Asia Pacific
Academy of Science Pte. Ltd.

REVIEW ARTICLE

Compact and dispersed cities: From the perspective of coexistence and sustainability

Jaime Alfredo Alarcón Zambrano

Universidad San Gregorio de Portoviejo, 999165, Ecuador. E-mail: jaalarcon@sangregorio.edu.ec

ABSTRACT

The purpose of this work is to compare and analyze the two opposite urban development models of compact cities and decentralized cities through five axes and determine which model is most suitable to promote urban coexistence and sustainability. Therefore, this paper makes a literature study on the coexistence and sustainability of cities and the characteristics of the two urban development models of compact cities and decentralized cities. The two models are compared and distinguished through five axes so that they can be compared under the variables of coexistence and sustainability. In the most revealing survey results, it was pointed out that compact cities are the most appropriate urban development model. Therefore, under the principles of compatibility, solidarity, and sustainability, cities are not only a "living space" but also a "space for living together". The main conclusion is that in order to achieve urban coexistence and sustainability, a relevant urban development model and citizen commitment are needed.

Keywords: city; compact city; scattered cities; coexistence; sustainability

1. Introduction

The city is a topic with both suggestiveness and fuzziness. It can be studied from an infinite angle and produce a variety of concepts. However, the definition is always based on people, which is essentially divided into a social existence. Therefore, cities can be regarded as places where human beings establish and develop a common life, improve living conditions, and meet human needs.

Cities must be spaces designed based on urban development models that promote coexistence and sustainability to ensure harmonious and productive human social relations and human behavior oriented towards respect for the environment and responsible management of urban resources.

The purpose of this paper is to determine the most suitable model for promoting urban coexistence and sustainable development by comparing and analyzing the two opposite urban development models of compact city and decentralized city.

This article is based on a review of some important professional literature. It is related to Sustainable Development Goal 11 of the 2030 Agenda adopted by the United Nations, namely, "Achieving inclusive, safe, resilient and sustainable cities," which is the reason for its existence.

1.1. City

The birth and evolution of cities are not accidental products, but the true face of cities, because cities are conceived and built by people with specific goals, specific ambitions, and clear ideologies at historical moments[1]. In other words, the city is not an accident. It is the greatest invention of mankind[2].

Carrion[3] and Echeverria[4] believe that the city is a man-made environmental form, built and produced by human beings, which is an endless and perfect process, which is confirmed by Echeverria[4].

In this context, cities are places where human beings can build and develop a common life, improve living conditions, and meet individual and collective needs. In this regard, Vidal de la Blache, quoted by Chueca[5] said that nature has prepared this place, and human beings organize it in a way to meet their needs and aspirations.

Therefore, cities can be regarded as space assets to meet the basic needs of mankind, such as survival, freedom, protection, understanding, participation, entertainment, identity, and so on. In this way, the city has become satisfactory.

A city is a satisfying and powerful force because it is a commodity that can meet many needs at the same time, just like the basic needs of mankind.

Aristotle[6] has clearly stated this with Meridian: "The perfect community of several villages is the city. It can be said that it has the highest level of self-sufficiency. It is born for living needs, but it lives for living. Therefore, every city is natural, even the first communities."

The existence of basic needs gives rise to rights, and human rights are basically inferred from these basic needs rather than from other needs. They are rights applicable to any situation and are the minimum that mankind should never lower. They are considered universal rights.

However, if the city is a satisfactory tool to meet human needs. We can infer that everyone has

the right to own the city. Therefore, urban rights are universal, and it is the realization of human rights at the urban level that produces urban rights.

The civic culture of the past decades has led to a new set of rights, at least moral rights or programmatic rights, known as the third-generation rights in terms of civil and political rights (first generation) and social and economic rights (second generation). These are "urban rights" and "urban rights"[7].

If "city right" is a universal right, then the city is a good that all of us can obtain and enjoy. We are built as individuals. In addition, this space gives us shelter, protection and a home; we develop a career; and we live in the community to establish collective welfare.

As the city is the third generation right, the space of human life, the important environment of human beings, the place where emotion and survival ties are intertwined, and the place where human individuals and collectives realize, it is necessary to analyze whether the city should be regarded as living space or living space.

