

Eco-city Paradigm: Urban Planning Towards Sustainable Development Goals

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Abstract. Nowadays, urban development associated with sustainable development goals is a global trend, in which the Eco-city paradigm is considered a central paradigm of a sustainable city. Faced with environmental crises and ecological imbalance problems taking place in some cities today, the Eco-city paradigm will be an appropriate solution, overcoming the limitations of modern cities, is especially meaningful, and important for developing countries. Eco-city with its strategies and structure will minimize the environmental and social consequences, while minimizing the impact on the ecosystem, helping the city develop in balance and harmony between the ecological system and urban social system. Based on the analysis of theories on Eco-city, Eco2-cities, and planning methods based on socio-ecosystem (SES). From there, the article presents research results on principles of Eco-city planning, Eco-city structure paradigm; and discusses the possibility of applying the Eco-city paradigm in the practical conditions of Vietnam. The research and proposals in this article aim to contribute to the scientific basis of Eco-cities, thereby promoting the research, planning, implementation, and management of Eco-cities in Vietnam, with the expectation of creating healthy and liveable living environments with minimal need for resources, minimizing environmental impacts; enhancing urban resilience; towards the goal of sustainable development, adapting to climate change, and conservation of biodiversity.

Keywords: Eco-city, Eco2-cities, sustainable development, sustainable city development, biodiversity conservation, adapting to climate change.

1 Introduction

Urbanization is an inevitable process that is taking place strongly in the world, especially in Asian countries, including Vietnam. Urbanization contributes to promoting socio-economic development of the region, improving people's living standards. However, the process of urbanization also generates many inadequacies that need to be resolved such as environmental destruction, broken natural ecosystems, depletion of natural resources, heavy use of fossil energy, and discharge of a huge amount of waste into the environment; Social

problems also arise such as quality of life, underemployment, lack of identity, and other social stresses.

Facing the above inadequacies and new challenges of sustainable development today, there are many new urban development paradigms in the world such as Environmental Cities, Green Cities, Eco-Cities, Eco2-Cities, Smart Cities, and Sustainable Cities aim to solve the problems of modern cities. In particular, the Eco-city paradigm is considered a central paradigm of the sustainable city. Eco-city with its strategies and structure will minimize the environmental and social consequences, while minimizing the impact on the ecosystem, helping the city develop in balance and harmony between the ecological system and urban social system, towards the goal of sustainable development, is of particular significance and importance for developing countries.

Urban development in Vietnam: According to Decision No. 445/QĐ-TTg, 2009, the Prime Minister approved the orientation of the master plan of the national urban system to 2030 with a vision to 2050. The first time the national urban system has a master plan with a general orientation for targeted development, and the development principles for cities and localities are more precise and explicit, is a significant breaking through. The Vietnamese urban landscape began a period of rapid development and profound changes after more than ten years of Decision No. 445/QĐ-TTg implementation. Numerous large cities, including Hanoi, Ho Chi Minh City, Da Nang, Hai Phong, and Can Tho, have steadily improved through time, becoming more elegant, spacious, clean, and beautiful, gradually stably developing in a sustainable direction. From 2009 to 2018, the number of cities increased from 630 cities, with an urbanization rate of about 27% (2009) to 819 cities with an urbanization rate of 38.4% (2018). The urbanization rate increases by more than 1%, corresponding to an annual increase in the urban population of about 1 million people. Cities have contributed more than 70% of the GDP of the whole country; the proportion of industry - services in GDP by 2020 reached 85%; the urbanization rate by 2020 reached 38% - 40% [20]. It can be said that since the Government issued the National Urban System Master Plan, a series of mechanisms, policies, and legal documents have been promulgated synchronously and timely to the implementation of the national urban master plan gradually come to life.

Eco-city development in Vietnam: The development paradigms of Green-cities, Eco-cities, Smart cities, and Sustainable cities are the urban development trends of countries around the world, Vietnam is no exception to this rule. Vietnam is a developing country; the economic factor is still one of the leading criteria in the urban development strategy. The application of green, ecological, and smart urban paradigms toward sustainable development is the general development orientation of Vietnamese cities and has just begun. In particular, "Eco-city" is one of the trends that have been mentioned and paid much attention to in recent years. Currently, there are a number of cities that are oriented to be Eco-cities in Vietnam, these policies are correct, and the projects also have concerns about the environment, trees, and water surface as well as other social factors, however, in these general planning projects, many issues have not been clarified especially the scientific basis and urban planning solutions towards Eco-city is still blurred. Eco-cities not only have more trees than normal cities, but Eco-cities also need to ensure criteria relating to the environmental, social, and economic. Therefore, the planning of eco-cities in Vietnam is still only a desire because the scientific basis of Eco-city planning is still limited and the biggest difficulty in this field is the lack of legal documents and a system of standards and regulations to specifically apply and guide for application in planning projects. These are still issues that need to be studied by the planners in Vietnam and need to be resolved by the government as soon as possible.

