The AIM Training Workshop 2007

A Long-term quantitative design methodology for moving towards a low carbon economy -A case study in Shiga Prefecture Japan-

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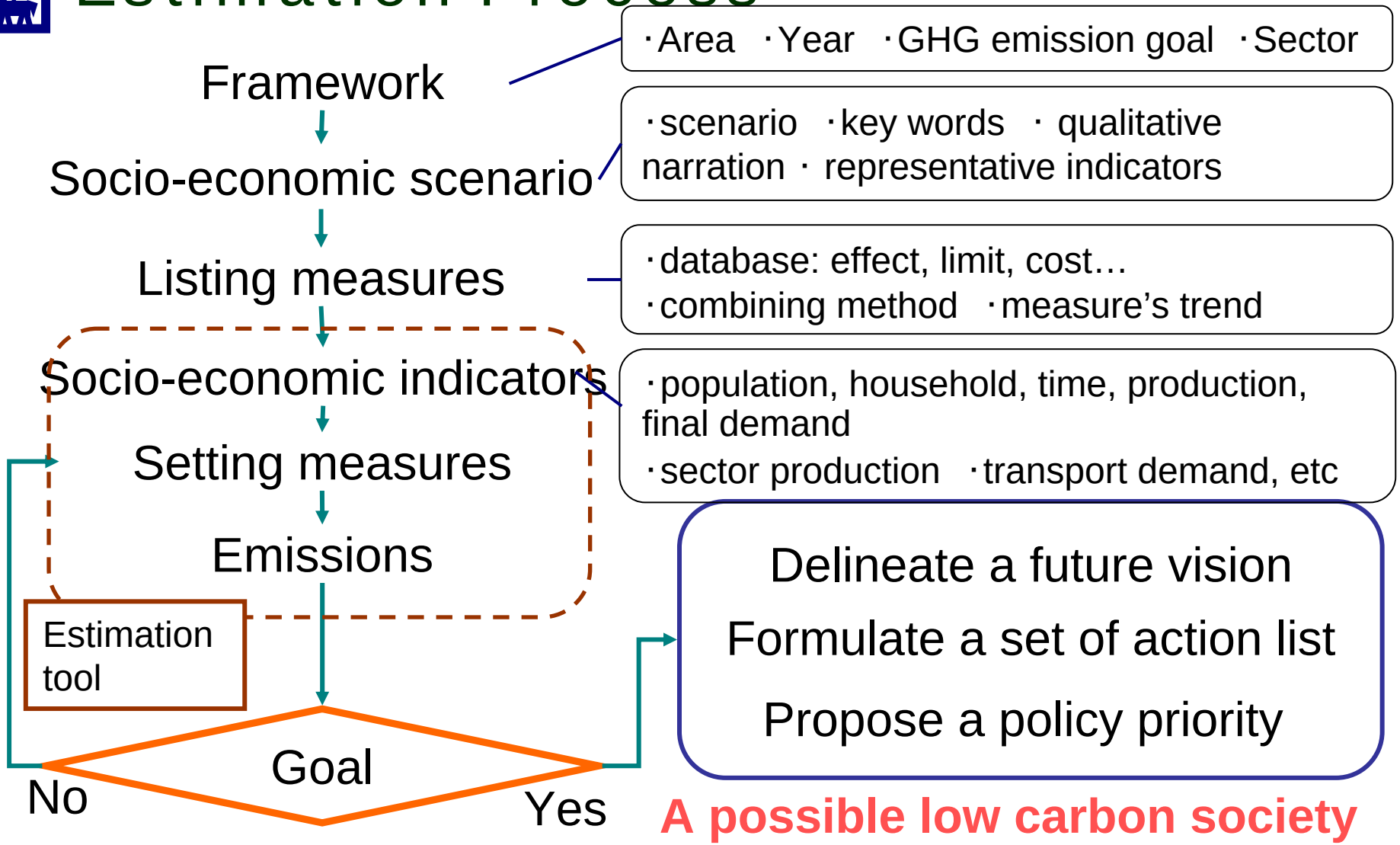
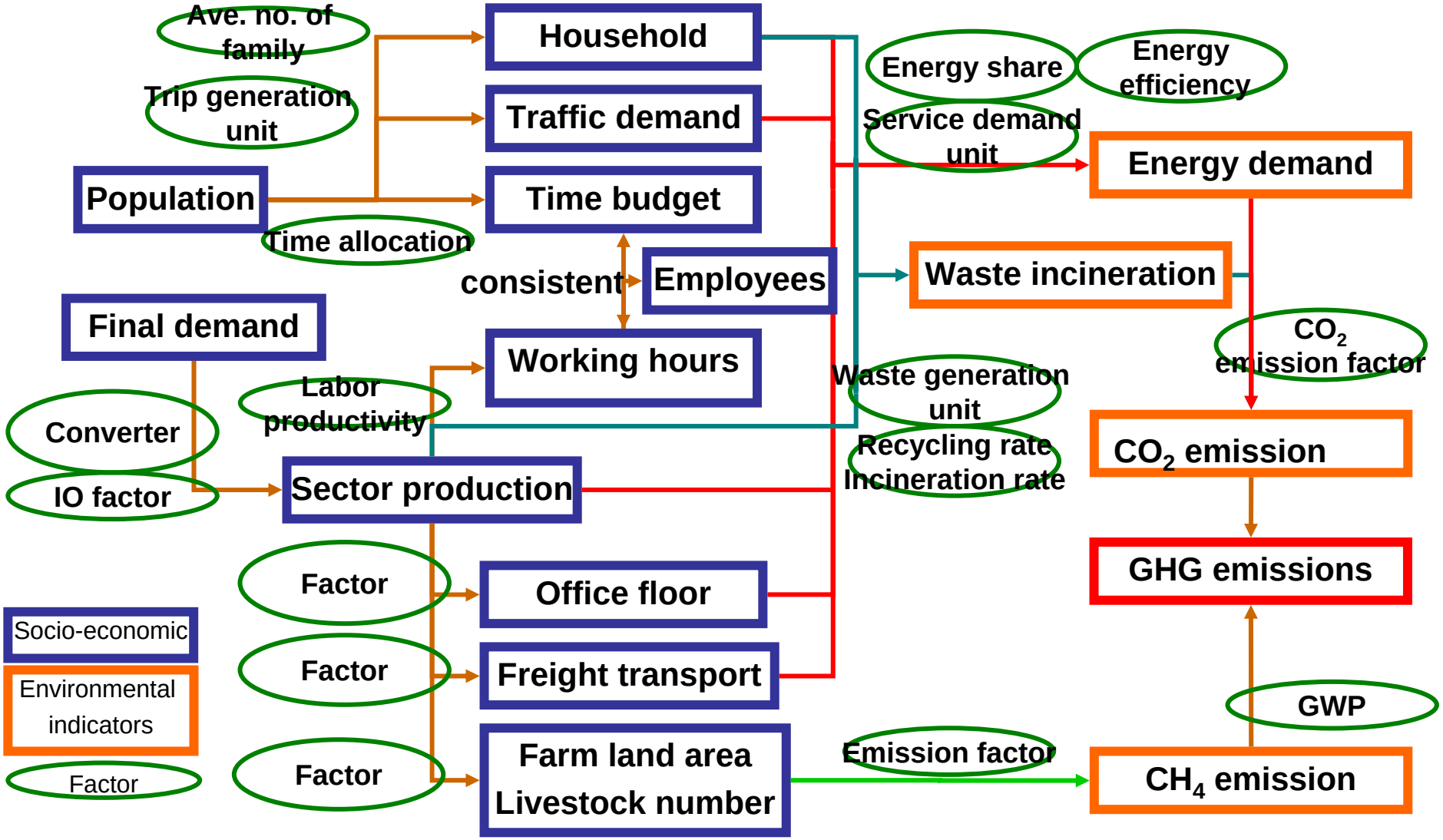
Purpose of the Study

