Rapid urbanization in the developing world calls for attention to address the issue of urban sustainability, especially in emerging countries such as China, where social equity and environmental conditions have been marginalized by the rapid economic development. In this seminar, I will introduce our work in addressing this issue. First, we will answer the following questions: (1) How did the sustainability of Chinese cities evolve over time? (2) What are the driving forces for the evolution? By constructing a composite index that incorporates three major aspects of sustainability, economy, environment, and social equity, we characterized the recent evolution of Chinese cities and assessed the disparity among regions in terms of the sustainability measures. Further, we analyzed the driving forces for the change of sustainability indices through a driving force-pressure-state-effect model. We substantiated our numerical analysis of Chinese cities with a detailed case study of Urumqi, the capital of Xinjiang Autonomous Region, which has experienced significant change over the past three decades in every aspect of sustainability. We highlight some fundamental socioeconomic driving forces that have caused spatial restructuring, reflected by land-use change, and consequently impacted the urban environment of Urumqi. A brief case analysis of Guangzhou is also provided. Finally, I will introduce some of our on-going research that examines the urban sustainability under future climate change, using Urumqi and Shanghai as cases.

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