Based on the research objectives and the current Eco-city planning context in Vietnam, within the framework of this article, the author focuses on discussing the following key points:

- **Methods:** Methods of studying the Eco-City paradigm based on socio-ecological system (SES) research.
- **Results:** Proposing principles and paradigm of Eco-city structure to be applied to cities in Vietnam.
- **Discussion:** Discussion of the proposed results compared with previous studies and the applicability of the eco-city paradigm in the actual conditions of Vietnam.

2 Overview of sustainable development and Eco-cities, Eco2-cities

2.1 Sustainable development

It can be said that all environmental problems originate from development, the way to resolve the conflict between the environment and development is to accept development but control development from negatively impacting the environment. Accordingly, in 1987, according to World Commission on Environment and Development (WCED) defined sustainable development as “meets the needs of the present without compromising the ability of future generations to meet their own needs” At the heart of the concept is that development must be viewed from a multi-generational perspective in order to develop a harmonious development that meets the needs of the present generation while concerning the well-being of future generations in the future.

In 1992, at the conference on global environment RIO 92 and RIO 92+5, the concept of sustainable development was supplemented by scientists, according to which, sustainable development is formed in the integration, and weaving of the interplay and satisfaction of three interacting systems are the natural system, the economic system, and the socio-cultural system.

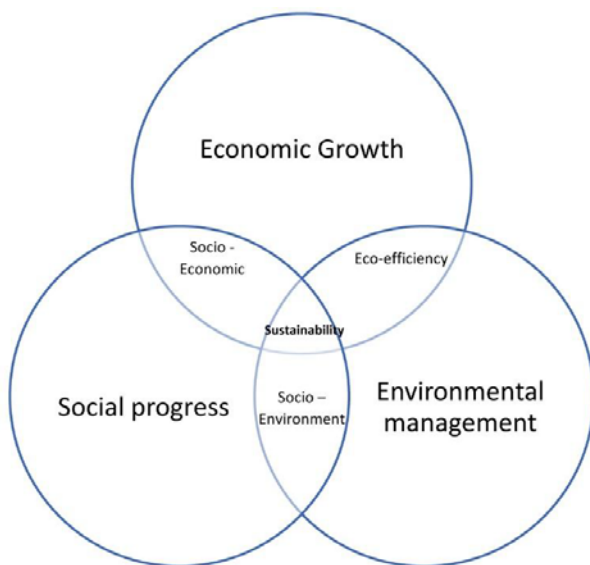


Fig. 1. Sustainable development paradigm, 1992 [the conference on RIO 92]

In 2016, Johan Rockstrom - a Swedish scientist, and Pavan Sukhdev - an Indian environmental economist promoted a new way of looking at the economic, social, and ecological dimensions of the Sustainable Development Goals (SDGs). Figure 2 depicts how economies and societies should be seen as embedded parts of the biosphere. This vision is a change from the current sectoral approach, in which social, economic, and ecological development are considered separate parts.

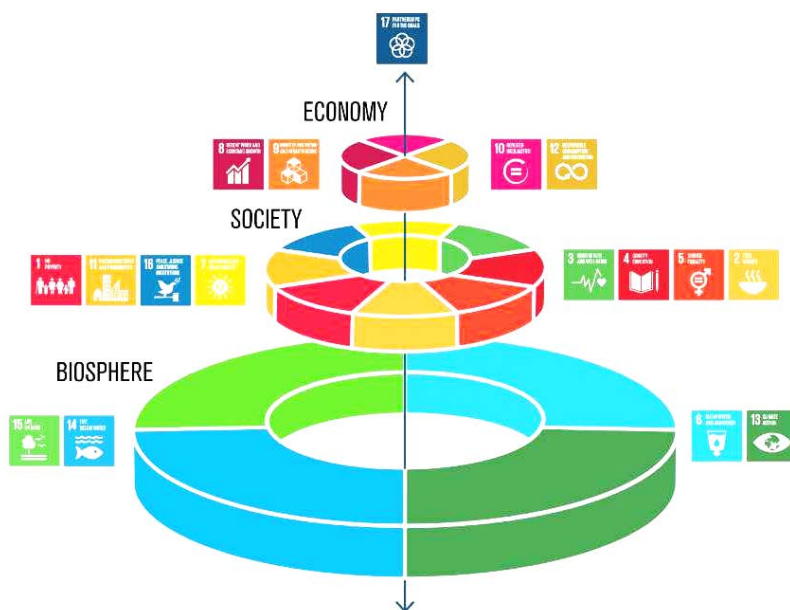


Fig. 2. The sustainable development goals wedding cake (Stockholm Resilience Center, 2016)

After more than 35 years of sustainable development practice, the world has not yet achieved the expected sustainable results, especially in the ecological and social aspects. Humankind has recently seen new crises, with climate change being regarded as the biggest challenge to humanity in the twenty-first century. The issues relating to climate change are still extremely challenging and stressful. Therefore, from the United Nations Climate Change Conference, COP 13, in 2007 and up until recently especially, at the United Nations Climate Change Conference, COP 21, in 2015, the international community came to a historic global agreement on addressing climate change.

The United Nations also released the 2030 Agenda in 2015, which consists of 17 general goals and 169 specific sustainable development objectives. These goals were approved to ensure international cooperation and integration for the benefit of the development of present and future generations.

