

LINH DAM NEW TOWN - SOLUTION FOR THE HIGH-DENSITY DEVELOPMENT OF NEW SETTLEMENTS IN THE SOUTH-WEST OF HANOI

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Received date: 12.03.2012

Accepted date: 21.09.2012

ABSTRACT

The study focuses on Linh Dam New Town in the south-west of Hanoi - the biggest and most diverse new residential area of the city with many projects of New Towns. Hanoi expansion to the south-west will relieve the overburdened center and re-configure densities. Accordingly, a series of projects of New Town has grown up with types and sizes and different characteristics to provide new and modern living spaces for residents. Linh Dam New Town was selected for investigation to discern an overview on the development of high-density and diverse new residential area in the south-west of Hanoi. The set of criteria used to analyze the case study included Structural Plan, Uses and Activities, Public Space, Traffic, and Typological Characteristics of Architecture, in order to find out strengths and weaknesses of the project, as an example for other New Towns in the south-west of Hanoi.

Keywords: High-density development, New Town, Linh Dam, South-West, urban expansion.

Khu đô thị mới Linh Đàm - giải pháp cho mô hình phát triển khu định cư mới có mật độ cao ở khu vực Tây - Nam Hà Nội

TÓM TẮT

Nghiên cứu tập trung vào khu đô thị mới Linh Đàm ở khu vực Tây - Nam Hà Nội, vốn được coi là khu vực dân cư phát triển đa dạng nhất của thành phố với nhiều dự án khu đô thị mới. Hà Nội mở rộng về phía Tây - Nam làm giảm đi sự quá tải của khu vực trung tâm và góp phần định hình lại mật độ dân cư. Theo đó, hàng loạt dự án khu đô thị mới phát triển với quy mô và phong cách khác nhau đã cung cấp cho người dân một môi trường sống mới, hiện đại và tiện nghi. Khu đô thị mới Linh Đàm được chọn làm địa điểm nghiên cứu cho thấy một cái nhìn tổng quát về mô hình khu đô thị phát triển mật độ cao và đa dạng ở phía Tây - Nam Hà Nội. Những tiêu chuẩn để phân tích đánh giá khu đô thị mới Linh Đàm bao gồm: Cấu trúc tổng mặt bằng, các loại hình hoạt động và sử dụng, không gian công cộng, giao thông và các đặc điểm về kiến trúc, qua đó thấy được những ưu và nhược điểm của dự án này, như một thí dụ cho sự phát triển các khu đô thị mới khác ở phía Tây - Nam Hà Nội.

Từ khóa: Đô thị mở rộng, khu đô thị mới, Linh Đàm, mật độ cao, Tây - Nam.

1. INTRODUCTION

High-density development is one of the major principles upheld by the New Urbanism (Katz, 1994), since this kind of development pattern should be able to control aggressive growth and sprawl. The definition of density depends on the context in which it is used. In *Higher-density Development - Myth and Fact* (Haughey and Richard, 2005), *higher density*

simply means new residential and commercial development at a density that is higher than what is typically found in the existing community.

In addition, compact development of a New Town is a good option in preserving the green belt, and allowing full utilization of existing infrastructures. Nevertheless, high-density development usually brings hazardous impact on the physical and natural environment, such

as poor air ventilation created by “wall effect” development. To examine the development of Linh Dam New Town and rapid urban expansion in the south-west of Hanoi, it will be good to look at the the project idea that can be used for high-density development of New Towns in the south-west of Hanoi.

The study focuses on Linh Dam New Town. The goal is to understand a good community design concept for the high-density development, which responds to local cultural and physical environment in Hanoi and Vietnam.

Firstly, the study reveals some thoughts to the features and characteristics of urban expansion underlying urbanization in Hanoi in general and Hanoi New Towns in particular. Getting along with the rapid expansion, infill growth has occurred with high density in the south-west area of the city.

Secondly, the study gives a critical analysis of Linh Dam New Town located at the third ring road of Hanoi in terms of structural plan, uses and activities, public space, traffic and typological characteristics of architecture. Accordingly, the study gives some major findings about its strengths and weaknesses, as well as New Town development in the south-west of Hanoi.

