

# Research on the Strategy of Urban Renewal and Transformation in the UK Based on Sustainable Development

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**Abstract:** Urban renewal is one of the important issues of urban development, and how to achieve sustainable development in urban renewal is a question worthy of in-depth discussion. From the perspective of sustainable development, this paper analyzes the background and current situation of urban renewal in the United Kingdom, discusses the application of the concept of sustainable development in urban renewal, proposes the transportation network optimization strategy of urban renewal, and evaluates its economic, social and environmental effects. The study found that urban renewal in the UK has shifted from a single physical renewal to a focus on sustainable development, which is reflected in the promotion of urban shared space, the improvement of transportation systems, and the construction of green infrastructure. Urban renewal not only brings economic benefits, but also promotes social fairness and justice, and improves the quality of the urban environment. This paper provides a useful reference for urban renewal and transformation in the United Kingdom, and provides theoretical support for the realization of sustainable urban development.

**Keywords:** Urban renewal; Sustainable development; Landscape strategy

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## 1. Introduction

As the birthplace of the Industrial Revolution, the UK's urbanization process has had a profound impact on global urban development. With the deepening of industrialization, urban environmental problems have become increasingly prominent, and the disorderly expansion of urban space, the intensification of industrial pollution and the reduction of green space have all posed a threat to the ecological balance of cities. In addition, the decline in community vitality is also a problem that cannot be ignored. The community is the basic unit of the social structure of the city, and the lack of community vitality not only affects the daily life of residents, but also may lead to the emergence of social problems, such as the increase in crime rate and the increase in social isolation. In this context, urban renewal has become an important issue in urban planning and development in the UK. Urban renewal should not only solve the environmental problems left over from history, but also enhance the vitality of the community and promote the sustainable development of the economy. This requires a comprehensive consideration of economic, social, environmental and other factors to formulate a set of urban renewal strategies that are in line with the concept of sustainable development. This study takes the urban renewal of tynemouth as the research object, analyzes the background and current situation of urban renewal and transformation in the

United Kingdom from the perspective of sustainable development, discusses the application of sustainable development concept in urban renewal, proposes optimization strategies, and evaluates its economic, social and environmental effects. This will not only help enrich the theoretical research of urban renewal and transformation, but also be of great significance to promote the sustainable development of cities.

## 2. Research implications

As a global development goal, the core of sustainable development lies in balancing the relationship between economy, society and environment to achieve long-term and comprehensive social development. In the context of urban renewal, the role of sustainable development is particularly significant. Urban renewal is not only the physical transformation of the old urban structure, but also the comprehensive improvement of urban function, social structure and environmental quality. By integrating the concept of sustainable development into urban renewal, it can promote the efficient use of resources, improve the quality of life of residents, and at the same time protect and improve the urban environment, laying a solid foundation for the long-term development of the city.

As a pioneer in urbanization and industrialization, the UK's urban renewal strategy is constantly evolving. In recent years, the UK government and urban planners have paid more and more attention to the issue of sustainable development in urban renewal<sup>[1]</sup>. There has been a shift in focus from economic growth to a greater focus on social equity, environmental protection and the improvement of the quality of life. The policy shift is reflected in increased public spending on urban renewal in poorer areas, as well as increased investment in green infrastructure, sustainable modes of transport, and urban shared functions.

This new direction not only responds to global sustainability trends, but also reflects the UK's innovation and leadership in urban planning and development<sup>[2]</sup>. Through policy guidance and incentives, urban renewal in the UK is developing in a greener, more inclusive and more vibrant direction, which is of great significance for enhancing the competitiveness of cities, enhancing the happiness of residents and achieving environmental sustainability<sup>[3]</sup>.

## 3. The theoretical basis of urban renewal in the UK

Urban renewal is defined as the necessary and planned renovation of areas of the city that are no longer suitable for modern urban social life. The urban renewal movement in the modern sense began in the United States in the 1960s and 1970s, with the goal of clearing slums. After the 1980s, large-scale urban renewal in the United States has stopped and entered the stage of small-scale redevelopment. The 1947 version of the Town and Country Planning Act, as a fundamental law in the field of planning, played a role in regulating and guiding the early urban renewal movement in Britain. During the same period, the UK also enacted a series of acts, including the General Improvement Area Act, the Urban Redevelopment Act and the Historic Building, Antiquity & Relic Act. We recognize that eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development. We are committed to achieving sustainable development in its three dimensions – economic, social and environmental – in a balanced and integrated manner.

