

Integrated Space-Energy Modelling for Sustainable Development in Fukushima

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The 22nd AIM International Workshop

Fukushima Branch, NIES

- Since April. 1st, 2016
- Miharu Town, Fukushima Pref.
- Fukushima Pref. government, JAEA, and NIES



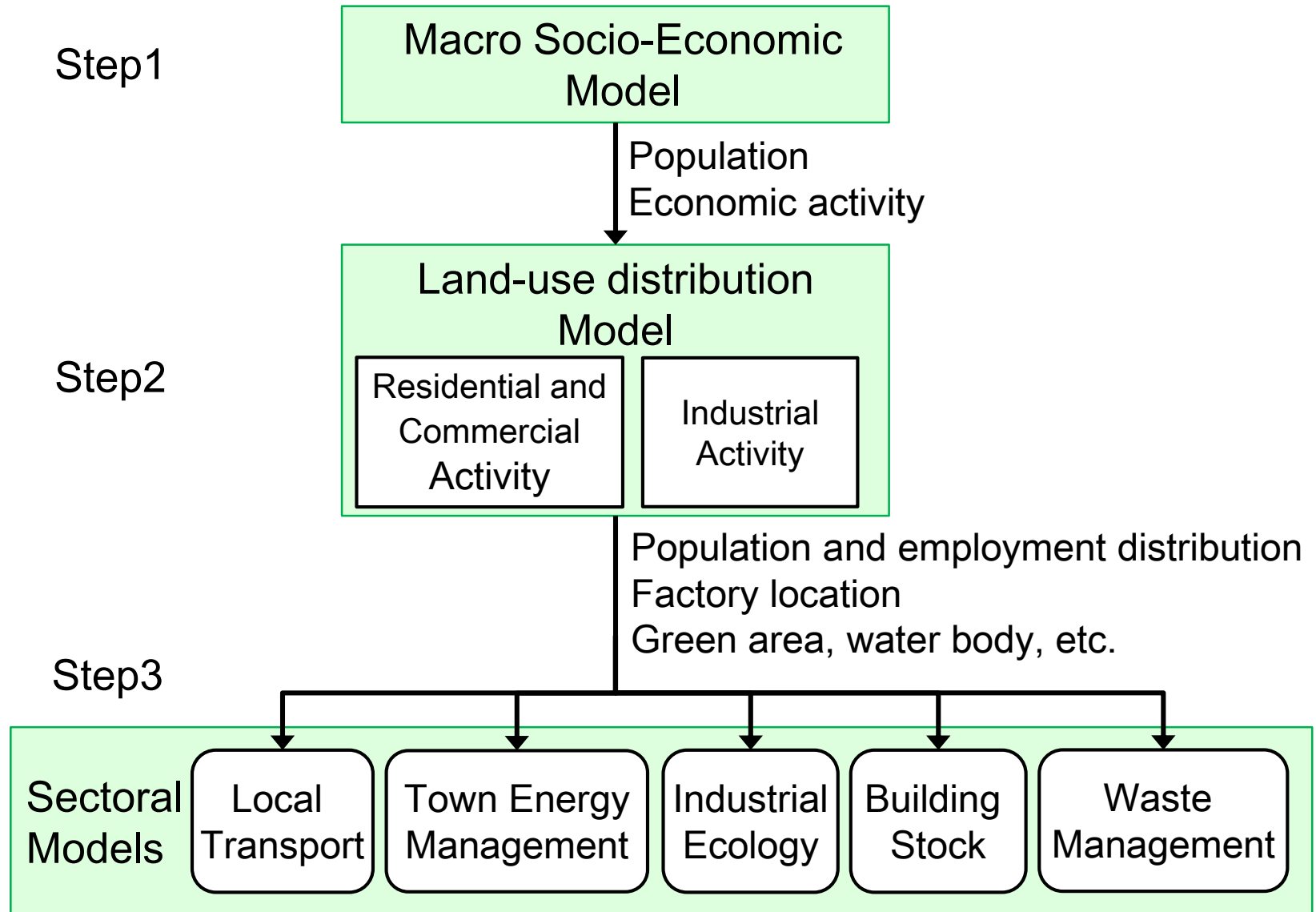
Local solutions for Global target

- For some low-carbon options, success of local application strongly depends on its socio-economic conditions, industrial structure, land-use structure, etc.