2. METHODOLOGY

Necessary data were collected from MoC, HUD’s project report, Topos magazine, internet, including: Hanoi Master plan after expansion, Hanoi New Towns, Linh Dam project data, maps and other studies familiar to this study.

Method of selecting case study (Linh Dam): the study selected Linh Dam because Linh Dam is considered as a model of New Town in Vietnam. It is located in a strategic position (on the third ring road of Hanoi) and considered as one of two new urban models of Vietnam. Its design concept is a suitable solution for the high-density development in the south-west of Hanoi.

Mapping method was used to analyze 5 criteria given in the study results (structural plan, uses and activities, public space, circulation, typological characteristics of architecture).

Interviewing was used on three selected residents in Linh Dam, based on the questionnaire to find out residents’ response about their living environment in relation to housing, transportation, facilities, services, open spaces, etc.

3. RESULTS AND DISCUSSION

3.1. Urban expansion in Hanoi and New Towns in the south -west of Hanoi - the biggest and most diverse new residential area of the city

According to Shannon (Topos, 2009), the decision to expand Hanoi westward will, on the one hand, relieve the overburdened center while, on the other hand, re-configure densities in what is already one of the most densely populated rural areas in the world (the “rural” component of the Red River Delta average 1000 persons per km²).

Generally, over time, urban Hanoi has greatly expanded to the west and southwest. The spatial growth of Hanoi is limited by natural barriers, such as streams to the northeast and east, water bodies to the north, and wetland to the south. Spatially, the expansion of Hanoi stretches in the obvious directions, and the urbanization process follows the main transportation axes connecting the inner city to neighboring areas, while the administrative boundaries have expanded in other directions.

The Master plan of Hanoi was approved in 1991 and completed in 1993. In this plan, two New Towns, Linh Dam and Dinh Cong were projected. The Master plan in 1993 became Hanoi’s planning blueprint, guiding its physical development until today.

Under the Hanoi Capital Construction Master plan to 2030 and vision to 2050 was approved on 26th July 2011 (Decision No.1259/QĐ-TTg), Hanoi will be developed sustainably, combining cultural and heritage preservation with socio-economic progress.

Around Hanoi center, The New Towns are mainly distributed in three parts:

- *The North of the Red River*: The area covers a new settlement area in the Northern

part of Hong (Red river) in Dong Anh district. The area was proposed as a center for commerce, offices and urban services.

- *The East bank the of Red River:* The eastern urban area covers Long Bien and Gia Lam districts. It was proposed as a development site for harbour, industrial zones, technical services, and transport centers.

- *The South-West of the Red River* can be divided into three groups: the first group includes Hoang Mai and Thanh Tri districts; the second one includes Thanh Xuan, Cau Giay and Tu Liem quarters, the last one is the central area for the purpose of resettlement.

Generally, getting along with the rapid expansion, the east bank of the Red River exhibited the beginnings of urbanization. The south-west of the Red River is mostly residential area, so it has infill growth with higher density development, as compared to other new areas of Hanoi (Hanoi center, with the Ancient quarter in the middle, still has the highest density). New Towns in the south-west of Hanoi

(including Linh Dam) have been rapidly developed in many types and forms, contributing very much in the capital's achievements of urban construction in general and residential area construction in particular.

In addition, it is important to relate the urban transition with land use change of the city, with other statistics such as population, population density, road and housing densities. Urbanization results in the expansion of administrative boundaries, stretching in various directions and leading to changes in land use, mainly at the periphery. The city's periphery has been developing with bigger and bigger population, together with higher and higher density of construction. Linh Dam New Town, located at the third ring road of Hanoi, is not the exception, so the success of this project is considered a good solution for the high-density development of new settlements in the south-west of Hanoi. Until today, Linh Dam is considered as the first New Town in Hanoi, as a "New Town" concept.

