

URBAN DEVELOPMENT AND MANAGEMENT IN THAI NGUYEN CITY TOWARDS SUSTAINABLE GROWTH GOALS

Nguyen Thi Thuy Hien

Thai Nguyen University of Technology

Email: nthien.tnut@gmail.com

ABSTRACT: Smart sustainable city or community is a city/community that uses innovative, appropriate and trustworthy information, communication technologies (ICTs), and other means to: improve quality of life of citizens; increase the efficiency of urban operation and services by more applications of data analytics and citizen participation; Smart city master plans by local governments who make best use of existing ICT infrastructures. Sustainable urban development should be guided by a sustainable planning and management vision that promotes interconnected green space, a multi-modal transportation system, and mixed-use development. Therefore, author has applicated GIS in implementing the number of feasible solutions: Integrating the urban planning and construction projects, attaching great importance to the integration of planning with Transit - Oriented Development (TOD) as well as resources for implementing projects planned to improve the management of urban planning; Strengthening the building permits and licensing with the support of IT. Developing smart city towards sustainable growth in Thai Nguyen to help the users to access and query for information, statistical data and reports.

1. OVERVIEW OF URBAN DEVELOPMENT IN THAI NGUYEN

Overview of urban development in VietNam. Number of urban settlement in 2017 are 813 cities, the urbanization rate of Vietnam is 37,5% in which Hanoi and Ho Chi Minh city population occupy 30% of urban population nationwide. Achievements in urban development, such as: Vietnam urban system has strong development in terms of scale, quantity and quality; Urban architecture is innovative and model; Many cities has been constructed according to urban planning; Several cities have been recognized by the international community that contribute to enhancing their attractiveness and competitiveness; The living conditions of the urban people have been gradually improved; The infrastructure system is gradually being modernized in the direction of modernization and synchronization;...[6]

List of project of investement into Thai Nguyen, including: Road 266 improvement project , from the intersection of Song Cong Town to the intersection of Diem Thuy Commune, Phu Binh District, total investment about VND 550 billion; Road 261 improvement project, Dai Tu District to Ba Hang, Pho Yen Town, total investment about VND 1, 300 billion; Investment project to build ring road I, Bo Dau Intersection -> Cau River -> Highway 1B -> Linh Nham, Total investment about VND 700 billion; The project of Urban Area along Cong River, Thang Loi, Mo Che, and Luong Chau Wards – Song Cong City, Total investment: Approximate VND 1,089.6 billions; Facility Services and Urban Area of Song Cong Industrial Park II, Total investment: Approximate 560.88 billions; Investment in static car parking lot in Thai Nguyen City's center, Total investment about 250 billions, allocated 02 multi-floor car parking lots in Thai Nguyen City's center, with an area of 3000 - 5000m²/lot, to meet parking needs for 900-1000 cars and other small parking lots;... World Bank proposed project to not only support Thai Nguyen City in improving basic infrastructure but also help the city to develop a comprehensive and integrated urban plan that links physical development to overall improvements to socio-economic conditions. Thai Nguyen City, one of the key centres and economic engines of the Northern Mountainous Region, is undergoing rapid urbanisation. The successful implementation of this project may be replicated to other medium cities in support of the government's urban development agenda. The Vietnam National Urban Development Master Plan envisages the development of secondary cities as hubs to drive development within larger urban areas and provinces. This is consistent with international experience, where there is growing recognition of the role of secondary cities as catalysts for economic activity and development. Thai Nguyen City is one of the cities proposed by the Vietnamese government

to receive support based on their economic growth potential. The project is consistent with the World Bank's Country Partnership Framework as it will contribute to strengthening urban planning and management, support resilient urban infrastructure investments, and improve disaster risk management.

Thai Nguyen city has a strong impact on the development of urban systems in the region. Not to be an exception, in Thai Nguyen, there are still some problems in the management of urban planning and construction as follows: (1) The management quality of urban plans implementation is not so good that some plans are delayed or forcedly changed investors; (2) the publicity of urban planning schemes and provision of planning information are behind the time, the frequency and coverage not; (3) the inspection and monitor of urban plans implementation are not good enough; (4) detecting and handling violations for publicizing the planning information, demarcating the planned territory on the field, and the constructing under building permits, etc. have not been performed well under the legal provisions; (5) the application of information technology (IT) in the management of planning and construction is still limited not met the current management requirements. There fore, "Urban development and management in Thai Nguyen city towards sustainable growth goals" has been done in order to propose feasible solutions to improve the urban management for Thai Nguyen city.

