VT109	Y	3.45	3.35	3.15	3.25				4.7	13.2	62.0	3	14.1	SE->NW	2	4	M	2.8	2.4	4
99	CP23	T	2.9	3	2.9	2.7	3.1			6.5	14.6	94.9	8.8	17.80	SW->NE	2	5	M	3	2.8	4.6
100	DP19	Y	3.4	3.5	3.1	3.2	3.2			7.4	16.4	121.4	2.9	21.46	SW->NE	2	5	M	3.4	3	5.2
101	CP43	T	2.9	2.9	3.8					6.4	9.6	61.4	3.1	19.84	N->S	2	3	M	1.5	2	n/a
102	CP42	T	2.5	2.7	2.9					5.1	8.1	41.3	0	0	SW->NE	2	3	M	1.5	2.2	3.8
103	VT49	Y	2.55	4.6	2.8					4.8	9.95	47.8	4	19.2	NW->SE	2	3	M	2.8	2.6	4
104	VT43	Y	2.4	3.3	2.8					4.9	8.5	41.7	4	19.6	NW->SE	2	3	M	2.8	3.3	4
105	VT100	Y	2.5	3.2	2.55					4.3	8.25	35.48	3.7	15.91	NW->SE	2	3	M	4.3	2.7	3.4
106	QT11A	Y	2.3	3	2.8					4.7	8.1	38.1	3.7	17.39	SW->NE	2	3	M	2	2.2	n/a
107	QT13A	Y	2.3	3.4	5.7					4.8	11.4	54.7	6	28.8	SW->NE	2	3	M	3.7	1.9	3.7
108	QT33B	Y	2.5	3.3	2.7					4.4	8.5	37.4	3.4	14.96	SW->NE	2	3	M	2.2	2.6	3.9
109	VT1	T	2.5	2.4	2.7	2.8				4.5	10.4	46.8	2.4	10.8	SE->NW	2	4	M	2.4	1.9	4.1
110	VT80	T	2.9	2.9	2.95	3.15				5	11.9	59.5	3.2	16	SE->NW	2	4	M	3.2	2.1	n/a
111	VT110	T	2.5	2.3	2.55	2.55				4.6	9.9	45.5	1.9	8.74	SE->NW	2	4	M	1.9	2.3	4.1
112	KB31	T	2.45	2.6	3.9	3.8				4.4	12.8	56.1	3.1	13.64	NE->SW	2	4	M	3.1	2.25	3.5
113	KB11	T	2.75	2.85	3.6					5.7	9.2	52.4	1.2	6.84	NE->SW	2	3	M	2.2	1.8	3.7
114	NH3	T	2	2.4	2.2					4.2	6.6	27.7	0	0	S->N	2	3	M	2.4	2.2	3.8
115	QT21A	Y	2.3	4.1	2.4					4.5	8.8	39.6	2.6	11.7	SW->NE	2	3	M	2.6	2.3	n/a
116	QT45A	Y	1.4	1.4	1.5					4.6	4.3	19.8	1.2	5.52	NE->SW	2	3	M	2.3	1.9	n/a
117	QT11B	Y	3.1	3.2	2.45					4.7	8.75	41.1	3	14.1	SW->NE	2	3	M	2.5	2.2	3.9
118	QT24B	Y	2.4	2.4	3.5					4.3	8.3	35.7	3.8	16.34	SW->NE	2	3	M	2.6	3	3.8
119	QT14A	Y	2.3	3.2	2.5					4.5	8	36.0	3.5	15.75	SW->NE	2	3	M	1.9	2.2	3.9
120	KB54	T	3.1	3.1	3.4	3.3				4.3	12.9	55.5	0	0	NE->SW	2	4	M	2.5	2.2	n/a
121	KH36	T	3	3.2	3.4					5.5	9.6	52.8	0	0	NW->SE	2	3	L	2	2	n/a
122	CG71	T	2.75	5.1	5.15					5	13	65.0	3.3	16.5	SE->NW	2	3	L	1.6	2.35	4.1
123	DP28	Y	2.85	2.95	2.5	1.6				4.9	9.9	48.5	7.5	36.75	SW->NE	2	3	L	2.05	2.8	4.1
124	KH44	Y	3.1	3.2	2.6					4.9	8.9	43.6	4.6	16.95	NW->SE	2	3	L	1.9	2.6	4.3
125	CG160	T	3	3	3	3				7.2	12	86.4	0	0	S->N	2	4	L	2.15	2.5	4.8

126	KH48	T	1.8	2.7	2.2	4				4	10.7	42.8	10.5	32.25	NW->SE	2	4	L	1.9	2.1	3.65
127	NH2	T	2.1	2	1.9					4.4	6	26.4	3.9	17.16	N->S	2	3	R	2.1	1.9	3.4
128	CG193	Y	2.7	2.7	2.7					5	8.1	40.5	0	0	N->S	2	3	R	1.4	2	4.8
129	CG310	Y	2	2.9	2.9					4.2	7.8	32.8	4	16.8	NW->SE	2	3	R	1.8	2	3.5
130	KH46	T	3.1	3.2	2.8	4				4.2	13.1	55.0	5	21	SE->NW	2	4	R	1.85	2.15	n/a
131	KH50	T	3.1	3.2	2.8	3.1				6.1	12.2	74.4	6.4	42.94	SE->NW	2	4	R	2.1	2.3	4.6
132	KB31	T	3.2	3.2	3.2	3.2				4	12.8	51.2	1.2	4.8	NE->SW	2	4	R	2.05	2.25	3.5
133	CP29	Y	2.7	2.6	2.75	2.85				5	10.9	54.5	4.3	21.5	N->S	2	4	R	3.3	2.75	4.1
134	CG55	T	4.1	4.1	4.1					6	12.3	73.8	0	0	SE->NW	2	3	M	0	2.3	3.9
135	CP3	T	n/a	n/a	n/a					n/a	n/a	n/a	n/a	n/a	S->N	2	3	M	n/a	n/a	n/a
136	VT3	T	2.95	2.85	3.7					5	9.5	47.5	0	0	SE->NW	2	3	M	0	2	4.2
137	QT14	Y	2.7	2.7	2.9					4.7	8.3	39.0	6.1	28.67	SW->NE	2	3	M	0	2.4	3.6
138	CP13	T	3.05	3.15	3.05	3.15				6.6	12.4	81.8	2.05	13.53	S->N	2	4	M	0	2.2	5
139	CP35	T	2.5	2.5	2.5	2.5				7.8	10	78.0	0	0	N->S	2	4	M	0	2.6	n/a
140	CP30	T	3.3	3.2	3.2	3.2				6	12.9	77.4	3.8	22.8	N->S	2	4	M	0	2	>2.5
141	CP8	Y	3	3.1	2.8	2.8				4.5	11.7	52.7	2.6	11.7	S->N	2	4	M	0	1.6	n/a
142	CP47	Y	3	3.1	2.25	2.2				5.3	10.6	55.9	1.95	10.335	SW->NE	2	4	M	0	2.2	4.7
143	CP117	Y	3	3.1	2.15	2.2				5.4	10.5	56.4	4.15	22.41	SW->NE	2	4	M	0	2	4.4
144	NH20	Y	2.5	2.9	2.3	2.6				5.2	10.3	53.6	3.1	22.32	S->N	2	4	M	0	2	4.2
145	NH35	Y	2.5	4.2	3.55	2.85				6.4	13.1	83.8	2.5	7.50	N->S	2	4	M	0	2.6	4.5
146	DP18	Y	2.6	2.8	2.7	2.8				5.2	10.9	56.7	3.5	18.2	SW->NE	2	4	M	0	1.8	4.4
147	DP53	Y	2.8	2.7	2.6	2.7				6	10.8	64.8	0	0	SW->NE	2	4	M	0	2.2	n/a
148	QT22	Y	2.65	2.65	2.9	4				4.4	12.2	53.7	2.1	9.24	SW->NE	2	4	M	0	2.2	3.9
149	CG214	T	2.6	2.6	2.6					6	7.8	46.8	7.8	46.8	N->S	2	3	L	0	2	5.1
150	KB19	T	2.2	3.4	3.4					4.5	9	40.5	4.1	23.37	SW->NE	2	3	L	0	1.9	4.6
151	CG304	T	3.6	3.2	3	2.5				7	12.3	86.1	2.5	17.5	NW->SE	2	4	L	0	2.1	4.8

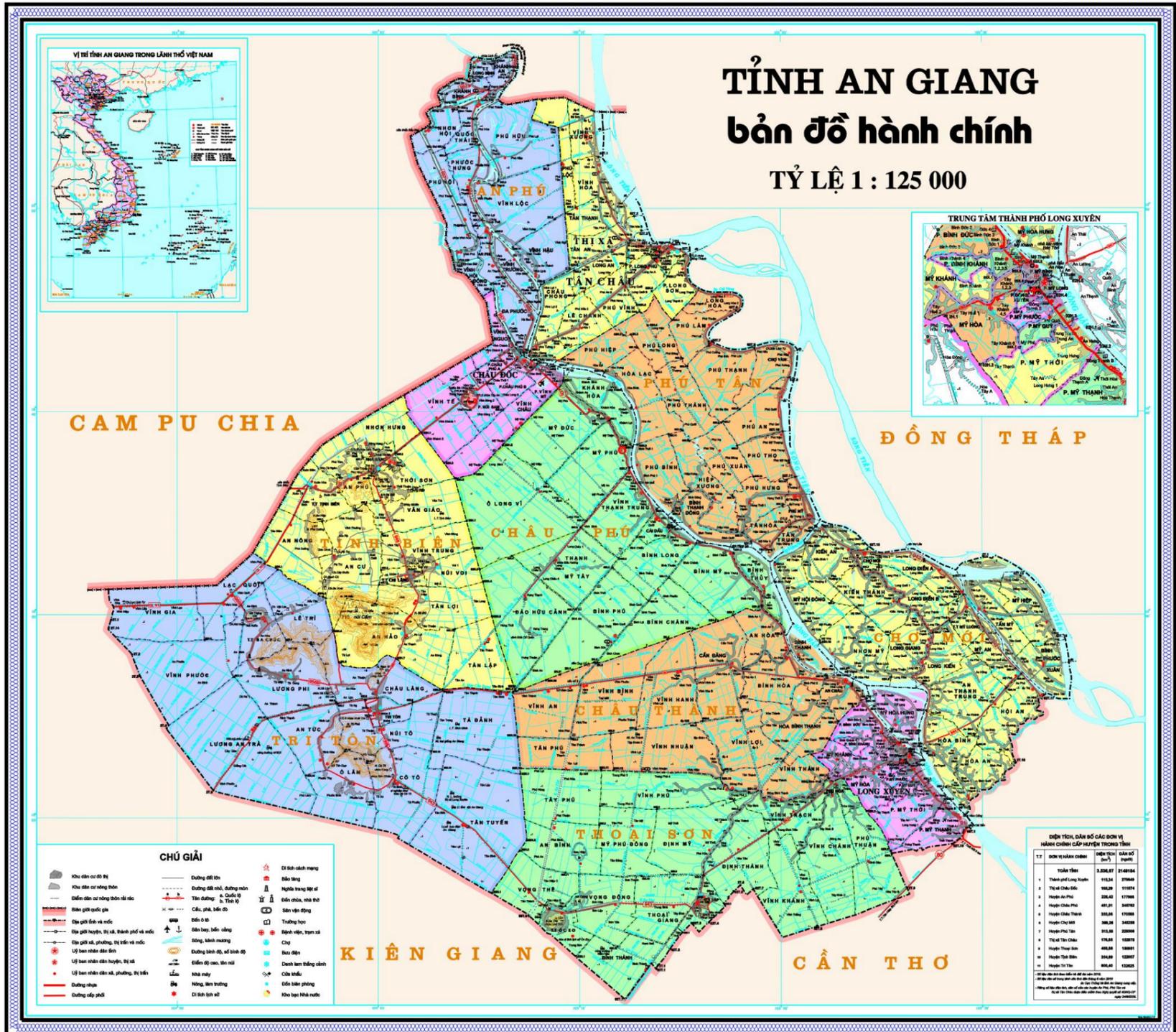
Appendix E. Sound intensity levels and the effects

Source: <https://courses.lumenlearning.com/physics/chapter/17-3-sound-intensity-and-sound-level/>

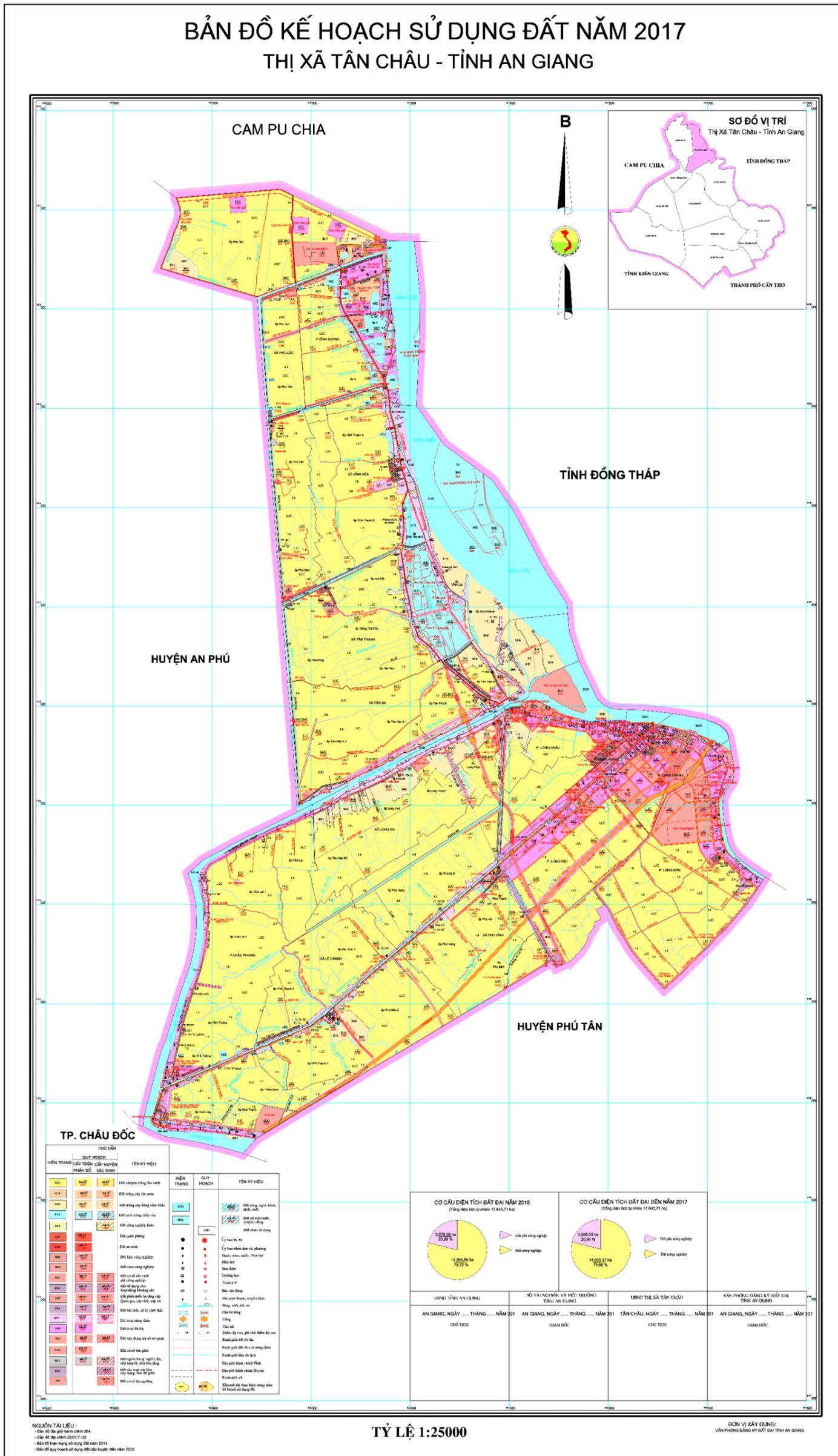
Sound intensity level (dB)	Example/effect
20	Whisper at 1 m distance, quiet countryside
30	Quiet home
40	Average home, quiet conversation
50	Average office, soft music
60	Normal conversation
70	Noisy office, busy traffic
80	Loud radio, classroom lecture
90	Loud sounds or shout
100	Noisy factory

Appendix F. Maps of Administrative in An Giang province

Source: Department of Natural Resources and Environment of An Giang Province, 2020.



Map of Land Use of Tân Châu commune
 Source: Department of Natural Resources and Environment of An Giang Province, 2020.



Appendix I. Drawing plans and section of traditional Vietnamese houses



Appendix J. Drawing plans and section of traditional Khmer houses

No.1	KHMER HOUSE	
Housing type	House on land	L. living room
Location	Tra Vinh province	B. bedroom
Year built	19 th century	S. storage
Number of householders	4	b. bathroom
Measuring day	2017/8/21	w. toilet

Note:
The original tile roof was donated to the padoga around 50 years ago and has been replacing by a fibre cement roof. The old wooden collumns have been still remaining. The bathroom and toilet were built recently by brick.

SECTION

FLOOR PLAN

The house and the owner

Living room

The decoration on the wooden panel

The storage in the annex

The kitchen

Living room

Altar and a set of long table and chairs

No.2	KHMER HOUSE	
Housing type	On-stilt house	L. living room B. bedroom
Location	Soc Trang province	
Year built	19 th century	
Number of householders	3	
Measuring day	2018/3/02	

Note:
The house is located in Trà Tim Giũa pagoda. It was donated by the people in the village, and has been using by the Khmer monks currently. The house is seriously degraded. The original tile roof was replaced by a fibre cement roof.



View from outside



Space under the floor



View from main door



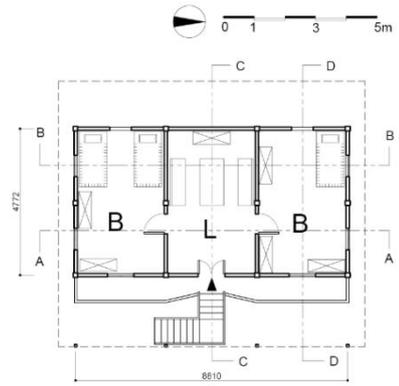
The cabinet in bedroom



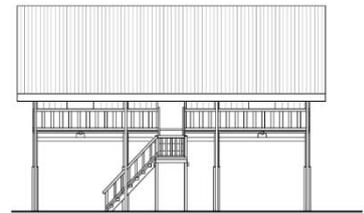
Corridor



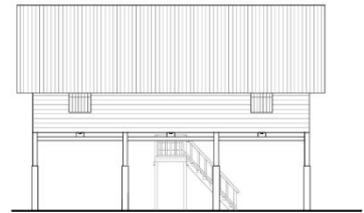
Bedroom



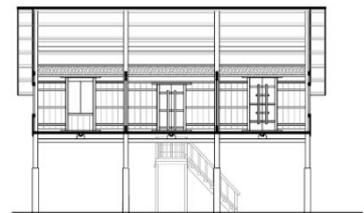
FLOOR PLAN



FRONT ELEVATION



REAR ELEVATION

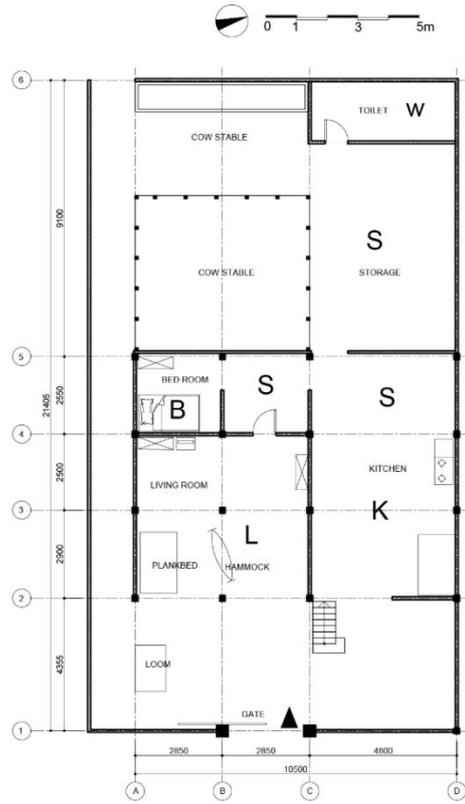


SECTION A-A

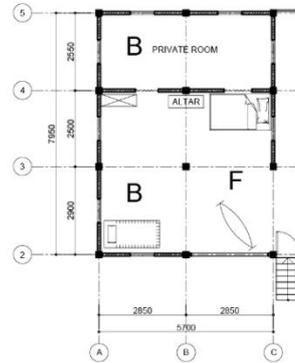


SECTION C-C

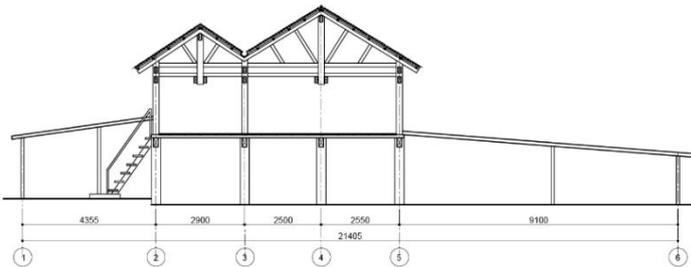
No.3	KHMER HOUSE	
Housing type	On-stilt house	L. living room
Location	An Giang province	B. bedroom
Year built	19 th century	F. family room
Number of householders	3	K. kitchen
Measuring day	2018/6/28	S. storage
		b. bathroom
		w. toilet
Note: The house is located in the village behind Văn Râu pagoda. It is the only one on-stilt house in the community. The house is not impacted by flooding, but the under-floor space is used for living room, cloths making by traditional loom and raising cows.		



