

Urbanization and Water Resources Management : A study of East Sikkim district

Lakpa Doma Sherpa Department of Economics, Sikkim University



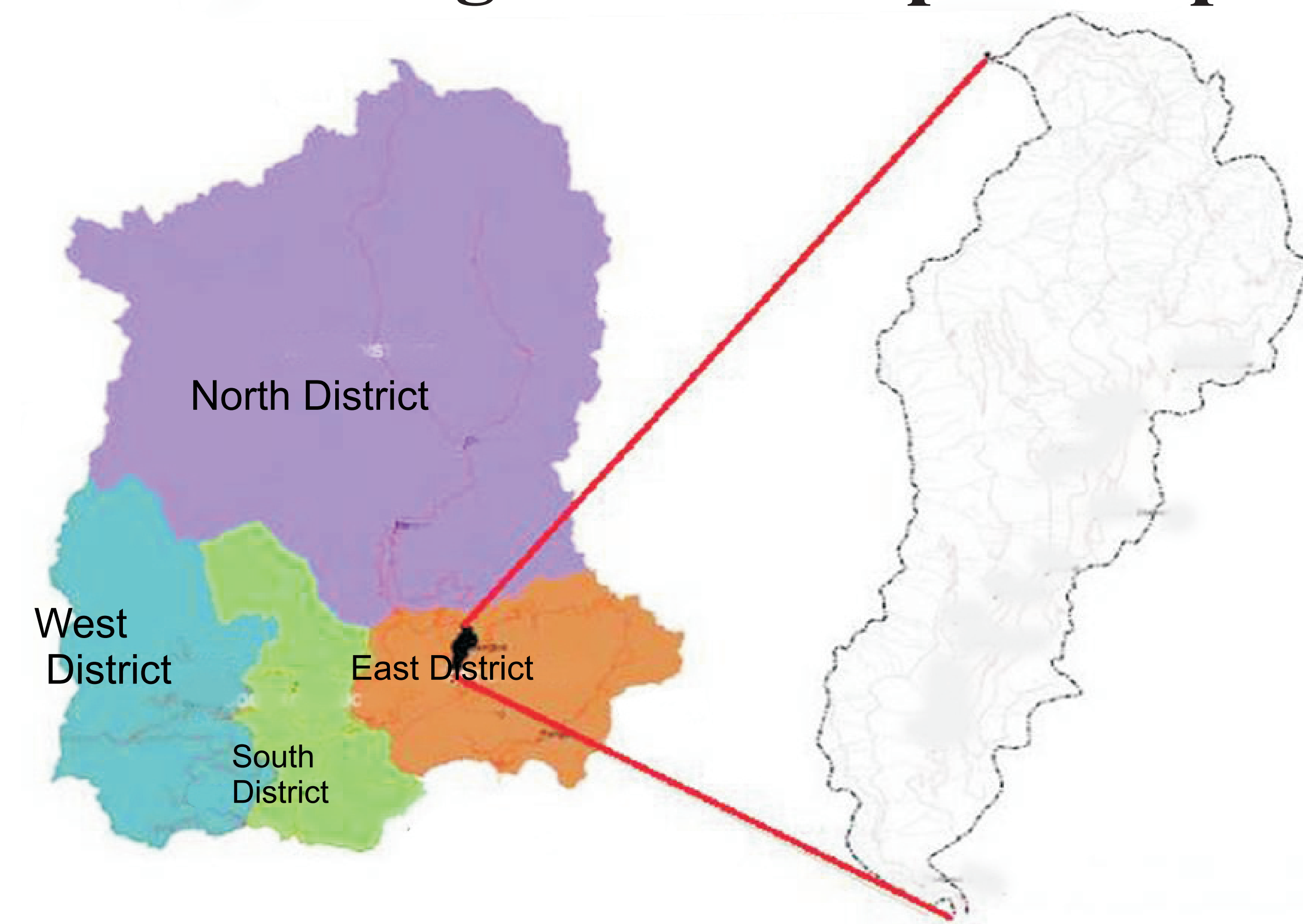
Background

- As urbanization increases, its population also increases rapidly.
- Globally, around 3.6 bn. people live in urban areas & additionally 2.6 bn. urban expected by 2050.
- Urban dwellers require water for various economic activities, but very little is known by them where the water is come from or implication of the infrastructure for the global water cycle.