- Propose a method to envisage a future low carbon society
- Develop a set of tool to estimate a quantitative and consistent socio-economic future and its consequence
- Apply the tool to Shiga Prefecture in Japan

Estimation Process



Estimation flow: socio-economic indicators and GHG emissions



Area and Target year

- Area：Shiga Prefecture
  - Population：approx. 1.38 million (2006)
    1% of Japan
  - Area：approx. 4000km^2　1% of Japan
  - Lake Biwa：approx. 670 km^2
    1/6 of Shiga

- Target Year：2030
  - Target year of next prefecture long-term plan

Location of Shiga Prefecture

Overview of Shiga Prefecture

Area: 4,017 km²

- Lake Biwa: 670 km² (17%)

Population: 1,387,475(‘06)

- Only one pref. where the population would increase until 2030

Households: 499,716 (‘06)

Share of Secondary Ind. (GDP): 46.7% (’02)

- Largest share in Japan.

Environmental Goal in 2030

- GHG(CO_2, CH_4) : **-50%** from 1990 level

  - Considering the necessity of 60～80% reduction from 1990 level by 2050 in Japan (G8 summit)



Socioeconomic assumption in 2030

<*Assumption*>

Population: 1.38 million (same as the 2005 level)

Household No. : 520 thousand (470 thousand in 2005)

<*Macroeconomic indicators estimated*>

Real gross regional production: 7,677 billion yen (+0.95%/year)

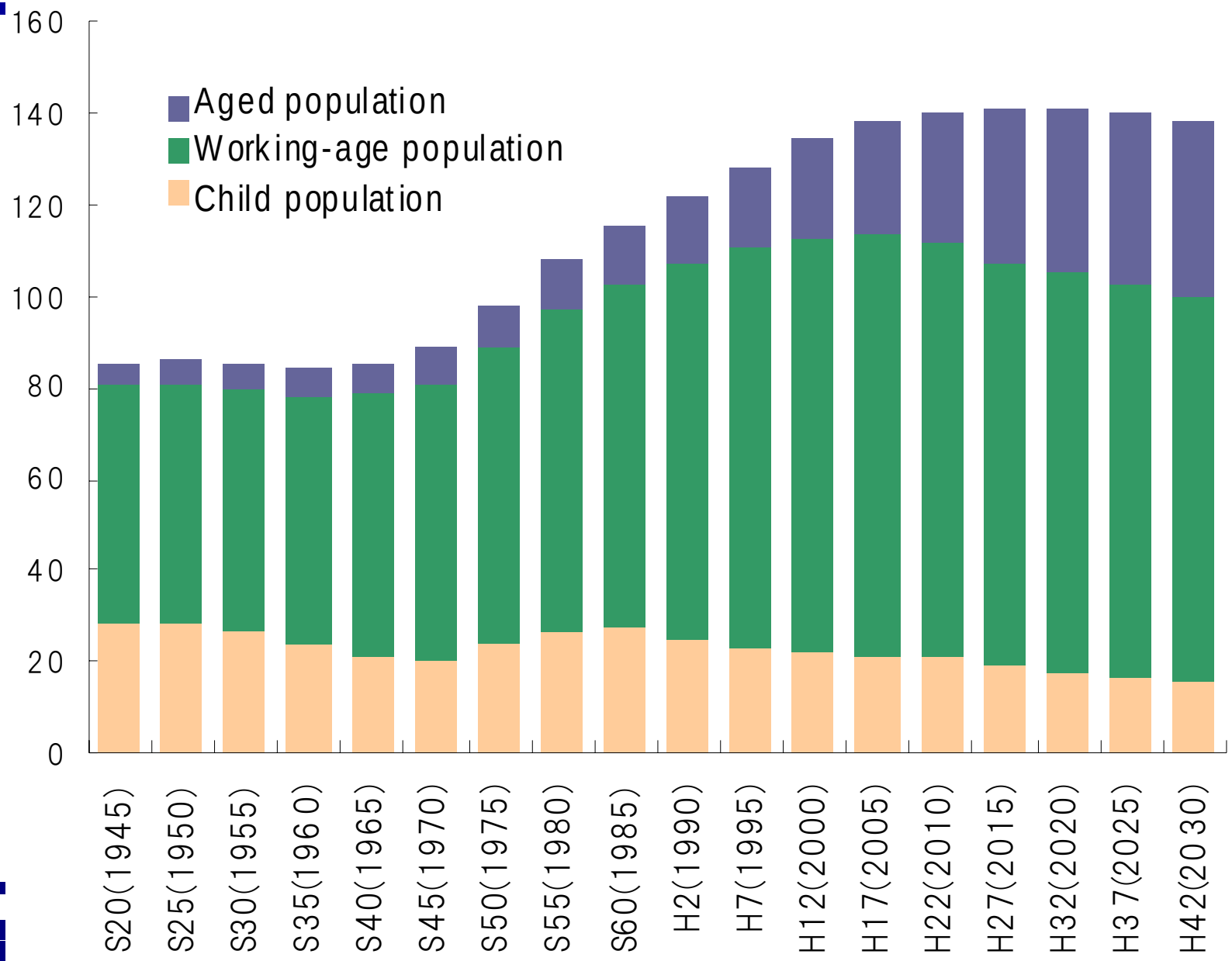
GRP per capita: 5,560 thousand yen (+0.90%/year)

