VÁROSI IDENTITÁS VIETNÁM ÉSZAKNYUGATI RÉGIÓJÁBAN

URBAN IDENTITIES OF THE VIETNAMESE NORTHWEST MOUNTAIN REGION

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ABSTRACT

The Northwest mountainous region of Vietnam is bordered to the north by China and to the west by Laos, including six provinces of Lao Cai, Yen Bai, Lai Chau, Dien Bien, Hoa Binh, and Son La. This is a land of forests, mountains, hills, valleys rivers and streams. A land of cultural diversity, with a population of more than twenty ethnic minorities with their own customs and lifestyles, and many unique values that determine the landscape architecture of the villages and the urban areas. In the process of socio-economic development, however, these values are gradually losing their inherent identity and being replaced by new hybrid landscape architectures, which do not fit the natural, cultural, characteristics and socio-economic conditions of the region. Therefore, the purpose and content of the article is: 1. Surveying and analyzing the current situation of landscape architecture in six representative urban areas, namely Dien Bien, Lai Chau, Son La, Hoa Binh, Lao Cai and Yen Bai, in the general context of natural, cultural characteristics and socio-economic conditions of the whole Northwest Mountainous region. 2. Developing a system of criteria for landscape identification and assessment. 3. Identifying the landscape architecture. 4. Proposing solutions with regard to landscape architecture in order to preserve and develop the identity of Northern mountainous urban areas.

Keywords: Landscape Architecture, Urban identity, Traditional Townscape, Cultural Landscape, Landscape Heritage

INTRODUCTION

The Northern Mountainous Region (NMR) in Vietnam has its unique landscape thanks to the coexistence of natural conditions and the diversity of man-made landscapes shaped by the communities of ethnic minorities such as Thai, Mong, Dao, Nhang, Ha Nhi, and Muong. In the process of urbanization and expansion, however, the spontaneous urban development lacks strategic planning and control. Urban landscape planning and design are not in accordance with the natural and ecological characteristics [1], leading to a gradual loss of the inherent urban identities. Therefore, the article focuses on research, survey and analysis of the urban landscape architecture, developing a system of criteria for landscape identification and assessment, proposing a number of solutions with regard to landscape architecture in order to preserve

and develop the identity of the NMR urban areas, as an important component of Vietnamese Cultural Landscape and Heritage.
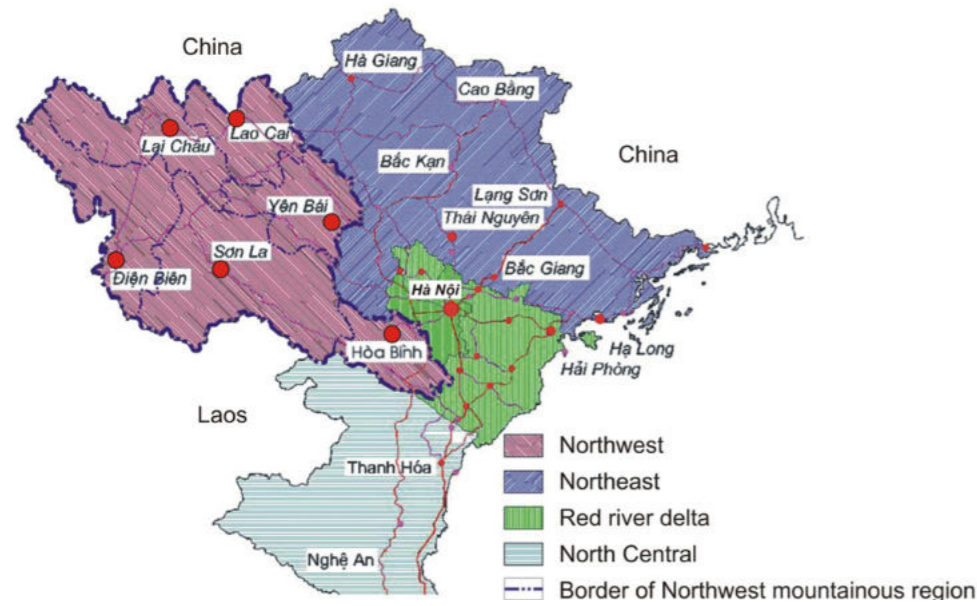
MATERIALS AND METHODS

The methods used in the research are based on comparative research, using field survey, data collection and statistical analysis and synthesis.

The research is done in three steps. Step 1 is to inspect, survey and analyze the current landscape architecture practice for preservation and development of the identity of the NMR urban areas. Step 2 is to study the theoretical and practical scientific foundations, including theories of landscape analysis and landscape classification, landscape design, urban planning and visual perception, ecology and sustainable development of the landscape. Practical foundations include practical experiences in landscape architecture for conservation and development of other urban areas in the world and in Vietnam. The practical foundations affecting the landscape architecture in preservation and development of the NMR urban areas include: the impact of natural characteristics, population characteristics; climate change, socio-economic conditions [2]. Step 3 is about new proposals to build a system of criteria for identifying and assessing landscape architecture, preserving and developing the NMR urban identity; identifying and assessing landscape architecture to create an urban identity, and landscape architectural solutions to preserve and develop the NMR urban areas.

RESULTS AND DISCUSSION
1. Current landscape architecture of NMR urban areas

In order to obtain a general assessment of the current landscape architecture in Northern mountainous urban areas, the authors selected six cities for the study, which are large secondary and tertiary cities, capitals of provinces, and have very important and integrated roles, both in economic and political terms. Each of these urban areas representing a province has common characteristics with other cities in the province in terms of natural conditions, culture and landscape values and is facing more difficulties and challenges in the preservation and development of urban identity. The six urban areas are: Dien Bien, Lai Chau, Son La, Hoa Binh, Lao Cai and Yen Bai. (Figure 1, Figure 2) The study of the current

ABSZTRAKT

Vietnam északnyugati, hegyvidéki régiója északon Kínával, nyugaton pedig Laosszal határos, és hat tartományt foglal magában: Lao Cai, Yen Bai, Lai Chau, Dien Bien, Hoa Binh és Son La. Ez az erdők, hegyek, dombok, völgyek, folyók és patakok földje. A kulturális sokszínűség földje, ahol több mint húsz etnikai kisebbség él, saját szokásokkal és életmóddal, valamint számos egyedi tájértékkel, amelyek meghatározzák a falvak és a városi területek tájépítészetét. A társadalmi-gazdasági fejlődés folyamatában azonban ezek az értékek fokozatosan elveszítik eredendő identitásukat, és helyükbe új, hibrid tájépítészeti megoldások lépnek, amelyek nem illeszkednek a régió természeti, kulturális jellegzetességeihez és társadalmi-gazdasági feltételeihez. A kutatás céljai a következők: 1. A tájépítészet jelenlegi helyzetének felmérése és elemzése hat reprezentatív városi területen, nevezetesen Dien Bien, Lai Chau, Son La, Hoa Binh, Lao Cai és Yen Bai, az egész északnyugati hegyvidéki régió természeti, kulturális jellemzőinek és társadalmi-gazdasági feltételeinek általános összefüggésében. 2. A táj azonosítására és értékelésére szolgáló kritériumrendszer kidolgozása. 3. A tájépítészet helyi jellegzetességeinek azonosítása. 4. Tájépítészeti megoldások javaslása az északi hegyvidéki városi területek identitásának megőrzése és fejlesztése érdekében. ◉

landscape architecture of these cities is based in the general context and impacts of natural, cultural, characteristics and socio-economic, and political conditions of the whole region [3].