The 2015 Paris Agreement on Climate Change represents a significant advancement in the United Nations' efforts over the last 28 years to convince states to cooperate and cut greenhouse gas emissions in order to maintain stable global temperatures. With the goal of limiting the temperature increase to 1.5 degrees Celsius and does not exceed 2 degrees Celsius (IPCC, 2018).

Implementing the signed international commitments on sustainable development, Vietnam has approved several related policy documents, including the 2014 National Green Growth Plan; the 2016 Paris Agreement Implementation Plan for Sustainable Development; the 2017 Goal program to respond to climate change and green growth for the period from 2016 to 2020; and the 2017 National Action Plan to Implement the United Nations' 2030

Agenda for Sustainable Development, etc. Currently, these plans are being implemented in a national region, at the same time, ministries, and local authorities are also developing action plans in order to be suitable for practical localities.

It can be seen that, at present, the process of urbanization in Vietnam is taking place rapidly, while some planning has not kept up with actual development, leading to environmental and social consequences; as well as not creating effective motivation based on available resources to promote economic development. In addition, in the current context, the world is facing many new challenges in terms of sustainable development, and non-traditional security issues, especially climate change. These challenges of this era require people to change their mindset and strategies in development, accordingly in planning work that is necessary to be based on the perspective of development by nature, taking the biosphere, the ecosystem, and resources are the basis for development, in a cross-sectoral approach.

2.2 Eco2 cities, Eco2 cities

2.2.1 Eco-Cities

Humans have been aware of the need to live in harmony with nature thousands of centuries ago, which is specifically expressed in the doctrines of Western and Eastern philosophers in ancient times. More than 2500 years ago, Lao Tzu - a Chinese philosopher - in Taoism made the point about the harmony between heaven, earth, and humans, humans need to respect nature.

In the nineteenth century, when the city was heavily affected by industrial development leading to an urban environmental crisis, the urban ecosystem was broken and resources were exhausted, some scholars wished to bring people closer to the natural environment, namely Patrick Geddes and Ebenezer Howard. In particular, Geddes introduces the idea of ecological zones, emphasizes the importance of the close relationship between the city and its surrounding ecosystems, and points out that it is necessary to investigate the natural ecosystem at the regional level prior to undertaking any development project.

In 1987, the first definition of eco-city was given by Richard Register in his book "Ecocity Berkeley: Building Cities for a Healthy Future". According to the Register, an eco-city is "a human settlement paradigm ed on the self-sustaining structure and function of natural ecosystems" [13]. Accordingly, an eco-city can provide healthy living for its inhabitants without consuming more resources than it produces, without generating more waste than it can absorb, and without causing harm to itself and neighboring ecosystems. To date, this concept is still valid and used by the Ecocity Builders.

According to World Bank, Eco-cities as "Cities that enhance the well-being of citizens and society through integrated urban planning and management that harness the benefits of ecological systems and protect and nurture these assets for future generations".

Today, although there is no universally accepted definition of Eco-cities, it can essentially be understood Eco-city as a human settlement paradigm ed on the self-sustaining structure and function of natural ecosystems, developed in balance with the natural environment, is a place where people live – work – entertain with an emphasis on minimizing inputs from nature and waste from human activities.

2.2.2 Eco2 cities

The rapid expansion and development of cities pose a challenge to planning, whereby planners have only one chance to plan, develop, build, and manage cities toward

sustainable development, which can bring systemic benefits to present and future generations. In 2011, the Eco2-cities Cities initiative was launched by Hiroaki Suzuki, the World Bank's Leading Urban Expert. According to Hiroaki Suzuki et al., Eco2 Cities are defined as “cities that create economic opportunities for their citizens in an inclusive, sustainable, and resource-efficient way, while also protecting and nurturing the local ecology and global public goods, such as the environment, for future generations”. [7]

