THE UNIVERSITY OF CHICAGO

The Vanishing Ethnic Stilt Houses: A Result of Changing Housing Ideologies or Conforming to the Constraints of Contemporary Vietnam?

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And to mom, I hope to send you a bouquet of carnations. *Cám ơn mẹ.*

Abstract

Besides its protective function, housing also has significant cultural, social, and personal meanings; therefore, the change in housing morphology can subsequently alter both one's identity and their surrounding social structure. The changing housescape is common, especially for vulnerable minority communities, yet has been neglected by scholars. This study applies structure-agency and goal-constraint frameworks to analyze the drivers behind housing changes among the Tày and Dao ethnic minorities in Hà Giang—a mountainous province in Northern Vietnam. Virtually interviews of residents who just built their house in the past 5 years suggest that both goals and constraints determine the physical form of the house. However, social processes such as modernization and urbanization seem to play a much more powerful role than the individual or collective agency of villagers. The effects of globalization and integration are also not apparent. Several possible consequences of the changing housing morphology in Hà Giang are considered.

Keywords: ethnic housing, Southeast Asia, social structure, agency, housing morphology

A note on transliteration

The interviews are conducted in Vietnamese. For any concepts that are difficult to be translated into English, I keep the Vietnamese word/phrase in the parenthesis next to the (approximated) English translation. Additionally, because Vietnamese is a tonal language and I want to respect the name of places and people, they will appear with tones (except Hanoi, because many English speakers knew the city in this name). I use pseudonyms when mentioning all of my respondents, and some names are more commonly seen in Vietnam than others. The respondents are all from the Tày and Dao ethnicity who have different naming traditions, and some might sound strange to the Kinh ethnicity (who speaks Vietnamese). I also tried to keep this variety in names.

1. Introduction

Contemporary social processes—such as globalization, urbanization, modernization, and integration into the national economy—constantly reconstruct the physical shape of ethnic dwellings in the most remote areas (Oranratmanee 2020) and modify the internal understanding of ethnic communities on housing looks and functions (Woy, Tobing, and Siahaan 2018). However, social processes can drive change in one locality whiles limiting others (Goss 1988) due to different existing contexts, thus such cultural changes rarely happen uniformly and universally. Moreover, people in the same locality can have different responses to the same change, given individual preferences. Therefore, the housescape is not only decided by social structures but also by human agency. The spectrum of architectural styles constantly updates.

However, the structure-agency framework (i.e. analyzing changes in housing morphology based on social structure and human agency) does not explicitly consider the cognitive decision-making process of the homeowner. When a person decides their housing design, their thinking may not formally consider the effects of each social structure, nor how their agency negotiates these influences. In reality, a homeowner may have a division between what they think the house should look like and what they want to do—*their goals*—on one hand, and what is feasible for them to do and what they think they can do—*their constraints*—on the other. Note that this line is murky, as constraints can subsequently alter one's goals of an ideal house; but they still differ: the former speaks about what one wants to do, the latter about what they think they can do.

This study utilizes these two frameworks (*structure-agency* and *goal-constraint*) to formulate the construction of the new housing forms and the destruction of old ones—here, 'old' and 'new' refer to the existing and introduced architecture to an area. Moreover, social structures

and human agency affect the housing goals and constraints through different channels, and these links will be analyzed in Section 3. A case study solidifies this framework, by discussing the drivers of change from traditional wooden/bamboo houses to modern concrete/metal houses. The case focuses on the Tay and Dao ethnic groups in Hà Giang, one of the most remote provinces of Vietnam. Change from traditional to modern houses has not received adequate attention from sociologists, and ethnic housing evolution in Southeast Asia is rarely explored. Therefore, how these changes emerge remains largely speculative. Moreover, such housing change is often assumed to result in cultural erosion, which is not always supported by empirical evidence (Steinberg and Espejo-Saavedra 1996). This study also qualitatively examines the consequences of altering housescape in Hà Giang—the ethnic respondents self-evaluate the impacts of housing change on their ethnic identity and culture through interviews.

Overall, three broad research questions will be addressed through this study:

(1) When one chooses to build more modern houses in the villages of ethnic minorities in Hà Giang, is this decision more influenced by their changing ideology about the house, or by the changing situations surrounding them?

(2) To what extent are their goals and constraints influenced by the external social structures and internal agency?

(3) What are the consequences of this change in housing form (or the lack thereof)?

The predominant methodology of this study is semi-structured interviews. The respondents are 15 people who built their houses—both modern and ethnic forms—in Hà Giang within the past 5 years (2017-2022). The interview asked about their background, ethnic identity and relationship with the local community, their house's construction process, the reason and impact of their

housing decision. To better understand the background and development of the construction sector in Hà Giang, several people workers and managers were also informally consulted. The interviews were transcribed, coded by topics, analyzed to evaluate the influence of each factor in the above framework (summarized in Figure 1), and discussed within Hà Giang's specific historical, social, and political context.

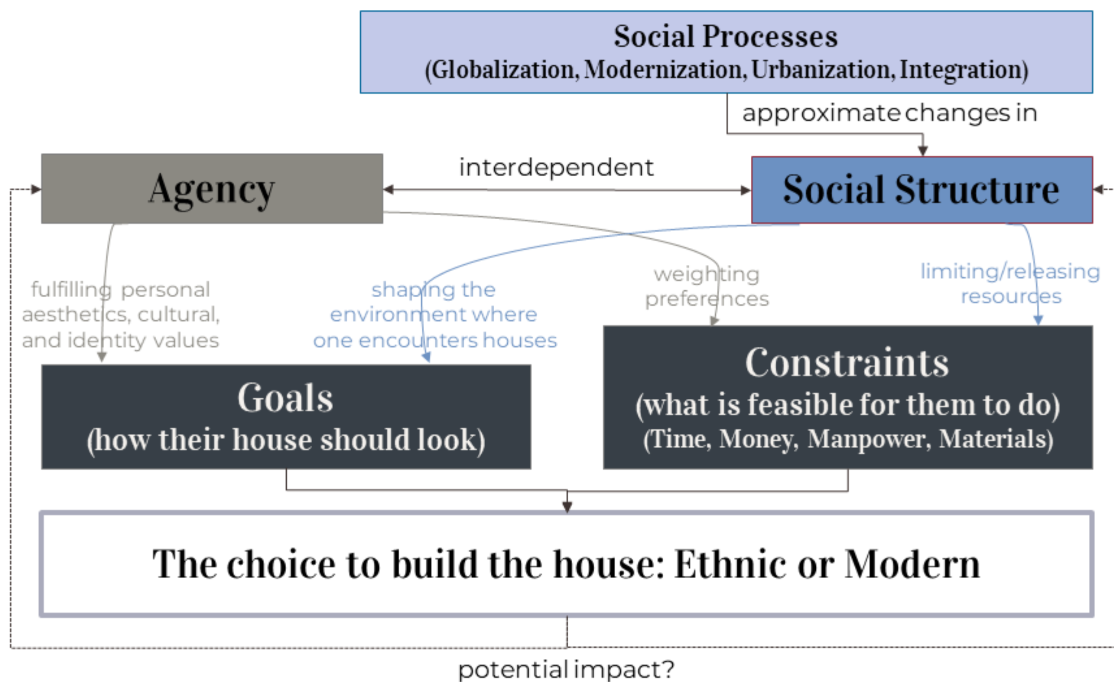


Figure 1. *The theoretical framework to examine changes in Hà Giang's ethnic housing*

Rigorous sociological discussion of ethnic housing transition is currently absent, thus this study hopes to contribute a specific case study in an under-researched region—Southeast Asia. Architectural archeologists have recorded the changes in dwellings among other subjects of ethnic life in the Americas, Europe, and the Near East (*see the review article by* Steadman 1996), yet cultural changes in East, South, and Southeast Asia were rarely inspected. Moreover, in ethnographic studies on vernacular ethnic architecture—*not its evolution and change*—of the region, China (Knapp 2000; Qiang 2016; Sun 2013) and Indonesia (Lancret 1997; Schefold, Nas,

and Domenig 2004; Schefold and Nas 2008; Waterson 1990) often get special attention. Surveys on Vietnamese ethnic housing are rare and are often the work of Vietnamese ethnologists (*see* Dinh 2012; Ma 2004; Tong 2011; Vuong 1997). Most importantly, although many of these listed works briefly mentioned the change in ethnic houses, none presented a firm theoretical framework to explore the *cause* of ethnic cultural changes and predict its *implications*. This study hopes to achieve this. Given the vulnerability of ethnic communities in Vietnam, this paper can further suggest rural-urban planning and heritage conservation strategies.

The rest of the paper is organized as follows: Section 2 first presents the context of Hà Giang, the ethnic communities, and their houses. Section 3 presents the theoretical framework in more detail and argues how the four social processes—globalization, modernization, urbanization, and integration—are prominent in the context of Hà Giang. Section 4 reviews relevant literature regarding how social processes and the change in constraints influence housing forms. Section 5 introduces the research methodology of my case study in Hà Giang. Section 6 presents the results. Section 7 discusses the significance of these results within the historical, socio-economic, political, and environmental context of Hà Giang. Part 8 summarizes the study's findings, contributions, limitations, and suggestions for future research.

2. Contextualize Hà Giang

This section first presents the context of Hà Giang, the ethnic communities, and their geographical distribution (2.1). Then, section 2.2 briefly depicts the traditional house and the types of modern houses that have influenced Hà Giang's housescape.

2.1. Hà Giang and the ethnic groups

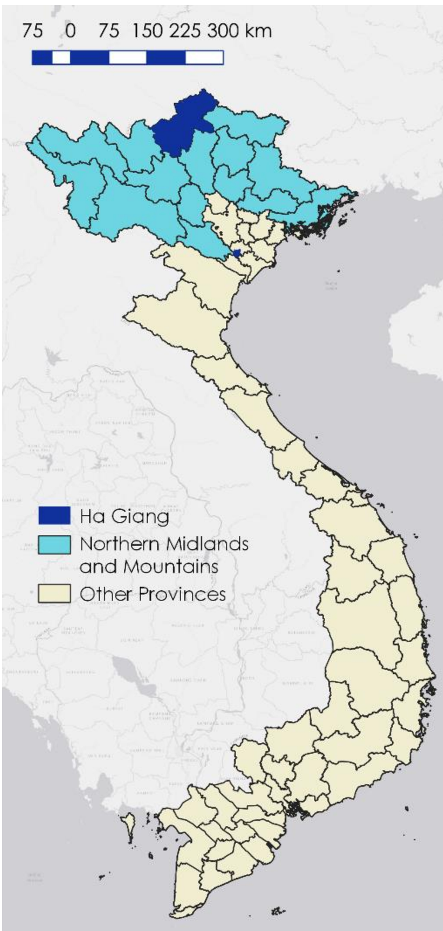


***Figure 2**. Location of Hà Giang and the Northern Midlands and Mountains*

Hà Giang is the northernmost province of Vietnam (as shown in Figure 2), and its terrain is largely mountains and forests. The province has some significant demographic patterns that are distinctive from the national average, represented in Appendix Table A1. In general, Hà Giang has a large rural population that sparsely spreads across the province, with a high poverty rate, low education, and early marriage. Hà Giang also has a very diverse composition of ethnic groups—home to 43 out of 54 ethnic groups in Vietnam, of which 12 have more than 1000 people (General Statistics Office 2020, 62–64). The largest groups are Hmong (32%), Tày (23%), Dao (15%), and Kinh (12%). Although the population size of the Kinh ethnic group only ranks fourth in Hà Giang, they are the national ethnic majority, comprising 85% of the Vietnamese population.

