

Bhutan's Fundamentals for **Happiness**: 'Sustainability' transition pathways

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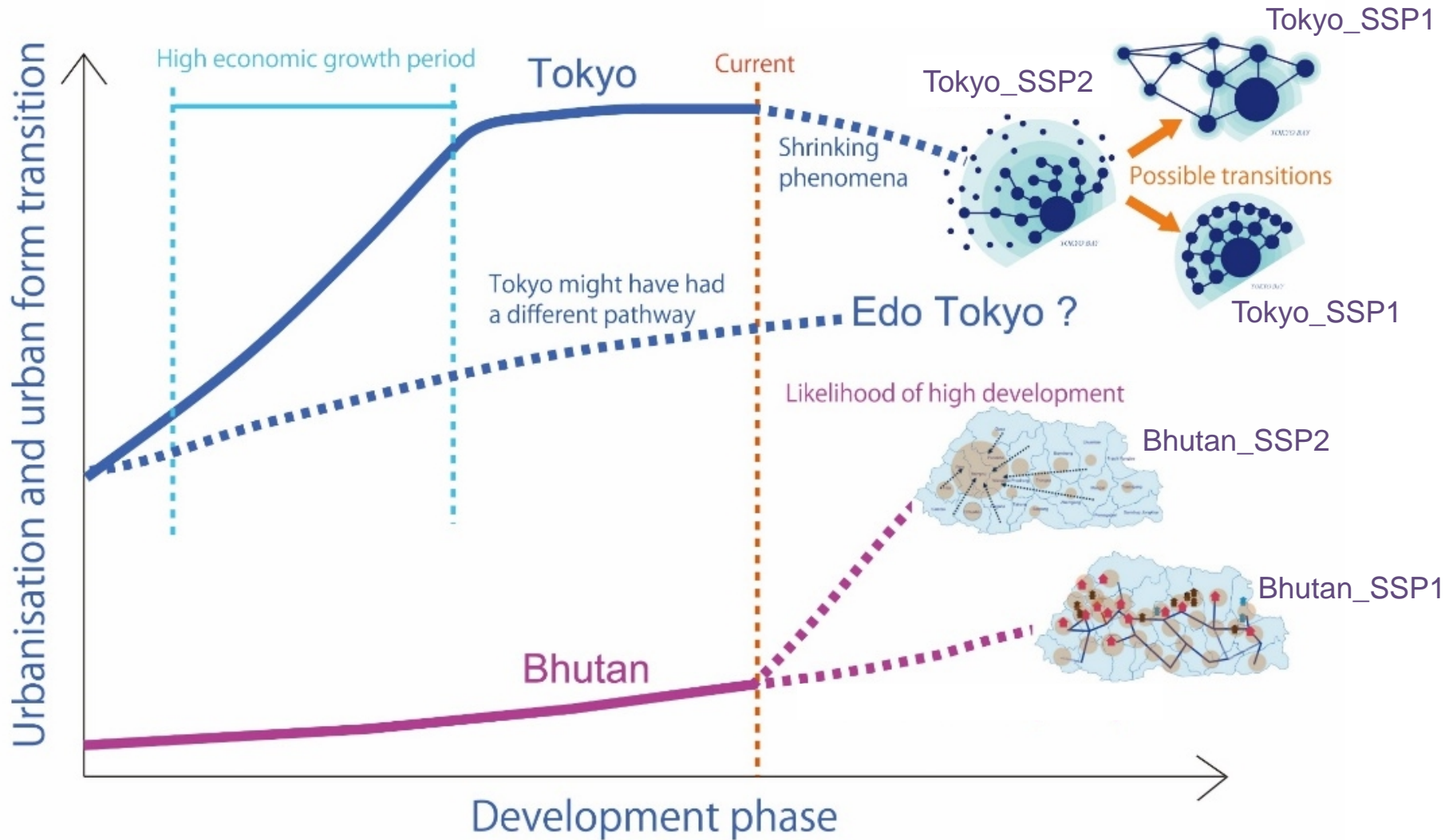
Toward a carbon neutral and sustainable society

