The Role of Urban Connectivity In Progressing New Cities

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Abstract

As a result of environmental, social, and economic changes....etc., the master plans of cities, meeting the growing needs of individuals, expanded, deteriorated materially and environmentally, lost their connection with their current status. The research aims to determine the impact of urban connectivity in the progress of new cities, so it starts by identifying new cities, urban connectivity and its importance as a research topic. The problem of the research was:"there is a comprehensive lack of knowledge about the policies of upgrading new cities, activating the mechanisms of urban interconnection of new cities with existing cities within a unified and sustainable master plan". On its basis, of which the goal of the research was determined, in building a cognitive perception about the policies of development and redevelopment of new cities by activating the mechanisms of urban interconnection in them . The research adopted the descriptive-analytical approach in building the theoretical framework, and then applied it within the practical study, which included a description of two experiences of new cities (Almada and Kuala Lumpur), as cases embodying the types of urban connectivity and activating their mechanisms to connect new and existing cities in proportion to the specificity of their master plan.

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1. INTRODUCTION

The city performs different but related functions with regard to its connection with other satellite cities. Urban connectivity is important in explaining the growth of new centers, bringing about intellectual and dynamic changes or transformations. There is usually a dominance of a specific form of connectivity based on the patterns of (existing functions, movement, spaces between, the type of blocks and urban units, etc). On this basis, the main idea of the research became to understand the meaning and contributions provided by the policies and mechanisms of urban connectivity that call for the upgrading of new cities.

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Therefore, the research aimed to build a clear cognitive vision about the policies of upgrading and redeveloping cities by activating the mechanisms of urban connectivity in them. In order to accomplish this, the study used to descriptive as well as analytic approach depending on the three axes as follows: The first axis began to provide a knowledge base for the new cities, which included defining the concept of new cities; and the second axis included the concept of urban connectivity, its elements, and principles, while the third axis concerned itself with investigating the policies of upgrading and redeveloping new cities in a way that enhances integration with the rest of the existing city's master plan master scheme. Then extract the theoretical framework and apply its features to selected models of projects that embody the types of urban connectivity and how to activate its mechanisms in upgrading the centers of these new cities and developing their master plans, down to the most important conclusions.

2. THE FIRST AXIS: THE CONCEPT OF NEW CITIES

(Noorloos, et al., 2018) indicated that new cities are environmentally friendly, smart, and based on large-scale enclaves that include a range of mixed land uses such as residential, commercial, along with technological centers, and economic zones, in a way that achieves social justice, embodies democracy, and meets the needs of all members of society. (Noorloos, 2018, p.1224-1225)
"New City" is a term that is used to refer to the new (cities, towns, neighborhoods, districts, and villages, etc..) that are institutionally different and share the adjective "New"; it can always be replaced with something newer. (Governa, et al., 2020, 1-5)

2.1. New Cities Styles

The concept of the "New City" is used in the sense of a town built directly, built on empty land and in proportion to the rest of the uses of the master plan ; there are several types of new cities according to their formation patterns, as follows:
First: Spatial Patterns: (Harris et al., 1945) indicated that the new cities develop in specific patterns in response to economic and social needs. They are as follows:
- Pattern of the central cities. – The pattern of cities as transportation foci.
- Pattern of cities with specialized functions. - Pattern of the clustered and compound cities.
Second: Functional patterns: which were referred to by (Prideaux, 2009), as follows:
- Industrial cities. - Commercial cities. - Political cities.
- Residential cities. - Tourist cities.

2.2. New Cities Attributes

New cities are characterized by a set of basic characteristics, which are as follows:
* Manage the rapid growth of large cities by reducing the size of their population.
* Providing low-cost and affordable housing.
* Transfer of some industrial facilities from major cities to new ones.
* Prevention of the formation of slums in the vicinity of large cities.
* Reduce traffic congestion and environmental pollution such as air and water pollution. (Atash, 2000, p.67 & 75-76)

3. THE SECOND AXIS: THE CONCEPT OF URBAN CONNECTIVITY

The term “Connectivity " refers to any repetitive sequence of behavior that arises in one system and interacts with it in another system. (Rosenau, 1969, p.5), and (Cullen, 1971) describes the

connectivity as the sequence and coherence in vision the urban landscape as integrated relationships between the constituent parts of the city and its spaces. (Cullen, 2012, p.7-8)

Howard, 1985 stated that urban connectivity is the combination of the countryside and the city within a design unit called "the Garden City of Tomorrow", being polycentric economically, socially and culturally integrated and interconnected with each other by means of urban axes. (Howard, 2003, p.37)

3.1. Elements of Urban Connectivity in New Cities

New cities are understood as spatial units that interact at various levels and scales in a hierarchical manner, the elements of which consist of the following:
* Architectural elements. * Natural elements.
* Nodes of various functions such as: (residential, commercial, industrial, religious, cultural, and natural areas). (Lynch, 1984) & (ALslik, et al., 2014, pp.41-48, pp.6)

3.2. Principles of Urban Connectivity in New Cities

(Remesar, 2012) identified five values that he considered necessary principles to enhance urban connectivity in the centers and spaces of new cities, predicated on the idea that is the main factor improving city centers is public space.. These principles are embodied in: (James, et al., 2020, p7-21) & (Remesar, 2012, p.10-11)
- Motion continuity. - The anchor spaces. – Multifunctionality. - Diversity. - Identity.