1. Lai Chau City

The city is located in a rather narrow valley, with its surface sloping from the northwest to the southeast. The western and southwestern areas are high mountain ranges, the North and Northeast are interspersed with basins, and the South is represented mostly by agricultural use (rice fields and tea hills). The landscape is beautiful and majestic and bears the characteristics of a high mountain area.

Besides, Lai Chau City has many ethnic groups with cultural diversity, especially ethnic groups such as Thai, Giay, Mong etc.

Cultural phenomena such as flea markets, village festivals and local celebrations are imbued with highland ethnic culture, represented through costumes, house forms and other intangible cultural forms and created a special cultural ambiance. Green spaces, historical, cultural sites and monuments, water habitats and caves in the city and its vicinity increase the attractiveness of the landscape.

There is a phenomenon of hills and mountains are being flattened and demolished to build houses and farms. The newly constructed squares and large-scale buildings are disproportionate to the old spatial pattern and architecture.

2. Dien Bien Phu City

Dien Bien Phu City is located in a diverse topographical area, including valleys interspersed with low hills, and large fields. Primary forests, and high mountains with curved shapes surround the Dien Bien basin valley. The

vegetation is tropical with relatively high surface cover. The river system, is dominated by the winding Nam Rom River, which collects the water flows of the whole basins and is linked with hundreds of other tributary streams. Many canals, ponds, lakes spread through the city and the surrounding areas such as Pa Khoang Lake, Huoi Pha Lake, creating beautiful scenery. The heritage value of the city is rooted among others in the system of existing historical monuments such as the Memorial of Dien Bien Ph victory, Citadel was bult by Hoang Cong Chat etc.

However, urban development is rampant and out of control. Urban planning with messy architecture and traffic system disrupts the urban landscape pattern.

3. Lao Cai City

Lao Cai City is in the Red River valley area, flanked by two mountain ranges, the Elephant and the Hoang Lien Son. The terrain tends to slope gradually from the Northwest to the Southeast, from the Hoang Lien Son range to the Red River, and is divided by rivers, streams, waterways, hills, etc. Lao Cai is located on both sides of the Red River and it is surrounded by hills and mountains. The city has three types of terrain: hilly terrain, valley terrain and river delta terrain.

The natural landscape is in harmony with the characteristics of rivers and water bodies in the heart of the city. However, the city is divided by the infrastructure system. The Noi Bai – Lao Cai highway is the dividing line between the inner city and the suburban area. Urban architecture has not been harmonised. The downtown area of Lao Cai City, with its main and secondary roads, has a herringbone structure, with neighbourhoods characterized by traditional commercial streets with busy commercial activities (small shops, vendors along the sidewalk).

Fig. 1: The location of the Northwest Mountain Region in Vietnam
Fig. 2: The overall natural topography of Lai Chau, Dien Bien, Lao Cai, Yen Bai, Son La, Hoa Binh cities
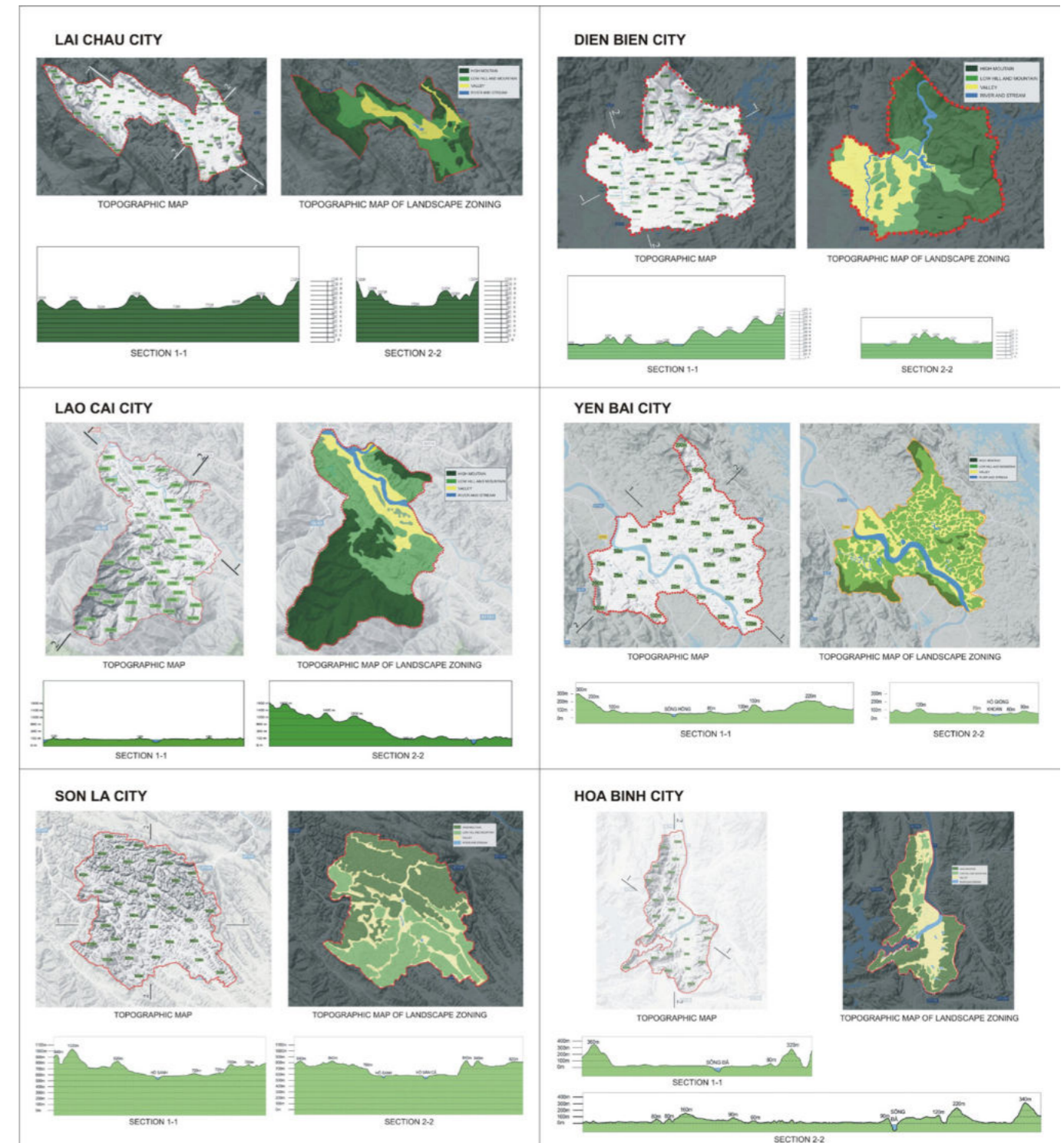
AN IDENTIFIABLE URBAN AREA IS CREATED BY A SYSTEM OF URBAN SPACES WITH IDENTITY
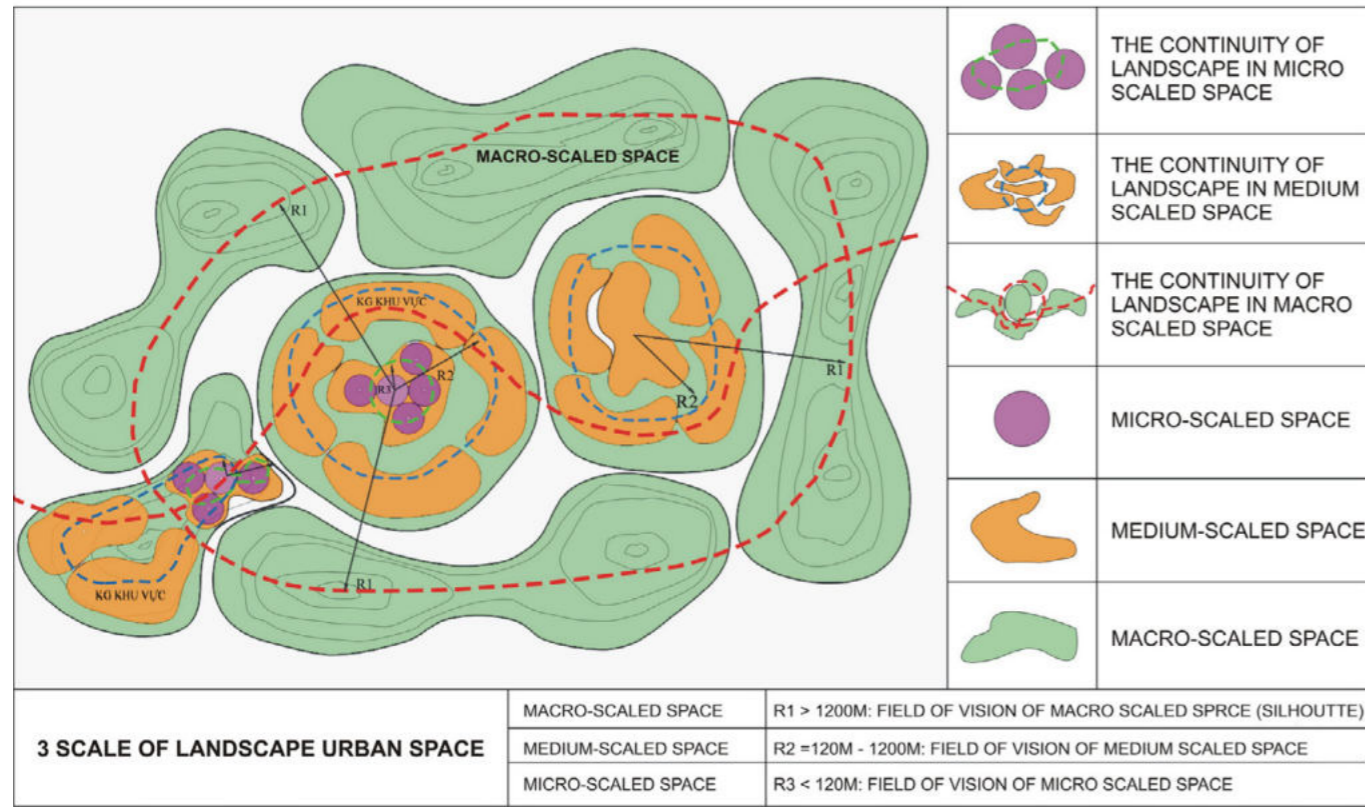
Lao Cai City has valuable and significant historical and cultural monuments such as the ancient citadel and fortress, etc. and Cam Duong revolutionary historical relic complex, which is a historical site associated with the formation and development of the Provincial Committee of the Lao Cai Party. The monuments were planned and embellished in order to preserve the fine traditions of the nation and be a tourist attraction.

