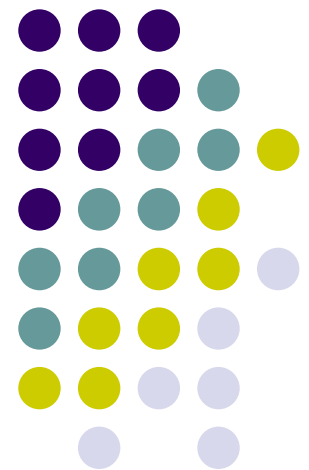




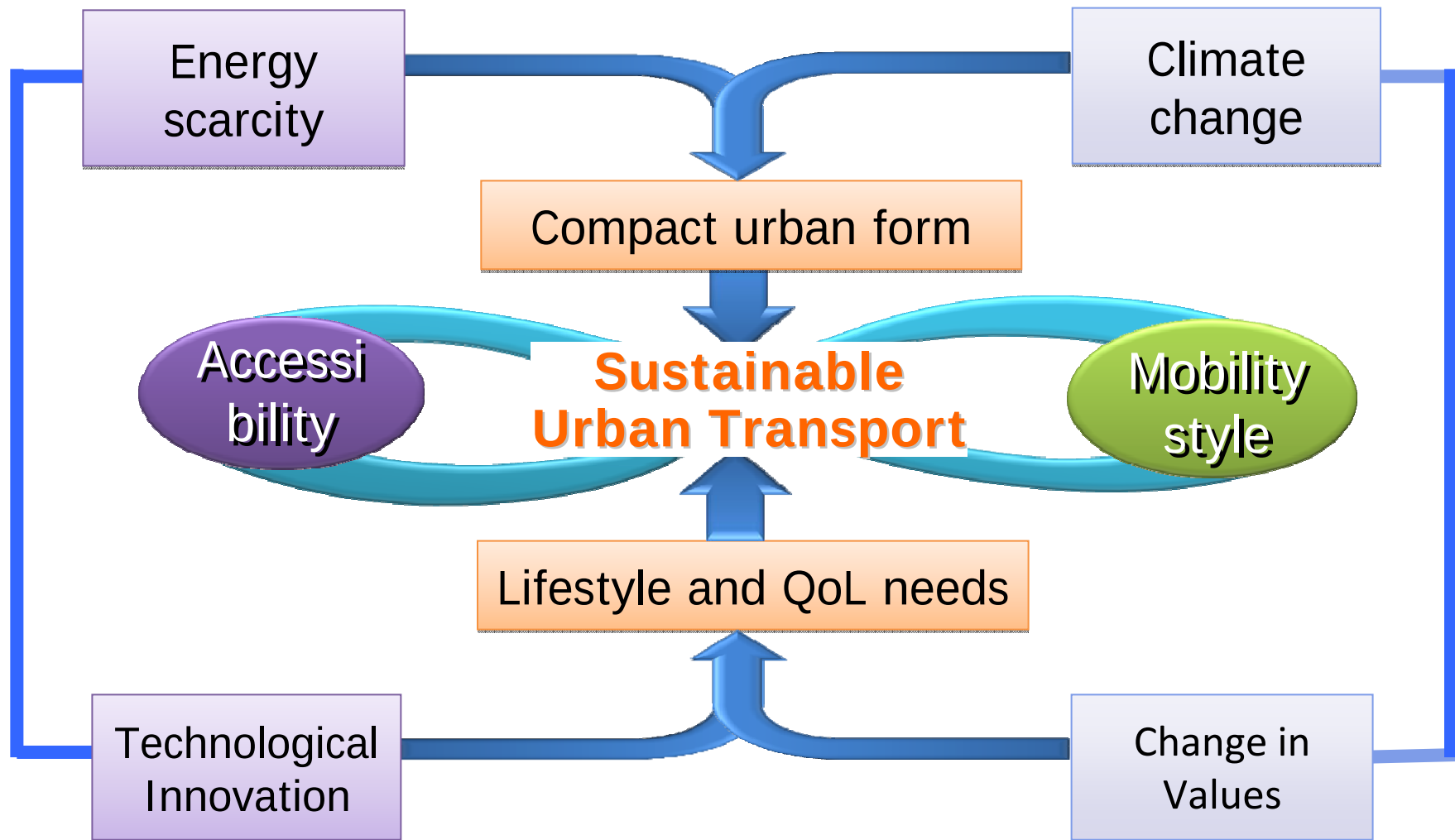
Sustainable Urban Mobility

Case Study in Japan

Kenji Doi, Prof. Kagawa Univ.



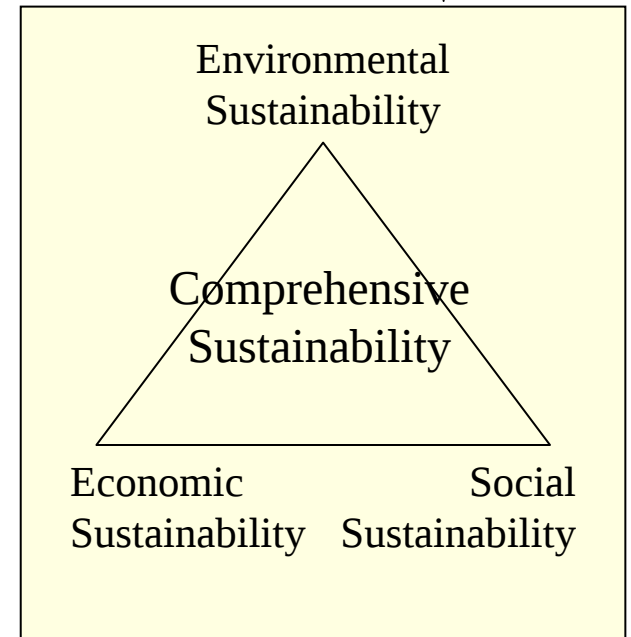
Challenges to be addressed



How feasible is sustainability?