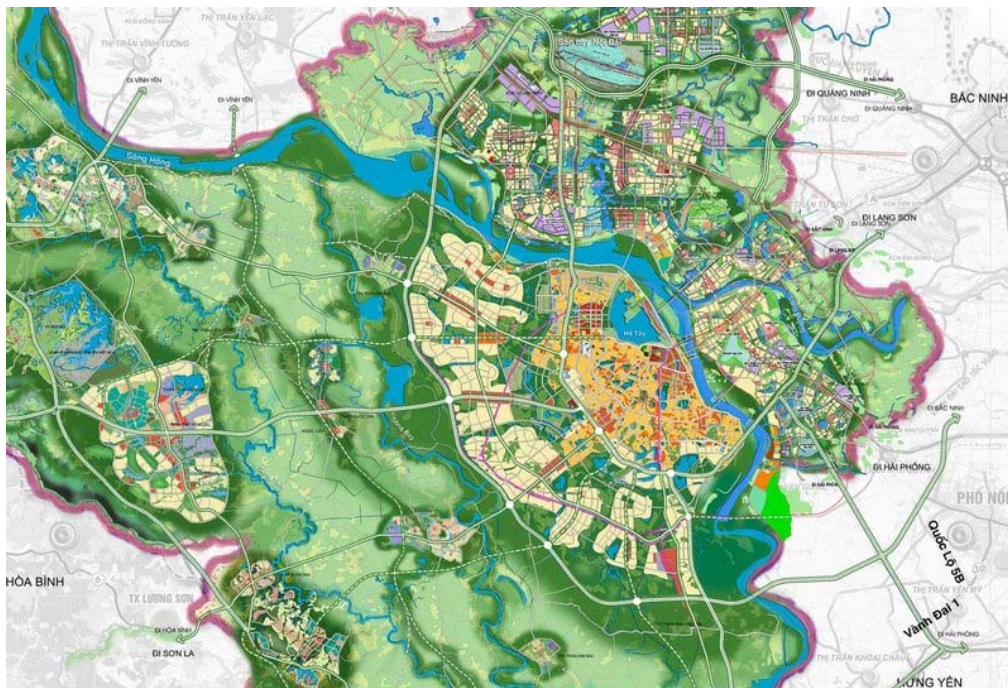


Figure 1. The proposed Hanoi construction master plan for 2030 with a vision toward 2050 and location of Linh Dam project (the red point). Westward expansion has been drafted by the Vietnamese Institute of Urban and Rural Planning and will form the basis on which international consultants will develop the Hanoi expansion plan (Source: MoC, 2009)

3.2. Linh Dam New Town - more than 10 years for a model of New Towns

Due to a rapidly growing population in Hanoi, construction of new houses was growing out of control by the government. In 1997, the Housing and Urban Development Corporation, HUD, formulated a new strategy to control the spontaneous building and visual complexity characterizing the cityscape of Hanoi and to increase the number of flats between 2000 and 2010. Accordingly, HUD introduced the term New Town for this whole solution strategy and it has resulted in several new residential areas around the city, and Linh Dam has been the first one.

Linh Dam was the first project at the expansion area in the south-west of Hanoi. Started in 1997 (designed by Arch. Nguyen Hong Thuc - Hanoi Architectural University), Linh Dam area which was originally wetland and agriculture, has become a modern New Town, combined to the “natural” landscape and green space, and created a motivation for the development of the southern gateway of Hanoi capital. Since 22 - 01 - 2009, the Minister of Construction has officially signed a decision that recognized Linh Dam is one of two new urban models in Vietnam (with Phu My Hung in Ho Chi Minh City).

Linh Dam located on the third ring road of Hanoi, in Hoang Mai district, in an area of 184 ha (with 7.32 ha natural lake) and 7 km far from the city center.

The New Town includes three components: Bac Linh Dam (North of Linh Dam), Linh Dam peninsula in the middle and Linh Dam expansion (South of Linh Dam). The success of the project has set the stage for a series of New Towns that have been expanded nationwide.

