Urban Futures Symposium | 21 – 25 August 2023

Candidate: Zhaowei Wang

School: School of Global, Urban and Social Studies

Presentation: Third Milestone Review

Title: Path Diversification in regional transition of a dual-core heavy industrial city: Tangshan, China

Abstract:

In recent years, Tangshan, as a dual-core heavy industrial city in northern China, has been facing significant challenges, including an unreasonable industrial structure, severe environmental pollution, a heavy burden of urban debt, and a declining birth rate, putting immense pressure on its economy, society, environment, and resource. To address these issues, Tangshan government has been exploring suitable methods for regional transition to achieve sustainable development in the past decade. This thesis draws on the theories of evolutionary economic geography (EEG), regional innovation system (RIS), and sustainable transition theory (STT), to conduct a comparative study between Tangshan central districts and Caofeidian District. It explores a new path for regional transition of Tangshan. By analyzing the policy history of Tangshan's regional transition and development over the past forty years through rescaling, it is found that both upscaling and downscaling have occurred, but upscaling has a greater potential to promote regional transition and development. However, major development events, such as post-earthquake reconstruction and the development of Caofeidian, require multi-level rescaling. Through a coupling coordination degree analysis of Tangshan's regional innovation system and regional transition system from 2012 to 2020, it is observed that although there has been some improvement in the coupling and coordination of the two systems, the regional transition system has entered an almost stagnant phase since 2019. Analyzing the influencing factors of the two systems using the geographic detector, it is found that factors such as tax reductions and exemption for high-tech enterprises, the added value of strategic emerging industries, and the number of invention patents have a significant impact on systems. Using the entropy weight method to compare the innovation capacity of city central districts and Caofeidian District from 2012 to 2020, it is revealed that the innovation capacity of city central districts is still superior to that of Caofeidian District, with the Tangshan High-tech Zone having the strongest innovation capacity among the four districts. Through TOPSIS analysis of the specific innovation performance of city central districts and Caofeidian District, it is found that the former has better innovation resource, while the latter has the highest innovation input. Both areas need to improve their innovation milieu. Last but not the least, by applying the obstacle factor analysis model to analyze the factors hindering innovation in city central districts and Caofeidian District, it is identified that financial intermediation is the most critical obstacle factor for the former, while international trade in goods is the most important obstacle factor for the latter.

Therefore, this study concludes that promoting Tangshan's regional transition requires more than just enhancing regional innovation capacity. It is essential to establish a regional transition system and employ a systematic approach to comprehensively and multi-dimensionally improve regional transition in Tangshan. Ultimately, through the regional transition system, Tangshan will be more effectively and efficiently transformed from a heavy industrial city into a sustainable development city in China. This research not only enriches the existing literature on Tangshan's transition but also provides new solutions for its sustainable development in the future. Furthermore, it offers

some insights for other resource-based cities, old industrial cities, and independent industrial and mining areas in China and around the world undergoing transition.