Besides distinctive language, culture, and tradition, the ethnic groups in Hà Giang are also spatially segregated. The Kinh mainly reside in the lowland areas, while many minorities ethnic groups scatter in the mountainous areas, often with limited access due to the topology. The settlements of ethnic minorities are often in the mountain valleys, around rivers and streams, clustered into villages of 30 to 200 households (Ma 2004, 28). Their locational patterns can be broadly explained in terms of altitudinal zoning: the Thái, Tày, and Nùng often live in the

intermontane basins and river valleys, the Dao occupies the lower slopes and the Hmong the higher slopes (Do 1994, 7; Donovan et al. 1997, 1:8; Kahin 1972, 583). This altitudinal distribution comes from the migration timeline of these ethnic groups and their habitat traditions (Michaud, Turner, and Roche 2002; Michaud, Barkataki-Ruscheweyh, and Swain 2016). However, exceptions are also abundant, and many villages are home to three or more ethnic groups. This ethnic diversity, leading to cultural and linguistic diversity, has posed challenges for development programs but also facilitates exchanges of ideas, including housing styles.

Living in the lowlands, the Kinh ethnicity enjoys better economics, education, and technology, and the plentiful narratives about the underdevelopment of ethnic minorities often overstate the "superiority" of lowlanders (Sikor et al. 2011, 55). The value of ethnic culture and identity is often dismissed. Besides the low social position, ethnic communities also have a small population size, sparse settlement, and lack of written scripts, all of which remain significant obstacles in Vietnamese ethnology research today (Culas and Michaud 1997; J. Michaud 2000). Works from the Vietnam Institute of Anthropology have helped to synthesize some basic knowledge (*see the 4 volumes of* X. T. Vuong 2015). Among other purposes, these works show the agency of ethnic communities in determining their livelihood trajectory, despite the constant exposure to the Kinh lifestyle. This paper hopes to further explore the architectural change of ethnic minorities, with an emphasis on their agency, perspective, and decision-making process.

2.2. The ethnic house and modern modifications

Hà Giang has two main types of traditional houses: stilt house (*nhà sàn,* made primarily from wood and bamboo) and cob house (*nhà trình tường*, made primarily from clay, sand, and straw). This study focuses on the stilt house, which was traditionally built by the Tày and Dao ethnic

groups on lower altitudes. This house form is shared among many ethnic groups in Southeast Asia—past and present (*see also the house of ancient Vietnamese* (Ma 2004, 43–44; Vu 1998, 13–14)*; the dailan house of the Dai people* (Knapp 2000; Oranratmanee 2020; Qiang 2016; Sun 2013) *and the Dong, Bulong, Miao, and Zhuang people*[1] (Sun 2013) *in Southern China; the house in Catigugan, Cebu, Philippines* (Hart 1959, 16)*; the house in Aceh* (Nas and Iwabuchi 2008, 43–45) *and the traditional pile-dwellings in Indonesia* (K. Sato 1991)*; and the Thai* (Sathapitanon and Mertens 2012, 23–41) *and Malaysian stilt-house* (Abel 2017)). These houses all have two common traits. First, they are lifted from the ground, to avoid flooding during the rainy season and wild animals from the surrounding forests, and to store agricultural products and cattle (Ma 2004; Sathapitanon and Mertens 2012). Second, they are made from local natural materials. Yet, each region and ethnic group have their specificities regarding the house's design, structure, and function.

Ma (2004) gives a detailed description of the most common design the Tày stilt house. Depending on the size of the land, the courtyard of Tày people will normally include the main house; a yard; a small storehouse; a cage for livestock; a garden; a fishpond; and a backyard forest (44). The construction process also reflects housing tradition, as many steps are collective: from collecting materials, cutting down the woods, to thatching the roof (95-96).

This ethnic stilt house has recently experienced strong influences from the lowland modern houses. These modern houses can be divided into two broad categories: the long-form and the wide-form (Figure 3). The long-form houses originally appeared "in […] commercial cities" for business purposes (Wang and Ja 2015, 240), with narrow width and substantial length,

[1] The Dai, Zhuang, and Dong are closely related to the Tày; while the Miao is closely related to the Dao.

limited by the storefront space (Logan 2000, 41). Nowadays, although vertical façade increases to 2-5 floors, narrow plots have become a standard urban land dividing practice, and this kind of "tube house" (*nhà ống*) developed into the most common structure in almost every Vietnamese town (Dang 1985; To 2008). On the other hand, the wide form is more common in the rural areas where land is relatively more abundant. These houses share similar courtyard composition to the ethnic stilt house in the uplands. However, they have "earth or brick walls, with wood partitions" separating rooms, while many stilt houses only use wood walls and no partitions (H. M. Nguyen 2013, 373–74). The wide-form lowland house also has a lower elevation due to the lower flooding risk. Although traditionally only having one floor, the modern wide-form house starts to change flat roof to a tilted roof, adding an extra mezzanine floor.

3.1. The façade of a tube-house row in Hải Phòng

3.2. The garden house (*nhà rường*) in Huế, a type of rural wide-form house

***Figure 3**. Examples of the long-form and wide-form houses (courtesy of the author).*

These two forms have significant impacts on the current forms of traditional ethnic stilt houses in Hà Giang. Section 6.2 describes the common modifications. Figure 3 visualizes these influences by showing the similarities between the houses across space.

3. Constructing the theoretical framework

This section gives a detailed and methodological construction of the theoretical framework (3.1) —illustrated in Figure 1—and lays out how the specific case of ethnic houses in Hà Giang will be analyzed (3.2).

3.1. The theoretical framework

Definitions of social structure, agency, and social processes

While goal and constraint are already defined in the Introduction, social structure and agency need more concrete definitions. Social structure is "the pattern or network […] of the relationships obtaining between actors in their capacity of playing roles relative to one another" (Nadel 2013, 12). We also need a specific approach to 'locate' social structures and agency. Here, I argue that the changes in these patterns—social structure changes—come from social processes. The theoretical strategy for analyzing the case study is to approximate the social structural changes in Hà Giang by sketching out major social processes, particularly the ones that influence housing changes (details in Section 3.2).

On the other hand, agency is "the temporally constructed engagement by actors of different structural environments […] which, through the interplay of habit, imagination, and judgment, both reproduces and transforms those structures" (Emirbayer and Mische 1998, 970). This definition asserts an interdependency between social structure and agency, which has been widely accepted by cultural sociologists (Dutta 2011; Hays 1994; Rubinstein 2001). This interdependency is certainly necessary within the context of housing form transformation. For example, thinking only about social structures might cause one to blame solely the external environment for internal changes or blame the internal residents for not adapting. Meanwhile,

only thinking about agency will assume that everyone chooses the most economically or psychologically convenient—the cheapest house or the one similar to the surrounding houses. Both fail to reflect the actual conditions of the changing housescape, where one might choose to build houses that are more expensive, inconvenient, or unique.

Given this definition of agency, a new social process then introduces new actors to the environment to "engage," opens new opportunities, and transforms the "habit" of people, their "imagination" of possibility, and their "judgment" of benefits. The human agency thus changes. Part of Section 4 reviews how this change in human agency modifies housing goals and constraints, leading to different housing decisions.

Links between structure-agency and goal-constraint

Another theoretical strategy of this study is using the goal-constraint framework to specify the channels where social structure or agency might shape the realization of the house. On social structure: Structures first influence housing goals by shaping the common surrounding archetypes. Growing up in an area with more modern houses or encountering more diverse house forms might give one a different ideology about the look and function of their house than a person who is only surrounded by ethnic houses. Secondly, structures influence the constraints by limiting or releasing the resources necessary for the construction of the "ideal house." These constraints might include the economic power to purchase materials, transportation, and labor for the house, the availability of natural and artificial materials, the suitable construction skillset, and the time to build the house. Thus, what one knows about the house—both its ideal shapes and functions, and its feasibility—is shaped by their observation within the existing social structure.

On agency: Not only a physical shelter, but a house also encompasses significant cultural expression, serves as an intimate and sometimes public space, and reflects certain beliefs of the dwellers (Rakoff 1977). Then, the goal of a house should also include its aesthetic, cultural, and identity roles, and reflect the owner's identity. Secondly, when facing a set of constraints, humans use their agency to weigh preferences. For example, when one wants to modernize their traditional house with a limited budget, they can choose to metalize the roof or concretize the wall. Each might come with its (dis)advantages, but people decide anyways. Furthermore, while balancing different constraints, one might use their agency and creativity to innovate a new archetype satisfying their unique needs, which alters their housing goal.

Impacts of housing change

Formal attributes of residential architecture reflect the dwellers' culture, or sometimes the lack of connection to it (Rapoport 1998). For the ethnic minorities in Southeast Asia, home is an indicator of tradition (Steinberg and Espejo-Saavedra 1996). Thus constructing a new house with a distinctive morphology from the traditional one might partially alter their individual, and collective, ethnic identity. Culture is simultaneously a system of symbols and associated meanings, as well as practices bringing these symbols into action (Sewell 2005, 45–46). This study asks how far changes must happen before the old meanings are broken, and culture altered.

Additionally, besides culture, can this change in housing type initiate other structural transformations? Cultural loss is not only culturally significant, but in Bourdieu's argument of cultural capitals, it is also a loss of power and expands social inequality (Bourdieu 1986). The position of ethnic minorities in Southeast Asia in general, and in Vietnam highlands in particular, is politically sensitive, socially disadvantageous, and economically vulnerable. Will modernizing

traditional houses further deteriorate the social positions of ethnic minorities, or facilitate positive changes, such as increased accessibility to basic amenities or social services?

While influences of housing change on social structures are widely investigated (Glaeser and Sacerdote 2000; Hanson and Hillier 1987; Rome 2001), what about the agency? Can the change in housing forms introduce more innovations and encourage other future homeowners nearby to expand their choices? What about housing goals and constraints? One change might encourage others, altering the goals of people nearby and the constraints on building both new and old housing forms. This study attempts to look at all of these impacts.

3.2. Contextualizing Hà Giang's social structure and agency within the theoretical framework

As previously discussed, this paper approximates changes in social structures through social processes, which differ based on the case. For Hà Giang, I argue that the most important and impactful social processes in the past 40 years are globalization (the change from local to a national and global market), modernization (the change from traditional to modern), urbanization (the change from rural to urban), and integration (the change of identity from being an ethnic minority to assimilating with the ethnic majority). These processes were happening almost simultaneously, and we can use them to explain the changes in social networks, power relations, economic activity, as well as the vast majority of other structural changes in the region.

Modern technology came to Hà Giang much later than big cities like Hanoi and Ho Chi Minh City. Although the Kinh has been consistently exerted their influence in mountainous areas since the pre-colonial period (Shiro 2015), their presence became particularly evident in the late 1980s after market reform lifted trading barriers (C. V. Nguyen, Tran, and Van Vu 2017; Wood 1989), which also started cross-border trade with China. This flow of lowland migrants exposed

many of the predominantly ethnic and rural locals of Hà Giang to the global economy, modern appliances, urban lifestyles, and the Kinh culture at the same time. New culture was also introduced, including new housing forms and ideologies. Thus, four social processes constrained Hà Giang ethnic architecture: globalization and modernization reconstruct the perception of a "good" house and a "well-off" village; urbanization connects the rural and urban; and integration bridges the ethnic minorities and the Kinh. Each of these processes remarkedly alters the social structures of Hà Giang and shapes the residents' perception of ethnic agency, and the specificities will be discussed in Section 6.3.