4. THE THIRD AXIS: MECHANISMS FOR UPGRADING AND REDEVELOPING NEW CITIES

(Sepe, 2022) stated that the urban upgrading and renewal of new cities is an integrated approach that combines vision and action to solve various problems related to disadvantaged urban areas through mechanisms as applied measures that achieve sustainable urban design: attracting the city's residents to places by providing all their material and moral needs, ensuring flexibility of places and adapting them to change, creating new movement axes that enhance the connectivity between people and place, the connectivity between the green and blue infrastructure and creating an appropriate balance with the gray ones to ensure environmental sustainability and economic renewal, creation of safe and inclusive public spaces, promoting movement connectivity between new cities and their surroundings and urban and rural areas by promoting sustainable transport and mobility, linking the new areas visually with each other and commensurate with the building heights of other neighboring cities. (Sepe, 2022, p.7-11).

5. THEORETICAL FRAMEWORK

The theoretical framework includes the most important elements of urban connectivity for the upgrading of new cities may be summarised in table 1. below.

Table 1. The theoretical framework of urban connectivity/source. the researchers

The main terms	The secondary terms	Indicators
New cities attributes	Analytical properties	- Easy access between the new city and the original center. -Distinguished planning or division, with wide and quiet streets and the

		availability of commensurate urban places. -Economic competitiveness in providing job and investment opportunities.
	structural properties	- The spatial connectivity between regions through the open spaces. - Functional versatility within urban areas.
	Evaluative properties	- Accommodate the population increase in cities.
Types of urban connectivity	Generative continuity pattern	-The overlapping of building units with the space structure. (overlapping of buildings and roads)
	Organic pattern	-The rapid growth of the elements.
	Articulatory pattern	-provide articulated support axes that connect the new parts added with the whole.
	Motion pattern	-Enhancing the flow of movement and access to the rest of the new spaces and areas.
Principles of urban connectivity	At the level of organizing city centers	- Motion continuity. - Preservation of anchor spaces. -Multifunctionality.
Mechanisms of urban connectivity	Condensation	- The center should have a high density .
	multipolarity	-Moving away from one center of the urban fabric.
	articulation	-Urban axes as connecting parts between the newly developed regions.
	Spatial rhythm of morphological elements	- Repetition of urban patterns, balance between urban parts.

6. PRACTICAL STUDY

6.1 New Cities in the Almada Region

The new cities in the Almada region are divided into three, as follows:

A. Almada sprawl - an emerging centrality in the context of a dispersed city, where the urban functions of large catchment areas and good access conditions transform it into an attractive centrality within the urban scale **B.** Subrida suburban area - a semi-urban, semi-residential area consisting of single-family houses, and its origins are linked to the strong urban growth associated with the migration of people from the countryside to the city, while showing some characteristics of its rural past. **C.** Central Almada - a unified urban area, multifunctional and with good accessibility, linking it to other metropolitan areas. It is still the main urban center of the surrounding areas, with the greatest concentration of activities, commerce and services in it, although in some areas there are vacant, neglected spaces especially in the historic center. As in figure 5. (Remesar, 2012, p.13) The two patterns of continuous and organic connectivity have been activated to connect the center of Almada, its surrounding neighborhoods, and the emerging central areas, through the creation of motion and visual axes that make the city multi-centered with various functions, characterized by permeability in the possibility of multiple access, and thereby enhancing the continuity of occupancy of the place (24 hours). Some attempts to create these connections (e.g. Parque da Paz, bike lane to the Forum Almada shopping center), others are planned (e.g. pedestrian and bicycle connection between the center of Almada and the transport front), these connections must guarantee good walkability and suitable conditions for cycling along with along with sustainable public transportation. (Remesar, 2012, p.12-17) as in figure 1. below.

6.2 New Cities in Kuala Lumpur

These cities are characterized by a hinged or motor linkage pattern that serves to provide a network of pedestrian connections and spatial or hinged support axes that connect the new added parts with the urban environment within a dynamic unit of movement interconnected at the functional and spatial level.This is done by creating a transition zone that connects private and public spaces, as in "Jalan Tun Tan Cheng" is the main street that connects all other pedestrian routes at the intersection of "Jalan Tun HS Lee", "Jalan Petaling", "Jalan Hang Kasturi" and "Jalan Sultan". (Choo, 2017, p.1-6). As in figure 2. below.