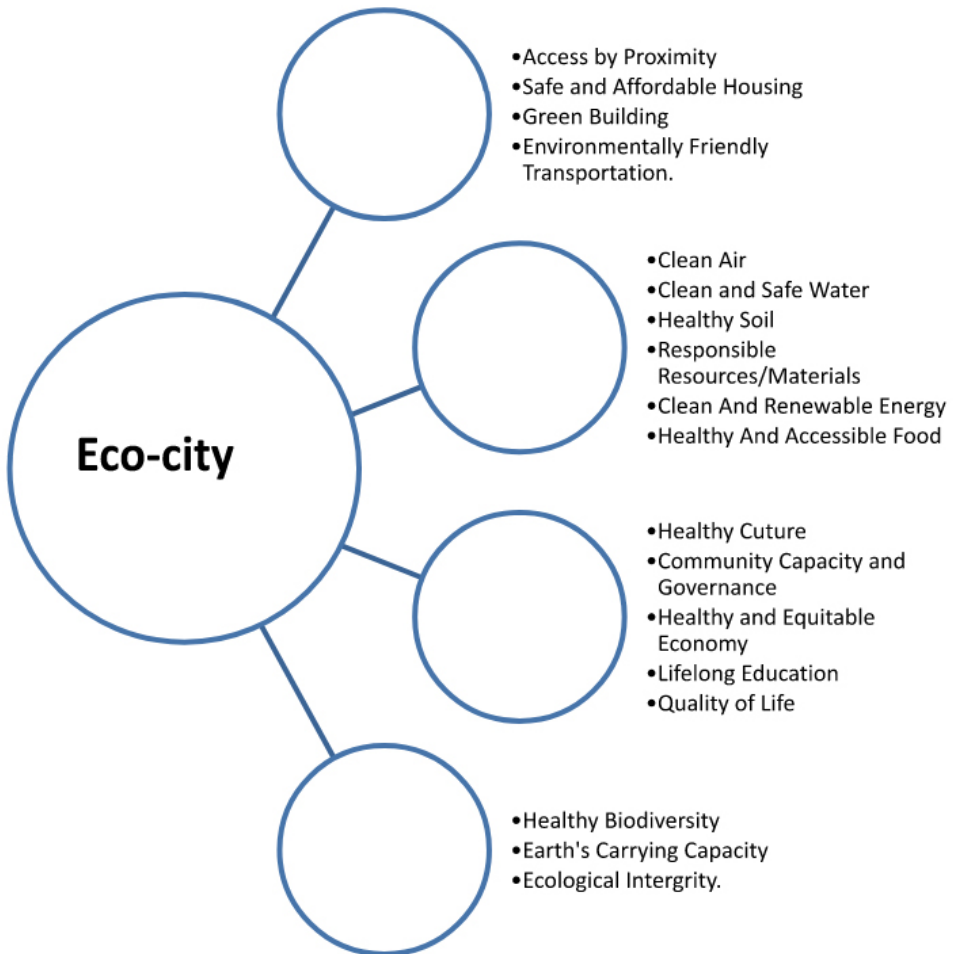


Fig. 3. The Ecocity Framework & Standards (4 Pillars – 18 Standards) [Author redrawing based on standards of the Ecocity Builders)

Some features of Eco2- cities:

- Based on a systems approach, the synchronicity and interdependence between ecological and economic sustainability and the possibility that these two properties reinforce and reinforce each other in the urban context.
- Moving from single, single-sector, and short-term goals to comprehensive, multi-target, cross-sectoral, and long-term solutions.
- Improve resource efficiency by generating the same value from a much smaller resource base (renewable), while reducing harmful pollution and unnecessary waste.

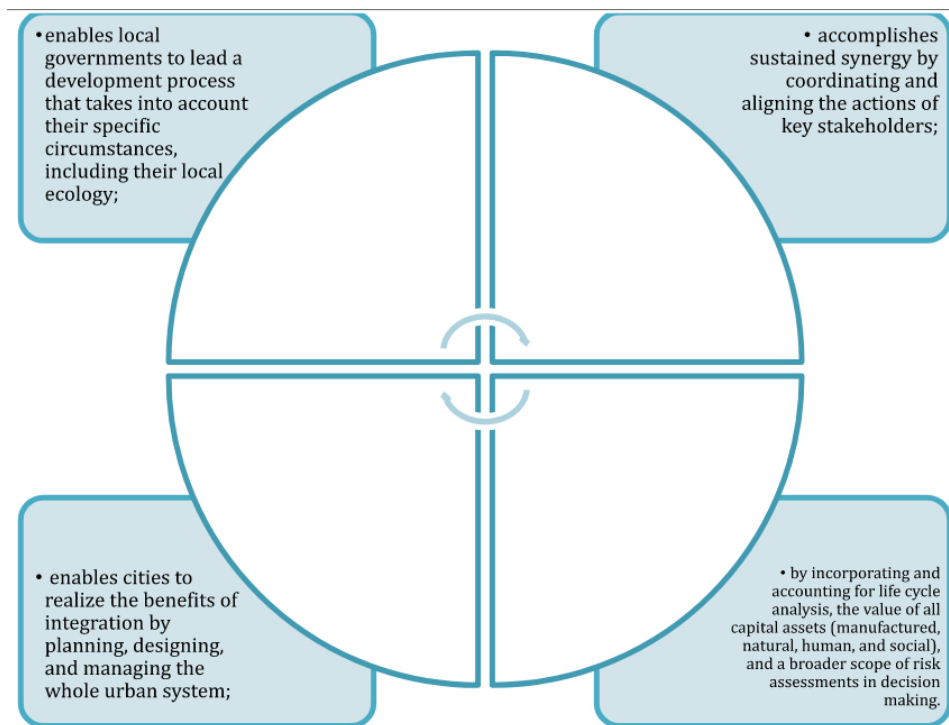


Fig. 4. Four key principles for Eco2 Cities [Author redrawing based on principles of World Bank]

Accordingly, depending on the characteristics of each city, the pursuit of the Eco2-cities paradigm is an appropriate solution, especially for developing countries, to help build a modern city paradigm and solve it. harmonize economic and environmental benefits sustainably, conserve biodiversity, efficiently exploit resources, improve the quality of life of the population and enhance economic competitiveness, strengthen financial strength, and create a lasting culture of sustainability.