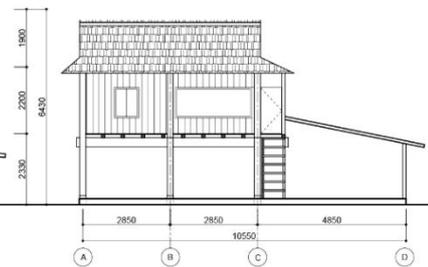
GROUND FLOOR PLAN



ON-STILT FLOOR PLAN

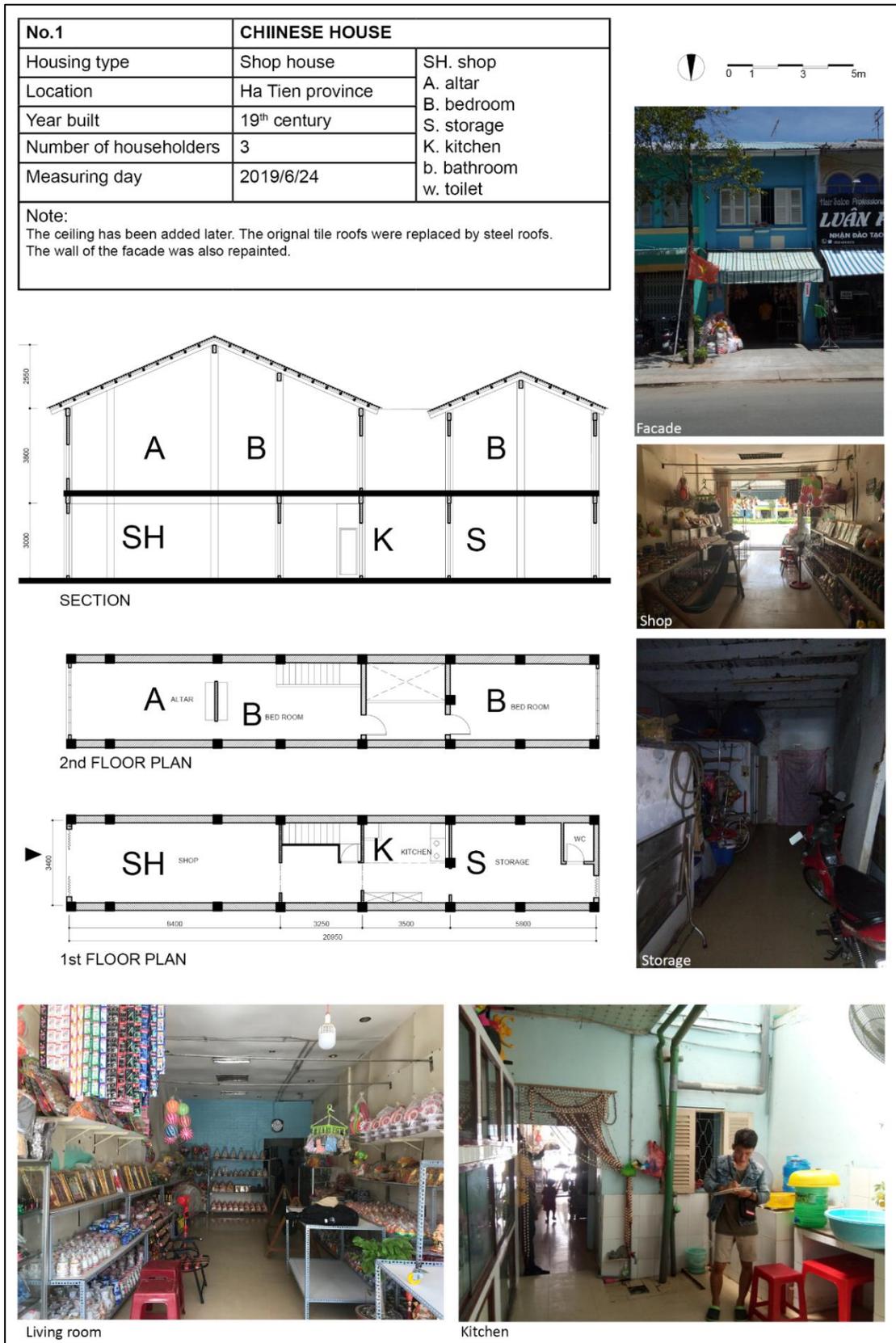


SECTION 1 - 6

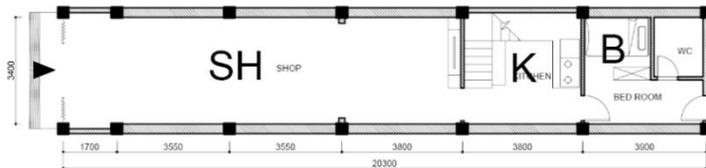
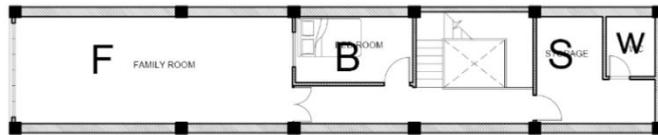
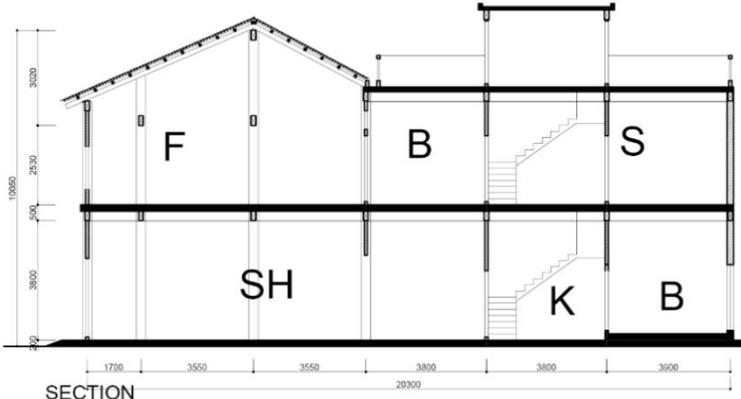
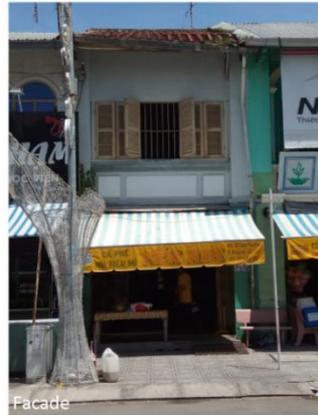


ELEVATION A - D

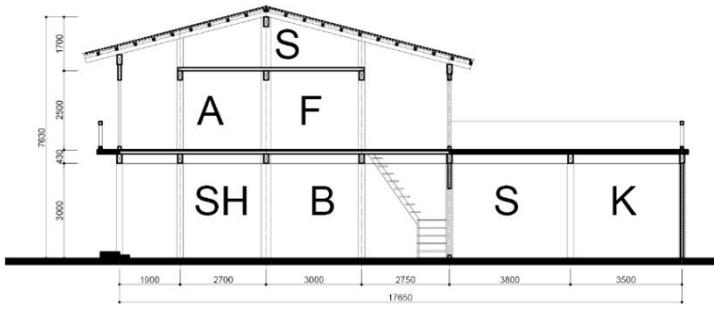
Appendix K. Drawing plans and section of traditional Chinese houses



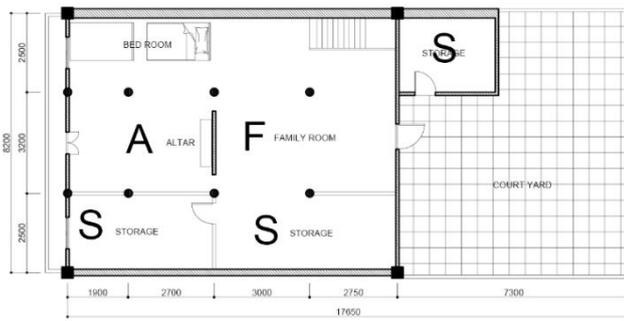
No.2	CHINESE HOUSE	
Housing type	Shop house	SH. shop
Location	Ha Tien province	A. altar
Year built	19 th century	B. bedroom
Number of householders	3	S. storage
Measuring day	2019/6/24	K. kitchen
		F. family room w. toilet
Note: The house owners have been replaced many time. The current family is Vietnamese. The rear area on the 2nd floor has been renovated by concrete and brick.		



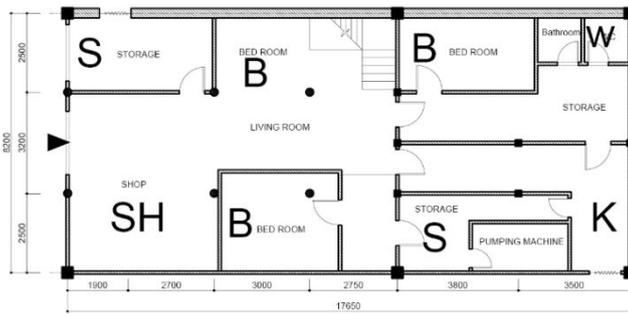
No.3	CHINESE HOUSE	
Housing type	Shop house	SH. shop
Location	Ha Tien province	A. altar
Year built	19 th century	B. bedroom
Number of householders	6	S. storage
Measuring day	2019/6/24	K. kitchen
		F. family room
		w. toilet
<p>Note: The house owners are Chinese. Three generations are living in the house. Before, all of the family members slept on the second floor. The floor plans were changed because the demands of function.</p>		



SECTION

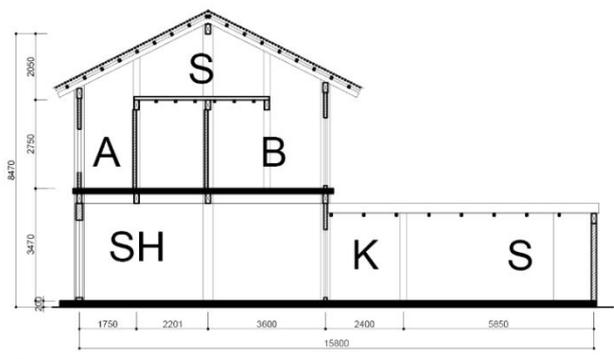


2nd FLOOR PLAN

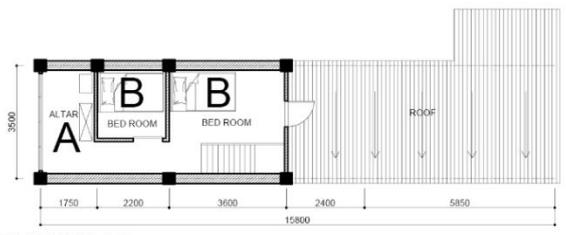


1st FLOOR PLAN

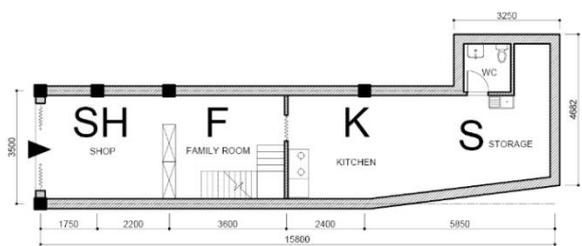
No.4	CHINESE HOUSE	
Housing type	Shop house	SH. shop
Location	Ha Tien province	A. altar
Year built	19 th century	B. bedroom
Number of householders	4	S. storage
Measuring day	2019/6/24	K. kitchen
		F. family room
		w. toilet
Note: 5 generations up to now. The market located in front of the house before. But it was moved to another place from 2009.		



SECTION



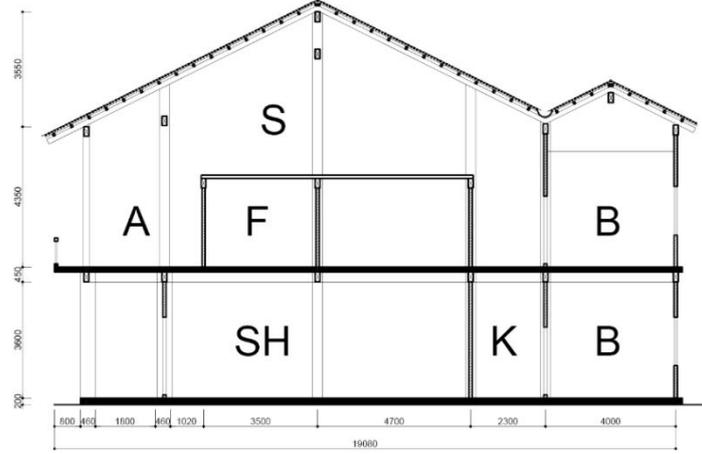
2nd FLOOR PLAN



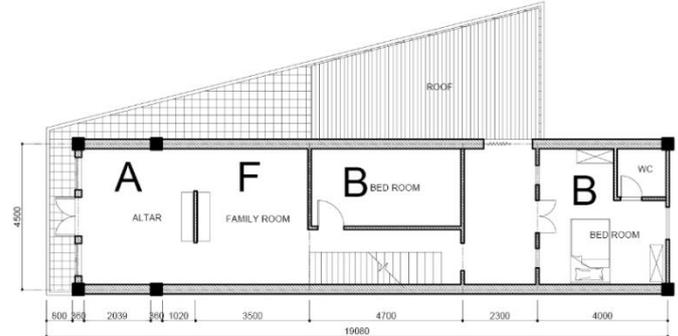
1st FLOOR PLAN



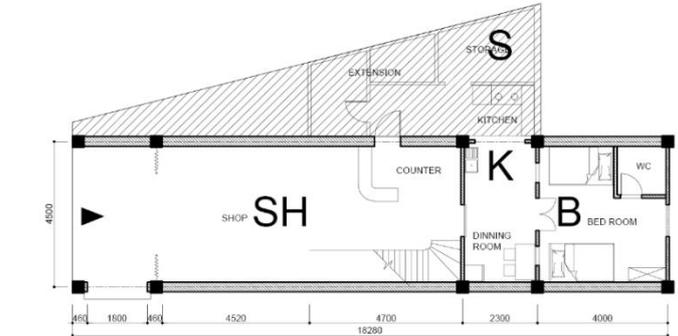
No.5	CHINESE HOUSE	
Housing type	Shop house	SH. shop
Location	Ha Tien province	A. altar
Year built	1930	B. bedroom
Number of householders	5	S. storage
Measuring day	2019/6/24	K. kitchen
		F. family room
		w. toilet
Note: The structure of the house has still remained in good condition. The extension parts were built for storing and kitchen.		



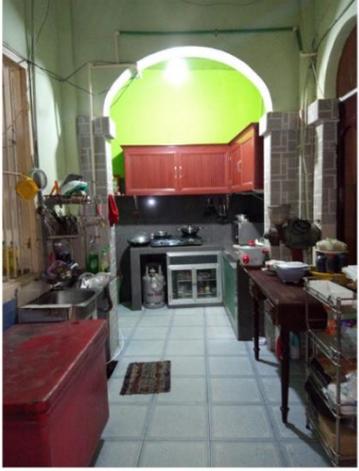
SECTION



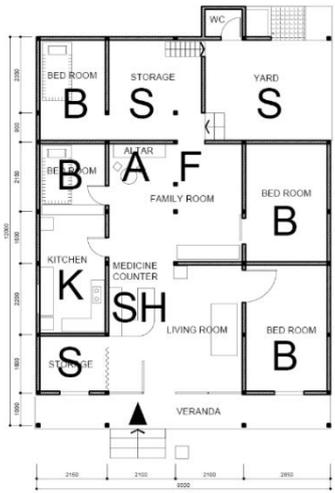
2nd FLOOR PLAN



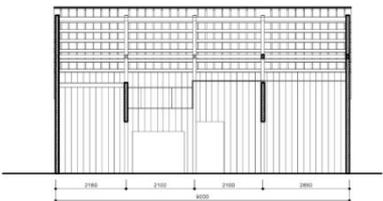
1st FLOOR PLAN



No.6	CHINESE HOUSE	
Housing type	Rural house	SH. shop
Location	An Giang province	A. altar
Year built	19th century	B. bedroom
Number of householders	5	S. storage
Measuring day	2018/6/27	K. kitchen
		F. family room
		w. toilet
Note: The interior was altered alot for kitchen, bedrooms and storage. Two bedrooms was added on the right side.		



FLOOR PLAN



HORIZONTAL SECTION



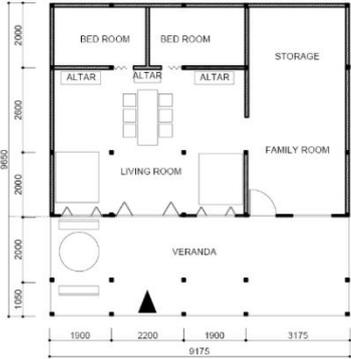
LONGITUDINAL SECTION



No.7	CHINESE HOUSE	
Housing type	Rural house	SH. shop
Location	An Giang province	A. altar
Year built	19th century	B. bedroom
Number of householders	5	S. storage
Measuring day	2018/6/27	K. kitchen
		F. family room
		w. toilet



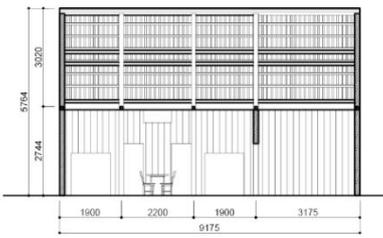
Note:
 The main structure is still remained in good condition.
 The extension parts were built on the right side for storing and family room.
 The floor was renewed by tiles.