- Sustainability is an aim rather than a measurable goal
- But we know how to make cities more sustainable
 - A greater focus on public transport, charging for car use and controls on land use
 - With most transport provision paid for by the user



- The Decision Maker's Guidebook list
 - Land use measures
 - Infrastructure provision
 - Infrastructure management
 - Information provision
 - Attitudinal measure
 - Pricing

Courtesy of Prof. May

The Decision Makers' Guidebook



Courtesy of Prof. May

- No one policy instrument will be sufficient alone
- There will be barriers to the implementation of most policy instruments



Land use



Infrastructure



Management



Information



Awareness



Pricing

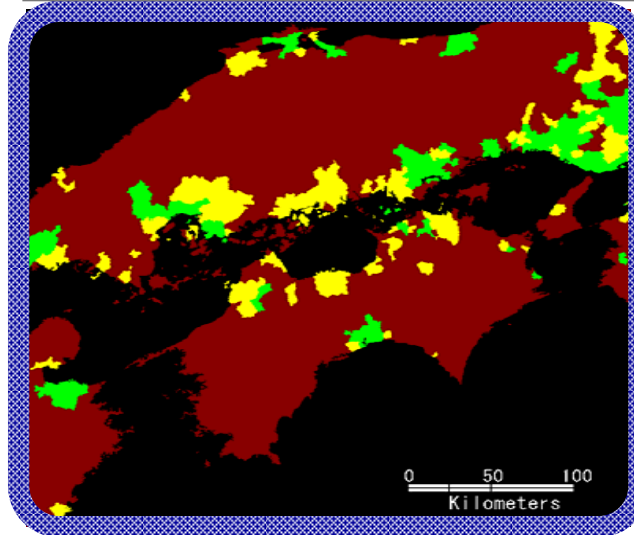
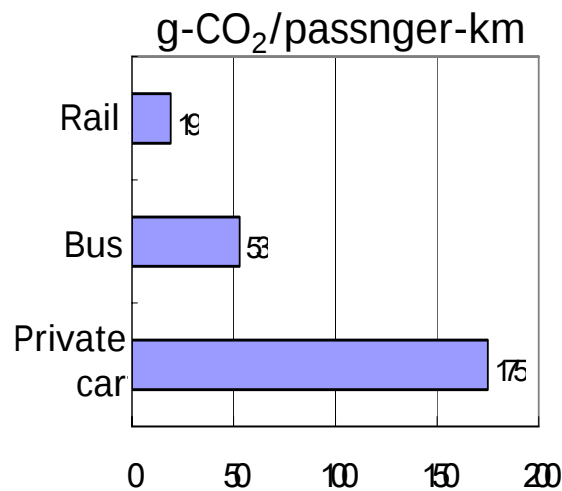
Alleviation of
traffic jam

