

From Howard's Garden City Movement to Zero-Carbon New Towns in the postgrowth era: the case of New Town development in the context of carbon neutrality of Shanghai

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Abstract: Shanghai's urban development has transitioned from traditional New Towns to the emergence of zero-carbon New Towns, driven by a commitment to carbon neutrality by 2060. This transition reflects a broader shift towards sustainability and decarbonization in urban planning. Five major New Towns around Shanghai embody this shift, focusing on renewable energy, green infrastructure, and low-carbon living. Key indicators guide their development, emphasizing mixed land use, energy-efficient buildings, sustainable transportation, waste management, and climate resilience. Effective implementation mechanisms, supported by policy, finance, and community engagement, ensure the realization of low-carbon goals. Shanghai's journey towards zero-carbon New Towns highlights a proactive approach to address climate change while creating livable, resilient urban environments.

Key words: New Town development, carbon neutrality, sustainable development, carbon reduction

1. Introduction

From Howard's garden city movement, to Taylor's concept of satellite cities, and to Saarinen's organic dispersal theory, the development of New Towns has been affected by the background of the times (Aldridge, 2017). As the largest metropolis in China, Shanghai's New Towns have developed from first-generation bedroom towns to relatively independent satellite cities, and to new regional node towns (Shen et al., 2017). Nowadays, in the postgrowth era, sustainability and de-carbonization have become the new themes of urban development. The government announced that Shanghai will achieve carbon neutrality by 2060. At the same time, Shanghai is actively establishing its carbon financial market, trying to achieve carbon neutrality by linking the financial market with carbon resources.

Under these conditions, a new generation of New Towns emerged. Five New Towns built around the main city of Shanghai, namely Jiading New Town, Qingpu New Town, Songjiang New Town, Fengxian New Town, and Nanhui New Town, will serve as the first generation of zero-carbon New Towns in Shanghai in the postgrowth era (Shen et al., 2017). These five towns, while inheriting the functions of traditional New Towns also regard sustainable development and de-carbonization as the main themes of New Town development. That is, these five New Towns will take carbon neutrality and zero carbon output as their initial construction goals.

2. The development of New Town theory

The development of urban theory concerning "New Towns" has been a significant topic within urban planning and architecture over the past century (Fishman, 1990). The concept of New Towns, which are planned urban centers created to accommodate population growth or relieve housing shortages in established cities, has evolved through various stages, influenced by social, economic, and technological changes.

The idea of planned urban spaces dates back to ancient civilizations, but in a modern context, it was Sir Ebenezer Howard in the United Kingdom who laid the foundations for contemporary New Town theory with his publication of "Garden Cities of To-morrow" in 1898 (Aldridge,

2017). Howard proposed creating self-contained communities surrounded by "greenbelts," combining urban and rural benefits to combat the squalor of Victorian cities. His ideas led to the development of the first garden cities, Letchworth and Welwyn, designed to provide healthier living environments away from overcrowded urban centers.

The concept of New Towns gained significant momentum after World War II, particularly in the United Kingdom with the New Towns Act of 1946 (Barnett, 2018). This legislation aimed to systematically relieve overcrowding in London and other bombed cities by creating over 20 New Towns designed as self-sufficient communities with their industries, residential areas, and cultural facilities. The concept also included the development of satellite towns, smaller urban bodies orbiting larger cities, to help absorb the overflow of population and functions from urban centers without the same level of self-sufficiency as New Towns.

During the same era, Nikolaus Schärer, a Swiss architect and urban planner, proposed the concept of "organic dispersal." This theory suggested that urban expansion should mimic organic growth patterns, allowing cities to expand and contract fluidly in response to environmental and demographic changes, rather than enforcing rigid, pre-planned designs (Pringle, 2023). This approach aimed to integrate more flexibility and sustainability into urban development, influencing how New Towns and satellite cities were planned to better adapt to their natural and economic environments.

