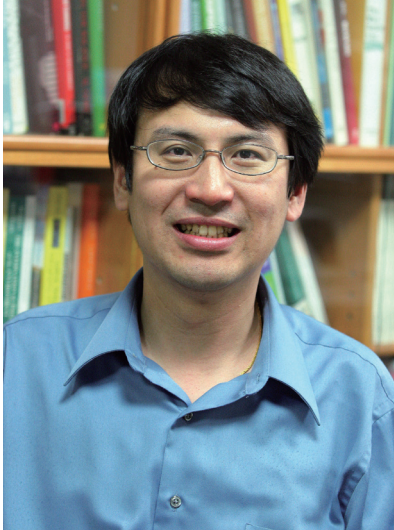


The barriers and challenges of urban climate governance in Taiwan

A multilevel governance perspective



The role of cities in climate governance

Urban climate governance has become a vital aspect of contemporary global governance. In 1976, when the United Nations held the first UN-Habitat in Vancouver, Canada, two-thirds of the world population was concentrated in rural areas. Now, forty years later, half of the world population lives in cities, and fast-paced urbanization has created grand challenges for urban governance systems. Since the industrial revolution, developing economic and social activities have resulted in the heavy use of fossil fuels for energy, causing the concentration of anthropogenic greenhouse gases in the atmosphere to skyrocket and gradually increasing global average temperatures. The IPCC's 5th Evaluation Report (2013) estimated that by

the end of the 21st century the global average temperature will rise by 1.8-4.8°C; already, urban energy consumption accounts for more than 70% of the world's energy consumption. Global climate change drives the need for a low-carbon economy and a social transition accompanied by changes in the social structure together with the rapid development of cities, thus creating challenges for human economic activities, the environment and political structures.

Climate change issues span the boundaries of "global commons" and "multilevel." Although globalization has become the driving power of global political and economic structures, from an analytical perspective globalization cannot explain the complicated mechanisms within a country, especially the role of subnational authorities such as local governments and cities in global issues. In December 2007, COP 13, held by the UN-FCCC in Bali, Indonesia, and the World Mayors Council on Climate Change actively proposed a 60% reduction in greenhouse gas emissions by 2050 compared to the level in 1990, and an 80% reduction was proposed for industrializing countries for the same period. City mayors promised to draft local-level strategies of mitigation and adaptation. Through international connections, urban networks are likely to become the main force behind post-Kyoto global climate strategies.

The main concern of this study is to probe the barriers and challenges of climate governance faced by cities in Taiwan. By 2014, the author of this study had conducted in-depth interviews with 26 officials, including 13 commissioners and deputy commissioners in related bureaus from each city, central government bureaucrats, scholars, experts and NGO representatives. The interviews focused on aspects of multilevel governance, such as horizontal and vertical governance, as well as climate change-related policies, governance strategies, governance predicaments and challenges faced by each city. This paper discusses the current challenges of global climate governance and reviews the climate policy development of Taiwan's central and local governments. Finally, the barriers and challenges of urban climate governance in Taiwan are analyzed from a multilevel perspective.

Barriers and challenges of urban climate governance

This study investigates the barriers and challenges faced by Taiwanese cities to clarify how, under Taiwanese political and social structures, cities and local governments respond to climate problems. With respect to climate change mitigation or adaptation strategies, the uncertain position of central governmental policy was the main problem facing Taiwanese cities. Under the cen-

tralized system of the Taiwanese government, the responsibilities of local governments are often difficult to determine. Given the long-delayed enactment of the Greenhouse Gas Reduction and Management Act, which was not passed until 2015, the action programs of the central government are limited and cannot provide an integrated response to the impact of climate change. Several Taiwanese cities have attempted but failed to collect a carbon tax or congestion fee to complement local financial resources and reduce carbon emissions due to the vagueness of the roles and responsibilities of local governments.

Currently, the main legal structure regarding the climate change issue are generally known as the Four Laws of Energy and Carbon Reduction, which include Greenhouse Gas Reduction and Management Act, Renewable Energy Development Act, Energy Management Act, and Energy Tax Act (under discussion). In addition to mitigation strategies, the “Adaptation Strategy to Climate Change in Taiwan” has been published in 2012 as a national policy framework for adaptation strategies and actions. The policy framework identifies 8 sectors to evaluate climate impacts and challenges, which includes disasters, infrastructure, water resources, land use, coastal zones, energy supply and industry, agriculture production and biodiversity, and health. However, there has been a gap in coordinating the mitigation and adaptation strategies and actions in terms of organizational mechanism.

This study also finds the funding problem in policy implemen-

tation, which occurs primarily because Taiwanese local governments lack sufficient financial bases. Since local financial resources are insufficient for implementing climate policies, the role of the central government and subsidies for local governments becomes critical in the realization of local climate policy.