2. THE EXPERIENCES OF URBAN MANAGEMENT

1.1. New trends in the urban management towards sustainable growth goals

Firstly, Sustainable urban development and its impacts on the urban management . For the urban sustainable development, the planners and managers of urban planning can integrate planning under the following types: (1) Integrating the planning objectives; (2) Integrating the economic, social, and environmental sustainability in urban planning schemes. The impacts of sustainable development to the management of urban planning are: firstly, the innovation of planning method, of planning integration; the application the "green architecture" approach; the integration of urban planning with urban transport, and secondly, the consideration of great importance of the activities focusing on organization, deployment and implementation of urban planning projects.

Secondly, application of information systems to support the management of planning and construction under urban plans. Application of Geographic Information System (GIS) in urban management in general or management of planning and construction under urban management in particular will support us to meet the management requirements at present.

Moreover, Participation and supervision of the community in the management of planning and construction as urban planned: (1) Changing the thinking about the way of planning: the researchers have found that "community solution" would be the most suitable for urban planning problem; (2) Changing the way of urban management: developing countries have gradually moved from totalitarian regimes managed hierarchically TOP - DOWN to management regime of competition and further – to the management regime under partnerships. Management mode of cooperation has allowed the participation of communities in urban planning and urban management.

2.2. Lessons learned for Thai Nguyen

Author has studied the experiences of urban management, special in management of planning and construction according to urban plans from selected countries in the world such as Singapore, Japan, Australia, China, France,... Therefore, lessons for Urbans in Vietnam in general and in Thai Nguyen city in particular, generalized as follows:

- For the management of urban planning: considering the importance of the land use planning; considering the importance of the sustainability oriented urban development; strengthening the provision and publicization of information on urban planning; enhancing the participation and supervision of the community.

- For the construction management according to urban plans: respecting the legality of construction permits; attaching great importance to the management of construction order; strengthening the participation and supervision of the community; enacting and enforcing the legislation system strictly.

- For the building primary awareness on smart city: application of information technologies over the information infrastructure network, connection of smart urban planning with smart city management and construction and smart amenities.

3. THE CURRENT SITUATION OF URBAN MANAGEMENT IN THAI NGUYEN CITY

Thai Nguyen city - the grade -1 urban centre of Thai Nguyen province, is defined "as the a political, economic, cultural, scientific, technical, and medical, tourism and service center of Thai Nguyen province and of the northern midland and mountainous region, one of the national and international science - technology, education and health center; a developed north polar of Hanoi; a gateway, a transportation hub connecting Ha Noi capital to the Northern mountainous provinces and having the important position on security and defense meaning". The characteristics and advantages in terms of economic, educational and medical etc. of Thai Nguyen city show a dominant position of this city in the Vietnam northern midland and mountainous regions and its important influences on Hanoi capital region.

3.1. The current situation of urban management

The success in urban management. In past years, Thai Nguyen city and Thai Nguyen province in the whole have both interested in urban management and focused all their resources on the promoting urbanization, developing the cities towards civilization and modernity, improving the quality of staff working in urban management sector in general and in management of construction order sector in particular in the city.

However, there are still some problems in the urban management as follows:

Firstly, the organizational model for urban management system of in Thai Nguyen city is organized by both models of the direct - functions (for District-level and Commune-level) and the indirect –functions (Construction Inspection Division - Department of Construction for provincial- level or Urban Management Office for District-level).

Secondly, the management of implementation of urban planning is not really effective, it has not linked the planning and construction investment projects. It was one of the factors resulting in slow implementation of projects or in the fact of investor changes. Organization of both the provision and publicization of urban planning information and placement of markers on the field have not yet organized timely, regularly and widely.

Thirdly, the current situation of construction management according to urban plans, such as: (1) the issuance of construction permits, in 8 existing steps of the process of issuing construction permits, the second task (verify the dossiers, check fieldwork, collated to planning) of 3th step takes the longest time, from 8 to 11 days while the total time for entire process of issuing construction permits is accounted only 15 ÷ 20 days; (2) The management of construction order, the inspection results for 28 communes/wards of Thai Nguyen city during 5 years (from 2013 to 2017) [7] show, the cases respecting the construction order account for an average 58,25% of the total number of cases inspected. The number of cases of violation of construction order is accounted for average 41,63%, while the number of cases sanctioned is accounted for 12,43%.