In the United States, the New Town development concept was incorporated into broader urban renewal efforts during the mid-20th century (Fishman, 1990). Notable projects such as Reston, Virginia, and Columbia, Maryland, were developed, emphasizing planned approaches to residential living, economic functions, and environmental concerns. Internationally, New Town development became part of national planning strategies in many countries, including Israel, South Korea, and Singapore, each adapting the basic principles to local needs and contexts.

The late 20th and early 21st centuries have seen new dimensions added to New Town theory, emphasizing sustainability and smart technology. The focus has shifted to creating eco-cities and smart cities that incorporate advanced technology to manage urban resources efficiently and minimize environmental impact. Examples include Masdar City in Abu Dhabi and Songdo International Business District in South Korea, which integrate information technology infrastructure and eco-friendly practices at a fundamental level (Zhou, 2019).

While New Towns have been lauded for their ability to plan and manage urban growth systematically, they have also faced criticism. Challenges include creating socio-economic divides, achieving a balanced community mix, and the risk of creating isolated urban pockets that do not integrate well with surrounding regions. Planners and developers continue to address these issues by fostering more inclusive planning processes and integrating New Towns more holistically with regional economic and transportation planning.

Overall, the theory and practice of developing New Towns have evolved from simple garden city concepts to sophisticated urban ecosystems that balance human needs with technological advancements and environmental stewardship. This evolution reflects broader changes in urban planning philosophies and the continuous search for sustainable urban development strategies.

3. The history of Shanghai's New Town development

Shanghai's New Town development can be traced back to the mid-20th century when the city began experiencing rapid urbanization (Shen et al., 2017). The government initiated the

construction of New Towns to accommodate the growing population and alleviate urban congestion. Over the decades, Shanghai's New Towns have evolved in response to changing urbanization patterns, economic development, and government policies. Initially conceived as bedroom communities, these New Towns have transformed into more self-sufficient urban centers with improved infrastructure, amenities, and employment opportunities.

Spatially, New Towns in Shanghai are strategically located in the city's periphery to balance regional development and relieve pressure on the central urban area. They are typically connected to the city center through transportation networks, such as highways, railways, and metro lines. Functionally, Shanghai's New Towns serve multiple functions, including residential, commercial, industrial, and recreational purposes. They are designed with modern urban planning principles, incorporating green spaces, pedestrian-friendly streets, and mixed-use developments to create livable and sustainable communities.



Fig.1 Spatial Distribution of Shanghai's Five New Towns

Shanghai has currently formed a spatial structure consisting of one main city and five New Towns, a configuration explicitly outlined in Shanghai's 2035 Spatial Plan. These five New Towns include Jiading, Qingpu, Songjiang, Fengxian, and Nanhui. They are strategically distributed across different regions of Shanghai, providing diversity and balance to the city's development landscape (Figure 1). Jiading New Town, situated in the northwest, is renowned for its unique economic and cultural ambiance; Qingpu New Town, located in the west, attracts attention with its rich historical and natural resources; Songjiang New Town, positioned in the southwest, offers modern facilities and superior living conditions; Fengxian New Town, found in the south, captivates with its charming coastal scenery and modern urban construction; Nanhui New Town, nestled in the southeast outskirts, holds a strategic geographical position and rapidly growing economic strength.

In addition, the five major New Towns in Shanghai not only play pivotal roles in Shanghai's internal development but also serve as important links connecting the city with surrounding regions. By fostering collaboration and connectivity with neighboring cities, these New Towns contribute to regional integration, economic growth, and sustainable development in the broader Shanghai metropolitan area and beyond.