Local governments frequently encounter a gap between scientific information and local knowledge. Cities with insufficient financial resources and manpower often do not have adequate information regarding the local climate to establish regulations in accordance with local conditions and to offer appropriate direction for climate adaptation strategies.

In essence, the Taiwanese response to climate change is mainly voluntarism—namely, low-carbon city strategies based on international trends regarding carbon reduction and energy transition. Although some evidence indicates that cities have both advantages and responsibilities in addressing climate issues, this study finds many restrictions within existing structures and social values. These restrictions create both new opportunities and challenges for urban climate actions given the increasing acknowledgment of climate change and unfolding of policy directions of Taiwanese cities.

In evaluating the development of climate policy in Taiwan’s main cities in recent years, we find that except for the pioneering cities of Taipei City, New Taipei City and Kaohsiung City, most cities have followed the policy of the central government and have put forth educational and promotional strategies as their

main approach. As the issue of urban climate governance gradually unfolds, local governments choosing policy instruments risk collision with existing structures, reflecting the predicament and challenges of multilevel governance that cities face. For example, insufficient local financial resources restrict opportunities for local governments to use distributive policies such as subsidies. Additionally, such resource limitations render local governments unable to employ specialists, resulting in a lack of manpower.

The inadequacy of the existing legislation of the central government is one of the important problems restricting urban development. Cities seldom focus on how to orient themselves in the international context and how to connect with local grassroots groups and the public in international-level climate negotiations; this approach might be the main point of future development. Given the challenges of horizontal governance, a cooperation mechanism has not yet been developed for cross-sectoral integration, and intercity coalitions have not yet become a systematic structure in Taiwan. Even if cities have successfully established units in charge of energy saving and carbon reduction, coordinating across sectors remains necessary to truly unify and coordinate these units.

From a political perspective, electorally oriented local leaders often influence the priority of climate issues, which is one of the limitations of urban climate action. Disputes regarding various political values, especially the demand for economic development, often result in climate issues coming in at low priority

on the political agenda. Compromises are sometimes necessary because of local economic demands. Consequently, the political will of city leaders becomes pivotal in influencing climate policy. However, in the context of electoral politics, policy formulation has always been tenure oriented. Thus, continuity in long-term city planning for climate issues is difficult to achieve.

To sum up, cities encounter many of the same problems, and many of these problems originate from multilevel governance, as well as interactions and coordination among stakeholders. In early stages, cities encountered the problem of climate change issues lacking a coordination unit. In response, local governments gradually integrated units related to energy saving and carbon reduction into a task force unit in

charge. The cross-border scale is high for climate issues, and many projects overlap between different sectors; thus, such institutions should employ a communication platform and decrease the problem of departmental division by increasing these units' orientation toward climate issues. In the foreseeable future, cities will play a more important role in international climate governance. In the crucial context of global post-Kyoto climate negotiation, the structural and systematic transformation that may be effected by the Taiwanese government's urban climate strategies will require further study.

Reference

Tze-Luen Lin. (2016). "The Barriers and Challenges of Urban Climate Governance in Taiwan: A Multilevel

Governance Perspective," a book chapter of *Adapting to Climate Change through Local Strategic Planning: Processes, Experiences and Knowledge* edited by Hsiao-Lan Liu and Chia-Tsung Yeh, 121-153. Taipei: Chan's Arch-Publishing Co. Ltd.

Associate Professor

Tze-Luen Alan Lin

Department of Political Science
National Taiwan University
tlilin@ntu.edu.tw

With climate change, fertilizing oceans could be a zero-sum game

Scientists plumbing the depths of the central equatorial Pacific Ocean have found ancient sediments suggesting that one proposed way to mitigate climate warming—fertilizing the oceans with iron to produce more carbon-eating algae—may not necessarily work as envisioned.

Plants need trace amounts of iron to perform photosynthesis, but certain parts of the oceans lack iron, and algae are therefore scarce in those areas. Recent

shipboard experiments have shown that when researchers dump iron particles into such areas, it can boost growth. The algae draw the greenhouse gas carbon dioxide from the air to help build their bodies, so fertilization on a large scale could, theoretically, reduce atmospheric CO₂. Seafloor sediments show that during past ice ages, more iron-rich dust blew from chilly, barren landmasses into the oceans, apparently producing more algae in these areas and presumably also producing a nat-

ural cooling effect. Some scientists believe that iron fertilization, along with the corresponding drop in CO₂, is one reason why ice ages become icy and remain so.

The equatorial Pacific Ocean is one such high-nutrient, low-chlorophyll region in the global ocean. In such regions, the consumption of the available macro-nutrients such as nitrate and phosphate is thought to be limited in part by the low abundance of the critical micro-nutri-