Primary industry: 564 billion yen (4.2% in total GRP)

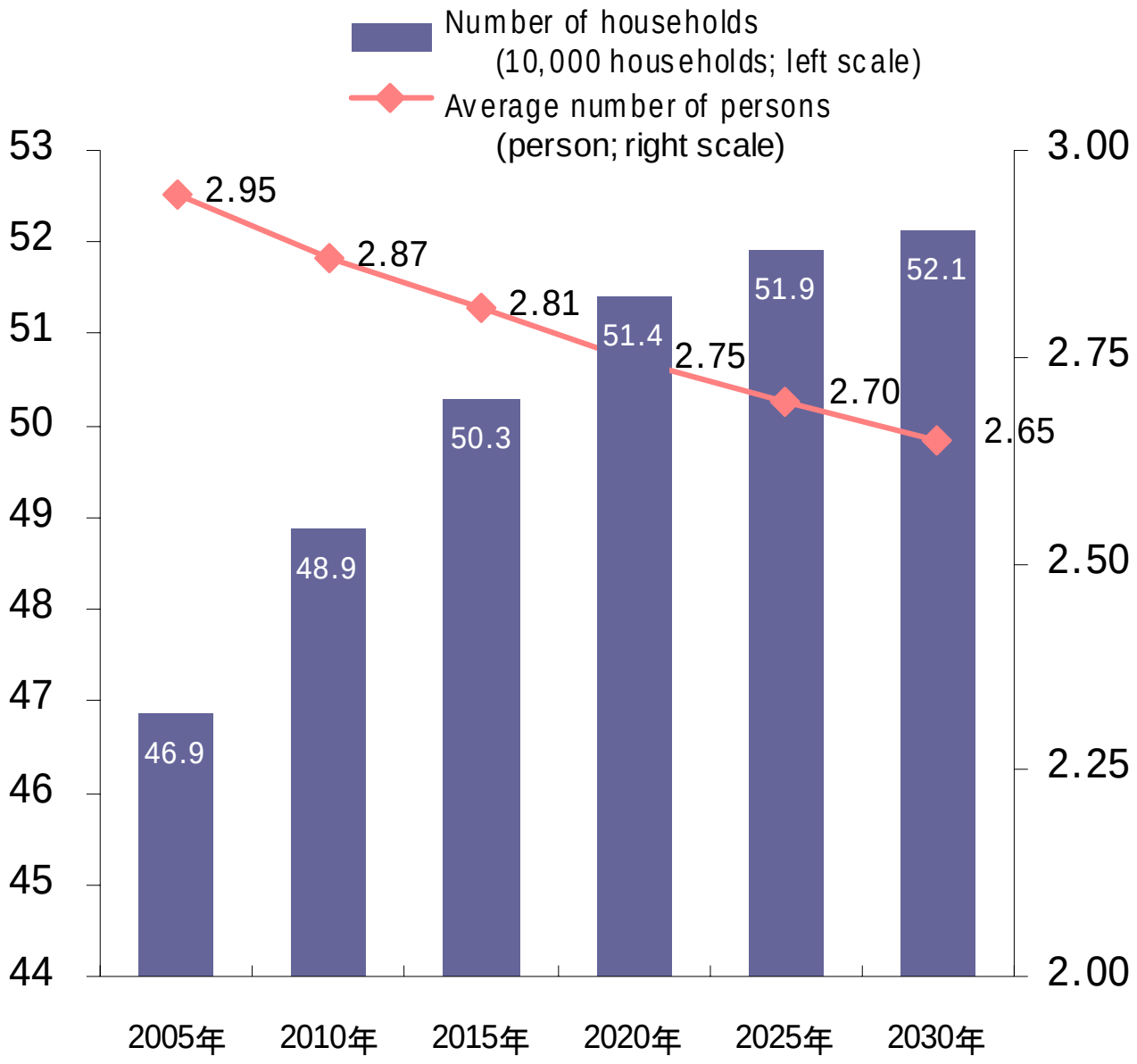
Secondary industry: 6,470 billion yen (48.2%)

Tertiary industry: 6,401 billion yen (47.6%)