The impacts of these four processes on social structure are clear. On one hand, official statistics showed the "improvement of transportation and communications, the introduction of the new production technology, the dramatically increased access to schools and reduction in rates of illiteracy, and the marked improvement in public health" (Donovan et al. 1997, 1:14). Moreover, development directives were created to:

> "[Help] the highlands catch up with the plains, [...] the ethnic minority catch up with the Kinh" (Hardy 2003, 110)
>
> "Eradicate superstitions and backward customs, eliminate feudalism and promote democracy, suppress shifting cultivation […], introduce modern farming technology." (Donovan et al. 1997, 1:13; Sikor and Truong 2002)

On the other hand, these processes greatly shifted the power structure, especially through the integration of ethnic communities into the national economy to enforce national unification (Institute of Anthropology 1975). Land, resources, and public administration were transferred from native feudal lords to the Vietnamese central government, indicating a growing "loss of

[local] autonomy" (Donovan et al. 1997, 1:14) to the Kinh officials. Few ethnic minorities hold important government positions, and this power imbalance pairs with the existing prejudice of lowland inferiority to confine ethnic agency. Moreover, not only power structure, some integration policies directly alienate ethnic communities from their identity and culture. For example, having all educational instructions and books in Vietnamese increases the literacy rate and students' competitiveness in the job market, while also deteriorating ethnic languages.

Thus, while globalization, modernization, and urbanization have influenced the social structure and human agency in many corners of Vietnam since the late 20th century, for the ethnic minorities, integration is a particularly powerful force. Section 4 reviews the significance of each process on the goals and constraints of housing forms.

4. Literature review

4.1. The change in goals—ethnic housing ideology

This section first layouts examples of how the four processes—globalization, modernization, urbanization, and integration—exert changes in social structures and housing forms, and following by a discussion of changes in agency and architectural ideologies.

Globalization

Considering ethnic communities in Hà Giang, we should not limit our understanding of globalization as only exchange across the nation-state border, but as exchange across cultures and civilizations in general. Globalization "implies that countries are becoming more integrated into the world economy, with increasing information flows among them" (Li and Reuveny 2003, 29). In this sense, globalization brings housing forms and structures from other cultures to the

locality. One example is the emergence of transplanting landscape—new cityscapes that reflect and mimic an existing structure elsewhere, such as the nine satellite cities in the periphery of Shanghai that copy the architecture form of European countries (den Hartog 2010). Another example is the rise of central business districts, which serves as dense ecosystems and symbolizes international transactions, epistemic communities, and world social networks (Grant and Nijman 2002; Olds 1995). Thus, by introducing new social classes and financial structures (among other subjects), globalization can profoundly change the physical shape of cities.

Modernization

The concept of globalization interweaves with modernization. While globalization often leads to modernization at the newly added "node," globalization is also the "accumulation of the centuries-long […] spread of capitalist production relations, [or in other words, of] modernization" (Robinson 2001). Through "capitalist production," modernization is heavily dependent upon the rise of industrialization, a "transition from primitive, subsistence economies to technology-intensive, industrialized economies." (Tipps 1973, 204).

Many ethnic societies have shown a preference for advanced technology and modern materials over traditional techniques. Dwellers across Africa increasingly use imported materials in new building designs to pursue modern trends (Ikudayisi and Odeyale 2021). Hausa communities alter traditionally molded decorations on walls and thatched roofs for modern paints and corrugated iron sheets (Agboola and Zango 2014). In Saudi Arabia, the imported residential construction techniques and materials now represent prosperity, replacing the traditional mud-stone Saudi houses (Al-Qawasmi 2015). The changes in material usage are also recorded in most ethnic communities across Indonesia (Schefold 2008).

Urbanization

The development of road networks, fueled vehicles, and modern institutions links modernization to urbanization. Not only "a process of population concentration" (Tisdale 1942, 311) and "a mere constellation of institutions and administrative devices" (Park, Burgess, and Sampson 2019, 201), urbanization also signals the extent this concentration utilizes capital, labor, and technology to facilitate and produce infrastructure (Brenner 2013). In Hà Giang, while globalization and modernization introduced new materials, forms, and ideas to ethnic communities, urbanization increases the accessibility to modernized areas. The towns are closer, the roads are smoother, and travel time shortened. This allows the ethnic villagers—who might otherwise still have no exposure to the new materials and technology—to have the opportunity to expand their knowledge, challenge their ethnic identity, and change their housing ideologies.

Integration

The concept and theoretical framework of ethnic integration were developed within the narrative of nation-building. Here, the integration of one ethnic group into a larger society marks the eradication of its ethnic peculiarities (Deutsch 2010). This uniqueness includes cultural and social patterns, of which urban planning and architecture are integral parts. A prominent example is the Soviet housing program, developed under Marxist-Leninist ideology, which hoped to integrate all people—regardless of nationality and ethnicity—to unite as one "proletarian internationalism" (Rakowska-Harmstone 1977). To serve this ideology, the housing program aimed to house everyone under the same roof—quite literally. In the latter half of the 1950s, 75 million people were housed (Zhukov 1959, 6). Zhukov argued that these hundred thousand houses "differ widely in design and planning techniques" (34), yet the Soviet government clearly put all residents of distinct living cultures and traditions into concrete blocks with "simple and

clear form" (44), "austere and economical" spirit and "organic unity" (42). These houses are still commonly found in post-Soviet nations nowadays (Lozhkina et al. 2020), suggesting that the mass construction project destructed the traditional architecture in many regions.

Situating agency

Besides changes in social processes, changes in the agency also influence housing forms. To keep the relevance to the context of ethnic housing in Hà Giang, this section considers a limited definition of agency—as one's imagination of and association with their ethnic identity. Ethnic identity entails significant individual decisions and consciousness but is also subjected to the existing social structures and processes. On the one hand, many people choose to inherit the ethnic identity and housing ideology from their ancestors: Cooper (2014) argued that the house is sacred for most people, and "they so strongly resist a change in the basic form which they and their fathers and their fathers' fathers have lived in since the dawn of time" (172). On the other hand, breaking from such traditions of local and traditional architecture also represents individual identity, especially as the homeowner actively participates in the design process and expresses their creativity. "Participation [in architecture] leads to alternative aesthetics and spatialities" (Blundell-Jones, Petrescu, and Till 2005, xiv).

4.2. The change in constraints—time, money, manpower, and materials

The production of any specific physical thing depends on the existence of four components: time; money; manpower or skillset; and materials. Sun (2013, 68) wrote about the unified architectural style in one region:

> "A harmonious landscape is a result of several reasons. Localized [natural] building materials […] can be used for a long time without seeking replacements; mature local practices [are] passed

> down from master to apprentice; […] local dwellings tend to stay with other dwellings instead of being different. [But] fewer and fewer [such] settlements […] can be found [nowadays]."

This disappearance of a unified housing landscape, Su argued, came from the changing constraints, particularly the change in local materials; however, I assert that other constraints, such as time, money, and manpower also influence the housescape. Furthermore, the boundary of constraints extends or shrinks as a result of social processes, which reshape the social structure and human agency.

This section discusses how specific changes in the four social processes modify housing construction and architecture over time. To investigate human agency, I will consider the control of constraints rather than their amount. The abundance of one factor—time, money, manpower, or materials—can compensate for the lack of another, and different sets of materials and skillsets can substitute for others. Thus, human agency can be used to juggle different constraints and utilize the existing resources to realize most closely to the housing goals.

Time and Money

The constraints of time and money are discussed together because they are often correlated—to achieve the same results, higher investment in one can often reduce the requirements of the other. For example, building a house might be faster if the homeowner has money to hire more workers. However, there exist structures that their whole premises are to use as much or as little both time and money as possible. One extreme includes refugee camps, which needed to be built quickly, cheaply, and condensed, preferably with local, reclaimed, and lightweight materials (Jahre et al. 2018). On the other extreme, monuments often have a looser constraint on both time and money—the Sagrada Família in Barcelona, Spain has been under construction since 1882,

was about 70% completed in 2015, and has an annual budget cost of 25 million euros (Wilson 2015). These buildings are often allocated with extensive time and finance, often because they symbolize the power and control of some religious, political, or economic identities (Nelson and Olin 2003, 3), suggesting some underlying social structures.

Money and time can also work independently as constraints for housing construction. On money, migration profoundly impacts the economic development of migrants' origin hometown (Papademetriou and Martin 1991). Many migrants leave their homeland to get better economic conditions, and many send money back to invest in building a new house (Lothar Smith and Mazzucato 2009). On time, replacing cheaper non-local materials with more expensive local ones can reduce time but not increase the financial cost per se (Xia and Chan 2012), as transportation costs might make up for the difference.

Manpower

Some housing forms rely heavily on the skills of the builder. With modernization and industrialization, houses can be manufactured instead of crafted. Different parts of the house are standardized, prefabricated, and systematically made, which means that contractors only need to specialize in some components of the house, and invest more in the styles and qualities of those specific components. Thus, the construction industry has gained many skillsets through specialization but also lost many craft techniques. The industry of housebuilding in Japan before the 20th century, for example, was heavily dependent on craft-master in woodworking. However, rapid economic growth and urbanization, as well as the need for earthquake and fire protection forced the industry to switch to manufactured homes for the surge in post-war housing needs (Gann 1996, 444). The loss of timber-frame craftsmen is certainly not only in Japan but happens

worldwide as a trade-off for efficiency (Benson and Gruber 1995), which suggests a structural pressure of economic competition.

Materials

Many architectural changes appear because of natural materials depletion, as most traditional housings are made from wood, plant, and clays. For example, the bamboos in Ethiopia are under some serious threats, coming from land conversion to agriculture, fire exposure, and lack of proper care and planting (Mulatu and Kindu 2010). On the other hand, there are times when shortages in industrial materials also restrict architectural progress. After Italy joined World War II, the need for steel to support wartime weaponry dramatically increased, thus the construction sector was ordered to conserve steel (McLaren 2021, 157). Then, contracted projects in the early stages of construction must modify their structure to only use steel in the most essential parts, and any steel usage must be spread out over several months.

Earlier in this section, while discussing time, money, and manpower, sometimes changing materials appear as solutions, suggesting that human agency determines which constraint should be more prioritized. For example, when the price of large timber increases due to deforestation, one can choose to put more work into looking for woods deeper in the forest—and by doing so, they spend more by not working in agriculture or wage labor. Alternatively, they can choose to pay more to get the timber in the black market with more ease. They can also settle with the cheaper woods, knowing that the house will have shorter durability; or they can replace timber with concrete, which is more expensive. All options might require more money, time, or alternative materials, and it is the individual decision that leads to different results.

5. The case study of Hà Giang

This study applies the *structure-agency* and *goal-constraint* framework with an empirical illustration to analyze the drivers behind the transformation of housing morphology. More specifically, I use Hà Giang as a case study of the ethnic house. The study uses qualitative methods, including both primary data (semi-structured interviews and pictures provided by the respondents) and secondary data (literature review).

5.1. The interviews

I virtually interviewed all of my respondents in March 2022 through Facebook Messenger, using snowball sampling technique. The total of interviews is 15—I initially expected to recruit 20-25 but stopped at 15 when the answers of my respondents became repetitive. I recruited respondents who satisfied three conditions: (1) they identified as a Tày or Dao; (2) they grow up in a traditional stilt house in Hà Giang; and (3) in the past 5 years, their household built, bought, or significantly renovated a house in Hà Giang. Table 1 shows some demographic information.

