

VIRTUAL EXPERT GROUP MEETING ON CLIMATE CHANGE MITIGATION AND ADAPTATION IN TRANSPORT 22-23 SEPTEMBER 2020

Urban and Public Transport: How can Cities advance Climate Actions?

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Urban and Public Transport: How can Cities advance Climate Actions?

Background | New Urban Agenda

New Urban Agenda (NUA); it promotes *urban and metropolitan transport and mobility plans* for sustainable cities (UN HABITAT, 2016).

“Paragraph number 117. We will support better coordination between transport and urban and territorial planning departments, in mutual understanding of planning and policy frameworks, at the national, subnational and local levels, including through sustainable urban and metropolitan transport and mobility plans. We will support subnational and local governments in developing the necessary knowledge and capacity to implement and enforce such plans.”

According to Sustainable Developments Goals (SDGs) Goal 11: Sustainable cities and communities refer:

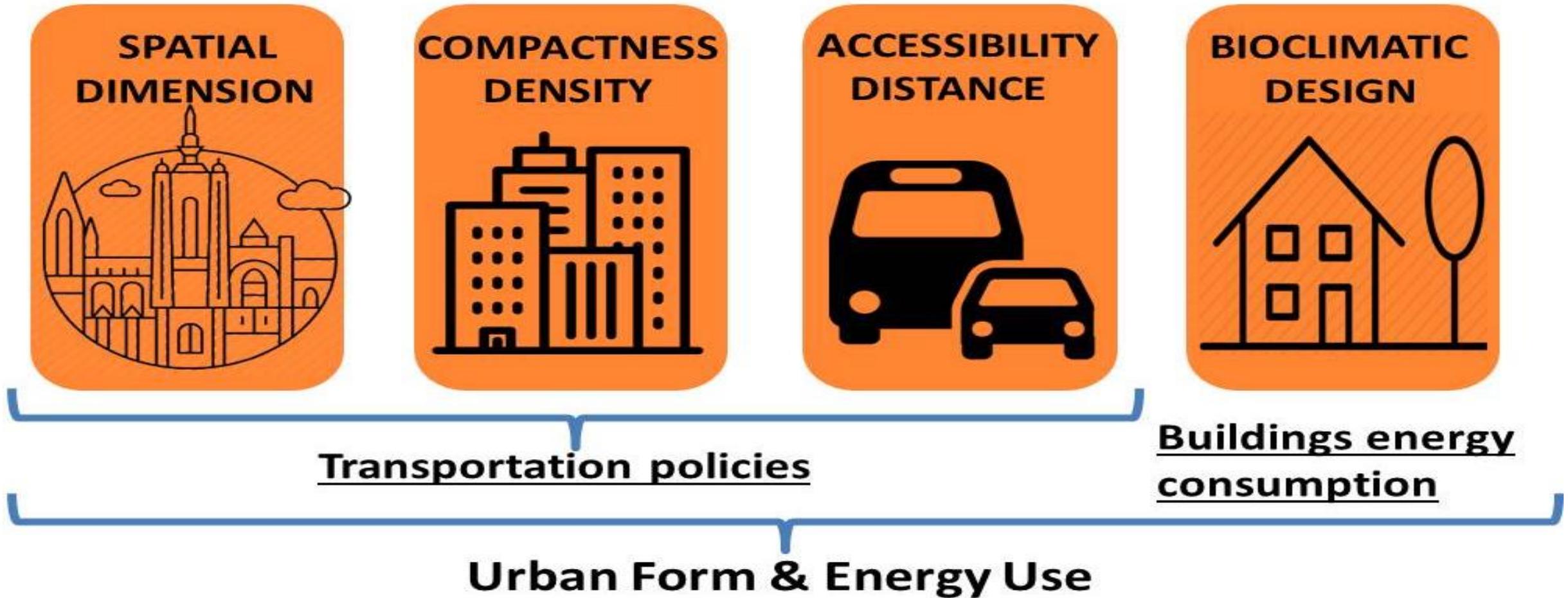
“Making cities safe and sustainable means ensuring access to safe and affordable housing and upgrading slum settlements. It also involves investment in public transport, creating green public spaces, and improving urban planning and management in a way that is both participatory and inclusive.” (United Nations | SDGs, 2018).