CO₂ Reduction

Urban
regeneration



Present situation



Mode with minimum
CO₂ emissions

■ Rail

■ Bus

■ Private car

Transport strategy

- ✓ Information provision
- ✓ Attitudinal measure
- ✓ Pricing

- ✓ Infra provision
- ✓ Infra management

LUT coordination
MM and TOD, etc

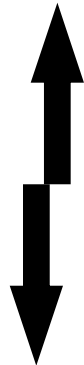
Spatial structure

- ✓ Land use and
locational measure

Conflicting Criteria

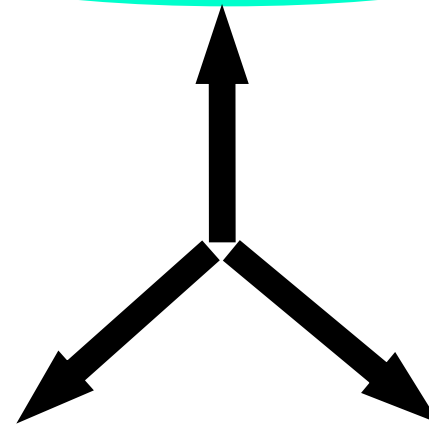


Greenness



Convenience

CO2 reduction



***Profit
efficiency***

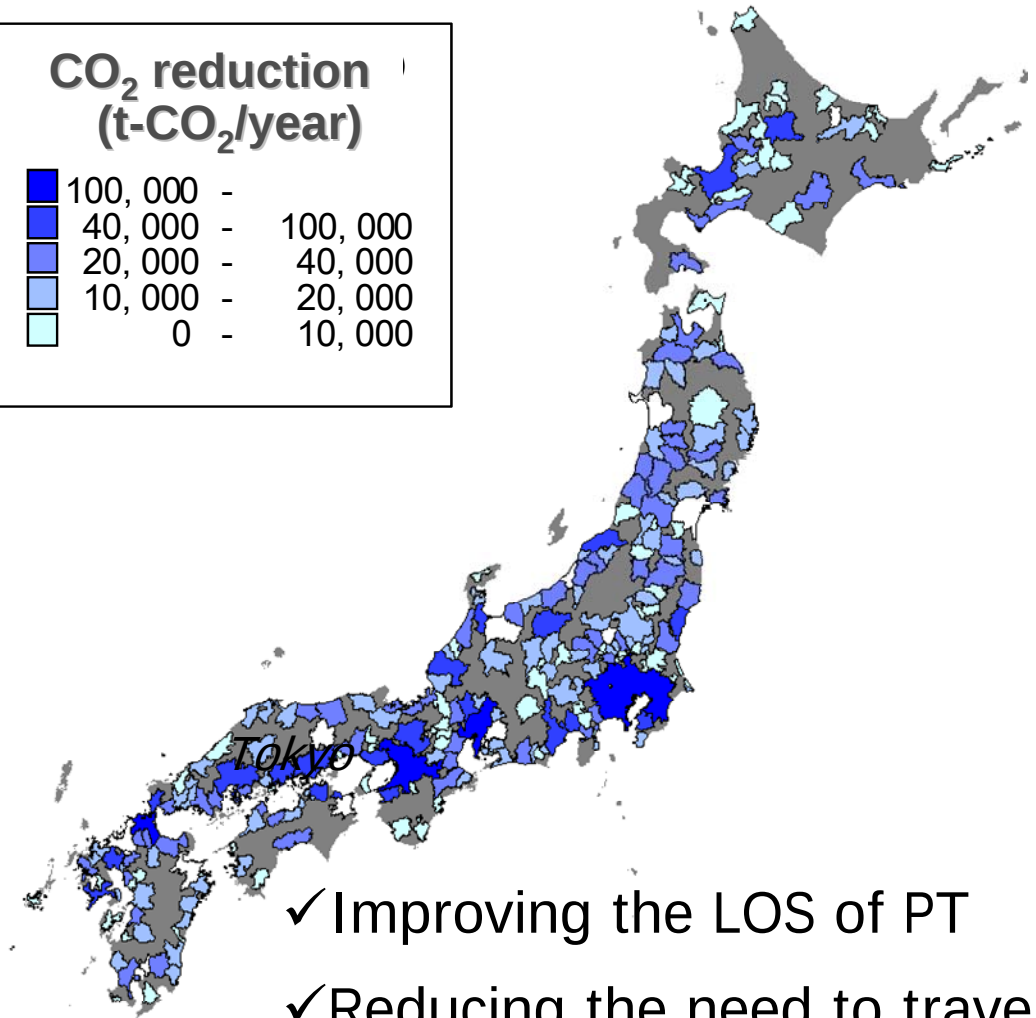
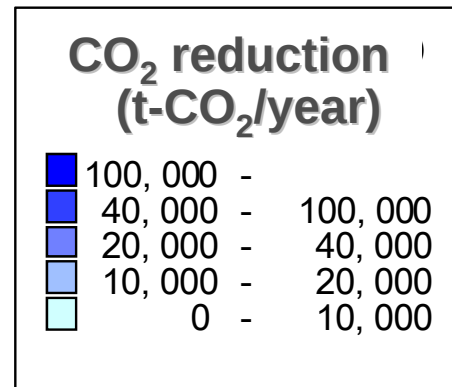
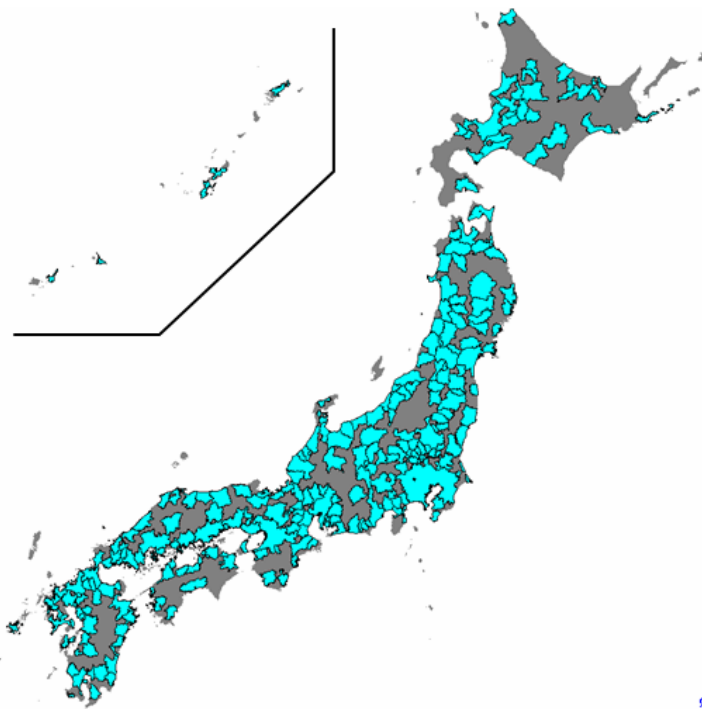
***Benefit,
equity***

Assessment of the interrelationship
among conflicting criteria for **integration**

