



Urban Ecosystems and Sustainable Cities

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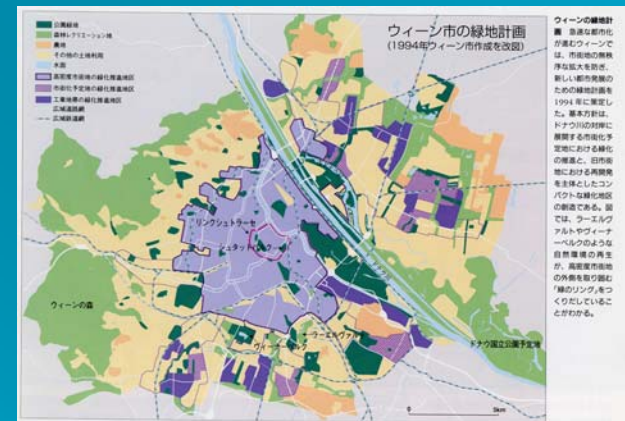
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Cities and Nature – From Conflict to Coexistence

- ❖ Pre-modern cities were isolated from the surrounding rural villages.
- ❖ In castle cities, nature was destroyed and eliminated from these fortified urban landscapes to make way for compact high-density dwellings.
- ❖ With the industrial revolutions comes the advent of contemporary megacities.
- ❖ Public city parks emerged to improve deteriorating urban environment.
- ❖ E. Howard proposed the garden city concept aimed at the harmonious integration of nature and human living spaces within urban landscapes.



↑ The view of Vienna at the time being as a Fortified City
↓ The urban planning map of the enlarged Vienna



E. Howard's Garden City Concept and Green Belt

- ❖ Perspective of blending the advantages of city and nature.
- ❖ Developed garden cities in Letchworth and Welwyn in 1920s.
- ❖ The garden city concepts was applied to large-scale metropolis suburbia development.
- ❖ Proposed Green Belt at the Amsterdam International City Planning Conference.
- ❖ Conceptualization and initiation of Tokyo Park System in Japan. German concept of Green space was introduced.

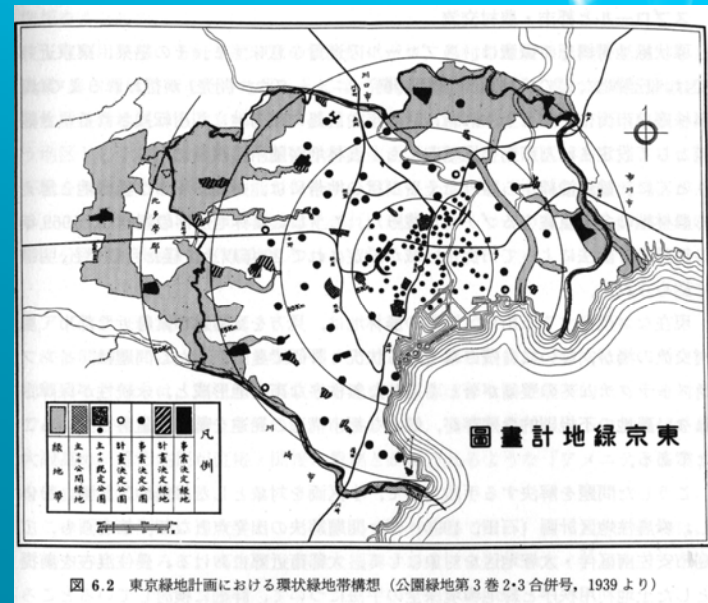
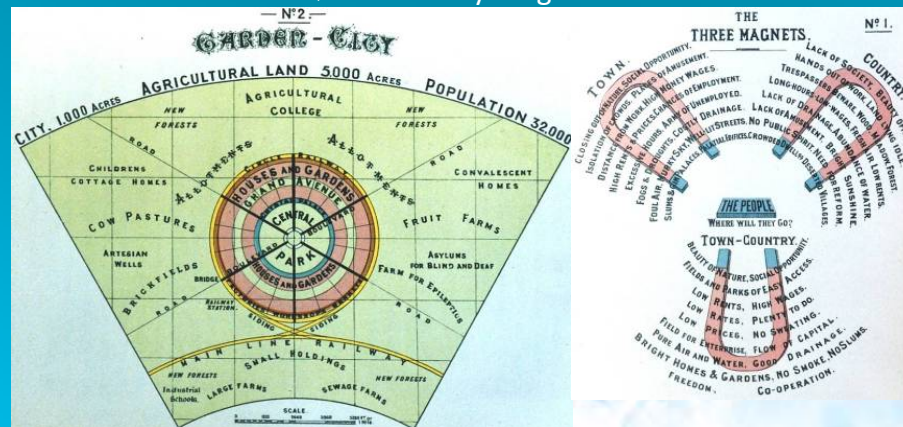