District heating/cooling, Community energy management systems, Public transport, Car-sharing, On-demand taxi/bus, etc.

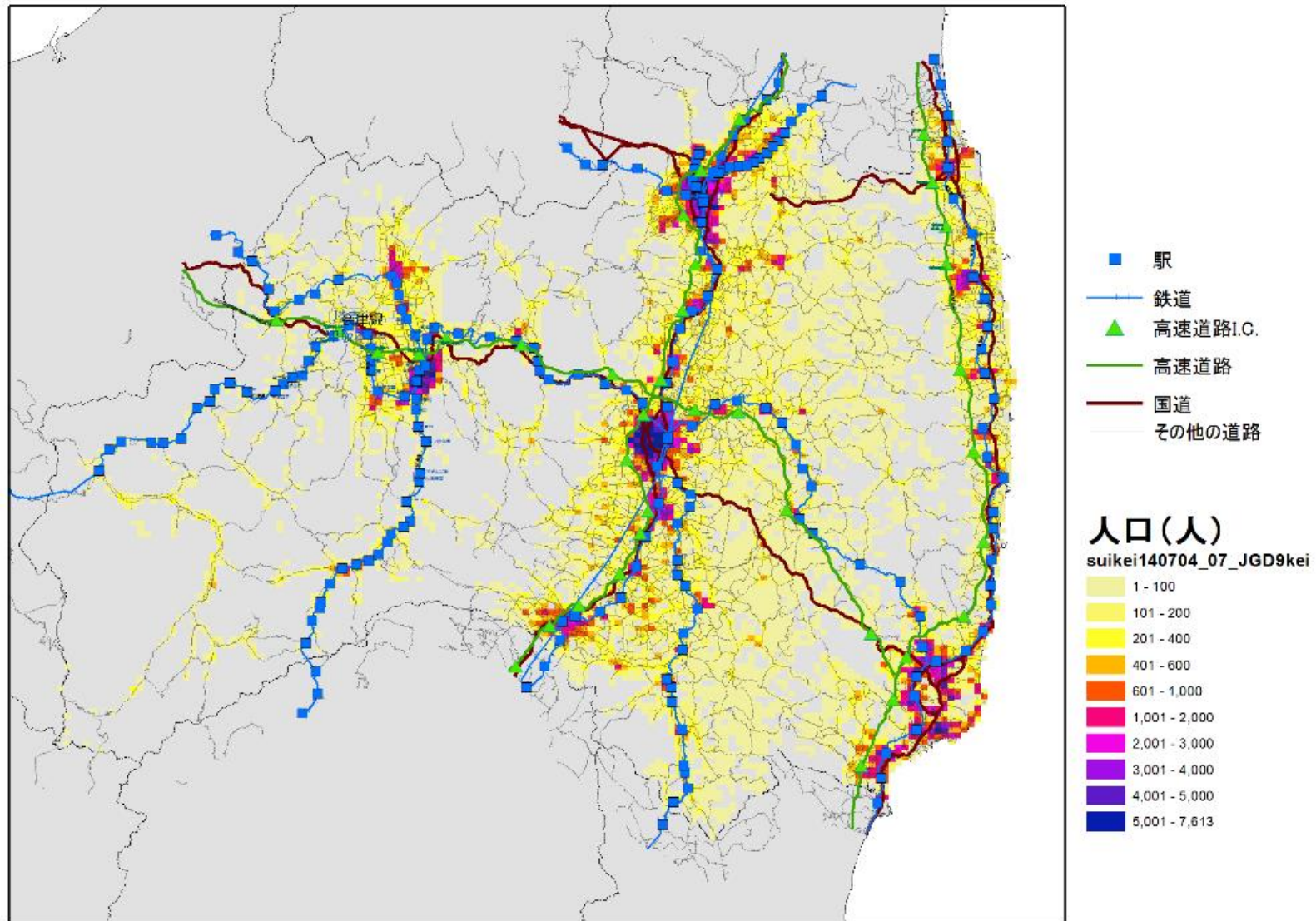
- Regional environmental issues
- Selection of suitable measures requires high-resolution spatial analysis

