

Freight Transportation Model: FTM

Application to Low Carbon Society toward 2050 Project

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1. Background

- Freight transportation is one of the key factor in terms of the energy consumption towards Low Carbon Society
- Domestic freight transportation volume is dependent on scale and structure of production and import.
- The impact of those changes on future freight transportation needs to be simulated.

2. General Description

- Calculation Program : TSP 5.0
- Input: Amount of production and import by product
Scenario developed by MLIT (tentative)
CGE Economic Model (future)
- Output: Freight transportation volume by mode and product
(tonne-km)
- Model simulates future transportation volume under given amount of production and import

MLIT: Ministry of Land Infrastructure and Transport

3. Classification

[Product]

- Agricultural Product
- Minerals
- Metals
- Machineries
- Ceramics
- Petroleum Products
- Chemicals
- Light Industries
- Miscellaneous Industries
- Waste

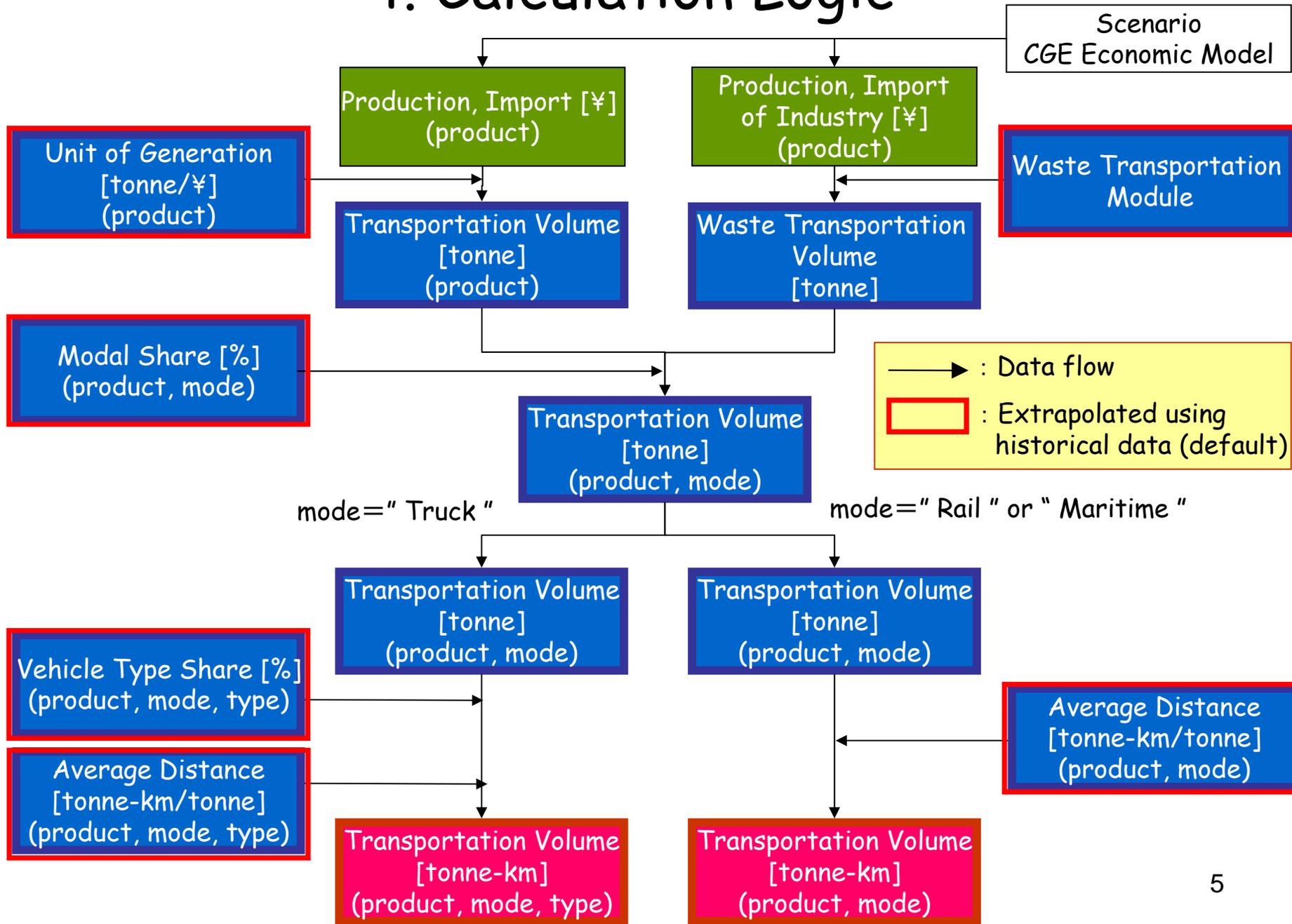
[Mode]