Background & Objectives:

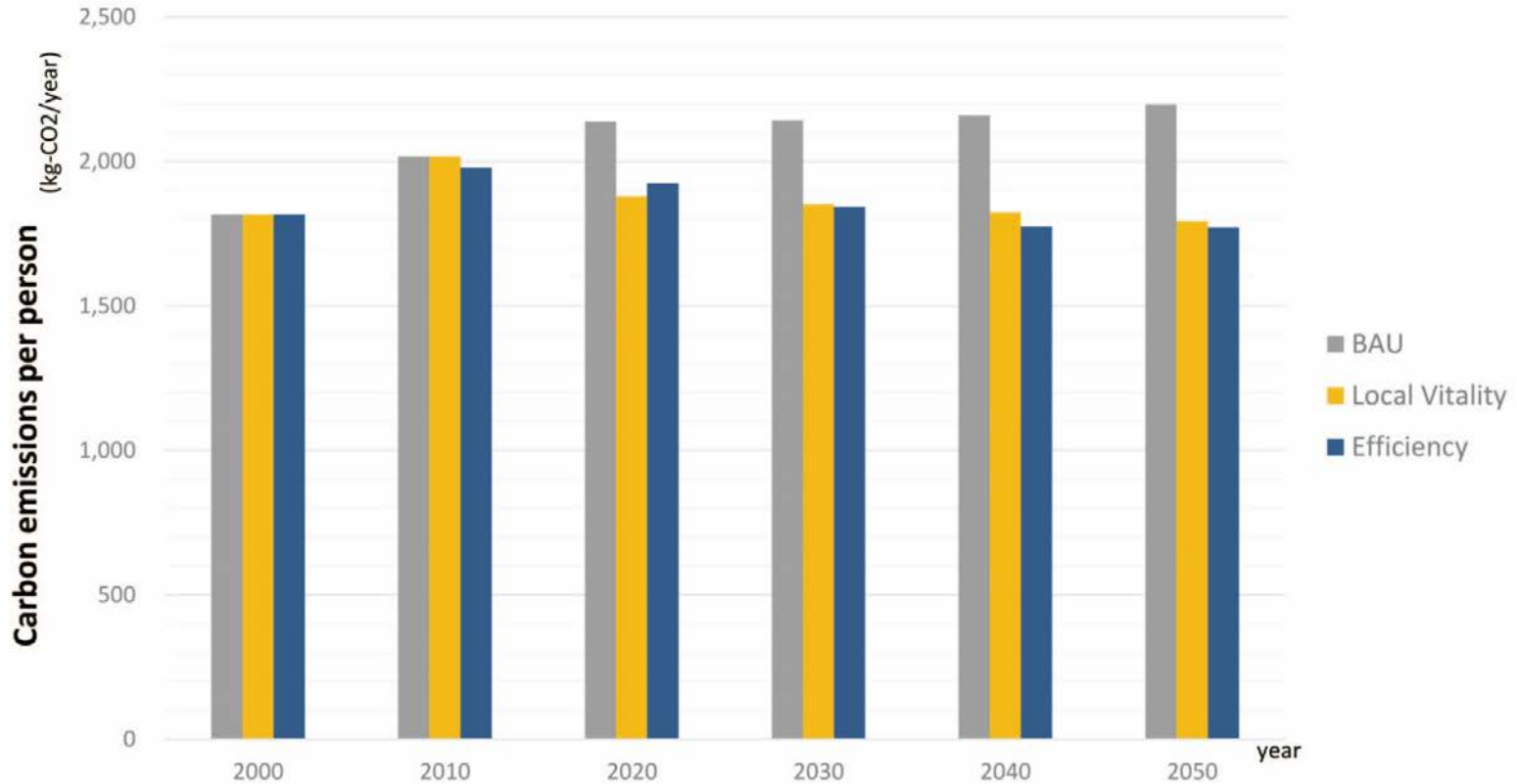
- Bhutan is literally popular in terms of developing and adopting a unique GNH (Gross National Happiness) index for national policy strategies.
- However, there is a strong likelihood of happening upon a number of large developments and densely populated areas, which may cause the expansion of social disparity and social segregation, along with the destruction of natural resources and local identities.
- This research aims to identify the key driving forces which help to enhance Bhutan's regional-specific features related to GNH indicators in regards to maintaining decentralized local culture and natural resources.