In the northwest, Jiading New Town maintains close ties with neighboring cities such as Suzhou and Kunshan, acting as a bridge linking Shanghai with the dynamic economies of the Yangtze River Delta region. Its strategic location along major transportation arteries facilitates seamless connectivity and collaboration in areas such as commerce, manufacturing, and research. Nestled in the western part of Shanghai, Qingpu New Town shares borders with cities like Jiaxing and Hangzhou in Zhejiang Province. Its proximity to these regional centers enhances cultural exchange, tourism, and economic cooperation, serving as a gateway connecting Shanghai with the cultural and economic vitality of neighboring cities, promoting mutual development and prosperity. Situated in the southwest, Songjiang New Town maintains strong connections with cities such as Suzhou, Jiaxing, and Hangzhou. Its well-developed transportation infrastructure, including highways and railways, facilitates the flow of goods, people, and ideas between Shanghai and its neighboring regions. Songjiang New Town plays a pivotal role in promoting regional collaboration in areas such as education, technology, and cultural exchange. Located in the southern part of Shanghai, Fengxian New Town shares borders with cities like Ningbo and Zhoushan. Its coastal location enhances its connectivity with neighboring coastal cities and ports, facilitating trade, tourism, and maritime cooperation. Fengxian New Town serves as a key link connecting Shanghai with the vibrant economies and scenic attractions of the coastal region, promoting mutual development and prosperity. Positioned in the southeast outskirts, Nanhui New Town maintains close connections with cities such as Ningbo and Wenzhou. Its strategic location near major ports and transportation hubs fosters trade, logistics, and economic cooperation, acting as a vital node in the regional logistics network. Nanhui New Town facilitates the efficient flow of goods and services between Shanghai and neighboring cities, driving economic growth and regional integration.

Guided by the Shanghai 2035 Spatial Plan, the development of these New Towns aims to create a livable, business-friendly, and leisure-oriented urban environment. They are envisioned as crucial hubs for future economic growth and population migration, integrating modern urban infrastructure, green ecological environments, and cultural leisure facilities. By offering diverse functions and convenient transportation networks, these New Towns will attract more residents and businesses, contributing to the sustainable development of Shanghai.

4. The Zero-Carbon New Towns

Shanghai, as China's economic hub and a densely populated metropolis, has been actively addressing the challenges of climate change and environmental protection. Firstly, Shanghai's carbon peak target aims to reach the peak of carbon dioxide emissions by 2030, followed by a gradual reduction. Additionally, Shanghai has set an ambitious target to achieve carbon neutrality by 2060 (Hua et al., 2019).

In the context of Shanghai's carbon neutrality goals and the background of New Town development, the emergence of zero-carbon New Towns has become a new construction objective. With Shanghai's commitment to achieving carbon neutrality and promoting sustainable development, the direction of New Town development is evolving. Traditionally, New Town development focused on population accommodation and relieving urban functions, but in the context of carbon neutrality, zero-carbon New Towns emphasize the reduction of carbon emissions and climate friendliness during the construction process. This implies that New Town planning will increasingly consider aspects such as renewable energy utilization, energy conservation, and green transportation to achieve zero carbon emissions.

Currently, the construction status of the five major New Towns in Shanghai demonstrates a diverse and comprehensive trend. In terms of industrial structure, these New Towns are no longer solely reliant on residential areas but are gradually achieving diversified industrial development. In addition to residential areas, they also boast modern commercial districts, industrial parks, and cultural and entertainment facilities, providing residents with a richer array of lifestyle choices. Regarding infrastructure, the transportation networks of the New Towns are becoming increasingly sophisticated, including highways, railways, and metro lines, facilitating convenient connections between residents and businesses. Moreover, environmental protection receives considerable attention, with an increase in green spaces, ongoing efforts in water resource conservation, and advancements in waste management.

The low-carbon construction objectives of the five major New Towns in Shanghai primarily focus on energy utilization, transportation systems, building energy efficiency, and carbon market development. In terms of energy utilization, the New Towns will vigorously develop clean energy sources, reduce reliance on traditional fossil fuels, and encourage the adoption of energy-saving technologies by residents and businesses. Regarding transportation systems, the New Towns will optimize public transportation layouts, promote electric vehicles and other new energy transportation options, and reduce emissions from motor vehicles. In terms of building energy efficiency, the New Towns will promote green building practices and energy-efficient renovations to improve building energy performance and reduce energy consumption. Additionally, the New Towns will actively participate in carbon market development, promoting carbon trading and the growth of the carbon market to facilitate the development of a low-carbon economy and further reduce carbon emissions.