3 Research method

Towards the goal of sustainable development, the method of studying Eco-city paradigms based on ecological, social, and economic systems will be an effective approach to planning for Eco-cities development, Eco2-cities. Accordingly, the socio-ecological systems need to be identified and approached systematically and holistically in a mutual relationship in the entire urban area. Some theoretical bases for Socio-Ecological System (SES):

According to Gollop et al., 1989, the developing world system can be considered as a socio-ecological system, consisting of human and environmental subsystems and their interactions. Socio-ecosystem emphasizes the social element of humanity, which is a system that includes both humans and nature, (biosphere, biological system, geography) and accompanying social and institutional factors, depending on the angle and scope of the study, different characteristics are emphasized. As illustrated in Figure 5, the environmental subsystem can be decomposed into ecosystems, biophysical processes, and other aspects of the natural world.

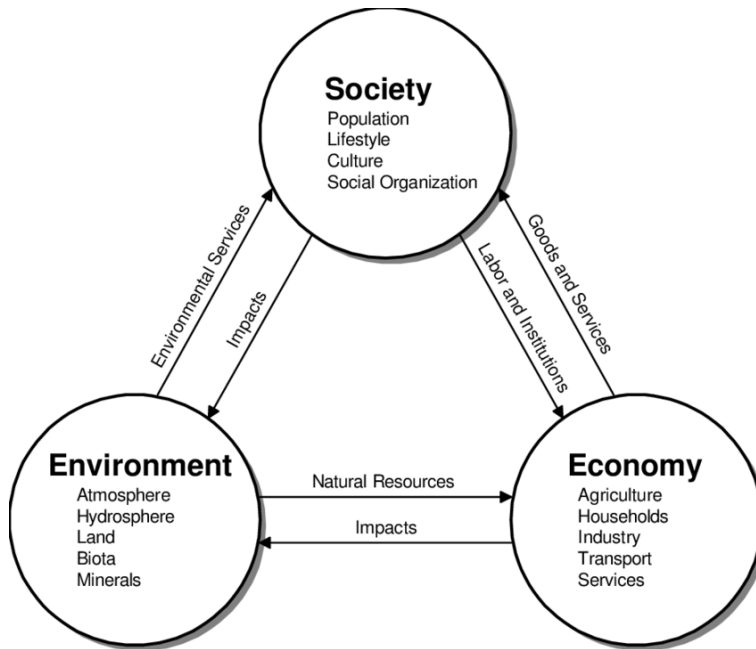


Fig. 5. The Socio–Ecological System [Source: Raskin et al. (1996)]

Berkes and Folke, 1998, defined “Social-ecological systems are linked systems of people and nature, emphasizing that humans must be seen as a part of, not apart from nature”. This definition emphasizes that People-in-Nature not People-with-Nature. In the context of climate change challenges, the interdependence between ecological and human factors is more obvious. Therefore, the method of studying Eco-city paradigms based on the socio-ecological system is the key to solving the scope of ecological and social impacts of current urban environmental problems.

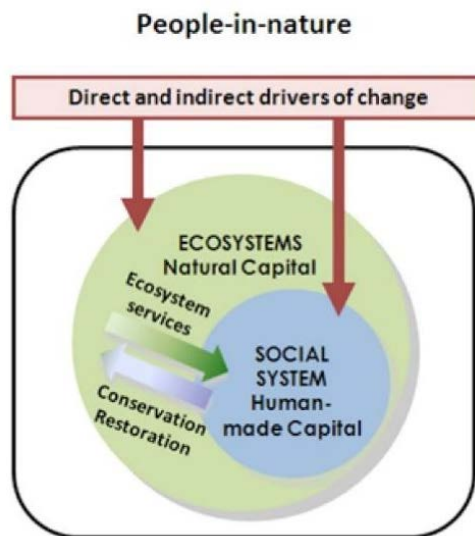


Fig. 6. Social-ecological system diagram (People in nature) (Berkes and Folke, 1998) (Marta Perez – Soba & Janet Dwyer, 2016)

Therefore, coming from the recognition of the close interaction between the social system and the natural system, the Social-Ecological System is considered a theoretical foundation for the studies of the transdisciplinary resilience of a system through developmental paradigms. The relationship between ecological and human elements is described by the Social-Ecological System as a complex system with reactions and multi-scale dependents.

The socio-ecological characteristics of the city are reflected in a system of relationships between the ecosystem and other functions of the city such as living, work, and entertainment. Simultaneously with economic functions such as tourism, industry, agriculture, forestry, services, etc... All are structured at the same time in harmony in a certain time and urban space according to the rules and interact with each other, in which humans play an entity role in the urban society-ecosystem.



Fig. 7. Subsystems diagram: Eco2-Cities is a Socio-Ecological System [Author's suggestion]

At the core of this study, the author wants to emphasize that studying the socio-ecological system is a prerequisite approach, a key basis for giving urban planning solutions to contribute to solving problems related to sustainable development and response to climate change. Urban planning needs to be researched based on the natural environment (ecosystem) and the function of the city (socio-economic). Since then, considering the nature of the eco-city as an eco-society system, operating in a close relationship, subject to mutual influence (between the natural ecosystem and urban functions), in which humans play an important role in the regeneration, development, and protection of the ecological environment and neighboring ecosystems. This has decisive significance in urban planning to create healthy cities and sustainable development.