Long-term urbanization pathways



Carbon emissions per person: Tokyo 23 wards by 2050

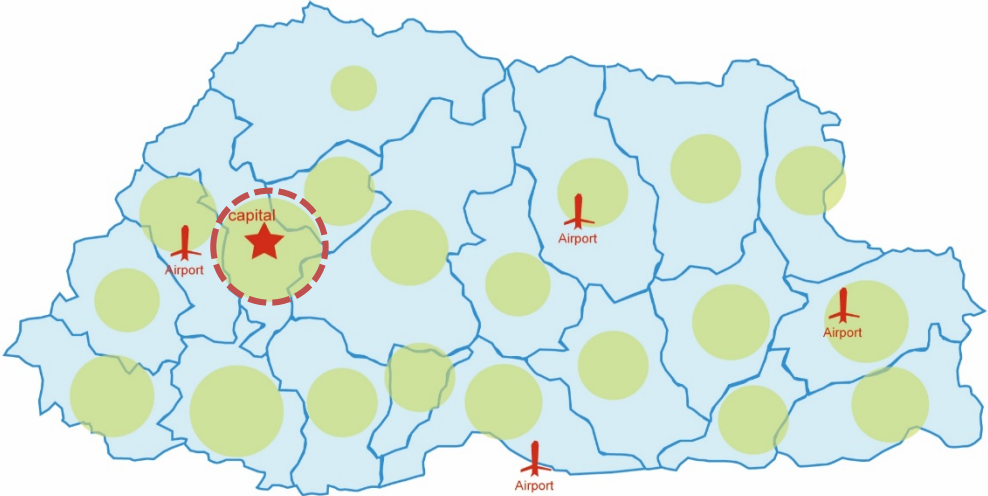


The projection of carbon emissions per capita in each scenario by 2050

Both alternative sustainable pathways can achieve more than 15 percent carbon reductions by 2050 compared to BAU case with applying different urban transitions.

⇒ Synergies and trade-offs discussions can be developed based on scenario story lines.

Current Bhutan (Capital city)

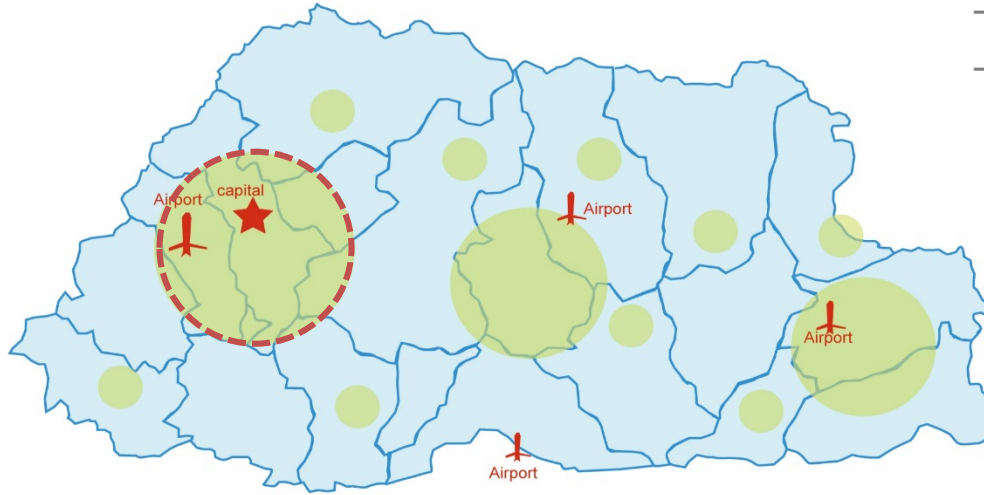


BAU scenario (SSP2)

BAU Bhutan (Capital city)

might cause ...