Predicting Impacts



a) CO₂ Reduction



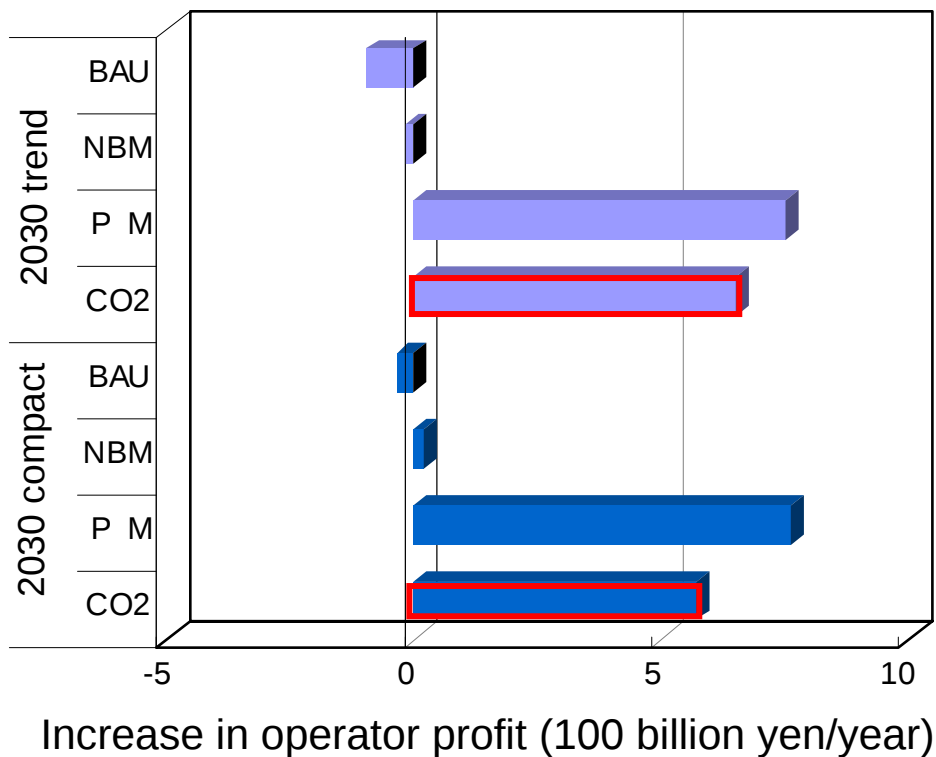
Data : 269 cities
Spatial resolution: 1km²