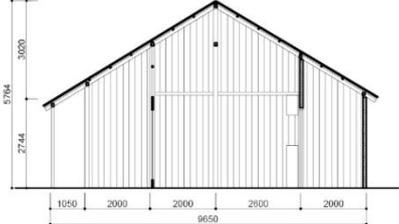
FLOOR PLAN



FRONT ELEVATION

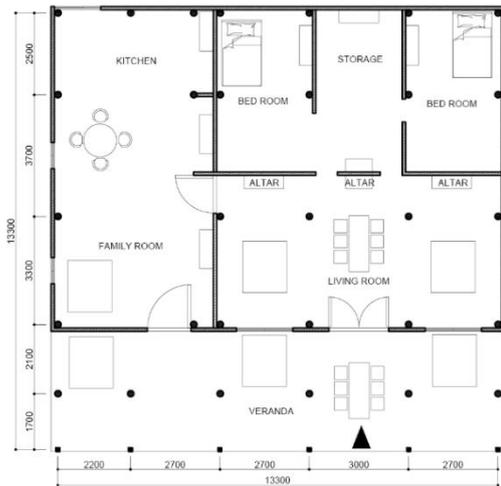


HORIZONTAL SECTION

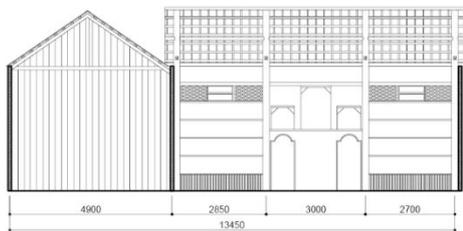


LONGITUDINAL SECTION

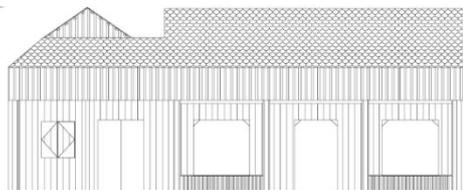
No.8	CHINESE HOUSE	
Housing type	Rural house	SH. shop
Location	An Giang province	A. altar
Year built	19th century	B. bedroom
Number of householders	5	S. storage
Measuring day	2018/6/27	K. kitchen
		F. family room
		w. toilet
Note: The structure of the house has still remained in good condition. The extension part was built on the left for storing and kitchen.		



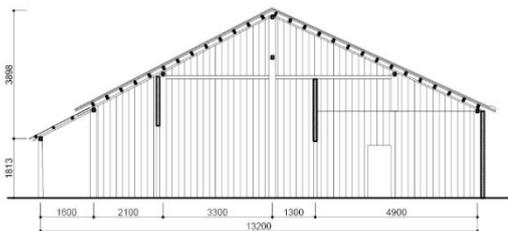
FLOOR PLAN



HORIZONTAL SECTION



FRONT ELEVATION



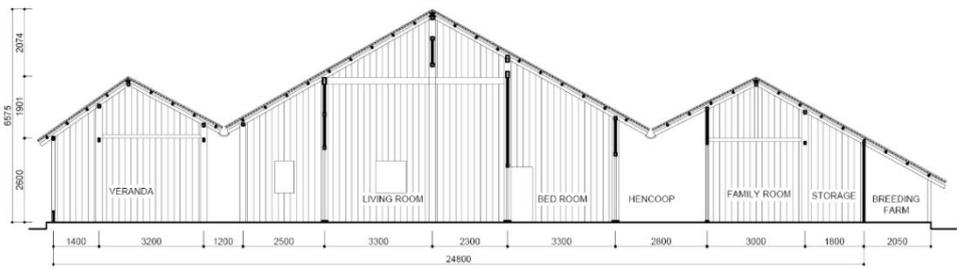
LONGITUDINAL SECTION



No.9	CHINESE HOUSE	
Housing type	Rural house	SH. shop
Location	An Giang province	A. altar
Year built	19th century	B. bedroom
Number of householders	5	S. storage
Measuring day	2018/6/27	K. kitchen
		F. family room
		w. toilet
Note: The structure of the house has still remained in good condition. The rear part is used for raising cattle.		



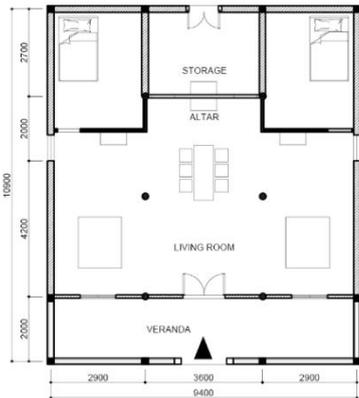
FLOOR PLAN



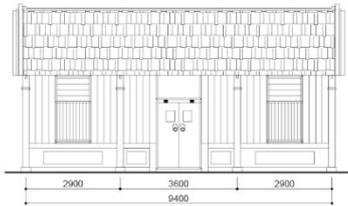
LONGITUDINAL SECTION



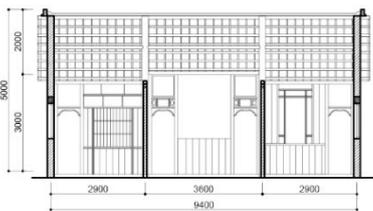
No.10	CHINESE HOUSE	
Housing type	Rural house	SH. shop
Location	Bac Lieu province	A. altar
Year built	19th century	B. bedroom
Number of householders	3	S. storage
Measuring day	2018/6/27	K. kitchen
Note:	F. family room w. toilet	



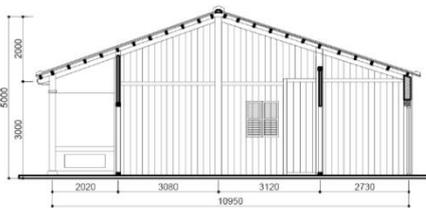
FLOOR PLAN



FRONT ELEVATION



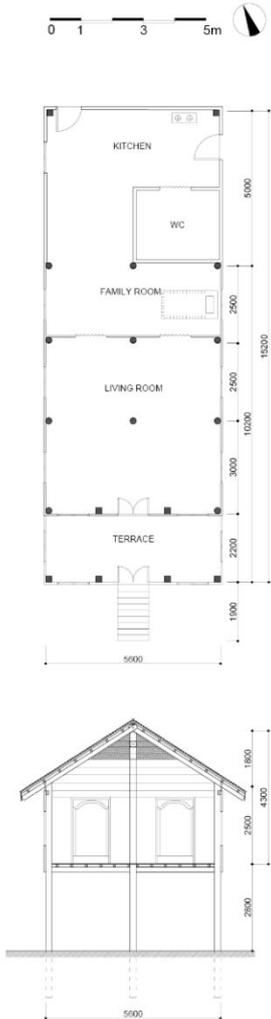
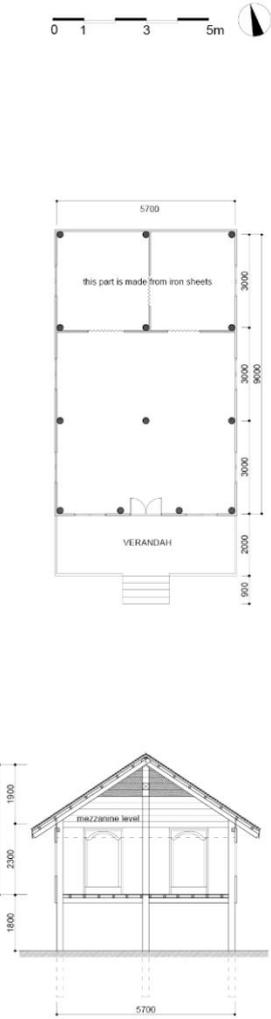
HORIZONTAL SECTION

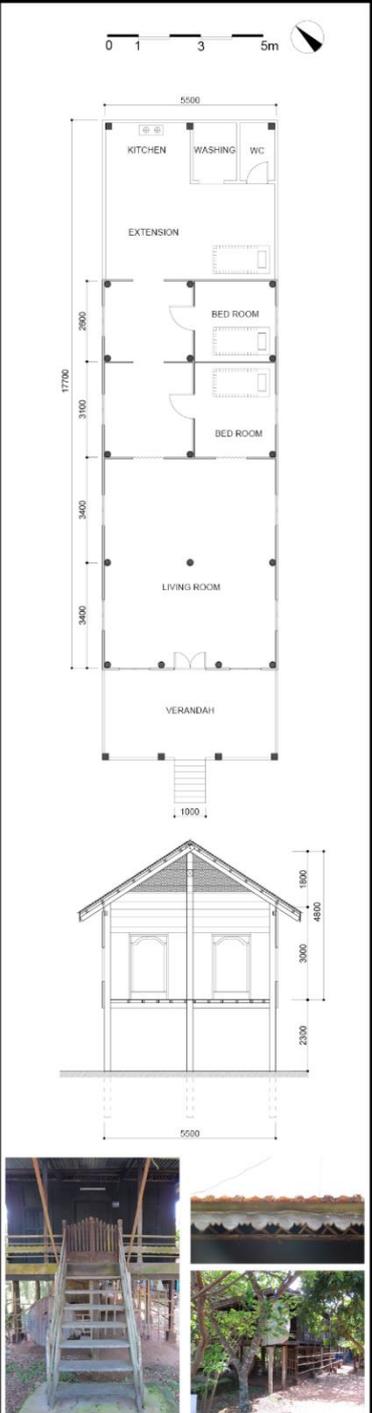
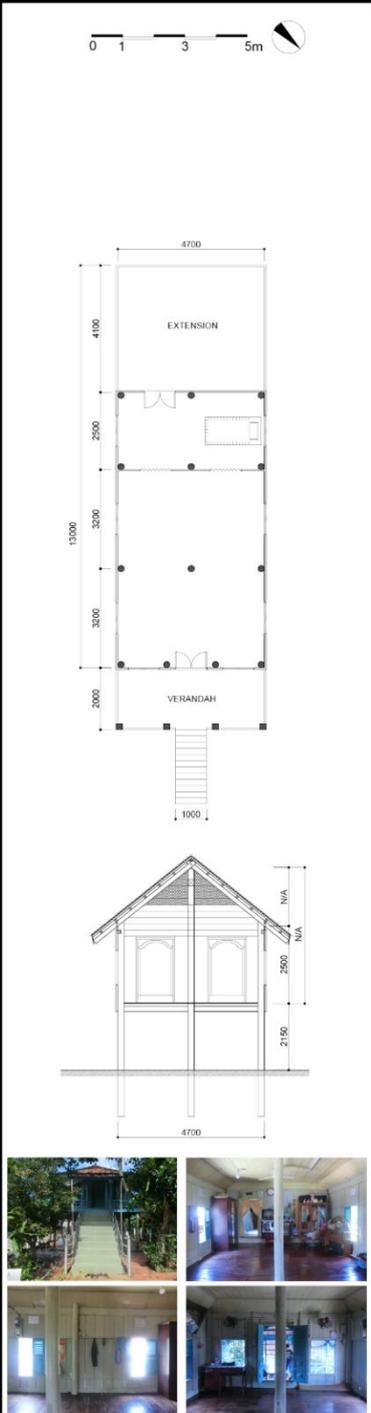
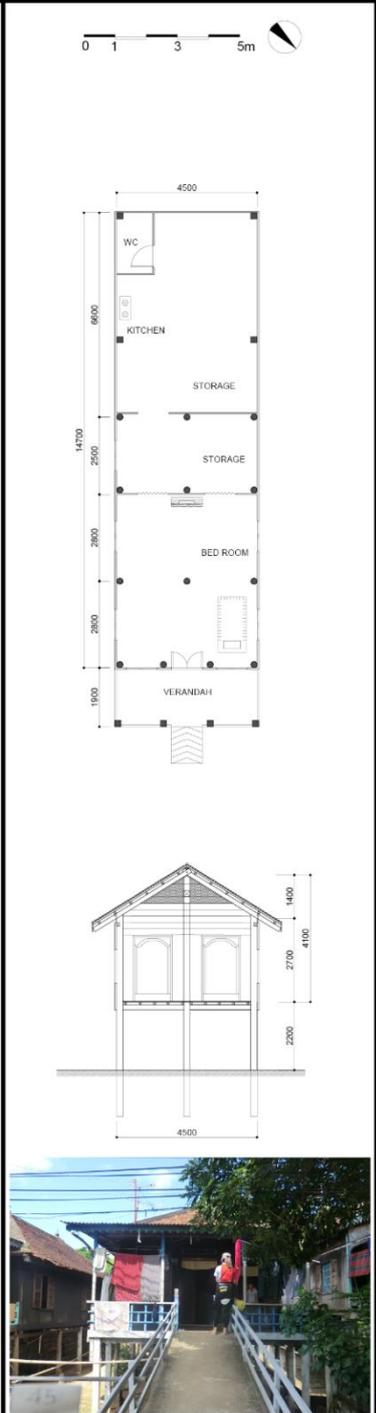


LONGITUDINAL SECTION

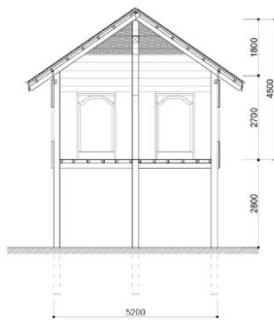
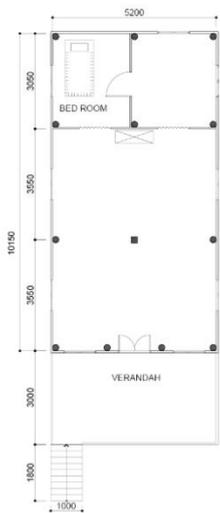


Appendix L. Drawing plans and section of 151 Cham Muslim houses

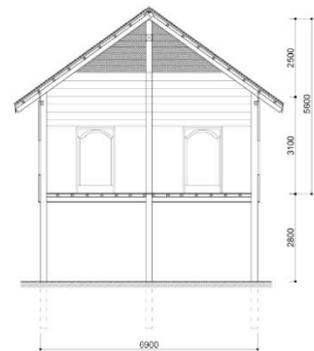
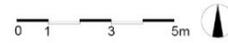
NO.1	CHÂU GIANG	NO.2	CHÂU GIANG	NO.3	CHÂU GIANG
CODE: CG150	Year built: 1961 Number of person: 6 Occupation: Farmer	CODE: CG156	Year built: <1900 Number of person: Occupation:	CODE: CG86	Year built: 1940 Number of person: 12 Occupation: Shop owner
ROOF TYPE: T	Measurement date: 2018/03/14	ROOF TYPE: T	Measurement date: 2018/03/14	ROOF TYPE: Y	Measurement date: 2018/03/13
Note:		Note:		Note: MOUHAMAD HAGI 84 years old, the leader of Mubarak temple.	
					
					

NO.4	KHÁNH HÒA	NO.5	KHÁNH HÒA	NO.6	KHÁNH HÒA
CODE: KH6	Year built: 1970 Number of person: n/a Occupation: Work far away	CODE: KH14	Year built: 1995 Number of person: 5 Occupation: Worker	CODE: KH45	Year built: 1957 Number of person: 4 Occupation: n/a
ROOF TYPE: Y	Measurement date: 2018/06/22	ROOF TYPE: T	Measurement date: 2018/06/22	ROOF TYPE: Y	Measurement date: 2018/06/22
Note:		Note:		Note:	
					

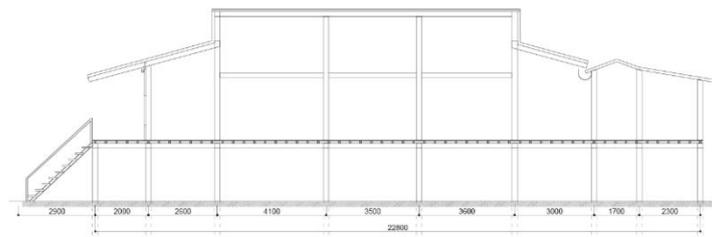
NO.7	ĐA PHƯỚC
CODE: DP11A	Year built: 1968 Number of person: 5 Occupation: Weaver, Tailor
ROOF TYPE: Y	Measurement date: 2018/06/20
Note:	



NO.8	CHÂU GIANG
CODE: CG135	Year built: 1979-2000 Number of person: n/a Occupation: Worker n/a
ROOF TYPE: T	Measurement date: 2018/03/14
Note:	



NO.9	CHÂU GIANG
CODE: CG141	Year built: 1938 Number of person: 8 Occupation: n/a
ROOF TYPE: T	Measurement date: 2018/03/14
Note:	



NO.10	CHÂU GIANG	NO.11	CHÂU GIANG	NO.12	CHÂU GIANG
CODE: CG156	Year built: 1918 Number of person: 7 Occupation: n/a	CODE: CG245	Year built: Before 1900 Number of person: n/a Occupation: n/a	CODE: CG290	Year built: Before 1960 Number of person: 7 Occupation: Shop owner
ROOF TYPE: T	Measurement date: 2018/03/14	ROOF TYPE: T	Measurement date: 2018/03/14	ROOF TYPE: Y	Measurement date: 2018/03/14
Note:		Note:		Note:	

NO.13	CHÂU GIANG	NO.14	CHÂU GIANG	NO.15	CHÂU GIANG
CODE: CG298	Year built: 1950 Number of person: 3 Occupation: Tailor	CODE: CG53	Year built: 1900 Number of person: 4 Occupation: Shop owner	CODE: CG54	Year built: 1960 Number of person: 4 Occupation: Shop owner
ROOF TYPE: Y	Measurement date: 2018/03/14	ROOF TYPE: Y	Measurement date: 2018/03/13	ROOF TYPE: Y	Measurement date: 2018/03/13
Note:		Note: Renovation in 1961. Underfloor space has been built 3 years ago.		Note: Grocery	

NO.16	CHÂU GIANG	NO.17	CHÂU GIANG	NO.18	CHÂU GIANG
CODE: CG165	Year built: 1938 Number of person: 8 Occupation: Shop owner	CODE: CG186	Year built: 1919 Number of person: 6 Occupation: Farmer	CODE: CG69	Year built: 1905 Number of person: 7 Occupation: Shop owner
ROOF TYPE: Y	Measurement date: 2018/03/14	ROOF TYPE: Y	Measurement date: 2018/03/14	ROOF TYPE: T	Measurement date: 2018/03/14
Note:		Note:		Note: two families, grocery	

NO.19	CHÂU GIANG	NO.20	CHÂU GIANG	NO.21	CHÂU GIANG
CODE: CG110	Year built: 1978 Number of person: n/a Occupation: n/a	CODE: CG118	Year built: 1868 Number of person: 6 Occupation: Tailor	CODE: CG170	Year built: 1960 Number of person: 4 Occupation: Shop owner
ROOF TYPE: Y	Measurement date: 2018/03/14	ROOF TYPE: T	Measurement date: 2018/03/13	ROOF TYPE: T	Measurement date: 2018/03/14
Note:		Note: The first built house in the village. 3 families		Note: About 100 years. The house is quite cool.	