Linh Dam project:

- Scale: 184 ha
- Population: 25.000 inhs
- Total floor area: 990.000 m2
- Density of construction: 40 %
- Average height of buildings: 5
- Time of construction: 1997
- Time of completion: 2008

3.2.1. Structural plan

Linh Dam New Town, with Linh Dam peninsula in the center, can adapt to the majority of population and tropical climate, while still respects natural landscape and ecological system.

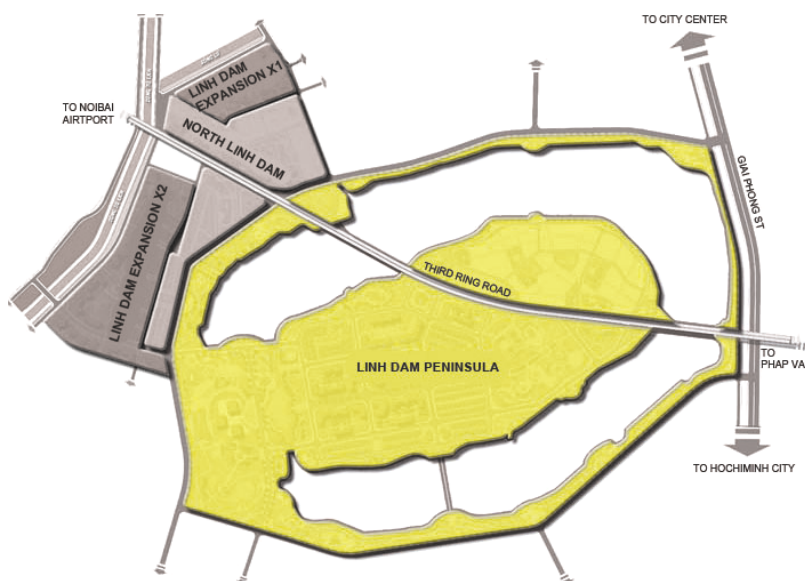


Figure 2. Structural diagram of Linh Dam project (Mapping - Quyên Phương, 2011)



Figure 3. Linh Dam detailed plan (Source: HUD’s project report)

Linh Dam is planned on a modern urban planning that is suitable to traditional architectural style and tropical climate. Among these, the outstanding point is the area of high-storey apartments and office buildings in the center of Linh Dam peninsula, surrounding by low-storey buildings, parks, open spaces and a huge water body. Like other urban areas in Vietnam, Linh Dam has three kinds of accommodations: apartment building, villa (surrounding by ground and garden) and street house. Linh Dam has become a modern and spacious New Town with more than 4.000 new accommodations (3.150 apartments), 31,5 ha green space and an attractive landscape in the south gateway of the capital city (HUD).

3.2.2. Uses and Activities

Linh Dam project is one of the successful models of the development of high-rise apartment buildings. The development of multi-storey buildings is a modern phenomenon in Vietnam in 1990s, supposedly suited to the trend of urbanization and modernization. Indeed, the

project has contributed to the city a big amount of accommodations with high quality.

Public works and facilities are useful for residents in everyday activities and recreation such as schools, kindergartens, sport center, commercial services, markets... The investor, HUD, has established a service company responsible for housing management, from keeping bikes, motors, cars, pump water to elevator management, garbage collection, environmental sanitation, security...

Hanoi authority has made adjustments for Linh Dam Master plan in response to the need of mix uses, more accommodation and more outstanding architectural positions for Linh Dam, from the beginning of 2001,. According to the decision of 2761/QĐ-UBND, the lot of VP6 (located in the peninsula) has been changed from offices to multiple use, including accommodation, commerce and office. The decision of 6536/QĐ-UBND has an adjustment for the two lots in the south-west of Linh Dam lake with higher density of construction.