- ✓ Improving the LOS of PT
- ✓ Reducing the need to travel

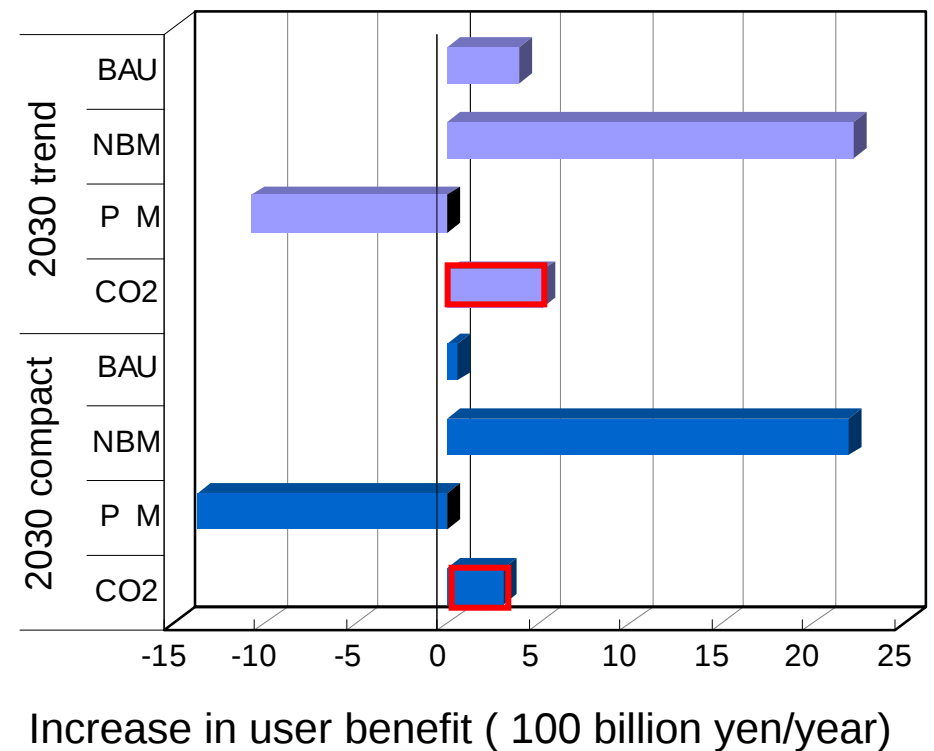
Impacts of Min-CO₂ Approach

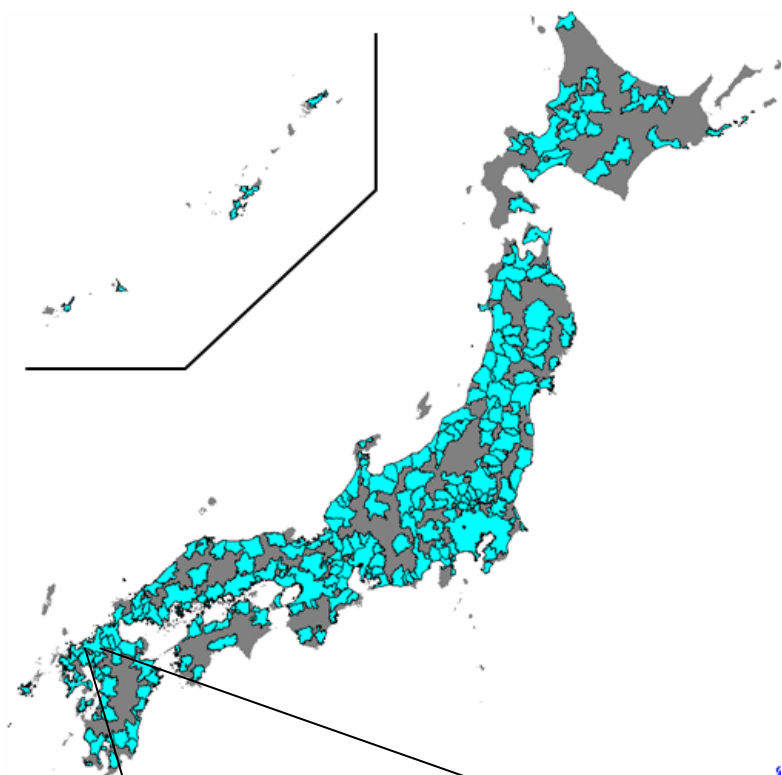


b) Operator profit

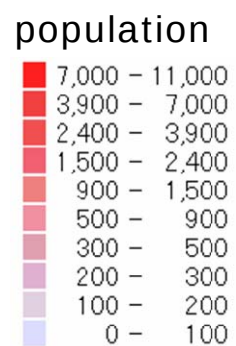
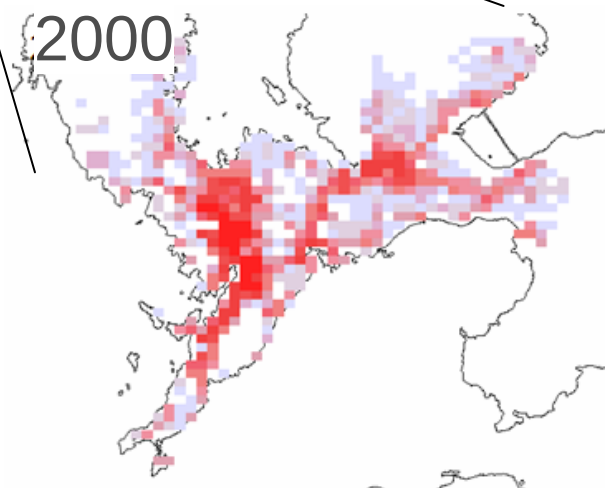