1.2. City: A living space or a living space?

Now, people generally believe that cities are living spaces. According to this standard, one can imagine that urban residents engage in their special activities and strictly engage in what they do for personal and family satisfaction, regardless of others and people outside the social environment. Everyone is committed to their own life, with no communication, no information exchange, and no thought. In other words, a space that provides enough private interests for personal life. A living machine in which everyone responds to a mechanism to meet specific needs, especially special needs. All these are the remnants of the methodological and philosophical structure imposed by modernity.

However, we should not forget that, as Aristotle[6] said, man is a very socialized individual: "Obviously, the city is a natural thing. People are born as social animals, while unaffected people are not born

randomly, either with a lower existence or a higher existence than human beings. In this regard, Glaeser[2] pointed out that "the human species is highly socialized and is as eye-catching as ants and gibbons in collective production." All people living in this city are different people, but differences are the engine of society. In this society, it is necessary to reach an agreement and find common solutions to bridge differences, avoid conflicts, and collectively produce. Therefore, cities must be seen as an expression of a cultural dynamic that unites the entire community in consensus and differences[8].

Despite the differences, man seeks friendship because he needs to participate in the environment. When he does so, he is not only satisfied but also happy. The opposite often leads to unhappiness. Obviously, everyone is different, but they need to feel part of something, communicate, and participate, precisely because people are social entities. Participation is one of the most relevant needs because it generates satisfaction, which means meeting other needs. That's why it's considered the key to happiness. In order to achieve this common goal, although, with different people, we must seek answers and solutions through citizen participation in order to understand everyone's wishes and needs and make them complement each other harmoniously for the benefit of the community.

In this regard, Rincon believes that the city must be a coexistence space in line with the principle of human dignity, which not only involves the field of personality but also incorporates the principle of solidarity in order to build and safeguard collective values and interests. In this regard, Chueca[5] quoted Mumford as saying that "the city is a form and symbol of comprehensive social relations."

Therefore, whether the city has contact, standardization, exchange, and communication. Moreover, the interaction between citizens and their activities and institutions is its basic aspect[9]. Therefore, it can be said that the city must be a space for living together.

1.3. Coexistence

A city has an interactive potential that leads to a large number of people gathering in the same place[10]. It must be dominated by a community spirit, which has made the city a tool of freedom and progress in medieval history, a real "community", with the spirit of community and coexistence[5].

Therefore, if the city is the most satisfactory because it brings together many needs of human diversity and tries to meet them, it must be understood as a city with social coexistence, promoting citizen participation, promoting cooperation, and respecting the dignity of humans and nature. Finally, a city must consist of three basic aspects: Compatibility, solidarity, and sustainability[11].

Compatibility, understood as an action designed to meet a need, cannot be based on actions involving the dissatisfaction of others. I mean, it has to be compatible.

Solidarity is understood as an activity. If it meets one person's needs, it cannot prevent another person's needs from being met. I mean, she has to stick together.

Sustainability, is seen as not impeding future actions to meet the needs of the upcoming world's people. Therefore, it must be sustainable. Therefore, cities need certain spatial characteristics to coexist under the parameters of compatibility, unity, and sustainability. These parameters can be designed by urban design science. According to Borja[7], the birth of urban design science is to sort the space, activities, and coexistence in cities according to common interests.

1.4. Sustainable development

The decentralized dynamics of urbanization, the simplification of urban structure and the specialization of functions, the low efficiency and waste of resources and their impact, and the risk of social isolation are all spatial and social problems. If we do not meet the challenge of urban sustainability, it may lead to the reproduction of global and local unsus-

tainable processes, the disintegration of urban organizations, land degradation, urban instability, and increased social disconnect[12].

For example, the impact of urban difficulties is reflected in public space. The middle class and the upper class flee the public space of traditional cities out of fear or comfort and choose to build their own houses away from the noise and chaos of cities, resulting in more serious problems, such as the indiscriminate use of land, the expansion of cities without any urban sustainability standards, and allowing remote, scattered and offline urban growth. If, with the continuous expansion of cities, we are reducing the level, of fertile and gas exchange soil on land, the limitation of soil as a scarce resource is more obvious.

