Adaptive reuse of local buildings in Sapa, Vietnam for cultural tourism development towards sustainability

H L V Thi and T Q Nguyen*
National University of Civil Engineering, Vietnam

*quannt@nuce.edu.vn

Abstract. Literature shows that adaptive reuse must consider vernacular architecture. For a tourism town like Sapa and its neighbouring villages in Vietnam, which is characterised with diverse terrain and climate conditions, adaptive reuse of housing regarding vernacular architecture needs to be addressed as sustainable local cultural values to attract tourists, especially foreign tourists. This paper, using data collected from 5 neighboring villages of Sapa, has investigated the villages’ residence characteristics, customs, and traditional house building designs styles and types of villages. A triangular approach of historical approach, systematic approach and the interdisciplinary approach has been adopted for the research to discover, consolidate and promote the values of village landscape and traditional housing. The proposed approach ensures villages retain their traditional indigenous state by building the image of traditional buildings encouraging concentrated living, and implementing concentrated tourism by village. Small sized areas can adopt small types of tourist accommodation. Both adaptation to climate and environmental change and adaptation to the deep intervention of technology in life need to be considered. The proposals will not only help protect the special values of Sapa, but also make good use of new development opportunities.

1. Introduction
According to the Cambridge Dictionary, adaptation is “the process of changing to suit different conditions” [1]. Adaptation is a process of proactively changing to flexibly match new existing conditions. Views on adaptive use given include adaptation to climate and environmental change, adaptation to the rapid change of needs, adaptation to the deep intervention of technology in life [2].

Any adaptation process needs to pay attention to vernacular architecture. Vernacular architecture has been invented in the nineteenth-century. Literature shows that, regarding vernacular architecture, buildings are identified as social representations and are linked to coherent cultural systems of values and beliefs. Vernacular architecture while being linked closely with the cultures of the region, are developed to meet its specific needs, values, and even the economies and ways of living [3]. Vernacular architecture exhibits localization responses to large cultural systems, historical events, and environmentally defined regional forces. It marks a nominal period, a threshold of conscious change, and the accommodation is expressed in constructive form, under which the result identifies simultaneously [4]. During the development of contemporary architecture, vernacular architecture is becoming more and more important especially in the integration trend where cultures are gradually merging and losing their own identities; this indigenous implicit power is slowly being forgotten.
Adaptive reuse has attracted more academic interest recently, a quick search on Scholar Google shows thousands of publications. Major themes for adaptive reuse include turning office buildings [5], industrial [6] or commercial buildings [7] into housing, then for heritage and historic buildings [8]. The topic of adaptive reuse of housing regarding vernacular architecture has been discussed with some case studies in Turkey [9], or research projects in Italy [10], New Zealand [11], etc. Also, in more recent research, the sustainability of the adaptive reuse has been emphasized more and more [10]. Some publications claim that there are regulatory barriers to adaptive reuse, which need to be addressed for sustainable development [11]. Planning, a tool for managing regional development, can be considered significantly important in dealing with housing adaptive reuse regarding vernacular architecture.

Sapa Town, located in Lao Cai Province, has then become one of the top tourism destinations in Vietnam [12] because of the natural heritage system recognized by UNESCO, the invaluable architectural and landscape heritages that the French discovered, built and left, and many traditional cultural values of villages of ethnic minorities such as the Tay, Nung, Dao, Thai, Xa Pho, etc. The attractiveness of Sapa comes from its three great values of the distinct climate, landscape and local life. Sapa has two "identities", the first is gifted by the nature, which is the landscape of mountains and valleys, and the second is the "identity" created by local people, which is the valuable works that have long-standing attachment in the historical process of a human. Only when all three values above are met will the identities be created. However, the landscapes and the local life are more easily deteriorated, which need paying priority for conservation. For nearly 30 years being heavily urbanized, the mountainous town has turned into a delta, natural landscapes have been disappearing, while the artificial landscapes are not monitored. All of which have turned Sapa into a broken body, leading to the fact that the town is losing its values and identities, then many experts have affirmed that Sapa is completely destroyed [13]. The reasons include a lack of a long-term orientation for the town to be able to develop sustainably while the number of tourists visiting Sapa has been increasing dramatically over the years, leading to the fact that “no infrastructure can accommodate that many people in such a small area without destroying what makes Sapa valuable” [14].

Lessons learned from the international adaptive reuse for sustainable development include: adaptive reuse should facilitate community supporting activities, then do not lead to comparatively significant changes to the original building structures [9], should support the development of seismic resilient communities, then leads to a need of the development of policies and strategies promoting adaptive reuse for the resilient and sustainable redevelopment of building stock while considering vernacular architecture [15]. To deal with the negative impact of the built environment to landscapes, in order to develop tourism as well as for a more sustainable development of regional areas, many scientists have claimed that the historical houses, including heritage, should be adaptively reused [16]. This orientation needs to be included in the long-term planning for development. Should this approach be adopted in Sapa and whether the adaptive reuse of local buildings can support the cultural tourism development towards sustainability for the area are the two questions that this research tries to address.