Each interview lasted for 45-75 minutes, during which I asked the respondents their demographic information, relationship with their village, travel history, thoughts about the nearby urban areas, perception of modernity, description and function of their houses, and thoughts on their ethnic identity. List 1 has the guiding questions in the order I used. The interview process is quite consistent throughout, although some is longer than others if the respondents elaborated more. These interview questions were constructed based on the theoretical framework, exploring the respondents' thought on all four social processes, how they perform agency, before asking about housing goals and constraints. The respondents could skip any questions they did not feel comfortable answering, and any asked clarifying questions. All

interviews were conducted in Vietnamese. To give me a better background on the housing sector in Hà Giang, my respondents introduced me to several people in the construction sector. I had informal conversations with them and took notes of these conversations. For the actual interviews, after getting permission from my respondents, I recorded and secured them on a private Cloud. I also asked for permission to use their photos (Figure 5). To protect their identity, the write-up uses pseudonyms for all respondents' names. The names of villages are not mentioned, and their locations remain approximate and abstract. After finishing the interview, the respondents were compensated 120,000 VND for their time (roughly 5 USD, which equals to 6 hours of minimum wage in the area), but many refused to accept it. The study was exempted from the Institutional Review Board (No. IRB21-1876) due to minimal human risks.

I met some of my first respondents in the summer and winter of 2020 while travelling in Hà Giang. Many of them work in the tourism sector—homestay owners, tour guides, and souvenir sellers. For more than a month, I stayed with them, talked to them, and learned about their socioeconomic position, lifestyle, and thoughts on development. I developed personal relationships with many people in these communities as well as many questions about the rapidly changing housescape of Hà Giang. This period informed the current study.

However, because of the pandemic and my schooling in the United States, I was not able to come back to Hà Giang in 2022 to make in-person interviews. Thus, my existing contacts helped me recruit other informants in Hà Giang for virtual interviews. However, because many of my entry-points worked in hospitality, their network also had more people in this sector than the average population. They travel more and know more architectural styles and forms, thus their housing ideology might fluctuate more than the rest. On the other hand, because of Hà Giang's focus on eco-tourism and ethnic culture, tour guides and homestay owners might see the

need to preserve the traditional architecture and have a closer connection to their ethnic house. In either case, the view of this specific population is certainly biased and not representative of all Hà Giang residents. To address this limitation, I tried to recruit a more diverse group of occupations, including farmers, students, and government workers.

Another limitation of my interview process came from its virtual nature. First, selection bias appeared, because the population with access to computer, the internet, and social media often resides mainly in urban areas, does not work in agriculture, and is literate. People were more hesitant to talk virtually, especially as I was not an 'insider'—a Kinh ethnic from the lowlands. When I traveled in the area and went out with the locals, many households were much more welcome to greet me in their physical space and share their stories, and in-person communication could build trust more easily. They all required more patience and explanation. Additionally, to reduce acquiescence and social desirability biases of the respondents and my own confirmation bias, I carefully chose the wording and order of my questions and included some intentional redundancy.

However, virtual interviews also offered new opportunities, as my respondents are very geographically diverse. Each respondent had great knowledge about their village, neighborhood, and even district, hence they provided a large and generalizable amount of housing situations in Hà Giang. Being a relative 'outsider' of the community also helped me objectivize myself, especially while discussing and analyzing sensitive topics such as ethnic and cultural identity.

5.2. Coding and analyzing

After manually transcribing all the interviews, I randomly selected 4 transcripts to hand-code, while the remaining transcripts are coded in MAXQDA 2020 Plus (a Qualitative Data Analysis

software). The first stage of hand-code uses directed coding (Hsieh and Shannon 2005), which means looking for certain themes (such as goals, constraints, social structure, agency, and the house) from my theoretical framework. These large themes were then sub-coded into smaller categories (such as globalization, modernization, etc. for social structure). The second round uses summative coding to summarize the main ideas, during which I combined in-vivo coding (mark down the exact quotes and phrases in the transcript) and value coding (describe the speakers' values and beliefs). The third round focused on axial coding to look for linkages between different themes. Finally, I consolidated the codes and categories into a final narrative, which is presented in Part 6, Results. Interpretation bias was limited by using a pre-established framework (with directed coding) and letting the quotations speak for themselves (through in-vivo coding).

6. Results

6.1. Demographic information

Table 1 gives a summary of the demography of my 15 respondents. The majority of them are in their 30s, the age when one is expected to be financially stable, married, and establish independent household. After married, if they have not already migrated out of their born village, many moved out of their parents' house and constructed a new house on an inherited land parcel. Because I only interviewed respondents who grew up in a stilt house, everyone was originally from rural areas, and all migrated respondents now live in more urbanized location, including Hà Giang City and three current university students studying outside the province. Only five respondents are working in agriculture, significantly lower than the provincial agriculture workforce—76.05% (Ha Giang Province Population and Housing Census Steering Committee 2020). This also relates to the sample's high level of educational attainment—five people

currently in or graduated from 4-year University, significantly higher than the provincial rate of 5.63%. The large tourism workforce was previously explained in Section 5.1, all of whom have another more ‘regular’ job because the COVID-19 pandemic had halted most tourist activities since 2020. Annual household income is not included, although the respondents provided this information due to the difficulty in converting agriculture products to normal wages. However, overall, all respondents are either in the middle or lower-middle class of Hà Giang—there are no households below the poverty line, but some are more comfortable than others.

		Count (15)	**% of Population**
Gender	*Male*	7	46.7
	Female	8	53.3
Age group	*18-29*	4	26.7
	30-39	8	53.3
	40-49	2	13.3
	50+	1	6.7
Ethnicity	*Tay*	10	66.7
	Dao	5	33.3
Migration	*Migrated from their born village*	6	40.0
	Still live in their born village	9	60.0
Urban	*Currently living in an urban area (Hà Giang city or towns)*	5	33.3
	Currently living in a rural area	10	66.7
Education	*Lower than high-school*	4	26.7
	High school (both graduated and not yet)	3	20.0
	Some college	3	20.0
	4-year university student	2	13.3
	4-year university graduate	3	20.0
Occupation	*Agriculture*	5	33.3
	Informal (Small-business owners, restaurant waiters, construction workers, migration workers, etc.)	4	26.7
	Government-affiliated (teachers, doctors, officials, etc.)	4	26.7
	Tourism (tour guides, homestay owners)	5[2]	33.3
	Student	2	13.3
Housing condition	*Newly built*	14[3]	93.3
	Newly bought	1	6.7

[2] Everyone who works in tourism has a more regular job in agriculture or the informal sector.
[3] One respondent built 2 new houses in the past 5 years, one traditional stilt house with major change, and one modern ground house.

	Recently had a sizable fix	1	6.7
Housing architecture	*Traditional stilt house*	1	6.7
	Stilt house, with minor changes (ground floor and/or roof)	7	46.7
	Stilt house, with major changes (pillar) – Concrete stilt house	3	30.0
	Modern Thai-roof house	2	13.3
	Modern tube-house	3	30.0
Housing design	*Involved with the decision process*	8	53.3
	Did not involve in the decision process	7	46.7

Table 1. *Summary of interview respondents' demography and housing information*

6.2. Categorizing the new houses and their spatial distribution

Thirteen respondents recently built their house, one bought their house in 2020, and another renovated her parent-in-law's old house—these two are modern and locate in Hà Giang City. Households who just recently redid their thatched roof were not considered to "have a sizeable fix"—replacing the thatched roof is a common practice after 5-7 years, as they will develop leakages due to animal bites and weather damages. Some respondents constructed their new house after demolishing the old ones, keeping parts with good quality, especially the pillars due to the recent scarcity of "good wood."

The modern houses are divided into two categories in this study: (1) the tube house corresponding more closely to the lowland long-form house; and (2) the Thai-roof house with high-gable roof (Sathapitanon and Mertens 2012, 42), which can be either a functional or purely decorative loft. The stilt houses are divided into three categories by the level of 'modernization': (1) the traditional, with wood pillars, palm-thatched roof, wood and bamboo walls; (2) ones with minor modernized changes, including metal or tile roof, or concrete or brick wall; and (3) the concrete stilt house with concrete pillars. My correspondences in the construction industry informed me that the third kind only appeared in Hà Giang in the past three years, firstly in the

southern districts, close to the more developed mountainous provinces. The idea was "imported" from elsewhere and remains relatively unknown to people who live more to the north. Giàng, who lives in the northernmost location among my respondents in such a house, told me:

> "It is my first time seeing this kind of architecture. My dad came up with it himself. Many people, such as the contractor […] or relatives in the village, asked [my dad] why, [and told him] that it is not suitable. My dad said that […] people haven't looked at the architectural sketch [nor does my dad have one], but they would understand once the house is done."

Except for the concrete stilt house, other forms are commonly known to all respondents. Figure 4 shows their approximated location; Figure 5 shows a common floor plan; Figure 6 includes some photos of the respondents' houses and their villages; and Figure 7 shows satellite imageries of three sample sites—a town, a rural village near Hà Giang City, and a remote village.

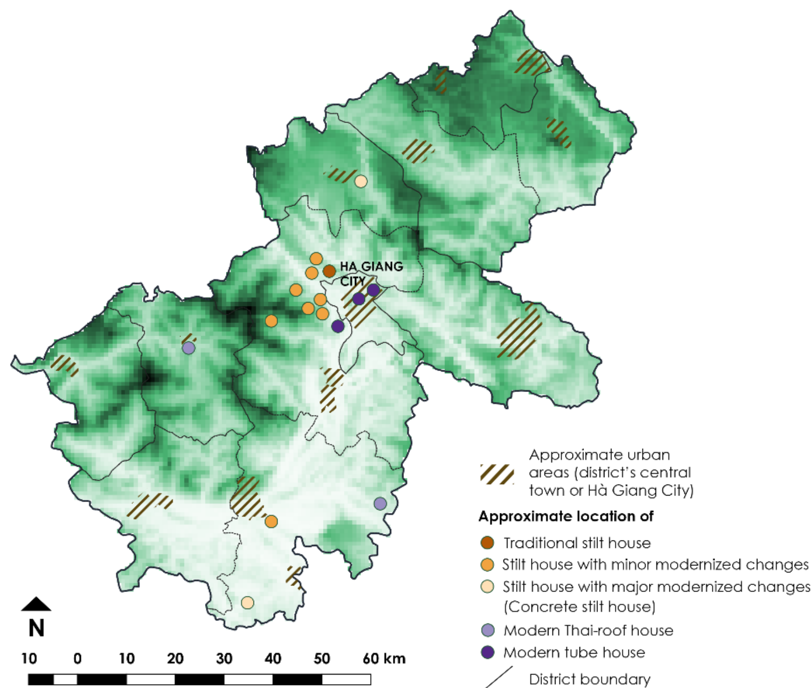


***Figure 4**. Hà Giang's topological map and approximated location of the respondents' houses.*

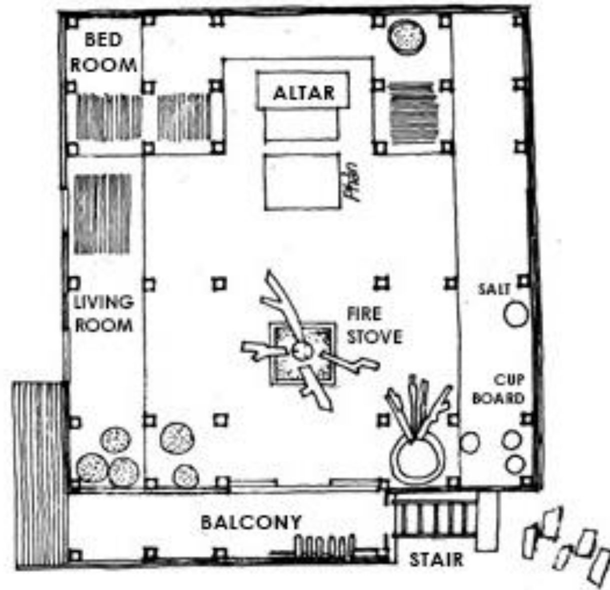


Figure 5. *Floor plan of a Tày stilt house in Thái Nguyên with 3 compartments and 2 lean-tos (Vu 1998, 163)*

