

Survey and Recommendations for Utilization on Vernacular Houses of the Phu-Tai Ethnic Group in Kalasin Province.

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Abstract

The research-based article which is titled as Survey and Recommendation for Utilization on Vernacular Houses of the Phu-Tai Ethnic Group in Kalasin Province, was undertaken as the survey research on vernacular houses of the local architecture. And in particular, it was studied to find utilization of Phu-Tai community architecture located on National Highway No. 227 and by applying participative process. The focused architectures were ‘Huen’(house), ‘Huen Fire’(kitchen) unit and ‘Loa Khaw’(home rice barn). The survey employed survey guidelines for the architectures in 3 subdistricts situated in Kalasin Province and on National Highway No. 227, and non-structure interview guidelines for target groups. The target groups were 26 house owners, executives or administrators and officials working in Local Administrative and Government Organizations. The findings were; Phu-Tai vernacular architectures located on the National Highway No. 227 which is all original and classic ethnic houses, have been declining in crisis stage but obviously witnessed the adaptation of the owners to modern, contemporary styles. However, the contemporary adaptation has affected to the changes of kitchen unit (Huen Fire). In the part of home rice barn or Lao Khaw, it has been in consistency and persistency by and in relation with the rice farmers’ way of life. The rice barns have been existing in their function as families’ entire-year, food stock that the local farmers’ community need it. And it was viewed as the important vernacular architecture in this survey. In the utilizations of Phu-Tai vernacular architectures, it has been outlined as guidelines in the 6 approaches as following. Conservation, Learning, value-added and elevation of these classic houses and their compounds, Tourist attraction and studying resource, Research and local wisdom collection and resources, Publishing purposes and in the approach for Exploration drive force and utilized in local government organizations’ conservation and development action plans.

Keywords : Vernacular houses Vernacular architecture Conservation Houses Phu-Tai ethnicity Kalasin

Preface

'Phu-Tai' is the second largest ethnic population in the Northeastern region of Thailand whilst the largest one is Thai-Loa ethnic population. Most of the Phu-Tai ethnic living in Sakon Nakhon, Nakhon Phanom, Kalasin provinces and some groups settled down their smaller communities in Mukdahan, Amnatcharoen and Yasothorn provinces. (Princess Maha Chakri Sirindhorn Anthropology Centre. 2022) In Kalasin Province, Suthep Chaiyakhan (2013) concluded that Phu-Tai ethnic population spread their communities in Kuchinarai, Khaowong, Huay Pheung, Sam Chai and Somdej districts. They keep reserving their ethnic attire, traditional and cultural activities and in most of their way of livings. They have, as well, conserved their identity dialect and their architectures. Beliefs in human societies are all abstract of which influenced to all objects and architecture they created. Architectures function as belief communication, expression and identities creation of and by each society and in ethnicity. As long as beliefs exist, architectures from their beliefs persist. (Rawiwan Oranratmanee, 2016) Vernacular architecture study in Thailand began as records making emphasized on forms and characters of the architectures based on historical evidences. Later the study developed to apply eco-cultural concepts to vernacular architecture studies and called it as 'Architectural Ecology'. (Prinya Mruksirisuk and Vira Inpuntung, 2020) In literature review for Isan vernacular architectures, it was found in multi dimensions like in the study implemented by Thanis Sathiannarm and Nopphadol Tangsakul (2016) on vernacular house study in the Northeastern Thailand and found that original vernacular house of ethnic groups observed by outside society around the 24th Buddhist century. These ethnic, original, vernacular

houses were perceived as ethnical identities by each ethnic group in a dynamic dimension since the declination of Lan Chang kingdom to town development in the 2500 Buddhist decade. The significant factor stimulated Isan regional housing pattern dynamic during the last two centuries was ethnic groups migrations and relocations. They firstly settled down and built in their original, cultural and traditional building patterns later their adaptation has been gradually opened to outside communities' customs and traditions. Therefore, diversity of Isan tradition housing is all about cultural product related to regional history over times. In addition, Thanis Sathiannarm and Nopphadol Tangsakul (2016) presented the findings on vernacular house study in the Northeastern Thailand that there are 4 categories in their studying. First, studying in multi disciplinaries, covered diversity and integration of disciplinaries. Second, studying implemented to motivate conservation and inheritance of vernacular houses as cultural heritage of the region. Third, studying aimed to establish and develop Isan vernacular house as a part of vernacular architectural science and/or liberal arts. And the last purpose, studying aimed to present and demonstrate invaluable and importance of Isan vernacular and bring in body of knowledge from vernacular wisdom to adapt and apply to modern, contemporary architectural society including to bring in Isan vernacular to cultural product market for community base tourism development.

In studying Phu-Tai ethnic community which has been managing community tourism, Karnchanok Dabsomdet (2016) implemented her study titled 'Homestay Business Management By Sufficiency Economy Guidelines: Case Study Phu-Tai Ban Phon Community, Kham Muang District, Kalasin

Province' and her findings included Phu-Tai Ban Phon has high potential to develop homestay business by sufficiency economy concept particularly in cultural and traditional outfit. It could be considered as community identity and uniqueness. However, Phu-Tai houses could be conserved to utilize as guest check-in or show case spot. For the reason that the Phu-Tai vernacular houses are invaluable to conserve and present to public in the form of community base tourism in sustainable and productive style besides these vernacular houses reserve classic landscape of Phu-Tai ethnic community and a requirement for cultural tourist management. Likewise, Wachiraphong Kittirach (2019) studied characteristics of Isan vernacular house plans along Chi River basin and categorized permanent houses into 3 types; 1. Ruen (Huen) Geuy which is described as wooden house on stilts with gable roof. Stilts are round poles in square or octagon shape. The house composed of a large porch and a platform for mounting and dismounting, exposed to the sun (called Geuy) and connecting to Huen Fire or a kitchen unit with a large drinking water single shelf on. 2) Reun (Huen) Faed or Twin houses is described as wooden house on stilts with the same shapes of stilts; round or octagon. The main house composed of a large porch and a platform for mounting and dismounting, exposed to the sun and connecting to Huen Fire or a kitchen unit with a large drinking water single shelf. 3) Ruen (Huen) Khong is described as wooden house on stilts, round or octagon shape stilts with twin gable roof and no 'Geuy' or a large porch and a platform for mounting and dismounting. This type of house composed of the house with a porch that exposing to the sun, a kitchen unit and a large drinking water shelf. These 3 main characters of house could be sorted in 6 components; main sleeping house, 'Geuy' or a large

porch and a platform for mounting and dismounting, twin houses, Ruen Khong (with no 'Geuy'), a kitchen unit (where they have fire activities on) and sun-exposed porch.

National Highway No. 227 (NH No. 227) links Kalasin and Udon Thani provinces, cut across Phu-Tai ethnic communities. Phu-Tai ethnic group is well-known for dominant and unique identity and for their Phrawa silk textile weaving in particular. The Phu-Tai ethnic communities are major production site for and from silk thread, silk texture weaving, silk textile product to silk trading. In addition, the route is outstanding destination for traveler and tourist who looking for rich cultural tourist attraction. With homestay and beautiful cultural activities, the communities' members welcome both oversea and domestic visitors. There are some Phu-Tai ethnic vernaculars left in their communities and it is interesting to recognize these buildings. Survey and study could be undertaken for social and cultural values and as invaluable vernacular heritage. Without systematic survey and maintenance, decay and deteriorate of the buildings and surrounding would ruin all of them. And in no public recognition and perception, these vernaculars could be demolished, changed and rebuilt by mis-conceptual neglect of the owners and all the vernaculars could be forever extinct that the next generation could not have it back for ethnicity learning and studying.