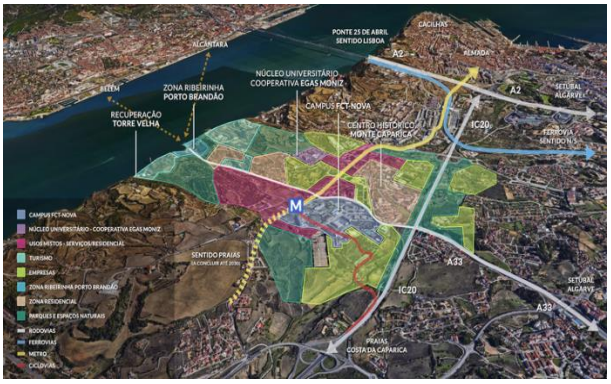

Figure 1. Shows the dependence of the pattern of organic connectivity and the continuity sources: (almada new centers master plan, google image)

Figure 2. Shows the articulated connectivity between the suburbs of kuala lumpur and the old historical center / source: (choo, 2017, p.4&6)

7. CONCLUSIONS

- Urban connectivity is important in explaining the growth of new centers, bringing about intellectual and dynamic changes or transformations.
- The urban connectivity has a set of elements in the light of which it operates at the level of the individual building as a part and the fabric as a whole, to achieve the desired goal and significans.
- The levels of upgrading the new cities towards sustainable development and linking the areas with each other according to the following levels:

* The social level: enhancing the sense of human belonging to space, enhancing social cohesion, minimizing the random spread of new functions that affect the concept of privacy within residential areas.
* The economic level: developing activities and jobs that help attract the population and increase the general income of the city, provide job opportunities in the new cities, and restore the traditional building materials ,that harmonate with the local context or environment and economically inexpensive.
*The functional level: diversifying activities in urban areas to achieve inclusiveness and communication, reviving neglected areas and enhancing their livability, gradual movement or moving from public to private space.

8. Conflict of Interest

There is no conflict of interest between the authors during the creation of this study.

9. Contribution of Authors

The authors involved in this study, and they contributed to all the aspects of the study.

REFERENCE

ALslik, G. M. R., & Majeed, F. A. (2014). Succession of Urban Structures of the City of Baghdad. Journal of Engineering, 20(12), 1-30. doi:https://doi.org/10.31026/j.eng.2014.12.11

Atash, F. (2000). New towns and future urbanisation in Iran. Third World Planning Review, 22(1), 67. doi: https://doi.org/10.3828/twpr.22.1.d24p30hk65524v20

Choo, H. (2017). Urban Pedestrian Linkages in the Heritage District of Kuala Lumpur, UIA, Seoul World Architects Congress. 1-6. https://scholar.google.com/scholar?q=Urban+Pedestrian+Linkages+in+the+Heritage+District+of+Kuala+Lumpur&hl=en&as_sdt=0,5

Cullen, G. (2012). Concise townscape. Routledge.doi: https://doi.org/10.4324/9780080502816

Governa, F., & Sampieri, A. (2020). Urbanisation processes and new towns in contemporary China: A critical understanding from a decentred view. Urban studies, 57(2), 366-382.doi: https://doi.org/10.1177/0042098019860807

Harris, C. D., & Ullman, E. L. (1945). The nature of cities. The annals of the American academy of political and social science, 242(1), 7-17. doi: https://doi.org/10.4324/9780203543047

Howard, E. (2003). Garden cities of to-morrow. Organization & environment, 16(1), 98-107.doi: https://doi.org/10.1177/1086026602250259

James, P., Magee, L., & Honeck, T. (2020). Principles for Better Cities: Towards Sustainable Development in Metropolitan Regions, Precincts and Places. https://researchdirect.westernsydney.edu.au/islandora/object/uws:58325/

Lynch, K. (1984). Reconsidering the image of the city (pp. 151-161). Springer US. doi: https://doi.org/10.1007/978-1-4757-9697-1_9

Pinto, A. J., & Remesar, A. (2012). Urban cohesion: a guiding concept for new urban realitites. Ambivalent Landscapes Sorting out the present by designing the future.https://www.researchgate.net/profile/Antoni-Remesar/publication/299885966_Urban_cohesion_a_guiding_concept_for_new_urban_realities/links/5706a7ba08ae04e9708c097b/Urban-cohesion-a-guiding-concept-for-new-urban-realities.pdf

Prideaux, B. (2009). Resort destinations. Routledge. doi: https://doi.org/10.4324/9780080939643

Rosenau, J. N. (1969). Toward the study of national-international linkages. Linkage Politics, 44-63. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Toward+the+study+of+national-international+linkages&btnG=

Tuominen, P. (2023). Designing healthy and liveable cities: creating sustainable urban regeneration: by Marichela Sepe, Oxon & New York, Routledge, 2023, 272 pp.,£ 120 (hardback), ISBN 9780367566425. doi: https://doi.org/10.1080/17549175.2023.2260359

Van Noorloos, F., & Kloosterboer, M. (2018). Africa's new cities: The contested future of urbanisation. Urban studies, 55(6), 1223-1241. doi: https://doi.org/10.1177/0042098017700574