Three Step Approach



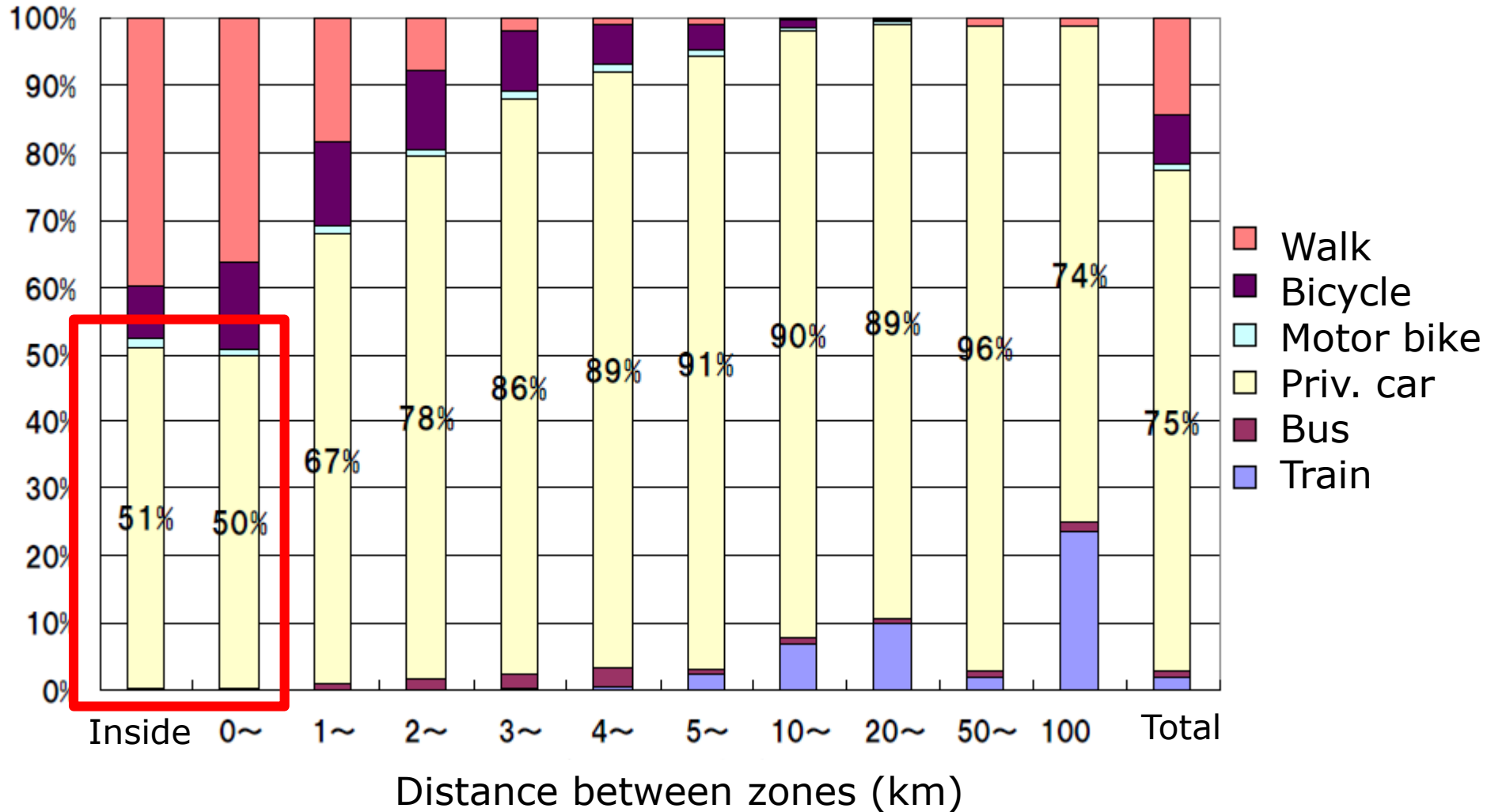
A Case Study in Fukushima Prefecture

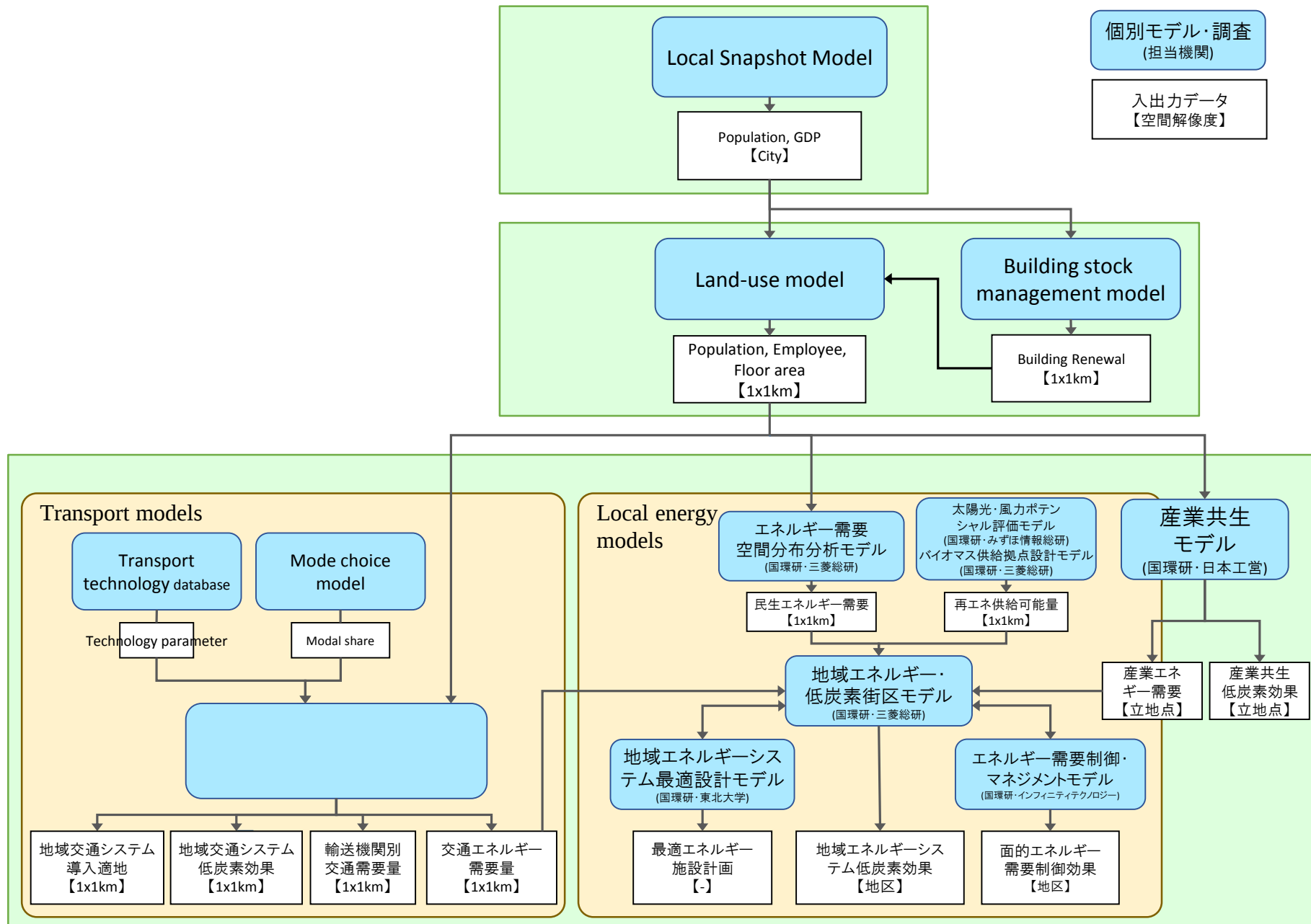
Population and Infrastructure