c) User benefit

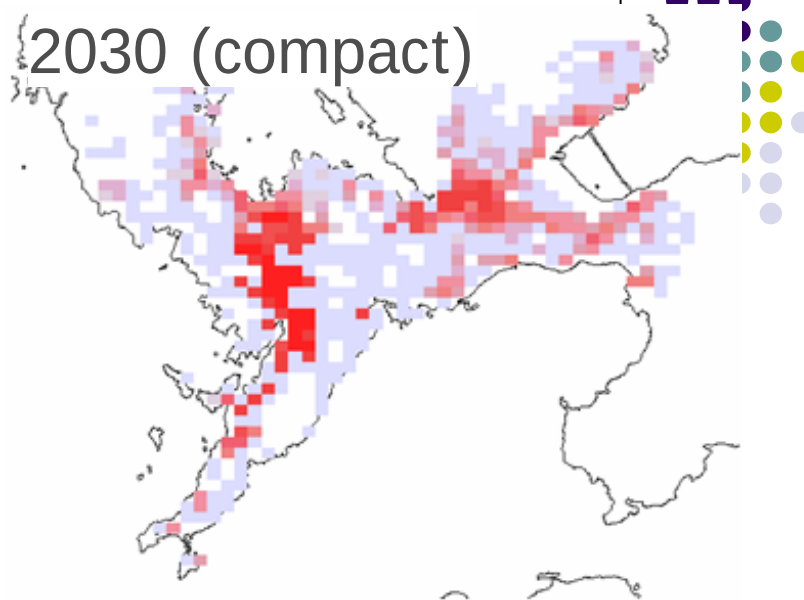




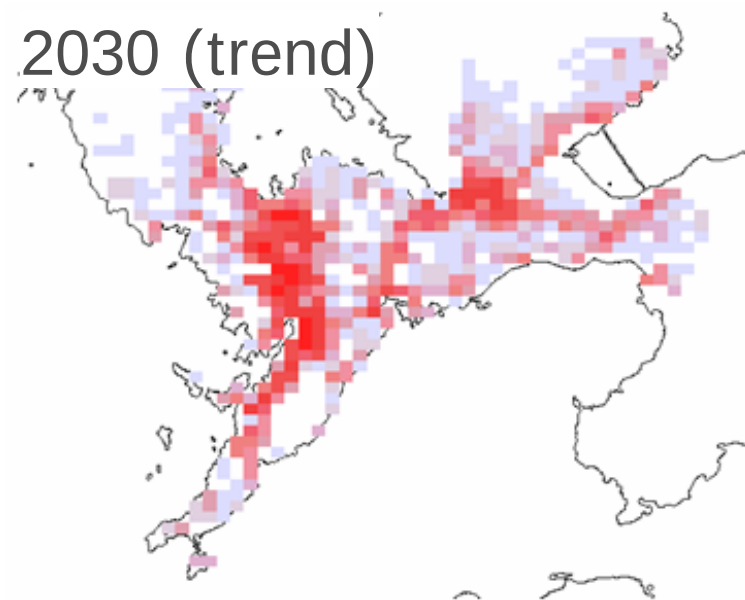
2000

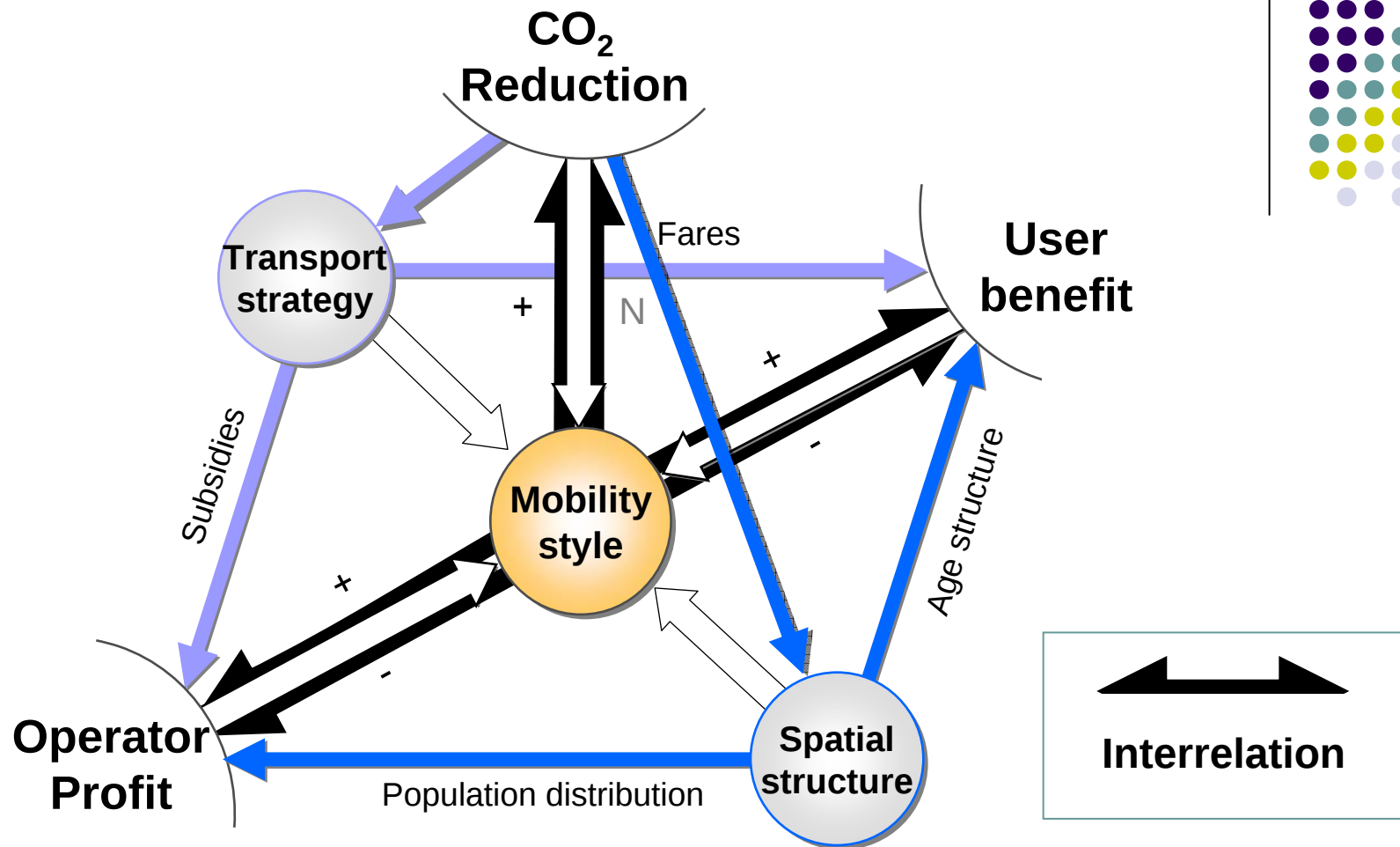


2030 (compact)



2030 (trend)