Figure 4. Land use pattern of Linh Dam (Mapping - Quyen Phuong, 2011)

Table 1. Land use planning of Linh Dam (Total area: 1,840,230 m²)

Types of use		Area (m ²)
I	Linh Dam Peninsula	1,600,200
1	Water body	732,638
2	Street network connects to outside	35,268
3	Street network inside	203,710
4	Parking area	10,477
5	Public work	76,606
6	Cultural center	16,805
7	Historical site	12,753
8	Office + Apartment building	78,066
9	Villa	65,244
10	School	9,807
11	Education center	2,184
12	Existing housing area	68,148
13	Kindergarten	4,703
14	Green space	283,791
II	North of Linh Dam	140,020
1	Housing area	69,095
2	Green space	10,936
3	Street network connects to outside	5,369
4	Street network inside	23,090
5	Public work	22,510
6	Kindergarten	5,020
III	Linh Dam expansion	100,010
1	Housing area	56,914
2	Kindergarten	8,570
3	School	8,469
4	Street network inside	26,057

Source: HUD's project report

However, it is not easy to establish New Towns suitable to the culture, lifestyle and financial capabilities of the average Vietnamese. Linh Dam also needs modern social and technological infrastructure and living conditions that harmonize with the natural environment.

Moreover, although Linh Dam has relatively good facilities, it still does not adapt to the everincreasing population in the area and the higher needs of residents. Vu Thi Vinh, deputy general secretary of the Association of Cities, said, "Therefore, in many New Towns finished years ago, such as Linh Dam, there is still a serious lack of kindergartens, schools, hospitals and markets". "We don't have state schools at all educational levels either," said Ngo Thi Phuong, who has been living in Linh Dam for three years. She also said that it was impossible to find a health care center in her neighborhood and she had to go to big hospitals out of the area for health care (fieldwork 21 of May 2011).

3.2.3. Public spaces

Linh Dam located in a big area with low building density and large open spaces, especially in the center of the peninsula surrounded by the natural lake. This beautiful water body seems to be the major attraction point of Linh Dam.

Comparing to other New Towns in Hanoi, Linh Dam has large open and green spaces planned at reasonable positions. There are three local parks with 28 ha in total and 13 m² green area per person: one in the north, one in the east and the last one in the west of Linh Dam area. Among them, the eastern park (located in the peninsula) is the biggest open space of Linh Dam. It takes advantages of the natural lake to create a recreational center in combination with the multifunctional sport center, cultural buildings and a religious site (Lien Dam pagoda). In addition, the lot of CC6 (50.537 m²) in the peninsula has been constructed from 2011 with high-rise buildings and a harmonious network of open green space and water body. This project is going to be one of remarkable points for Linh Dam New Town.

More importantly, every three blocks have an open space for residents as the constructional density is not as high as other New Towns in the West of Hanoi.

Although the network of parks and green spaces has been successful in spatial arrangement, suitable to tropical architectural style in Hanoi, yet the open spaces inside apartment areas have a boring design. Quynh Anh, a young resident in Linh Dam said, the people who are living in apartments are not interested in the unattractive open spaces around their blocks, so those spaces are not really useful for them (fieldwork 10 of June 2011).



Figure 5. Open space with large water body and tropical architecture in Linh Dam (Source: HUD's project report)

