



Renovation of the Forgotten Ruins and Urban Public Spaces in Sapa Town, Vietnam for Sustainable Development

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Abstract: Sapa is one of the famous French towns for tourism in Vietnam with lots of colonial architecture, buildings and urban public spaces which are known for their great historical, cultural, aesthetic, and landscape significance. After the wars in Vietnam, the remaining architectures and public spaces, which were of significant value in terms of history, culture, aesthetics and landscape during the French colonial period in the town, have been severely degraded or arbitrarily renovated. In order to propose solutions for maintaining and promoting the ruined structures and urban public spaces of the town, this study adapted three different sets of criteria for assessment for the urban public spaces, heritage buildings and new buildings. The surveyed urban public spaces and buildings have been ranked in different classes based on their earned total average points in terms of level of usability and value. Proposed strategies adopted were developed based on lessons learnt from previous studies, which include new construction, integration, reservation and relic maintenance.

Keywords: Sapa, colonial architectures, forgotten ruins, urban public spaces, urban sustainable development

1. Introduction

The Sapa plateau was discovered between 1901 and 1906 by the French who soon intended to build Sapa into a resort station. With lots of investment on the plantations, buildings and infrastructure such as the route connecting Lao Cai to Sapa and local roads, hotels, offices, church and monastery, Sapa meteorological station, Cat Cat hydropower plant etc. and the discovery of the Sapa ancient rock field, Sapa had become a luxury mountain resort of Hanoi's colonial society. The town attracted more and more tourists during the 1930s and the first half of 1940s, peaking at 3.000 visitors in 1938-1939 (Thanh Tuan 2020).

Due to the war from 1945 to 1951, the pre-existing architectures in the town were mostly destroyed. In the early 1990s, as a result of a new policy, more investment started to be made for Sapa to develop tourism infrastructure (Thanh Tuan 2020). However, due to the poorly controlled urbanization, the mountainous towns of Sapa have been flattened, the natural and built landscapes have been uncontrollably exploited, all of which brought Sapa to a state of decay (Pham 2019). The remaining architectures and public spaces, which were of significant value in terms of history, culture, aesthetics and landscape during the French colonial period, have been severely degraded or arbitrarily renovated. This has led to not only the ineffective use and exploitation, the devastation of the architectures and public spaces, but also the unsustainable development of the town. In order to develop a sustainable renovation strategy for Sapa, the ruins and

landscapes of the past must be recognized and incorporated into the strategy and plans, in order to make better use of the lost structures, forgotten ruins, or the remaining structures which are still in good condition but being exploited ineffectively. However, different approaches may need to apply to each of the ruined structures, heritages and landscapes due to that they are in dissimilar conditions and do not have the same recognized value. Even the ruined structures still have a real value, since they can show the shift of time, then being considered as remnant of time.

This study investigates the issue and proposes an approach for assessing the ruins and urban public spaces (here after referred to as “built architectures”) in Sapa Town, using a set of criteria developed for this specific purpose. Proposed recommendations for renovation strategies of those ruined structures and landscapes are then discussed based on their grades. Proposed strategies have been developed based on lessons learnt from previous studies (Pedersen 2002, Dixon and Eames 2013, Wang, Jiang et al. 2019), including new construction, integration, reservation and relic maintenance.

The paper then is structured as follows: firstly, it presents a literature review on the renovation of the forgotten ruins and urban public spaces in the previous studies to identify the popular approaches of renovation adopted. Secondly, it discusses methods and criteria for assessing the architecture and urban public spaces which can be adopted to Sapa. Then, after introducing the Sapa urban area, the forgotten ruins and urban public spaces in Sapa town are then evaluated using the adopted methods and criteria. The paper concludes with some recommendations for renovating and communicating, promoting the value of the town’s architectural heritages.

2. Renovation of the Forgotten Ruins and Urban Public Spaces

The notion of renovation of the existing urban environments has gained rising prominence within research domain and policy agendas in recent years. At a global scale, an increasing concentration of the growing human population within urban centers have focused attention on the role of cities in climate change mitigation and adaptation, and in achieving the broader overarching requirements for sustainable. Whilst cities are seen as being the source of many environmental and resource depletion problems, they are also recognized as centers of major population that offer huge potential opportunities in ‘scaling up’ technological responses to climate change and as ‘hubs’ of innovative social practice and learning (Dixon and Eames 2013).

In his ‘Industry is about exploiting nature’, Marchand wrote: “Seeing life in ruined structures that have been reborn and utilized is not without feelings. Although not intact, even completely changed, but in a sense, as long as it is frequented and remembered only sometimes is enough, because it is alive nonetheless.” (Macdonald 2014). Brian Dillon argued that the real value of the ruins (or ruined buildings) is to show us the shift of time, it is also a remnant of time. The ruins are fascinating because through it, we can see the past, the present and the future (Macdonald 2014).

In a recent study by Sutton and Fahmi (2002), Islamic Cairo or Old Cairo is the subject for urban conservation to solve the related heritage problems. In the rehabilitation approach adopted, the built environment setting is considered as important as the individual Islamic monuments. Resident-oriented rehabilitation must be adopted giving priorities to not only the permanent residents of the Old Cairo but also citizens of the Greater Cairo and visiting tourists, both local and foreign (Sutton and Fahmi 2002). When investigating the adaptive re-use of traditional houses in Sanliurfa, Turkey, Yildirim and Turan (2012) differentiated the compatibility and the appropriateness of housing for commercial and community uses. Regarding commercial houses, the intention is to generate income to sufficiently cover restoration and maintenance costs, while in community buildings, the focus is on the provision of social benefits to the community. This study also emphasizes that an investigation of potential detrimental effect on historical significance of the architectural heritages regarding a new use must be conducted. A re-use can be considered appropriate only when it retains the “historical significance” of the heritage to promote sustainable development of the built environment (Yildirim and Turan 2012). Adaptive reuse with rehabilitation for historic buildings is also the approach adopted in three cities in Poland (Ry 2008). As economic policies always influence the functional and urban layout of Polish cities, while revitalization and rehabilitation are a very complicated process, the process in the areas having a historic zone must consider the location as a “single, undivided area”. It is evidenced that adaptive reuse of historic districts can integrate eco-solutions successfully with different approaches in the three case studies in the three cities (Ry 2008).

Another research study discussed the historic preservation of “stigmatized places” in the Oregon State (Askin 2010). This study emphasizes the role of government at all levels in the job of preservation of such type of historic buildings with the encouragement of using those for the government’s events (Askin 2010). In renovation and rehabilitation, attention needs to pay to the green zones in cities; this idea has been discussed from early research (Ry 2008) to a more recent study (Granziera 2017) with a case of prehispanic gardens and public parks in Cuernavaca, Mexico. Religious buildings are also the subject for renovation. When being renovated, those architectural heritages should be investigated in their relationships with the surrounding landscapes, places and buildings in order to maximize the meaningful insights, as in the case of Sidnā ‘Alī mosque (Peled 2019).