5.1. Frame of a wooden stilt house

5.2. Frame of a concrete stilt house

5.3. Traditional stilt house

5.4. Stilt house with tile roof

5.5. Traditional stilt-house with corrugated iron roof and partially concrete wall

5.6. Finished concrete stilt house

5.7. Modern tube-house

5.8. Modern Thai-roof house with decorative roof

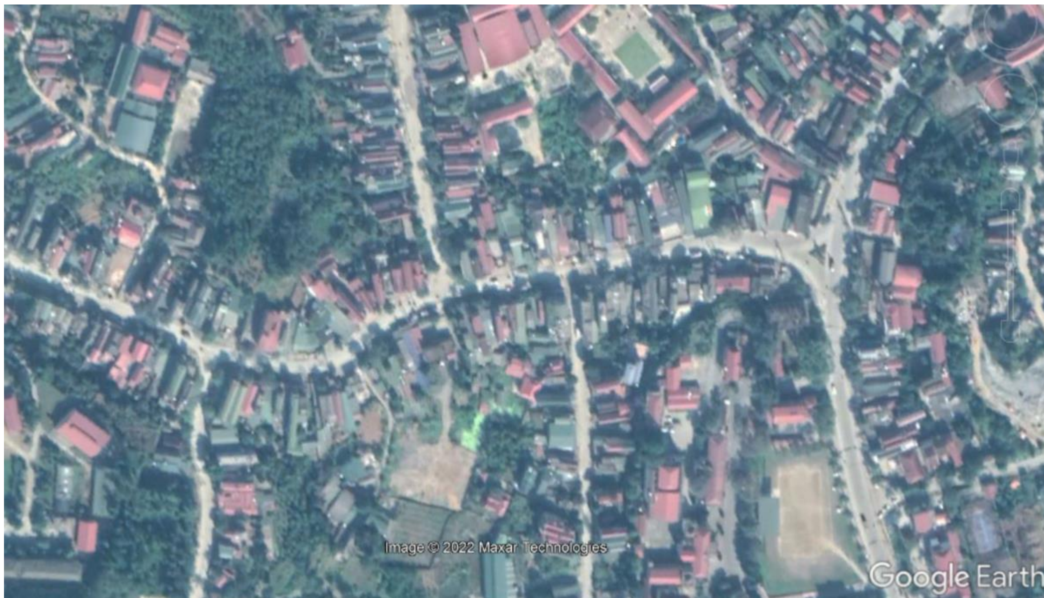
5.9. A village where many stilt houses have corrugated iron roof

5.10. A village where all stilt houses have corrugated iron roofs, and some concrete houses

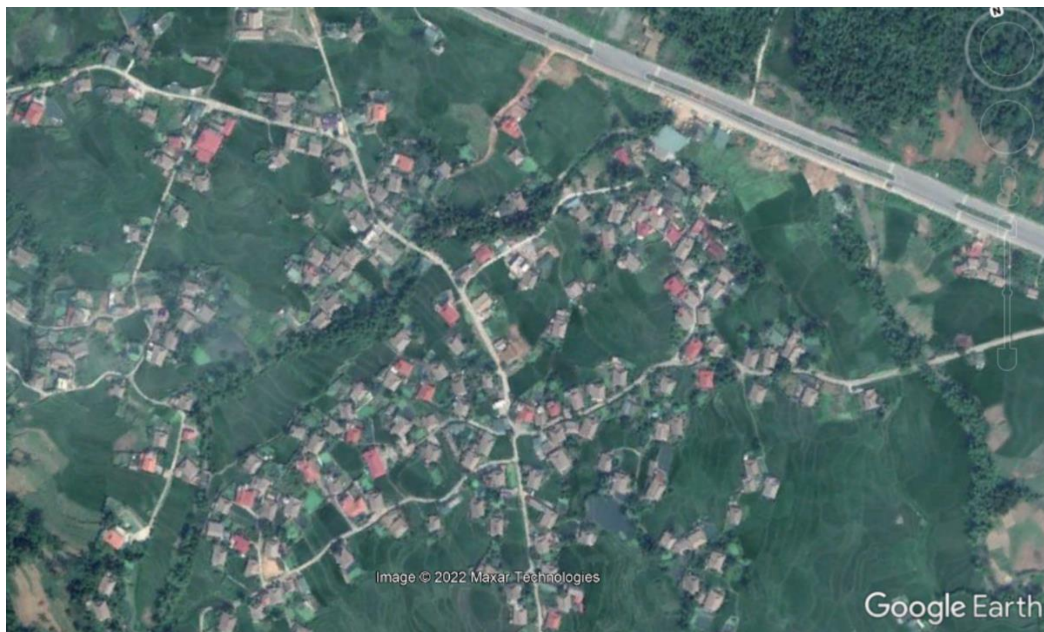
5.11. (Point of comparison) A corner of Hanoi (taken by the author)

5.12. Decoration inside a stilt house converted into a homestay, on the top left (red) is the family altar

Figure 6. *Pictures of the respondents' house and notes on each type (photos provided by the respondents, unless otherwise stated)*



6.1. The central town of one district



6.2. A village close to Ha Giang City and a major road

6.3. A remote village

Figure 7*. Satellite images of three sample sites in Ha Giang, taken from Google Earth*

6.3. Impacts of social structures housing ideology and constraints

This section presents a narrative on how the four social processes (globalization, modernization, urbanization, and integration) influences housing goals and four kinds of constraints (time, money, materials, and manpower). Each social process and constraint have their own sub-section, but not housing goal as it encompasses much of the narrative. The flow of this narrative creates order of the sub-sections—I hope to tell a coherent story than following a rigid structure.

Urbanization

Among the four social processes, urbanization appears to have the most obvious impact on the respondents' housing decisions. All respondents, and certainly the vast majority of Hà Giang residents, have at least traveled to the nearest town, and many frequently visited Hà Giang City. Hà Giang City and the district central towns emerged as trading hubs with the flow of lowland traders (Endres 2019), who brought in both private and public investment. Respondents were

aware of how their home village was different, describing the town and the city as "many houses," "more vehicles," "busier," "noisier," but also "cleaner," "nicer roads," "more colorful lights at nights," and simply "more beautiful." Some spelled out the differences in housescape:

> "[If people in the town are going to build new houses], they should build tube houses like the ones in the city. It does not take a lot of space, [width-wise…]. But most rural houses already have a large amount of land, so we often build wide-form houses." (Giàng, female, 21 years old)

Many suggested that the closer to town, the quicker traditional stilt houses disappear:

> "Our village has 400 households, but only about 30 still keep their traditional stilt house. The rest are […] ground houses. […] My village is 3-4 km away from the town, quite close. […] If we go deeper [to the villages] 30-40 km [away], I think all of them still have stilt houses." (Quế, female, 35 years old)

Figure 7 shows a similar observation. The district central town has rows of narrow red-roof houses along the streets—the tube houses. The village close to Hà Giang City is less dense; the houses have more even sides; the size among the houses is quite similar—they are stilt houses, with brown roofs are palm-thatched, while the red ones are made from corrugated iron. The remote village still has all thatched-roof houses.

But exceptions exist. Some villages close to Hà Giang City still keep most of their traditional stilt houses. Nghĩa told me that only 3 out of 124 households in his village do not have palm roofs. 10-minute drive from Hà Giang city, his Tày village was one of the first in Hà Giang to become eco-village. 30-minute away in the same commune, higher in the mountain, are three Dao villages. One has around 80% houses with tile roofs, the other two around 50%. These three were set to become eco-tourism villages three or four years ago. On the other hand, some

remote villages have corrugated-iron roof (such as the one in Figure 6.10) for a long time. The lack of easy access to palm trees or cogon grass makes buying several pieces of corrugated iron much more convenient than collecting thousand palm leaves from a distance.

Materials

The limitation of materials is not only a natural condition but also driven by social processes. Many respondents acknowledged the increasing scarcity of good woods to make house frame:

> "In my parents' generation, there were still many trees. Now there are very few. Forest land is not so abundant anymore, and people also exploited [the forest] a lot." (Đại, male, 26 years old.)

> "The Government [started to] strictly forbid [cutting wooden trees] quite recently […]. But people can still sneak their way out." (Công, male, 34 years old.)

"Sneak their way out" was the closest reference I got from my respondents about illegal logging. Certainly, in Hà Giang, as well as the rest of Vietnam forests, deforestation does not only come from ethnic minorities practicing swidden agriculture or constructing stilt-house. The majority of rare woods entered the black market, reached the modern houses of wealthy urban households, and merged into a global network of timber trafficking.[4] Thus, globalization, modernization, and urbanization all play a fundamental role in creating a scarcity of timber, which subsequently changes the ethnic housing structure in Hà Giang.

[4] This study does not investigate deforestation in Hà Giang in detail but Cao (2017) gave an extensive account.

Integration

Integration appears more subtly. Many respondents mentioned how the forest was redistributed to villages and households, allowing them not only to control the land but also to grow their own trees—part of which are used to build their house:

> "They grow magnolia, chinaberry, and pine tree here. Some sell to carpenters [...], some use as firewood, some use for their own household." (Giàng)

> "My house's floor [and] wall are both from magnolia wood. We grow them in the forest." (Lịch, male, 33 years old)

In the past three decades, the Government formalized forest management, encouraged uniform forest planting, introduced suitable species, and controlled industrial materials production. One needs a license to mine rocks and minerals for concrete mix, or shovel sand from the riverbank.

However, besides controlling over land and materials, no other evidence suggests an active effort from the Government to integrate ethnic architecture into the national housescape.[5] Hoàng, a government official working at Hà Giang Department of Industry and Trade, who had many business trips to China, asserted:

> "In architecture and planning, overall, China has stricter and more synchronous management than Vietnam. […] Because land belongs to the Chinese government, houses are mostly of one kind."

Globalization

Except Hoàng, no other respondents mentioned China in our housing conversation, despite Hà Giang being a border province, and some respondents living nearby a border gate. Additionally,

[5] A house form receiving a lot more integration effort from the government is the temporary tents (*lán tạm*) of the nomadic population (*du canh du cư*).

the Tày and Dao stilt house strongly inherited the architecture of the Dai and Zhuang people in Southern China. However, for all of these Hà Giang natives, their ancestors' migration history is a very distant past—one respondent was born in a 1921 stilt house built by his great-grandfather. Globalization and cross-border migration happened too long ago to influence their living memory of the house. In fact, the most significant influence of China to the respondents was from the second Sino-Vietnamese war in 1980, which burned down several houses.

Globalization has another effect. Hà Giang does not have any large-scale factories, thus many youths attempt to find jobs in more industrialized urban centers in the lowland (Punch and Sugden 2013), such as Bắc Ninh, Hải Phòng, Hải Dương in the Northern Delta, and even Bình Dương and Long An in the South. These centers often concentrate manufacturing sites of global enterprises, and part of the cheap labor are the youths from remote provinces like Hà Giang.