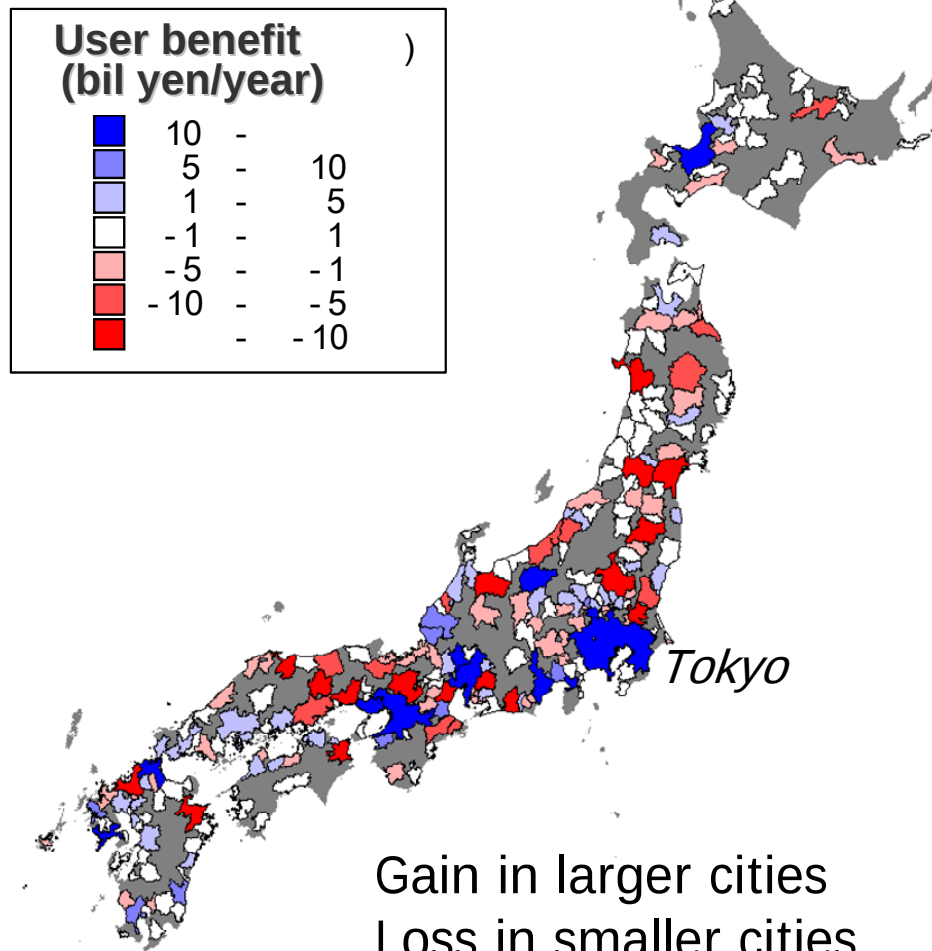


- a) **Min-CO₂ approach** contributes to an increase in operator's profit and might increase user benefit.
- b) **PM approach** contributes to a reduction in CO₂ emissions, but might decrease user benefit.
- c) **City compaction** contributes to a reduction in CO₂ emissions , but might decrease user benefit.

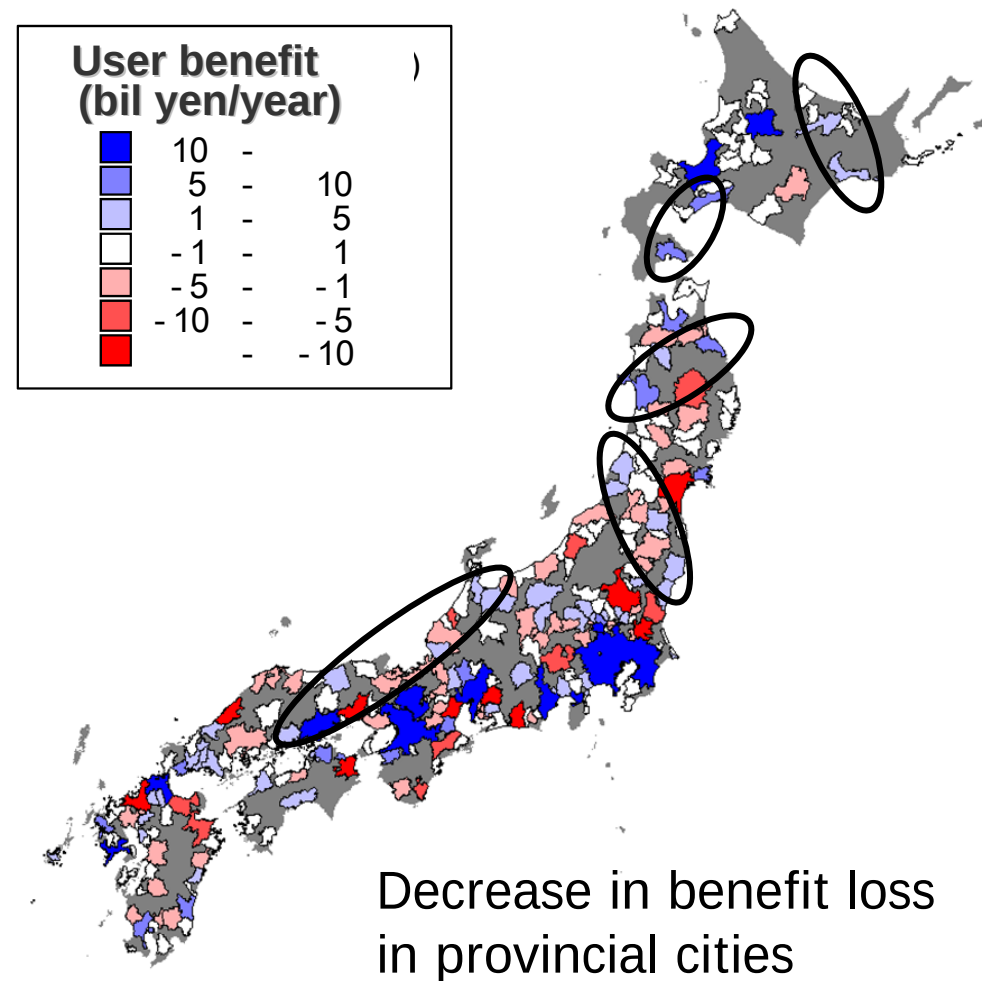
User Benefit in Min-CO₂ Approach



Present pattern



Compact pattern

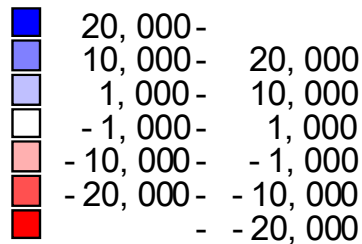


Impact of City Compaction (smart growth)