The above problems, characterized by the imbalance unique to such a complex system as the city, deserve the choice of urban sustainability, which means maintaining harmony between the economic, social, and environmental aspects of sustainable urban design in order to achieve an environmentally friendly city and ensure the physical and mental health and dignified life enjoyment of residents[13]. Urban sustainability requires cities to be economically productive, socially inclusive, and environmentally sustainable[14]. Therefore, it must promote effective economic activities to ensure that citizens benefit from them and do so in a manner that protects biodiversity, water and air, and the health and safety of residents, especially at a time of climate change and increasing vulnerability to extreme pandemics and climate disasters. Urban productivity must be achieved through economically viable urban development without investing more resources than are needed to provide priority projects for the economy of cities and their residents, including job creation, competitiveness, and demographic economic equity[15].

Social inclusion is achieved in places with high social mobility, where distances are reduced, citizens have access to all public spaces, and communities are composed of people from different ethnic and economic backgrounds. According to Ramirez and Sanchez[15], urban projects meet social needs, improve the quality of life, and allow citizen participation.

Environmental sustainability aims to ensure that urban development has the least impact on the environment, which means reducing the consumption of resources and energy and generating as little waste and emissions as possible[15].

1.5. Methodology

This study uses a combination of qualitative and literature descriptions to describe and analyze the necessity of urban coexistence and sustainable development, then compares the two opposite urban development models of compact city and decentralized city through five axes, and determines the most suitable model for urban coexistence and sustainable development. Main sources, such as books and articles in professional journals, are preferred. Research is the review of literature and comments on the selected tools. This paper establishes a conceptual theoretical framework based on city, coexistence, and sustainability, determines the basic content of the theme, and makes a conceptual theoretical evaluation of the five axes of each urban development model. The five characteristic axes of the two urban models are compared and analyzed, and the approximation and recognition level of coexistence and sustainability with the research variables are finally determined. The comparative literature analysis determined that the compact city is the most appropriate urban model because, under the concepts of urban productivity, social inclusion, and sustainable environment, the compact city is not only a "living space", but also a "coexistence space", which are the dimensions of sustainability.

2. Discussion and results

Compact city or decentralized city

In the discussion, we start with the analysis and comparison of the general characteristics of the two

urban development models, namely compact city and decentralized city, as the choice leading to a preliminary, objective, and critical position, so as to determine the most suitable model for promoting urban coexistence and sustainable development.

A compact city is a city based on community interests. Its planning emphasizes the following aspects: Different land use, universal physical accessibility, higher population density, use of public transport, alternative mobility, greater pedestrian space, and less vehicle space for individuals[16]. Scattered cities are characterized by a preference for specific interests, low population density, the proliferation of peripheral areas, the dispersion of territory, the isolation of space, and the greater role of private vehicles in long-distance travel[17].

According to Rogers' judgment, Montejano[18] quoted this view that a compact city is "a dense and socially diverse city with overlapping social and economic activities, and the community can be integrated into the community." In other words, this is an urban model that promotes social cohesion, ensures urban justice, and promotes the use of public space. It strengthens various activities carried out in its context and has a positive impact on the ecological, economic, social, and cultural fields, rather than scattered cities, in which special interests take precedence over common interests, low population density, scattered, remote, and disjointed cores, high infrastructure costs, and private vehicles are forced to mobilize, resulting in environmental pollution.

Reviewing the first stage of comparative analysis, we believe that the compact city model is closest to coexistence and sustainability because it promotes better land use, appropriate coverage of infrastructure, environmental protection, public space, and quality of life.

Rueda[15] pointed out that there are five axes describing and distinguishing each urban model. These axes are described in **Table 1**, and the coexistence and sustainability variables are analyzed and compared.

Table 1. The urban axis is compact and the cities are scattered

Compact city	Scattered city
Compactness	Dispersed
Complexity	Ordinary
Efficiency	Defect
Social spatial integration	Social space isolation
The greening of the city	Sparse urban greening

Compactness is the key to determining the high density and proximity between urban uses and functions[15]. It promotes and encourages contact, exchange, and communication, strengthens the links and intimate relationships between the various components of the urban system (citizens, activities, and institutions), and creates an enabling environment for social inclusion, thereby promoting coexistence and sustainability, while dispersion promotes low density, leaving urban residents away from cities and without opportunities for contact and coexistence. According to Glaeser[2], "Cities enable us to make friends with people of common interest...." It is compactness that deals with high density and avoids social isolation because it enables people from different social backgrounds to integrate and promote healthy coexistence and social cohesion[14]. In compact cities, compactness brings various activities concentrated in smaller areas closer together, reduces the use of private cars, thus reducing environmental pollution, improving the health of citizens, and encourages the use of other mobilization means, such as pedestrians, to promote coexistence and sustainability, which will not lead to longer distances and travels of private cars in scattered cities. It creates social separation and increases the consumption of energy and resources, which reduces the possibility of coexistence and sustainability.