4. Yen Bai City

The city is located on both sides of the Red River, with its topography consisting of a riverside alluvial strip, an ancient alluvial plain on the riverbed, low hills with round, bowl-shaped peaks, valleys and streams interspersed with hills and mountains and undulating fields running along the riverside.
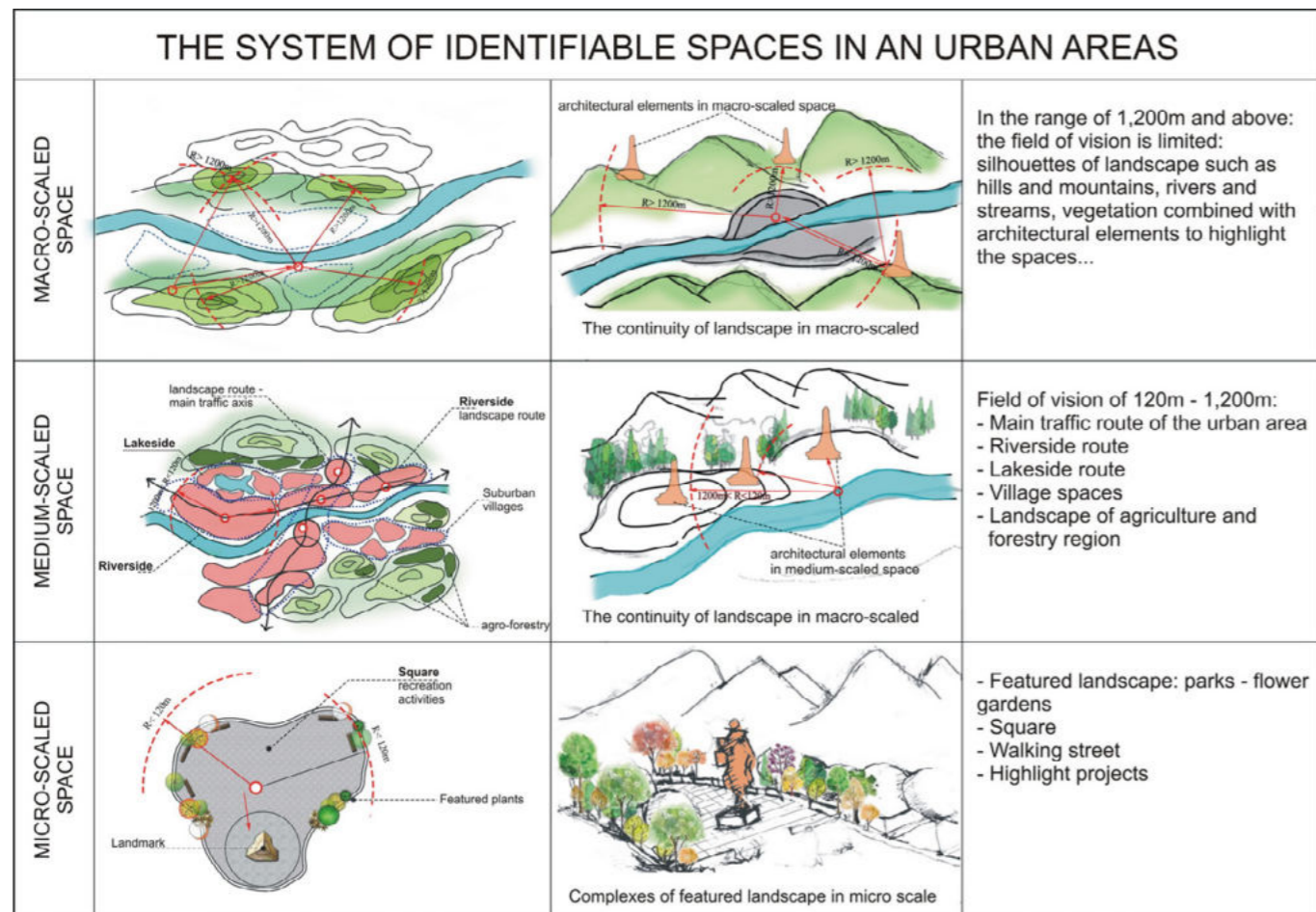
The network of water bodies is rich, with the Red River flowing through and several lakes, lagoons, creeks, and streams. Hilly land and forests contribute positively to creating a typical landscape. The city's commercial buildings have recently tended to be developed in the form of modern high-rise complexes, and disrupt the landscape. The city's green space and water network is very large, but it is in a wild and unexploited form, and there is a lack of parks and flower gardens in the city. Housing is mainly low-rise, built by the people themselves, but currently the city is piloting the construction of high-rise apartment buildings on Nguyen Thai Hoc Boulevard.