Urban form

Urban form's transformations are influenced by political economy, transportation technologies, land markets and urban development policies:

- **Political economy**. Political economy has a strong influence in urban form and the use of land in cities, villages and the territory (e.g., conversion of rural land vs. densification of existing urban built up areas);
- **Transportation technologies**. Transportation policy is one of the strategic keys to combat urban sprawl;
- **Land value**. The increasing urbanization trends push the rate of conversion of rural land into urban land;
- **Urban development policies**. It organizes land use and construction objectives so as to provide good living environment and resilience to climate change;

Urban form



Urban form

Design neighborhoods of adequate density through infill or planned extension strategies to trigger economies of scale, reduce travel needs and the costs of service provision, and enable a cost-effective public transport system. The compact and dense urban form provides the following benefits:

1. **Reduce automobile dependence.** It has been found that as dwelling unit density increases above a certain threshold, automobile usage and total distance travelled by car per household decrease in favour of transit by walking and cycling (Miller & Shalaby, 2000); (Kenworthy et al, 1999).

Urban form

Design neighborhoods of adequate density through infill or planned extension strategies to trigger economies of scale, reduce travel needs and the costs of service provision, and enable a cost-effective public transport system. The compact and dense urban form provides the following benefits:

2. **Increased safety, social cohesion, commercial dynamism, and pedestrian access to amenities.** Although there is much dependency on design and other factors, increased intensity of human activity and use of public space can promote safer urban environments and economically dynamic retail environments in a city center (Jacobs, 1961). Higher residential population densities can create a critical mass for pedestrian access to parks, community facilities, such as markets, jobs, schools, hospital or university (Churchman, 1999).

Urban form

Design neighborhoods of adequate density through infill or planned extension strategies to trigger economies of scale, reduce travel needs and the costs of service provision, and enable a cost-effective public transport system. The compact and dense urban form provides the following benefits:

- 3. Less consumption of rural land and greater environmental sustainability.** The higher the densities of new development, the lower the amount of rural land converted to urban use and the greater the opportunities to preserve agricultural land and environmentally sensitive areas. Patterns of higher density development have been shown to make less impact on the natural environment (Berkes, Colding, & Folke, 2003).

Urban form

Design neighborhoods of adequate density through infill or planned extension strategies to trigger economies of scale, reduce travel needs and the costs of service provision, and enable a cost-effective public transport system. The compact and dense urban form provides the following benefits:

- 4. More efficient infrastructure use at lower costs.** A more compact urban form has been shown to reduce capital costs for infrastructure. While the cost of central facilities (electricity generations plants or water/gas pipeline) are the same no matter how the population is arranged, the cost of construction distribution systems such as pipes and wires will be lower if they cover shorter distances (IBI Group 1990)

Urban form

ASI - APPROACH

AVOID / REDUCE



Reduce or avoid the need to travel.

**System
Efficiency**

SHIFT / MAINTAIN



Shift to or maintain share of more environmentally friendly modes.

**Trip
Efficiency**

IMPROVE



Improve the energy efficiency of transport modes and vehicle technology.