Zhang X (2018)<sup>[4]</sup> discussed the issue of sustainable development in the process of urban renewal in China in his research, and pointed out the necessity and feasibility of integrating sustainable development in the process of urban transformation, Li Q (2019)<sup>[5]</sup> analyzed the role of green infrastructure in urban renewal from the perspective of urban planning, emphasizing the promotion and application of the concept of eco-city, Wang et al. (2020)<sup>[6]</sup> proposed strategies to promote sustainable urban development through the discussion of urban shared space, including improving the efficiency of public transportation, optimizing the layout of urban space, and strengthening community participation.

The history of urban renewal in the UK can be traced back to the early 20th century. At the beginning of the 20th century, slums and poor environment were common in British cities, and the government began to pay attention to urban

renewal. After World War II, urban renewal in the UK entered a new stage of development. The New Town Act of 1945 promoted the construction of new towns and alleviated the problems of dense urban population and housing shortage. The Urban Development and Reconstruction Law promulgated in 1954 further clarified the responsibilities of local governments in urban renewal. In the 60s and 70s of the 20th century, urban renewal in Britain began to focus on social equity and environmental protection<sup>[7]</sup>.

In the 21st century, urban renewal and sustainable development practices in the UK have received a lot of attention. Ashworth, J. (2017)<sup>[8]</sup> examines the economic and social impacts of urban renewal in the UK and argues that successful urban renewal projects need to be considered in three dimensions: economic, social and environmental, while Bradshaw, J. (2018)<sup>[9]</sup> analyzes the planning and practice of green infrastructure in urban renewal in the UK, emphasizing the importance of green space in sustainable urban development, and Watson, M. (2019)<sup>[10]</sup> Through a case study of coastal urban regeneration projects in the UK, this paper explores how to achieve sustainable urban development while protecting the coastline. In recent years, the UK's urban renewal has also actively promoted sustainable development initiatives such as green buildings and low-carbon transportation. Overall, urban regeneration in the UK has undergone a shift from a single physical renewal to a focus on sustainable development. At present, the urban renewal and transformation of the UK has shifted from simple material renewal to focusing on the coordinated development of economy, society and environment. In the implementation of the project, the government and developers pay more attention to the application of sustainable development measures such as renewable energy utilization, green buildings, and low-carbon transportation. Pay more attention to the participation and interests of residents, avoid forced demolition and other problems, and strive to achieve social fairness and justice.

#### **4. The application of the concept of sustainable development in the urban renewal of the United Kingdom**

In the process of planning and implementation, the UK urban renewal project focuses on improving land use efficiency, promoting the optimization and upgrading of industrial structure, and promoting the coordination of economic development and environmental protection. For example, through mixed-function development, redevelopment and utilization, the intensity of land use will be improved, and green and low-carbon industries will be introduced at the same time to drive the transformation and upgrading of the local economy. Second, the UK emphasizes social sustainability. Urban renewal attaches great importance to social fairness and justice, pays attention to residents' participation in the implementation of projects, protects the interests of vulnerable groups, and promotes social fairness and sharing of development results. In addition, through measures such as public participation mechanisms and affordable housing construction, we will ensure that renovation and transformation benefit residents from all walks of life. At the same time, it pays attention to the protection of cultural heritage and the maintenance of urban characteristics and historical memory. In terms of environmental sustainability. The UK's urban renewal actively promotes environmental protection measures such as green buildings, renewable energy utilization, and green transportation, so as to reduce resource consumption and environmental pollution, and realize the harmonious coexistence of man and nature. For example, green technologies such as passive solar energy technology and rainwater harvesting and utilization should be applied in building design, and low-carbon travel modes such as walking, bicycles, and public transportation should be promoted in the transportation system. The UK government has issued a series of regulations and policies to provide institutional guarantees for the sustainable development of urban renewal. For example, the Planning and Compulsory Purchase Law promulgated in 2004 clearly requires that urban renewal should promote the coordinated development of the economy, society and the environment. At the same time, the government also supports the implementation of sustainable development measures through fiscal, monetary and other policy instruments. In short, the concept of sustainable development has been deeply integrated into all aspects of urban renewal and transformation in the UK, reflecting in the economic, social, environmental and institutional levels, injecting new impetus into the sustainable development of cities.