In short, literature shows that adaptive re-use has become vital for renovation and rehabilitation strategy, not only for historic and heritage which are currently in use, but also the forgotten ruins and urban public spaces. Sustainability development can only be obtained when the “historical significance” of the heritages and historic zones is retained while considering the relationships with the surrounding landscapes, places and buildings and the benefits of not only the

permanent residents of the location and surrounding areas but also temporary citizens such as visiting tourists, both local and foreign. The lessons learnt have become valuable for the case of Sapa.

3. Research Methodology

This study adapted a research approach that has been adopted in a recent similar study on the project entitled “Surveying, classifying, and registering French villas in Hanoi City” (Doan and Duong 2011). A set of criteria was developed for surveying the existing conditions of the villas. Apart from questions to obtain general information of the villas such as the location, the age, the architectural styles, the land and floor areas, the landscape and auxiliary architectures, the questionnaire also investigated the perception on the historic and cultural value, architectural value, landscape value, the originality in terms of the shape, the details and the structures, and the functionality together with the ownership (Doan and Duong 2011). However, for the case of this study, not only buildings but also urban public spaces are investigated. Considering lessons learnt from the literature with experience worldwide, this research study adopted a revised set of criteria for evaluating the forgotten ruins and urban public spaces, and also the newly built buildings in Sapa Town as presented in Table 1 for public spaces, Table 2 for heritage buildings and Table 3 for new buildings.

Table 1 - Criteria for evaluating the urban public spaces in Sapa Town

Group	Criteria	Points
1	Value in history, culture (Associated with cultural and historical events and figures)	20
2	Value in landscape, in which	20
	+ In a complex of beautiful buildings	4
	+ Near historical sites	4
	+ Look out to the square	4
	+ Look out to big crossroads	4
	+ Large space	4
3	Architectural aesthetics, in which	25
	+ Pavement	5
	+ Trees	5
	+ Lighting	5
	+ Urban utilities	5
	+ Decorations	5
4	Existing functionality and the ability to respond to new functions	15
	+ Correct use of current functions	0-5
	+ Ability to adopt new functions	10
5	Urban utilities	20
	+ Accessibility from surrounding urban areas	0-20
	Total points	100

Table 2 - Criteria for evaluating the heritage buildings in Sapa Town

Group	Criteria	Points
1	Value in history, culture (Associated with cultural and historical events and figures)	20
2	Value in architecture, in which	25
	+ Harmony of architectural shapes	10
	+ Well-decorated facade	7
	+ Distinct and typical style	8
3	Value in landscape, in which	20
	+ In a complex of beautiful buildings	5
	+ Near historical sites	4
	+ Look out to the square	4
	+ Look out to big crossroads	4
	+ Large space	3
4	Originality (cubes / construction details / structures / ancillary)	20
	+ Building shapes: Intact (6); Slightly changed (4-5); Significantly changed (1-3); Completely deformed (0);	0-6

Group	Criteria	Points
	+ Construction details: Intact (5); Slightly changed (3-4); Significantly changed (1-2); Completely deformed (0);	0-5
	+ Type of structure: Intact (4); Slightly changed (2-3); Significantly changed (1); Completely deformed (0);	0-4
	+ Garden fence: Intact (3); Slightly changed (2); Significantly changed (1); Completely deformed (0);	0-3
	+ Auxiliary items	0-2
5	Existing functionality and the ability to respond to new functions	10
	+ Functionality: Public work (1); House (1); Business (1); Office (1); Other (1); Specify (0)	0-5
	+ Ability to meet new functions: Religious building (1); House (1); Business (1); Office (1); Other (1); Specify (0)	0-5
	Total points	100

Table 3 - Criteria for evaluating the new buildings in Sapa Town

Group	Criteria	Points
1	Using the innovative energy and green materials	20
2	Value in architecture, in which	25
	+ Harmony of architectural shapes	10
	+ Well-decorated facade	7
	+ Distinct and typical style	8
3	Value in landscape, in which	25
	+ In a complex of beautiful buildings	5
	+ Near historical sites	5
	+ Look out to the square	5
	+ Look out to big crossroads	5
	+ Large space	5
4	Appropriate to the area's landscape and culture	20
	+ Building shapes:	5
	Level 1 (5); Level 2 (3-4); Level 3 (1-2); Level 4 (0)	
	+ Construction details:	5
	Level 1 (5); Level 2 (3-4); Level 3 (1-2); Level 4 (0)	
	+ Materials used:	5
	Level 1 (5); Level 2 (3-4); Level 3 (1-2); Level 4 (0)	
	+ Building density:	5
	Level 1 (5); Level 2 (3-4); Level 3 (1-2); Level 4 (0)	
5	Satisfaction level	10
	Level 1 (10-9); Level 2 (8-7); Level 3 (6-5); Level 4 (4-1);	
	Total points	100

Points for each of the ruins and urban public spaces will be given by an expert panel, then the average figures will be used for ranking the built architectures in terms of usability. Table 4, 5, 6 shows the classification according to the total average points given for each of the built architectures.

Table 4 - Ranking guide for urban public spaces in Sapa Town

Classification	Total average points	Types
High usability	70 -100	T1
Medium usability	50-69	T2
Needs embellishment for better usability	20-49	T3
Needs renewal and changes to increase usability	Below 20	T4

Table 5 - Ranking guide for heritage buildings in Sapa Town

Classification	Total average points	Types
Special value building	70 -100	T1
High value building	50-69	T2

Average value building	20-49	T3
Non (Less) value building	Below 20	T4

Table 6 - Ranking guide for new buildings in Sapa Town

Classification	Total average points	Types
Good design building bringing value to the area	70 -100	T1
Building with suitable design	50-69	T2
Building with less value design	20-49	T3
Building with design destroying the area landscape	Below 20	T4

The experts from the expert panel which were invited to join this research were carefully selected from scholars and practitioners who have expertise in heritage reservation and renovation. They also need to be familiar with Sapa and are currently active in the field. Six experts joined the research study. The research process is illustrated in Figure 1.