Besides, the urban layout of Yen Bai City is scattered and fragmented, and there is a lack of spatial and architectural highlights.

5. Son La City

Son La City has Nam La Stream, flowing from the Pac-Mo Mountain range in the south of the city. The overall topography of the city includes high mountains occupying a large area. The hillside terrain occupies a small and scattered area. Fields are located along both sides of the Nam La Stream.

Sn La has a rich system of cultural buildings, revolutionary, and historical relics. There are still traditional villages with typical architecturural buildings, and folk houses. However, the city is facing the problem where hills were flattened and ferests were destroyed to build large projects. The central square is too big, empty and flat, with a spatial design, landscape design, and architecture not suitable for a high mountain city.

6. Hoa Binh City

Hoa Binh City has a valley terrain lying on both sides of the Da River, surrounded by hills and mountains. Da River flows in the center of Hoa Binh City, with both sides of the river having river valley and mountainous terrains. In addition to the Da River and the Hoa Binh Lake, Hoa Binh City also has a number of small lakes such as Quynh Lam Lake, De Lake, Minh Thinh Lake, and Dung Stream Lake and Dam.

The entire urban space is distributed within the valley and there are high mountain ranges of the Da Bac, the Ky Son and the Cao Phong. Urban space is still scattered and not very coherent. New architectural buildings, public spaces were built are not associated with the terrain and natural landscape. For urban development, higher slopes will have to be exploited, but the current popular practice is flatting hills and mountains for construction is a serious mistake that needs immediate intervention.

Especially, it is necessary to connect the traditional villages scattered in the Cham Mat, Su Ngoi, which bear the traditional Muong culture.

2. Building a system of criteria to identify and evaluate landscape values for conservation and development of the identity of Northern mountainous urban areas

2.1. Criteria group 1: General identification of urban landscape morphology

An identifiable urban structure is created by a system of urban spaces with identity. According to Ian Mcharg (1995) there are three spatial levels to study: Macro-scaled space, medium-scaled space and micro-scaled space (Figure 3, Figure 4).

Table 1: Proposing a scored evaluation based on groups of criteria to identify and evaluate the landscape values

No.	Elements for assessment	Points 1	2	3
1	Identification of morphology of identifiable macro-scaled landscape			
1.1	Mountain morphology	Lack of characteristics in the silhouettes of mountains	Characteristic mountainous topography	Mountain morphology has its own characteristics, possible to determine and denominate
1.2	Water bodies morphology	Lack of characteristics in the distribution and shapes of the water bodies	Characteristic in shape, colour or static-dynamic nature	Having own characteristics in shape, colour or static-dynamic nature
1.3	Plant morphology	Lack of characteristics in the layout and colours	The layouts of plants can be clearly recognized.	Having characteristics in the layout and colours
1.4	Architectural elements	Featureless, hard to recognize	Easy to recognize	Having impressive characteristics in shape, ratio, colour in space
1.5	Capability to form a systemed spaces of urban landscape	The morphology of landscape lacks completeness and characteristics	The morphology of natural-artificial landscape is quite complete. There is a link between the overall space and its details with a special character	The morphology of natural-artificial landscape is complete, from the overall space to details, with a distinctive local character
Point (1)		5	10	15
2	Criteria for open spaces in identifiable urban areas			
2.1	Criteria for macro-scaled space with an identity			
2.1.1	Morphology of topography	Lack of distinctive characteristics	Distinction of the macro-scaled silhouettes	Mountain morphology has its own characteristics, able to be named
2.1.2	Morphology of water bodies	Lack of distinctive characteristics	Clearly distributed and easily distinguished	Having its own characteristics in shape, color, static-dynamic level
2.1.3	Morphology of vegetation	Lack of characters	The layout and coloration are quite clear	Special in the layout and salient coloration, the ecosystem is diversed and sustainable
2.1.4	Architectural elements	Lack of harmony and impact	The shape and layout harmonize with the macro-scaled landscape	Having special characteristics
2.1.5	Continuity of the field of view of the macro-scaled landscape	The layout and connection of landscape is incomplete and the field of view is interrupted	The layout and connection of landscape is distinctive and the field of view is uninterrupted	The field of view is uninterrupted; the layout of landscape is distinctive and salient
2.1.6	Cultural-historical values	Valuable	Typically valuable	Having salient and special values
Point (2.1)		6	12	18

No.	Elements for assessment		Points 1	2	3
2.2	Criteria for medium-scaled space with an identity				
2.2.1	Natural land-scape	Topography	Lack of characteristics	Distinctive topography, slope, types of rocks and soils	Characteristic topography, slope, types of rocks and soils, sizes, colours
		Water bodies	Lack of characteristics	There are characteristics that are easy to reconize	Morphology of the water body, colour, flow velocity, ecosystem have distinctive characteristics
		Vegetation	Native plants in small quantity, unimpressive design	More than 40% distinctive native plants, unimpressive design	More than 40% distinctive native plants, impressive design
2.2.2	Architectural elements		Featureless, indistinct traditional architecture	Distinctive traditional architecture, harmonious with overall landscape	Architectural forms with attractive, outstanding salient and local identity;
2.2.3	The layouts of landscape are locally distinctive (water wheels, bridges over streams multi-layered tree canopy, stilt houses)		The design is discontinuous; small quantity and lacks characteristics	Medium quantity; continuous design creating landscape identity and characteristics	Large quantity; beautiful and impressive design;
2.2.4	Cultural activities	Urban open space for activities	Lack of identity; irregular	Locally rooted cultural characteristics	Special and regular cultural activities
		Relationship with cultural-historical values	Valuable	Typically valuable	Outstanding values
2.2.5	The continuously connected landscape images create the identity of the spaces		Discontinuous, interrupted	Continuously maintained as landscape chains	Continuously maintained as landscape chains
Point (2.2)			8	16	24
2.3	Criteria for micro-scaled space with an identity				
2.3.1	Natural landscape	Topography	Lack of characteristics	Distinctive slope, types of rocks and soils	Characteristic slope, types of rocks and soils, sizes, colours
		Water bodies	Lack of characteristics	There are characteristics that are easy to reconize	Morphology of the water body, colour, flow velocity, have distinctive characteristics
		Vegetation	Native plants in small quantity, unimpressive design	More than 40% distinctive native plants, unimpressive design	More than 40% distinctive native plants, impressive design
2.3.2	Architectural elements		Featureless, indistinct traditional architecture	Distinctive traditional architecture, harmonious with overall landscape	Architectural types with attractive, outstanding salient and local identity;
2.3.3	The layouts of landscape are locally distinctive (water wheels, bridges over streams multi-layered tree canopy, stilt houses)		The design is discontinuous; small quantity and lacks characteristics	Medium quantity; continuous design creating landscape identity and characteristics	Large quantity; beautiful and impressive design;
2.3.4	Cultural activities	Urban open space for activities	Lack of identity; irregular	Locally rooted cultural characteristics	Special and regular cultural activities
		Relationship with cultural-historical values	Valuable	Typically valuable	Outstanding values
2.3.5	The continuously connected landscape images create the identity of the spaces		Discontinuous, interrupted	Continuously maintained as landscape chains	Continuously maintained as landscape chains
Point (2.3)			8	16	24
Total of points (1+2.2+2.2+2.3)			27	54	81