From importance and related literature reviews of vernacular architectures, it has been aimed to conserve and sustain cultural heritage and bring in body of knowledge about local wisdom vernacular to apply in modern, contemporary architectures and construct them as cultural product for community tourism. It is also obviously seen that there was none from Phu-Tai ethnicity particularly by

area-based study about the Phu-Tai ethnic group on NH No. 227 of which has high potential in cultural tourist attractions. Hence, the research team was interested in vernacular architectures survey and in participation with the vernacular owners and their communities. The purpose aimed to find utilization of the NH No. 227 Phu-Tai vernaculars in useful approaches. However, the survey research has been in consistent with National Strategy in Competitive Capacity Building with development targets to emphasize at multi dimensions national, potential elevation on these 3 basic concepts; (1) 'Develop Past' looking back to the past to see roots in

economy, identity, culture, tradition, way-of-life and natural resources diversity strength. (2) 'Adjust Present' in order to pave way to future via national, multi dimension infrastructure and facility development, and (3) 'New Value Future' by increase entrepreneurs' potential, develop 'New Gen' especially in strategy issue of Creative and Cultural Tourism to promote creative and cultural tourist, and by promote local wisdom in product and services, creative idea and cultural capital by 'story' in Thailand tourism including to empower historic site, culture and arts of which registered in conservation laws.

Objectives

1. To survey vernacular architecture of Phu-Tai ethnic located on National Highway No. 227

2. To recommend utilization of Phu-Tai vernacular architecture located on National Highway No. 227

Methodology

1. Area delimitation:

Vernacular architecture of Phu-Tai ethnic communities located on the National Highway(NH) No. 227. The area composed of 37 houses in Nern Yang Subdistrict Administrative Organization area, 26 houses in Phon Subdistrict Municipality. Both Subdistricts located in Kham Muang District. And 10 houses in Nong Chang Subdistrict Administrative Organization area in Sam Chai District. These subdistricts located in Kalasin Province. All 73 vernacular houses and compounds were purposively selected by the researchers and communities' members. In the research content scope, Phu-Tai vernacular architecture was specific on house, kitchen unit and rice barn. And utilization trend for Phu-Tai vernacular house (and compound) consisting

of set of activities or working plans to make most use of them and recommendations on the utilization.

2. Target group:

the target group were house owners, executives/administrators and officials in Local Government Organizations(LAOs). The purposive selection was made for 11 house owners and the criteria selection for executives/administrators and officials of the LAOs. In the participative process of the selection involved by LAOs' executives/administrators and officials by the criteria selection to have 15 target participants. Total target participants were 26.

3. Research steps were:

3.1 Vernacular architecture related documents and literature review

3.2 Survey vernacular architectures using survey guideline collecting all data and information to screen invaluable buildings for in-depth study

3.3 In-depth interviews made to screen and classify invaluable buildings for further in-depth study

3.4 Vernacular architecture structures description and conclusion

3.5 Presentation on Phu-Tai vernacular architecture utilization in focus group discussion with the 3 LAOs' participation.

4. Research analysis:

Phu-Tai vernacular architecture analysis and finding utilization on the local architectures has been implemented in classification, grouping and sorting for data analysis.

Research results and findings

1. Phu-Tai vernacular architecture on NH No. 227

Phu-Tai vernacular architecture research implemented on the buildings located in communities on NH No. 227 in which the researchers employed survey research tools and technics limited to the NH NO. 227 in Kalasin Province. The purposive

selection was applied and the research findings and results categorized in subdistricts; Nern Yang Subdistrict, Kham Muang Subdistrict (municipality administration) in Kham Muang District and Nong Chang Subdistrict in Sam Chai District.

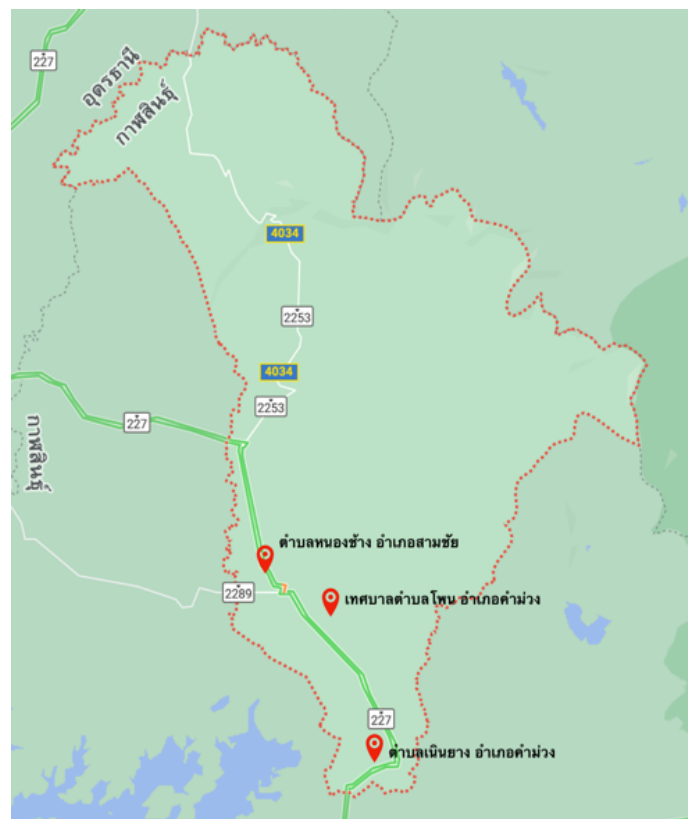


Figure 1. Map of NH No. 227 and No. 2289 routes

1.1 Phu-Tai vernacular architectures in Nern Yang Subdistrict, Kham Muang District

From vernacular architecture field survey in this subdistrict, it could be described some of database that Nern Yang Subdistrict is located under the administration of Kham Muang District, 60 kilometers in the North of Kalasin town. Nern Yang Subdistrict Council established in the year 1995 which was later changed to be Nern Yang Subdistrict Administrative Organization in the year 1999. At present there are 1,438 households. Amongst communities along NH No. 227, Nern Yang Subdistrict is the prior settled down their community before other communities and before their local

administrations established. The important community's products are rice, silk textile and silk textile products, wicker utensils and seasonal fruits. Specific survey on invaluable vernacular architectures has been found 12 buildings; 12 houses, 2 kitchen units and 13 rice barns. Participative process with the local government organizations was undertaken to select the invaluable vernacular buildings to be implemented in-depth studying by interviews and sporadic/cadastral surveys on the 3 buildings as following.

1.1.1 Building 1: Mrs. Banjong Thawasri's rice barn located in Ban Nong Yang Kham, Nern Yang Subdistrict, Kham Muang District.

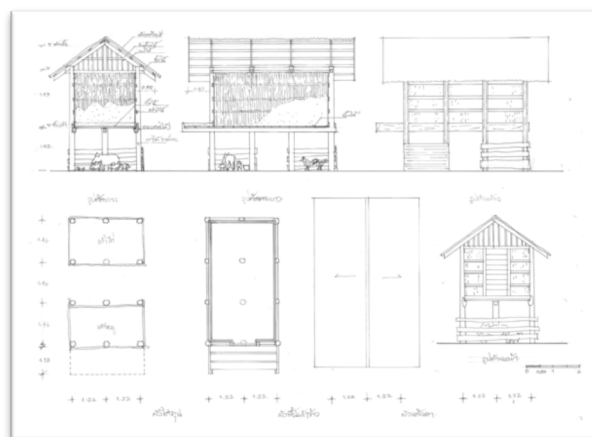


Image 1: Mrs. Banjong Thawasri's rice barn, Ban Nong Yang Kham, Nern Yang Subdistrict

Banjong Thawasri (Interview, 2022) described about her rice barn that her father, Mr. Trai Yarawang, built it in 1957 and it was inherited to her as her parents' heritage. Mr. Trai Yarawang built his family rice barn on the purpose of family's rice stock or exactly, paddy stock. It has been used to stock family's paddy from their rice farm after their rice harvest. It is always for the entire year family food. When his children turned adults and separated, settled down their own families, Mrs. Banjong was the

daughter whom her siblings asked to keep living in her parents at home to look after them and their farm. Her father's rice barn was inherited to her from that matter. She has been in charge to look after this rice barn until now. Besides using as paddy keeping place, underneath of the barn is used as boars raising stall. In the rice barn, it was also used to keep paddy scoops and net sheets used to sun-dry paddy before stocking.

