

Title of the symposium:

Linking natural and anthropogenic forces: landscape pattern and processes in global urbanized deltas and lowlands

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Symposium abstract

One of the major driving force influencing Earth is Homo sapiens. Humans could alter both the ecological conditions and the structure and function of ecosystems converting the undeveloped land into anthropogenic habitats. Compared to inland and mountainous areas, deltas and coastal lowlands generally offer a gentler terrain and fertile soil, are richer in freshwater and offer more transportation and human activities. Large deltas or lowlands in the world are often heavily urbanized and populated as people were initially attracted by the agricultural productivity of such areas. The urbanization is changing or even damaging the original natural landscapes in unexpected and unpredicted ways. Habitat loss and fragmentation processes strongly affect biodiversity conservation in landscapes undergoing anthropogenic land use changes.

This session focuses on landscape pattern and processes at the across global deltas and lowlands with high intensity human activity background. It includes but is not limited to : (i) agglomeration effects of anthropogenic dynamics on ecosystems in deltas and lowland area; (ii) landscape ecological solutions for coastal problems (flooding, pollution, biodiversity loss etc.); (iii) landscape management and conservation for sustainable development in delta and lowland areas; (iv) integration of physical processes (hydrological, geographical and ecological procedures) for human settlement in deltas and coastal lowlands.

How your symposia will improve landscape ecology science?

Urbanization has been a dominant driving force for global environmental changes and socioeconomic transformations across the world since the Industrial Revolution. It is during the past two decades that urban ecology has developed into a highly interdisciplinary field of study, increasingly embraced by ecologists, geographers, and social scientists. Today, studies that focus on the spatiotemporal patterns, biophysical and socioeconomic drivers, and ecological and environmental impacts of urbanization are mushrooming around the world.

Cities have an increased density of human-created structures as a result of urbanization, while urban agglomerations are a continuous urban spread constituting a city or two more together with outgrowths of such cities. This is especially true during the past several decades, with the rapid emergence of urban agglomerations in global large deltas and lowlands in both developed and developing countries as large deltas or lowlands in the world are often heavily urbanized and populated. Within an urban agglomeration, cities are highly integrated, rendering it as one of the most important carriers for urban landscape ecosystems and even coastal landscapes. With the pervasiveness of urban agglomeration in large global urbanized deltas, for example, Special wards of Tokyo, New York metropolitan area, and Guangdong-Hong Kong-Macao Greater Bay Area. The ecology of landscapes needs to reflect this reality in its science, and knowledge of the ecology of urban agglomeration integrated with various approaches to guide the development of sustainable cities is urgently needed.

However, the existing studies in this field, do not yet form a cohesive theoretical framework to integrate models assessing effects of anthropogenic dynamics on ecosystems in urbanized deltas and lowland area, ecological solutions for resultant coastal problems, landscape management and conservation for sustainable development, and applications of ecological principles to urban agglomeration and urbanized landscapes. This symposium will build a cutting-edge platform for ecologists, geographers, and social scientists to present state-of-the-art studies to promote the formation of a cohesive theoretical framework to guide the development of sustainable urban agglomerations in global large deltas and lowlands.

Broad thematic areas

Broad thematic areas 1st choice: Urban regions (urban landscapes, urbanization processes, urban metabolism, rural urban systems)

Broad thematic areas 2nd choice: From landscape pattern to functions (variables, metrics,

indicators, monitoring)

Free Keywords

urban agglomerations, landscape processes, deltas, lowlands, coastal landscapes, city sustainability.

Outcomes of symposium

Special issue in a scientific journal (to be negotiated)