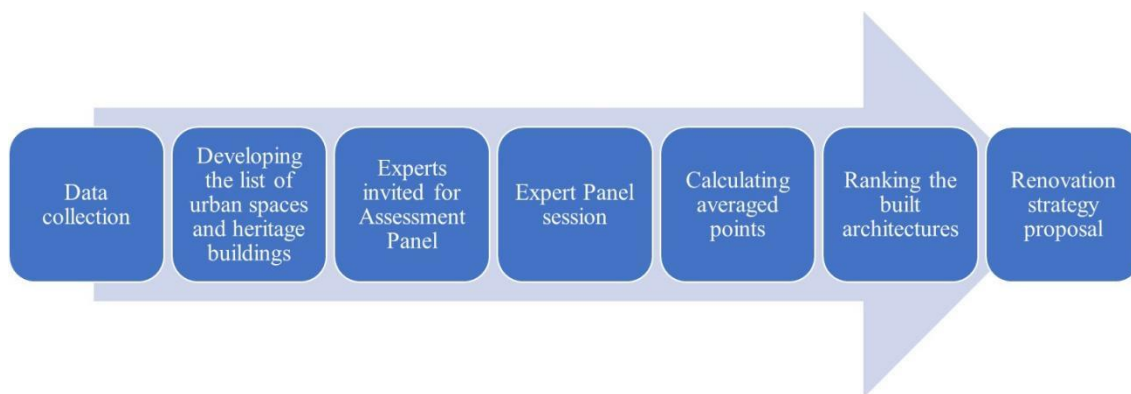


Fig. 1 - The research process

4. An Overview of Sapa and its Ruins and Urban Public Spaces

4.1 Sapa in its History

Reviewing the history shows that urban development in Sapa was formed according to the principles of functional zoning, that is, zoning and specialization of urban space according to the nature of use. Urban planning sought to rationalize spatial embellishment by reconciling two intrinsic characteristics of the colonial system. The first is coexistence between civilians and the military. Second is the division between Europeans and native peoples. According to the first plans, this was a resting place and a garrison for armies, then the city fluctuated between many functions (nursing stations, mountain resort centers towards tourism ...). Small scale projects were planned to be built on the lower side such as villas and hotels. Large scale structures were built in higher areas such as nursing stations.

1903-1922: Sapa was originally created for medical purposes due to the climate being beneficial to the Westerners. Military nursing hospital was completed between 1913 and 1914, all local service offices were moved to Sapa from Hanoi.

1920-1940: This was a period of growth for Sapa. In the early years many luxury hotels were constructed, such as the Résidence du Tonkin, in 1924 the Fan Si Pan hotel. The first villas were built in 1918, with over a hundred more being constructed between 1920 and 1940 on the neighboring estate (Fig. 2).

1945-1990: The buildings were mostly destroyed due to the war. Until 1990, Sapa just started to develop again, making the transition to urbanization in Vietnamese style.

1993-now: The map expanded, increasing more functional areas to meet tourism demands (Fig. 3). In general, it still retained the urban structure from the French era but expanded towards Fansipan and therefore, the main adjustment of the master plan on the construction of Sapa city tourism area in 2030 is to adjust to the expansion of the land scale to ensure a harmonious development between natural environment and native culture, preserving the core features of the old urban zone, whilst meeting the needs of tourism development worthy of being a national and international class tourist city (VTOCO Research and Consultant Company Limited 2015, Prime Minister 2016).

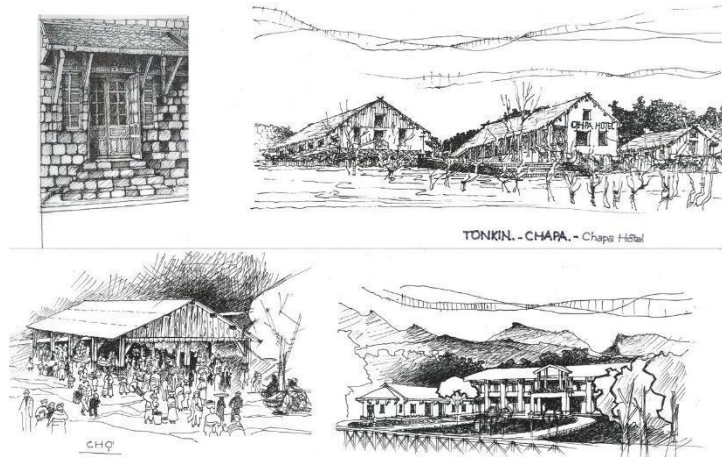


Fig. 2 - Buildings developed during the French colonial period (EGO Group 2019)