The rice barn situated by facing to the West and a stand-alone unit in the South of the house. It's totally separated from the house and family living area. The building has gable roof with 12 stilts size in octagonal shape, separated in 3 rooms. The rice barn has a small balcony in the front. The whole rice barn is wooden built with its door composed of 11 wooden planks. Each wooden plank is 5-6 inches in width and put together as wooden rows or tiered. The rice barn has corrugated iron roof and both beams made from a half-log wood built by carved

grooves to lay beams on. In Phu-Tai dialect specifically in Ban Nong Yang call these beams 'Mai Mae KaHai'. The rice barn wall are made from woven bamboo plastered with clay mixture. The mixture is clay, husk and buffalo dung, plastered both inside and outside of the barn. The rice barn floor made from wooden planks in carpentry dovetails to block and keep paddy inside. The stair made from wood simply in 5 step-stair pattern and can be kept aside when unused.

1.1.2 The second rice barn: Mr. Prayong Thesarin's rice barn. His rice barn situated at Ban Soong Nern, Nern Yang Subdistrict.

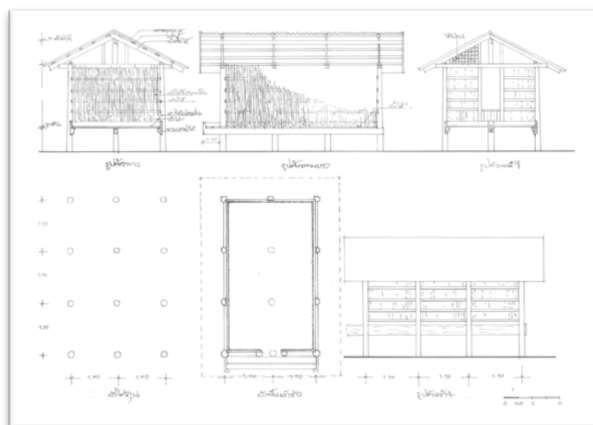


Image 2: Prayong Thesarin, Ban Soong Nern, Nern Yang Subdistrict

Prayong Thesarin (Interview, 2022) narrated that his rice barn was built in 1972 by his parents. Mr. Soon and Mrs. Phorn Thersarin. He's their youngest son and looked after them in their aging. This rice barn, therefore, inherited to him by this reason. This rice barn is one of the largest rice barns in the community. It's still in uses. It could be contained paddy up to 3.7 metric tons from 300 rai family's rice farmland.

The rice barn situated facing to the West and stand-alone building in the house yard compound.

It's separated from living-area housing. The rice barn built with a gable roof with 12 stilts in size in octagonal shape of stilts, separated in 3 rooms. There is a small balcony in front of the building at the barn's door. The entire rice barn structure is wooden built with the door made from wood planks separately but put together as wood plank in row or tiered when closed. Both beams made from half log, groove craved to lay down with beams. The rice barn walls made from woven bamboo plastered with clay mixed with husk and buffalo dung both inside and

outside of the barn. The mixture was clay, buffalo dung and husk in the same amount with water then kneading by feet in the mud pit until all the mixture was mixed well. The clay mixture used to plaster the bamboo woven walls. The barn floor is wooden planks nailed in rows and made to block paddy on.

There is no stair use because it is not very high from the ground level that the barn owner can step inside without stair.

1.1.3 The third rice barn which is being presented in the study belongs to Mr. Term Chinana, situated in Ban Nong Muang, Nern Yang Subdistrict, Kham Muang District.

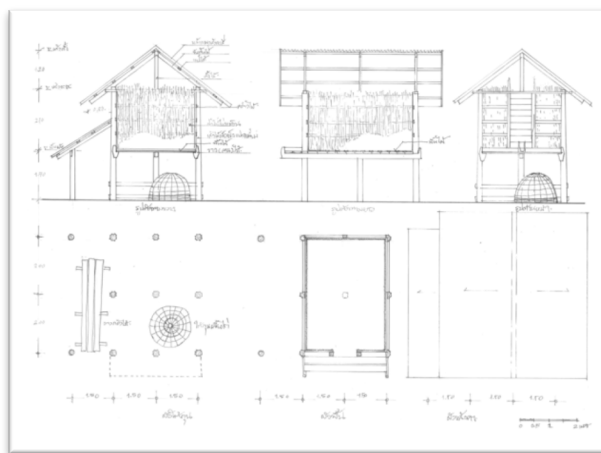


Image 3: Mr. Term's rice barn at Ban Nong Muang

Mr. Term Chinana (Interview, 2022) narrated that this rice barn was built around the year 1942. And the builder was Mr. Jan Kham Lar who is Mr. Term's great grandfather. Formerly it belonged to Mr. Janmai Khamlar who is a direct grandson of Mr. Jan Khamlar, the builder. Mr. Janmai sold the barn to Mr. Term for 800 Baht and the barn was moved to Mr. Term's house yard. It has been using for Mr. Term's family paddy stock until now.

The rice barn situated in the back yard of the house, facing the East and next to the house's kitchen unit or Huen Fire. The rice barn is square in shape, 2 room size, on stilts with balconies on the sides. The rice barn built in two-room, wooden structure with bamboo wood walls. The walls plastered with clay mixed with buffalo dung. The

door, stair and floor made of wood. Underneath of the rice barn used for chicken raising. Awning on the barn sides used as firewood keeping. The barn had some changes during the year; the decay wooden stilts were replaced with concrete poles, wooden roof replaced by corrugated iron roof. The awning on a side was built to enlarge and used as a store place keeping household and farm tools. The rear wall was changed to corrugated iron for better rain proof.

1.2 Vernacular architecture in Phon Subdistrict, Kham Muang District

Phu-Tai ethnic group in Phon Subdistrict is the largest Phu-Tai community settled down from SakonNakhon migration in estimate 2400 B.E. It is called Ban Phon located in Kham Muang District. Phu-Tai ethnic people have been well adapted and flexible to main stream changes. However, they practice their everyday life in accordance with their tradition, norm and way of life as Phu-Tai ethnic i.e., Phrae-wa weaving, bamboo woven utensils and wickers works, cultivation, traditional attire and clothing uses, beliefs and traditional rites and ceremonies. Nevertheless, some of young Phu-Tai community members have not inherited their traditional lifestyles such as in weaving their own textile and wickers like the old days but many things in way of livings and traditional activities still exist. Their vernacular architectures that reflect their unique identity obviously seen in the Phon Subdistrict.

Bna Phon Municipality was firstly established as a sanitation subdistrict on 12 July 1994 announced in Royal Government Gazette, issue 110, section 116, dated 23 August 1994. On 25 May 1999 by the Acts, Sanitation Subdistrict has been elevated to municipality. It is located between Sam Chai and Somdej Districts. The size of the subdistrict is 7.66 sq.

km. covering Phon Subdistrict, clusters 1-5 and located 68 kms from Kalasin down town. Population in the Local Registration Office record in December 2020 was 1,091 households. Most of population make their livings from agriculture particularly rice and sugarcane farms, rubber plantation and musk melon planting. Rice farming is main and only rain-fed farm. Minor population has the second rice farm. Indian jujube is supplementary cultivation and extra family earning. The exceptional product of Ban Phon is Phraewa silk textile and products. The products considered high valuable and ethnic arts. The community is the famous cultural tourist attraction with facilities; Vijit Phraewa (Artistic Praewa) building, Royal Reception Hall, Phu-Tai Cultural Center. These are tourist attraction and resourceful center for Phraewa textiles and Phu-Tai ethnical products, souvenirs and OTOP trading. From the survey for invaluable architecture, research team has found 13 houses, 2 kitchen unit and 11 rice barns.

When the survey results brought into participative process with the subdistricts' LAOs for selection, the decision has made to cooperate to have in-depth interview, study and sporadic surveys for 6 buildings. The following are the main studying targets.

1.2.1 Building No. 4: Kitchen Unit or Huen Fire. The kitchen unit or 'Huen Fire' which owned by Mr. Karn Kehawit situated in Cluster 4, Ban Phon Subdistrict, Kham Muang District.