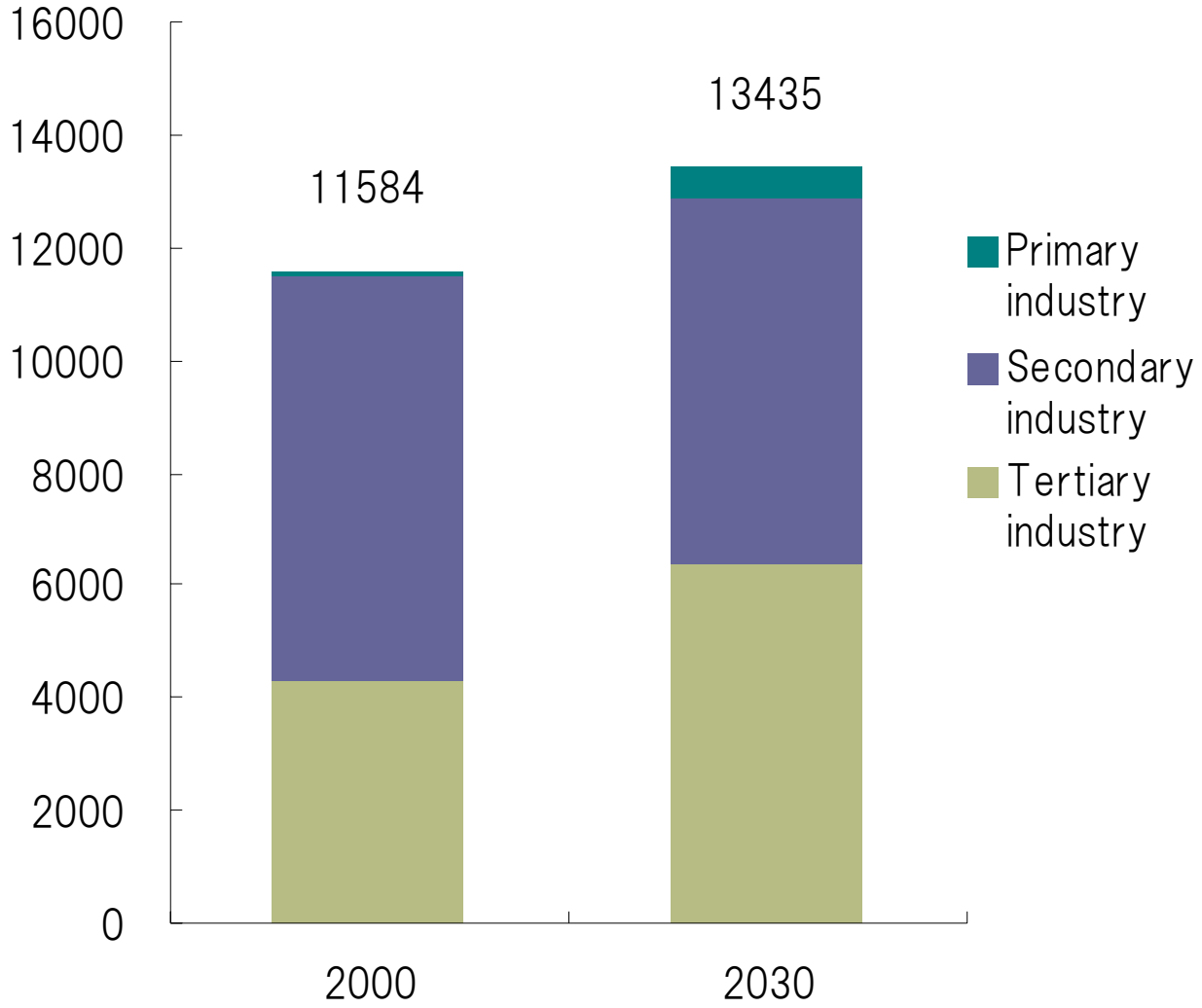
Population trend of three age groups



Household prospect toward 2030



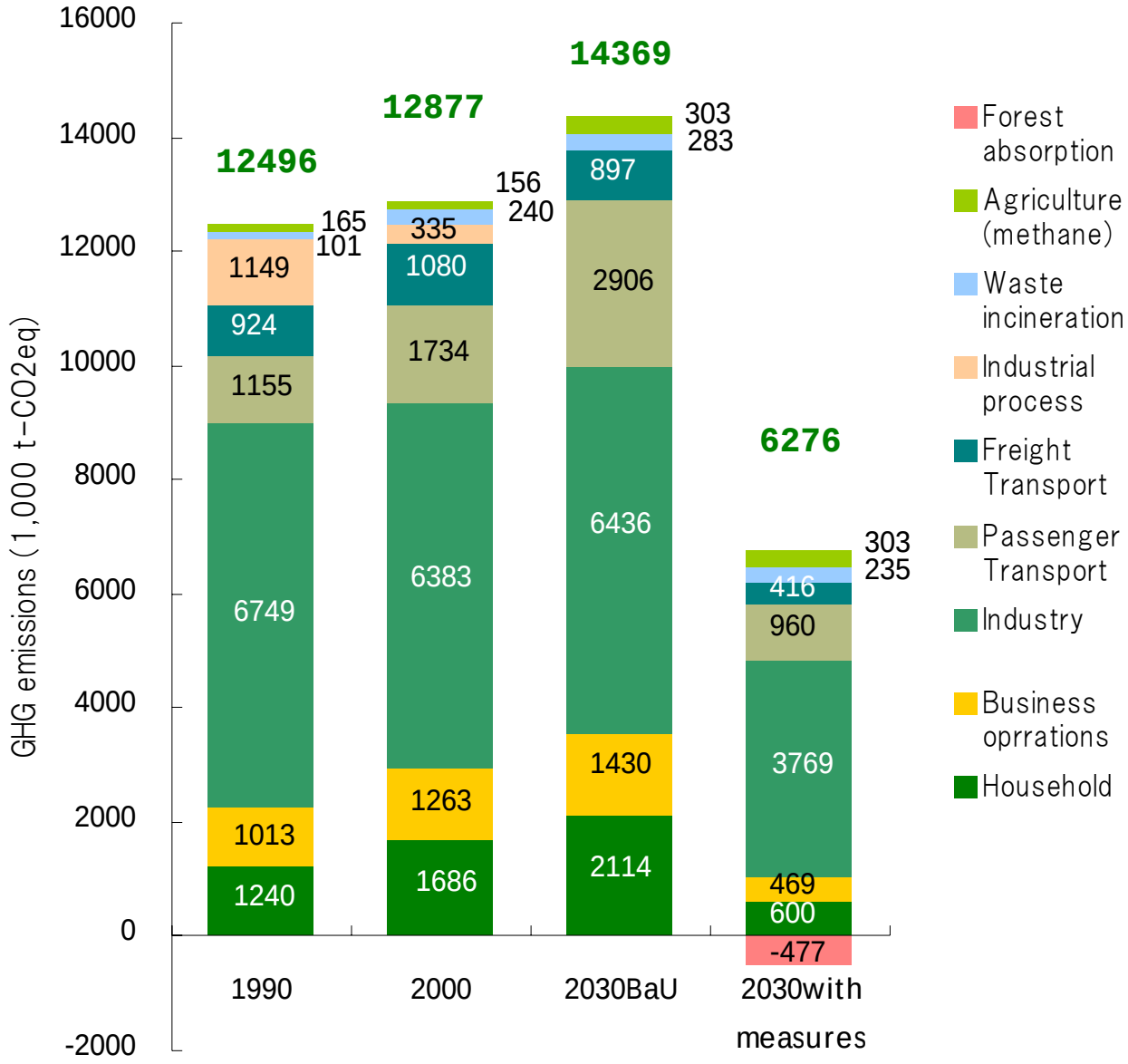
Production by industry (billion yen)