> "A trend now is that healthy people all want to go out, make money send home to build houses."
> (Oánh, female, 23 years old)

Money and time

To build a house in Oánh's village, one does not have to work in the industrial park for a long time because most of the natural materials are free. Yet they take time to collect. To build traditional stilt house, collecting enough timber for the frame takes roughly ten years, and the palm-leave roof takes three months. Erecting the structure needs 4-5 people for about a month and thatching roof costs the whole village one day. The house might then be temporarily covered with some makeshift materials, and getting enough wood and bamboo for the walls takes up to another five years. The whole process costs as little as 40 million VND to pay for labor and food.

A tin roof adds another 55-60 million VND, tile roof might be a little more expensive. Buying a whole timber frame costs 60-150 million, depending on the quality (many are taken from demolished stilt houses) and shipping cost. Replacing the timber frame with concrete costs around 450-800 million VND, depending on the size. An one-floor Thai-roof house fluctuates between 1-1.2 billion VND, and a 3-floor tube house costs between 2-3 billion VND (without land cost). Concrete houses can also be cheap—a 'charity house' (*nhà tình nghĩa*) often costs around 50-75 million VND, which are often quite small and have the most basic structure. For comparison, the average annual household income in Hà Giang—including wage labor and agricultural product—is 22 million VND (General Statistics Office 2020, 845). Most of my informants report higher income, ranging from 40-150 million VND.

The information on money and time are compiled from what my informants told me about the cost of their own home and their estimation of how much it cost others. Although the number varies, the house was a huge investment for everyone. They spent several decades of savings on their home, had to loan from relatives, friends, and banks, and took years to pay back. The higher their income, the more expensive house they want to construct.

This strong attention to housing investment started after land privatization and commodification in the 1990s. The narrow houses in Hà Giang urban centers were not only brought by the lowland traders, but also by government planning, who wanted to commercialize and vitalize the urban core. Market reform and the strengthened political system also diversified employment. More jobs were open, both in the informal sector and in the government payroll. The pay is more lucrative than agriculture work, and similar to the industrial jobs outside of Hà Giang, people want to get these urban jobs both to have higher income and more cash up-front, which reduces the amount they need to loan. However, these urban jobs are also more 'regular'

on a 9-to-5 schedule. Therefore, they both expand the ability to pay while decreasing the time one can spend on building their house:

> "Both my wife and I did not have time [to look after the construction workers], we had to hire another person to do it." (Hoàng, male, 44 years old, a government official. His wife is a doctor.)

Modernization

The changing employment composition is partially a result of modernization, which causes a substantial decrease in agriculture work. The ground of the traditional stilt house used to store agricultural products and cattle, thus mechanizing agriculture diminishes this function:

> "We still have buffaloes and cows in our village, but they are raised on farms for economic purposes. […] On the field, people use agrimotor to plow now." (Lịch)

> "We now covered our ground floor with bricks, and many of our daily activities happening there […such as] our living room. We cook in the kitchen, eat on the ground floor, and only sometimes sleep upstairs. My mother sleeps downstairs too, and she has her own corner. Our cattle are raised far away." (Nhịn, female, 60 years old.)

Not only the ground floor of the stilt house, but its roof frame and kitchen also dropped their old roles. Food no longer hung and stored over the frame, and the modern gas stove is much quicker and easier to use than the indoors fire pit. Changes in function often followed by changes in form. Kitchen becomes a separate structure, and the ceiling (especially of metal roof) can now be completely covered.

Moreover, modernization also brought “modern materials” (*nguyên vật liệu hiện đại*) or “modern appliances” (*đồ dùng hiện đại*) to the villages, bringing new ideas of how a house should look, what it should have, and how people should build it:

> “We browsed the internet, Google, [to] get more ideas on what the house should look like, and also showed pictures to my parents to see what they like.” (Thúy, female, 32 years old.)

> “My house is almost completed now, but I want to buy more cool things, like a good couch set or a TV.” (Đức, male, 36 years old.)

> “It’s insane, we only got internet since 2018, 2019 or something […]. But now, my mom and the aunties use Facebook more than I do! […] My dad mostly called the construction head [while building our house], but previously people [always] had to meet each other face-to-face.” (Oánh)

Some also talked the convenience of the “modern lifestyle” (*lối sống hiện đại*). This concept links back to urbanization, as many respondents suggested that they found these ‘convenient’ commodities only available in Hà Giang city or even bigger urban areas like Hanoi.

> “Our roof is made using corrugated iron and tiles instead of palm leaves because they are more convenient too. I think it is the main reason. We don’t have to collect many materials ourselves.” (Sảnh, male, 40 years old.)

> “I am a modern person, I have a modern lifestyle. I like stilt house, but I would live in a modern house. I want everything to be convenient, especially as the house needs to give you privacy. […] My house has a bathroom on every floor, so you don’t have to wait for the rest of your family in the morning.” (Hồng, female, 35 years old.)

> “With a modern house, you can install an air conditioner. Many tourists want that.” (Nghĩa)

Manpower

None of my respondents reports difficulty in finding constructors for both traditional stilt houses and modern ground houses, because none of the house forms requires a high level of technicality. Traditional stilt housebuilders are often available in one's own village. The job is not too difficult—only needs keen eyes and quick calculation. Every man growing up in a stilt house already had the basic knowledge—the sufficient number of compartments, lean-tos, and pillars for the household size, the amount of materials, and the method of connecting different elements. This knowledge also comes from the collective construction process of the stilt house. On the other hand, the construction heads of modern house are often the Kinh ethnic, who migrated to Hà Giang to tap into this previously undiscovered need. Although not many minor ethnic people can rise to be the contractors, the construction skills are straightforward. Given Hà Giang's large labor pool, shortage in manpower is unlikely in the near future.

Table 2 below summarizes the impact of different social processes on the goal and constraint of housing decisions in Hà Giang. Overall, urbanization and modernization appear to have the most significant impacts. Urbanization facilitates intraprovincial and interprovincial travels, exposes people to more diverse and modern ideas of housing and lifestyle, brings more means to make money, but also depletes natural resources. Modernization changes the role of housing through restructuring the labor force, creates new materials, brings new ideas through the internet, and emphasizes a convenient lifestyle. Globalization and integration are weaker forces: the former increases migration to more industrialized areas, which influences financial means, and the latter mostly affects the restriction on land and materials.

		Goal	**Constraint**
	Globalization	Weak impact	Some impact (on money)

Social processes that approximate the change in social structures	**Modernization**	Strong impact	Strong impact (on materials)
	Urbanization	Strong impact	Strong impact (on money and materials)
	Integration	Weak impact	Some impact (on materials)

***Table 2**. Influence of social processes on housing goal and constraint in Hà Giang.*

6.4. Locating agency

Within the goals

Although urbanization and modernization have profound impacts on one's housing decision, many respondents expressed the importance of having their own ideas and purposes while constructing the house. Giàng's father is particularly representative, because as far as she knew, her father thought of building a concrete stilt house all by himself and persisted with the idea despite skepticism from his family, his village, and even the housebuilders. After the house was built, many people in the commune now came to visit the house, asked her father about the construction process, and used it as a reference to build their own home.

Surveying other houses in the area and using them as inspiration is indeed very common, so as modifying what they see to fit their preferences. All homeowner started building house with a concrete idea of their wants. They use their agency in deciding the details, such as the number of floors and rooms or compartments and lean-tos, the height, the position and design of kitchen and bathroom. Although the form of traditional stilt house is quite consistent and gives less room for creativity, many modifications can still be made.

Choosing the level of modernity requires the homeowner to negotiate between different priorities. A notable one is beauty, as many emphasized this as a highly desired quality. However, one person can perceive both modern and traditional houses to be beautiful in different

ways. Nghĩa enjoyed the aesthetic of modern-looking houses and streets, yet he emphasized that the palm roof makes the house a lot more "authentically" beautiful. Meanwhile, Én—another respondent—evaluated the beauty of modern and traditional house in two separate instances:

> "The [modern] houses are taller, nicer, different architecture. They used to be more normal. The streets are also more organized, looks a lot nicer too."
>
> "The stilt house is very, very beautiful. And it fits the mountains where I live."

While reconciling different opinions on aesthetic might be difficult and cause conflicting housing goals, other considerations have clearer (dis)advantages. Many respondents mentioned weather. Being a Northern mountainous province, Hà Giang's winter is significantly colder than the Northern lowlands, receiving stronger Northeast monsoon wind.

> "It is very humid up here, with lots of fogs. Now, all [of the Dao villages up here] covered the wall of their ground floor with bricks, so that the wind can't come in and we keep the heat inside." (Lịch.)
>
> "Of course, the palm roof is cooler! Ethnic people like us still prefer the stilt house because it's too hot being in concrete or under metal. […] We choose the direction of our house too so that it's not too cold in the winter and too hot in the summer." (Đại, who has the only 'totally' traditional house among my respondents.)
>
> "Well, both have their good things. The stilt house is cooler, but you can install air conditioners with your ground house. In the winter, [inside the stilt house] is often very cold, because sometimes there are holes or gaps on the wall, or the craftmanship was bad." (Hoàng.)

Another factor of climate is rainfall. Although rainstorms in Hà Giang are often not as torrential as in the coastal areas, landslide risk is very high.

> "Breaking down my old stilt house was a very difficult decision, but I have come to it. Only my old parents live there, and the house was too old, too dangerous…" (Thúy, female, 32 years old.)

Thus, safety was an important consideration. The same fear that Thúy had of the crumbing old house also made many people build a firmer one. Many people in the Dao villages also switched from palm roofs to corrugated iron or tin because of fire hazards, and respondents recalled a fire back in the 1990s. Fire hazard also caused residents to move their kitchen to outside. Some also mentioned that modern house is more secure with locked doors and firmer walls. Although people used to build stilt house to keep wild animals out, nowadays, the danger is no longer substantial because of deforestation and wildlife extinction.

Some considered the issue of having animals, insects, and bugs—as well as cooking indoors and having a lingering smell—a hygiene concern. Many agreed that the stilt house is "dustier" because of the gaps on the wall and the constantly disintegrating palm roofs—"You just wipe it tonight and tomorrow you wake up, the floor is already full of dust!" Nonetheless, the tube house can also be easily exposed to dirt:

> "I wanted a tube house like the ones in town, but my dad said that […] the road is so dusty, the wind will blow dust from front to back [of the house] in no time." (Giàng)

The idea of hygiene and cleanliness closely connects to another topic previously discussed—convenience. Collecting natural materials was too cumbersome, replacing the palm-thatched roof once every five years was too much work, and modern amenities made life easier. A sentiment adjacent to convenience is privacy. Younger people, especially married couples, often found the openness of the stilt house extruding their private space:

> "Despite having room partitions, the space above the room is still connected with the rest of the house. When I talked to my husband, the whole house can hear it." (Quế, female, 35 years old.)

However, this lack of room partition is an advantage of the stilt house for some people, who wanted their house to be "spacious" (*rộng rãi*) or "airy" (*thoáng*). Nowadays, the common size of traditional stilt houses in Hà Giang is much smaller—24 pillars instead of 36 or 48—because the ground floor is also a living space now. Fewer pillars also allows the house to be taller, more "airy," and have more natural light. Locating in more rural areas without crowded tall houses, big streets, motor vehicles and air pollution, these houses have a wider view and embrace a slower, more peaceful living pace—all of which contribute to the sense of spaciousness.

Thus, an ideal house needs to satisfy many personal needs—be warm in the winter, cool in the summer, clean, safe, stable, convenient, private, spacious, airy, peaceful, and beautiful. Much of the homeowners' agency is expressed through judging if a house form meets certain standards, and through deciding which standards to sacrifice when necessary.