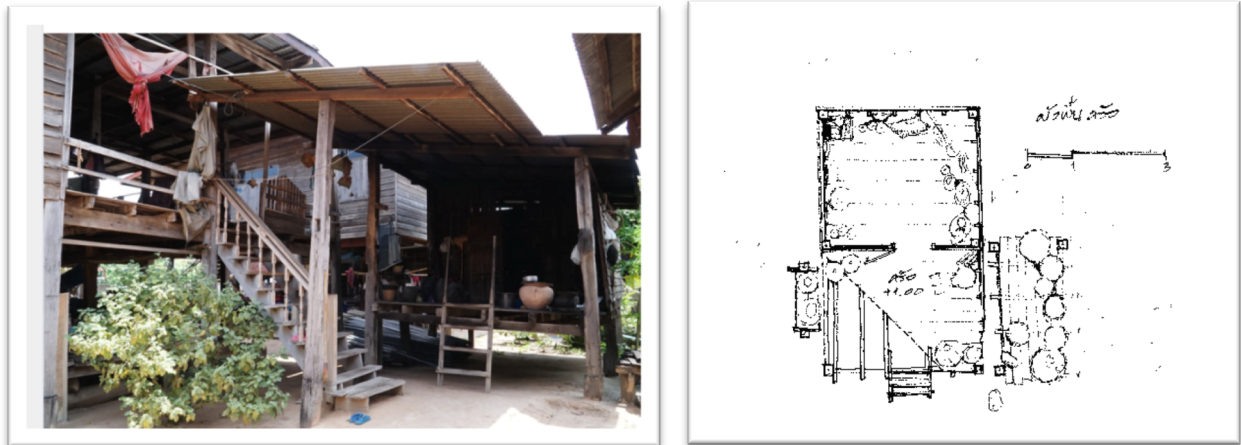


Image 4: Kitchen Unit-Huen Fire -Mr. Karn Kehawit

Karn Kehawit (Interview, 2022), age 65 year, the kitchen unit belongs to him. The kitchen unit was formerly adjacent to the house, later in 1988, it was rebuilt to separate the kitchen as a single unit apart from the living area. The kitchen unit was improved by changing from wooden sheet to corrugated iron roof for it was popular at that time and height adjusted to have lower roof. It was improved for convenience in using the kitchen. This kitchen unit has been using now as cooking area and dry food storing, for example; dried fish, chili, garlic and fermented fish, etc. It was also used as kitchen, farm and working tools and equipment keeping by using the walls of the kitchen hanging all those wickers, baskets, pans, pots, sticky rice containers, etc. And the kitchen was enlarged to have a porch to be used as utensils washing spot and placing kitchen vegetables pots.

The kitchen unit or Huen Fire situated in the West of the house. It is divided into 2 parts; part 1. the outer porch has been using as cooking area or full function kitchen with all kitchen equipment like clay oven placed on charcoal ash to block heat and flare from burning the kitchen floor. It is a large ash tray. The second part is inner part of the porch or inside the cooking area. It has been using as a store or dry food stock room. Cooking materials like dry chili, garlic and fermented fish, for example, kept here, with some kitchen utensils. There's a porch connect the kitchen unit formerly used as the washing area for utensil washing and water containers placing, at present it has been using as kitchen vegetable pots placing for the wooden floor is too decay to be functioned as before.

1.2.2 The Building No. 5: the house that belongs to Miss Umaphorn Lamul. It is located in Cluster 2, Ban Phon Subdistrict, Kham Muang District.



Image 5: Miss Umaphorn Lamul's house

Umaphorn Lamul (Interview, 2022) narrated that the house is old style house, 40-50 years old, made of wood. It is 15 stils in size, built on a quarter of Rai (land measurement) large. The dominant style is two ways stairs; one way to the living area and the other way to the kitchen part. The builders were her great grandfather and grandfather. And it is the 3rd generation heritage but no record nor unknown year of building. However, it's older than 50 years. There have been many improvements and repairment from time to time. A part of the house and the old kitchen were demolished because the wooden parts were all decay and the house improvement replaced these decay parts with modern brick and concrete parts. Some of the stilts were replaced with concrete ones. Wooden rain-groove turned to be corrugated iron groove. Underneath of the house has a bath room and store room built. In addition, some family background has been told from the house owner that her grandfather was a village ceremony performer so that the house was designed to have wide open porch or balcony in order to use it as guest reception

space and as a ceremony hall. Besides the house design was different from another typical houses as family members were livestock traders and by that they became experienced travelers in seeing different town. By seeing many house styles, her ancestors brought it to design the family home. And all the housing compound was full of beliefs (ceremonies, building, functions and hunch, etc.) In the old days, on the entrance of the house compound, there was buffalo and/or bull horns and buffalo bell put above the entrance gate. It was a family status symbol and the bell was also a security alarm, in the other use, for people who come into the house. The house and compound especially the underneath of the house was all useful besides living and as ceremony performing and gathering. Not only her grandfather, her great grandfather who was also a village ceremony performer. Underneath of the house was used as horses stall for up to 100 horses and for setting 3 looms for textile weaving. Now underneath of the house has been using for farm

tools and equipment. And wooden parts of the house were removed.

The house building facing to the East and its plan has 4 rooms; great grandfather's bed room connecting to the worshipping room, the rest 3 bed rooms belonged to daughters and sons. The front balcony was open wide to the two-side stairs and there was connecting space between the living area and kitchen unit, and a small house (which was demolished). The entire building is wooden house

on stilts with two ways stairs to 2 parts of the house; side 1 to the main large house and side 2 to the kitchen. Decoration is all made of wood, the main door and windows at the balcony made from metal frame with craved wood ventilators. The house roof is tile roof. Wooden floor, wooden walls and upper windows have flower patterns mirror, metal front door and front windows. Bed rooms door made of wood. The rain groove was changed from wooden groove to corrugated iron groove.

1.2.3 Building No. 6: Mrs. On Yurata's house. The house situated in cluster 1, Ban Pho Subdistrict, Kham Muang District.

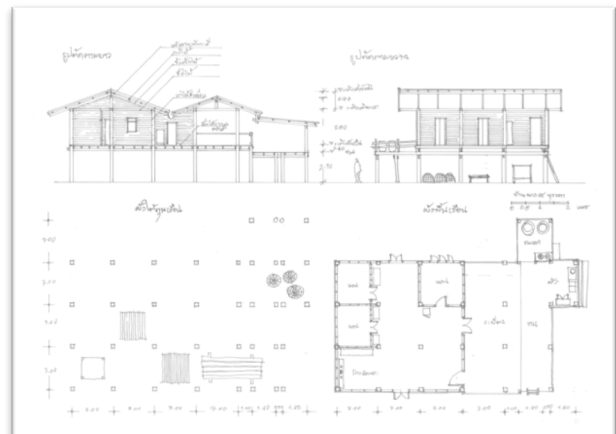


Image 6: On Yurata's house

On Yurata (Interview, 2022) described the story about her family's house that it was built around the year 1947 and the roof was changed to corrugated iron sheets around the year 1977. The house was built when she got married and lives in this house until she has her grandchildren. The house has served her family for 3 generations now. And there is no other improvement besides the roof.

The house facing the North and it is 3-room-house plan. The house has a center hall, a worshipping room and a bedroom. The house's porch connecting to the kitchen unit. The family members mostly use underneath of the house, for

instance, textile weaving and house chores. This wooden house on stilts has few windows; a small window in the east of the house and a long, look-alike- door window in the west of the house. There is no window at the entrance porch of the house. The porch is large and have a kitchen connecting to the East part of the house. The kitchen is not only for cooking family food but also used as cooking material and dry foods stock. The house is simply wooden house on wood stilts. The family use a ladder to go up to the house. Material in house building is all wood. The house's stilts are 16 large logs. Walls, doors and ladders are all made of wood.

The only house improvement made was changing from wood sheets roof to corrugated iron sheets in the year 1977.