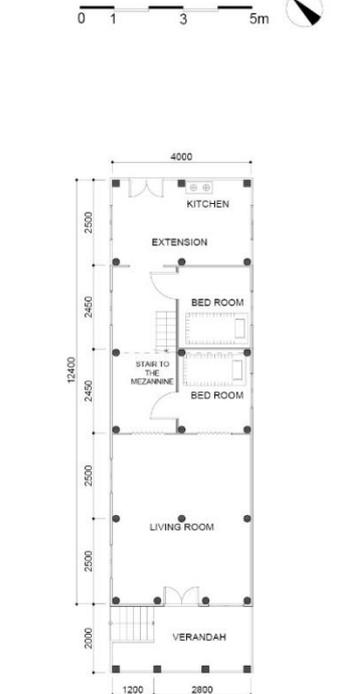
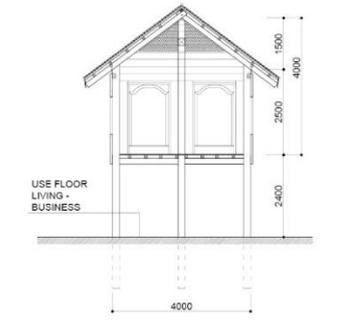
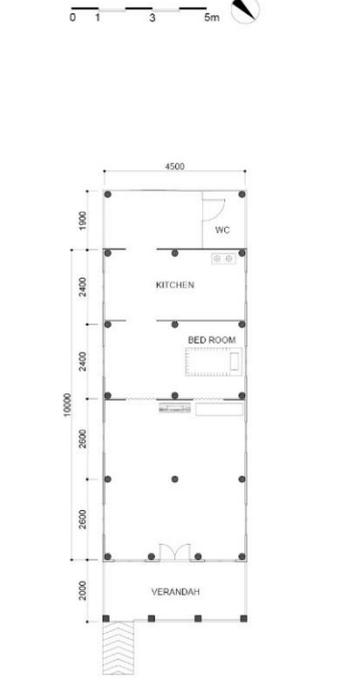
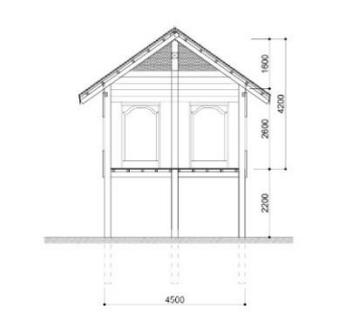
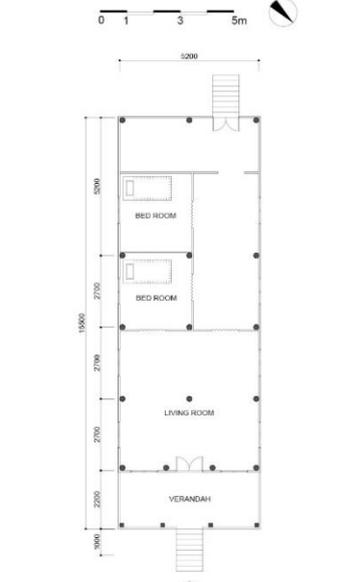
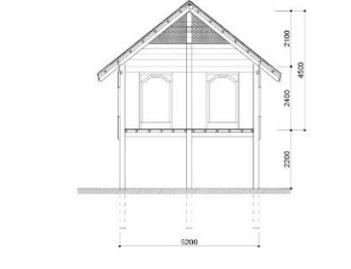
NO.22	CHÂU GIANG	NO.23	ĐA PHƯỚC	NO.24	ĐA PHƯỚC 17
CODE: CG171	Year built: 1818 Number of person: >10 Occupation: Shop owner, Farmer	CODE: DP16	Year built: Before 1995 Number of person: 3 Occupation: Seller	CODE: DP17	Year built: Before 1948 Number of person: 7 Occupation: Weaver, Tailor
ROOF TYPE: T	Measurement date: 2018/03/14	ROOF TYPE: Y	Measurement date: 2018/06/20	ROOF TYPE: Y	Measurement date: 2018/06/20
Note: The oldest house in the area. Prefer to live in traditional wooden house.		Note: Making custard cake, 3 generations		Note: 60-70 years, 3 generations	

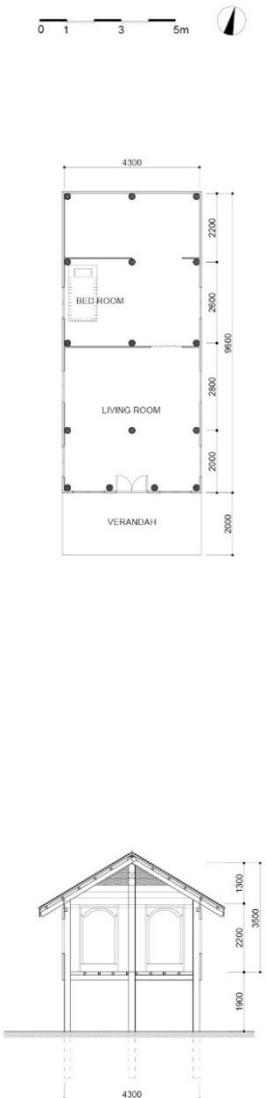
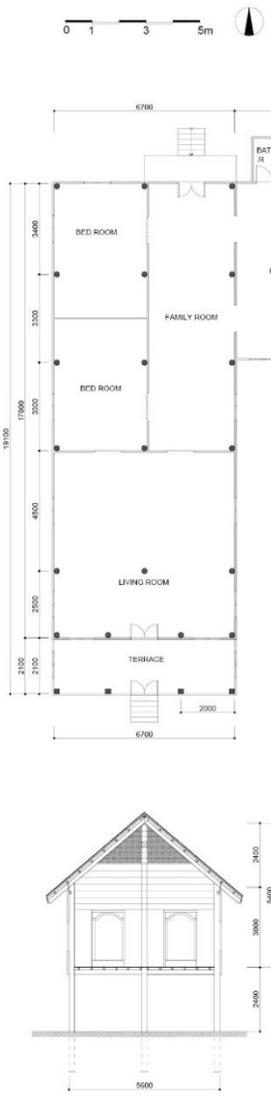
No.25	ĐA PHƯỚC	No.26	ĐA PHƯỚC	No.27	ĐA PHƯỚC
CODE: DP19	Year built: 1948 Number of person: 2 Occupation: Seller	CODE: DP29	Year built: 1988 Number of person: n/a Occupation: Seller	CODE: DP30	Year built: 1968 Number of person: 5 Occupation: Seller
ROOF TYPE: Y	Measurement date: 2018/06/20	ROOF TYPE: Y	Measurement date: 2018/06/20	ROOF TYPE: Y	Measurement date: 2018/06/20
Note: 60-70 years, 2 generations		Note: 20-30 years		Note:	

NO.28	ĐA PHƯỚC	NO.29	CHÂU GIANG	NO.30	KHÁNH HÒA
CODE: DP33	Year built: 1948 Number of person: 4 Occupation: Seller	CODE: CG57	Year built: Before 1908 Number of person: 7 Occupation: Hired hand	CODE: KH15	Year built: Before 1960 Number of person: 7 Occupation: Weaver, Tailor
ROOF TYPE: Y	Measurement date: 2018/06/20	ROOF TYPE: T	Measurement date: 2018/03/13	ROOF TYPE: T	Measurement date: 2018/03/14
Note: 60-70 years, 2 generations		Note: 4 generations. Labouring. Renovation in 1995. House's owner is Bay Sale		Note: 60-70 years, 3 generations	

NO.31	KHÁNH HÒA	NO.32	KHÁNH HÒA	NO.33	CHÂU GIANG
CODE: KH39	Year built: 1900 Number of person: 6 Occupation: Teacher	CODE: KH44	Year built: 1954 Number of person: 4 Occupation: Sellr	CODE: CG233	Year built: 1908 Number of person: 2 Occupation: Shop owner
ROOF TYPE: T	Measurement date: 2018/06/22	ROOF TYPE: T	Measurement date: 2018/06/22	ROOF TYPE: Y	Measurement date: 2018/03/14
Note: over 100 years		Note:		Note: about 100 years. The old house in the behind has been still existed.	

NO.34	CHÂU GIANG	NO.35	KHÁNH HÒA	
CODE: CG316	Year built: 2000- present Number of person: n/a Occupation: n/a	CODE: KH7	Year built: 1960 Number of person: 10 Occupation: Weaver	
ROOF TYPE: Y	Measurement date: 2018/03/13	ROOF TYPE: Y	Measurement date: 2018/06/22	
Note: Phatimah. Teaching Cham language. The son is working in the city. The house is property, needed to devide to all of the members. Thus the house is not allowed to sell, and remain as a house for family.		Note:		
				
				

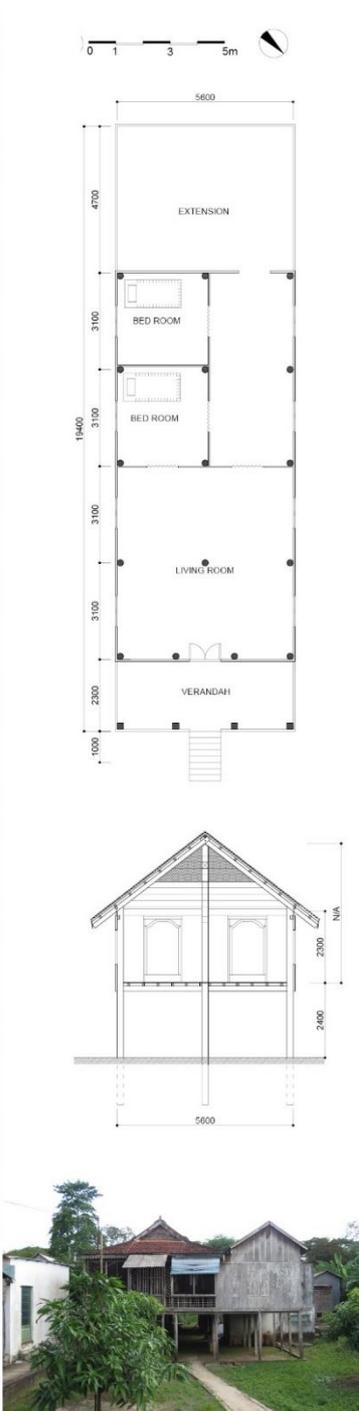
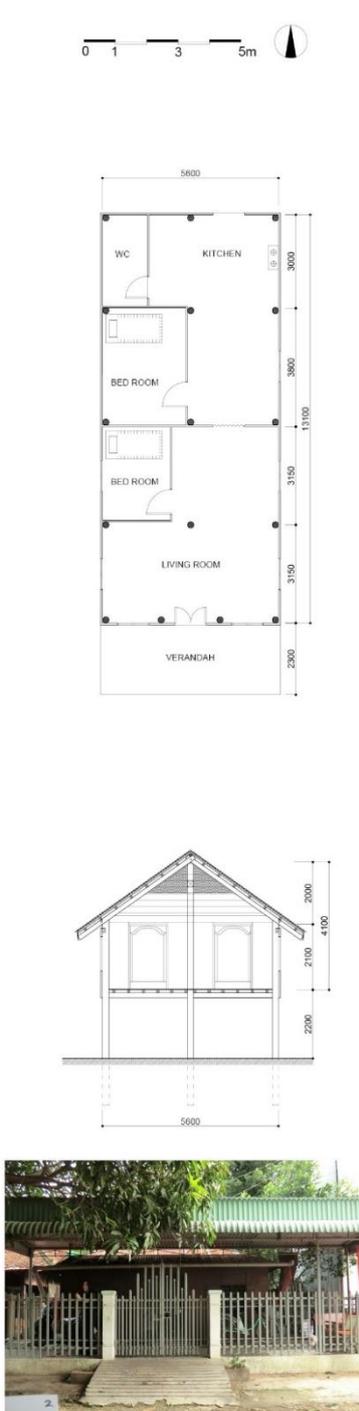
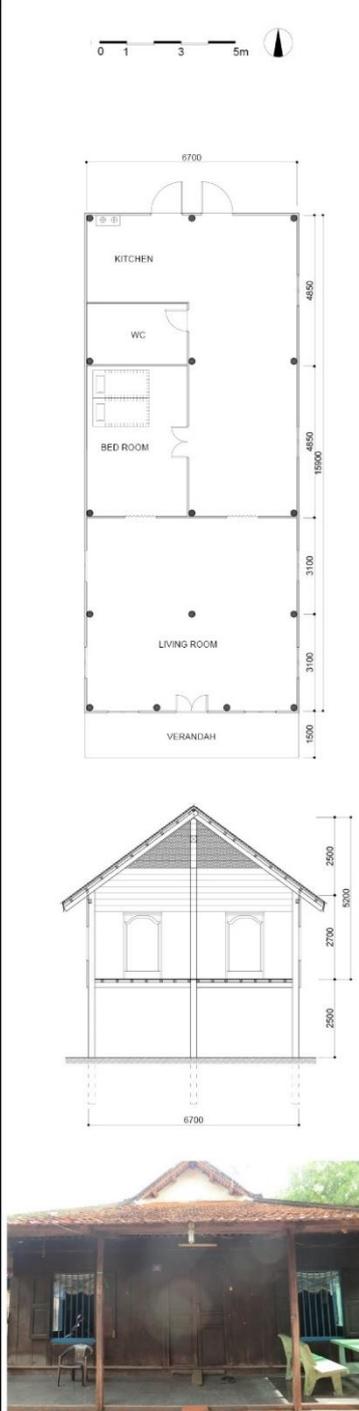
NO.36	KHÁNH HÒA	NO.37	KHÁNH HÒA	NO.38	KHÁNH HÒA
CODE: KH13	Year built: 1960 Number of person: 3 Occupation: Seller, Farmer	CODE: KH39	Year built: 1948 Number of person: 2 Occupation: n/a	CODE: KH68	Year built: 1965-1978 Number of person: n/a Occupation: n/a
ROOF TYPE: Y	Measurement date: 2018/06/22	ROOF TYPE: Y	Measurement date: 2018/06/22	ROOF TYPE: Y	Measurement date: 2018/06/22
Note: Sport center		Note:		Note:	
 		 		 	
					

NO.39	CHÂU PHONG	NO.40	CHÂU GIANG	NO.41	VĨNH TRƯỜNG
CODE: CP18	Year built: 1950 Number of person: 5 Occupation: Farmer	CODE: CG152	Year built: 1926 Number of person: n/a Occupation: n/a	CODE: VT68	Year built: 1937 Number of person: 10 Occupation: Farmer, Seller
ROOF TYPE: Y	Measurement date: 2018/06/19	ROOF TYPE: T	Measurement date: 2018/03/14	ROOF TYPE: T	Measurement date: 2018/06/21
Note:		Note: Renovation in 1960		Note:	
					
					

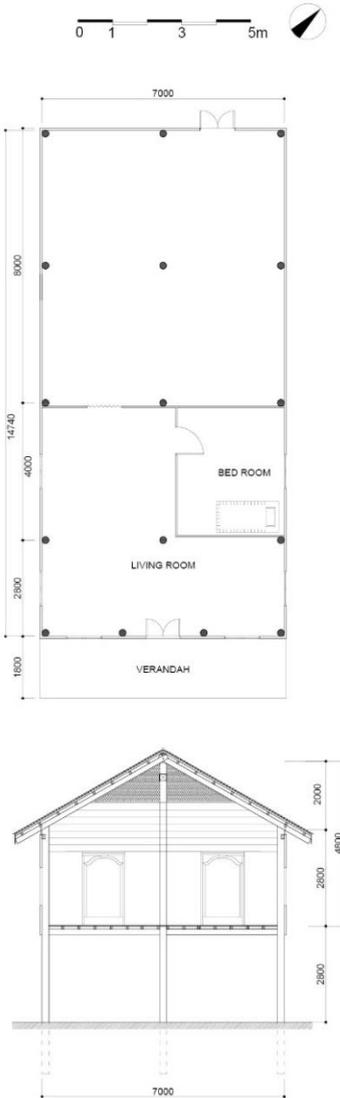
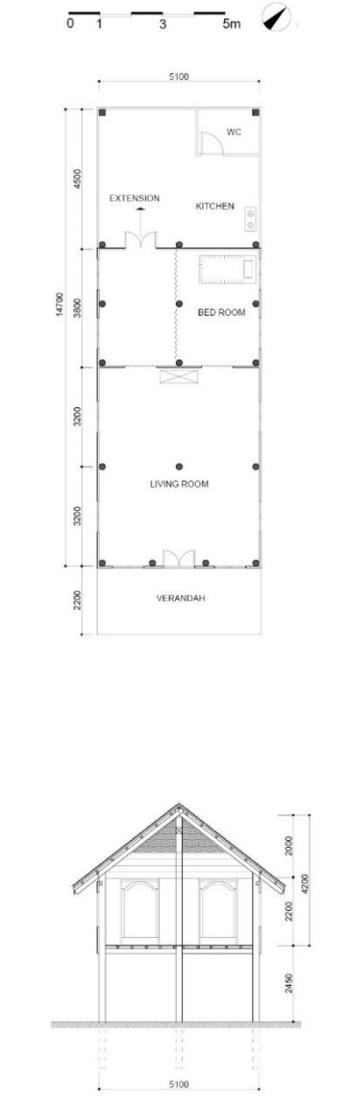
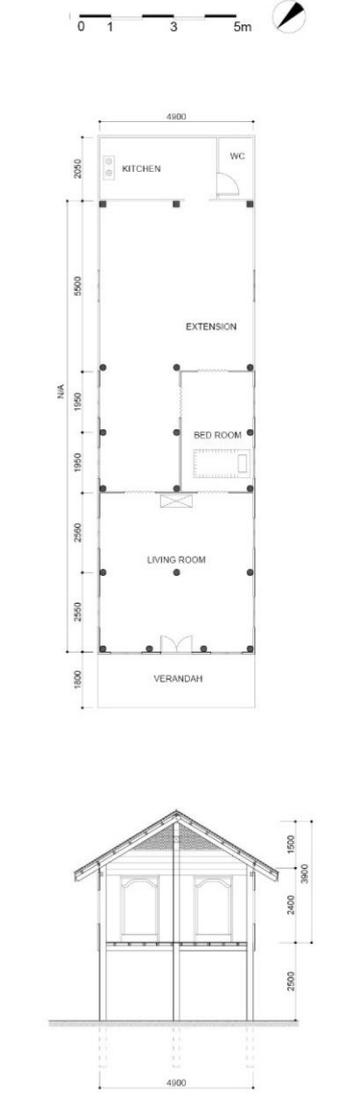
NO.42	VĨNH TRƯỜNG	NO.43	VĨNH TRƯỜNG	NO.44	ĐA PHƯỚC
CODE: VT69	Year built: 1939 Number of person: 10 Occupation: Seller, Farmer	CODE: VT79	Year built: 1918 Number of person: 3 Occupation: n/a	CODE: DP36	Year built: 1918 Number of person: 4 Occupation: Seller
ROOF TYPE: T	Measurement date: 2018/06/21	ROOF TYPE: T	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/20
Note:		Note: over 100 years		Note: over 100 years, 2 generations	

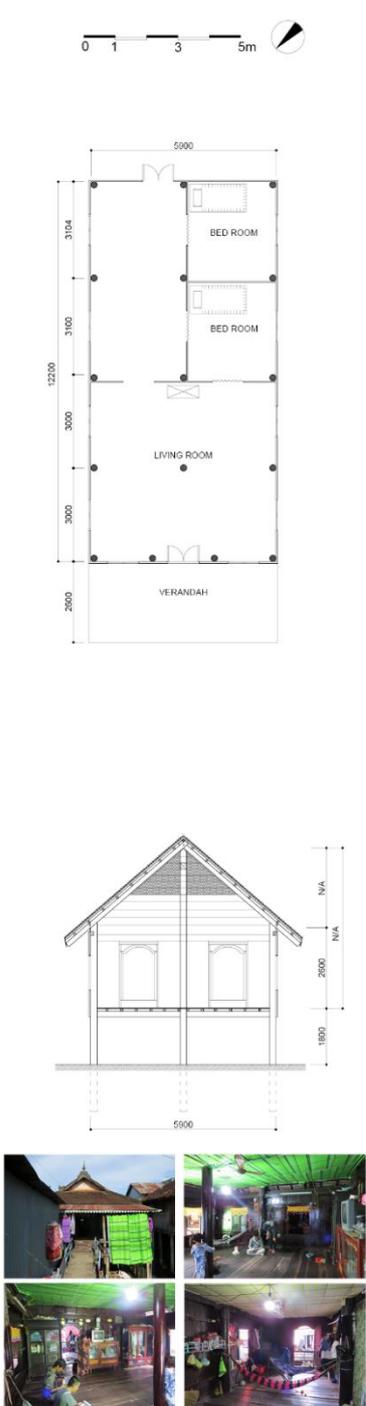
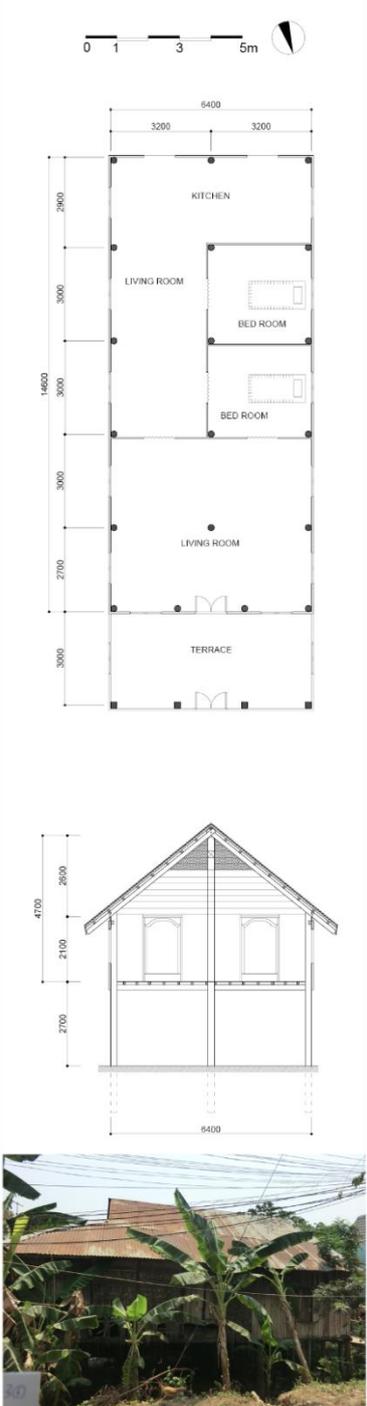
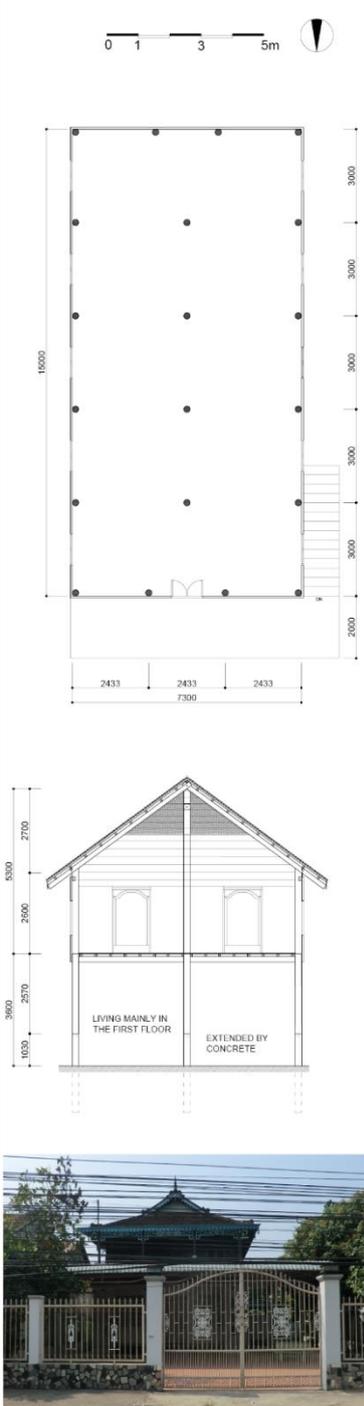
NO.45	ĐÀ PHƯỚC	NO.46	VĨNH TRƯỜNG	NO.47	VĨNH TRƯỜNG
CODE: DP7	Year built: 1950 Number of person: 5 Occupation: Farmer	CODE: VT100	Year built: 1982 Number of person: 5 Occupation: Seller	CODE: VT12	Year built: 1996 Number of person: 6 Occupation: Fisher
ROOF TYPE: Y	Measurement date: 2018/06/19	ROOF TYPE: Y	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/21
Note:		Note:		Note:	