Within the constraints

All respondents employs their agency while working with constraints. For the two respondents who did not build their house from scratch, the constraints were more apparent as they are confined within an existing physical structure. Hoàng wished that the house had a garage because now he had to park outside. Quế said the tiny plot of land restrained her from having a garden. Moreover, constraints also come from competing preferences between household members. My oldest respondent, Mrs. Nhịn, did not like the metal roof of her house that much. It was her son who insisted on making the house this way:

> "Our house was the first house in the whole village to have a tile roof. It was red and strange. Three years and I still haven't got used to it. Now, the roof makes the house too hot in the summer, [so] I think my son is regretting it. He just doesn't say [it out]."

The elders do not always prefer traditional stilt houses. The design of Đức's house were mainly decided by his father, who used to be a housebuilder and preferred a more modern style:

> "My dad wanted to have this colorful red wall [on the ground floor]. He also wanted to have a corrugated iron roof. I didn't, I liked things to be more natural and simpler. In the future, when I have more money, I will replace it with palm roof again."

The previous section already demonstrates how the homeowner juggled between different constraints to build the closest version of their ideal house: using microfinancing in response to financial constraints, or substituting different materials to meet their time and money resources. Although manpower does not constrain one's ability to achieve their housing ideologies, one certainly exercises agency in deciding the head constructor, the number of workers, and so on.

Structure and agency

Social processes have a clear impact on individual agency, by first extending their social realities and giving them more options to decide, then changing the constraints to encourage (or limit) individuals to pursue their decision. However, instances of human agency transforming any kind of social structure are much rarer. My respondents rarely attempt to revert, change, or even just slow down the social processes—in everyone's story, their villages and villagers are usually locked in a passive position. Roads are built, they started going to the cities; modern things started to appear nearby, they started buying them; the Kinh ethnic arrived, they started to interact. The ethnic minorities always seem to respond to rather than initiate social processes.

For example, although many want to keep their language, costume, traditional medicine, or superstitious practices, initiatives rarely happen outside of their household. Many told me how they hoped "the Government" can have better preservation policies, but few actually started any larger collective movement.

> "Many households here [in the Dao villages] have their own tea kiln. Many hundred-year-old wild tea trees are nearby us. [We have some conservation efforts,] my friend in Vị Xuyên opened a tea gallery last year. But if only the Government pays more attention [to develop the tea culture], we might be compatible with the Ten Most Famous Chinese tea [laugh]." (Đức)

> "The Hmong people are better than us [at preserving their culture]. They have collectives to make hemp fabric, for mint honey. Their clay houses are also much better preserved." (Công)

Thus, many believed that with this current rate of development, if the Government does not act, the traditional stilt house will eventually disappear amidst the people's wistfulness. However, active effort of preserving stilt house from ethnic communities exists, particularly through the establishment of eco-villages. Nghĩa, the former Party secretary cum head of such a village, talked about getting funding for development projects:

> "Ah, you would have to drink a lot [of alcohol] with them. It's how things work here. They also wanted [to have eco-villages], you know, but if you want to speed things, you must invite them over. […] You remember the streetlights? […] They costs three days of constantly drunk!"

Even when Nghĩa tried to execute his agency, social structure confined the method to achieving his goals. He needs to act within particular power relations, connection networks, and cultural practices. And if Nghĩa was not the Party secretary cum head of a village nearby Hà Giang City, achieving his goal might take a lot more than three drinking days.

On the other hand, after getting the eco-village status, keeping it demonstrates a particular instance of collective agency. The tourism households contributed part of their income to the village funds for education and infrastructure. The village only has three not-totally-traditional stilt houses, and only a few households participate in tourism, which means the villagers share a collective will of preserving their palm roof and wooden frame. Other villagers such as Đại told me how village meetings were held to discuss housing architecture and construction (among other issues). And certainly, sometimes individual agency trumped the collective will, because three houses in this village still have metal roof.

6.5. Impacts of the new house

The emergence of eco-villages is a clear impact of stilt-house preservation efforts, suggesting a boost of human agency. Other impacts of the changing house on ethnic identity, culture, and other social structure is less concrete and more speculative due to the small scope of this study.

Community

New social structures—such as modernization—brought Western ideology on kinship, reshaped the structure of the house, morphology of villages, and geographical relationships of the villages. Decreasing family size breaks down household units and family bonds. Room partition creates physical separation within individual houses (Nguluma 2018), and concrete road segregates village communal space (Agboola and Zango 2014). People living in modern housing agree:

> "Now once everyone comes home, each gets to their own room. People don't spend time with family anymore." (Hoàng, male, 44 years old.)

> "Relationships between people are much more complicated [nowadays…], more distance, […and less] empathy. […] These things also happen in my village, but much more serious in the city. Many people just moved here, then moved away. You know no one closely." (Thúy)

However, many respondents living in their born villages do not see that their village's collective tie has disappeared. Many villages comprise of several large lineages, thus the majority of the villagers are distant cousins. They frequently visited each other to chat, drink, and eat. For important event such as marriage, funeral, or housing construction, each household sent a person to help, representing a village-wide collective effort. Many community groups, such as the traditional performance group or the women's collective, are active.

Ethnic culture and identity

The lifestyle of ethnic communities has been modernized, as people started to travel more, diversified their employment, and became more attached to the modern sense of 'convenience.' However, this study cannot give any evidence of a direct causal relationship between the changing housescape and changing lifestyle. In other words, they might be correlated, but one does not necessarily lead to another—both can result from the same social processes. Traditional costumes are used less regularly; ethnic languages are disappearing; traditional medicines, folk songs, and offering verses are only known by older generations; very few shamans are left. These changes are happening concurrently with the declining stilt house.

For example, many traditions are now shortened: weddings now take only three days instead of a week; funerals takes two days instead of a month; the Dao people's coming-of-age ceremony (*lễ cấp sắc*) also shortened from four to two days. Similarly, celebrations to enter-the-new-house (*vào nhà mới*) in some villages reduced from three to one day. These 'lenthy'

traditions are referred to as 'backward' by my respondents, and some of them also noted that they still exist in more remote areas where "things are not yet developed." On the other hand, many traditions are still intact. Vietnamese Lunar New Year (Tết) or Duanwu (*Tết Đoan Ngọ*) are still celebrated by almost every family, and shamans are always consulted to get the best day for erecting or entering the house. These traditions still happen in all housing form, and every house still has an important position for the family altar (shown in Figure 6.12).

Not only preserving ethnic celebrations, but the respondents also insist on their Tày or Dao ethnic identity at large. Many believed that they have done their best to keep up with the contemporary life and preserve their ethnic identity, "we are developing but not forgetting our tradition." This sentiment is shared among the respondents regardless of their house form. Pushing the tourism sector suggests that development and preservation do not necessarily have to be tense, but they can coexist. Hà Giang is a poor province, and ethnic culture will be a crucial attraction for domestic and foreign tourists. However, locating what is 'backward' and what should be preserved—both within the housing traditions and outside of it—is not always a consensus. The line between "backward" and "honorable" traditions is another discussion of social structure and agency. In future research, I hope to explore how the changing housescape impacts the fading traditions, such as how the livelihood and daily practices of shamans and traditional medicine healers alter with the changes in house forms.

7. Discussion

This study set out to answer three research questions about the changing housescape of Hà Giang: (1) whether it was driven more by the changing housing ideologies or constraints; (2)

how these goals and constraints were shaped by the social structure and human agency; and (3) what the impacts are. In this section, I hope to connect the study's results to a wider context.

7.1. Between goals and constraints

The interviews suggest strong modification in both housing goals and external constraints in Hà Giang. For housing ideologies, the change in perception of housing comfort stands out, while for constraints, the availability of materials, money, and time has shifted.

First, the goal of being comfort at home has been heavily modernized. One's perception of comfort has changed from "convenience, ease, and habitability" (Tipps 1973, 204) to a more "bourgeoisie" status, becoming the "pleasure of private life," recovering one from the physical and psychological burden of public life (Maldonado and Cullars 1991, 36). This shift marks a transformation from a "rustic" living environment to pursuing "civility," aesthetics, and modernity. Not only through exterior and structural design of the house, modern perception of comfort is also reflected in the use of interior furniture and appliances. Thermal comfort can be determined by mechanical cooling and heating system, natural ventilation, wind and air movement, exterior and interior materials, windows, and lighting (Taleghani et al. 2013). Visual comfort is evaluated through natural lighting, light control, perceived spaciousness, color, and outside view (Giarma, Tsikaloudaki, and Aravantinos 2017). Acoustic comfort can be improved through sound insulation or room partition (Kuerer 1997).

On constraints, excessive exploitation of primary forest increasingly deserts natural materials. Not only in Hà Giang, but many indigenous cultures had to alter their house form after exhausting resources. When palms disappear in the Peruvian Amazon, the Shipibo people have to start harvesting juvenile plants to thatch their roofs, and soon converted to aluminum-roof

houses because of the shorter durability (Putsche 2000). Even the natural sources of 'industrial' materials—sand, lime, and fossil fuels—can also continuously depleted because of the construction industry (Joglekar et al. 2018).

For money and time, housing standardization can significantly reduce the cost of both factors by having simpler on-site administration and fewer variations to control (Alexander et al. 1985, 267–69). Although Hà Giang currently has very few such standardized housing projects, they might become more common in the future with urban expansion. Furthermore, while manpower is not a current constraint, as the future generations get more detached from ethnic culture, demand and labor supply for ethnic housing will decrease. The stilt house builders might be as rare as the Dao folk artists (Ó Briain 2018, 1:182).

7.2. Between social structure and agency

Although the respondents showed their agency in determining the house design and negotiating different constraints, their power in resisting social processes is thin. Social processes will continue, forcing the ethnic minorities to engage if they hope to sustain their livelihood and raise their socioeconomic status. Agency and creativity are constrained within an established domain, but this domain is modified by larger social entities, such as the government or more urban communities—who, for example, introduces the concept of concrete stilt-house to Hà Giang. Moreover, sometimes developers bring the lowland models to these remote upland regions, yet often ignore the everyday realities of locals, such as how the Master Plans of Lào Cai neglected basic needs on public transportation and amenities (Henein, Pham, and Turner 2019).

This study suggests that both housing goals and constraints for ethnic communities in Hà Giang are mainly altered through modernization and urbanization. However, the role of

globalization and integration cannot be ruled out, especially in the long term. Many examples show how globalization does not only change the urban housing ideologies. In rural Mexico, new mansions with the style of American suburban homes were built by remittances of migrants living in the U.S. (Lopez 2010). In China and Vietnam, urban sprawl and the emergence of semi-urbanized villages came largely from foreign investment (Deng and Huang 2004; Leaf 2002). Thus, globalization, with its broad impacts on structures of the job market, migration, and land reform, can change the housing goals of people across the rural-urban axis. On the other hand, although the Vietnamese government has not initiated any aggressive integration policy in housing forms, mass housing programs existed for the lowland population, mimicking the Soviet housing project (Logan 2000, 185). Early in the 1970s, medium-rise apartment blocks become a frequent sight in Northern urban areas and the central identity of post-war development in Vietnam. Although buildings are now largely privatized (Yip and Tran 2008), urban planning, architecture, and housing morphology in Vietnam continue to receive strong central directions.

7.3. Social impacts

The interviews only show (un)changing collective identity as the direct result of the changing housescape in Hà Giang. However, wider literature suggests some other consequences of housing transformation although still not extensive, because isolating the effect of changing housescape from other social changes is tricky. This literature gap thus deserves more attention.