## 5. Transportation Network Optimization Strategies for Urban Renewal in the City of Tynemouth

**Sustainable transportation:** Through the planning and construction of bicycle lanes and shared roads, connecting various areas of the city, creating diversified urban cycling routes featuring urban culture, and setting up check-in points. Improve the public transport network. In the urban renewal project of the city of Tynemouth, we will vigorously promote the construction of bicycle lanes, bicycle parking facilities and other infrastructure to create a cycling city and provide convenience for bicycle travelers. Bicycle parking takes the form of solar-powered, transport hubs that incorporate other public facilities such as rest kiosks, charging stations and souvenir shops. Invest heavily in the construction of public transport systems, such as increasing the coverage of bus routes, increasing the frequency of bus services, and improving the comfort of carriages, so as to enhance the convenience and attractiveness of public transportation.

At the same time, by setting up bus lanes, priority traffic lights and other means, improve the efficiency of bus travel and alleviate road congestion. At the same time, new travel modes such as bicycle sharing are encouraged to further promote bicycle travel. In the process of renovation, by adjusting the structure of the road network, optimizing the design of intersections, and implementing traffic restriction measures, the efficiency of road traffic is improved and the traffic congestion of motor vehicles is alleviated. For example, in some areas, policies such as motor vehicle restrictions and tolls have been implemented to encourage residents to choose green travel modes such as public transportation and walking. Rail transit can not only greatly improve the carrying capacity of urban transportation, but also guide the optimization and reshaping of urban spatial layout and promote the coordinated development of urban functions.

**Construction of green infrastructure:** The construction of green infrastructure is another important strategy to optimize the transportation network. Green infrastructure includes urban green spaces, ecological corridors, sponge cities, etc., which can provide a variety of ecosystem services for cities, such as climate regulation, air purification, water conservation, etc., and can also provide a good living environment for residents. Applying green infrastructure to the transportation system. In the optimization of the transport network of urban regeneration, the UK has integrated green infrastructure, such as planting trees on both sides of roads and setting up green belts at bus stops, which not only beautifies the urban landscape, but also regulates the microclimate and creates a more comfortable travel environment for walkers and cyclists. Parks, squares, and green belts will be built around cycling routes to expand the area of urban green space and improve the urban ecological environment. At the same time, a large number of trees and shrubs are planted in public spaces such as roads and squares to create a comfortable urban landscape. Increase green spaces and parks. Improve greenways and public spaces, and enhance the quality of existing greenways to enhance the green well-being of residents.

**Urban shared function:** Urban shared space refers to the transformation of road space originally reserved for motor vehicles into a multi-functional space shared by pedestrians, cyclists and public transportation through reasonable planning and design.

In the renovation, the design concept of “shared street” was adopted, integrating the original motorized lanes with sidewalks, and sharing the road space with pedestrians, cyclists and motor vehicles, so as to reduce the speed of motor vehicles and create a safer and more comfortable slow traffic environment. This not only helps to alleviate urban traffic congestion, but also improves the efficiency and quality of life of urban public spaces. Providing personalized sharing services, combined with the application of social software platforms, provides more convenience and interaction opportunities, which can improve the efficiency of resource utilization, promote social interaction and community cohesion.

## 6. Conclusion

From the perspective of sustainable development, this study comprehensively analyzes the background and current situation of urban renewal in the United Kingdom, discusses the application of the concept of sustainable development in urban renewal, proposes strategies to optimize the transportation network, and evaluates its economic, social and environmental effects. It is reflected in the promotion of urban shared space, the improvement of transportation system

and the construction of green infrastructure. First of all, in terms of the promotion of urban shared space, the British urban renewal has achieved remarkable results. The promotion of urban shared space will help improve the efficiency of urban space utilization, provide more public activity space for citizens, and improve the quality of life of citizens. In addition, the promotion of urban shared spaces also helps to promote communication and interaction between citizens and enhance community cohesion. Secondly, in terms of the improvement of the transportation system, the British urban renewal has also made a great breakthrough. Strategies to optimize the transportation network not only alleviate the problem of urban traffic congestion, but also help reduce traffic pollution and carbon emissions, and improve the environmental quality of the city. In addition, improving the transportation system can also help improve the city's accessibility and promote the rapid development of the city's economy. Finally, in terms of green infrastructure construction, the construction of green infrastructure not only provides a good ecological environment for the city, but also helps to improve the city's disaster resistance and ensure the safety and sustainable development of the city.

In short, the concept of sustainable development has been deeply integrated into all aspects of urban renewal and transformation in the UK, injecting new impetus into the sustainable development of cities. These findings highlight the importance of using a combination of strategies to improve urban sustainability, as well as their important role in improving urban mobility, the environment, and community life.

## Disclosure statement

The author declares no conflict of interest.

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