Study Area

The major urban centres in the East Sikkim are: the Gangtok (capital city of Sikkim), Singtam and Rangpo.

Location of Gangtok Municipal Corporation



Research Questions

1. Is the ever growing urbanization proportionately supported by the required and quality water supply to the people in the East Sikkim district?
2. Has the East Sikkim district been at the cross road in the context of domestic water resource vis-à-vis urbanization?
3. How far the existing policy of domestic water management system is effective in delivering the services required in the East Sikkim district?

Data & sample

- Population Census of India (1971,1981,1991, 2001, and 2011).
- Data from govt. sources.
- A well-structured questionnaire will be formulated for survey of East Sikkim district including, representative household sample of around 350 will be taken from the urban centres.

Methods

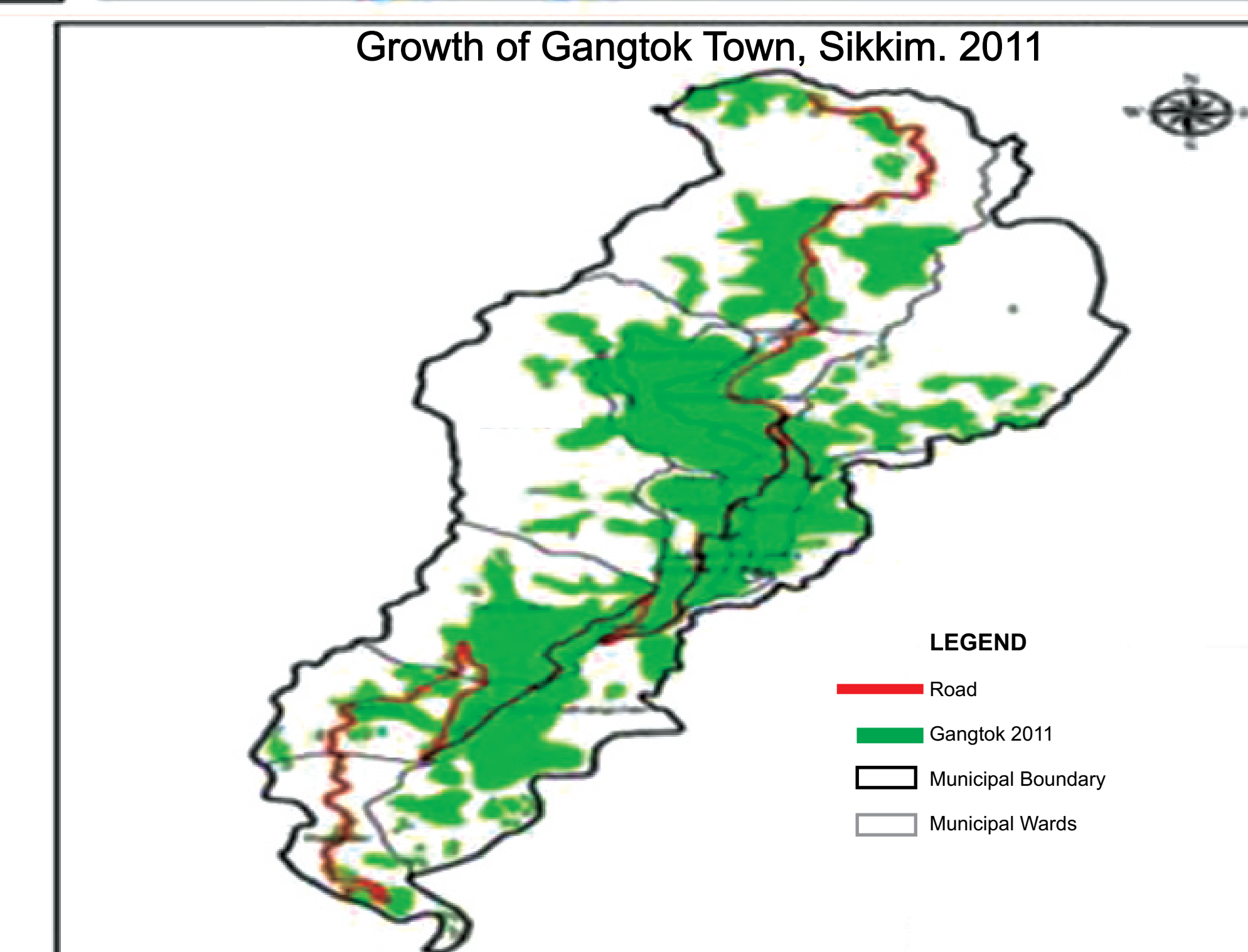
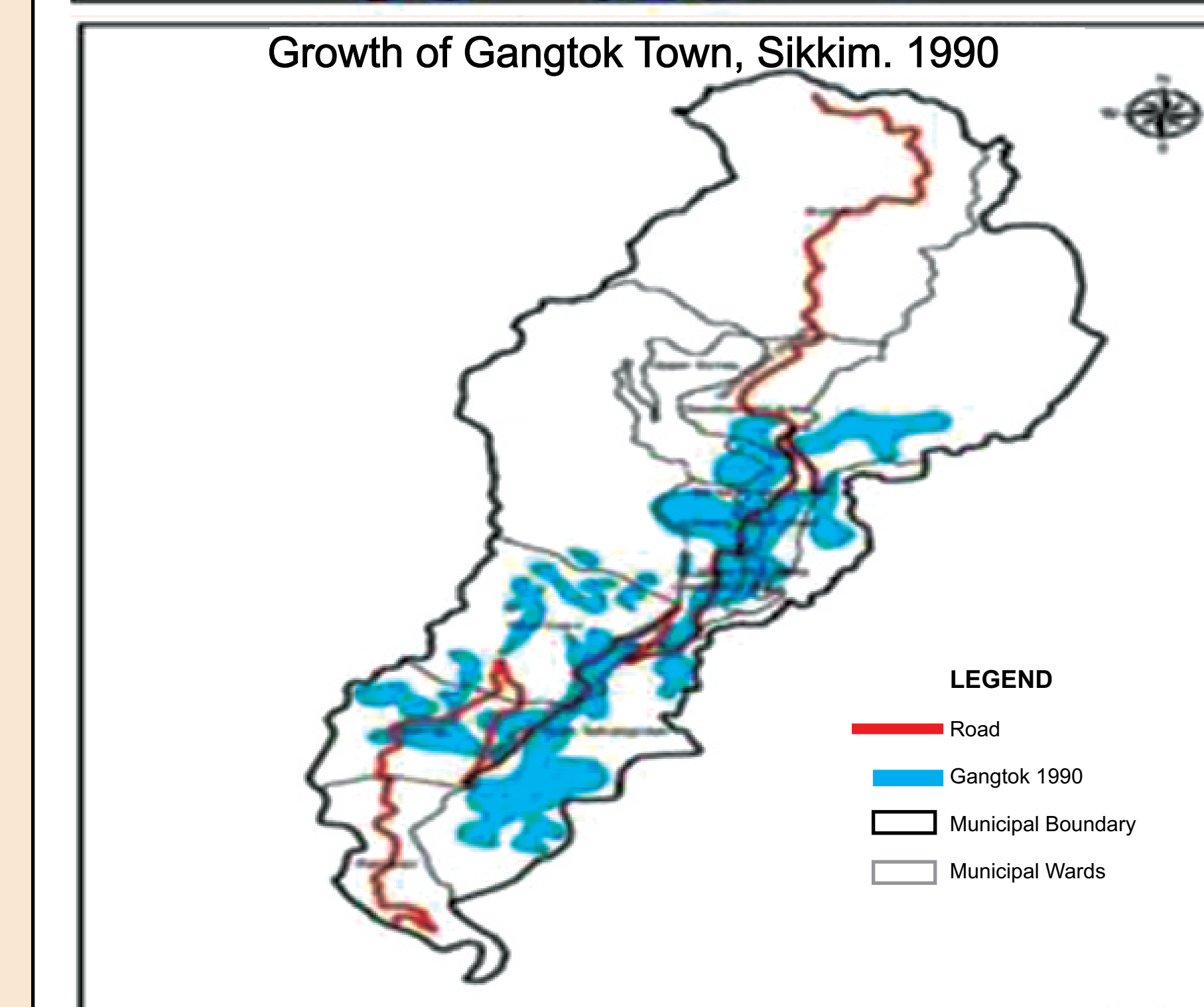
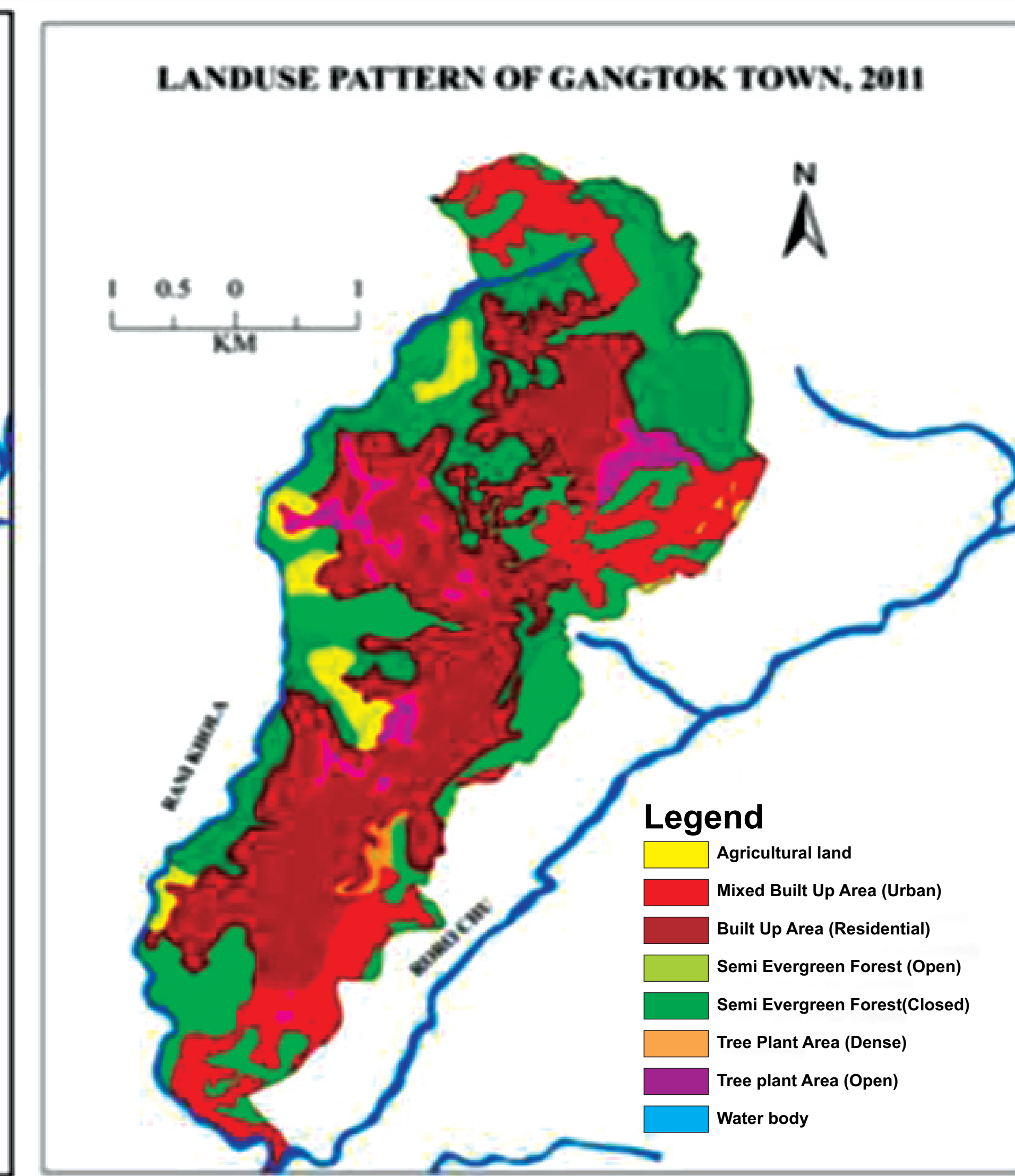
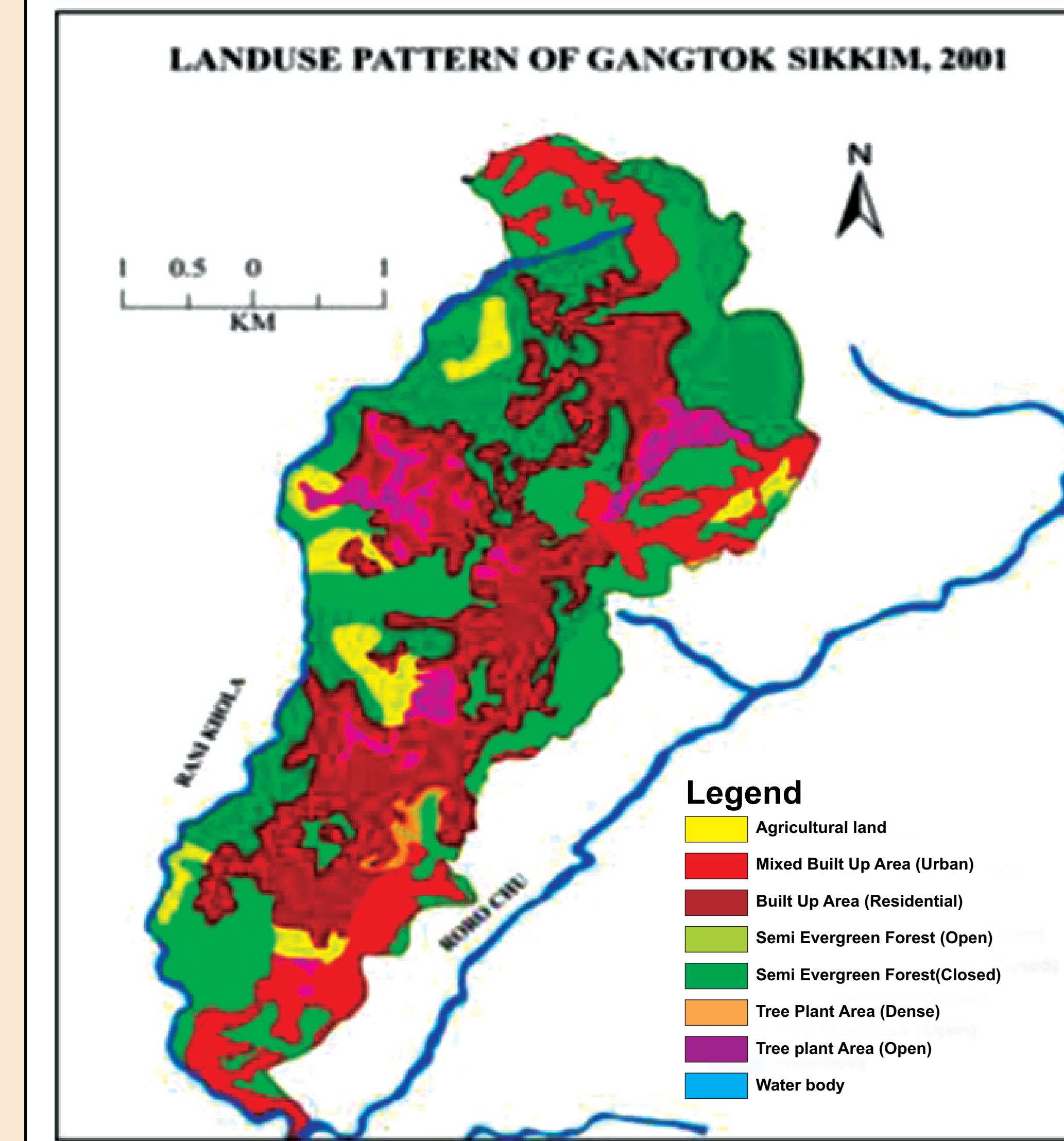
- Descriptive statistics, we measure quality of water resources.
- Index construction will be used for the study.