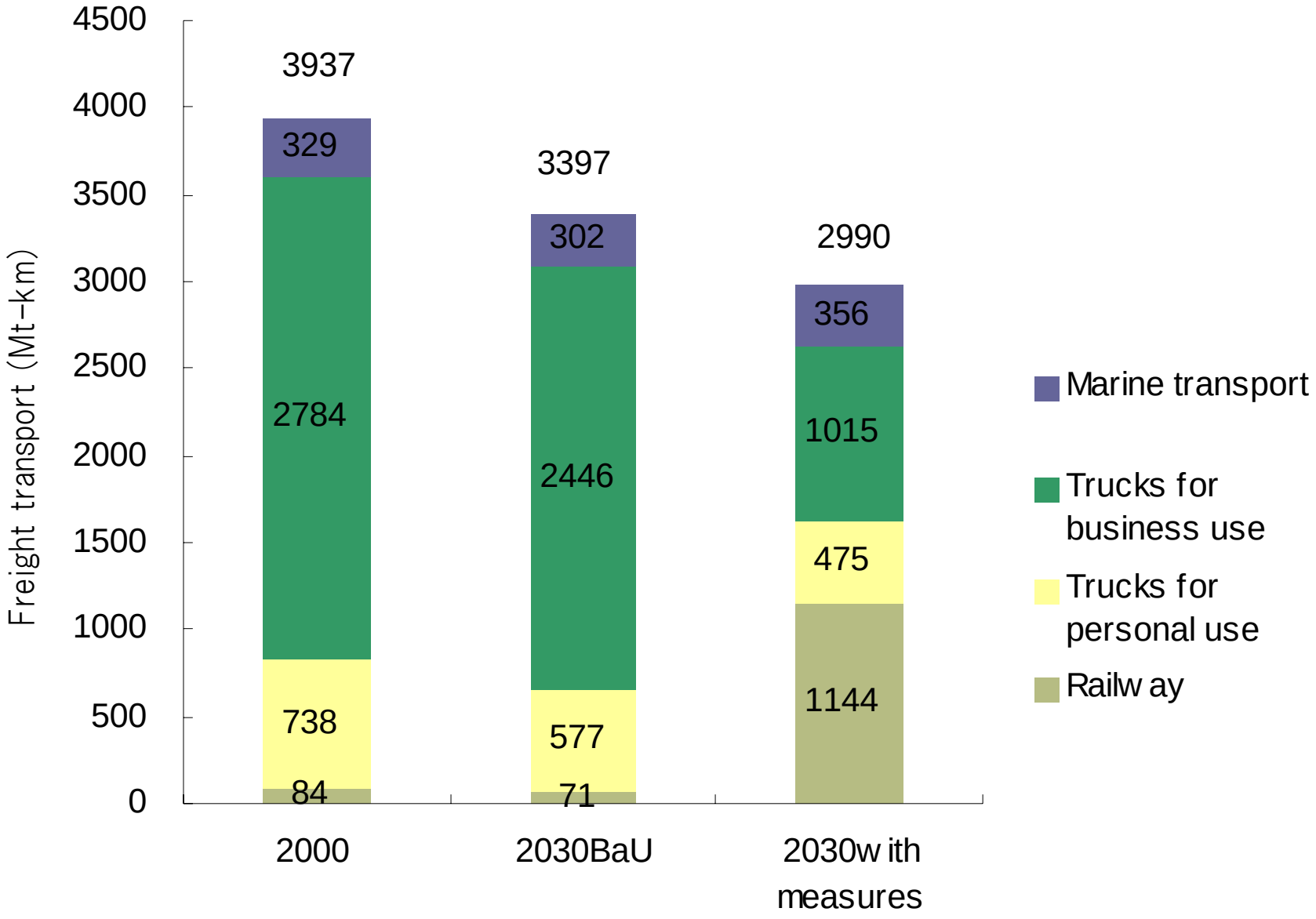
Mitigation measures

Residential and Service	Energy efficiency improvement Fuel switch including renewable Lifestyle change
Industrial	Energy efficiency improvement Fuel switch
Transport	Energy efficiency improvement Traffic modal shift: public transport, bicycle Fuel switch to bio-fuel Compact city, Logistic efficiency
Other	Recycling rate improvement Forest management