- Expansion of social disparity
- Social segregation
- Destruction of natural resources and local identities



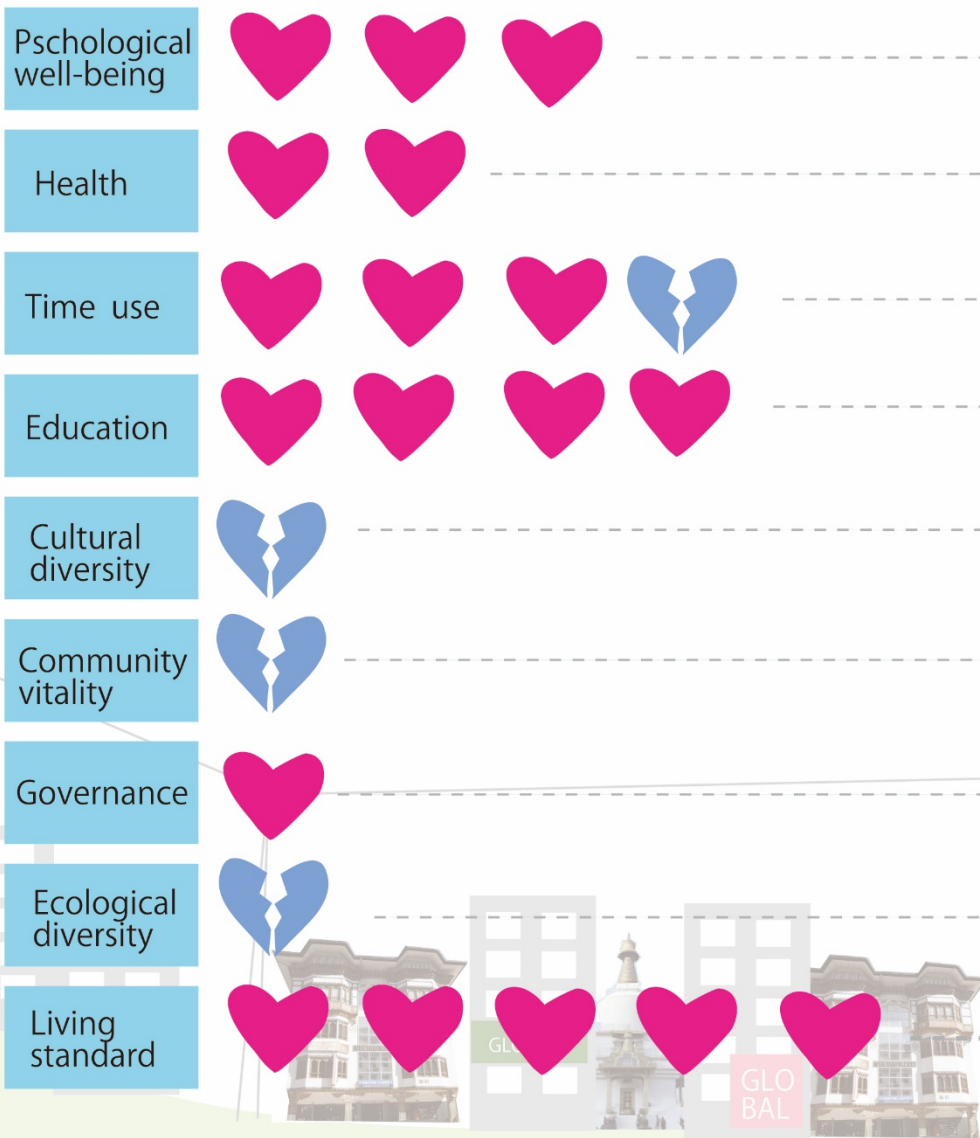
BAU scenario (SSP2)

GNH (Happiness)