1.2.4 Building No. 7: Mr. Boonserm Sri-banphon's rice barn, located at cluster 3, Ban Phon Subdistrict, Kham Muang District

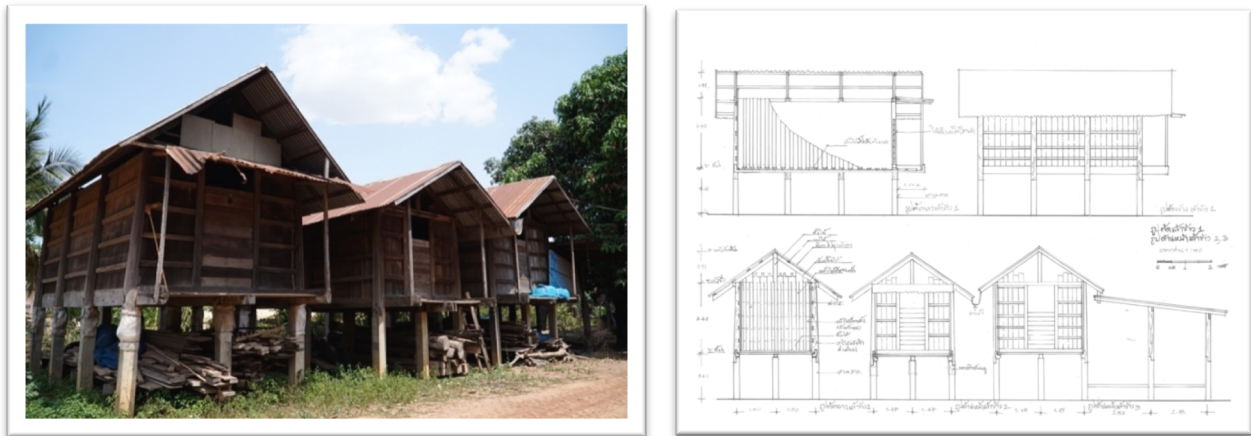


Image 7: Mr. Boonserm Sri-banphon

Boonserm Sri-banphon (Interview, 2022) narrated the story of these rice barns. Rice Barn 1 was built around the year 1997, rice barn 2 was built around the year 1987 and rice barn 3 was built around the year 1977. There was a change from wooden stilts to concrete stilts in the year 1987. One of the beliefs about paddy stock that in the harvest season after harvested paddy stocked in a barn, in the 3rd. lunar month, rice farmers would worship paddy and goddess of rice with 'Khoon' and 'Yor' leaves, candle and incenses. The main function of rice barn is to stock paddy for the family who owns that barn. The other uses are; to keep ready-to-ripe fruits to be fully ripe in the proper place, for example, mango and to keep wood for house repair. Wood kept for house repair would be underneath of the rice barn and all farm tools like sickle and so on.

The buildings facing the West and plans of these buildings were in convenience without any

belief base for rice barns building. The barns were built by siblings according to their needs to stock paddy from their farms for entire year families' food. They use the same ladder for these barns. The overall building look not different. They are wooden rice barns in 12-concrete-stilt size instead of wood stilts for termite proof purpose. The first rice barn has a rain proof awning which is the only additional part making the first barn different from other barns in this area. The main structure is wood, the concrete poles were replaced the old log stilts but corrugated iron roofs are from their first built. The rice barns' doors are typical style by using wooden planks put in horizontal line separately, piece by piece. In order to open the barn each piece of wood plank would be removed. The U-shape lock is simple with a key for these rice barn doors.

1.2.5 Building No. 8: belongs to Janthra Jantharamart, located in Cluster 4, Ban Phon Subdistrict, Kham Muang District.

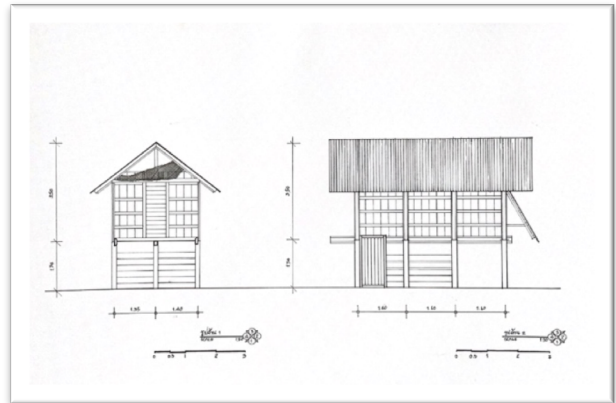


Image 8: Janthra Jantharamart 's rice barn

Janthra Janthramart (Interview, 2022) described that these rice barns inherited from her ancestors. The barns built around the year 1957 and the concrete poles were replaced log stilts in 1997. And the corrugated iron roof replaced the old wooden tiles in 2007. The belief about rice barn is worshipping in the third lunar month for the rice deity or guardian spirit after rice harvested and stocked in the barns. The worshipping made with the 'Bhud' flower, 'Khoon' and 'Yor' leaves with candle and incenses. It is a belief to invite prosperity and guarding spirits to the barns and to prospect the always full of paddy and never run out of food for family. The main utilization is paddy stock and forbidding for sleeping nor living on the barn. The

other usefulness is underneath of the barns used as kitchen and store room for clothing, for example. The rice barns facing the North and the barns' plan is keeping the North just for convenience without any belief-base reason. It's to make the shortest way from the two houses compound entrance to the barns. These two barns are different size. The first one is one room smaller with 9 stilts whilst the second barn has 2 larger rooms with 9 stilts. The second rice barn's underneath was improved to be a kitchen and as a family store room. Both barns' structures made of 'Kung' wood, walls made of 'Jik' wood with corrugated iron roof and concrete poles. The kitchen underneath made of wood for wind prove and blinds.

1.2.6 Building No. 9: belongs to Mrs. Wan Lamul, situated in Cluster 2, Ban Pho Subdistrict, Kham Muang District.

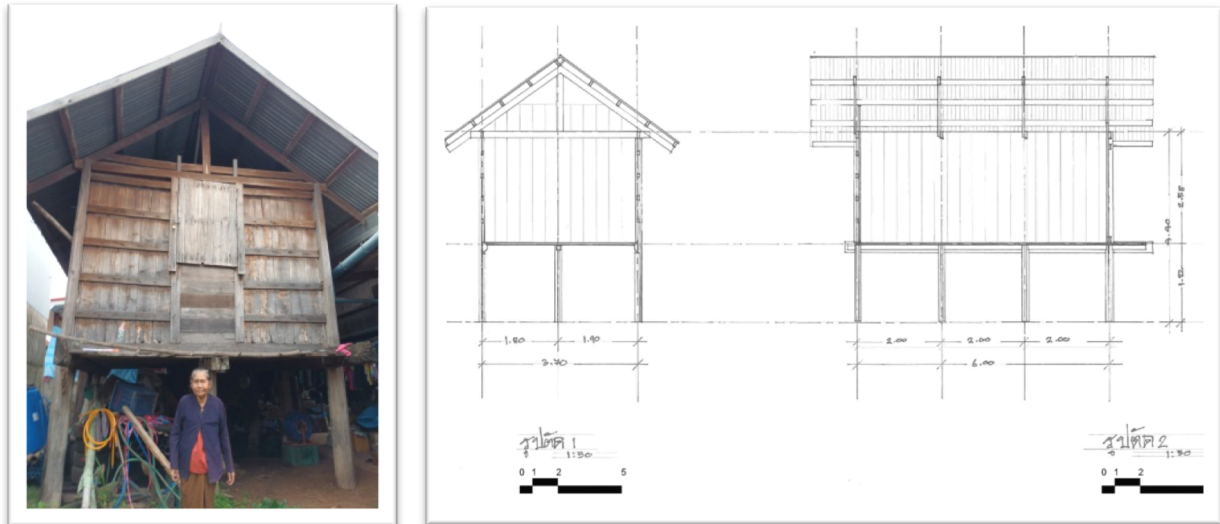


Image 9: Mrs. Wan Lamul's rice barn

Wan Lamul (Interview, 2022), age 81 years, described about the building that it was built by Mr. Phul Lamul around the year 1962. The only improvement was done 40 years ago. It was around the year 1977 the wooden roof replaced by corrugated iron roof. The rice barn has always functioned as paddy stock for the family's entire year food. According to Mr. Phul Lamul had no land to build his family's rice barn on, he asked Mr. Phing Lamul, his relative to let him build the rice barn on Mr. Phing's land. Later Mr. Phul built one more rice barn and gave this rice barn to his younger brother, Mr. Maung Lamul. After Mr. Maung passed away, the rice barn became a property owned by Mrs. Wan Lamul who was Mr. Maeung's wife. Phu-Tai ethnic group believe that rice has the guardian deity. Therefore, after rice harvest before rice stock finished, the rice barn owner has to worship the deity of the barn and paddy. The worship must be performed with this specific varieties of leaves, Khoon and Yor Pa. The leaves would be put on the

wall beside the barn for the names of the leaves has meanings about support, multiple increase and highly admirable by others. This is annual rite performed on the 3rd day of wanning moon in the 3rd lunar month. It is also to invite good spirits to the barn and to worship rice or harvest guardian deity. In this rite, a set of food is well prepared to offer to the spirit and deity such as; steamed sticky rice, sweet sticky rice steamed with banana, boiled fish, shrimps, shell fish, taro, sweet potato, banana, betel nut with local cigarette and tobacco and clean water. The main utilization of rice barn is keeping all the paddy from the family rice farming to be entire year family food and keep paddy for the next rice cultivation seeds. Many rice farming tools were also kept in the barn such as bamboo stripes for binding ears of paddy, paddy scoop, etc. The barn's beams used as support structure for cupboard to keep household utensils and tools. Underneath of the rice barn once used as farm animal stall. Now it used as farm tools and farm seeds keeping.