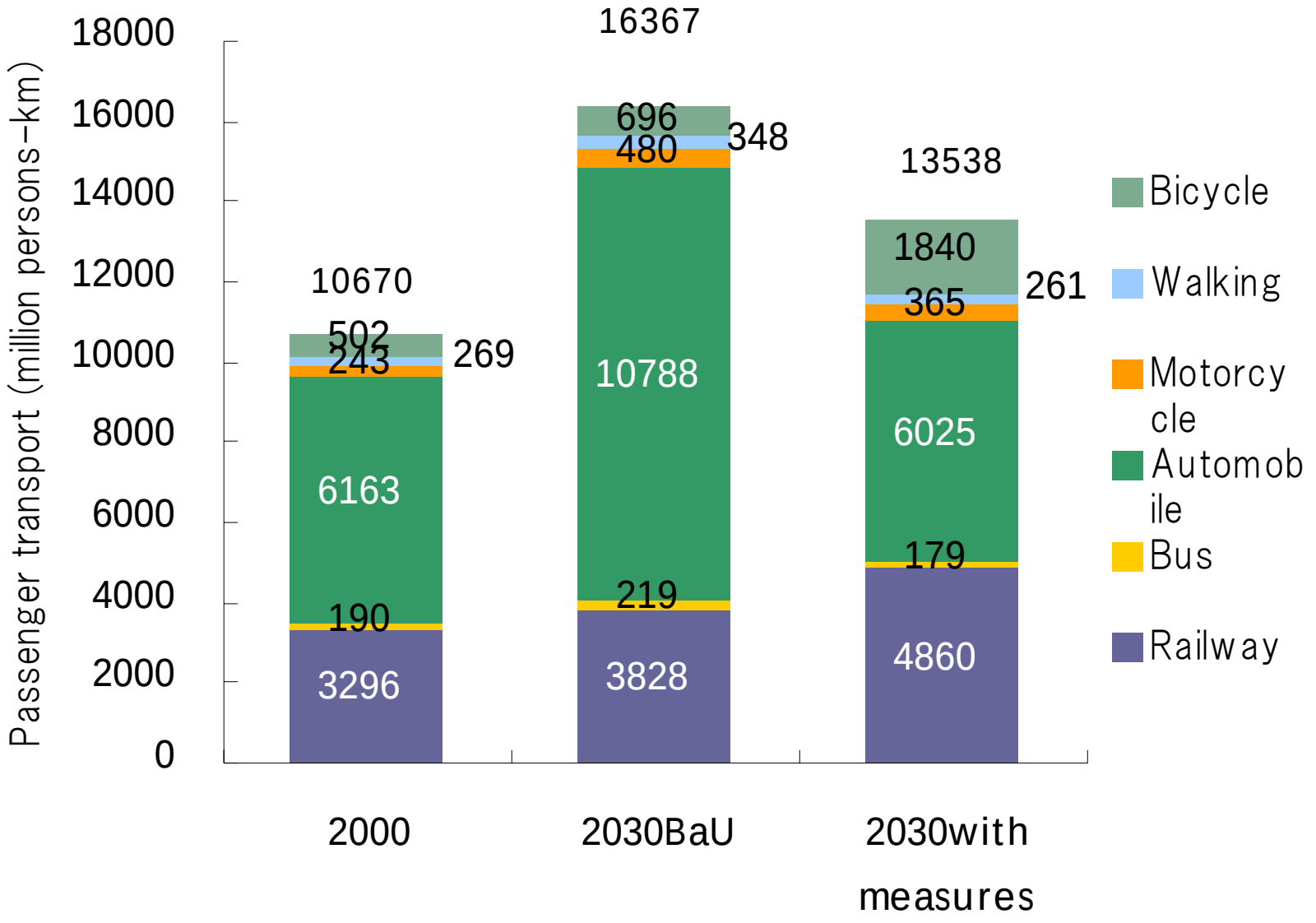
GHG emissions by sector



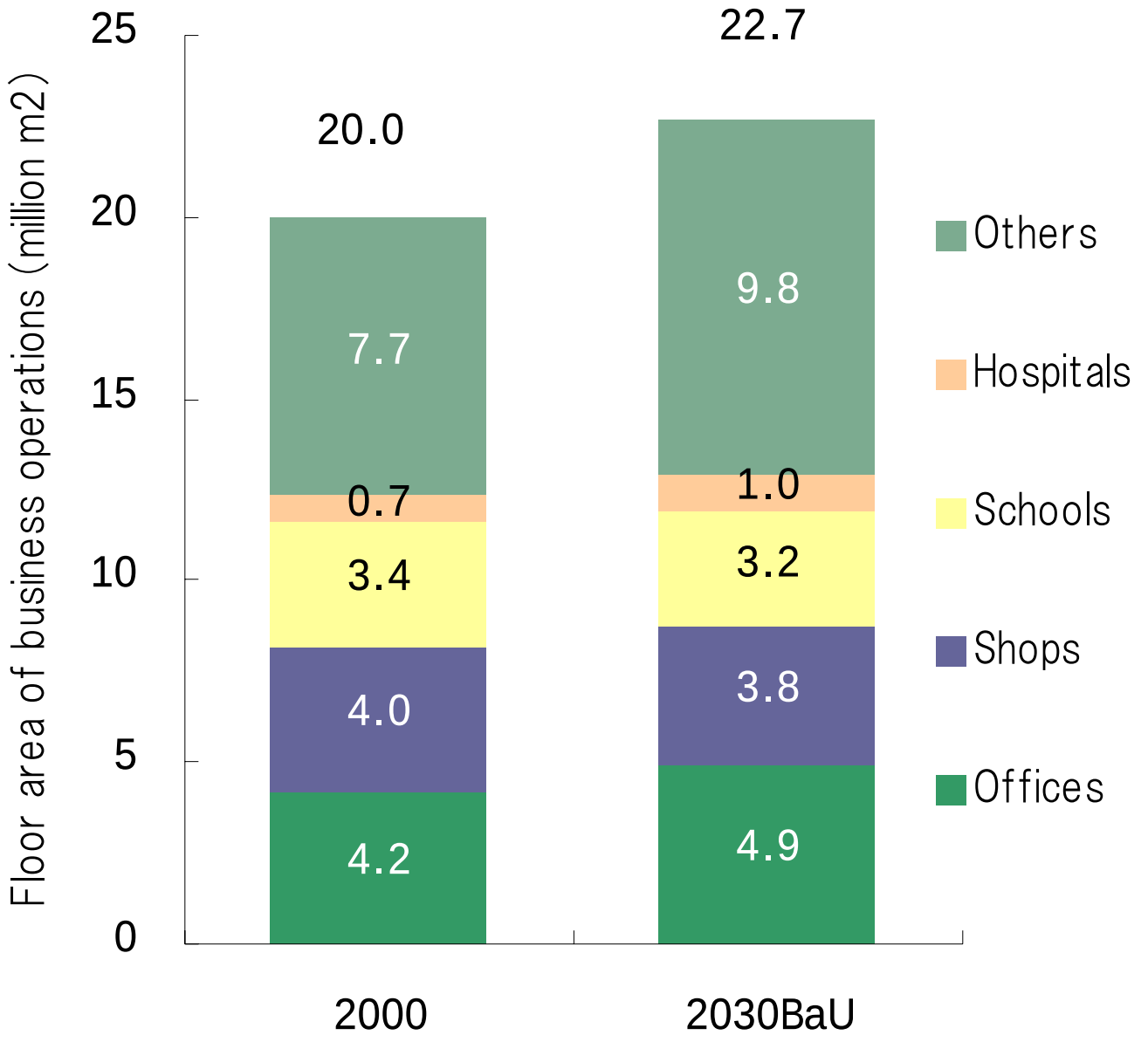
Freight transport by mode



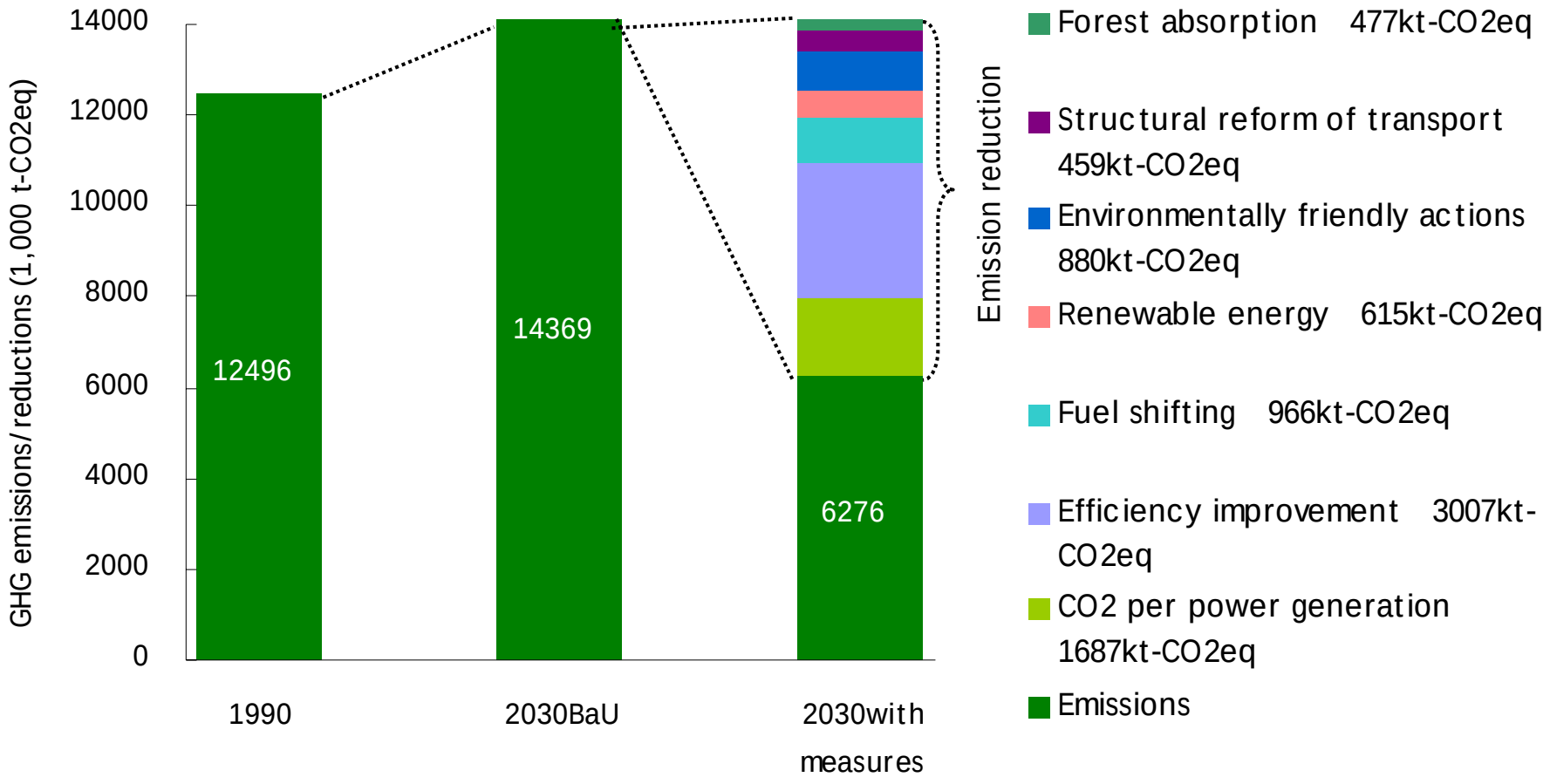
Passenger transport by mode



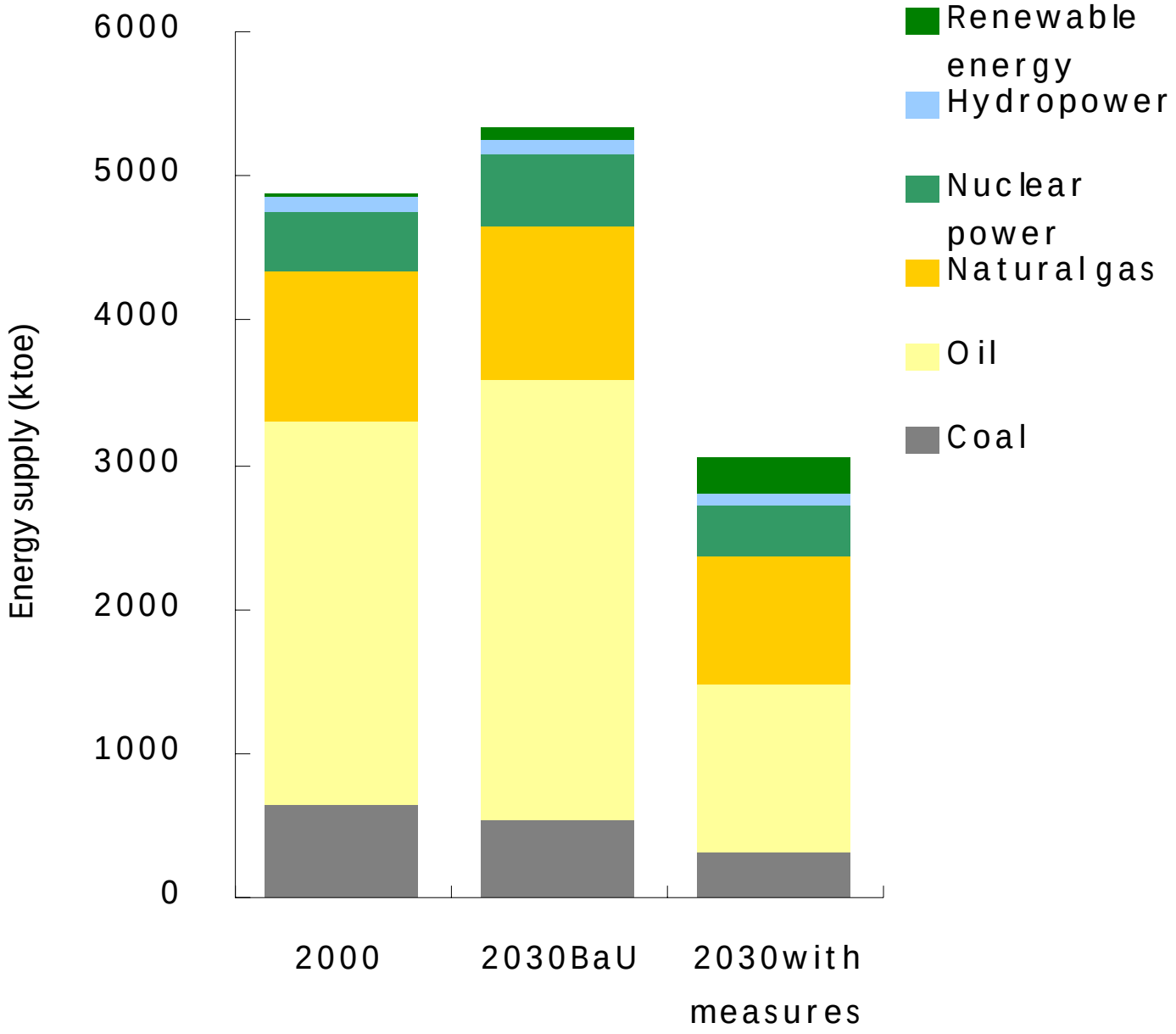