**Vehicle
Efficiency**

Transit Oriented Development - TOD

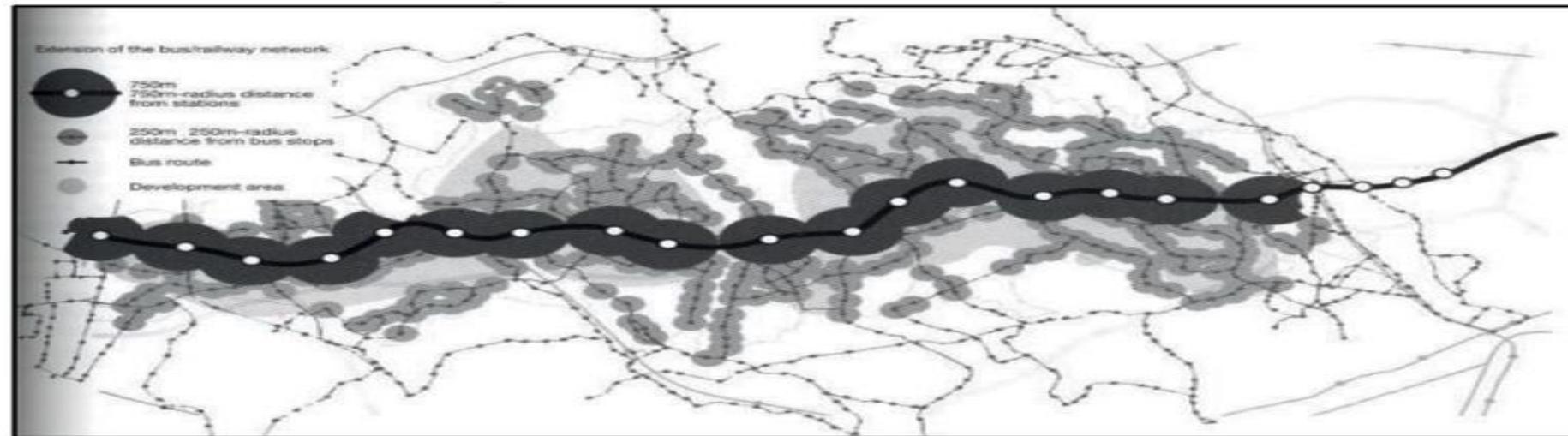
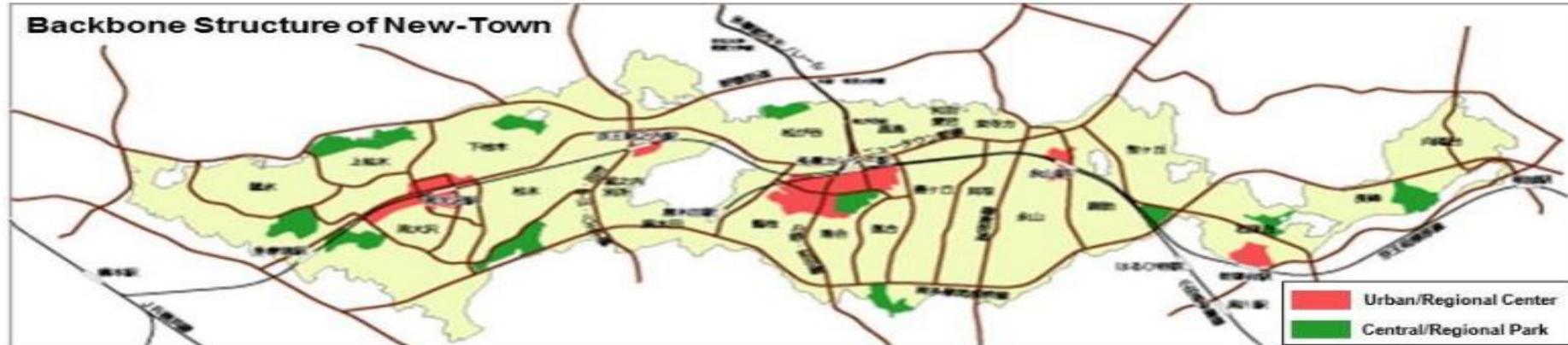
- Organize growth on a regional level to be compact and transit supportive.
- Place commercial, housing, jobs and public spaces within walking distance of transit stops.
- Create pedestrian street networks that directly connect local destinations.
- Provide a mix of housing types, density and cost value.
- Preserve green spaces and high quality of open and public spaces.
- Encourage infill and redevelopment with high density and mix use along transit corridors within existing neighborhoods (urban sprawl).

Transit Oriented Development – TOD | Key componets

- **Density**: sufficient customers within walking or bicycling distance of the transit stop to allow the system to run efficiently.
- **Accessibility**: transit stations and stops that are centrally or conveniently located within TOD and service that allows riders to reach their destinations easily.
- **Pedestrian**: a network of streets within the transit district that is interconnected and scaled to the convenience of pedestrian.

Transit Oriented Development – TOD | Key componets

Land use and Transport Integration TOD. The Tama Garden City Development (The World Bank, 2010)



**THANK YOU
FOR YOUR ATTENTION**

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