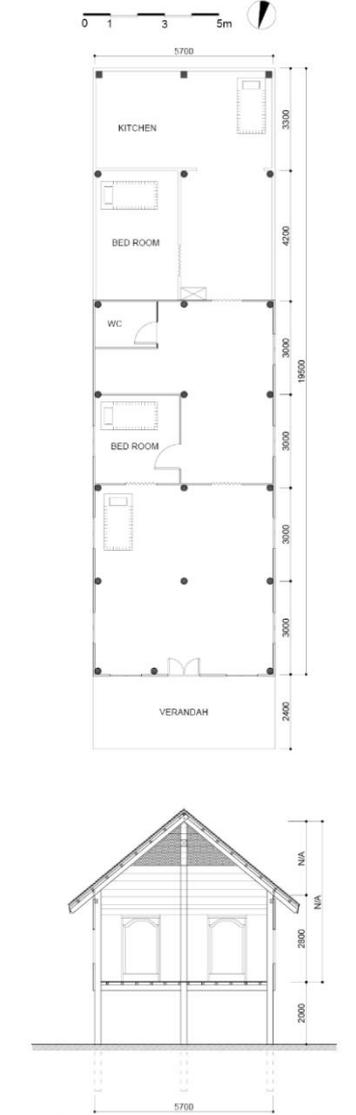
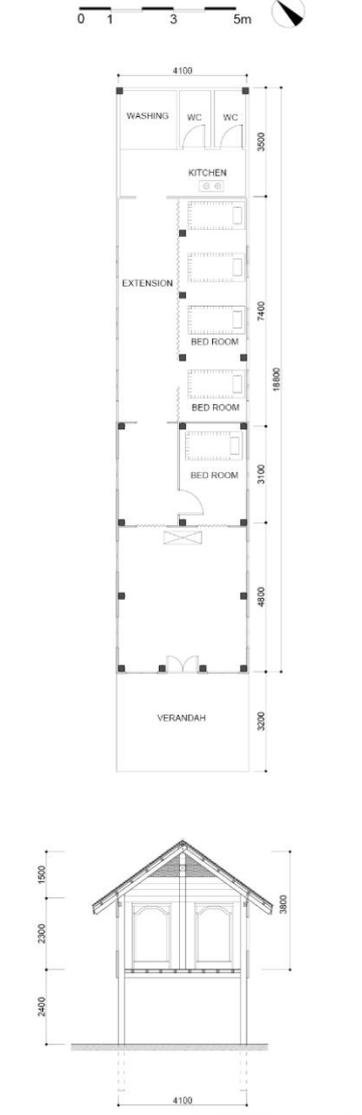
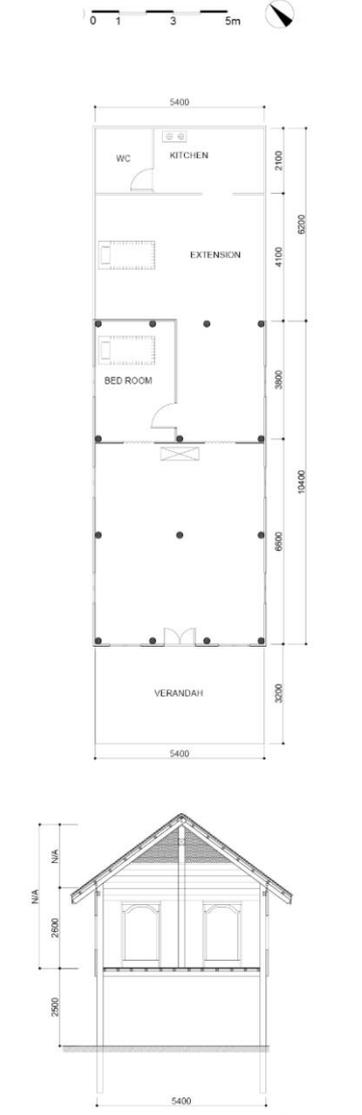
NO.48	VĨNH TRƯỜNG	NO.49	VĨNH TRƯỜNG	NO.50	KHÁNH HÒA
CODE: VT9	Year built: 1939 Number of person: 10 Occupation: Seller, Farmer	CODE: VT18	Year built: 1918 Number of person: 3 Occupation: n/a	CODE: KH52	Year built: 1918 Number of person: 4 Occupation: Seller
ROOF TYPE: Y	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/21	ROOF TYPE: T	Measurement date: 2018/06/20
Note:		Note:		Note:	

NO.51	KHÁNH HÒA	NO.52	CHÂU PHONG	NO.53	CHÂU PHONG
CODE: KH67	Year built: 1965 Number of person: n/a Occupation: n/a	CODE: CP2	Year built: 1918 Number of person: 5 Occupation: Farmer	CODE: CP3	Year built: 1918 Number of person: 1 Occupation: Officer
ROOF TYPE: T	Measurement date: 2018/06/22	ROOF TYPE: T	Measurement date: 2018/06/19	ROOF TYPE: T	Measurement date: 2018/06/19
Note:		Note:		Note: over 100 years	
					

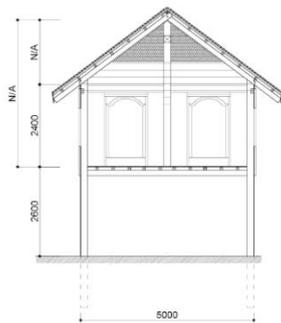
NO.54	CHÂU PHONG	NO.55	CHÂU PHONG	NO.56	ĐA PHƯỚC
CODE: CP111	Year built: 1979-2000 Number of person: n/a Occupation: n/a	CODE: CP17.1	Year built: 1979-2000 Number of person: n/a Occupation: n/a	CODE: DP11B	Year built: 1968 Number of person: 8 Occupation: Weaver, Tailor
ROOF TYPE: Y	Measurement date: 2018/06/19	ROOF TYPE: Y	Measurement date: 2018/06/19	ROOF TYPE: Y	Measurement date: 2018/06/20
Note:		Note:		Note:	

NO.57	ĐA PHƯỚC	NO.58	ĐA PHƯỚC	NO.59	ĐA PHƯỚC
CODE: DP28	Year built: 1900-1979 Number of person: n/a Occupation: n/a	CODE: DP35	Year built: 1900-1979 Number of person: n/a Occupation: n/a	CODE: DP37	Year built: 1918 Number of person: 3 Occupation: Seller
ROOF TYPE: Y	Measurement date: 2018/06/20	ROOF TYPE: Y	Measurement date: 2018/06/20	ROOF TYPE: Y	Measurement date: 2018/06/20
Note:		Note:		Note: over 100 years, 2 generations	
					
					

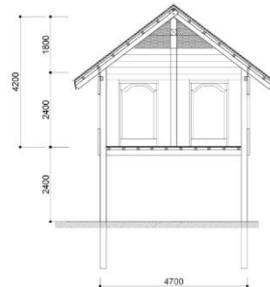
NO.60	ĐÀ PHƯỚC	NO.61	CHÂU GIANG	NO.62	CHÂU GIANG
CODE: DP38	Year built: 1918 Number of person: 6 Occupation: Weaver	CODE: CG215	Year built: 1968 Number of person: 0 Occupation: n/a	CODE: CG241	Year built: 1923 Number of person: 0 Occupation: n/a
ROOF TYPE: Y	Measurement date: 2018/06/20	ROOF TYPE: Y	Measurement date: 2018/03/14	ROOF TYPE: Y	Measurement date: 2018/03/14
Note: over 100 years, 3 generations		Note: over 50 years.		Note: Renovation in 2009. The old house's condition in the behind is very good.	
					

NO.63	CHÂU PHONG	NO.64	VĨNH TRƯỜNG	NO.65	VĨNH TRƯỜNG
CODE: CP75	Year built: 1955 Number of person: 4 Occupation: Seller	CODE: VT24	Year built: 1955 Number of person: 9 Occupation: Seller	CODE: VT28	Year built: 1978 Number of person: 7 Occupation: Work far away
ROOF TYPE: Y	Measurement date: 2018/06/19	ROOF TYPE: T	Measurement date: 2018/06/21	ROOF TYPE: T	Measurement date: 2018/06/21
Note:		Note: 3 generations		Note:	
					

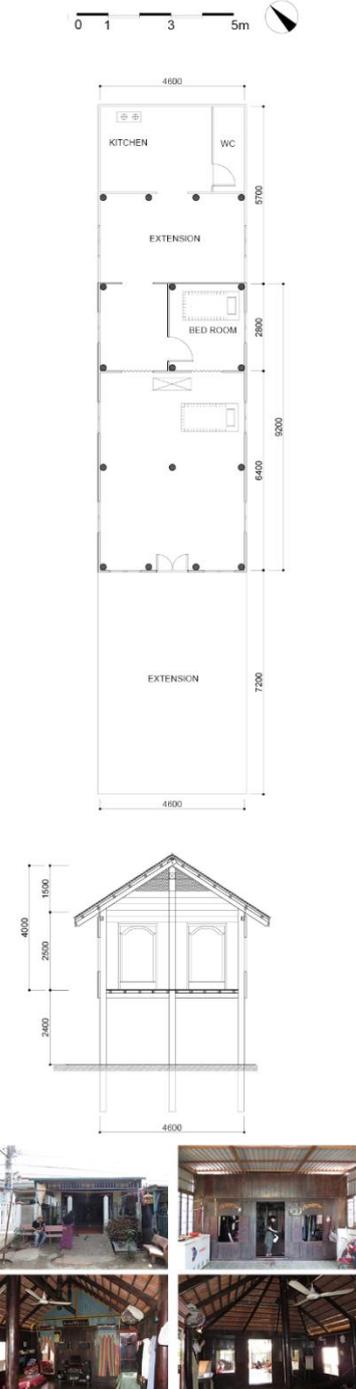
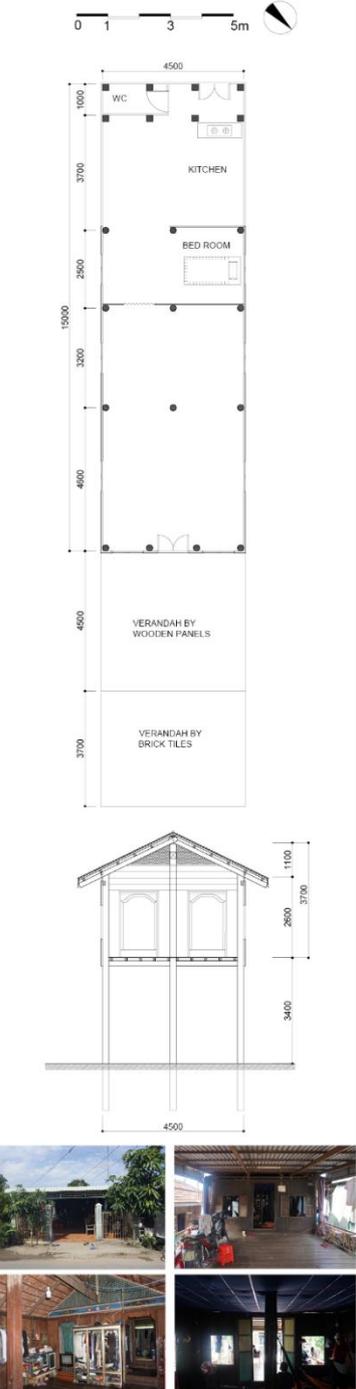
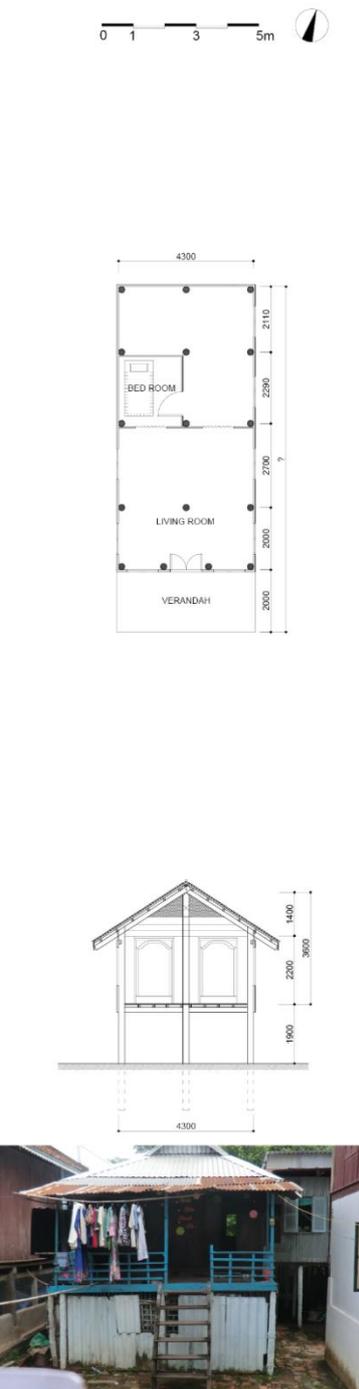
NO.66	VĨNH TRƯỜNG
CODE: VT37	Year built: 1948 Number of person: 4 Occupation: Seller
ROOF TYPE: T	Measurement date: 2018/06/21
Note: over 70 years	



NO.67	VĨNH TRƯỜNG
CODE: VT59	Year built: 1992 Number of person: 7 Occupation: Seller
ROOF TYPE: Y	Measurement date: 2018/06/21
Note:	



NO.68	VĨNH TRƯỜNG	NO.69	VĨNH TRƯỜNG	NO.70	VĨNH TRƯỜNG
CODE: VT70	Year built: 1938 Number of person: n/a Occupation: n/a	CODE: VT6	Year built: 1948 Number of person: 10 Occupation: Farmer	CODE: VT7	Year built: 1978 Number of person: 5 Occupation: n/a
ROOF TYPE: Y	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/21
Note:		Note: over 70 years		Note: over 40 years	

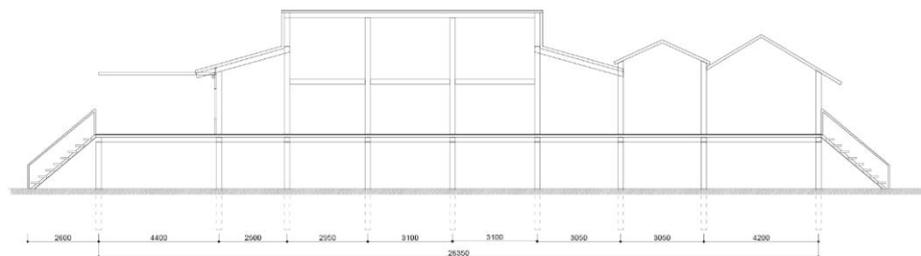
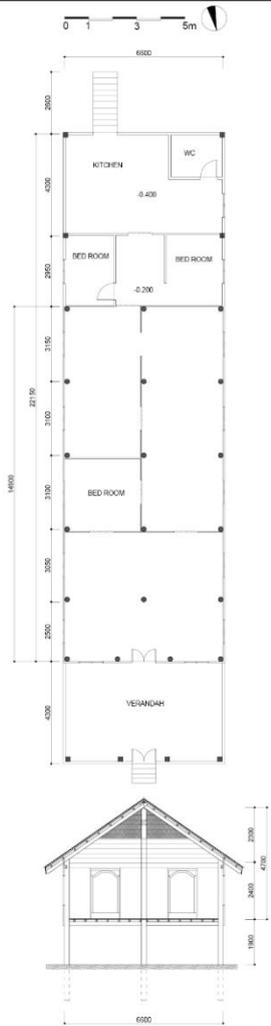
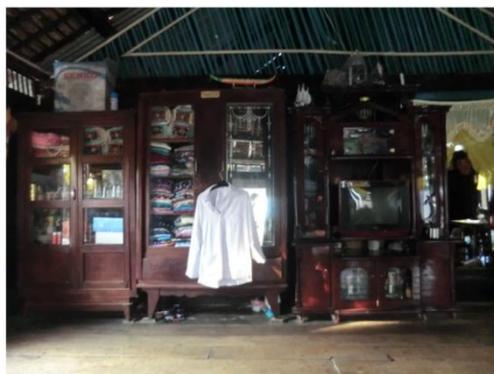
NO.71	VĨNH TRƯỜNG	NO.72	VĨNH TRƯỜNG	NO.73	CHÂU PHONG
CODE: VT8	Year built: 1990 Number of person: 4 Occupation: Seller	CODE: VT10	Year built: 1995 Number of person: 4 Occupation: Work far away	CODE: CP17	Year built: 1950 Number of person: 5 Occupation: Farmer
ROOF TYPE: Y	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/21	ROOF TYPE: T	Measurement date: 2018/06/19
Note: Selling cloths		Note:		Note:	
					