This rice barn facing to the West and built separately from the house or living unit but as a unit in the North of the house compound. The barn has a gable roof on which in 12-stilt size structure. There are 3 rooms. And on the gable roof, there are higher pointing tips of the roof than general rice barn found. Formerly, the roof was wooden sheet built which was replaced by corrugated iron roof. The stilts are whole log in octagonal shape stilts. Both main beams are half logs carved as grooves to lay down other beams. In this building technic, it is called 'Paen Kahai' in Phu-Tai term. The barn's walls made from wood

plank laid in rows with dovetail wood sheets to block paddy from falling through. The barn's floor made from wood which is thicker than wall's and as well have dovetails to cover the hole between the wood planks for the same reason. The ladder made from whole wild bamboo tube and by getting rid of some of the small sticks on the tube, the barn owner has only the small sticks she wants to use as ladder steps. This technic and the ladder itself called 'Khandai-Ong' in Phu-Tai term.

1.3 Vernacular architectures in Nong Chang Subdistrict Administrative Organization area, Sam Chai District

From field survey in Nong Chang Subdistrict, which is in the East of Sam Chai District downtown and 89 kms. from Kalasin downtown, with 24,250 rai as the Subdistrict Administrative area. The geographical area is low land and hilly forest. The occupations of the population mainly are rice and crops farming, livestock and fishery. The supplementary occupation is cottage industry; weaving and handicraft. Nong Chang Subdistrict Administrative Organization(SAO) established in the year 1994, they develop and promote the area in the local wisdom conservation concept and elevated the

subdistrict to be cultural tourist attractions community by highlighted the cultural lifestyle and focusing on household wickers, sericulture, silk textile weaving and silk textile production, reed mat weaving and local music. From the survey, invaluable vernacular architecture are 4 houses, 4 kitchen units and 2 rice barns. In the participative process with the SAO, some buildings have been selected for in-depth study and in-depth interview with the owners and implemented sporadic survey these 2 following buildings.

1.3.1 Building No. 10: Mr. Sowet Chaphumee's house, located in Cluster 5, Ban Nong Kaen Sai, Nong Chang Subdistrict, Sam Chai District

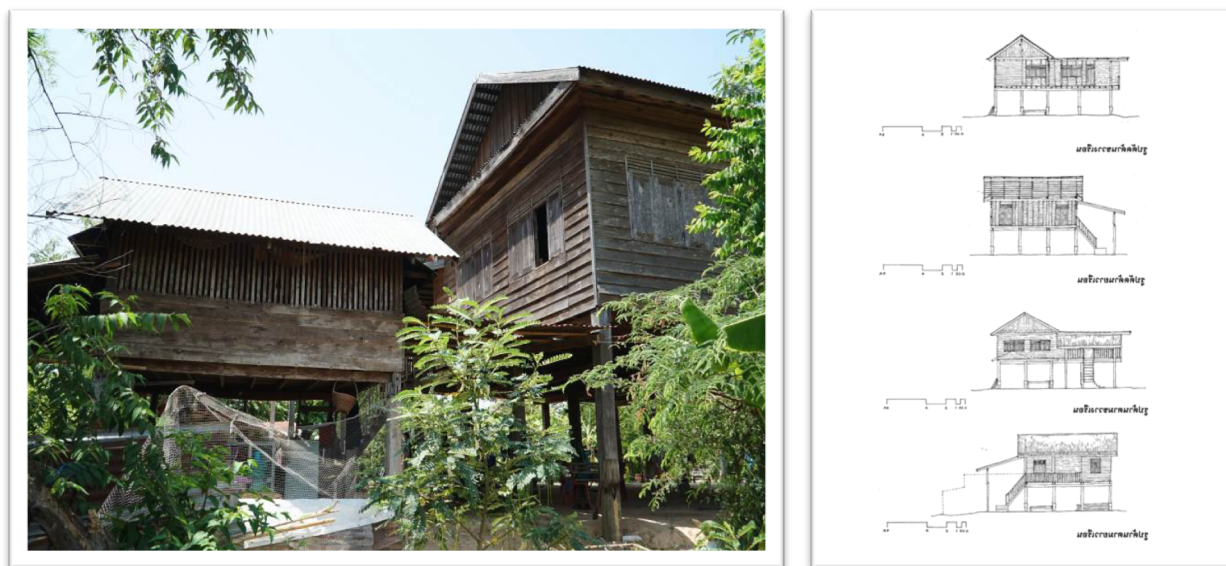


Image 10: Mr. Sowet Chaphumee's house

Formerly, the house belonged to Mr. Na Chaphume, Mr. Sawet's father, who is now the house owner. The year the house built is unknown but estimated more than 60 years ago. It was a heritage from father to the youngest son of family. It was twin wooden houses, later when the house inherited to children, the twin house was separated and inherited to the present owner's elder sister. The kitchen in the West of the twin house was removed and rebuilt in the North of the house. Later in the year 2020, the house was elevated and earth filled underneath of the house. Some of decay stilts were changed off and more bed rooms at the underneath of the house were built and replaced the old stair with the new one. The house is wooden house on 20 stilts, corrugated iron roof, wooden floor with gaps to make air flow ventilation in order to cool down the house up stair. Doors and windows as well have wooden ventilator parts. The house main structure is wood, corrugated iron roof, facing to the East. When enter to the house by go up at the front stair find a porch

and a small room called 'Som Nok'-son's bedroom, now used as store room. Inside the house has 3 rooms, the West of the house has a parents' room- now used as a store room. The second bedroom is at the center called 'Ner Som'-daughter's bedroom. The third room is Buddha worshipping room -Hong Bhra, in the North, called 'Perng' in Phu-Tai term. The house has 2 doors; one is in the North at the Buddha worshipping room. The second door is in the West. In the old days, family's daughter in law must use this door only. And after a daughter in law gave birth to baby, she would stay at the kitchen unit or Huen Fire for 7 days (one time 7) or 14 days (two times of 7). In addition, it was a belief that Buddha worshipping room and the kitchen must not be built in the same direction.

In the old days, underneath of the house used as cattle stall, now it's a living room and keep 'lao'(lance). And the front porch was a living room for family now used as weaving space, setting textile weaving looms there.