• Macro-scaled space has a wide field of view, in distance of 1200 m or more, to help to identify the overall landscape features in the form of silhouettes and contours [4]. Identification of the overall landscape features at this visual range includes mountain morphology, water bodies morphology (rivers, streams, lakes), natural green tree morphology and architectural elements with scale, volume, and salient features. In this context, the morphology of the overall natural landscape becomes the backdrop of the landscape of other areas in the urban area.

• Medium-scaled space has an average visibility from 120 m – 1200 m, [5] within this range, it helps us to recognize the features of natural landscape, artificial landscape and activity landscape. Identification of mountain morphology is the identification of the characteristics of the mountain, such as shapes, slopes, colours. Identification of water bodies morphology is the identification of the shape of the water body, the colour of the water, and even the landscape tipes near the water edges. Identification of vegetation morphology is the identification of character of line, form, colour and texture exhibited by vegetation. Identification of artificial landscapes is the identification of the structural morphology of functional areas in the urban area. Identification of the active landscape is the identification of typical activities in space.

• Micro-scaled space has a clear view within less than 120 m: within this range, the details of landscape can be identified. Identification of topography is identifying of slope, shape, characteristics and colour of the terrain, types of soil and rock. Identification of water includes the identification of shape, colour, dynamic – static nature of the water surface, landscape layouts with their own characteristics near the water surface area. Identification of plants is identifying of plant species. Identification of architecture is about identifying shapes, colours, and formal features of architecture. Identification of active landscapes includes identification of activities in space, such as colours, characteristics of costumes, voices, sounds and specific human activities. An urban area is classified as having identity when the ability to connect spatial levels, including Whole-Area-Small levels, ensures the continuity of route in sequence of characteristic images, without interruption in the range of view.

2.2. Criteria group 2: Assessment of urban landscapes with an identity
a. Criteria for the identifiable macro-scaled space [6]:
The morphology of the natural landscape combined with architectural elements must be symbolic, creating a distinct image. In terms of topography, it is a hilly

morphology with distinctive features of shape. The overall landscape of the mountain morphology can be taken as a symbol for the area. The water bodies morphology is a water body with special characteristics, for example zigzag shape and the colour of the water with its own characteristics. The colour of the vegetation changes, creating seasonal effects in the macro-scaled space.

If in the field of view of the Macro-scaled space, there is a natural landscape form lacking an identity, it must be added in combination with special artificial architectural elements in the Macro-scaled space.

b. Criteria for the identifiable medium-scaled space:
The urban medium-scaled space has an identity consisting of landscape units with their own identity and identifiable landscape architectural materials, forms, and fabrics. In terms of topography, it is necessary to maintain the natural hilly form, without being flattening. The slope of the hillside and the rocks of the mountain have distinct characteristics. In terms of water bodies, the morphology of the water bodies must have distinctive characteristic, with static-dynamic nature (fast flowing, calm), the water surface must have colour (opaque red, clear blue, white…). At least 40% of the trees on the mountains and hills must be native varieties. Architecture must have its own characteristics in the form of indigenous traditional architecture, biomimetic architecture, architecture suitable to the living and production conditions of local people. The urban landscape must have a linear continuity, uninterrupted, making the identification and perception of the architectural space complete.

c. Criteria for the identifiable micro-scaled space:
The combination of Topography – Trees – Water Bodies – Architecture has a distinct characteristic. Urban landscape design must have an identity with the main components of small spaces, such as the ground surface, roads, urban amenities, public art, architectural highlights, bearing cultural imprints and local characteristics. We should explore the images of stilt houses, terraced fields, water wheels, bridges over streams, native trees.
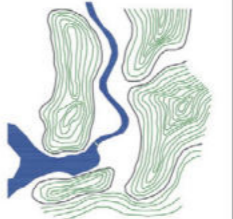
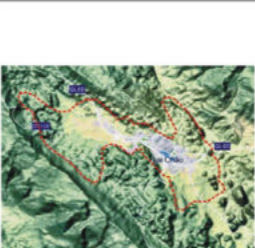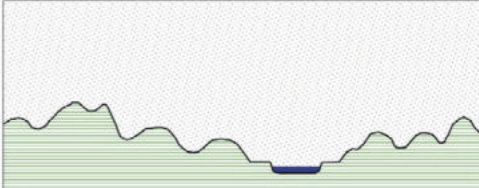*3. Overview of urban landscape character in the Northwest Mountainous Region*
3.1. Features of natural topography
a. As shown in Figure 5, the general morphology of the natural topography includes two types. Type 1 is a valley in a large watershed combined with low hills and high mountains (Lao Cai, Yen Bai, Hoa Binh cities). Type 2 is the valley area in the watershed of small streams combined with hills and mountains of medium and high altitude (Dien Bien, Lai Chau, Son La).

Fig. 5: Identification of characteristics of the overall natural topography on plan of the Northwest mountainous urban areas
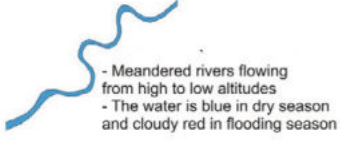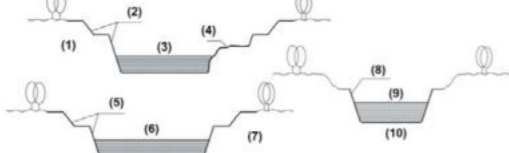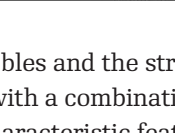**Fig. 6:** Identification of characteristics of the overall natural topography in the cross-section - silhouette of the Northwest mountainous urban areas
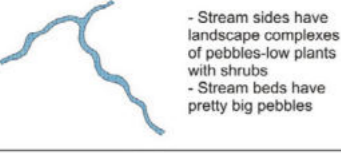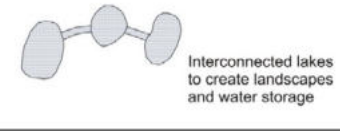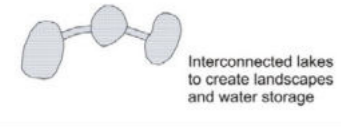
Fig. 7: Identification of features of water surface landscapes in urban areas
Fig. 8: Identification of the landscape of activities bearing the identity of the Northern mountainous region

b. According to the cross-section – silhouette shown in Figure 6, the general morphology of the natural topography includes two types. The first is when the rivers and streams are combined with bowl-shaped hills and mostly sharp-peaked mountains connected to form a saddle (Son La, Yen Bai, Lai Chau cities). The second is when the rivers are combined with mountains of medium and high altitude, pointed peaks, and sharp ridges (Dien Bien, Lao Cai, Hoa Binh).