図 6.2 東京緑地計画における環状緑地帯構想 (公園緑地第3巻2・3合併号, 1939より)

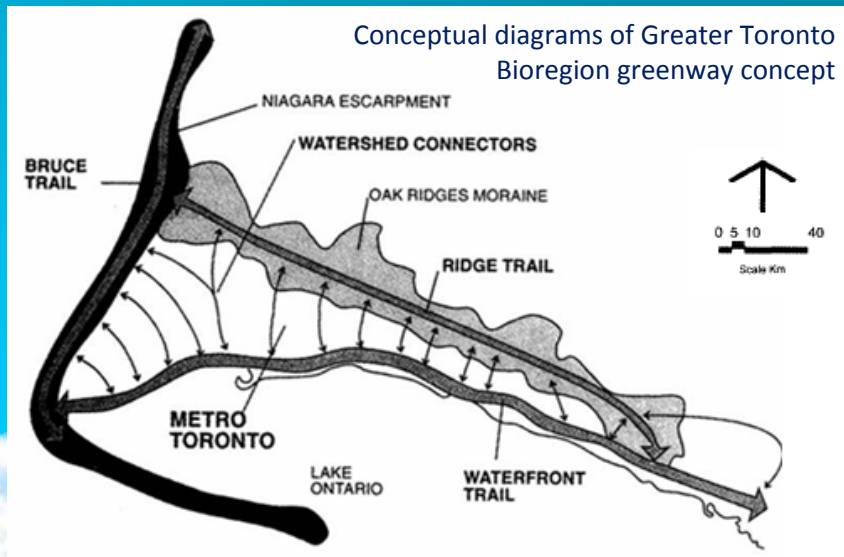
↑ Tokyo Park System

↓ Garden City Diagram



Green Belt and Greenway

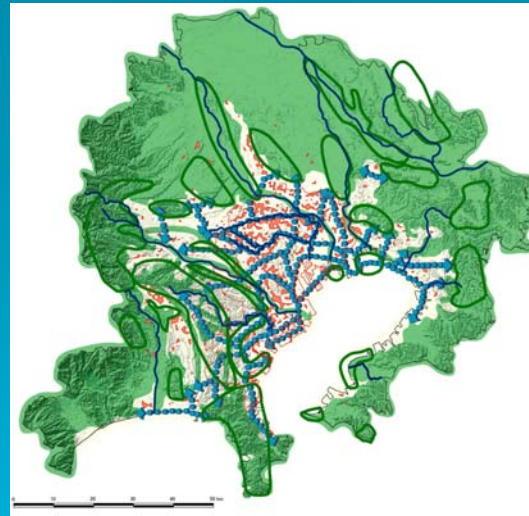
- ❖ Limitations and problems with Green Belt in urban and landscape planning.
- ❖ Proposed Greenway that better utilizes the natural structure of natural lands.
- ❖ Ensures both ecosystem conservation and quality of life for urban residents.
- ❖ Diverse multiple stakeholder participation in Greenway projects.
- ❖ Greenway concept was developed into Ecological Networks.



Urban Ecosystems and Ecological Networks

- ❖ Urban ecosystems are a mosaic of nature and art.
- ❖ Urban nature includes landform, geology, soil, and climate.
- ❖ Multi-functionality of nature's diverse benefits within urban ecosystems.
- ❖ Flood protection, climate control, biodiversity conservation, recreations are some of the ecosystem services provided by urban ecosystems.
- ❖ Develop a network of urban spaces that are high in such functions.

Picture of networks (Tokyo)→



←Conceptual diagram of natural environment infrastructure in the metropolitan area



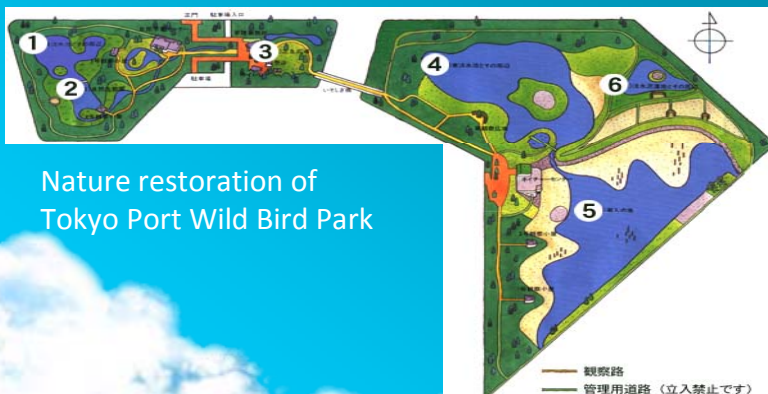
Satoyama Landscape as Urban Ecosystems

- ❖ Japanese urban development resulting in encroachment and degradation of agricultural lands.
- ❖ *Satoyama* function as semi-natural spaces within urban environment.
- ❖ *Satoyama* landscapes as models of urban ecosystems regeneration.
- ❖ Emerging roles for citizens as *satoyama* manages.
- ❖ Similar idea can be applied and expanded to the other parts of the world.