Floor area of business & service



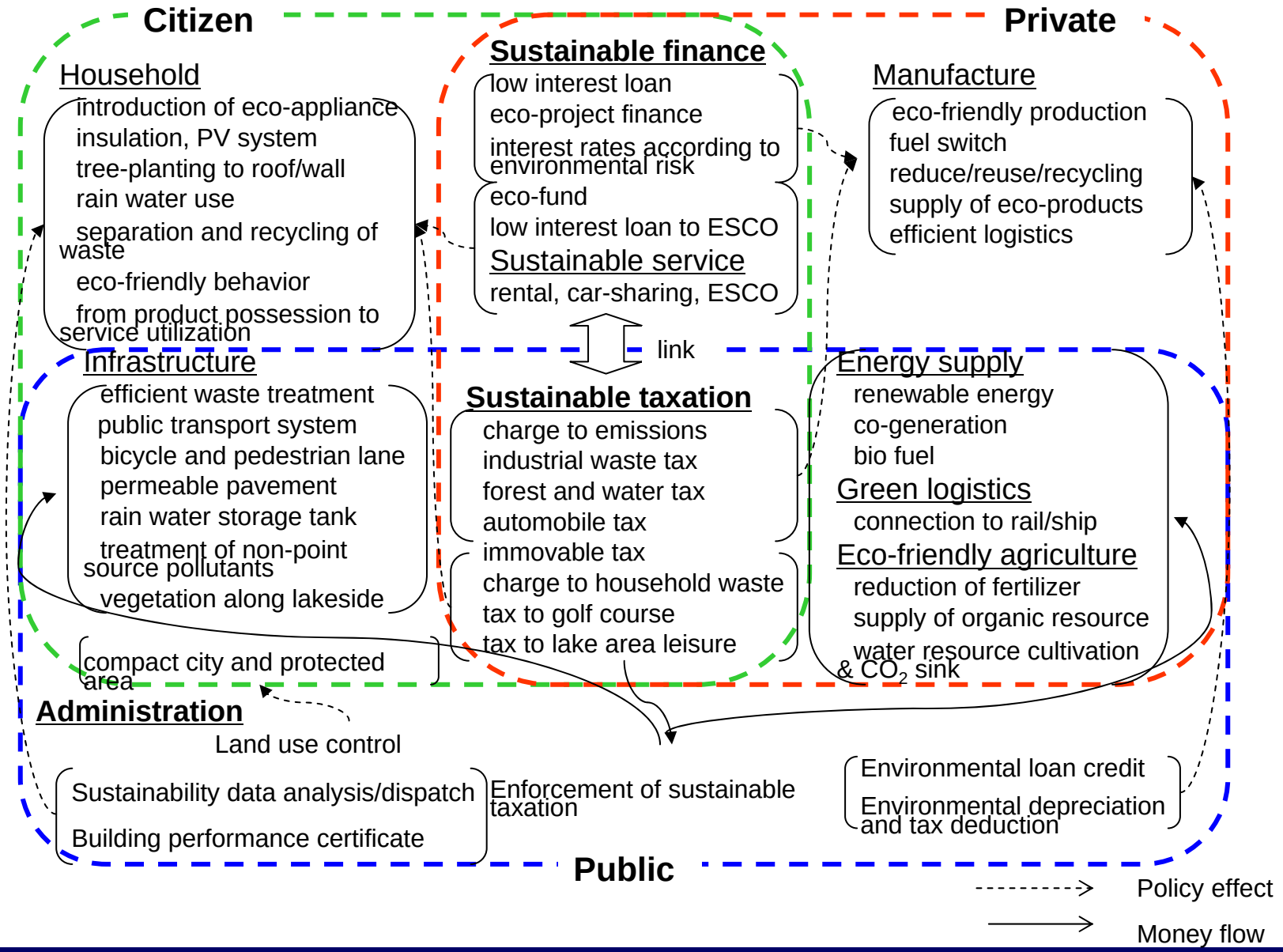
Emission reductions by measure



Primary energy supply by source



Sustainable policy package



Conclusion

- Developed a tool to estimate socio-economic indicators and GHG emissions
- Applied it to Shiga prefecture based on a socioeconomic scenarios
- Evaluated the effects of measures
- Being used for the policy discussion in Shiga Prefecture
- Future task: cost estimation, back-casting etc.