For example, Jiading New Town, located in the northwest, has been actively promoting the development of new energy vehicles and supporting industries, aiming to become a model for sustainable transportation. Qingpu New Town, known for its historical and natural resources in the west, has implemented strict environmental protection measures during its development process, preserving its ecological integrity. Songjiang New Town, with its superior living conditions in the southwest, has focused on enhancing energy efficiency in its buildings and promoting green construction practices. Fengxian New Town, situated in the south with its charming coastal scenery, has prioritized the development of renewable energy and eco-friendly tourism. Lastly, Nanhui New Town, positioned in the southeast outskirts, has been at the forefront of carbon market development, actively participating in carbon trading and promoting low-carbon industrial transformation.

5. Interpretation of high-level policies

In fact, there are a series of upper-level policies and planning guidance for the low-carbon construction of Shanghai New Town. Taking Nanhui New Town as an example, there are policies and plans at the national, Shanghai municipal and district levels to guide its low-carbon development.

As a part of Pudong New Area in Shanghai, Nanhui New Town is supported by a series of top-level policies and planning documents at the national, municipal, and district levels. These documents provide crucial guidance and support for its low-carbon development. Understanding these top-level planning policies is essential for grasping the positioning and future direction of Nanhui New Town.

In the national-level policy document, "The Fourteenth Five-Year Plan for National Economic and Social Development of Pudong New Area and the Long-Range Goals for 2035," besides

emphasizing Pudong's aspiration to become a premier destination for global investment, trade, and entrepreneurship, it also highlights the comprehensive construction of a modern economic system. This system focuses on the coordinated development of the real economy, technological innovation, modern finance, and human resources, aiming to enhance the quality and efficiency of the supply system. This implies that in future development, Pudong will strengthen support for technological innovation and green industries, promoting the structural transformation of the economy towards low-carbon and environmentally friendly sectors. Additionally, the plan emphasizes the construction of modern urban areas, including optimizing urban spatial layout, developing rail transit, and establishing ecological networks. These measures will contribute to improving urban environmental quality and advancing the city towards green and low-carbon development.

In the Shanghai-level policy document, "The Fourteenth Five-Year Plan for the Development of China (Shanghai) Pilot Free Trade Zone Lingang New Area," besides outlining the goal of establishing Lingang New Area as a special economic functional zone, it also emphasizes enhancing innovation capability. The plan underscores the promotion of international collaborative innovation and the construction of a world-class, open, and modern industrial system. This indicates that in future development, Lingang New Area will strengthen support for green technology and environmental industries, driving industries towards a low-carbon, green direction. Additionally, the plan emphasizes the goal of building the most modern, eco-friendly, convenient, vibrant, and distinctive comprehensive node coastal city. This will help promote the construction and development of low-carbon new towns.

In the Pudong New Area (district level) policy document, "The Fourteenth Five-Year Plan for the Construction of Nanhui New Town," besides setting forth the goals of building a high-level open area, an integrated reform and innovation highland, and a high-energy industry highland, it also proposes the construction of an ecological New Town and a digital New Town. The plan emphasizes increasing the area of public park green space, forest coverage, and ecological space ratio to promote the city's development towards green and low-carbon. Additionally, the plan highlights the goals of constructing a digital New Town and smart communities. This will be achieved by improving urban management through smart technologies and information, promoting the city's development towards a low-carbon and smart direction. These measures will contribute to improving the city's ecological environment and advancing towards a low-carbon development model.

6. The Zero-Carbon New Towns' indicator system

The planning of low-carbon cities in Shanghai's five major new towns is a strategic response to the global imperative of mitigating climate change and transitioning towards a sustainable future. With the commitment to achieving carbon neutrality, Shanghai has embarked on comprehensive urban planning to guide the development of its burgeoning new towns, including Nanhui, Lingang, Fengxian, Chongming, and Jiading. These cities are envisioned as models of sustainable urban development, balancing economic growth with environmental stewardship.