- Truck
- Rail
- Maritime

[Truck Type]

- Commercial Normal-size Truck
- Private Normal-size Truck
- Commercial Small Truck
- Private Small Truck

4. Calculation Logic



4. Data Sources

Historical Data for regression analysis (parameter estimation) : 1980~1999

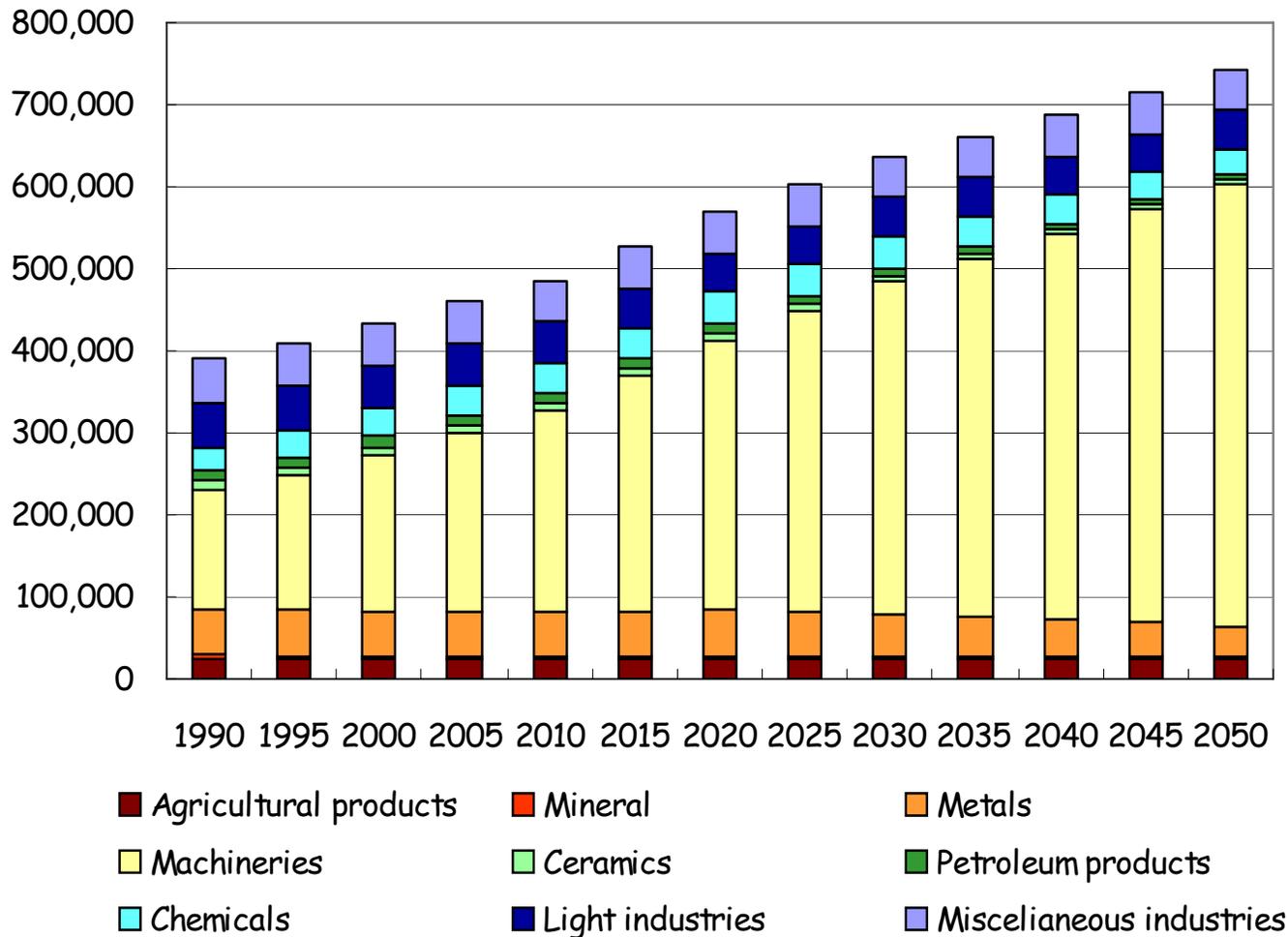
Data	Source
a) Production and Import by product (yen)	▪ Annual report on national accounts
b) Transportation volume by mode and product (tonne)	▪ Domestic transportation statistics handbook (MLIT)
c) Transportation volume by mode and product (tonne-km)	▪ Domestic transportation statistics handbook (MLIT) ▪ Road traffic census