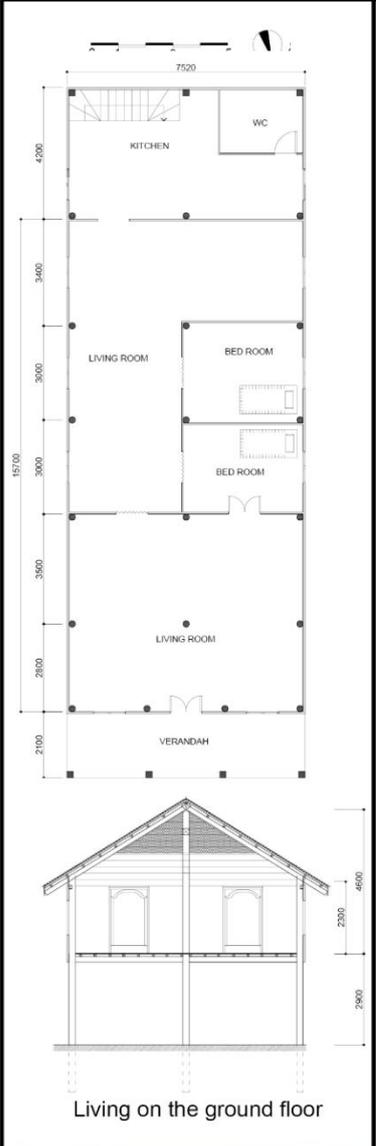
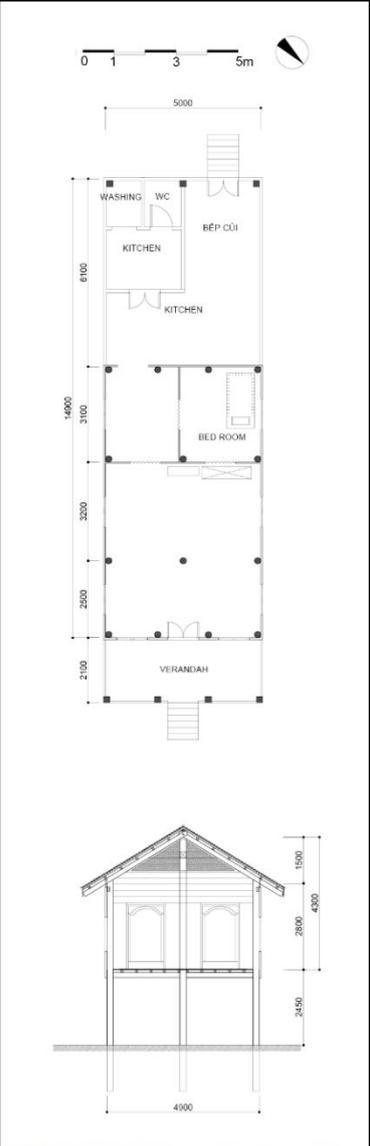
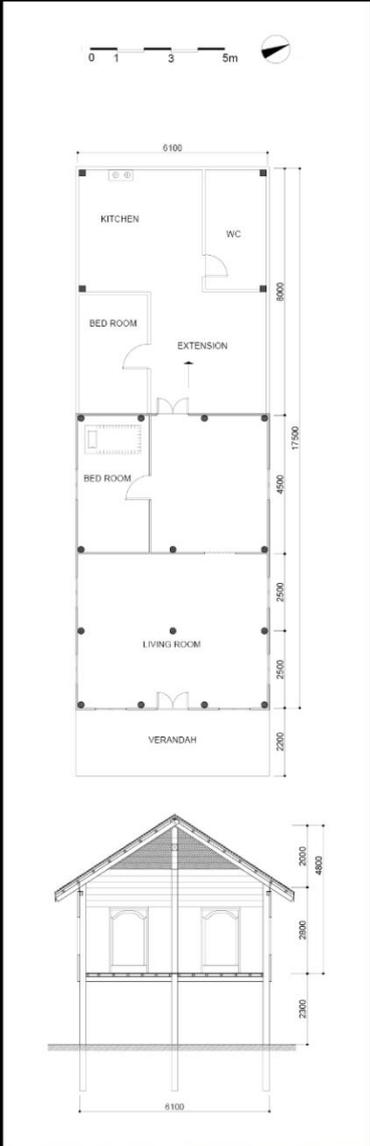
NO.74	CHÂU PHONG	NO.75	CHÂU PHONG	NO.76	CHÂU PHONG
CODE: CP3	Year built: 1818 Number of person: 4 Occupation: Seller	CODE: CP5	Year built: 1974 Number of person: n/a Occupation: Work far away	CODE: CP24	Year built: 1968 Number of person: 5 Occupation: Seller
ROOF TYPE: T	Measurement date: 2018/06/19	ROOF TYPE: T	Measurement date: 2018/06/19	ROOF TYPE: T	Measurement date: 2018/06/19
Note:		Note:		Note:	

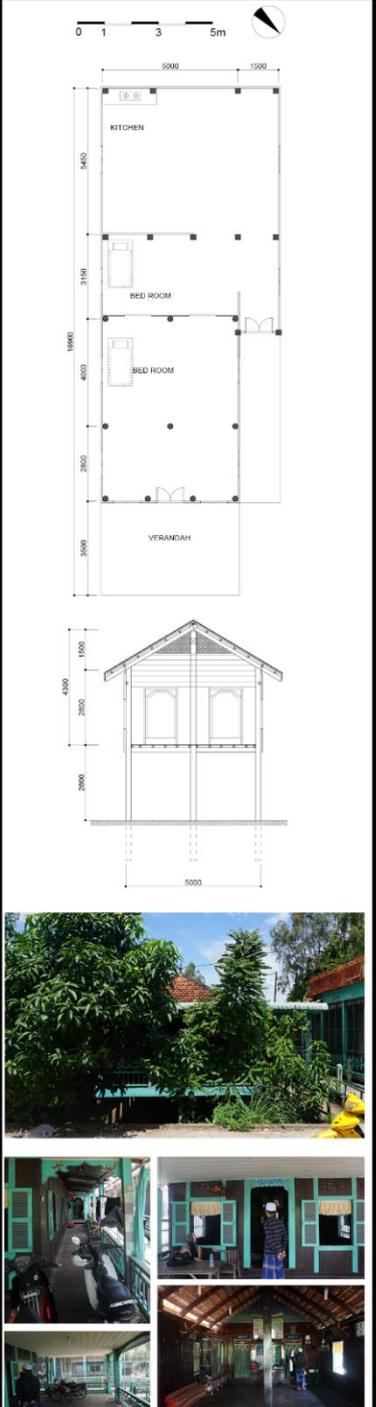
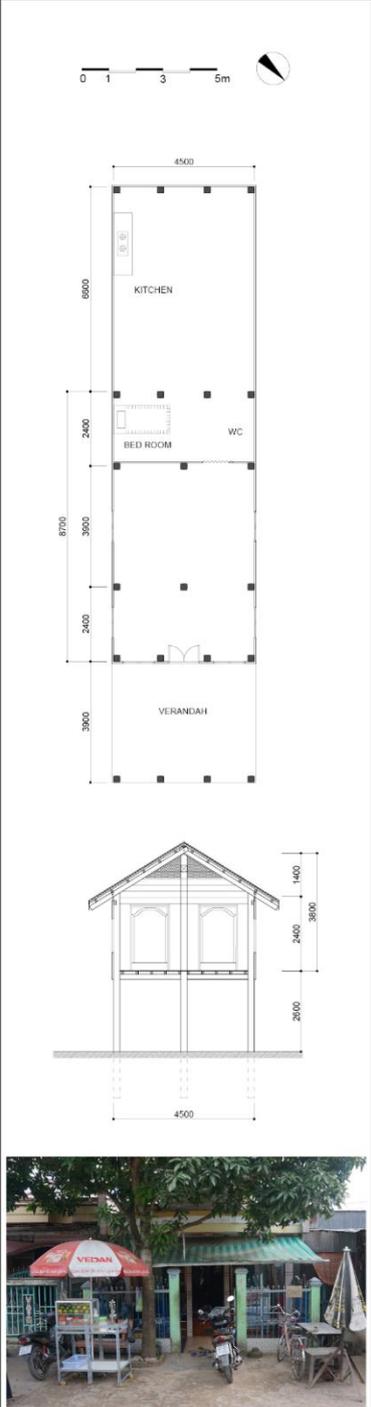
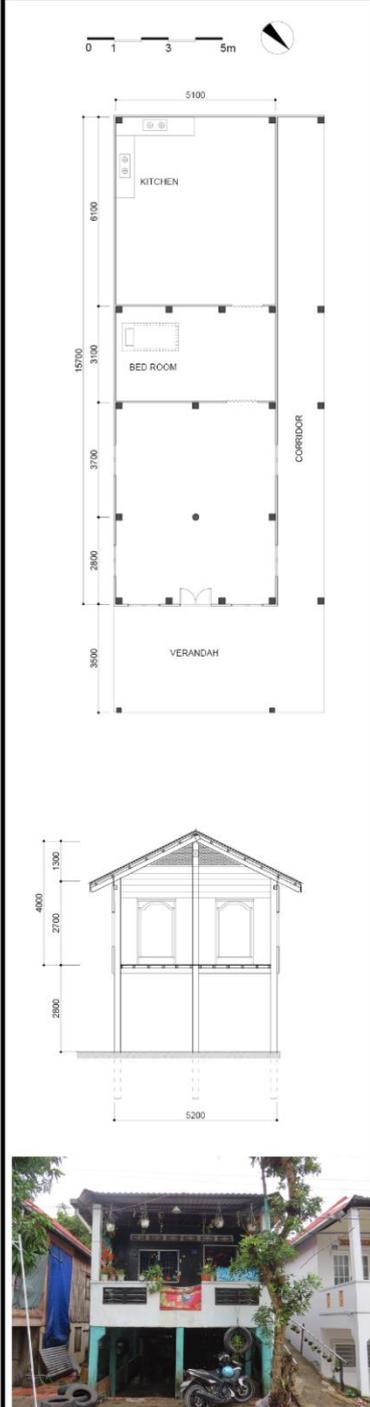
NO.77	ĐÀ PHƯỚC	NO.78	ĐÀ PHƯỚC	NO.79	ĐÀ PHƯỚC
CODE: DP3	Year built: 1975 Number of person: 15 Occupation: Weaver	CODE: DP16	Year built: 1990 Number of person: 9 Occupation: Seller	CODE: DP17	Year built: >100 years Number of person: n/a Occupation: n/a
ROOF TYPE: Y	Measurement date: 2018/06/20	ROOF TYPE: Y	Measurement date: 2018/06/20	ROOF TYPE: Y	Measurement date: 2018/06/20
Note: 4 generations		Note:		Note:	

NO.80	VĨNH TRƯỜNG	NO.81	VĨNH TRƯỜNG	NO.82	VĨNH TRƯỜNG
CODE: VT42	Year built: 2000- present Number of person: 4 Occupation: Seller	CODE: VT53	Year built: 1997 Number of person: n/a Occupation: n/a	CODE: VT28	Year built: 1993 Number of person: 5 Occupation: Seller
ROOF TYPE: Y	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/21
Note:		Note: Intact house		Note:	

NO.83	CHÂU GIANG
CODE: CG289	Year built: 1868 Number of person: 7 Occupation: Shop owner
ROOF TYPE: T	Measurement date: 2018/03/14
Note: Over 100 years.	

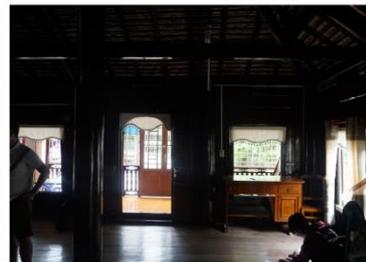
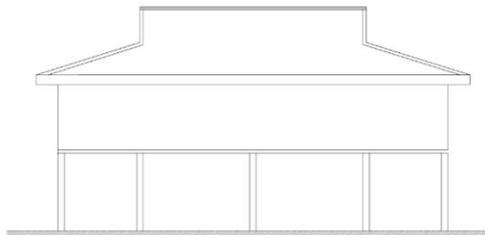
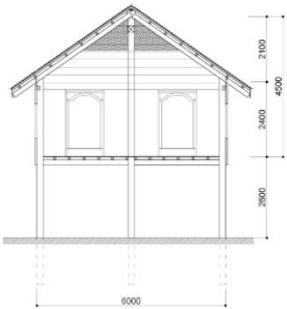
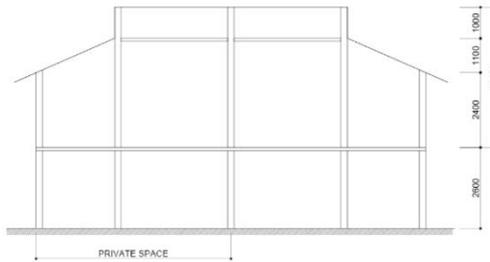
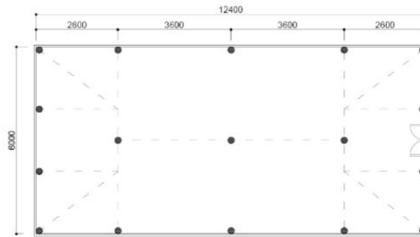


NO.84	CHÂU GIANG	NO.85	KHÁNH HÒA	NO.86	CHÂU PHONG
CODE: CG305	Year built: 1918 Number of person: 8 Occupation: Shop owner	CODE: KH46	Year built: 1918 Number of person: 3 Occupation: Seller	CODE: CP44	Year built: 1918 Number of person: 6 Occupation: Seller, Chief
ROOF TYPE: T	Measurement date: 2018/03/14	ROOF TYPE: T	Measurement date: 2018/06/22	ROOF TYPE: T	Measurement date: 2018/06/19
Note: 3 generations, the house has built before 1918. 2 families. Selling curry powder		Note:		Note: over 100 years	
 <p style="text-align: center;">Living on the ground floor</p>					
					

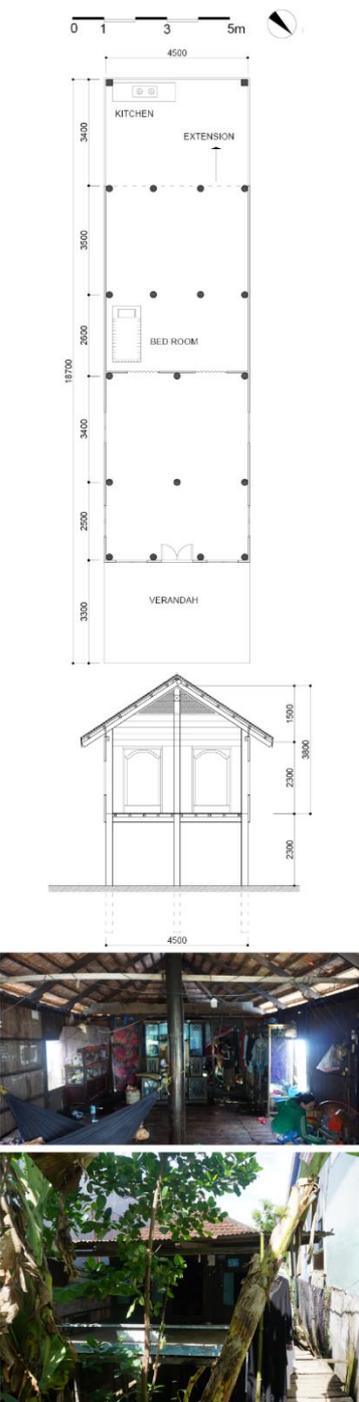
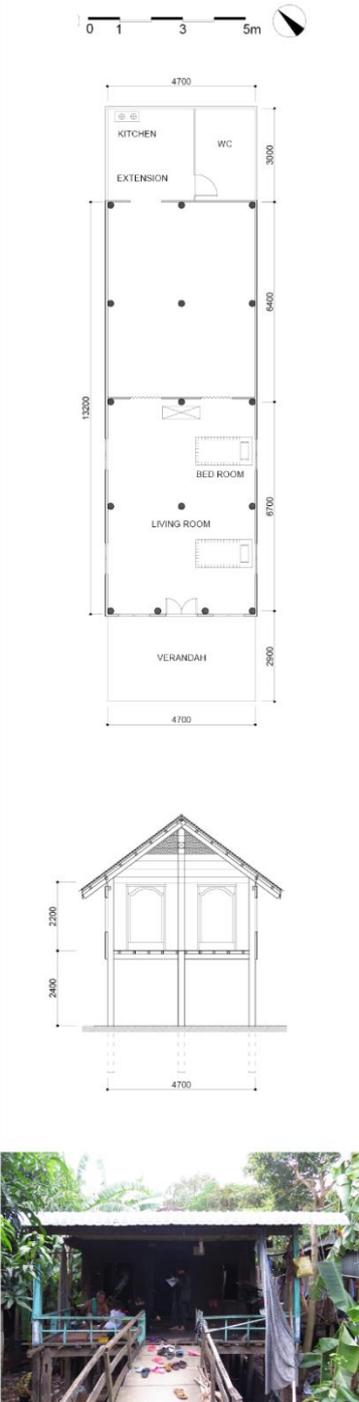
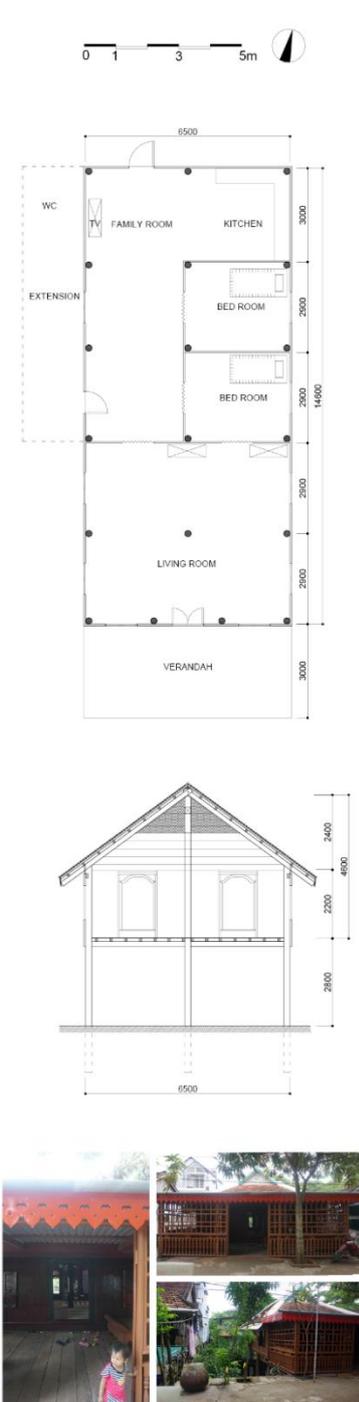
NO.87	VĨNH TRƯỜNG	NO.88	VĨNH TRƯỜNG	NO.89	VĨNH TRƯỜNG
CODE: VT41	Year built: 1918 Number of person: 7 Occupation: n/a	CODE: VT80	Year built: 1988 Number of person: 10 Occupation: Seller	CODE: VT85	Year built: Before 1998 Number of person: 3 Occupation: Seller
ROOF TYPE: Y	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/21
Note:		Note:		Note:	
					

NO.90	VĨNH TRƯỜNG	NO.91	VĨNH TRƯỜNG	NO.92	VĨNH TRƯỜNG
CODE: VT62	Year built: 1998 Number of person: 3 Occupation: Shop owner	CODE: VT63	Year built: 1989 Number of person: 2 Occupation: Seller	CODE: VT64	Year built: 1968 Number of person: 5 Occupation: Seller
ROOF TYPE: Y	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/21
Note:		Note:		Note:	

NO.93	CHÂU PHONG
CODE: CP52	Year built: 1926 Number of person: n/a Occupation: n/a
ROOF TYPE: T	Measurement date: 2018/06/19
Note:	