4 Results

Considering the city as an eco-society system, within the framework of the article, the author gives the principles of Eco-city planning and proposes a structural paradigm of the Eco-City to guide towards the following sustainable development goals:

4.1 Principles of Eco-city planning:

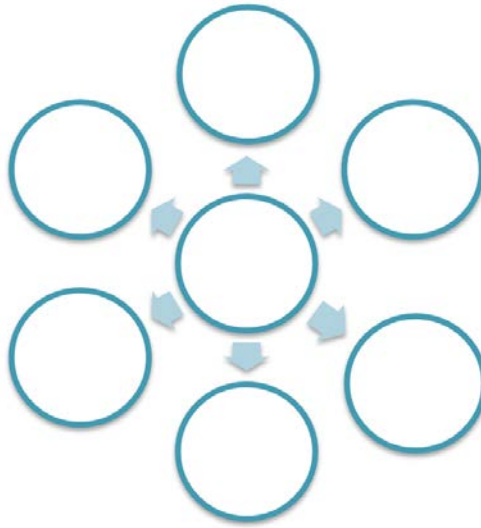


Fig. 8. Eco-cities urban planning principles [Author's suggestion]

(i) Nature conservation and biodiversity conservation: Ensuring the preservation of the natural framework of the whole area in combination with biodiversity conservation; rational exploitation and use of natural resources; minimizing negative impacts on the natural environment. Ensure reasonable functional zoning, and limit the influence of residential areas, tourist areas, production areas, and urban infrastructure on nature reserves and ecological balance zones.

(ii) Preserve and promote cultural values: Each city has its own culture and identity features, including tangible and intangible values creating a mark, the "soul" of the city, therefore, urban planning solutions need to ensure the principle of preserving and promoting indigenous culture, highlighting the core cultural values of the city. Through structural planning solutions and urban spatial organization, cultural values can be integrated, and linked to "modern and traditional", thereby increasing the specificity, attractiveness, and competitiveness of the city (especially for tourist cities).

(iii) Urban development in accordance with tolerability: The rate of population growth and socio-economic development of the city is kept at a level consistent with the "load-bearing" capacity of the environment and natural resources, therefore, in the planning work, it is necessary to determine the appropriate size, density of population, labor, and the number of tourists to ensure that it is suitable with the "threshold" for the development of the city, in accordance with the tolerability, responsiveness of infrastructure and natural resources.

(iv) Optimal organization of living environment for people: Planning solutions for spatial development orientation, land use planning, the spatial organization of landscape architecture, reasonable technical infrastructure to create and establish comfortable and ideal living environments for people, increase accessibility, and connect communities in urban areas.

(v) Environmental protection and cleaning: Urban activities consume a large amount of input natural resources such as water, energy... and the output is wastes that must be absorbed by the environment, this will cause irreparable loss of natural resources and environmental pollution. Therefore, it is necessary to reduce input consumption and output

emissions to minimize the impact on the natural environment while still being able to fully supply urban activities.

(vi) Investment attraction, economic development towards Green Growth: Depending on the specific potential of the locality, it can be in tourism, agriculture, forestry, industry, trade, and service, etc., Each urban area needs to have strategic orientations on the development of key and dynamic economic sectors, thereby creating a city with a healthy, independent economy that can feed itself, ensuring livelihoods for people and increasing incomes for urban residents. Accordingly, economic development is integrated into the planning in the direction of shifting from "Brown Growth" to "Green Growth", economic activities must be carefully considered on the basis of environmental protection.

4.2 Paradigm of Eco-city Structure

The author proposes that the Eco-city structure paradigm will be an integrated urban structure that needs to be studied based on the following two hierarchical structures:

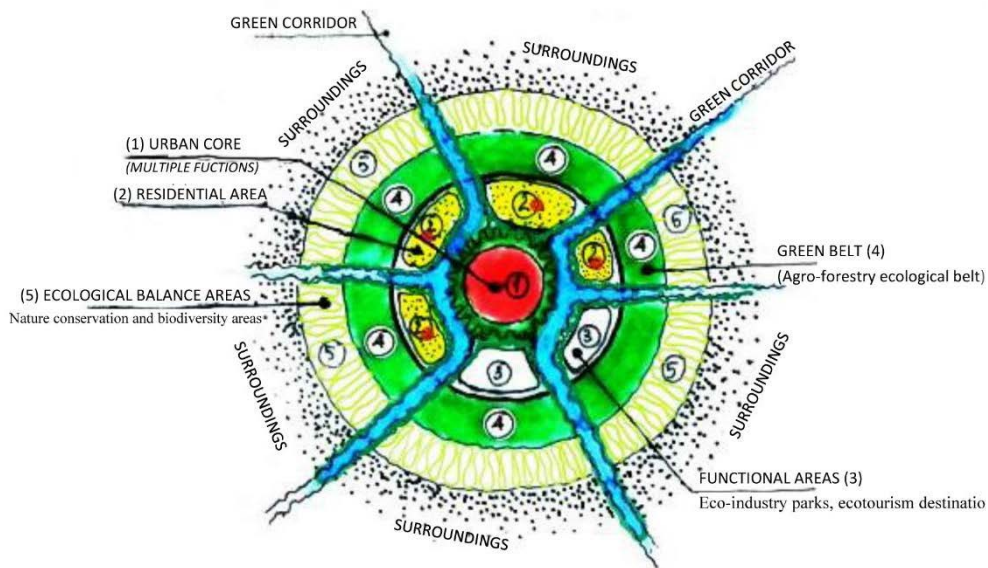


Fig. 9. Holistic structure of Eco-cities [Author's proposal]