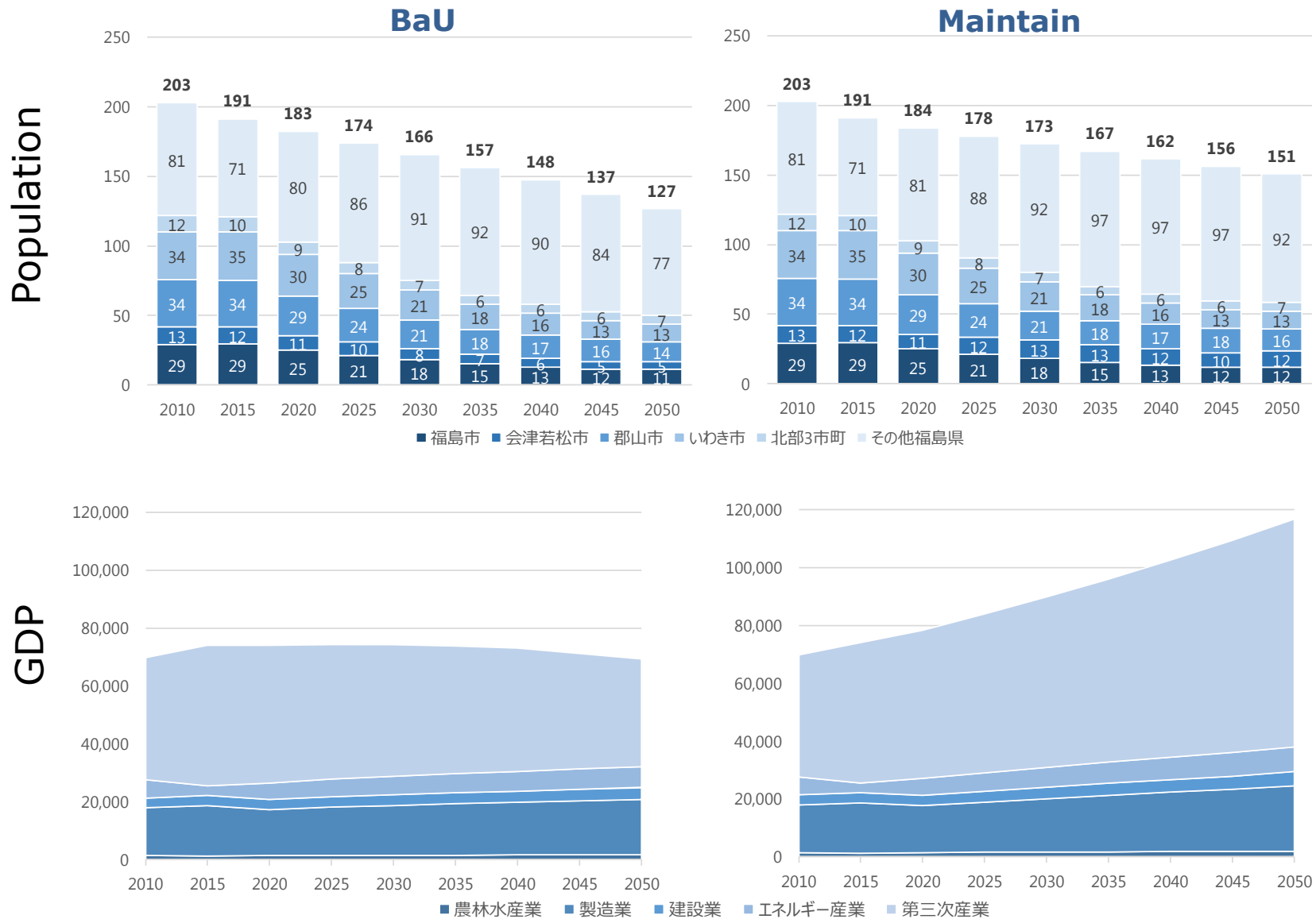
Car-dependent society

Modal share in Koriyama City

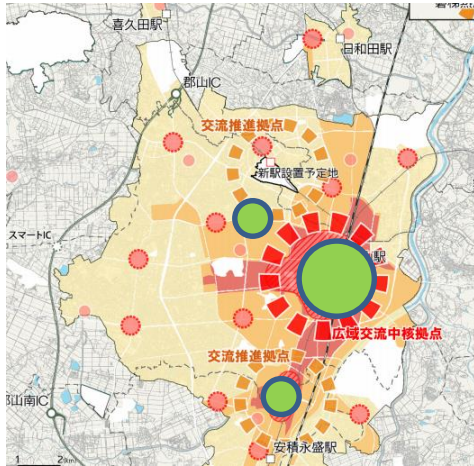




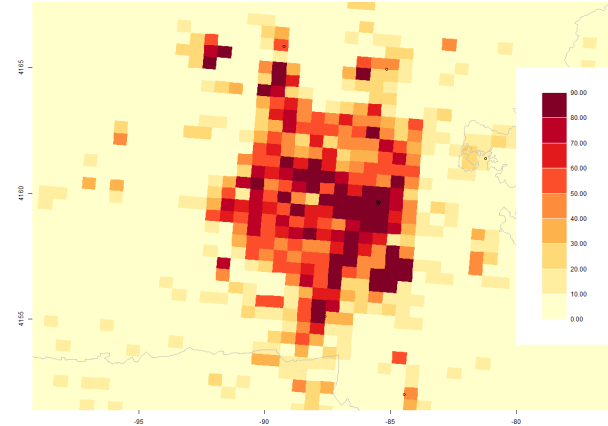
Step1: Population and Economy