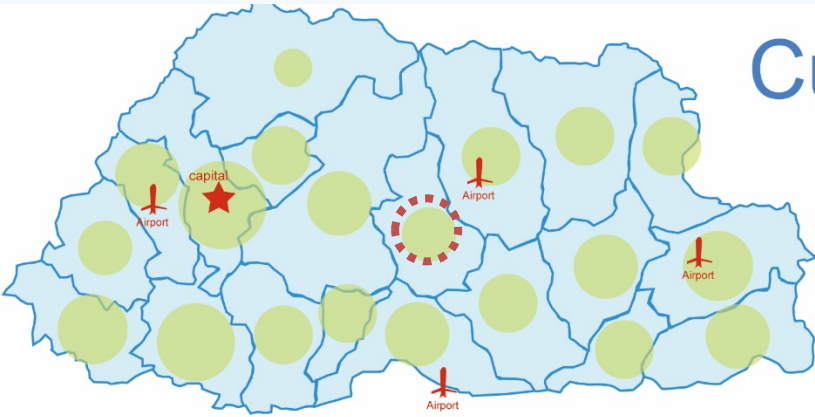


Synergies

Trade-offs

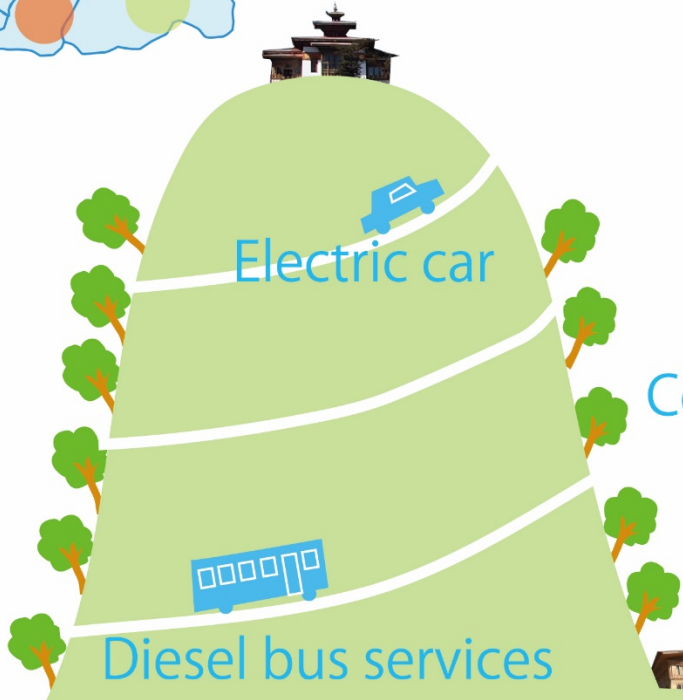
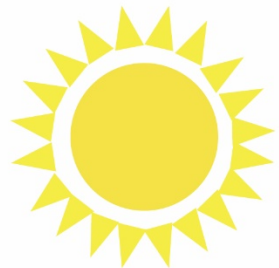
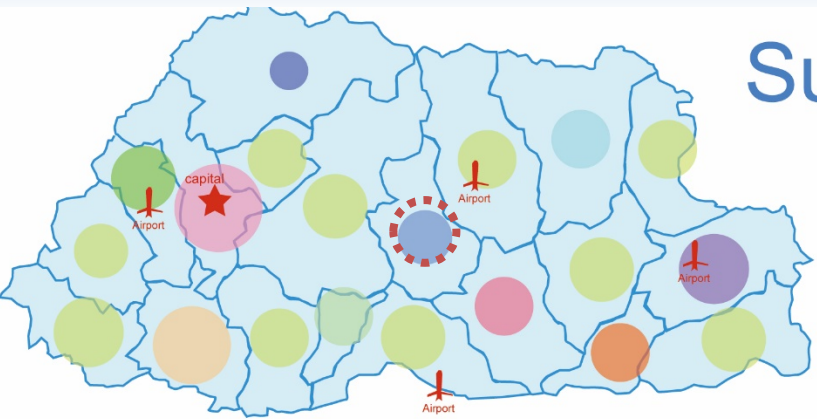


Current Bhutan (Local area)



Sustainability scenario (SSP1)

Sustainable Bhutan (Local area)