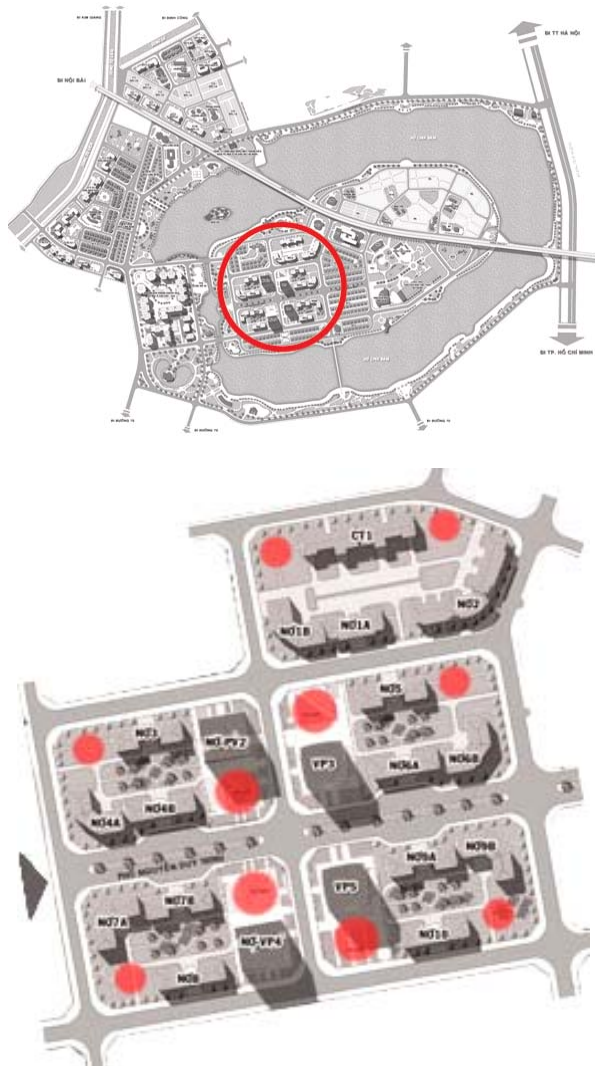


Figure 6. Location of open spaces in high-rise building area around the main axis (Nguyen Duy Trinh street)
(Mapping - Quyen Phuong, 2011)

3.2.4. Circulation

Linh Dam has a strategic location that is easy to go to other parts of the city. The main entrance is from north Linh Dam, following the third ring road to approach the main axes. However, the ring road seems to split the area into two parts making it difficult for spatial connection to each other.

The important East - West axes going along the length of the coronary shape of Linh Dam Lake, are impressively pointed out by high blocks which have North - South main facades.

The main axis - Nguyen Duy Trinh street, with a green boulevard in the middle as a commercial street, starts at central open space and ends by the largest park. The central area of Linh Dam is organized based on the grid network that is stable, clear for transportation.

The two other residential areas in the north and the east are more diversely organized but still coherent, suitable to the shapes of land, convenient for people to approach public works in the center of each area and approach the main axes.

In addition, the street network is organized in such a way that people can easily approach public transports, although public transports are still difficult to adapt to people's needs in the area. There is only one public parking area at a reasonable and position - closed to the main axis. Parking in residential areas is generally organized in the ground floors of apartment buildings. As the number of cars gets higher in the near future, more parking spaces will be needed.

3.2.5. Typological characteristic of architecture

The architectural styles in Linh Dam are relatively harmonious with a combination between modern and traditional architecture. High and modern buildings located at the cross road of the main axis (Nguyen Duy Trinh street) have created impressive points from different directions. Recreational areas with low buildings and diverse architectural styles are suitable to natural green, water and environment.

The built areas in Linh Dam have become fancy residential areas, with modern architecture and fully equipped apartments and single-family houses. Though the aim is good, the new areas tend to be separated from their surroundings and perform more as gated communities, with empty open spaces and little spontaneous public life. The likeliness in design of socialistic neighborhoods is striking. Stereotype houses accompanied by spacious streets in attempt to increase living qualities and dissociate from the crowded old quarters appear to be the ideology for the New Town.

3.3. Major findings

Through the analysis of Linh Dam New Town, the study points out that New Towns have been regularly distributed among inner and suburban districts of Hanoi. This balances the development of the city to all directions, exploits reasonably reserve lands and ensures that public facilities in New Towns can serve for surrounding residential areas. A significant land use ratio in this New Town is for multistory apartments, the rest is for villas, street houses, public buildings, green areas and open spaces.

The realizations of selected case study show some basic spatial rules:

- A relationship between built environment and open spaces could be found in the residential modern typology: large open and green spaces between the buildings, the typology of the residential block.
- A basic functional unit: the relationship between the living block and the spaces for social services (kindergartens, schools, social services for the neighborhood).

- The neighborhood unit: it means try to project the spatial layout of the neighborhood for the growth of the social community, with a large presence of public spaces and social services.

- The hierarchy of the public spaces: between the streets to preserve the security of circulation, the pollution and noise; between the common and green spaces, to balance the need of privacy and the need of social relationships.