2. Materials and methods
The 5 neighboring villages of Sapa (Nam Sai (1), Ban Ho (2), Su Pan / Muong Hoa (3), Ta Van (4), Ta Phin (5) that have been investigated, surveyed and selected in the infrastructure development project of Worldbank will be used for research. Select the historical approach, the systematic approach and the interdisciplinary approach, then use the integrated research approach and compare and analyse the data to discover, consolidate and promote the values of village landscape and traditional housing. It is necessary to proactively change to adapt to new conditions, to meet current exploitation needs, and to create a basis for tourism development in the future.

3. Results and discussion
Ta Phin Village is mainly inhabited by the Red Dao ethnic group. The village has an area of 27.08 km², a population of 3,698 people in 2018, and population density of 137 people/km². The Red Dao live on the edge of forests with cold weather; they have many customs, such as love-exchange singing and
Maturity ritual, which have spiritual meaning and are highly educational in the community. Ta Van Village is mainly inhabited by Giay people. The village has an area of 67.90 km², a population of 4,133 people in 2018, and population density of 61 people/km². Giay people often build villages in the valleys, by the streams and in the flat fields. The Giay’s customs stand out with lunar new year’s eve, into-the-field ritual, pulling wife… Su Pan Village, which is mainly inhabited by the Hmong, has a natural area of 9.31 km². 2,412 people of Su Pan live on the high mountain slopes and have typical customs such as wedding ceremony, lunar new year’s eve and cuisine. Nam Sai Village with the Xa Pho ethnic group has a natural area of 24.82 km². The village nestles at the foot of the Hoang Lien Son mountain range and comes between long terraced fields. Customs: habits and customs, cuisine and especially the folk arts treasure. Table 1 shows the characteristics of research villages.

Table 1: Characteristics of research villages.

| Village      | Area  | Residence characteristics, customs                                      | Traditional house                                                                 |
|--------------|-------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Ta Van       | 67.90 | Build villages in the valleys, by the streams, in the flat fields        | Wooden houses on the ground, with attic, high tiled roof, partitions between        |
|              | km²   | Customs: lunar new year’s eve, into-the-field ritual, pulling wife,…     | compartments, tall beds, large altar in the centre. On the left and right is the   |
|              |       |                                                                         | bedroom, above is a food loft.                                                   |
| Su Pan       | 9.31  | Live on the high mountain slopes                                        | 3-compartment house on the ground, round wooden frames, Po Mu wood roofing. Main   |
|              | km²   | Customs: wedding ceremony, lunar new year’s eve, cuisine.               | door is in the middle, the nave places an altar, the fireplace is for reception,    |
|              |       |                                                                         | one side is the storage room and the kitchen.                                     |
| Nam Sai      | 115.11| Live in villages at the foot of the hill, along rivers and streams near| Leu house - simple, primitive structure Quan ma house has 4 compartments, columns |
|              | km²   | dense old forests. Customs and habits have their own identity, such as   | are buried deep into the ground, Cai tu house has 5 compartments (3 main          |
|              |       | the sound of drums calling villagers, worshipping the Kitchen God ...    | compartments), columns are made of stone; Con thong house is the most popular      |
|              |       |                                                                         | today.                                                                           |
|              |       |                                                                         | Stilt house, wooden columns, bamboo wall. Side staircase. Unflatten ground. Bamboo  |
|              |       |                                                                         | floor, connecting compartments without partitions. The altar looks out the main    |
|              |       |                                                                         | door. The stove is placed on the ground.                                          |

4. Discussions

4.1. The formation of traditional villages in Lao Cai

Due to the main terrain of rugged mountains, rivers and long valleys, villages in Lao Cai province are generally formed on the basis of farming methods and the customs of the ethnic minorities for many years. Houses are leaning on hills and mountainside and gather together to share the same water source and prevent predators, enemies, disasters, etc.

In general, the dispositions of traditional villages of different ethnic groups are quite diverse; however, each village has its own unique housing architecture and arrangement. In Lowland areas: The Tay and Giay reclaimed valleys along rivers and streams and created the wet rice cultural tradition. They often gather into groups living in areas of relatively flat land to facilitate life and agricultural production. In Midland areas: The Khang, La Ha, Phu La, etc. gather together, creating the shifting cultivation
culture with plenty of indigenous knowledge suitable for the forest economy. They build traditional houses in groups on the edge of the forest. In Highland areas: The Hmong, Ha Nhi, Dao, etc. reclaimed the slopes into majestic terraced fields and live in groups on high mountain slopes. It is necessary to consider the values of vernacular architecture as the basis for future development and from there, the adaptive use of vernacular housing works for tourism would be one way to promote that development.

4.2. Traditional houses
People’s houses are always designed with structures suitable for complex terrain, the habitat and extreme weather and climate (Fig. 1). The conception of life together with the environment has formed the uniqueness in the housing architecture culture of indigenous people.

Based on the current state of the research villages, it can be seen that there are three main types of villages (Fig. 2): First is the village formed in clusters - close to the main road formed in extensive mountainous terrain Ta Phin Village; the second type is also formed in clusters and sticks to the main road but in complex terrain conditions usually in high mountains, the width of the contour lines is narrow and limited; third is the village stretching along the main road, the village is formed on the same level running along the stretch of the mountains.