Electric car

Community Forest

Renewable Energy

Diesel bus services

Health care
Education
Job

Small hydro power

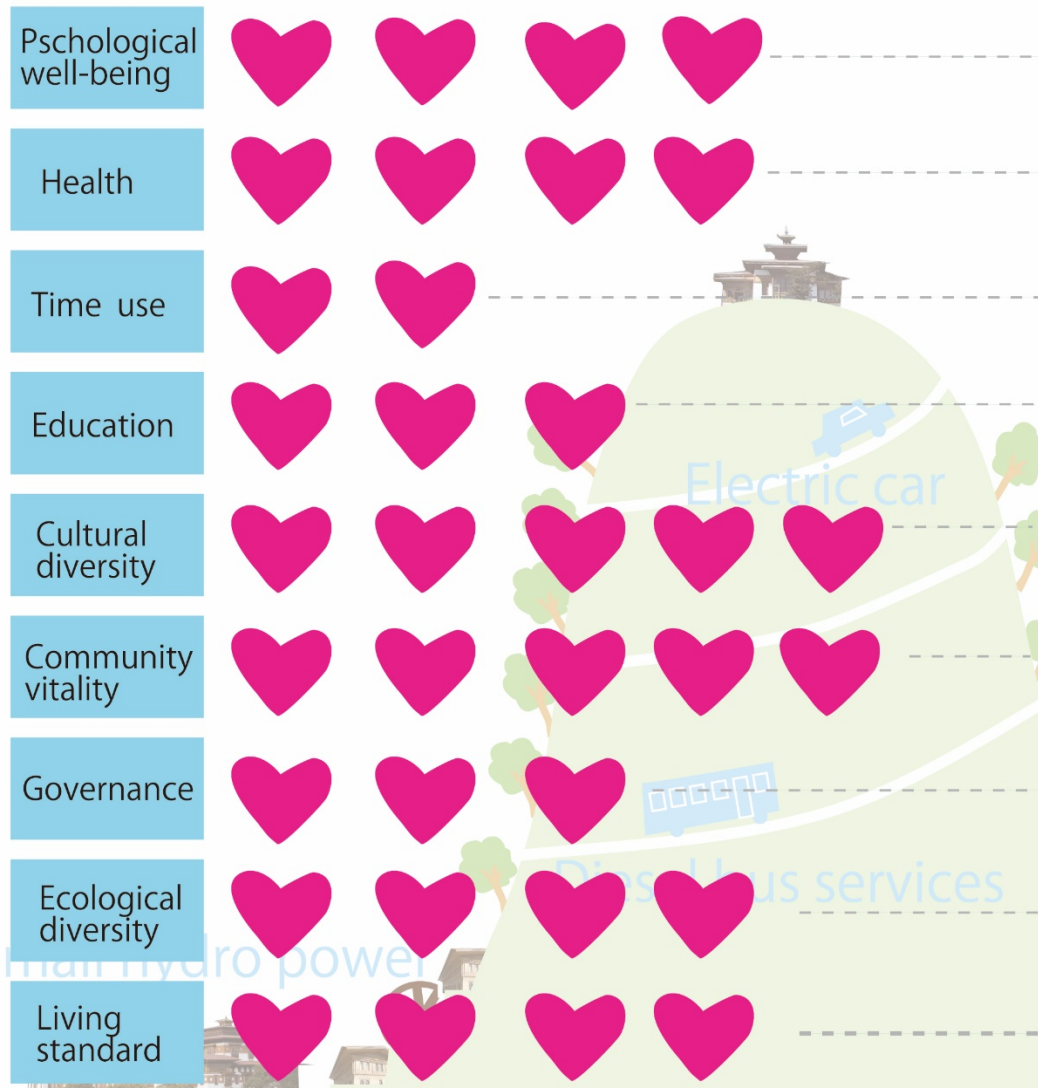
Disaster risk management



Sustainability scenario (SSP1)

GNH (Happiness)