Complexity is key to using mixed land use as an economic and functional sustainability strategy[19]. The diversity of urban activity land makes the heterogeneity of urban land concentrated on urban land, which makes urban space full of vitality, resulting in the flow of people from different sides. They continue to flow on the streets, increasing commercial activities, employment, social inclusion, urban productivity, and coexistence. In contrast, the simplicity of scattered cities is formed by the ho-

mogeneous use of urban land, which makes it difficult for people from different sides to reach and hinders the exchange of different interests. This model compresses the space for dialogue to find consensus and solutions to problems, which hinders and limits social inclusion and urban productivity, which are key aspects of sustainability.

Glaeser[2] believes that diversity is essential for promoting development. From this point of view, complexity is understood as the diversity of compatible uses on small areas of land, which produces social benefits because it shortens the distance and makes it easier for a wider group of citizens to access various services and equipment, resulting in new sources of employment, competitiveness, and economic equity. In our view, these factors are essential for social stability, coexistence, and sustainability. In contrast, simplicity leads to the physical separation of various urban functions[20], resulting in a vast space with limited urban functions that are single and underutilized in many cases.

Efficiency is key to urban metabolism and is generated by energy consumption, water management, and waste disposal[13]. In compact cities, efficiency refers to the appropriate consumption of energy, resources, and water and the appropriate treatment of waste generated by the responsible and united commitment of urban residents within the natural and man-made load capacity of the city. This community commitment to improving the quality of life also creates a space for coexistence because it requires awareness raising and collective participation, but most importantly, it enhances environmental sustainability. In contrast, the energy consumption of scattered cities is higher than that of compact cities[20], because urban residents are inefficient in managing resources. When they consume water, energy, and resources, they only want to meet their special needs without considering that they live in a community, and their individual behavior affects collective development. This is why we believe that decentralized cities are inefficient and do not allow communities to work together to achieve coexistence and, worse, sus-

tainability.

Social spatial integration is the key to promoting an integrated space in which most of the population has access to services, equipment, and housing. In the context of compact cities, social cohesion means the coexistence of cultures, ages, incomes, and occupations of different groups[13]. Social integration strengthens the possibility of contact, communication, and exchange, which are strengthened by the diversity and mixing of activities, forming a coexistence and sustainable urban model, while the decentralized urban model is characterized by social spatial isolation, inequality, and marginalization. In this model, socialization is carried out in minority groups and restricted, closed, isolated, and protected environments. They do not recognize complete coexistence. On the contrary, from our point of view, they create an environment of insecurity, mistrust, and social inequality in cities.

Urban green space is a collection of green spaces located in different urban spaces. In compact cities, vegetation in public spaces helps protect biodiversity because it reduces pollution by absorbing dust and vehicle smoke particles[19]. The greening of urban roads, streets, parks, facades, and building terraces has advantages in reducing pollution and improving urban landscape and quality of life. Therefore, green space has a strategic position in compact cities and is related to users and various urban uses, so as to promote it as a space for social integration and coexistence. In contrast, in scattered cities, due to their characteristics of dispersion, simplicity, low efficiency, and spatial isolation, there are few urban green spaces, and the rare and narrow green spaces that may be found are isolated and placed in closed and exclusive housing, which does not provide a green environment for coexistence and sustainability.

Finally, urban greening provides a shady, protective, and comfortable thermoacoustic environment for the city. Promoting health, air quality, and the environment[21]. We believe that these factors

promote leisure, public health, coexistence, and sustainability, and lead to the strategic deployment of a compact urban model committed to the environment and the quality of urban life.

3. Conclusions

A city is a spatial expression of comprehensive social relations that is based on the will and participation of citizens to create and maintain collective values and interests oriented toward common interests. Compact cities are the most suitable urban development models for coexistence and sustainable development because they promote citizen harmony through compactness, complexity, efficiency, social space integration, and urban green, and allow social inclusion, urban productivity, and a healthy environment, which produce sustainable space.