Although Linh Dam project has some weaknesses in common with many New Towns, such as compact development, high density of construction, the lack of necessary facilities, design of open spaces, etc, its design concept, through synthesis tools for “architecture design”, “urban design” and “landscape design”, still deserve one of the new urban models of Hanoi and Vietnam, dealing with the high-density development in the south-west of Hanoi.

3.4. Discussions

With every new projects of New Town, the planning strategy should progress by looking

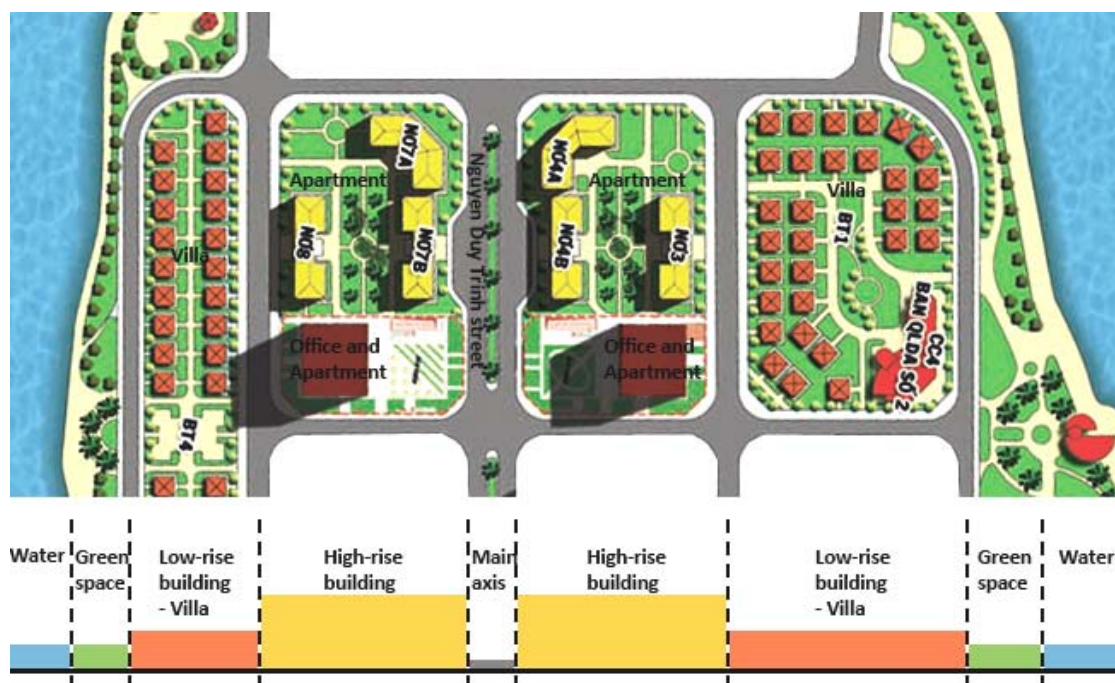


Figure 7. Changing types of architecture through main axis (Nguyen Duy Trinh street) in Linh Dam (Mapping - Quyên Phương, 2011)

back to previous planning projects and learn from the strengths and weaknesses made there. The planners and government officials vowed that the mistakes made in this project would not be repeated. According to De Klerk (2007), new urban areas are about “growth and reform, rational economic planning and rational spatial planning”. To what extent New Town projects can learn from Linh Dam? Can they be better projects after learning from Linh Dam?

4. CONCLUSION

To build completely and stably new urban in the context of high density development of south-west Hanoi nowadays, it is necessary to express basic viewpoints on all related aspects, including urban expansion, new urban areas and suitable living environment for new settlements, or says synchronously from beginning to end, in other words.

The study has two main findings. Firstly, the expansion of Hanoi stretches in the obvious directions and the south-west of Hanoi is the biggest and most diverse development area. Secondly, Linh Dam New Town (located in the south-west of Hanoi) deserves one of the new urban models, dealing with the high-density development in the south-west of Hanoi.

By learning from the planning of Linh Dam New Town, it is expected that a well-developed suburban planning approach should be adopted to develop New Towns south-west, so as to create a socially, environmentally and economically sustainable living environment for the present and future generations.

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