SDGs Synergies



Disaster risk management

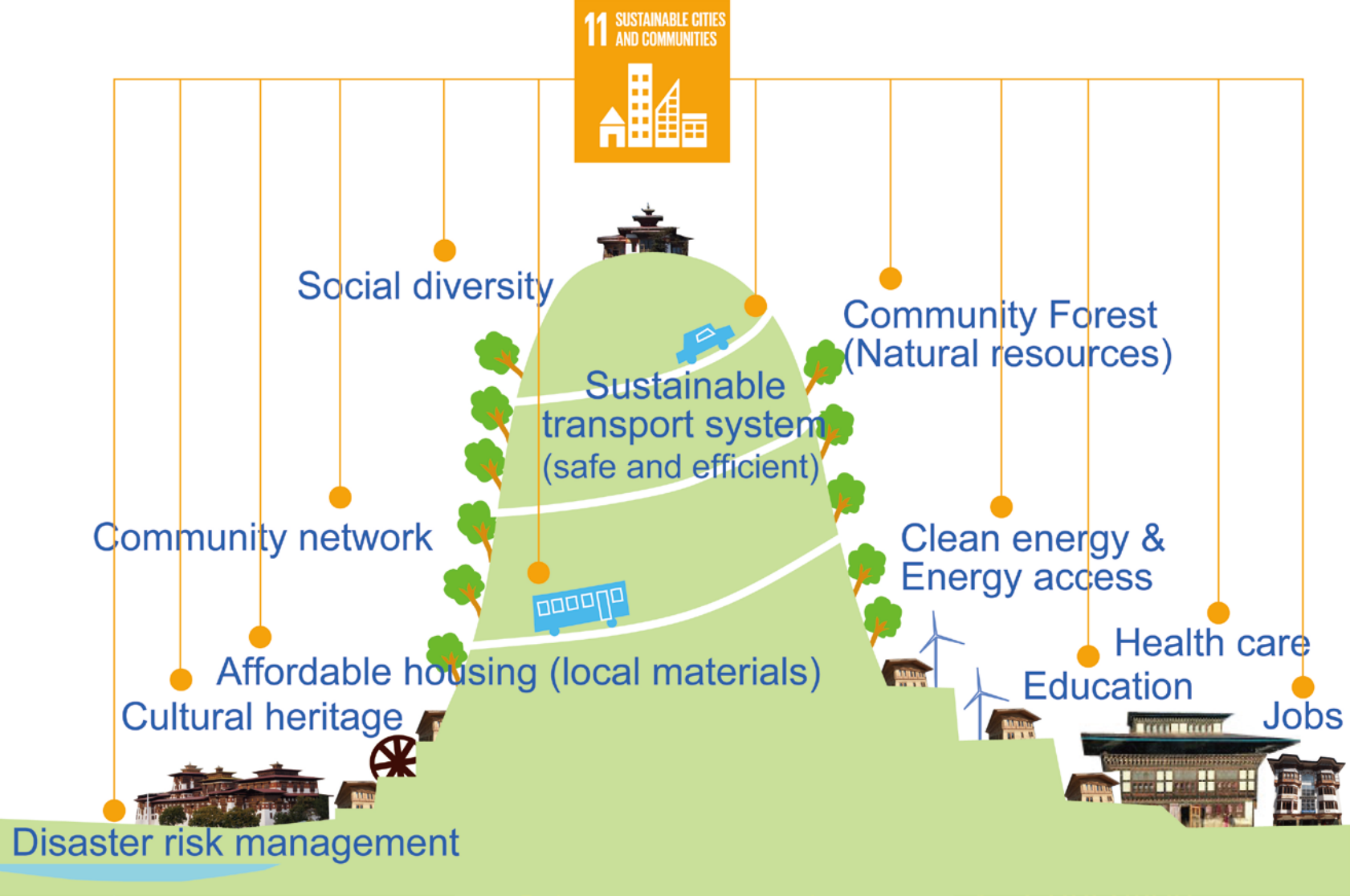
Smart hydro power, Electric car, Bus services, Health care, Education, Job

SSP1: Local Vitality (Happiness) scenario Tokyo



Developed by Miho Kamei in TWI2050 - The World in 2050 (2018)

SSP1: Sustainability scenario Bhutan



Developed by Miho Kamei in TWI2050 - The World in 2050 (2018)