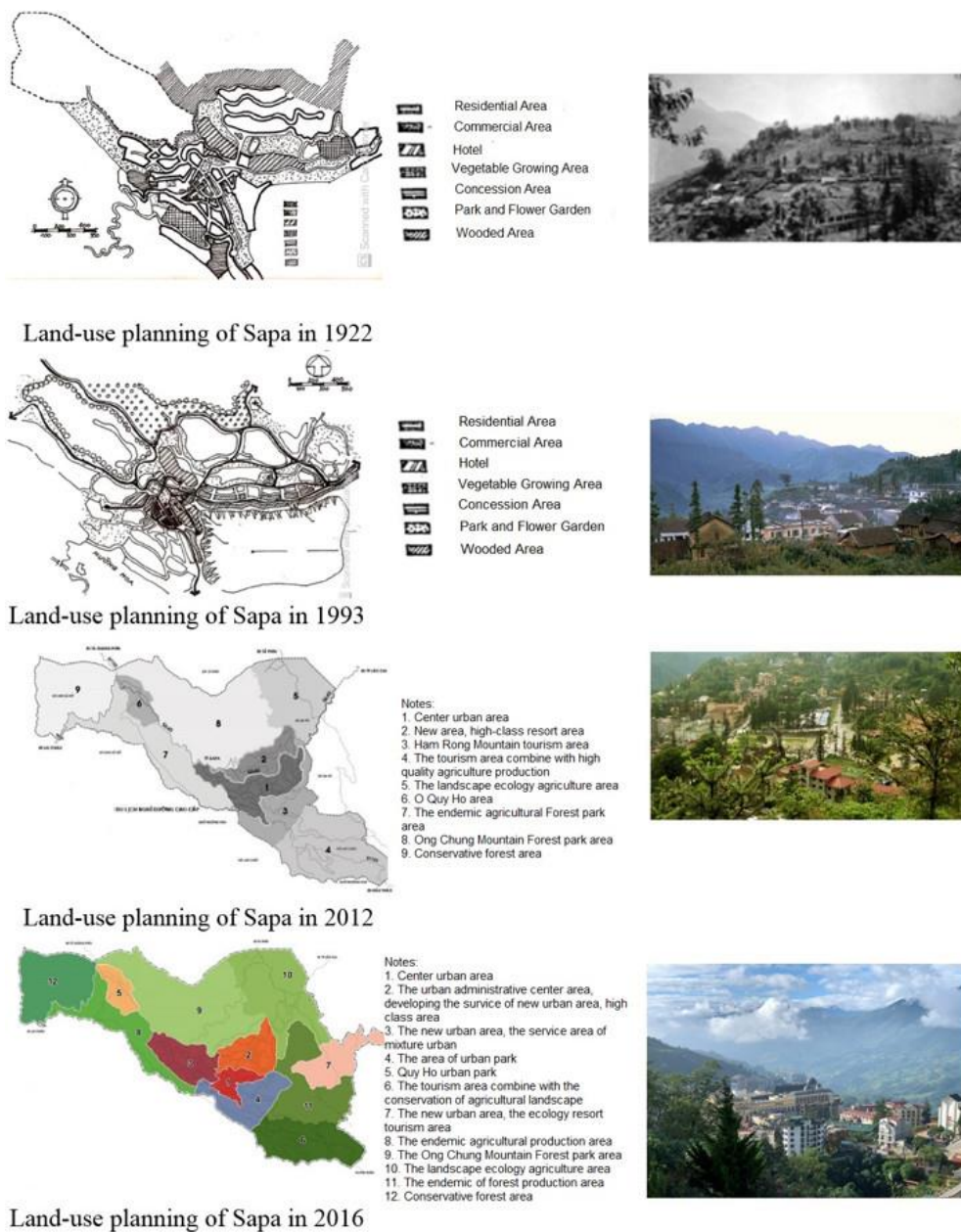


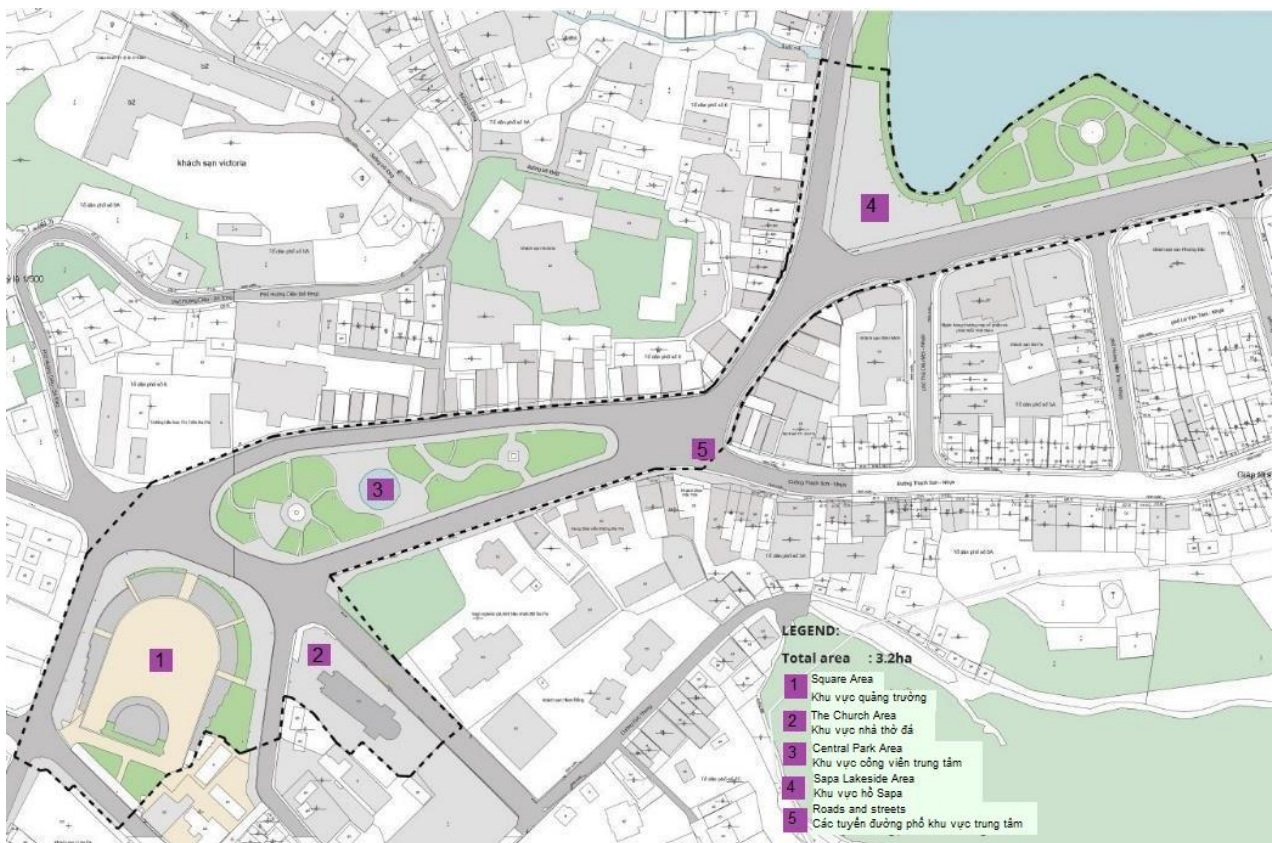
Fig. 3 - Sapa urban development process (EGO Group 2019)

4.2 The Public Spaces and the Architectures in the Urban Center of Sapa

The public spaces in the central area are the place where community activities and cultural exchanges between the local people and tourists take place (Fig. 4). These public spaces stretch from the old urban center to the new expanded lake area, including square area, the church, central park, Sapa lakeside, roads and streets (Fig. 5). This is also a place to visit and take commemorative photos for tourists coming to Sapa.



Fig. 4 - The location of the core in the center of Sapa city (Atelier Dubosc et Associes 2020)



1. Square Area; 2. The Church Area; 3. Central Park Area; 4. Sapa Lakeside Area; 5. Road and Streets

Fig. 5 - Distribution map of public spaces in the center of Sapa (Atelier Dubosc et Associes 2020)

The central location of Sapa since its establishment has been the Square and the Stone Church. Streets were formed based on the natural topography. These roads were designed during the French period which formed streets along the two sides of the road. This is the gorge between the two high mountains, Ham Rong and the mountain on the Northwest (Fig. 6).



Fig. 6 - Distribution map of all types of buildings in the urban center of Sapa (Atelier Dubosc et Associes 2020)

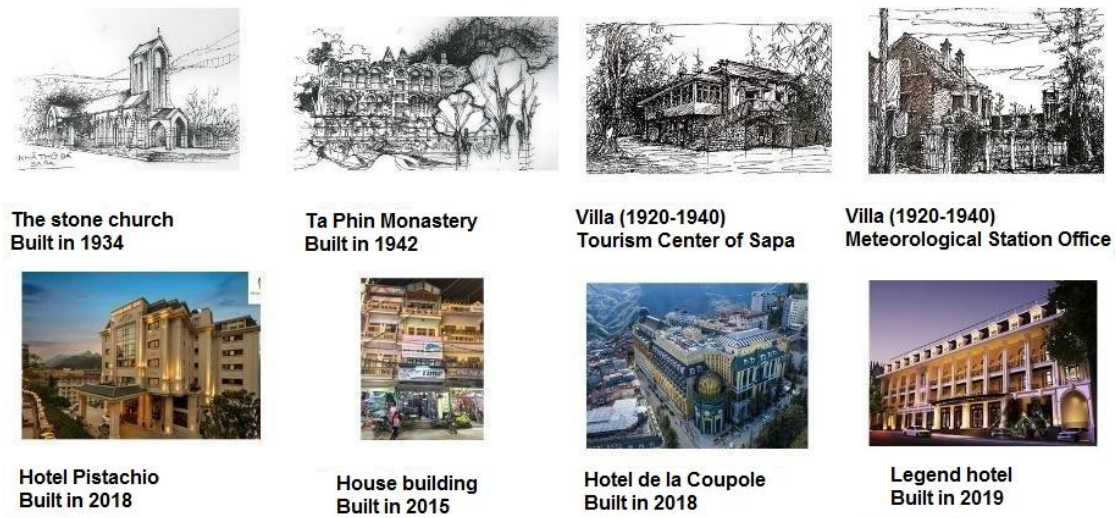


Fig. 7 - Some of the current types of architectures in Sapa (Atelier Dubosc et Associes 2020)