1.3.2 Building No. 11: Kitchen. The kitchen belongs to Mr. Wichian Wikol, located in cluster 3, Ban Nong Chang, Sam Chai District

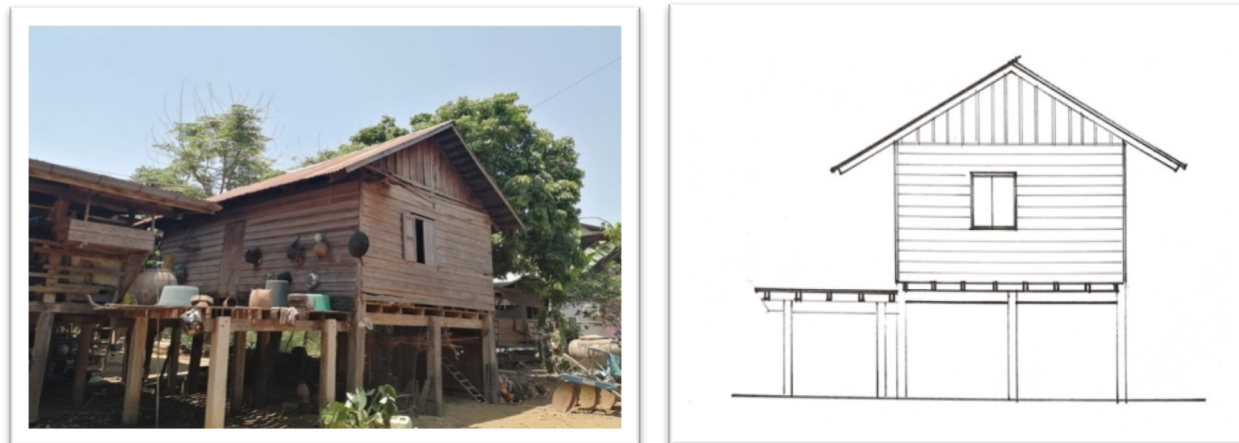


Image 11: Mr. Wichian Wikol 's kitchen unit

Formerly, it belonged to grandpa Kud, Baotha, Mr. Wichian's father-in-law. It was built around the year 1952. It was a wooden kitchen unit including its wooden roof. Later the wooden roof replaced with corrugated iron roof in year 1984. The stilts of the porch connecting to the kitchen unit improved by replacing with concrete poles. In the old days, after a daughter in law gave birth to a baby, she must stay in the kitchen unit for a period of time; for one time of 7 (7 days) or two times of 7 (14 days). And kitchen would not be built in the same direction with Buddha worshipping room. And the house that facing to the South, family would live in harmony, staying in good relationship and living happily in generations.

The kitchen unit situated in the West and connecting with the house or living area with a porch. The kitchen has its own stair from the rear. There are 2 rooms; cooking room with all cooking utensils and

clay ovens with ash tray under the ovens to block heat and flare from burning wooden floor. The ash tray with the clay ovens in the middle has two shoulders to put pot or pan or things on called 'Kha'. The other room is a store room for dry foods stock, such as chili, garlic, fermented fish, dry fish and also woven baskets and utensils, etc. The porch used to connect the living area with kitchen used as washing area for dish washing with water containers for washing and drinking water containers. The space for drinking water containers called 'Haan Mor Nam Gin'. The structure of the building is square wooden building on stilts. The building's walls are used as shelves and cabinet for all kitchen utensils such as pans, pots, sticky rice containers and all woven baskets. Almost all construction materials are wood; wood stilts, wooden structure, with wooden walls and floor only corrugated iron for roof.

2. Utilization on Vernacular Architectures of Phu-Tai Ethnic Group located on National Highway No. 227

In study utilization on vernacular architectures of Phu-Tai ethnic group on National Highway(NH) No. 227, the researchers employed non-structure interview guidelines targeted at the buildings' owners, executives or administrators and officials working with Local Administrative Organizations(LAOs). The purposive selection was

implemented for 15 owners and criteria selection for LAOs' executives or administrators and officials. And by using criteria for selection, participative process was implemented to set up the criteria for target samplings. The target groups divided in subdistricts as following.

Table 1: Presenting utilization trends for local architecture of Phu-Tai ethnic group

SAO authorities	Vernacular Architecture Utilization
Nern Yang Subdistrict Administrative Organization, Kham Muang District, Kalasin Province.	<p>1. In conservation of these invaluable architectures owned by Phu-Tai ethnic owners, it could be implemented as learning resources for community members and in the same time support and promote the building owners to continue conserving their buildings with the official conservation action plan and cooperation in conservation planning by Nern Yang SAO.</p> <p>2. In tourism promotion on Phu-Tai invaluable architectures, by which Phu-Tai communities in Nern Yang SAO area is the head of the Phu-Tai Road 227, it could be planned to co-organize cultural tourism to have vernacular architectures as one of the programs, create check in spots for these Phi-Tai communities, communicate and online promotion to have spotlight on these vernacular architectures. Adding vernacular in website and cooperation with neighboring SAOs to link all tourist attractions together in events and promotions.</p> <p>3. Collection of all Phu-Tai local wisdom as invaluable resources to have all aspects of Phu-Tai local wisdom bring in this project pattern to be implemented in all collection about 'Hor Pong', 'Bai Sema-Dharavadi', 'Hor Rakhang', Ancient Sim or 'Sim Boran', 'Huen Fire'-kitchen unit and 'Dhammas' existed in Phu-Tai communities.</p>
Ban Phon Municipality, Kham Muang District, Kalasin Province	<p>1. In elevation of invaluable Phu-Tai architecture as Phu-tai learning center, museum and Phu-Tai ancient houses, the cooperation is needed to develop the program with cultural organizations network and educational institutes.</p> <p>2. In managing community data base and information system in order to have official record system and in public relation uses particularly to continue this project by having these data base and information on i.e., religious buildings, invaluable Phu-Tai</p>

	<p>architectures and historic site in community, all needed program development with cultural organizations network and educational institutes.</p> <p>3. The third approach is transferring invaluable architectures to next Phu-Tai generation, children and youth in particular, aimed to raise awareness and pride in their ethnicity. And in transferring all knowledge and wisdom to people in the same community included all categories of vernacular architectures must be implemented by working and developing the activities with Subdistrict/District Cultural Council and local educational institutes</p> <p>4. The approach and issue of cultural tourist attraction development aimed to increase community members income, cultural fair, homestay services and cultural route tourist to integrate invaluable Phu-Tai architectures into the route could be developed with cooperation with cultural organizations network and educational institutes.</p>
<p>Nong Chang Subdistrict Administrative Organization, Sam Chai District, Kalasin Province</p>	<p>1. Awareness approaches to invaluable religious building and architectures of Phu-Tai ethnicity particularly in make understanding with the owners to realize in their invaluable buildings. In community level, participation in conservative activities and utilization could be the required cooperation. Poor condition building which is unsuitable for tourist attraction nor a learning center, community could raise fund to make the building model to be a learning center.</p> <p>2. Community Cultural Learning Center could build these following models; original Phu-Tai house, original rice barn, original kitchen unit and home compound environment to be a resource for the learning center, to serve education both formal and non-formal education. The center would be community cultural event venue and cultural tourist attraction event venue in order to increase community members' income earning.</p>

Table 1: In the utilizations of the Phu-Tai vernacular architecture, it has been outlined as guidelines in the 6 approaches as following. Conservation, Learning, value-added and elevation of these invaluable, classic architecture-houses and their compounds, Tourist attraction and studying

resource, Research and local wisdom collection and resources, Publishing purposes and in the approach for Exploration drive force and utilized in local government organizations' conservation and development action plans.

Conclusion, discussion and recommendations

1. Phu-Tai vernacular architectures on National Highway (NH) No. 227

From the survey research on Phu-Tai vernacular architecture on NH No.227, original Phu-Tai architectures have been declining in crisis stage as it was found in very small numbers. However, it could be seen adaptation to modern lifestyle and affecting to original Phu-Tai style kitchen unit in the original Phu-Tai housing compound that has been changed by that style. And the kitchen unit or called 'Huen Fire' (house for fire used) is in crisis for extinction. In part of Phu-Tai rice barn, it was found both original and modern-day styles. It was, as well, found single unit and group unit. The rice barns as a group unit found for a group home of same family. The survey on Phu-Tai architectures particularly on rice barns existing and persisting found the relation to rice farming and rice farmer's way of living. Rice barn still play important function as family's entire year, good-quality, paddy stock; for family food. It was found not many changes in unique, significant, prominent architecture of Phu-Tai rice barn in this survey.