The initiatives for low-carbon development in Shanghai's new towns are multifaceted and comprehensive, addressing various aspects of urban planning, infrastructure development, and community engagement. Aligned with international climate goals, these initiatives aim to reduce carbon emissions, enhance energy efficiency, promote renewable energy adoption, improve air and water quality, and create resilient urban environments. Central to these efforts is the integration of sustainability principles into urban planning and design, including measures

to promote compact, mixed-use development patterns and prioritize walking, cycling, and public transit over private vehicles. In building and transportation, the new towns prioritize energy-efficient construction practices and the adoption of low-carbon transportation modes. This includes incentivizing green building construction, implementing stringent energy efficiency standards, and expanding public transportation networks. Efforts to conserve energy and resources are integral, with a focus on waste reduction, recycling, and renewable energy utilization. Additionally, resilience and adaptation are emphasized, with measures to enhance flood resilience and integrate green infrastructure solutions.

Taking Nanhui New Town as an example, a set of development indicators has been established to guide its low-carbon development journey. These indicators span various dimensions, including urban form, transportation, energy efficiency, waste management, and climate resilience. Nanhui aims to achieve a balanced mix of land uses and green spaces, with indicators focusing on mixed-use development and ecological conservation. Energy-efficient construction practices and sustainable transportation solutions are prioritized, with targets for green building construction and public transportation coverage. Efforts in resource conservation and climate resilience are also highlighted, with indicators for waste utilization and flood management. Overall, these initiatives and indicators guide Nanhui New Town's journey towards low-carbon development, fostering a sustainable, resilient, and livable urban environment. By integrating sustainability principles into urban planning and development processes, Nanhui aims to become a model of sustainable urban development, showcasing the feasibility and benefits of a low-carbon, resilient, and inclusive urban future.

Table.1 Nanhui New Town's planning indicators towards Zero-Carbon New Town

No.	Aspects	Characteristic Indicator	Indicator Value
1	Healthy and Vibrant Layout and Environment	Proportion of mixed-function blocks on construction land	0.5
2		Per capita park green area	9.5 square meters per person
3		Proportion of ecological space	0.55
4		Proportion of affordable housing and market-oriented public rental housing area in new housing	≥40%
5		Proportion of livable renovation in old neighborhoods	0.5
6	Low-carbon and Convenient Building and Transportation	Proportion of newly built two-star green buildings	1
7		Proportion of healthy buildings or ultra-low energy buildings in total building area	≥25%
8		Proportion of prefabricated or assembled buildings with a prefabrication rate of 45% or an assembly rate of not less than 65%	≥5%
9		Coverage rate of construction land rail transit stations within 600 meters/bus stops within 500 meters	80%/100%
10		Proportion of new energy buses	1
11	Efficient Energy and Resource Conservation	Number of charging piles for new energy vehicles at new construction sites with an area of over 2400 square meters	45325
12		Construction of hydrogen refueling stations (oil-hydrogen co-construction)	4 items
13		Comprehensive management and control platform for energy facilities	1 item
14		Rate of garbage resource utilization	0.75
15		Rate of non-traditional water source utilization	≥3%
16	Resilient and Safe Sponge City and	Average reduction in carbon emissions intensity of newly built residential and public buildings	8 kgCO ₂ /(m ² ·a)
17		Proportion of new sponge cities in newly built urban areas	1
18		Proportion of comprehensive corridors for four types of urban engineering pipelines under all new main roads in newly built urban areas	1

19	Municipal Infrastructure	Per capita road area	≥13 m ²
20		Local woody plant index	≥0.7
21		Standard compliance rate of district flood defenses	100% (defensive standard of once-in-200-year)
22	Smart and Innovative Management and Humanities	Application scenarios of "One-network Management" in new towns	Over 30 newly built application scenarios
23		Proportion of application of BIM in design and construction stages of new buildings	1
24		Construction of demonstrative digital living communities	10