In this area there is a view of the majestic natural landscape of Fansipan peak and Muong Hoa valley. The downside is that the land for housing construction and streets in the center are limited. The land built up and extending from the center along the northeast to southwest direction is the mountain side that stretches along the Muong Hoa valley, which is very steep, forming many almost vertical cliffs, making it impractical for construction and cultivation, leaving only natural forests. The current central area has many types of architectural works. Buildings from 1-5 storey(s), public buildings and large-scale structures. Residential and tourist accommodation of many types are to the north of the lake. Commercial and residential density is higher in the south of the lake. Tourist and entertainment areas are concentrated in the square (Fig. 7).

5. Research Results

5.1 Overall Evaluation

The planning from the French colonial period was not a creative solution in terms of art and science and technology, but was the historical mark of the times, the culture and society from which it was established. Public spaces and structures always showed their harmonious features and integration with the local architectural culture and had a part to play in the urban development process. But these valuable architectural works are now facing increasing challenges in terms of economic, social and policy development in different stages. Because of the impacts of the development process from the end of the French colonial period (1945) up to now, the number of valuable architectural works has decreased sharply, and the environmental landscape and urban structure has changed drastically. In addition, the majority of architectural

works have had a change in function or have been renovated and destroyed... Sapa center is currently overloaded, the expansion of development to other areas has been oriented according to the planning map, expanding and adding to mountains and lakes, the center area still has a very high construction density.

In the old quarter area, spontaneous increase in construction density and urbanization has caused significant and irreversible damage. In the villa neighborhood area, it is observed the demolition of private gardens undermines the beauty of the neighborhood. Regarding terraced houses: the problem includes the leveling of hills for road construction and building houses ruined the whole town's landscape. With too many new large-scale buildings overwhelming surrounding landscapes, it is now impractical to save the planning of the old developed urban center.

A survey table was prepared with criteria proposed by experts to assess the current status and value of public spaces and some typical constructions in the center of Sapa. The tables provided specific and detailed information, with some abbreviations noted as follows (Exp.): expert consultation, survey respondents, who are professionals working in different specialized disciplines such as project management; specialist; planner. In total, six specialists were invited to give their own opinions of the research issues. (T): the rating, corresponding to the scores given by the survey respondents.

With the purpose of orienting implementation methods in order to provide solutions, the authors have opted for a moderate sample size, however, the subjects selected to answer the survey were seasoned experts with clear understanding of Sapa.

Although representation may not be as high due to the sample size, the quality of the survey results was plenty convincing and had high expertise for the authors to give an overview of the area.

5.2 Evaluation of Public Spaces in the Center of Sapa Town

Sapa is a work of landscape architecture which was not created by people but by the natural terrain. The fact that natural landscapes are being destroyed and replaced with artificial landscapes and parks is highly unreasonable for this urban area. Cau May Street and square are a crowded commercial and tourist public space in Sapa. At present, it is surrounded by buildings with patchy and messy architecture and colors, losing out the overall landscape of the area. Sapa market is a crowded commercial area overlooking Tue Tinh Street. This street is home to a lot of beautiful works, evidence of architecture and history of Sapa. Due to degradation, they have begun to be forgotten and gradually replaced by newly built narrow houses which are not as appealing, damaging the economic benefits for tourism. The walkway along the balcony offers a panoramic view of the valley and mount Fansipan, where traditional garden houses are located just below the promenade. Newly built constructions have completely ruined the view and surroundings (People's Committee of Lao Cai Province 2004).

Public spaces, the heart of the region is being privatized, becoming either markets or parking spaces. Public activities and community activities are still very poorly organized, having been under promoted and used inappropriately in these public spaces. The space is still sketchy, has not been given proper attention, has no features or highlights to attract tourists. At present, these areas are developing and operating spontaneously, without specific programs and lack of activities to promote regional and local characteristics (Fig. 8).



Town squares are chaotic and messy due to lack of zoning for proper parking lots



Cluttered and disorderly construction sites on Cau May street



Lack of organized activities at the Stone Church



Lack of activities in the town square



Open lake area lacks green trees and highlights



The architecture of the water fountain is not quite the focal feature of the area

Fig. 8 - Some photographs about the current situation of the public spaces in the center of Sapa city (Atelier Dubosc et Associes 2020)

Table 7 shows the evaluation of the expert panel on the Public Spaces in the Center of Sapa Town, which include the Square Area, the Church Area, the Central Park Area, Sapa Lakeside and Road and Streets. Results from experts show that public spaces of the central area need to be embellished and increase appeal with community activities in the area.

Table 7 - Evaluation of public spaces

Urban Spaces	Exp1	Exp2	Exp3	Exp4	Exp5	Exp6	Total	Type
Square Area	81	72	76	80	74	81	464	T1
The Church Area	49	48	53	50	58	45	362	T2
Central Park Area	42	40	45	40	50	45	262	T3
Sapa Lakeside	30	32	35	40	30	42	209	T3
Road and Streets	20	25	35	38	20	36	174	T3

5.3 Evaluation of the Value of Some Type Architectural Building at the Colonial Period

The central area which was planned from the French colonial period has changed a lot, an urban area resort with villas built with the French architecture was replaced by large-scale buildings. Restaurants, hotels are striving to meet the requirements of urbanization and tourism. Construction density has been increased rapidly and infrastructure could not meet demand. Indigenous and colonial style architecture has been replaced with new ones in the area where local people would come into contact with tourists.

Creating the survey table of some representative buildings in the center of Sapa city which are (1) Stone Church (2) The villa project is Sapa tourism information center (3) The villa is the Station Office meteorology currently and (4) Ta Phin Monastery (Fig. 9). With Sapa being a tourist city, these architectural works with the biggest tourist attraction were chosen for research. This survey table is based on the criteria with suitable scores that were evaluated by professionals, project investors, people evaluation on historical cultural values, architectural values, whether the value of the landscape, the originality and the present function were able to fulfill the new functions or not (table.3) the Current situation of the Architectural Building in the Center of Sapa City.