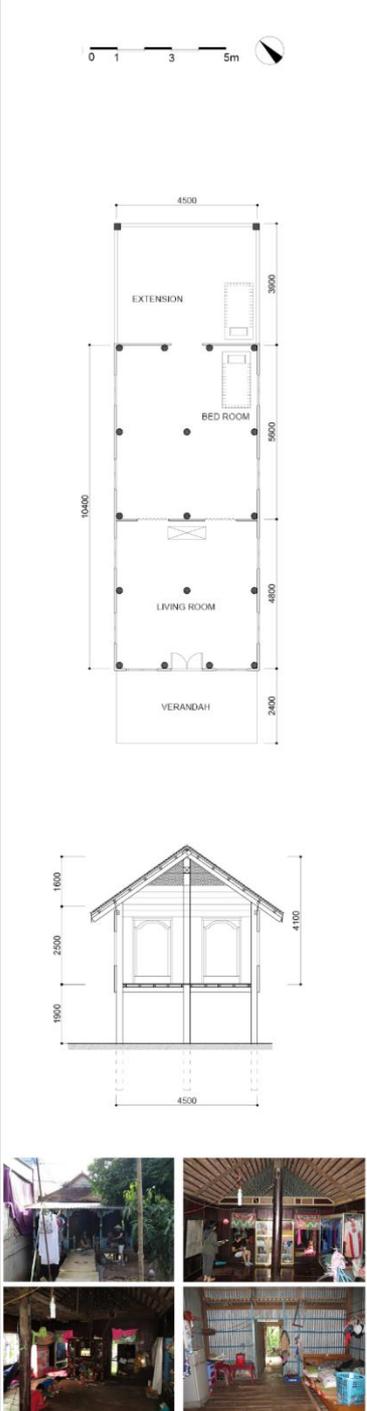
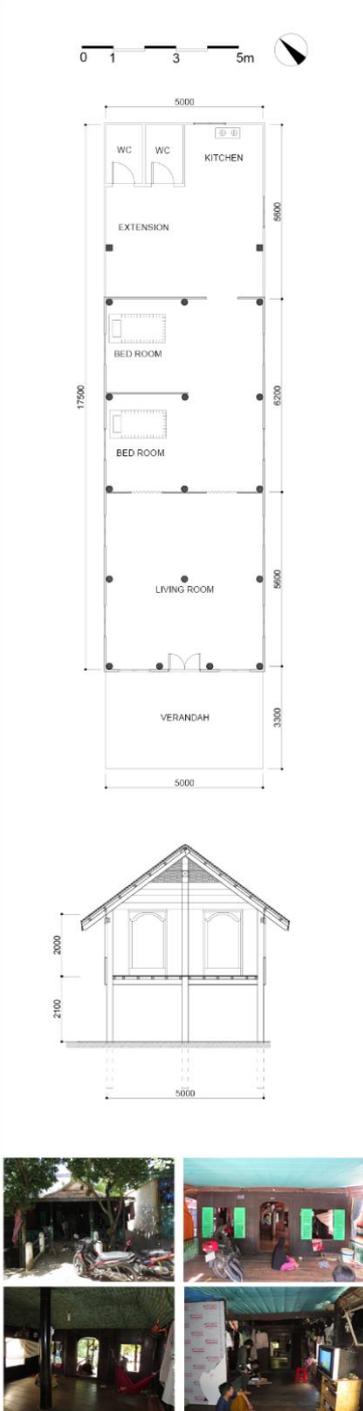
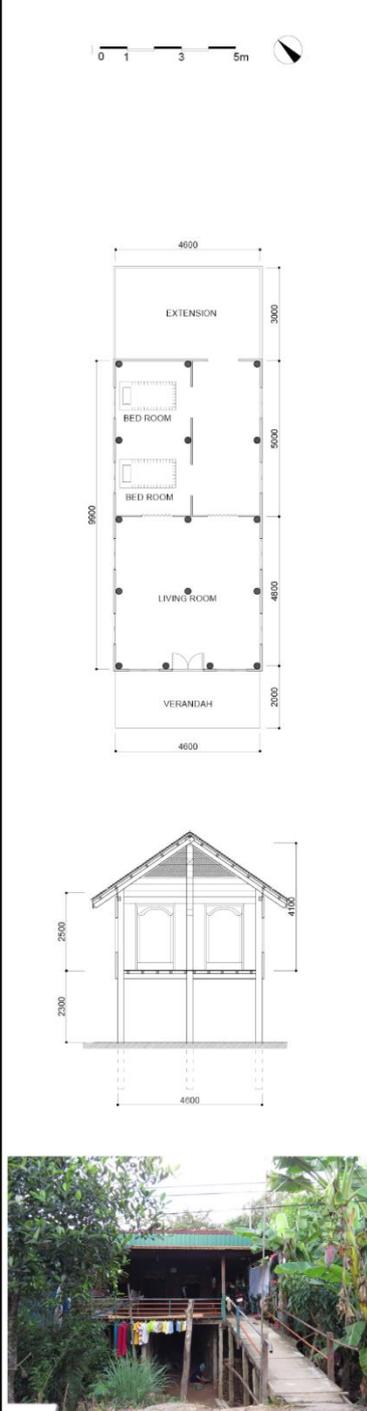
NO.94	CHÂU PHONG	NO.95	VĨNH TRƯỜNG	NO.96	VĨNH TRƯỜNG
CODE: CP64	Year built: 1878 Number of person: 2 Occupation: n/a	CODE: VT97	Year built: 1972 Number of person: n/a Occupation: n/a	CODE: VT11	Year built: 1991 Number of person: 2 Occupation: Work far away
ROOF TYPE: T	Measurement date: 2018/06/19	ROOF TYPE: T	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/21
Note:		Note:		Note: 3 generations	

NO.97	VĨNH TRƯỜNG	NO.98	VĨNH TRƯỜNG	NO.99	CHÂU PHONG
CODE: VT24	Year built: 1998 Number of person: 5 Occupation: Employee	CODE: VT109	Year built: 1978 Number of person: 5 Occupation: n/a	CODE: CP23	Year built: 1820 Number of person: 4 Occupation: n/a
ROOF TYPE: Y	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/19
Note:		Note: 30 or 40 years ago		Note: Renovation in 2015	
					

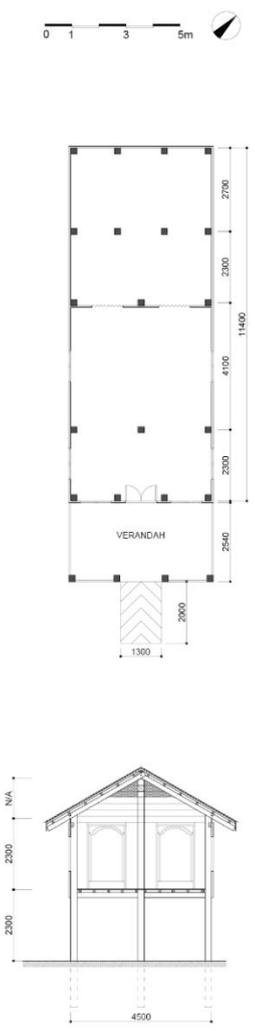
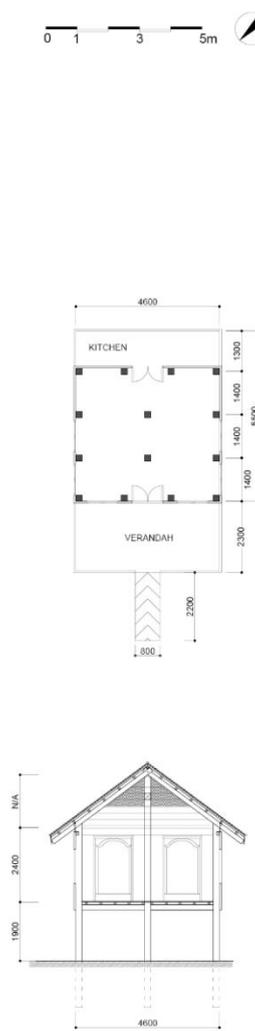
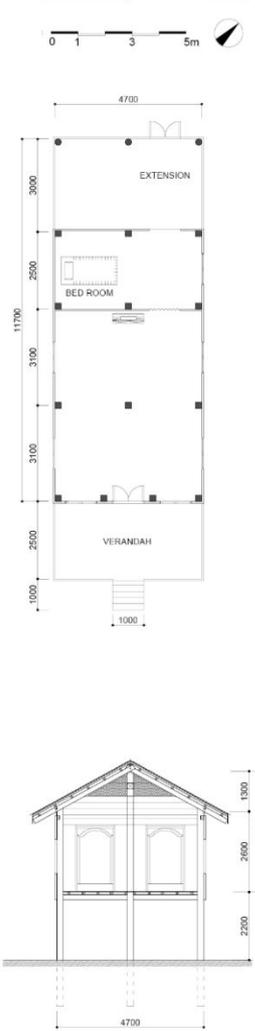
NO.100	ĐÀ PHƯỚC	NO.101	CHÂU PHONG	NO.102	CHÂU PHONG
CODE: DP19	Year built: 1898 Number of person: 5 Occupation: Seller	CODE: CP43	Year built: 1920 Number of person: 4 Occupation: Farmer	CODE: CP42	Year built: 1937 Number of person: 5 Occupation: Seller
ROOF TYPE: Y	Measurement date: 2018/06/20	ROOF TYPE: T	Measurement date: 2018/06/19	ROOF TYPE: T	Measurement date: 2018/06/19
Note: Over 120 years		Note:		Note: In the market	

NO.103	VĨNH TRƯỜNG	NO.104	VĨNH TRƯỜNG	NO.105	VĨNH TRƯỜNG
CODE: VT49	Year built: 1990 Number of person: 6 Occupation: Fisher	CODE: VT43	Year built: 1985 Number of person: 2 Occupation: Tailor	CODE: VT100	Year built: 1982 Number of person: 5 Occupation: Seller
ROOF TYPE: Y	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/21
Note:		Note:		Note:	

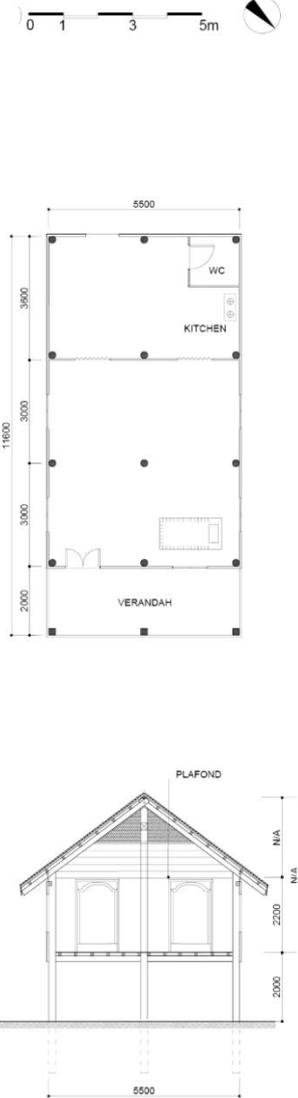
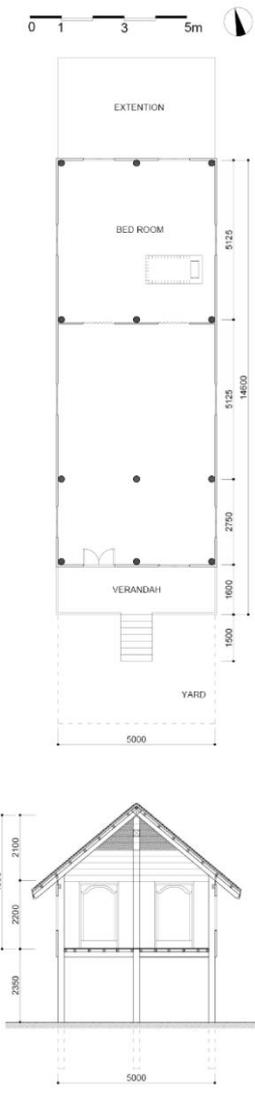
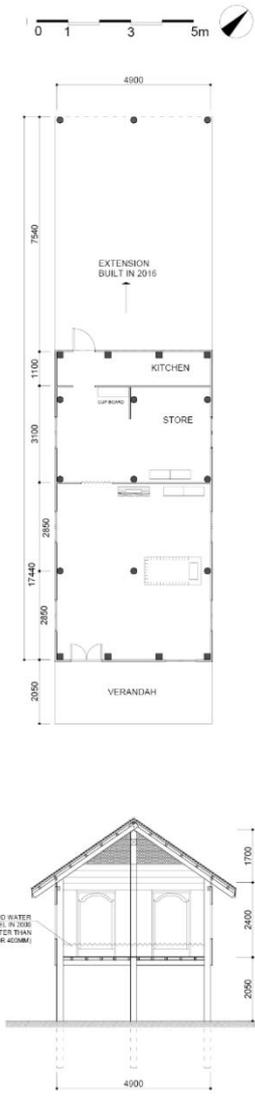
NO.106	QUỐC THÁI	NO.107	QUỐC THÁI	NO.108	QUỐC THÁI
CODE: QT11A	Year built: 1979-2000 Number of person: n/a Occupation: n/a	CODE: QT13A	Year built: 1994 Number of person: 2 Occupation: Seller	CODE: QT33B	Year built: 1984 Number of person: 4 Occupation: Seller
ROOF TYPE: Y	Measurement date: 2018/06/23	ROOF TYPE: Y	Measurement date: 2018/06/23	ROOF TYPE: Y	Measurement date: 2018/06/23
Note:		Note:		Note:	

NO.109	VĨNH TRƯỜNG	NO.110	VĨNH TRƯỜNG	NO.111	VĨNH TRƯỜNG
CODE: VT1	Year built: 1966 Number of person: 6 Occupation: Farmer	CODE: VT80	Year built: 1958 Number of person: 17 Occupation: Hired hand	CODE: VT110	Year built: 1986 Number of person: 8 Occupation: n/a
ROOF TYPE: T	Measurement date: 2018/06/21	ROOF TYPE: T	Measurement date: 2018/06/21	ROOF TYPE: T	Measurement date: 2018/06/21
Note: 2 generations		Note: 3 generations		Note: 3 generations	
 <p>Architectural drawings for house NO.109. The floor plan shows a rectangular structure with a total width of 4500mm and a total length of 10400mm. It includes a verandah (2400mm wide), a living room (4800mm long), a bedroom (5600mm long), an extension (3600mm long), and another bedroom (5600mm long). The elevation shows a gabled roof with a height of 4100mm and a total height of 1600mm. Photos show the interior and exterior of the house.</p>		 <p>Architectural drawings for house NO.110. The floor plan shows a rectangular structure with a total width of 5000mm and a total length of 17700mm. It includes a verandah (3300mm wide), a living room (5600mm long), two bedrooms (6200mm long), an extension (6200mm long), a kitchen, and two WCs. The elevation shows a gabled roof with a height of 4100mm and a total height of 2100mm. Photos show the interior and exterior of the house.</p>		 <p>Architectural drawings for house NO.111. The floor plan shows a rectangular structure with a total width of 4600mm and a total length of 9900mm. It includes a verandah (2000mm wide), a living room (4600mm long), two bedrooms (5000mm long), and an extension (3000mm long). The elevation shows a gabled roof with a height of 4100mm and a total height of 2300mm. Photos show the interior and exterior of the house.</p>	

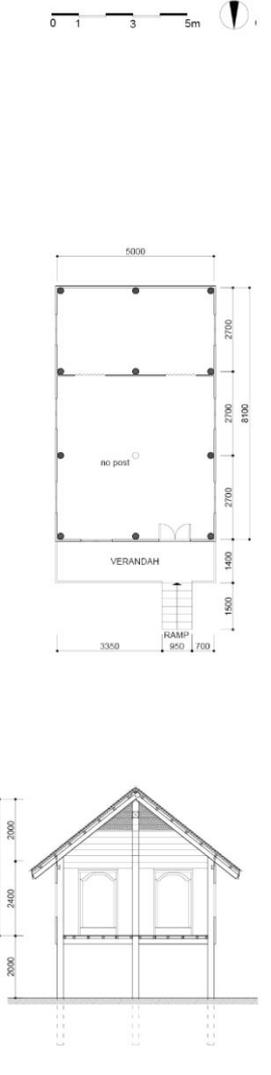
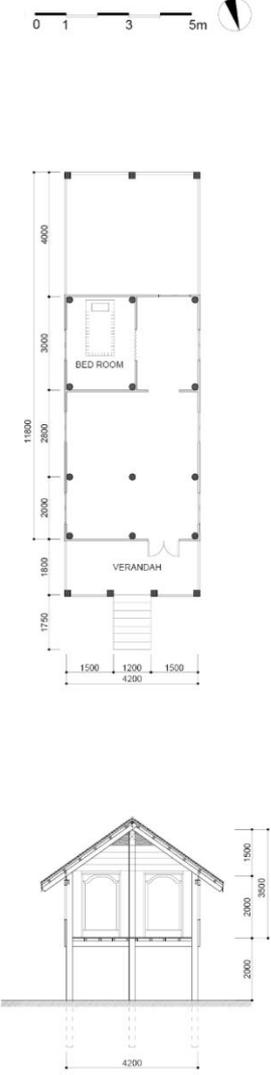
NO.112	KHÁNH BÌNH	NO.113	KHÁNH BÌNH	NO.114	NHƠN HỘI
CODE: KB31	Year built: 1958 Number of person: 6 Occupation: Farmer	CODE: KB11	Year built: 1958 Number of person: 3 Occupation: Farmer	CODE: NH3	Year built: 1993 Number of person: 7 Occupation: Fisher
ROOF TYPE: T	Measurement date: 2018/06/23	ROOF TYPE: T	Measurement date: 2018/06/23	ROOF TYPE: T	Measurement date: 2018/06/24
Note: 3 generations		Note: 50-60 years, 2 generations		Note:	

NO.115	QUỐC THÁI	NO.116	QUỐC THÁI	NO.117	QUỐC THÁI
CODE: QT21A	Year built: 1991 Number of person: 1 Occupation: Seller	CODE: QT45A	Year built: 1979-2000 Number of person: n/a Occupation: n/a	CODE: QT11B	Year built: 1994 Number of person: 1 Occupation: n/a
ROOF TYPE: Y	Measurement date: 2018/06/23	ROOF TYPE: Y	Measurement date: 2018/06/23	ROOF TYPE: T	Measurement date: 2018/06/23
Note:		Note:		Note:	
					
					

NO.118	QUỐC THÁI	NO.119	QUỐC THÁI	NO.120	KHÁNH BÌNH
CODE: QT24B	Year built: 1992 Number of person: 6 Occupation: Fisher	CODE: QT14A	Year built: 1995 Number of person: 13 Occupation: Fisher	CODE: KB54	Year built: 2008 Number of person: 7 Occupation: Farmer
ROOF TYPE: Y	Measurement date: 2018/06/23	ROOF TYPE: Y	Measurement date: 2018/06/23	ROOF TYPE: T	Measurement date: 2018/06/23
Note:		Note:		Note: 3 generations	

NO.121	KHÁNH HÒA	NO.122	CHÂU GIANG	NO.123	ĐA PHƯỚC
CODE: KH36	Year built: 1958 Number of person: 2 Occupation: Seller	CODE: CG71	Year built: 1937 Number of person: 5 Occupation: Housewife	CODE: DP28	Year built: 1918 Number of person: 2 Occupation: Seller
ROOF TYPE: T	Measurement date: 2018/06/22	ROOF TYPE: T	Measurement date: 2018/03/13	ROOF TYPE: Y	Measurement date: 2018/06/20
Note:		Note: 81 years before. Pha Ti Mah. Husband is working in Ho Chi Minh city		Note: Over 100 years	
					
					