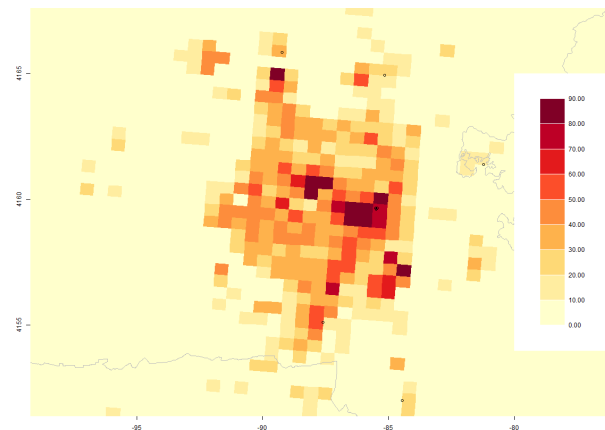
Step2: Case of Koriyama City



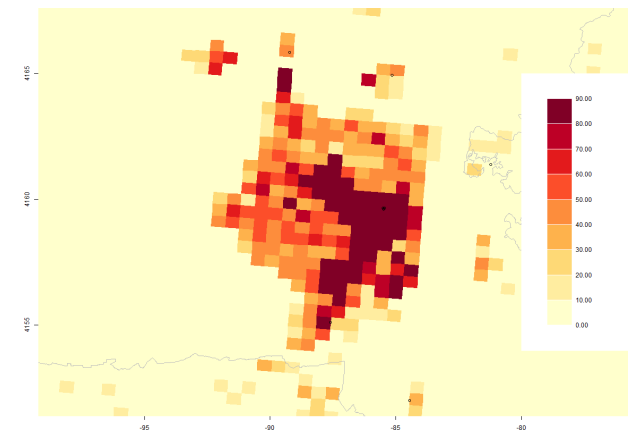
2010



2050BaU



2050Compact



Step3: Transport in Koriyam City

		BaU	Compact
Average distance		2.5km	1.0km
Modal share			
	Walk, Bicycle	21%	33%
	Public transport/Car sharing	1%	9%
	Private vehicle	78%	58%
VKT		1.54 million	0.46 million
CO2 emissions (t-CO2/day)		37.4	11.0