Data for future simulation : 2000~2050

Data	Source
a) Production and Import by product	▪ Scenario developed by MLIT (tentative) ▪ Output of CGE Economic Model (future)

4. Input data*

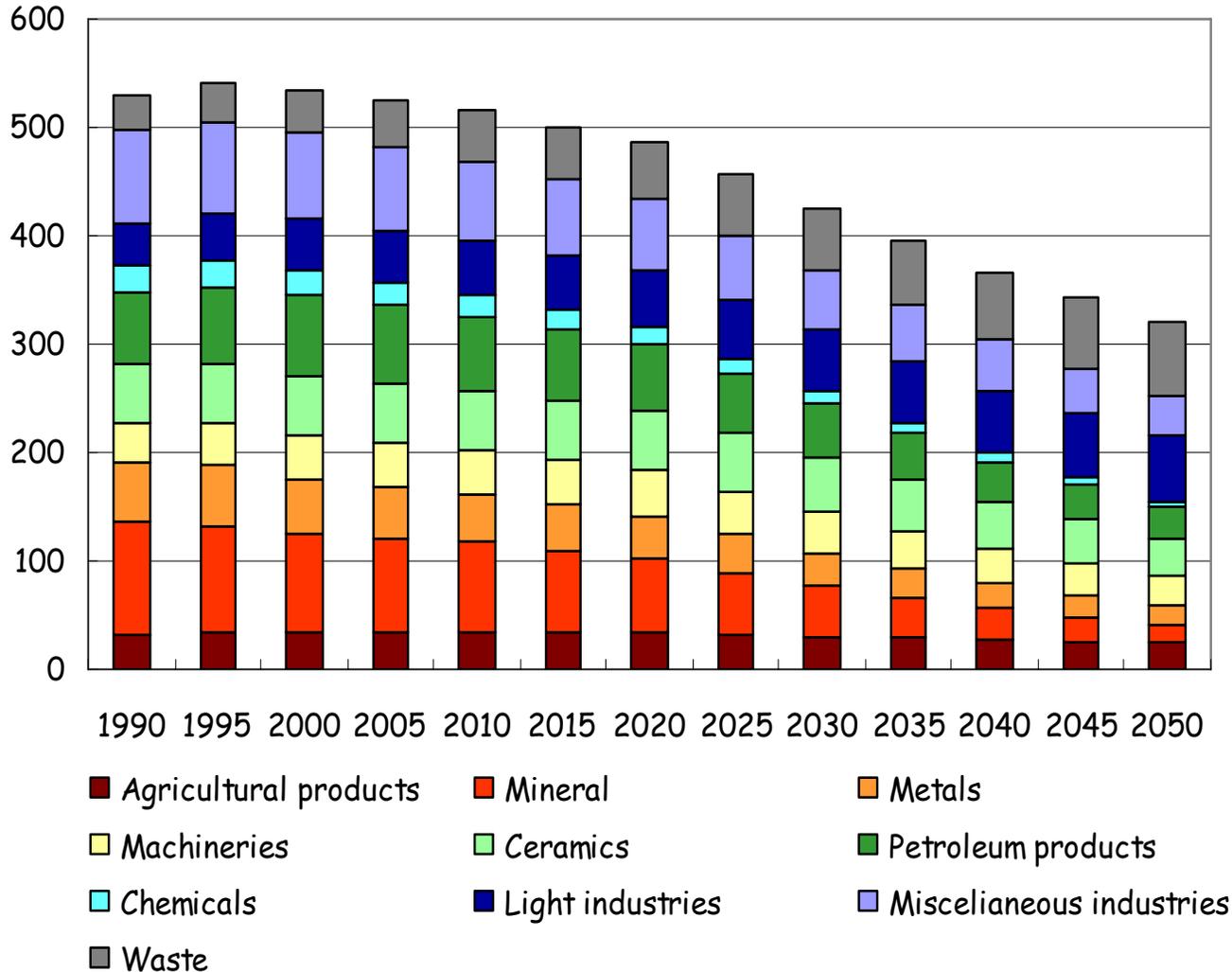
(Production and Import: bil.yen)