3.2. Features of water bodies
• Rivers of NMR urban areas include large rivers such as the Red River (Lao Cai, Yen Bai), the Da River (Hoa Binh) with zigzag and meandering flow from the Northwest to the Southeast (Figure 7) [8]. The water colour of the rivers is usually clear in the dry season and cloudy red in the flood season. Most of the big rivers have terraced embankments on both sides of the section flowing through the urban areas to avoid the risk of urban landslide in the flood season.
• Streams and creeks of NMR cities include large streams such as the Nam Rom (Dien Bien), the Nam La (Son La), the Ngoi Se (Yen Bai). The stream bed
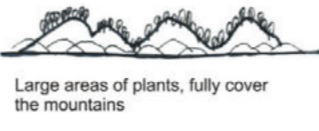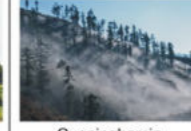
has rather large pebbles and the stream bank has a natural landscape, with a combination of pebbles and shrubs which are characteristic features.
• There are major lakes such as the Dong Tuyen Lake (Lao Cai), the Yen Hoa Lake, the central lake (Yen Bai), the Thac Ba hydroelectric lake (Yen Bai), the Pa Khoang, the Huoi Pha (Dien Bien), the Hoa Binh Lake (Hoa Binh), the Thuy Son Lake (Lai Chau). These lakes store water, creating landscapes and generating hydroelectricity. Therefore, the components creating a very typical landscape complex are water bodies - hills - clouds.

3.3. Features of vegetation in natural landscape
The typical plants of the NMR cities are distributed according to the elevation of the terrain(Figure 8) [9]. The plants on high mountain areas often grow following the Plant Strata form, refer to the various horizontal layers that constitute a plant community: canopy, understory, shrub, and ground cover, covering the mountains. Commontree species in high mountain areas are: masson's pine (*Pinus massoniana* Lamb) fujian cypress (*Fokienia hodginsii* (Dunn) A. Henry et Thomas), cunninghamia

(*Cunninghamia lanceolata* (Lam.) Hook). The plants on low hills often cover the hills, interspersed with agro-forestry plants such as: acacia (*Acacia auriculiformis* A. Cunn. ex Benth), eucalyptus (*Eucalyptus globulus* Labill), cinnamon (*Cinnamomum cassia* Nees & Eberth), canarium (*Canarium tramdenum* Da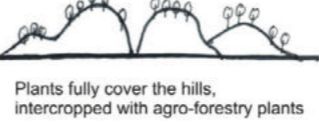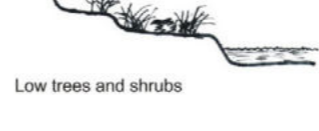i & Ykovl), tea (*Camellia sinensis* (L.) Kuntze). Plants in valleys and river basins are usually seasonal plants such as bauhinia (*Bauhinia variegata* L), peach blossoms (*Prunus persica* (L.) Batsch), white plum (*Prunus mume* (Siebold) Siebold & Zucc), buckwheat blossoms (*Fagopyrum esculentum* Moench).

3.4. Landscape units OR character types bearing the identity of the NMR
The Northwest mountainous region has unique landscape layouts and connectedness with their own identity [10], including six types of layouts such as the natural landscape layouts of mountains – streams (water gathering), are located in ravines in the mountainous area with medium and high altitudes. Natural landscape complexes of mountains – rivers – valleys are located in river basins. Natural landscape layouts of pebbles – shrubs – water surface located in river and stream basins. Artificial

landscape layouts include terraced fields – stilt houses – streams are located in stream basins and low hills.
These are also landscape of bridges over rivers and streams. Especially the image of water wheels on the streams and river banks serving people's daily life and irrigation is a very typical image of exploitation on natural energy and natural materials for life.

3.5. Morphology of urban layout
It can be seen that the morphological characteristics of the NMR cities are mostly organic shapes in harmony with the natural topographical features of hills, rivers, streams and valleys (figure 9) [11]. It is possible to classify the layout of NMR cities into 3 types:
① Striped layout combined with radial development: Urban development comes from valleys, river basins, dispersed into radial development interspersed with mountainous terrain around the valley and part of the river and is limited by the surrounding alpine terrain. The urban areas of Lao Cai and Yen Bai have this layout, the urban space develops gradually on the slope of the hillside, a part of the urban area lies on both sides of the river.

⊘ Bowl structure: The city develops in basins at the foot of the mountain and is limited by the surrounding high mountainous terrain forming a bowl; the city is located in a fairly wide and relatively flat valley. Dien Bien and Son La urban areas have this structure.

⊘ Stripe layout: Urban development lies on the banks of the rivers and streams in the foothills and is limited by high mountain terrain on both sides, forming narrow valleys. Lai Chau and Hoa Binh urban areas have this structure and develop along river basins in the form of a stripe.

3.6. Landscape of activities bearing the identity of the NMR

The typical landscape of activities in the space of urban areas in the NMR is easy to see through festive activities of the New Year, at the occasion of harvesting crops (Figure 10) [12]. The space of activities is very lively and colorful, presented in traditional costumes as well as unique cultural activities of ethnic minorities in the NMR.

4. Landscape architectural solutions to preserve and develop the identity of Northern mountainous cities
4.1. Solutions to organize the urban landscape architecture to create the overall spatial identity of the city

• Zoning to designate areas with characteristic features of the natural landscape, including mountain morphology, water surface morphology, vegetation morphology, landscape features of special value [13].
• Identification and classification of the field of vision according to the A-B-C levels. With type A field of vision landscape features are promonent and visible clearly. With type B field of vision, typical landscape features are visible. With type C field of vision that are lacks of landscape features.
• Determination of the landscape viewpoint according to the levels V1-V2-V3 to identify the typical overall landscape in urban spaces.
• The V1-levelled viewpoint is the dominant viewpoint of the field of view, helping to fully and clearly identify the landscape identity of the overall space. The V2-levelled viewpoint is a viewpoint that helps to identify the relatively typical landscape of the space, because at this viewpoint, it lacks a certain part of the feature such as mountain morphology, or water

surface morphology, or vegetation morphology, or the architectural element of the field of view lacks typical character. The V3-levelled viewpoint is the viewpoint that lacks many features of the landscape.
• From the zoning, classification of fields of view, identification and classification of landscape viewpoints in the above steps, the next step is to propose solutions to organize the landscape to create identities for B-C fields of view and V2-V3 levels viewpoints for clearer and more typical landscape. The proposed solutions use architectural elements and planting design to create identity by:
  ◦ Establishment of more architectural works bearing special features, local characteristics. In the scope of the overall field of view, there is a distance of over 1200 m, so it is necessary to pay attention to the background and silhouette; the architectural elements need to have a prominent proportion and volume as the highlight works to combine with the natural landscape to create and increase the identity of the overall space.
  ◦ Establishment native tree forms with characteristic colours and combinations to impress and characterize the space; typical plants combined with earthwork, water bodies and architectural elements to help increase the identity of the overall space.