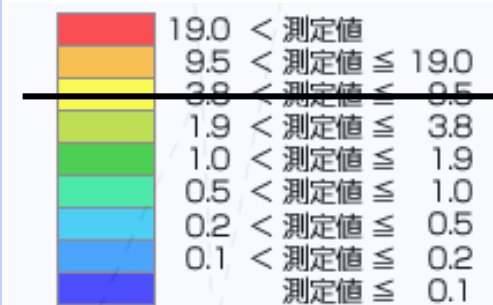
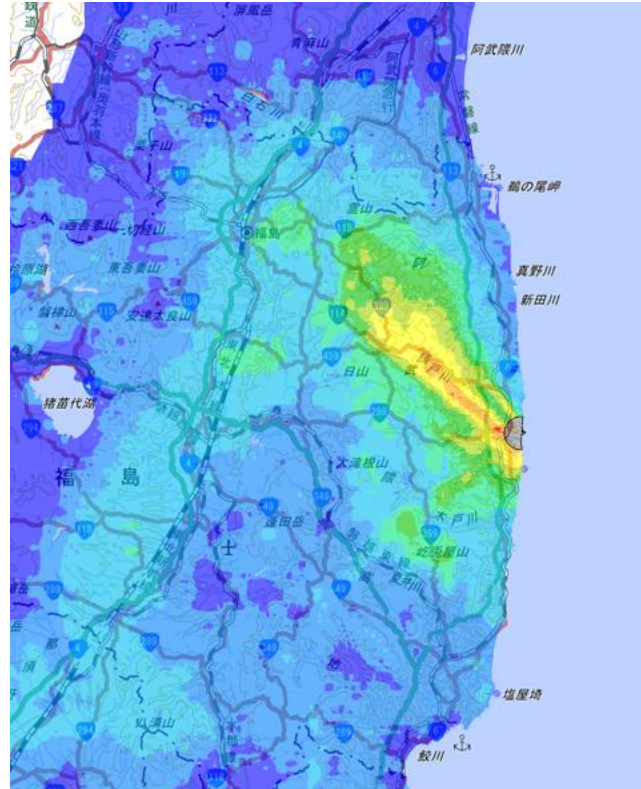
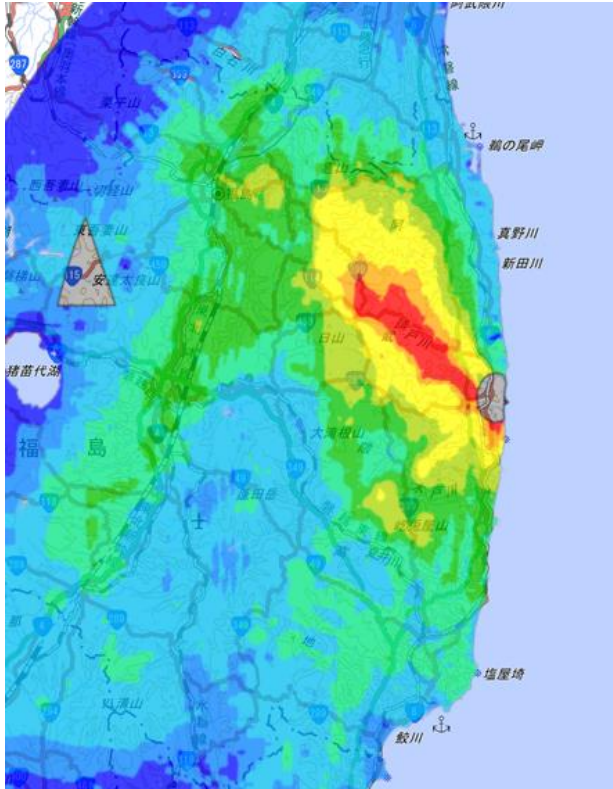
Future works:

Recovery of the society from nuclear
accident

Radioactivity pollution overtime

2011, May, 26th

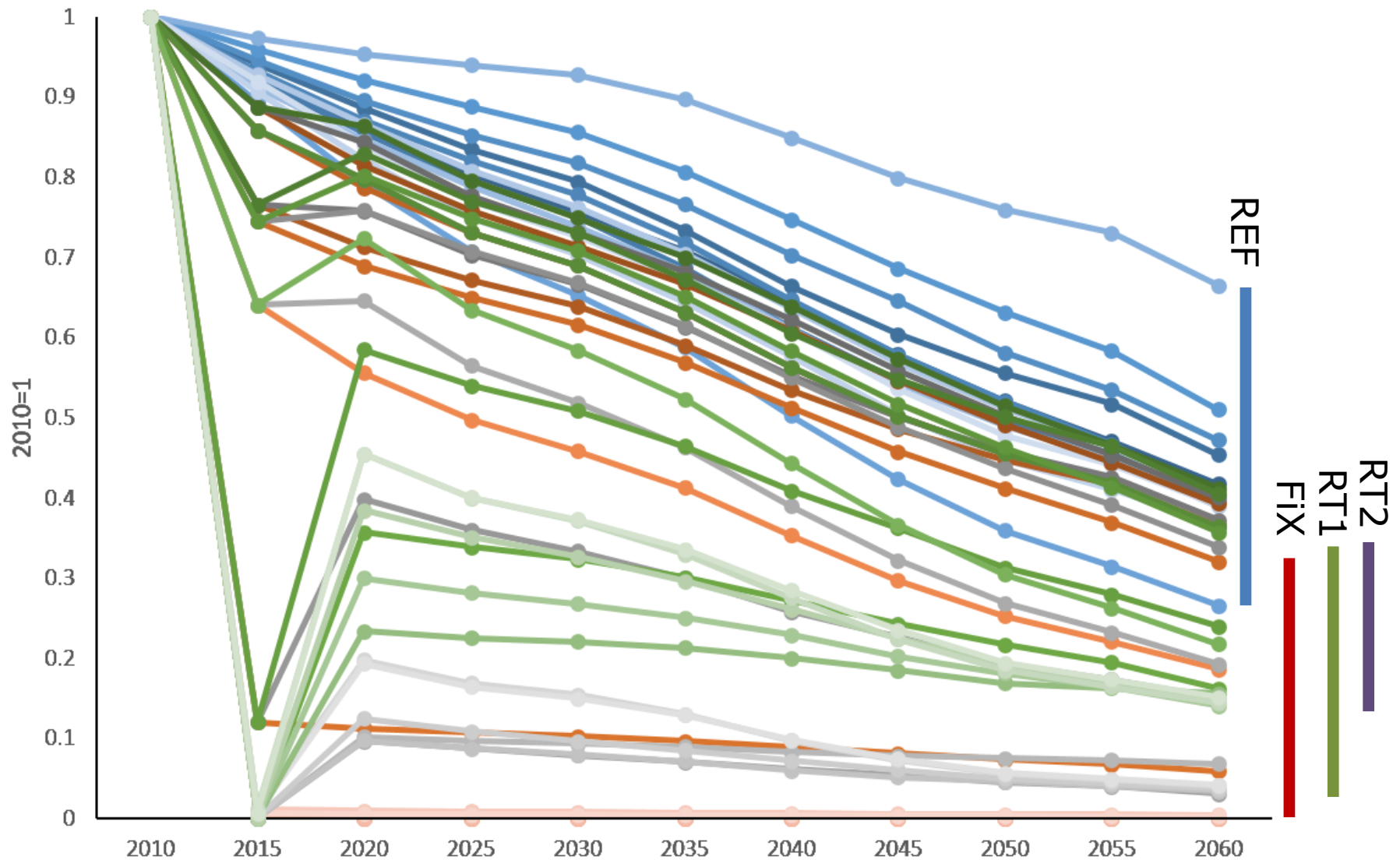
2015, November, 4th



Source

Nuclear Regulation Authority, Japan: Monitoring
Information of Environmental Radioactivity Level,
<http://radioactivity.nsr.go.jp/>

Population Projection



Summary

- Three step approach for model-integration frameworks was developed
- It integrates macro-micro analysis and select optimal measures considering local conditions
- Next step:
 - Recovery of society from disaster
 - Application in other area (e.g. Bogor City)

Willingness to return by age