How to Increase Urban Biodiversity

- ❖ Need to re-examine perceptions of cities as artificial constructs devoid of nature and rural villages as places of nature and wilderness.
- ❖ Urban sustainability: “Nature in cities, human inputs into rural landscapes”
- ❖ Restructure nature imbalance to improve natural land use, management and resources conservation.
- ❖ Nature parks, biotopes, and wild natural habitat open space are critical elements of urban environments.
- ❖ Promote the urban greening as nature restoration and creative urban designing projects.

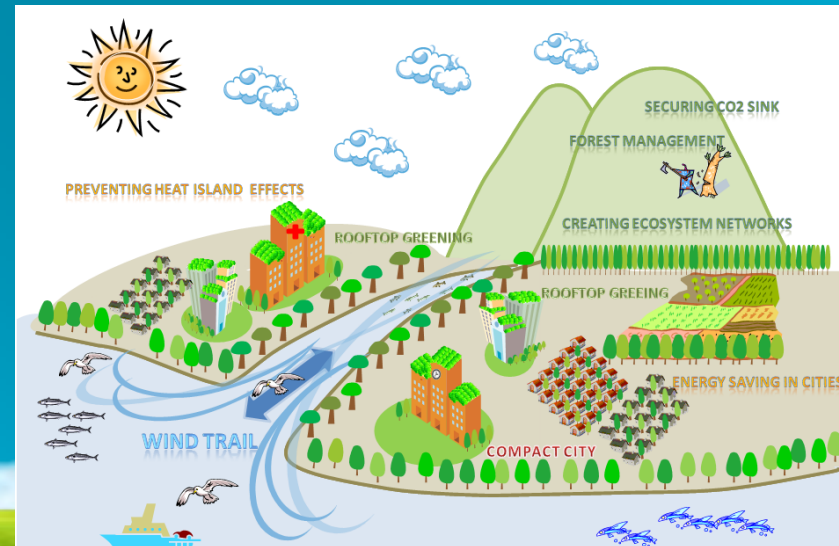


Global Environment and Urban Ecosystems

- ❖ Urban environmental challenges have grown from isolated pollution to trans-boundary global scaled impacts on human environments.
- ❖ Need for urban planning to design policies and programmes aimed at achieving low-carbon, 3R goals, and nature-harmonious cities.
- ❖ Reform the urban metabolism through integrating city and nature.
- ❖ Urban greening contributes to both a low-carbon city and a nature-harmonious city.
- ❖ Need to integrate global warming mitigation and adaptation policy measures with heat island countermeasures.