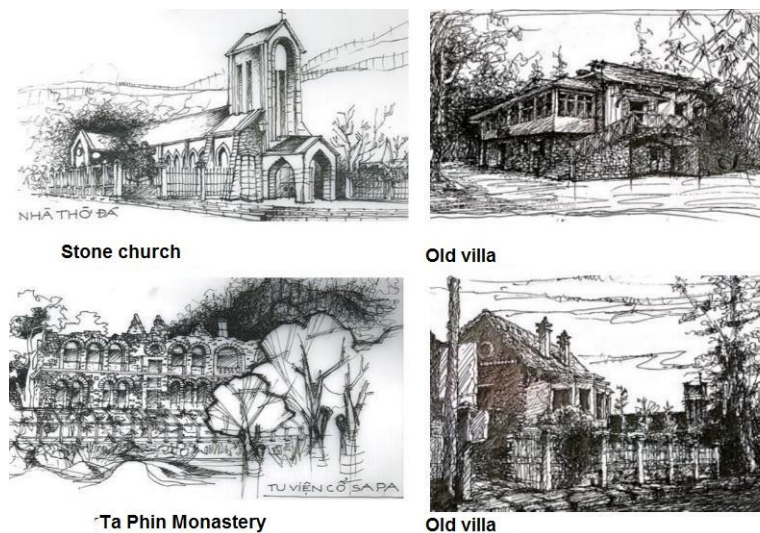


Fig. 9 - Some typical buildings in the center of Sapa

The significant results of this survey showed us that the value of a number of buildings built during the French colonial period still have a great influence on the local people and also on a large number of tourists and professionals. Through the results of the investigation, we can see the relevance, value of architecture, landscape, originality, current functions and the ability to meet new demands of works built during the French colonial period.

Table 8 - Quantitative assessment of surveyed works

Architectural Heritages	Exp1	Exp2	Exp3	Exp4	Exp5	Exp6	Total	Type
Stone Church	82	65	100	90	66	76	479	T1
Tourism info - center	87	62	90	60	60	63	422	T1
Station Office meteorology	72	74	90	58	62	70	426	T1
Ta Phin Monastery	26	41	77	59	44	70	317	T2

It can be seen that Stone Church, Tourism info-center and Station Officer meteorology are all works of special value that warrant proposals for authentic conservation. Ta Phin monastery is a high-value ruined building, so it is necessary to propose suitable plans to effectively utilize the value of this ruin (Table 8).

It is necessary to evaluate the impact of new construction buildings on the center of Sapa Town. This is a group of new buildings that are built on the old buildings that have been demolished. Some newly constructed buildings are selected for this research, such as (1) Hotel de Coupole (2) Legend Hotel (3) Hotel Pistachio (4) Hotel Sapa Charm (5) KK Sapa Hotel which are hotel buildings that are built for tourists from 2016 to present with a high number of visitors staying in Sapa (Fig. 10). The following indicates the assessment of the relevance of this site with the regional landscape and culture based on the opinions of experts, investors and indigenous people through surveys with specific criteria (Table 3).



Fig. 10 - Some new buildings at the center of Sapa Town

The significance of this survey is to assess the suitability of new constructions in terms of green materials and smart energy use, architectural value, and impact on the landscape and culture of the area. From this, we can see the satisfaction level of professionals, investors and people living around this area shown through the survey.

Table 9 - Quantitative assessment of surveyed works

Constructions	Exp1	Exp2	Exp3	Exp4	Exp5	Exp6	Total	Type
Hotel de la Coupole	49	48	17	64	60	59	297	T3
Legend Hotel	57	60	47	55	65	55	337	T2
Hotel Pistachio	44	52	43	44	42	41	266	T3
Sapa Charm Hotel	32	49	41	45	65	60	292	T3
KK Hotel	62	49	25	60	57	57	310	T2

Results from expert opinion show that some construction models have architectural scales and forms which are not in harmony with surrounding landscapes (Table 9). This proves the need for a more detailed management policy and construction orientation in order not to ruin the general landscape. Some good examples are hotels with good architectural scales and forms contributing to the general landscape of the area, such as Legend Hotel, which needs to be replicated.

6. Proposed Renovation Strategy for Sapa Town with Sustainable Development Orientation

6.1 Principles for Renovation

There are four principles to be adopted when renovating an urban area. They include new construction, integration, reservation and relic maintenance. Regarding new construction, all the aesthetic, social and cultural aspects, the natural and cultural landscape, the biodiversity characteristic and the broader landscape of the renovation site should be taken into account when developing tourism and infrastructure projects. Priority should be given to using local materials and taking into account indigenous architectural styles or traditions (Fig. 14) (Pedersen 2002). With the second principle, new architectural works are integrated in architectural ruins and live landscapes. New architectural works must not dominate but enhance the value of architectural ruins and landscapes. In the third principle, architectural ruins should be preserved in their original state. Good examples include the Suzakumon project (Nara, Japan) and the reconstruction of Chieu Kinh Palace project (Hue, Vietnam) (Dixon and Eames 2013). The 4th principle is about embellishing the landscape or creating new landscapes on the basis of deliberately selecting items that are appropriate to the existing landscape in order to create a unique feature of the designated area.

6.2 Proposed Renovation Strategies

The use of Construction Materials

With the aim of increasing the construction density in order to improve the service for tourists in the central area, create a new, practical and plentiful space without breaking the environmental landscape. The proposed plans need to ensure following principles of appropriate use of lightweight, recycled materials, which are easy for construction and

installation, and being economical such as steel, wood, concrete, EPS, gypsum, glass for new work items (Fig. 11) (kienviet.net 2020).

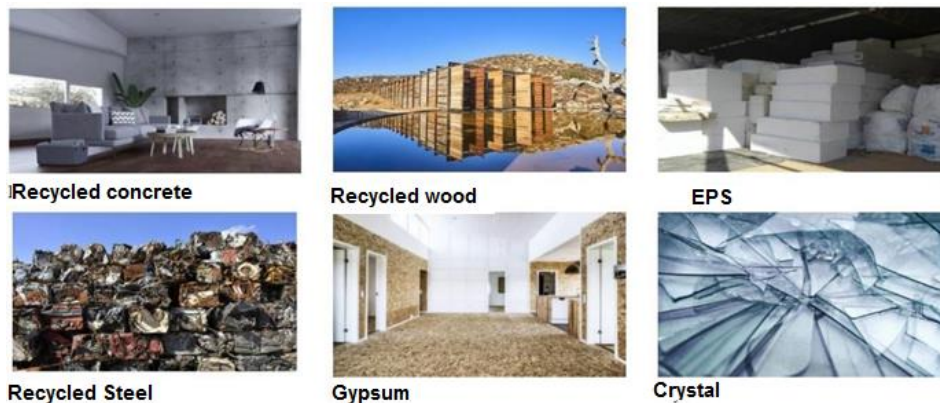


Fig. 11 - Using recycled materials to guarantee the urban’s sustainable development

Recycled materials suitable for the new stages have had many positive effects such as reducing construction costs and protecting the environment. This is a potential source of raw materials; from available sources, it can be substituted for other materials to create construction components at a good quality and not inferior to other traditional materials.