*Tentatively used scenario developed by MLIT

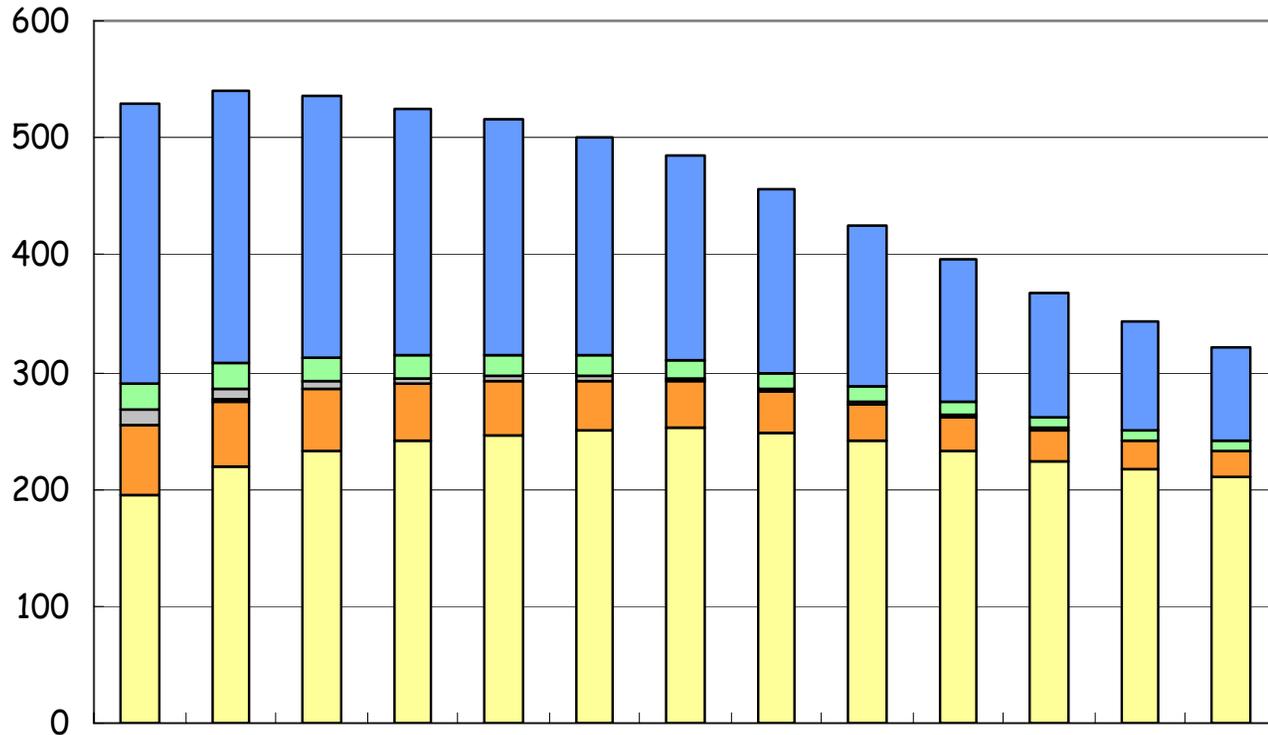
5. Output(1)

(Transportation volume by product: bil.tonne-km)



5. Output(2)

(Transportation volume by mode: bil.tonne-km)



- Commercial Normal-size Truck
- Private Normal-size Truck
- Commercial Small Truck
- Private Small Truck
- Rail
- Maritime