The violation of the construction order on the city territory was recorded as follows:

- Illegal pavement use was quite common on everywhere conducted construction
- The construction without licenses or illegal planning, construction to receive compensation in the areas having approved planning,... have still quite popular in some places.

Finally, IT application to support the management of planning and construction according to urban plans in Thai Nguyen city has not been implemented yet. According to the results of

sociological surveys, people's assessment of the use of IT in public administration in management of planning and construction as planned is not good; Urban residents hope the IT will enable them to solve tasks as required.

3.2. Evaluation of urban management in Thai Nguyen city

- The management of urban planning: The relationship between urban planning and urban development management was not aware, the integration of the urban planning and construction projects as planned was not noun; The provision and publicization of information on urban planning, placement of markers in the field have not been implemented properly.

- The management of construction according to urban plans: The building permit has not been respected as a legal basis for dealing with violations of construction order. Also, in the licensing process, the 3rd step (i.e. verifying the file, checking the field, comparing reality reference to planning) lasted too slowly so the licensing has not been accurate and well-timed; The handling of violations of construction order has not been implemented thoroughly, thus violation has increased more severely and complexly.

- Perception of the community about their participation and supervision for the management of planning and construction according to urban plans have been very limited.

- IT application in supporting the management of planning and construction according to urban plans has not been done.

4. SOLUTIONS FOR IMPROVING THE URBAN MANAGEMENT IN THAI NGUYEN CITY

4.1. Oriented Development of Thai Nguyen City to 2035

Having the advantages of the Northern Midlands and Mountains regions, and being offered a lot of conditions for becoming a north developing pole of Hanoi, Thai Nguyen City will be transformed from an industrial city (with the major iron and steel) into the city of commerce, services and industry in the direction towards clean industry and high technology.

Management of planning and construction according to urban plans in Thai Nguyen City based on legal basis, General Planning project of Thai Nguyen, spatial development planning, land use planning, construction density diagrams and construction height diagrams of Thai Nguyen city.

The goal toward to year 2035 is making Thai Nguyen to be the city "sustainable, modern, worthy fitting to the center of politics, economy, culture, education, healthcare, tourism and services of Thai Nguyen and the northern midlands and mountain regions of Vietnam"[4].

Thai Nguyen city will develop towards "service economy, green growth, ensuring the harmony of the factors: economics - natural ecosystems - social balance" [5].

4.2. Some solutions for Urban management in Thai Nguyen city

First, integrating urban planning and construction projects as planned and enhancing the provision and publicization of information on urban planning and placement of markers in the field: The quality of urban planning management is still low and the number of suspended planning projects is still high. The main causes of these problems are: the lack of proper understanding of the relationship between urban planning and urban development management; the lack of integrating the planning and construction investment projects. Therefore, it is necessary to urban managers be aware of this issue and add the contents of the planning project for Synchronous development of urban. In addition, urban managers must constantly strengthen the supervision investors in the implementation of urban planning.

Methods of integrating urban planning with construction investment projects consists of using the geographic information tools GIS and hierarchical analysis AHP to integrate urban planning (focusing particularly to Transit - Oriented Development) and the construction investment projects (including investors, funds, human resources, ...) so as to help urban managers to get the full data about all kinds of planning schemes and the list of investors with the resources for implementing the plan, to evaluate and to select the investors which are eligible for resources to

carry out investment projects planned in specific circumstances. The integration pupos could be also got by establishing the set of criterias to evaluate the management of urban planning and investment projects as planned.

Enhancing the management and publicity for the attribute data and spatial data of urban planning projects based on GIS. This solution is strengthening the participation and supervision of the community in the management of planning and construction according to urban plans. This solution will have humanistic practical implications for citizens' life. Communities will be respected, their role in the shaping of urban civilization is also promoted. However, this solution requires a roadmap and takes time to be able to communicate and train people making them to be more conscious, and then they participate voluntarily with urban authorities in urban management.

The first solution implicates to innovate the thinking about urban management in general and urban planning management in particular. In urban management, it is necessary that urban managers must aware correctly the roles and the closed relationships of urban planning and management. More specifically is the relationship between urban planning management and urban development management, so, they have an action plan for intergating the urban planning and the construction investment projects as planned.