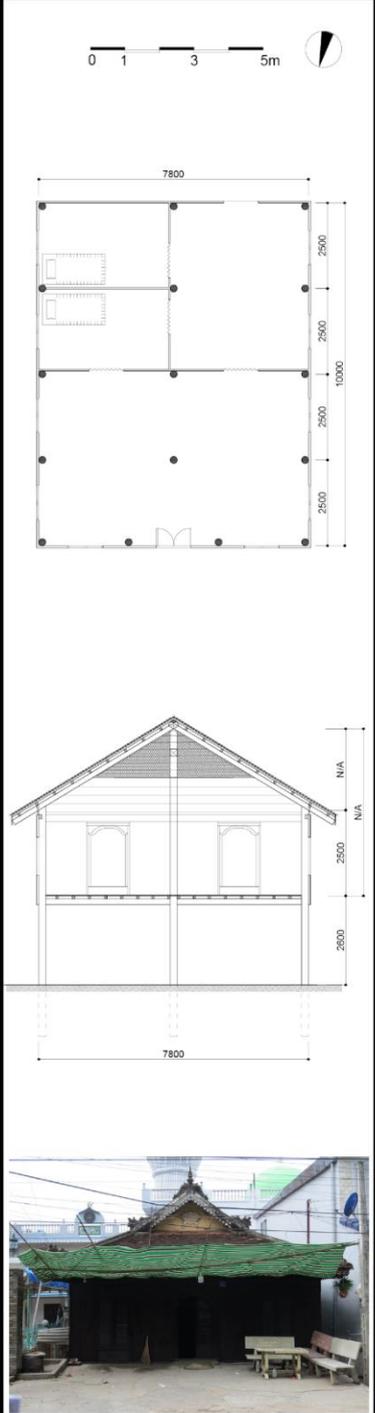
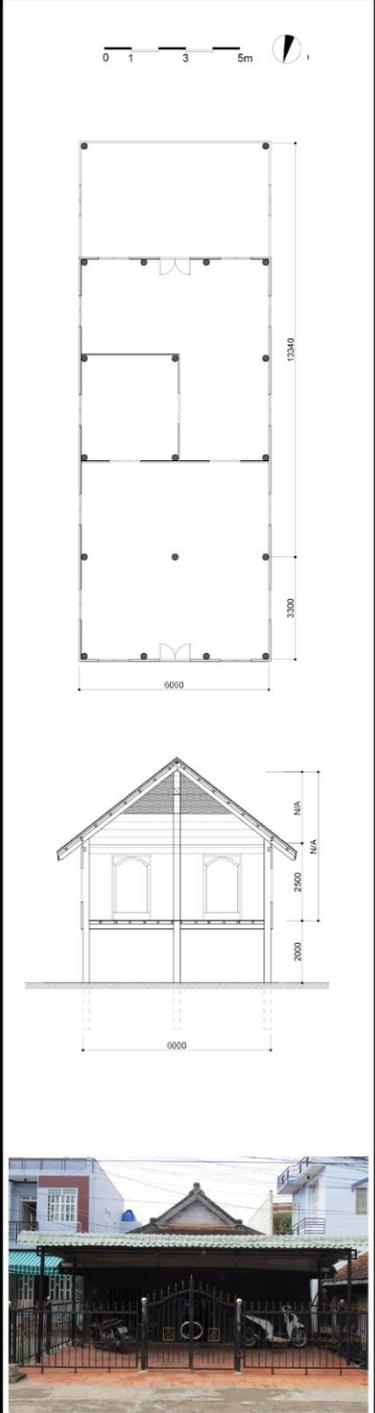
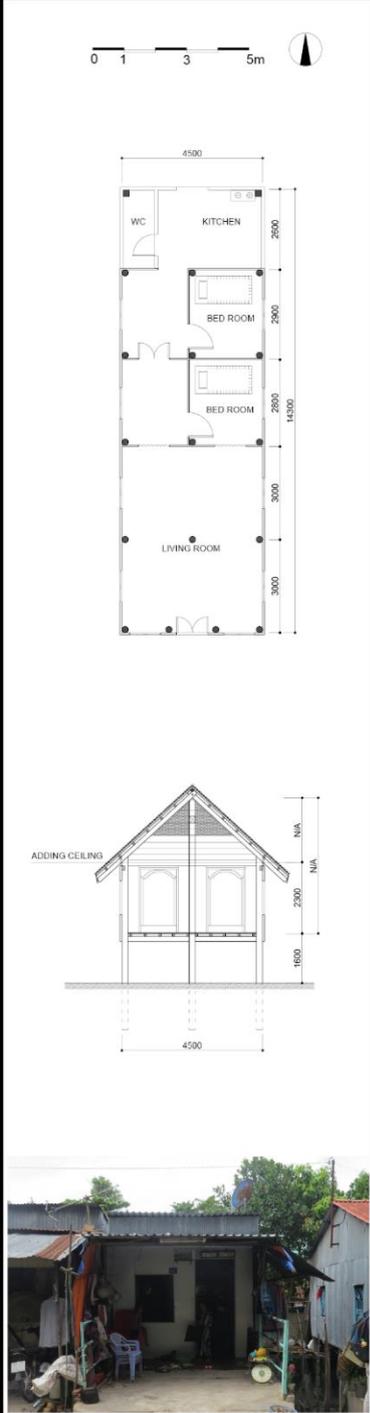
NO.124	KHÁNH HÒA	NO.125	CHÂU GIANG	NO.126	KHÁNH HÒA
CODE: KH44	Year built: 1957 Number of person: 1 Occupation: n/a	CODE: CG160	Year built: 1923 Number of person: 5 Occupation: Farmer	CODE: KH48	Year built: 1968 Number of person: 1 Occupation: n/a
ROOF TYPE: Y	Measurement date: 2018/06/22	ROOF TYPE: T	Measurement date: 2018/03/14	ROOF TYPE: T	Measurement date: 2018/06/22
Note:		Note: 3 generations. The house is used for family worship.		Note:	

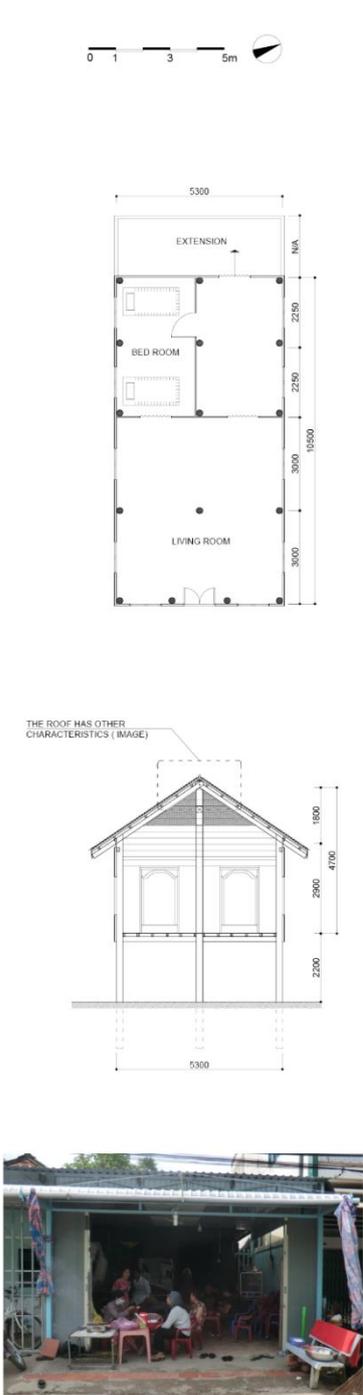
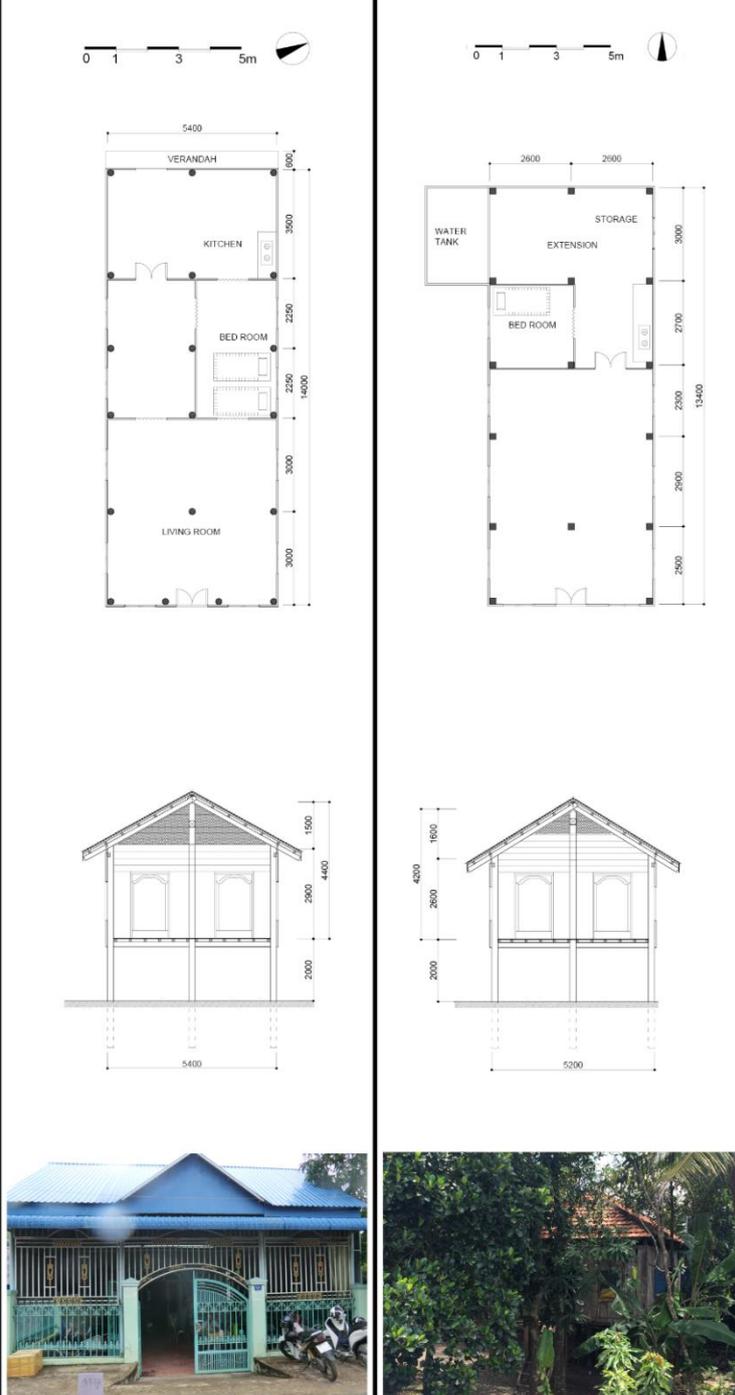
NO.127	NHƠN HỘI	NO.128	CHÂU GIANG	NO.129	CHÂU GIANG
CODE: NH2	Year built: 1983 Number of person: 4 Occupation: n/a	CODE: CG193	Year built: 1960 Number of person: n/a Occupation: Shop owner	CODE: CG307	Year built: 1938 Number of person: 8 Occupation: Shop owner
ROOF TYPE: T	Measurement date: 2018/06/24	ROOF TYPE: Y	Measurement date: 2018/03/14	ROOF TYPE: Y	Measurement date: 2018/03/14
Note:		Note: Intend to sell the old house to built a new		Note: Over 80 years. Selling cake, and sewing clothes	
					
					

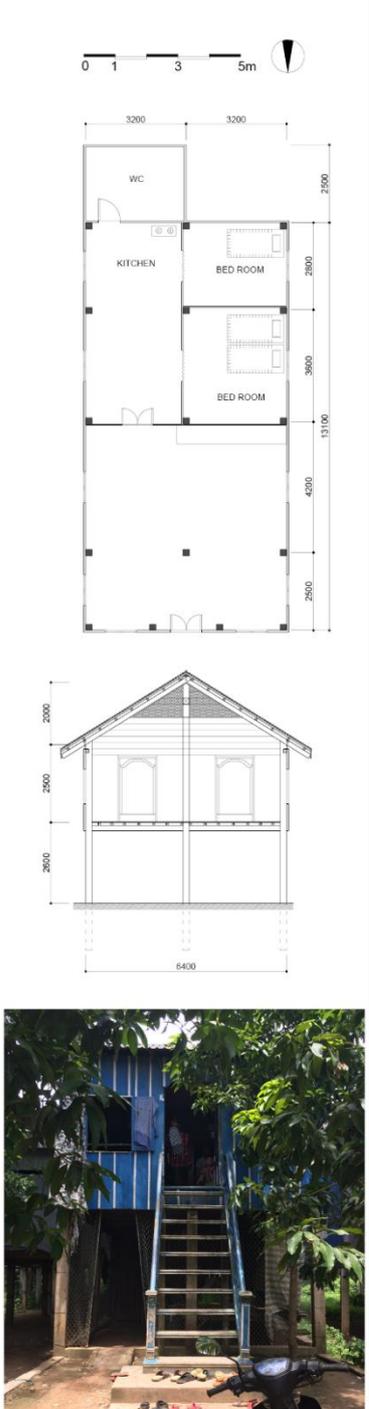
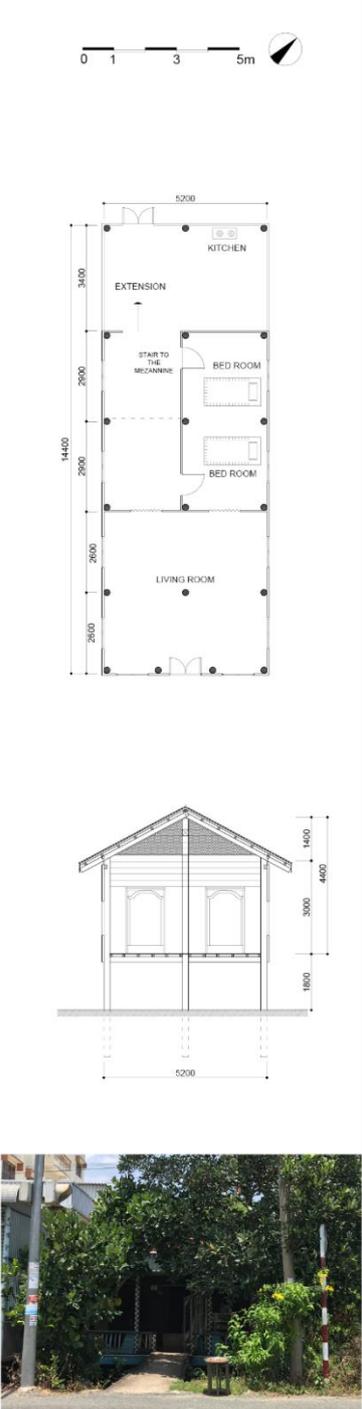
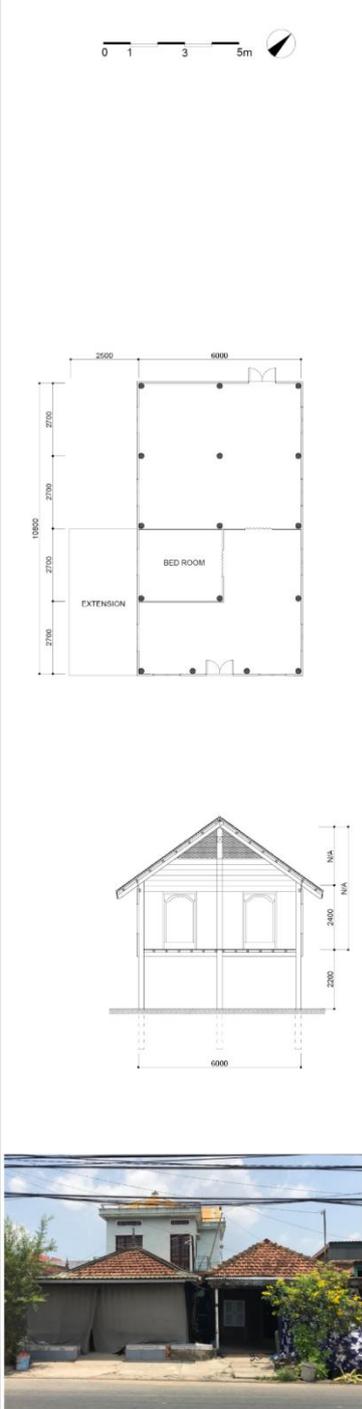
NO.130	KHÁNH HÒA	NO.131	KHÁNH HÒA	NO.132	KHÁNH BÌNH
CODE: KH46	Year built: 1958 Number of person: 15 Occupation: Seller	CODE: KH50	Year built: 1900 Number of person: 6 Occupation: Seller	CODE: KB3	Year built: 2012 Number of person: 10 Occupation: Farmer
ROOF TYPE: T	Measurement date: 2018/06/22	ROOF TYPE: T	Measurement date: 2018/06/22	ROOF TYPE: T	Measurement date: 2018/06/23
Note:		Note: over 100 years		Note: 3 generations	

NO.133	CHÂU PHONG	NO.134	CHÂU GIANG	NO.135	CHÂU PHONG
CODE: CP29	Year built: 1960 Number of person: 3 Occupation: Seller	CODE: CG55	Year built: 1920 Number of person: 5 Occupation: Shop owner	CODE: CP3	Year built: 1818 Number of person: 4 Occupation: Seller
ROOF TYPE: Y	Measurement date: 2018/06/19	ROOF TYPE: T	Measurement date: 2018/03/13	ROOF TYPE: T	Measurement date: 2018/06/19
Note:		Note: 3 generations, over 80 years, grocery, the space underfilor is used for storage.		Note:	

NO.136	VĨNH TRƯỜNG	NO.137	QUỐC THÁI	NO.138	CHÂU PHONG
CODE: VT3	Year built: 1965 Number of person: 1 Occupation: Hired hand	CODE: QT14	Year built: 2000 - present Number of person: n/a Occupation: n/a	CODE: CP13	Year built: 1948 Number of person: 4 Occupation: Work far away
ROOF TYPE: T	Measurement date: 2018/06/21	ROOF TYPE: Y	Measurement date: 2018/06/23	ROOF TYPE: T	Measurement date: 2018/06/19
Note:		Note: Old house		Note: Work far away in Ho Chi Minh city	

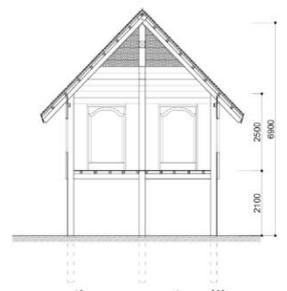
NO.139	CHÂU PHONG	NO.140	CHÂU PHONG	NO.141	CHÂU PHONG
CODE: CP35	Year built: 1923 Number of person: 4 Occupation: n/a	CODE: CP30	Year built: 1918 Number of person: 5 Occupation: n/a	CODE: CP8	Year built: 1960 Number of person: 4 Occupation: Tailor
ROOF TYPE: T	Measurement date: 2018/06/19	ROOF TYPE: T	Measurement date: 2018/06/19	ROOF TYPE: Y	Measurement date: 2018/06/19
Note:		Note:		Note:	
 <p>Architectural drawings for No. 139. The top section shows a floor plan with a width of 7800 and a total height of 10300. The plan is divided into several rooms, with a central living area. Below the floor plan is an elevation drawing showing a gabled roof with a height of 2500 and a width of 7800. The bottom section is a photograph of the building, showing its traditional gabled roof and a green tarp covering the entrance area.</p>		 <p>Architectural drawings for No. 140. The top section shows a floor plan with a width of 6000 and a total height of 13340. The plan is divided into several rooms, with a central living area. Below the floor plan is an elevation drawing showing a gabled roof with a height of 2500 and a width of 6000. The bottom section is a photograph of the building, showing its traditional gabled roof and a metal gate in front.</p>		 <p>Architectural drawings for No. 141. The top section shows a floor plan with a width of 4500 and a total height of 14200. The plan is divided into several rooms, including a living room, kitchen, and two bedrooms. Below the floor plan is an elevation drawing showing a gabled roof with a height of 2500 and a width of 4500. The bottom section is a photograph of the building, showing its traditional gabled roof and a cluttered entrance area.</p>	

NO.142	CHÂU PHONG	NO.143	CHÂU PHONG	NO.144	NHƠN HỘI
CODE: CP47	Year built: 1971 Number of person: 5 Occupation: Seller	CODE: CP117	Year built: 2000- present Number of person: n/a Occupation: n/a	CODE: NH20	Year built: 1968 Number of person: 4 Occupation: Hired hand
ROOF TYPE: Y	Measurement date: 2018/06/19	ROOF TYPE: Y	Measurement date: 2018/06/19	ROOF TYPE: Y	Measurement date: 2018/06/24
Note:		Note: 19 years		Note:	
					

NO.145	NHƠN HỘI	NO.146	ĐA PHƯỚC	NO.147	ĐA PHƯỚC
CODE: NH35	Year built: 2008 Number of person: 8 Occupation: Teacher	CODE: DP18	Year built: Number of person: Occupation:	CODE: DP53	Year built: Number of person: Occupation:
ROOF TYPE: Y	Measurement date: 2018/06/24	ROOF TYPE: Y	Measurement date: 2018/06/20	ROOF TYPE: Y	Measurement date: 2018/06/20
Note:		Note:		Note:	
					

NO.148	QUỐC THÁI	NO.149	CHÂU GIANG	NO.150	KHÁNH BÌNH
CODE: QT22	Year built: 1990 Number of person: 3 Occupation: Seller	CODE: CG214	Year built: 1930 Number of person: 5 Occupation: Shop owner	CODE: KB19	Year built: 1968 Number of person: 6 Occupation: Farmer
ROOF TYPE: Y	Measurement date: 2018/06/23	ROOF TYPE: T	Measurement date: 2018/03/14	ROOF TYPE: T	Measurement date: 2018/06/23
Note:		Note:		Note:	

NO.151	CHÂU GIANG
CODE: CG306	Year built: 1905 Number of person: 5 Occupation: n/a
ROOF TYPE: T	Measurement date: 2018/03/14
Note: Support by children. Largest house, has veranda	



the concrete pillars