CO₂ reduction

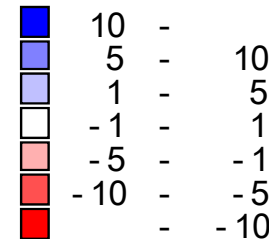
Diff. in CO₂ reduction
(compact - trend)



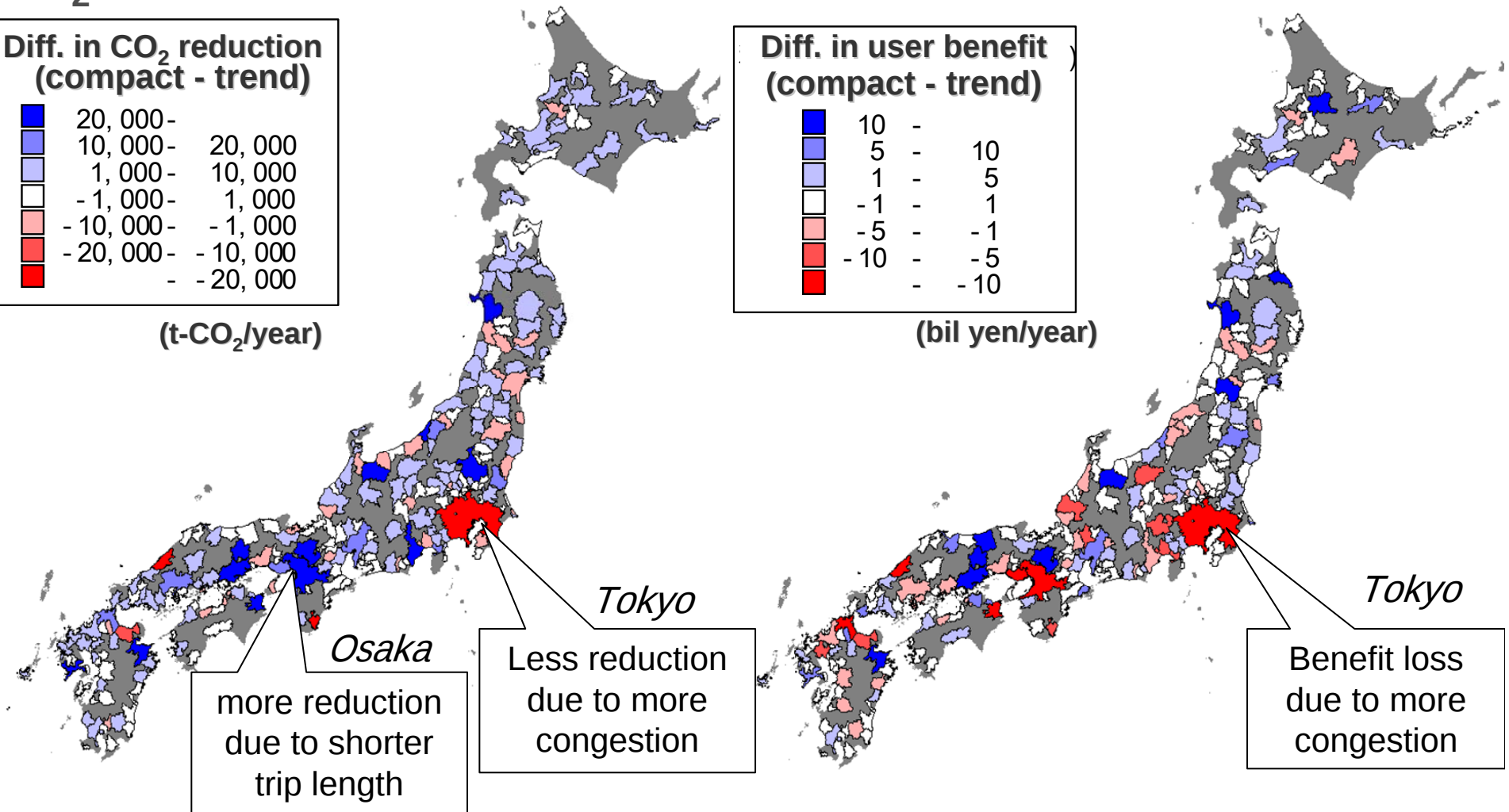
(t-CO₂/year)

User benefit

Diff. in user benefit
(compact - trend)



(bil yen/year)



Conclusions



**Conflicting criteria
Barriers**

Policy integration

- Operational integration
- Strategic integration
- Transport and land use
- Organizational integration, etc.

**Achievement of
chain mobility
and SUT**