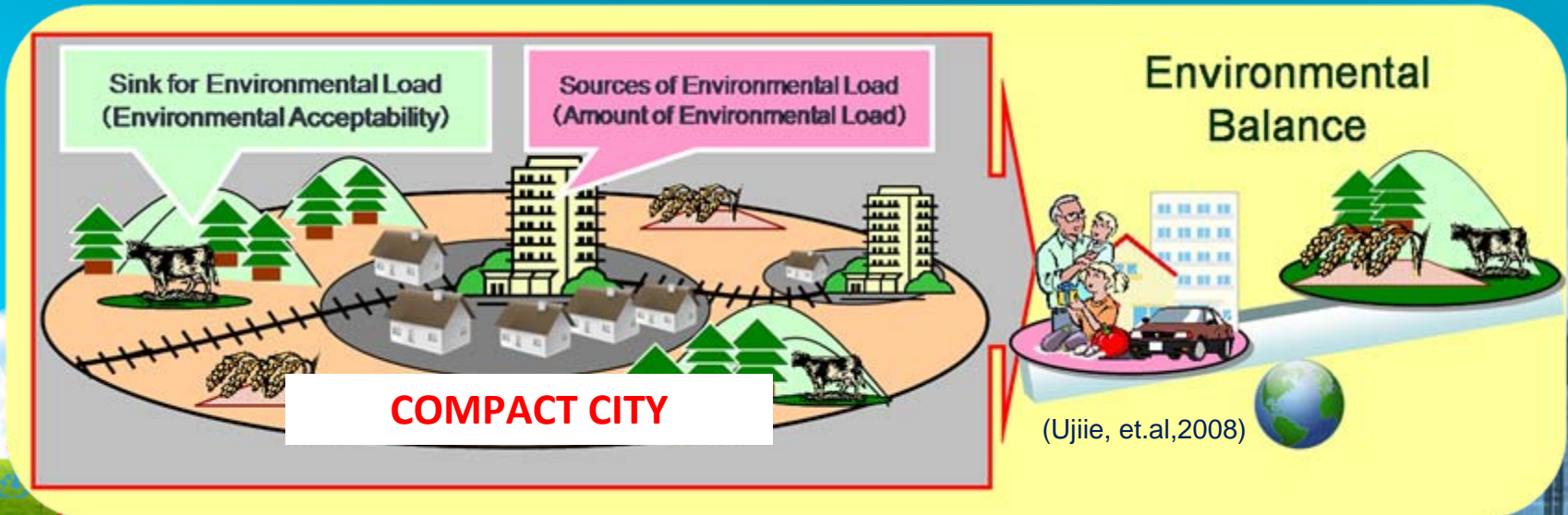


Coexist in harmony with Earth's ecosystems and realize an economic society that enjoy a sustainable growth and development



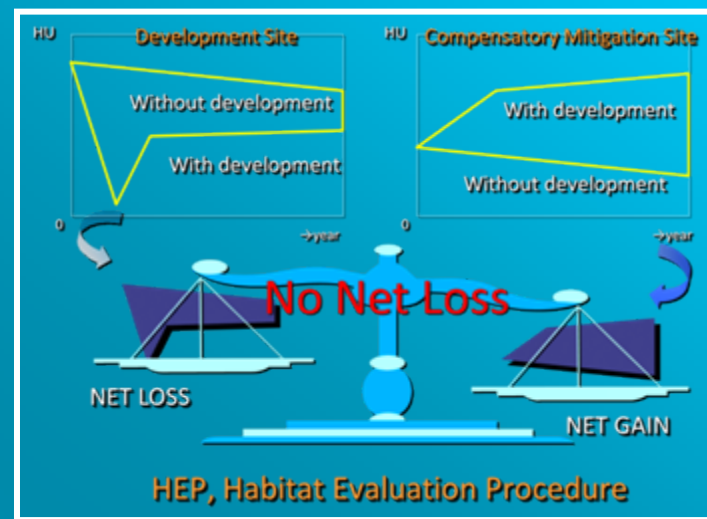
Needs for Urban Planning Adaptive to Climate and Ecosystem Changes

- ❖ Natural disasters and ecosystem degradation caused by climate change are unavoidable.
- ❖ Urgent needs to develop a strategies to adapt to these changes.
- ❖ Develop comprehensive ecological urban planning for aging urban residents.
- ❖ Potential and opportunity for Japan to develop model sustainable compact city.
- ❖ Design planning projects that integrate and support vulnerable open spaces into the urban ecological network as a whole.

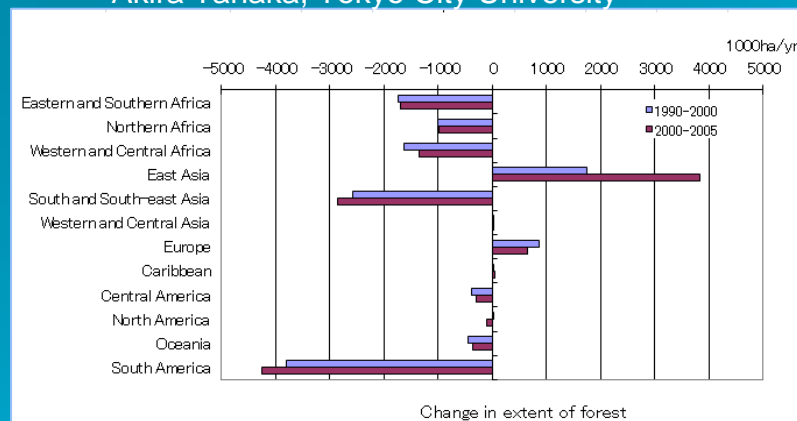


Disseminate the Efforts to Regenerating Urban Ecosystems to the Global Community

- ❖ Developing countries are key in thinking of sustainability at the global level.
- ❖ The issues of the pollution and the global environment need to be addressed simultaneously in developing countries.
- ❖ Need to address how to slow down the speed of the environmental degradation impacting ecosystems around the world.
- ❖ Propose “Global No Net Loss” concept at COP 10.
- ❖ Propose a principle that combines development with nature restoration as a set in developing nations.



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Thank You!