(i) Natural structure of the city (Natural framework): Based on the study of the natural environment and ecology of the city in mutual relationship and continuity in space and time, including forests, mountains, and hills; sea, lakes, wetlands, and water surfaces; the corridors of rivers, streams, and canals, thereby forming the natural (ecological) frame structure of the city that is presented by the system framework of the large ecological zones (area of nature conservation and biodiversity, area of ecological balance), continuously connected by green corridors, the green belt of the buffer zone (agricultural-forestry zone) to public green spaces in cities (parks, green spaces).

(ii) Functional structure of the city (socio-economic development spaces): Establish and arrange functional areas related to the socio-economic development goals of the city in mutual relationship with each other, combined with the surrounding environment to form a system. Normally, the functional structure is reflected through the arrangement of functional areas including *the urban civil areas* (Central area, public areas, residential

areas, green spaces, urban traffic, etc), *the non-urban civil areas* (Industrial parks, tourist areas, commercial service areas, etc)

As mentioned above, *the eco-city spatial structure is a holistic structure* based on the natural structure and functional structure of the city, this urban structure will help the city develop in harmony with nature, and develop centrally, self-balancing, effectively linking between functional areas, limiting travel distance, providing a public service system that ensures accessibility; scattered development of specialized functional areas around the urban core; connecting specialized functional areas by green corridors and urban main traffic axes; apply a decentralized multi-pole paradigm similar to the garden city paradigm, economic development areas based on the strengths of local nature and culture; help urban development in a balanced relationship between the natural environment and the socio-economic environment.

5 Discussion

In this article, the author has researched some scientific basis for Eco-cities and proposed some solutions for Eco-cities' urban planning including 6 principles and Eco-cities structural paradigm applied to Vietnamese cities in the current context. When compared with previous studies, the author discusses the importance of the study, and the proposed results as follows:

(i) Socio-Ecosystem-based Planning (SES)

In this paper, the author mentions the urban planning method based on the socio-ecological system, in addition to clarifying the theoretical basis, the author focuses on emphasizing:

- Humans must be seen as a part of nature, not apart from nature (People-in-Nature) [Berkes and Folke]. Therefore, the method of studying Eco-city paradigms based on the socio-ecological system (that is a link system between humans and nature) is the key to solving the scope of ecological and social impacts of current environmental problems.
- Economies and societies are seen as integral parts of the biosphere rather than seeing social, economic, and ecological development as separate parts.
- Consider the nature of the Eco-city as a socio-ecological system and this is decisive to create a healthy and sustainable city.

(ii) Principles of Eco-city Planning

Based on the systematic approach, the global context, and today's sustainable development challenges, the author has proposed 6 main principles for Eco-city planning. In particular, two principles that are new compared with previous research, emphasizing promoting indigenous culture and developing economy for Eco-cities.

Eco-cities not only have more trees than normal areas, but the orientations in eco-cities also need to ensure the relevant environmental, social, and economic criteria of the city. This means that an urban area is not only a place to settle, rest and enjoy life but each city itself must be based on the native ecological environment, promote urban cultural identity and establish an independent economy, prospering with key sectors, creating livelihoods for people, and meeting the dimensions of sustainable development (Economy - Society - Environment).

(iii) The paradigm of Eco-city Structure and Applicability in actual conditions of Vietnam

With the desire to contribute a planning solution to the Eco-cities structure, the Eco-city structure proposed by the author in Section 3.2. is a new proposal based on experiences researching theory combined with experiences working with general urban planning projects in practice. Therefore, *the eco-city spatial structure is a holistic structure* based on

the natural structure and functional structure of the city, helping urban development in a balanced relationship between the natural environment and the socio-economic environment, creating a livable environment, rich identity, and a prosperous economy.

Discussing the applicability in practical conditions in Vietnam, the author believes that urban development in the direction of Eco-City in Vietnam is completely right, appropriate, and highly feasible if the planning, implementation, and management in compliance with the guiding principles, criteria, and solutions of the Eco-City.

Table 1. Comparison of key principles of Eco-city planning

World Health Organization (WHO) Conference (Meeting in Liverpool (UK), 1988)	<i>Principles of Eco-city Planning</i> (The author suggested in this paper)
Includes 4 main principles: <ul style="list-style-type: none"> • Minimal encroachment on the natural environment. • Maximize the diversification of land use, urban functions, and other human activities; • Where possible, try to keep the urban system self-contained and self-balancing; • o Keeping urban population growth and the potential of the environment optimally balanced. 	Includes 6 main principles: <ul style="list-style-type: none"> • Nature conservation and biodiversity conservation • Preserve and promote cultural values and identity. • Urban development in accordance with tolerability • Optimal organization of living environment for people • Environmental protection and cleaning • Investment attraction, economic development towards Green Growth.