![Image of traditional houses](image1.png)

**Figure 1.** Types of traditional houses in the research area.

![Image of villages](image2.png)

**Figure 2.** Types of villages.

4.3. Proposing development models for Sapa
Sapa’s development goal is to enhance the density and growth of villages to receive new types of urban services in the form of respecting the rural characteristics of the locality. The proposed approach ensures villages retain their traditional indigenous state by building the image of traditional buildings encouraging concentrated living, and implementing concentrated tourism by village. Small sized areas
can adopt small types of tourist accommodation. Both adaptation to climate and environmental change and adaptation to the deep intervention of technology in life need to be considered (Fig. 3).

For indigenous traditional houses used as a homestay: Need support, investment, home repair, new construction items suitable to meet the needs of today’s tourists to form a homestay group that will attract customers. For the newly built resort area: Depending on the current state of each village to subdivide the area in a way that is suitable for traffic safety conditions, ensuring good views and ensuring appropriate service labour. The architectural form of the new construction area needs to suit the typical housing of that village; the materials used have to be recycled materials that are environmentally friendly and do not break the existing greenery area. For public constructions: Community houses and portals. Select the village centre for constructions. Community Tourism initiatives in each village create the opportunity to show the culture and traditions of individual ethnic groups through infrastructure and architecture design. These designs should be improved through consultation and participation of villagers in line with the previous community tourism activity.

![Proposed construction model](image1)

![Current state](image2)

![Proposed subdivision plan](image3)

Figure 3. Orientation of village functional zone planning.
5. Conclusions
To revive traditional cultural features and identities, that is an either fast or slow transition so that it is compatible with the new conditions of use in the new context while still retaining the indigenous cultural values. Adaptive use covers quite a wide range, including the modification and addition or extension, remodeling, embellishment, repair, etc. applicable to interior and exterior, plan/layout, texture/structure of the work.

In the context of globalization with models and solutions towards the direction of standardizing and synchronizing construction and planning solutions, it is the diversity of indigenous factors, the promotion of characteristic factors, and using technology to create unique identity values will be an advantage, increasing the competitiveness of architectural and planning products. With the right and appropriate directions and solutions, it is certain that in the coming time, when the development of community tourism is especially combined with the adaptive use of indigenous traditional housing works and the use of technology, villages in Sapa will develop and create traditional housing products that attract visitors.

References
[1] Cambridge.org 2020 Cambridge Dictionary
[2] Schmidt Iii, R and Austin S 2016 Adaptable architecture: Theory and practice (Routledge)
[3] Asquith L and Vellinga M 2006 Vernacular architecture in the 21st century: Theory, education and practice (Taylor & Francis).
[4] Glassie H 2000 Vernacular architecture (Indiana University Press).
[5] Remøy H and Van der Voordt T 2014 Adaptive reuse of office buildings into housing: opportunities and risks Building Research & Information. 42(3): p. 381-390.
[6] Cantell S F 2005 The adaptive reuse of historic industrial buildings: regulation barriers, best practices and case studies (Virginia polytechnic institute and state university).
[7] Bullen P A 2007 Adaptive reuse and sustainability of commercial buildings Facilities.
[8] Yung E H K, Chan E H W and Xu Y 2014 Community-initiated adaptive reuse of historic buildings and sustainable development in the inner city of Shanghai Journal of Urban Planning and Development 140(3): p. 05014003.
[9] Yıldırım M and Turan G 2012 Sustainable development in historic areas: Adaptive re-use challenges in traditional houses in Sanliurfa, Turkey Habitat International 36(4): p. 493-503.
[10] De Medici S, De Toro P and Nocca F 2020, Cultural Heritage and Sustainable Development: Impact Assessment of Two Adaptive Reuse Projects in Siracusa, Sicily Sustainability 12(1): p. 311.
[11] Conejos S, Langston C, Chan E H W and Chen M Y L 2016 Governance of heritage buildings: Australian regulatory barriers to adaptive reuse Building Research & Information 44(5-6): p. 507-519.
[12] nhandan.com.vn 2019 Tourism growth, Sa Pa development is right?
[13] Pham Duong Ngoc 2019 https://vtc.vn/nguoi-ta-da-ho-hoi-pha-tan-nat-sapa-ra-sao-ar513188.html [cited 2020 12 July].
[14] Mai Duong and Hai Nam 2019 https://reatimes.vn/tu-sa-pa-khong-ky-uc-den-tran-tro-cua-nhung-mien-co-tich-trong-suong-2019102722502523.html [cited 2020 8 June].
[15] Aigwi I E, Egbelakin T and Ingham J 2018 Efficacy of adaptive reuse for the redevelopment of underutilised historical buildings International journal of building pathology and adaptation.
[16] Ariffin A B, Zahari M S M, Radzi S M and Kutut M Z 2017 Journal of Tourism, Hospitality and Culinary Arts. 9(2): p. 35-46.