4.2. Landscape architectural solutions to preserve and develop the spatial identity at the urban area
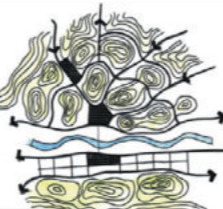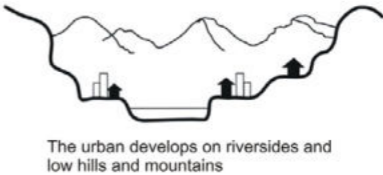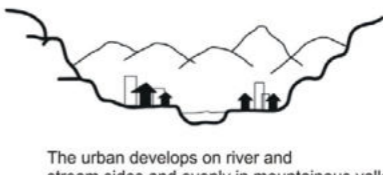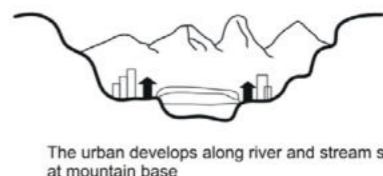
At the urban area level, the landscape areas level [14] (Figure 12, 13) has features to create an identity for urban, including areas such as: Landscape routes along rivers and streams, lakeside landscape route, the main urban axes, peripheral space: residential villages, agro-forestry production areas: hilly areas where industrial crops are grown, rice cultivation areas and terraced fields, gateway area – urban entrance.

a. Landscape route along rivers and streams. Landscape architecture solutions to create identity for landscape routes along rivers and streams:
• Establish a smooth route for areas along rivers. Landscape routes on both sides of rivers and streams need to be connected with each other and connected with other areas of the city by visual links and viewpoints.

	Plan forms		Topography sectional forms	
Type 1		Large river basin combined with hills and mountains (Lao Cai, Yen Bai)		The urban develops on riversides and low hills and mountains
		Plate structure combined with array structure		
Type 2		Wide valleys combined with rivers and stream (Dien Bien, Son La)		The urban develops on river and stream sides and evenly in mountainous valleys
		Plate structure		
Type 3		Narrow valleys combined with rivers and stream (Lai Chau, Hoa Binh)		The urban develops along river and stream sides at mountain base
		Strip structure		

ACTIVITIES SHOWCASING NMR IDENTITY

Muong A Ma festival - Son La (Praying for rain festival from lunar Dec to Feb)

Praying for peace festival in Muong villages-Son La (from the end of lunar Jan to the beginning of Feb)

Tea picking festival Moc Chau - Son La (the end of the year)

Long Tong festival (praying for crops) - Tay people (at the new year)

Can Cau market - Simacai (Lao Cai) (weekly, monthly)

Praying for rain festival of Kho Mu people - Dien Bien (from the end of lunar Mar to the beginning of Apr)

Can Cau buffalos market - Lao Cai (every Saturday)

Legume blossoms festival - Dien Bien (lunar Feb)

The field of view of the space at area level has a range from 120 m – 1200 m, therefore, if there is a lack of features on the route, outside of this range, it is necessary to establish additional the characteristic landscape layouts, architectural highlights, to ensure the continuity, and uninterrupted of the landscape image chains.

- Landscape layouts designed along rivers and streams are influent from the characteristics of natural, man-made landscapes and local cultural activities. Landscape routes along rivers and streams can be designed using images of stilt houses, water wheels, bathing wharfs, images of bridges crossing streams, a combination of cobblestones - streamside shrubs, a combination of multi-layered trees on the mountain to create ecological diversity along the water surface.
- Landscape route along rivers and streams helps to establish open spaces and green corridors for urban areas, therefore, the organization of landscape architecture for this area is the solution to protect the water bodies and corridors along rivers and streams. The landscape architecture of the riverside and streamside routes plays an important role in creating and preserving the overall as well as helping to connect the landscape with other functional areas of the city.

b. Landscape routes along the lakesides. Solutions to organize landscape architecture to create identity for landscape routes along the lakesides:

- Establish a smooth route for areas on lakesides to create open space for the city. Lakeside areas need to be connected with other areas of the city by visual links and viewpoints.
- Landscape layouts long the lakesides are influent from the characteristics of natural, man-made landscapes and local cultural activities. Landscape routes along rivers and streams can be constructed using images of stilt houses, water wheels, combination of cobblestones - streamside shrubs, combination of multi-layered trees to create ecological diversity along water edges.

c. Main axes. The main routes and axes of the cities have the role of connecting the landscapes of the cities, therefore, the landscape architecture of the route needs to be designed with characteristics and organization to create an identity for the whole route. These roads need to comply with the principle of reasonable road width ratio, avoiding bulldozing to make large, straight roads like boulevards, thus losing the characteristics of mountainous terrain. Landscape architecture with identity on the entire routes must be continuously identifiable within the scope of regional visibility. The landscape architecture is designed needs to exploit the elements of architecture, public art, urban amenities, materials with typical images of indigenous cultures, and typical landscape layouts that need to be emphasized. The vegetation needs to be planted with typical local plant species.

d. Landscape areas in the suburban areas.
- Landscapes of traditional villages
  ○ Integrate traditional villages of ethnic communities living in the periphery of Northern mountainous cities, such as the Muong (Hoa Binh), the Thai (Son La, Lai Chau, Yen Bai), the Dao Do (Yen Bai, Lai Chau), the H'mong (Lao Cai, Yen Bai, Lai Chau, Son La) with general urban planning in terms of landscape, culture, and production.
  ○ Preserve the layout of the villages such as the layout of roads and preserve the form of local traditional houses of the ethnic groups (stilt houses, traditional houses built with local materials such as earth, stone, wood, neohouzeaua, bamboo).
- Landscapes of agro-forestry
  ○ Preserve and develop agricultural production landscapes, rice cultivation areas and terraced fields, thereby contribute to the creation and preservation of the overall landscapes with the identity of the NMR urban areas. The landscape architecture of the agro-forestry production areas has both the effect of local economic development and the contribution to the landscapes to serve the needs of tourism development.
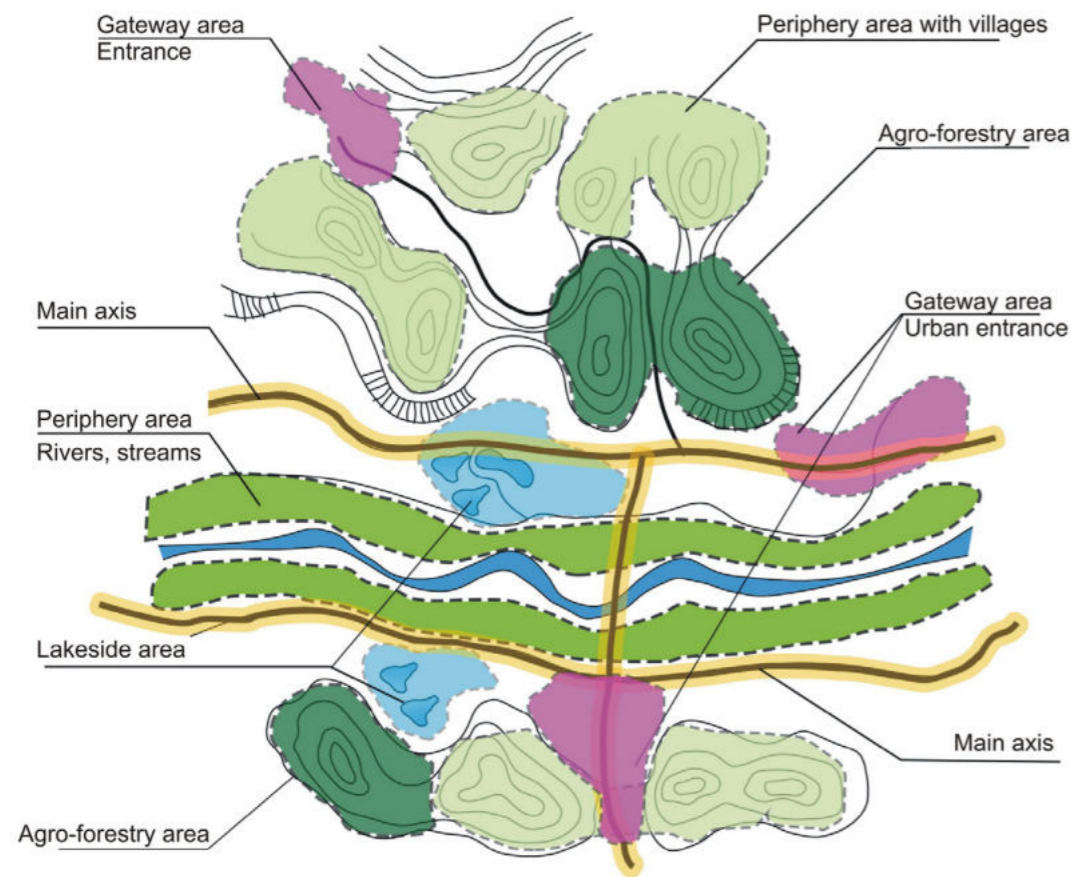
THE SPATIAL SYSTEM AT AREA LEVEL TO CREATE THE URBAN IDENTITY