6 Conclusions

Based on the analysis of theories on Eco-cities, Eco-Economic Cities, and planning approaches based on socio-ecosystems (SES), the article has presented research results on the principles of Eco-city planning, Eco-city structure paradigm; and discusses the possibility of applying the Eco-city paradigm in the practical conditions of Vietnam. The research and proposals in this article aim to contribute to the scientific basis of Eco-cities, thereby promoting the research, planning, implementation, and management of eco-cities in Vietnam, with the expectation of creating healthy and livable living environments for people with minimal need for resources, minimizing environmental impacts; enhancing urban health and urban resilience; meet the expectation of creating livable cities, full of cultural identity, and economically prosperous and sustainable development.

7 Acknowledgments

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References

1. David Stoltz, Omar Shafquat, Jaime Arias, Per Lundqvist, 2014, On holistic planning in Ecocity development: Today and in the past, The 6th International conference on applied Energy – ICAE 2014.
2. Jessica K Breadsell, Eco-city planning, and design, 2020, Encyclopedia—the Scholarly Community Encyclopedia.
3. Gilberto Gallopin, Al Hammond, Paul Raskin and Rob SwartA, 1997, Global Scenarios and Human Choice, Resource Paper of the Global Scenario Group
4. Paul Raskin, Gilberto Gallopin, Pablo Gutman, Al Hammond and Rob Swart, Toward Global Sustainability, 2000, A report of the Global Scenario Group
5. Simon Elias Bibri and John Krogstie, 2020, Smart Eco-City Strategies and Solutions for Sustainability: The Cases of Royal Seaport, Stockholm, and Western Harbor, Malmö, Sweden
6. Xiaochun Zhang, Chun Ma, Shuifen Zhan, Libo.Lu, 2012, Planning and Construction of Eco-city: Theory Application and Case Study, Article in Applied Mechanics and Materials.
7. World Bank, 2014, Eco2 Cities – Ecological and Economic Cities.
8. The website of Worldbank, <https://www.worldbank.org>
9. Fikret Berkes & Carl Folke, Linking Social and Ecological Systems, Management Practices and Social Mechanisms for Building R
10. Tran Trong Hanh, Nikken Sekkei Civil Engineering LTD, 2017, Urban Planning in Asia, Construction Publisher.
11. The Landscape Partnership, Green Infrastructure Strategy for Suffolk Coastal District Council, 2011.
12. Curitiba: Integrated Urban Planning, Urban Planning, and Regeneration: Key to Tackling Climate Change, 2008, Institute for Research and Urban Planning of Curitiba.
13. Website of ecocitybuilders ([https:// ecocitybuilders.org](https://ecocitybuilders.org))
14. Truong Quang Hoc, 2022, An integrated approach to sustainable development and response to climate change based on Ecological System-Society, Fall 2022 meeting – Sustainable development of marine space associated with the economic marine economy in the Southwest region, Vietnam.
15. Do Kim Thanh, Nguyen Hoai Thu, Duong Thi Ngoc Oanh, Bui Cao Son, Do Ngoc Quynh, 2022, Ecology and urban environmental planning book, Hanoi architectural university.
16. Nguyễn Hoài Thu, 2019, “Solutions to overcome and minimize air pollution in Vietnam’s rural areas.”, International Conference on Architecture and civil engineering (ICACE 2019) Education Integration & Sustainable Development.
17. Nguyễn Hoài Thu, 2014, "Some orientations of Eco-city planning applied in practical conditions of Vietnam", the science paper, Hanoi architectural university 45 years of development and integration.
18. Website of United Nations-Climate Change (<https://unfccc.int/>)
19. The National Assembly of The Socialist Republic of Vietnam, Resolution No.81/2023/QH15 on the National Master Plan for the period 2021-2030, with a vision to 2050

20. Do Viet Chien, Former Director of Urban Development Department, Master Plan of the national urban system from the Perspective of urban development management, *Journal of Urban Planning* No. 97+98
21. The prime minister of the Socialist Republic of Vietnam, 2009, Decision No. 445/QĐ-TTg, Decision Approving modification of the master plan for the development of Vietnam's urban system by 2025 with the vision to 2050.
22. The National Assembly of the Socialist Republic of Vietnam, 2017, Law No.21/2017/QH14, Law on Planning.
23. The National Assembly of the Socialist Republic of Vietnam, 2020, Law No.62/2020/QH14, Law on Amendments to Construction Law and 2014, Law No.50/2014/QH14, The Construction Law
24. The National Assembly of the Socialist Republic of Vietnam, 2009, Law No. 30/2009/QH12, Law on Urban Planning.
25. The Government of The Socialist Republic of Vietnam, 2009, No. 42/2009/ND-CP, Decree on The Grading of Urban Centers.