These materials can be completely applied in all types of projects from approach roads to small scale projects. It can be applied to structural items and also for the interior and exterior of the building.

Landscape Planning of the Central Area

The objective is to organize harmoniously between the kind of constructions from the French colonial period that are worthy of being preserved along some new ones without disorientation with a low landscape efficiency, and to avoid further disrupting of the general landscape of the area whilst at the same time to meet the increasing demand of tourists, and to ensure sustainable development in the future. The proposal is the landscape planning of the central area to create the relationship between the two architectural forms of this area to appropriately use spaces and constructions that have not been effectively put to use, guaranteeing maintenance and preservation of the remaining heritage sites.

Although public spaces have been paid attention to, they still need to be embellished and adjusted because the above limitations, which are small yet severely affect the general aesthetics of the area. The public features are not adequately paid attention to, which limits the usability of these public spaces for community activities.

These public spaces need to be reorganized as urban electronic check-in points. This place will attract tourists and investors, will act as the tourist information center, a cultural exchange place to promote indigenous culture and play a role as a hub for the whole city.

Organizing the most beautiful and unique natural scenery with overhead walking space in Sapa is Fansipan and Muong Hoa valley. Organizing an overhead sightseeing walkway at 3 locations of Tue Tinh, Cau May and Pham Xuan Huan using structural systems and glass materials. On these promenade frames, housing spaces for tourism, scenic viewing huts are to ensure good views while limiting construction in the center will be organized (Fig. 12):

Tue Tinh Road: The road for pedestrians is formed with suitable structure, running perpendicular to the contour line in the area, at three levels varying from 3-5m. Based on these characteristics, the design solution is stepped houses, associated with topography and geographic image of Sapa.

Cau May Road: A slope road is formed parallel to the contour line and gradually changes the elevation of the road surface to create a slope (circa 10 degrees). This street is the most typical old town of Sapa. Because the road has a slope of about 10 degrees, the solution of organizing "Street on the road" is also formed in the form of steps, along the length of the route.

Pham Xuan Huan Road: The road is horizontal and at the highest position. Therefore, organizing "Street on the Road" of this section is quite simple.

Landscape: Set up the walkway visiting at the high level from the recycled glass materials and space structure system. On these promenades, they will organize housing spaces for tourism to ensure good views, but limit construction works at the old center. Use recycled materials such as steel, glass, sustainable materials and green cover technology to ensure the overall planning and harmony with nature.

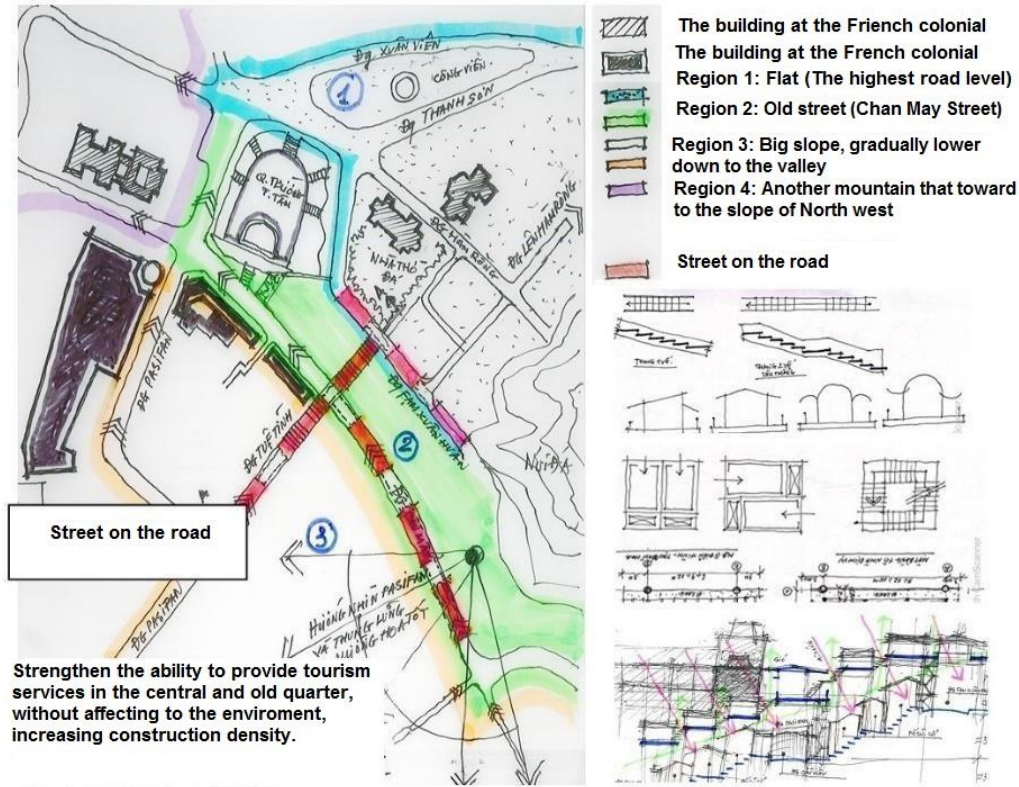


Fig. 12 - Propose the idea: “Road on the street” at the Sapa old center

The idea of "Street on the road" will be further developed for the whole area and it has been named "Partition Village". A proposed option is using promenades and rail tramways along the mountains, organizing "Street on the Road" for the existing streets outside the center area, organizing "Partition Village" using prefabrication techniques to establish and develop low rise hotels for locations where conventional construction method is not feasible (fig.13).

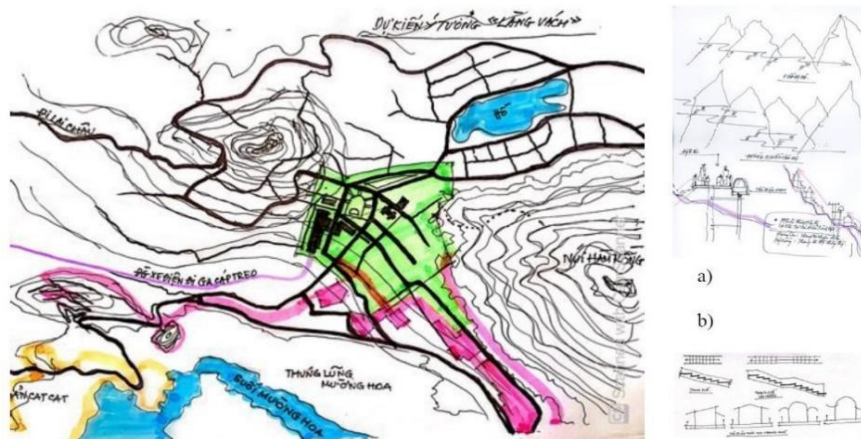


Fig. 13 - The map of planning the location of road at high level based on the plan “Partition Wall”

The advantages:

To expand and improve the existing additional land fund (due to the steep cliffs topography, which cannot be built by traditional method and cannot cultivate the industrial crops and agriculture). Constructing the low-rise hotels, building new resorts with proportions suitable to the terrain. Connecting these "partition villages" with old tourist service areas. Organizing traffic at the high level, creating a new tourism city in association with the landscape. Using steel structure and lightweight recycled materials, designing flexible modules, installations that are easy to work with and economical.