Conflict of interest

The author declares no conflict of interest.

References

1. Rivero J. Basic handbook of urban law. Madrid, Spain: Tecnos Press; 2018.
2. Glaser E. The victory of the city. Because our best creation makes us richer, smarter, greener, healthier and happier. Madrid, Spain: Penguin Publishing Group S.A.U; 2011.
3. Carrión F. Cities, memories and projects. Quito. Ecuador: Olachi Press; 2010.
4. Echeverria J. City and urban design: A model of contemporary urban political theory. In: Crespo E, Reyes C (editors). Quito, Ecuador: City College; 2015. p. 11–29.
5. Chueca F. A brief history of urban design. Madrid, Spain: Publishing Alliance; 2018.
6. Aristóteles. Politics. Madrid, Spain: Gredos Press, S.A; 1988.
7. Borja J. Urban revolution and urban rights. Quito, Ecuador: Olachi Press; 2011.
8. Musset A. A nomadic city in the new world. Mexico City. Mexico: Economic and Cultural Background; 2011.
9. Rueda S. La ciudad compacta y diversa frente a la conurbación difusa (Spanish) [Compact and diverse cities are a more sustainable future than decentralized urbanization]. Ciudades Para un Futuro Más Sostenible 1997; 19(01): 69–83.
10. Ascher F. New principles of urban design. Madrid, Spain: Publishing Alliance; 2016.
11. Guirao L. City life. Architecture (final work degree). Valencia, Spain: Valencia Polytechnic University; 2019.
12. Ministry of the Environment and Barcelona Urban Ecology Agency. Barcelona, Spain: Environmental Green Paper, Volume I; 2007.
13. Agencia de Ecología Urbana de Barcelona Red and Redes de Desarrollo Local Sostenible [Internet]. 2009. Available from: https://ajuntament.barcelona.cat/entitats/es/agencia-de-ecologia-urbana-de-barcelona
14. Alarcón, J, Albert J. The urban law and the sustainable city. A propedeutical analysis of the case of the Republic of Ecuador. Revista de Dereito da Cidade 2019; 11(2): 457–490.
15. Rueda SP. Un nuevo urbanismo para una ciudad más sostenible, I Encuentro de Redes de Desarrollo Sostenible y de Lucha contra el Cambio Climático (Spanish) [A new urban design, a more sustainable city, I met the network of sustainable development and climate change]. In: Victoria Gastez Sachs J (editor). La era del desarrollo sostenible. Barcelona, Spain: Deusto Press; 2005.
16. Ramírez A, Sánchez J. Approaches to sustainable development and urban planning. Journal of Digital University 2009; 10(07): 24–32.
17. Lehmann S. Green urbanism: Formulating a series of holistic principles. SAPI EN. S. Surveys and Perspectives Integrating Environment and Society 2010; 3(2).
18. Muñiz I, Calatayud D, García M. Causes and effects of urban sprawl. Low density city logic, management and competition. Barcelona, Spain: Barcelona Parliament; 2010. p. 307–347.
19. Montejano J. El principio de la densificación como argumento central de la sustentabilidad urbana: Una revisión crítica (Spanish) [The principle of densification as a central argument for urban sustainability: A critical review]. In: Montejano JA, Caudillo A (editors). Densidad, Diversidad y Policentrismo: ¿Planeando ciudades más sustentables? México: Centro de Investigación en Geografía y Geomática "Ing, Jorge L. Tamayo"; 2017. p. 57–83.
20. Pacheco E. Urban sustainability: A strategy for the construction of sustainable urban model. In: Reyes C (editor). Quito, Ecuador: City College; 2016. p. 11–43.
21. Rueda S. More sustainable spatial planning model. Barcelona, Spain: Environment Forum Foundation; 2002.
22. Castillo L, Ferro A. La problemática del diseño con árboles en vías urbanas: verdes con pespuntes negros (Spanish) [Design problems of trees on urban roads: Green and black]. Architecture and Urban Design 2015; 36(1): 5–24.
23. Rincón J. Land management, property and environmental plans. Bogota, Colombia: Digiprint Publisher; 2012.