Overall picture of the Phu-Tai vernacular architectures study is consistent with Suepong Chansuebsri (2557) that Mae Chaem traditional wooden houses could be found but decreasing in numbers. Most of the ancient houses staying in good Lanna environment and mostly in good traditional components because Mae Chaem people still persisting in their simple and contentedly way of life and these traditional houses have been using according to their cultural way. This, as well, in consistent with Sombat Prajongsant, Visar Fengveang and Piyachon Sangsakda work (2020) which

implemented database work on vernacular architectures in Buriram Province, has found vernacular architectures are nearly extinct. Conservation needs management system and mechanism that would not rely on the building owners' responsibility alone. Some of vernacular houses which are invaluable owning by low-income families and aging people. Although realizing in their invaluable buildings but have no potential to repair or manage any maintenance. They need government supports. In case some buildings have potential to be developed to be a tourist attraction but even a better-financial-status owner, the building is closed and unused. It is in consistent with Nudtakhed Maneekorn and Ornsiri Panin (2016) work that found the vernacular houses' dwellers tried to adjust their houses to modern and contemporary needs in the same time done maintenance for most of vernaculars that made of wood with limited life-time in using. Rice barn which is prominent vernacular architecture, kept in original shape and built with bamboo wood and woven, buffalo dung, husk and clay for the walls of barns. This is in accordance with Yong Boonari (2011) in his finding about the important factor for building material used, village rice farmers used cheap, available and fastest way to build a barn with local man labor. However, now the new-built rice barn used metal sheet or corrugated iron sheet to be main material that causing high temperature inside these barns affecting paddy stocked to be like baking, turning yellow and easily broken. Easy finding in their environment, like bamboo, is not good enough for moisture proof when they built their barns by having woven bamboo walls compared to

wood but wood is very expensive now. At present, some rice farmers still apply old wisdom in building rice barn's walls in woven bamboo plastered with muddy clay because it is cheaper and can be easily done by family labor.

2.Utilization of Phu-tai vernacular architectures on NH No. 227

Utilization of Phu-Tai vernacular architectures on NH No. 227 by administrators and executives and officials in the 3 LAOs can be concluded as these following approaches.

1. The approach trend that organize conservation of Phu-Tai invaluable vernacular to activate as community learning resources in participative process, promotion and support to the invaluable vernacular owners is aimed to enable them to conserve the vernaculars sustainably.

2. The approach trend that elevate Phu-Tai invaluable vernacular to be co-organized as learning center, museum and as Phu-Tai ancient house models zone including to physical environment in the vernacular house compounds as active learning center for formal education and non-formal education could be multi-organization working. And this is by development cooperation with cultural organizations network and educational institutes. Participative process in cultural activities for community members and educational activities could be undertaken as planned.

3. The approach trend in promotion of invaluable Phu-Tai vernacular buildings for tourist attraction. According to the high potential of NH No. 20, Phu-Tai ethnic communities, these communities could co-organize to link all the tourist attractions to have the stronger advantages to be more attractive to tourists to promote income generating activities.

Cultural fair, room and homestays services and cooperation for cultural tourist route for the cultural NH No. 227 could be made focusing on Phu-Tai cultural ethnicity for invaluable vernacular studying, visiting and tourist programs. This approach would be in consistent with the study undertaken by Supawadee Kramrangsee and Pranom Tansukanun (2564) mentioned about valuable architectures that needed to be conserved to revive economic power to the town and this will empower these three Phu-Tai communities of which already organized as cultural spots based on Phraewa silk. The Phraewa silk which is GI products have been producing and covering in these 3 Phu-Tai invaluable vernacular communities.

4. The approach trend of study, research and all aspects of local wisdom resources collection: according to collection on cultural information and database have not been sufficient accumulated, however there are much in content, many aspects and in extinction risk and loses, for instances; information about Hor Pong, Bai Sema Dhavaravadi, Hor Rakhang, Sim Boran, Huen Fire, Dhammas, etc., all about in the aspect of religious building and invaluable buildings both database and information. In the consistent with Parinya Chukaew (2557) survey for database and information on invaluable buildings for conservation purposes like in Tha Muang Old Market Community, Tha Muang District, Kanchanaburi Province. The buildings worth conservation for historic content about community events or incidents, famous community persons or for prestige architecture by old-time craftsmanship itself. Database and information from survey study could be utilized as references and records for relevant agencies or persons to be utilized in city planning, community and social and economic development

in cultural tourism by which the old buildings could be revived their own communities' way of life, identity and raise the community pride.

5. The approach trend in transferring invaluable buildings to Phu-Tai next generation particularly children and youth. The invaluable vernaculars could raise awareness and pride in their ethnicity transferring from generation to generation, as well, it could recreate vernacular architectures in other forms that could be transferred public wide. This could be developed with subdistrict and district cultural councils and local educational institutes.

6. The approach trend to drive force survey and utilization in Local Administrative Organizations' action plan

The above approaches for 3 communities determined in multi dimensions especially tourism which considered tourist supportive trends. These approaches are consistent with Choosak Inthamon and Saranya Lertbhuttharak (2019) mentioned about success factors in community homestay innovation business management in the community for tourists that consisting of community participation, tourist attractive resources and activities, homestay knowledge of community, good leaders and high leadership and supports from governmental organizations and educational institutes. And it also consistent with the study of Sakawrat Boonwanno and others (2563) who mentioned that future of community tourism could be determined by its own community for direction, impacts, responses and plan in group organized on tourist. The community manage activities themselves in the same time raise awareness in conservation, cultural and livelihood revival, force driving by community participation process as a mechanism and a key tool.

It is worth noting that the 6 approaches are; Conservation, Invaluable vernacular learning center elevation, Tourist attraction development, Study and research for local wisdom and resources database and information collection, Publishing, and Driving force for further survey and utilization in LAOs' action plan to be in consistent with Thailand's tourism policy in tangible approach. There are 5 steps for the following development process; Identity Identifying, Cultural value understanding, Dominances and differences constructing, In-depth market demands perceiving, Value-added tourism products and market development tactic adjusting. (Puriwaj Dachau, 2013) The conceptual framework, as well, compliance with the Master Plan in National Strategy on Tourism Issue. In the strategy, it is planned to underline the country as world class destination in global tourism and travelling. It's emphasizing on development of potential tourist attractions and all perspectives in the same time reserve the country distinguishment in national custom, tradition, culture and Thai identity including to awareness raising for environmental values. The subplan No.1 included creative tourism, tourist products and services value in creative culture, innovation and body of knowledge focusing plus strength in biodiversity of natural resources, cultures and lifestyle. It is in order to value-constructed and value-added to products and services in tourism to response to behavior and demands of world tourists and construct new experiences, choices and as alternatives for tourists and travelers. Highlight also go to value-constructed and value-added in products and services base on cultural, local wisdom and local identity capitals such as historic sites, world heritage sites, archeological sites, old or ancient towns, trading or commercial or business quarters, watershed or river

basin way of life, community products, Thai foods, traditional Thai medicine and medical care as alternative medical care. All are to creative value and price via body of knowledge, innovations, technologies and creative designs as products including to development, activities and new forms of services for tourists such as agricultural tourism, community base tourism, eco-tourism, Buddhist tourism, Halal tourism, for example. In promotion to registration, legal protection, Intellectual Property Protection, Intangible Cultural Heritage and local wisdom protection in order to support development to creative tourism and as the regional tourist center for historic sites, Thai arts and culture, cultural heritage, community activities and products, Thai food and tradition Thai medical care and medicine. (Royal Thai Government Gazette, 2018)

3. Recommendation on utilization

3.1 Building owner

Awareness of building owner in invaluable building and maintain the building function and notification made to government authorities and relevant offices to have greater participation in further conservation and utilization.

3.2 Local Government Organizations or Local Administrative Organization(LAOs)

1) Bringing in Phu-Tai religious buildings and invaluable buildings to authorities' action plans when

plans are drafted in order to perceive the process of conservation and utilization officially.

2) LAOs could increase cooperation with Kalasin University to transfer body of knowledge about survey and collection of local wisdom resources to local officials and personnel via workshop, training and in database work of local wisdom resources.

3.2 The Royal Initiative of Her Royal Princess Maha Chakri Sirindhorn, The Plant Genetic Conservation Project

1) Kalasin University could extend the project implementation results to other areas i.e., Phu-Tau communities in Khao Wong, Kuchinarai, Huay Pheung, Nakhoo and Somdet districts.

2) Kalasin University escalate priorities of local wisdom resources collection to have continuation of the task and to make the action to be consistent with the university's missions in local community services.

3) Kalasin University could bestow awards Phu-Tai owners, including LAOs, for Phu-Tai religious and invaluable buildings conservation in order to motivate and sustain conservation and utilization activities on these invaluable and religious buildings.

4) Kalasin University administrate to build these religious and invaluable models to benefit academic and provincial tourism.

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