THE LANDSCAPE ARCHITECTURE ORGANIZATION TO CREATE THE IDENTITY IN MEDIUM SCALED SPACE

◦ Zone the areas of forestry production, plant economical industrial trees, such as cinnamon, tea, acacia, canarium, on the hills while preserve the typical hilly landscape.

4.3. Landscape architectural solutions to preserve and develop the identity of Micro-scaled urban spaces

Micro-scaled urban spaces are spaces with clear visibility within <120 m range, such as squares, parks, flower gardens, architecture public art works, etc. The spaces and buildings must be harmonious and cohesive, and based on the shape and line of sight of hills, rivers and trees to avoid disrupting the area and overall landscape [15].

These spaces must have a continuous connection of characteristic landscape images within the visual range.

Research from indigenous cultural elements and images with typical characteristics such as stilt houses, water wheels, topography, trees, traditional cultural activities of local ethnic communities, etc. to use in the design of landscape architecture to create an identity for the space.

Organizing urban facilities, public art works with local identity associated with spaces for outdoor cultural activities such as squares, flower gardens, and pedestrian streets which are suitable to the topography and natural landscape to emphasize the identity of these spaces. To enhance the character of the places, it is possible to add architectural highlights and monuments.

CONCLUSIONS

Vietnam is in a strong process of urbanization. Economic pressure, the need for urban expansion, the high demand for land use – resource use in general and landscape
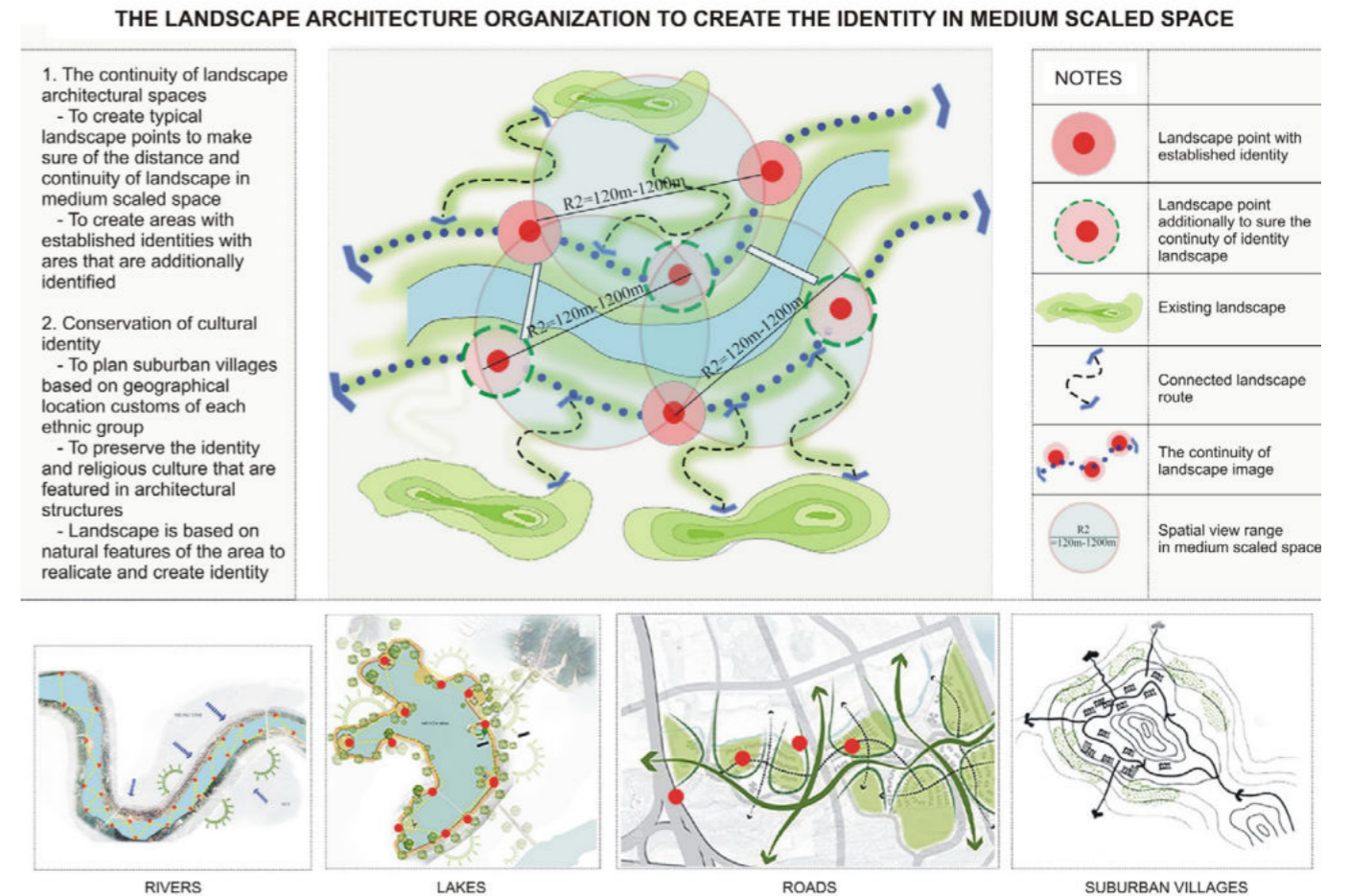
resources in particular – are the reasons why urban areas, especially the NMR with its very own character, gradually lose their characteristic features. What perspectives, principles, methods and solutions are appropriate for the preservation and development of identity are big questions for the cities. In Vietnam, there are many concepts, methods and solutions to preserve and develop urban identity, but research on landscape architecture to create an urban identity, especially in Northern mountainous areas, are still scarce. The paper presents some answers and approaches to the above questions. Therefore, the study on preserving and developing the identity of Northern mountainous areas using landscape architectural tools have contributed to Vietnam's general studies on conservation and development.

However, in order to provide specific solutions for planners and designers, it is necessary to carry out

additional in-depth studies on specific areas, such as each urban area of the region. ◉

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