Second, improving the construction licencing and management of building permits: improving the law observance corectly through the building permit; setting up the management software for the database of the construction licencing and construction permit management. The next aims is to improve the management of construction order, including: To improve the organization system for management of the urbain planning and the construction according to urban plans, especially for the construction order management. Building inspectorates will be supplemented with human resources, who will be retrained to meet management requirements, decentralized and decentralized in detecting and making records, made the decision to sanction the violation of construction order; to detecte handling stricly construction order violations which appeared in 2 forms: (1) construction licencing refuse to comply approved planning, (2) the violations of construction order; to build a database in order to support the managing and handling the violations of construction order.

The second solution done by applying the online software programs which the community can register or response directly about construction order violations. his solution has practical significance for all users (the urban management officers, organizations/individuals) when they participate in the construction licencing, or in the management of construction permits and construction order.

It is more important for IT application for carrying out the solutions of urban management in Thai Nguyen city. The program aims to provide practical applications. The management software program can transfer the technology to local authorities when there is the complete database system. The program implemented will contribute great value not only to the government and people of Thai Nguyen city but also for all locals where have such characteristics as those of Thai Nguyen City.

The objective of the program, including:

(1) For leaders: the program provides comprehensive, multidimensional information about many different topics which facilitate the decision making.

(2) For units of planning - construction management: the program provides a unified information system including the data standardization, data update management and data detection for business requirements.

(3) For units which demand the planning - construction information: The program provides the information on planning - construction fitting to their functions and duties.

(4) For the community: program provides a information channel for searching the data on planning - construction.

The functions of the program, including:

- 1/ Management of construction permits.
- 2/ Management of construction order violation.
- 3/ Management of planning
- 5/ Synthesis of reports and statistics.
- 6/ Exploiting the maps based on WebGIS
- 7/ System management.

Contents of programs:

Administrator provided the data to users by GIS (in case of the spatial data and attribute data requirement) or VB.NET program (in case of attribute data requirement). Thus the program composes the following components:

- The schema of main functions of management software
- Framework for defining, creating, storing, delivering and exploiting the information
- General process of database creation
- The linking between the urban planning database and the building permit and the construction order database
- Models linking entities
- The database management organization model
- The overall network structural model of information system management of urban planning and construction according to plans
- The structural model of database system
- The network structural model of database system
- The overall structural model of the IT technical infrastructure system of Thai Nguyen City People's Committee
- The overall model of Thai Nguyen GIS.

The results of the program

The interface of the system: The menu built in Unicode Font is divided into 4 separate sections on "Information searching", "Report", "Land and House dossiers" and "Systems" ([1], [2], [3]). Software programs are presented in detail and the spatial data is associated with the attribute data.

To apply IT in implementing the solutions of management of planning and construction according to urban plans to help the users to access and query for information, statistical data and reports. We have developed a software system by integrating SQL and VB.NET into GIS to provide to users the ability to access and to search for information, statistical data and reports on request. Concretly, the author has developed and standardized the spatial and attributes database of urban planning project; developed and standardized the land and housing information in Thai Nguyen city creating an initial uniform basis in order to establish the complete software systems for the departments and agencies concerned; the author has developed and standardized also the spatial and attribute database related to each parcel of land aiming to support the construction licene and construction order management.

All data is shown in a full form and updated to ensure the openness and transparency. The system is operated on the basis of a complete database system, creates a direct relationship between the government and civil society in the law formulation and enforcement of planning and planning management, in the financial implementation for state and in the protection of the urban population interests.

Final, In response to that proplem is to enhance the participation and supervision of the community in urban management: To establish a general framework of the community participation development program, including 7 steps on all 3 phases of the management process of urban planning and construction according to urban plans; To set up the 5 steps framework focused on developing the competence of urban communities to

participate in the management of planning and construction according to urban plans. This solution is strengthening the participation and supervision of the community in the management of planning and construction according to urban plans. This solution will have humanistic practical implications for citizens' life. Communities will be respected, their role in the shaping of urban civilization is also promoted. However, this solution requires a roadmap and takes time to be able to communicate and train people making them to be more conscious, and then they participate voluntarily with urban authorities in urban management.

5. CONCLUSIONS

The research "Urban development and management in Thai Nguyen city towards sustainable growth goals" is very meaningful and necessary for Thai Nguyen in promotion of their regional strong specific characteristics. The research includes the number of new contents contributed to theories and practice for urban management in general and for Thai Nguyen city in particular.

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