7. Achievement and implementation of low-carbon goals

The implementation of urban planning schemes is crucial for the sustainable development of cities. Through effective planning implementation, cities can enhance their functionality and livability, address development issues, and achieve long-term development goals. For example, London has devised the "London Plan," which, through planning implementation, has enhanced the city's transportation efficiency and environmental quality, thus improving the residents' quality of life. Similarly, Shenzhen, China, has formulated the "Shenzhen Urban Master Plan (2010-2020)" implementation guidelines, which have propelled industrial upgrading and enhanced the city's image, making it a pivotal city in China's reform and opening-up.

To ensure the implementation of urban planning schemes, governments need to employ various methods. Firstly, governments need to provide policy and regulatory support to ensure the legality and effectiveness of the plans. For example, the Japanese government has enacted laws such as the "Urban Renewal Law" to provide legal protection for urban planning. Secondly, sufficient financial support is crucial. The Guangzhou municipal government in China, when promoting urban planning implementation, has adopted the PPP model, attracting social capital to participate in urban infrastructure construction, thereby ensuring the smooth progress of projects. Additionally, establishing effective project management and supervision mechanisms is vital. The Singaporean government, when implementing the "Singapore Concept Plan," established strict project management and supervision mechanisms to ensure the timely and quality completion of planning projects. Lastly, strengthening social participation and communication is essential. The Amsterdam municipal government in the Netherlands extensively solicited public opinions during city development planning, enhancing the legitimacy and acceptability of the plans through democratic participation.



Fig.2 implementation system of Nanhui New Town

However, the implementation of low-carbon city goals differs from traditional urban planning objectives. Low-carbon city goals emphasize reducing carbon emissions and improving energy efficiency, requiring consideration of environmental protection and sustainable development factors in urban planning and construction. For example, Copenhagen, Denmark, serves as a model for low-carbon cities, achieving significant reductions in carbon emissions through measures such as optimizing urban layout and promoting renewable energy. Therefore, it is crucial to prioritize the integration and implementation of low-carbon city goals in urban planning to steer cities towards more environmentally friendly and sustainable development.

Taking Nanhui New Town as an example, the low-carbon target implementation system covers various aspects, aiming to ensure that low-carbon planning objectives are effectively realized. Firstly, adhering to green and low-carbon development strategies, a comprehensive management framework was established during the planning phase (Figure 2). This includes innovative management mechanisms, unified management standards, and consolidated management power, providing strong organizational support for the implementation of low-carbon planning objectives.

In terms of management mechanisms, Nanhui New Town has established a leadership group dedicated to promoting green ecology and low-carbon construction. This group plays a crucial role in coordinating all relevant departments and units to ensure the effective execution of various low-carbon measures.

Regarding management systems, Nanhui New Town has strengthened the approval management of development and construction projects within the area, in line with the guidelines for the New Town. It has developed and established an energy-saving and green ecological management model that covers the entire process from project initiation, design,

construction, to operation. This model systematically implements energy-saving and ecological protection standards across the full life cycle of construction projects, from design through to operation.

Technical support measures include the involvement of third-party professional consulting firms to assist the leadership group in implementing green ecological standards throughout the construction process. This not only enhances the professionalism of project implementation but also ensures the accurate application of ecological standards.

Furthermore, promoting standardized management among participating units is key to ensuring that construction, design, construction, and supervision units strictly adhere to the green ecological content in the construction design documents, organizing construction disclosures and management accordingly. This approach effectively ensures the implementation of environmental standards during construction.

The demonstration role of government investment is also crucial in financial arrangements. Funds are strategically allocated to ensure that the necessary finances for green ecological urban planning and control mechanisms are secured by district fiscal funds. For government-funded projects, the finance department actively provides support, ensuring sufficient funding for green and low-carbon construction of projects.