Urbanization Index

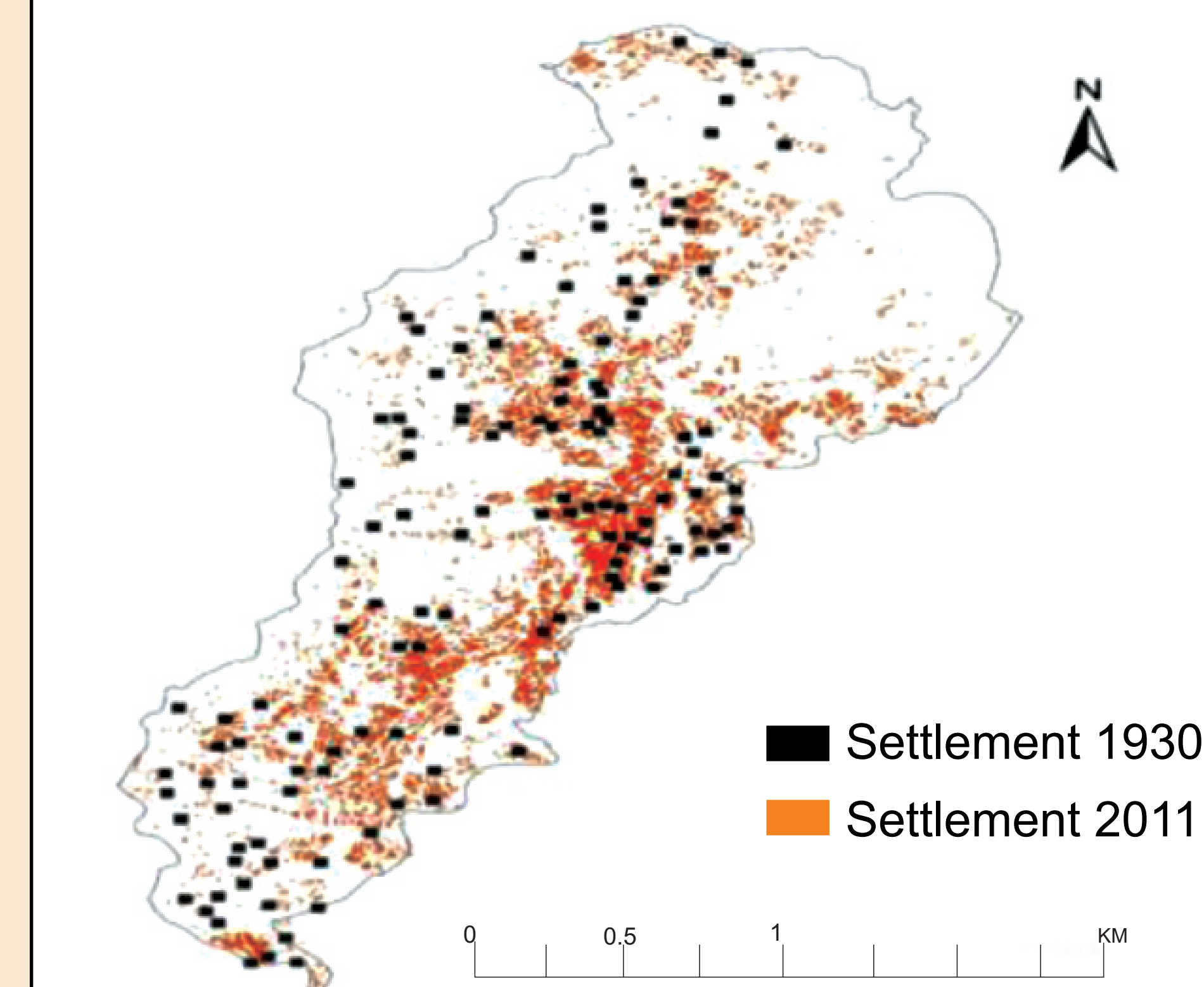
- Net rural urban migration
- Total number of Educational Institutions in East Sikkim
- The percentage of people working in industrial sectors
- Number of registered and functioning units Industries in East Sikkim
- Total number of registered vehicle in Sikkim
- Gross Domestic Product

Water Sustainability Index

- Resources
- Access
- Economic
- Governance
- Education
- Human health



Trend Settlement Pattern of Gangtok, Sikkim.(1990 & 2011)



Key finding (preliminary)

As urbanization increases, carrying capacity of the urban areas becomes an issue. However, in Sikkim, especially the capital city Gangtok, the problem seems to be negligible, due to the rich water resources and effective management.

Limitations

1. Inconsistency of the public data related with water and Urbanization.
2. Difficulty of assessing floating Population & their demand for water.
3. Overflow of tourist in the season vis-à-vis small domestic population.