Public spaces in the central area: Digital technology in general, including geographic information system (GIS), is a useful tool in integrating database systems linked with the map. This progress has been widely applied in many developed countries. The application of the GIS system in the field of construction planning will help innovate and improve the

efficiency of design, which is an effective tool for departments, branches and localities in managing urban development according to the planning. With this technology, we will be able to grasp the entire profile of the current state of public spaces, from which to be active in control and management (Luu 2015).

Architectural Works

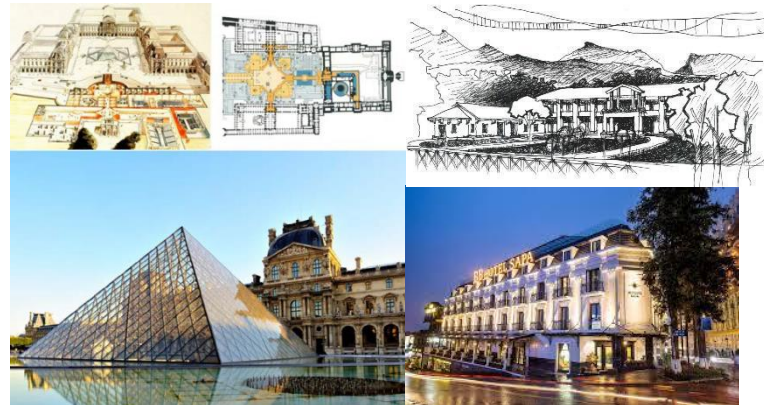


Fig. 14 - Louvre Paris - Typical case study for Principle 1

Group of works under the French colonial period:

Some selected French period buildings have a significant value to the moral for the community as well as with the general landscape of the area. And this again confirms the value of the cultural imprint of a period that should be respected and preserved. Based on the survey, it is found that some architectural works need a plan for authentic conservation such as the stone church, or intact villa.

Group of new construction works:

New construction buildings are not evaluated highly at the suitable level in accordance with the general landscape of the area. According to the planning during French period, the villas and hotels with low structures will be built in the central area, the large-scale buildings will be built in the higher locations. With the construction of large buildings in the center that overwhelmed and destroyed the landscape of the area, the public spaces that were the center of the whole area have become smaller in comparison to the new constructed buildings. New construction works must ensure not to overwhelm the landscape and to enhance the value of the landscape in the area. A prime example of this principle is the French Louvre Museum (Fig. 14).

Group of ruins:

Based on architectural ruins and landscape in order to build new constructions with new functions. That is to apply the principle of combining architectural ruins and living landscapes with new architectural works. Converting to new functions of use such as restaurants, swimming pools ... to revive the ruins (Fig. 15). Using recycled materials such as glass, steel frames to highlight the ruins (Chateau Barriere, Perigeux, France). Use 3D scanning technology creates a virtual reality 3D space with 3D viewing angle with short, continuous and detailed movements, that allow users to actively interact directly with the unlimited space, move to any location, give the feeling that the user is really standing in that space. The use of this method helps tourists to understand more about the building that they are in.



Fig. 15 - Converting the function to a restaurant or swimming pool, using contrasting recycled materials is the best proof of this principle (Vietnam Association of Architects 2020)

7. Conclusion

A survey of architectural works in the two phases of formation and development of Sapa tourism city showed that Sapa is currently facing many challenges for unreasonable use of heritage resources, which degrade them and do not contribute meaningfully to the economy and landscape of the town. But in the current context, we can recognize that Sapa still holds a lot of value, which are the buildings built from the French colonial period and some new constructions having architectural form matched with the regional landscape and need to be replicated.

The central streets: Continue to renovate and restore the relics with potential of conservation, upgrade the service infrastructure system, green space, traffic, in which the priority is given to the use of green vehicles that are environmentally friendly especially for the public transport.

Small residential buildings: The options to deal with this type of building are mainly the demolition and replacement of new construction with suitable structures as stated in the Sapa city regulations in 2004 declaring that “the goal of allowing an increase in construction density, but limited height, protects non-built spaces between buildings, completes the quality and architectural harmony of the building facades” (People's Committee of Lao Cai Province 2010). These goals do not take into account better resource saving and sustainable solutions. Changing the functions for building in good physical conditions to preserve the imprint of the urban landscape while saving on economic resources.

Public spaces: Globalization is often associated with the homogenization and standardization of urban areas. Emphasizing the need to continue the past to the better recreate it. Needing to further expand public places, invest in building more models, make use of all investment resources to ensure the balance between the solid and the hollow part of urban space because they bridge the past and future, from old downtown to new downtown.

New housing and commercial complex buildings are built on demolished buildings. These new buildings will create overwhelming pressure on the urban infrastructure system as well as potential future urban inadequacies in population density, environmental sanitation, social security... Those buildings should be taken into account in the master planning and investors should participate in this urban reconstruction. Now that real estate development firms will be the main players in urban planning, they are becoming "urban operators".

Formation of new traffic system and presence of the routes at heights: One of the most obvious manifestations of urban reconstruction is the expansion and upgrading of the urban transport infrastructure system. Identify the location, routes for sightseeing, exploration and discovery connect between spaces and encourage the creation of new public spaces. Connecting the ruins and common landscape. Using environmentally friendly materials and modern construction technology in order not to increase the construction density.

Renovation strategies for Sapa Town have been proposed in this study. The proposal on using recycled materials technology is highly practical. The suggested materials are available in the market at low cost and help reduce the use of natural resources to protect the environment. The landscape plan helps to connect the two existing architectural forms, to increase the value of public spaces which have not been used properly. The strategies support the town to serve the increasing number of tourists in the coming years but still ensure the infrastructure.

However, this research study has some limitation. Urbanization happens too quickly while the work needs to be done synchronously, fully deployed from planning to detailed design and implementation. Hence execution takes a long time and requires a process with a lot of connected work. In addition, during the implementation process, the use of conventional materials has become a habit, so it is very difficult to apply new recycled materials. Since the colonial period, there have been numerous attempts at undertaking the planning process and providing a practical solution, however, Sapa currently still lacks anything to show for in the form of a legitimate continuous development plan. A review of the successive embellishment plans from 1904 up to now shows a huge discrepancy between the well-arranged urban planning and the messy implementation. This indicates there has been no defined understanding for utilizing spaces as per specific functionality and activities, and that no one has been able to tackle the problem realistically without succumbing to their idealistic notions.

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