Through these comprehensive measures, Nanhui New Town can effectively promote the achievement of low-carbon objectives, providing a solid foundation for the sustainable development of the city. This not only reflects the foresight in urban planning and management but also demonstrates the city's commitment and effort on the path to low-carbon development.

8. Conclusion

In conclusion, Shanghai's evolution from traditional New Towns to the emergence of zero-carbon New Towns reflects a significant shift towards sustainability and decarbonization in urban development. The commitment to carbon neutrality by 2060 has spurred the development of new urban centers that prioritize renewable energy, green infrastructure, and low-carbon lifestyles. Key indicators guide the transition, emphasizing mixed land use, energy-efficient buildings, sustainable transportation, waste management, and climate resilience. Effective implementation mechanisms, backed by policy support, financial investment, and community engagement, ensure the realization of low-carbon goals. Shanghai's journey towards zero-carbon New Towns underscores a proactive approach to address climate change while fostering livable, resilient, and inclusive urban environments.

References

1. Fishman, R. (1990). America's New Town. *The Wilson Quarterly*, 14(1), 24-55.
2. Mori, K., & Christodoulou, A. (2012). Review of sustainability indices and indicators: Towards a New Town Sustainability Index (CSI). *Environmental impact assessment review*, 32(1), 94-106.
3. Aldridge, M. (2017). *The British New Towns: A programme without a policy*. Routledge.
4. Hardy, D. (2003). *From garden cities to New Towns: Campaigning for town and country planning 1899-1946*. Routledge.
5. Shen, J., & Wu, F. (2017). The suburb as a space of capital accumulation: The development of New Towns in Shanghai, China. *Antipode*, 49(3), 761-780.
6. Barnett, J. (2018). *The fractured metropolis: Improving the New Town, restoring the old city, reshaping the region*. Routledge.
7. Daley, B. (1999). 1998 NAPS Presidential Address Building a New Town: The Cappadocian Fathers and the Rhetoric of Philanthropy. *Journal of Early Christian Studies*, 7(3), 431-461.

8. Pringle, D. (2023). Magna Mahumeria (al-Brra): the Archaeology of a Frankish New Town in Palestine. In *Fortification and Settlement in Crusader Palestine* (pp. VI-147). Routledge.
9. Shen, Y., Zhang, X., Zhu, H., Yin, Z., & Drianda, R. P. (2023). Living in a Chinese Industrial New Town: A Case Study of Chenglingji New Port Area. *Land*, 12(4), 790.
10. Wang, L. (2024). Blending in or Being Co-Opted: Reflecting on an Internship-Cum-Field Work at a New Town Government in China. *The Professional Geographer*, 76(2), 239-247.
11. Zhou, K., & Li, Y. (2019). Carbon finance and carbon market in China: Progress and challenges. *Journal of Cleaner Production*, 214, 536-549.
12. Du, H., Li, B., Brown, M. A., Mao, G., Rameezdeen, R., & Chen, H. (2015). Expanding and shifting trends in carbon market research: a quantitative bibliometric study. *Journal of Cleaner Production*, 103, 104-111.
13. Hua, Y., & Dong, F. (2019). China's carbon market development and carbon market connection: A literature review. *Energies*, 12(9), 1663.
14. Tan, X., Sirichand, K., Vivian, A., & Wang, X. (2020). How connected is the carbon market to energy and financial markets? A systematic analysis of spillovers and dynamics. *Energy Economics*, 90, 104870.
15. Knox-Hayes, J. (2010). Creating the carbon market institution: analysis of the organizations and relationships that build the market. *Competition & Change*, 14(3-4), 176-202.
16. Milner, J., Davies, M., & Wilkinson, P. (2012). Urban energy, carbon management (low carbon cities) and co-benefits for human health. *Current Opinion in Environmental Sustainability*, 4(4), 398-404.
17. Lo, K. (2014). Urban carbon governance and the transition toward low-carbon urbanism: Review of a global phenomenon. *Carbon Management*, 5(3), 269-283.