On agency—housing choice and the perception of (under)development

The interviews suggest that a diverse pool of housing forms can encourage the surrounding communities to expand their choices. However, this practice raises a particular pragmatism

concern (Barnes 2008): when people survey the houses, their opinions are heavily influenced by the normative standard, which sometimes is not evaluated by the ethnic communities themselves.

In the 2019 National Census, Hà Giang ranks 1st of having the most "less-temporary houses" and ranks 2nd of "simple-permanent houses" (Table A 1). However, housing condition statistics is measured by whether the three main elements of the house are constructed from specific materials: pillar—concrete, brick/stone, or iron/steel/steady wood; roof/ceiling—concrete or tile; and wall—concrete, brick/stone, or wood/metal (Department of Population and Labor Statistics 2021). This categorization allows one to conveniently compile and compare across regions, yet ignores cultural peculiarities. The Tày and Dao traditional stilt houses often use natural materials outside of these categories, yet they have compatible duration to most modern row-houses. Công's old house was built in 1921 and demolished in 2017, and many people in Hà Giang live in 30-40 year-old house. The public discourse commonly underestimates the sustainability and durability of these natural materials (Xiao and Inoue 2008), which might discourage future generation to continue building the stilt house.

On social structure—community, inequality, and culture

Some Hà Giang respondents suggested a break in communal ties following the transformation of housescape. In Shanghai, the new-styled *lilong* neighborhood had replaced the traditional *shikumen*, marked the transition from a "family-based courtyard-centered living to the community-based alley-centered living," and towards a more independent and modern living style (Zhao 2004). Another social impact is inequality, which can be either worsened or improved through the change in housing morphology. For example, when Singapore introduced public housing complexes and relocated residents from single-family homes in ethnic enclaves, a

strict ethnic quota was also applied. Some argued that ethnic allocation and compressed housing style have successfully reduced ethnic segregation and economic stratification (Sim, Yu, and Han 2003), while some argued that this policy increased the feeling of discrimination when one's community does not hold a "critical mass" (Sin 2002).

One might easily suspect that changes in ethnic housing can easily lead to a change in ethnic identity, because architecture carries "the message, concept, and characteristics attributed to the community where it was born" (Torabi and Brahman 2013, 107). Identity can be infused, mixed, dismissed, and lost through housing change. In Hanoi, the sign of pure "traditional" Vietnamese identity on the street is rare: one can see the influence of colonial architecture in the French Quarter, of Soviet and East Germany in the communal housing blocks, of neo-colonialism in high-rise buildings, and of China in the tube house (Logan 2000). The risk of identity transformation is even higher if the owner is too weak to protect the identity, such as minority groups. Sometimes they want to get rid of it. The Dao people in Ba Vì, Hanoi "[went] into debt building houses and buying modern amenities so as to be perceived as more Kinh-like" and (Sikor et al. 2011, 216–17). Nonetheless, cases like the eco-villages certainly help preserve the ethnic identity (Tran and Walter 2014).

Identity can also be built: The picturesque 'old' traditional farmsteads in Golenhofen were "meticulously planned and built from scratch [in] just a few years" (Cupers 2020, 187). "Indigenous" architecture was simply 'invented' to "reinforce German imperial reign" and "reshap[e] the local in order to expand empire" (199). Finally, identity can also be renewed: the original ground plan of capital cities often had a symbolic centrality where the rulers governed the ruled (Vale 1992). Therefore, although the city's spatial configuration had profoundly

transformed over time, many still hold tightly to some monuments associated with the "everlasting" national identity.

On goals and constraints—redefining the 'ethnic' house

The stilt house in Hà Giang changes its role from agriculture to only residential and sometimes hospitality. This change partially alters not only the house design but also association to ethnic identity. Cherry blossoms were plant in the Dao villages after they became eco-villages to attract more tourists. The flowers were not native to this exact region but represents the Northern Midlands and Mountains spring at large. Additionally, many traditional houses also have more colorful blankets, carpets, curtains, and mattresses (as shown in Figure 6.12) to give the house a more "rustic" and "boutique" look. However, their actual traditional clothes are mostly dyed dark with minimalist design, which means that the patterns are borrowed somewhere else. To what extent these flowery blankets influence the public perception of how ethnic houses should look is left for further research.

Finally, the changes in house form might modify the constraint boundaries. Previous sections mentioned three examples: forest privatization increases some natural materials (such as acadia wood); lower demand of traditional house reduces the number of homebuilders; and standardized housing projects cuts off time and financial investment. For the eco-villages, changing the traditional house into homestay attracts more investment from both the government and lowland investors, allowing more changes to happen.

8. Conclusion

While looking for the drivers behind the changing housescape of Hà Giang, I see more questions emerged: Who has the right and authority to define one's culture? When does an 'ethnic' culture no longer 'ethnic' and who can identify the detachment? For the eco-villages in Hà Giang, will these homestays redefine the perceptions and expectations of the ethnic house and culture at large? Who will decide if such housing is "authentic" and "ethnic": the government and lowland investors who control the financial means; the tourists and market economy that decides market competition; or the local people who staff, own, manage, and live their daily life in these houses?

Using qualitative method with semi-structured interviews, this study gives results for the first two research questions. The change in ethnic housescape of Hà Giang can be observed both in real-life and at a larger spatial scale, such as through housing footprint on satellite images (Figure 7), and as a whole new building form appeared in the past 5 years—the concrete stilt house. This change happened due to the development of both housing ideologies and constraints, particularly the rise of the perception of comfort and the decline of natural materials. These developments are the results of modernization and urbanization. Individual agency occurs when people are aware of their decisions, work on extending their choices and pursuing their goals. However, the villagers are generally powerless in directing the flow of social processes. Therefore, ethnic agency can be strengthened through more participatory community development and more incentives for the younger generations to learn about and keep their ethnic traditions. On the other hand, the study is not able to provide sufficient answer on the impacts. The respondents do not share a consensus on whether change in housing morphology will transform social cohesion and the collective identity. Given such a diverse study subject, my sample size is too small to positively claim any correlation and causation.

Therefore, a major limitation of this study is the difficulty in using interviews to derive an inclusive conclusion instead of merely describing individual decisions and behaviors. Section 5 mentioned two other methodological limitations, including the limits of snowball sampling technique and of virtual interviews. Another difficulty is language barrier, because although all of my respondents speak Vietnamese, culture and ethnic identity are such abstract concepts that they could not fluently explain.

> "These questions are difficult! [laugh] I just don't know how to answer them." (Lịch)

Thus, future research can address these gaps—with a wider sample, mixed methods, and better research design to approach difficult concepts. Ethnic housing in particular and housing form in general still presents a significant theoretical gap, especially from sociologists, anthropologists, and geographers. These changes happening almost everywhere, and particularly drastic to the minority populations, thus need more attentions from scholars and policy makers.

Appendix

Table A 1. *Some demographic, land-use, and housing characteristics of Hà Giang are compared to the national average (General Statistics Office 2020)*

Indicator	***Hà Giang***	***National average***	**Year**	**Ranking of Hà Giang (out of 63 provinces)**
Population	854 679 people			
Rural population	84.14%	65.57%	2019	
Population density	109 people/km^2	291 people/km^2	2019	54th
Poverty rate[6]	29.1%	3.75%	2019	4th
	39.8%	5.7%	2016	4th
Literacy rate[7] of population-over-15	27.6%	5.2%	2018	1st
Trained labor force over 15-years-old	13.8%	22.0%	2018	53rd
Age of first marriage	21.2	25.5	2018	61st
Forestry land (of overall land area)	57.9%	45.1%	2019	
Natural forest (of forestry land)	81.3%	70.5%	2019	
Agricultural land (of overall land area)	34.7%	22.3%	2019	
Homestead land (of overall land area)	2.2%	0.9%	2019	
Built floor areas	624 thousand m^2 (100% self-built)		2018	
Less-temporary houses (of all houses)	25%	4.4%	2018	1st
Simple permanent houses (of all houses)	12.7%	4.4%	2018	2nd
Household using electricity	85.5%	99.9%	2018	64th
Urban households using a centralized water system	78.9%	89.15%	2018	

[6] The poverty rate is measured by the multi-dimensional poverty approach. The multidimensional poverty index was established by the Ministry of Labour, Invalids and Social Affairs in 2016, measuring poverty not only according to income but also by housing, access to clean water and sanitation, education and medical services, social and medical insurance (Ministry of Labour, Invalids and Social Affairs et al. 2016).
[7] Measuring literacy rate in Vietnamese (not ethnic languages).

List 1. Interview questions

I. Demographic Information:

1. How old are you?
2. What is your gender?
3. What is your level of education? (last Grade level)
4. When did you build your house?
5. What was your primary work when you were building your house?
6. How many hours per week (annual average) did you work during the year you built your house?
7. What was the household income of the year you built your house?
8. How many people are there in your family?
How many people live with you in this house?
9. Are you the household's head?
Who usually makes decisions in the house? Who makes decisions about the construction of the house?

II. The Village:

1. How long have you lived in this village?
Over the year, did you witness any changes in the village or nearby areas? In terms of economic activities? Environment? Cultural and social terms?
2. How many other households in the village are biologically related to you or your spouse?
How often do you visit their households? Does it change over the years?
3. Are there other households you often visit that are not your relatives?
In general, how do you rate your relationship with your fellow villagers?
4. What is your involvement in the village?
What communal activities do you participate in with the other villagers?

III. The Urban

1. How often do you go to the nearest town? For what purposes?
Did you notice any differences between the town and your village, in terms of the built environment? If there are any differences, do you think that you want your village to be more similar to the town?
2. How often do you go to Ha Giang city? For what purposes?
Did you notice any differences between the city and your village, in terms of the built environment? If there are any differences, do you think that you want your village to be more similar to the city?
3. Have you ever gone outside of the province (Ha Giang)?
If so, where, when, for how long, and for what purposes?

Did you notice any differences between those places and your village, in terms of the built environment? If there are any differences, do you think that you want your town to be more similar to how those places look?

IV. Housing (reverse chronological order):

1. Can you briefly describe your house?
   - How big is it? (in terms of floor area or of columns)
   - How tall is it? How high (if at all) is it lifted from the ground?
   - Is there any room partition?
   - Where do daily activities happen in the house?
2. Are there any festive activities (not things that happen daily) organized in the house or nearby? (such as weddings, funerals, festivals, ceremonies, celebrations, etc.)
3. What are the materials of the house? (roof, wall, column, floor, door, window, furniture, stairs, etc.)
   How and where did you get those materials? Are there any problems in getting them, and are there any materials that were more difficult to get than others?
4. What are the stages of the construction? (design, framing, roofing, flooring, plumbing)
   How long and how many people did the construction take for each stage? Who were these people? Are there any stages of the construction that were more difficult to attain than others?
5. In total, how much did it cost for the house?
6. Do you think that your house is more traditional (in ethnic style) or more modern? In what ways?
   Was this how you initially planned the house to be? Were there any obstacles in achieving the house you wanted?
7. Do you like your house right now?
8. Is there anything you want to change about the house?
   Do you and your family members feel that any part of the house is uncomfortable, difficult to use, or should be designed differently?

V. Culture and Identity

1. Do you have any plans of moving away? (from the village, district, or province).
2. Do you think that your children have a plan to move away? (for education, work, etc.)
3. Do you think that you have a strong tie to your ethnic identity? How so?
4. Do you think that you are a good representative of how the current Tay/Dao people live and think? How so?
5. Do you think that the traditions are being valued and well-preserved? If there is any change, do you think that these changes are bad?
6. Do you have any final thoughts about the current development of Ha Giang in general and the ethnic villages in particular?

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