

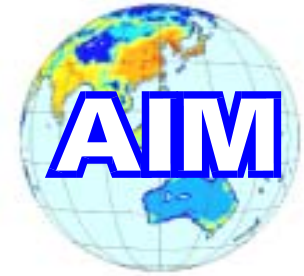
AIM/Trend Model

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National Institute for Environmental Studies, Tsukuba, Japan

Objectives



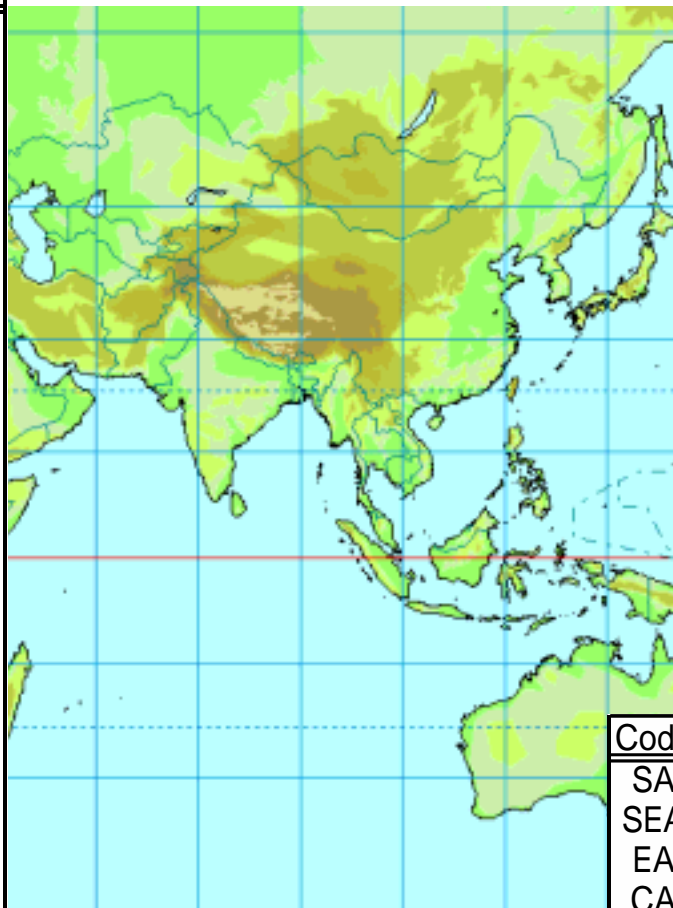
To prospect the situation of economy, energy and environment in Asia-Pacific region

- to cover as wide a range of countries in Asia-Pacific region (42 countries)
- the target year is 2032 (= Johannesburg summit + 30)
- to use simple method and develop several scenarios

Target Country

Detailed Model Application (Model A) Simple Model Application (Model B)

Code	Country	Group
AUS	Australia	ANZ
BGD	Bangladesh	SA
CHN	China	EA
IDN	Indonesia	SEA
IND	India	SA
IRN	Iran	SA
JPN	Japan	EA
KAZ	Kazakhstan	CA
KGZ	Kyrgyz Republic	CA
KOR	Korea,Rep	EA
LKA	Sri Lanka	SA
MMR	Myanmar	SEA
MYS	Malaysia	SEA
NPL	Nepal	SA
NZL	New Zealand	ANZ
PAK	Pakistan	SA
PHL	Philippines	SEA
PRK	Korea,Dem	EA
SGP	Singapore	SEA
THA	Thailand	SEA
TJK	Tajikistan	CA
TKM	Turkmenistan	CA
TWN	Taiwan	EA
UZB	Uzbekistan	CA
VNM	Vietnam	SEA



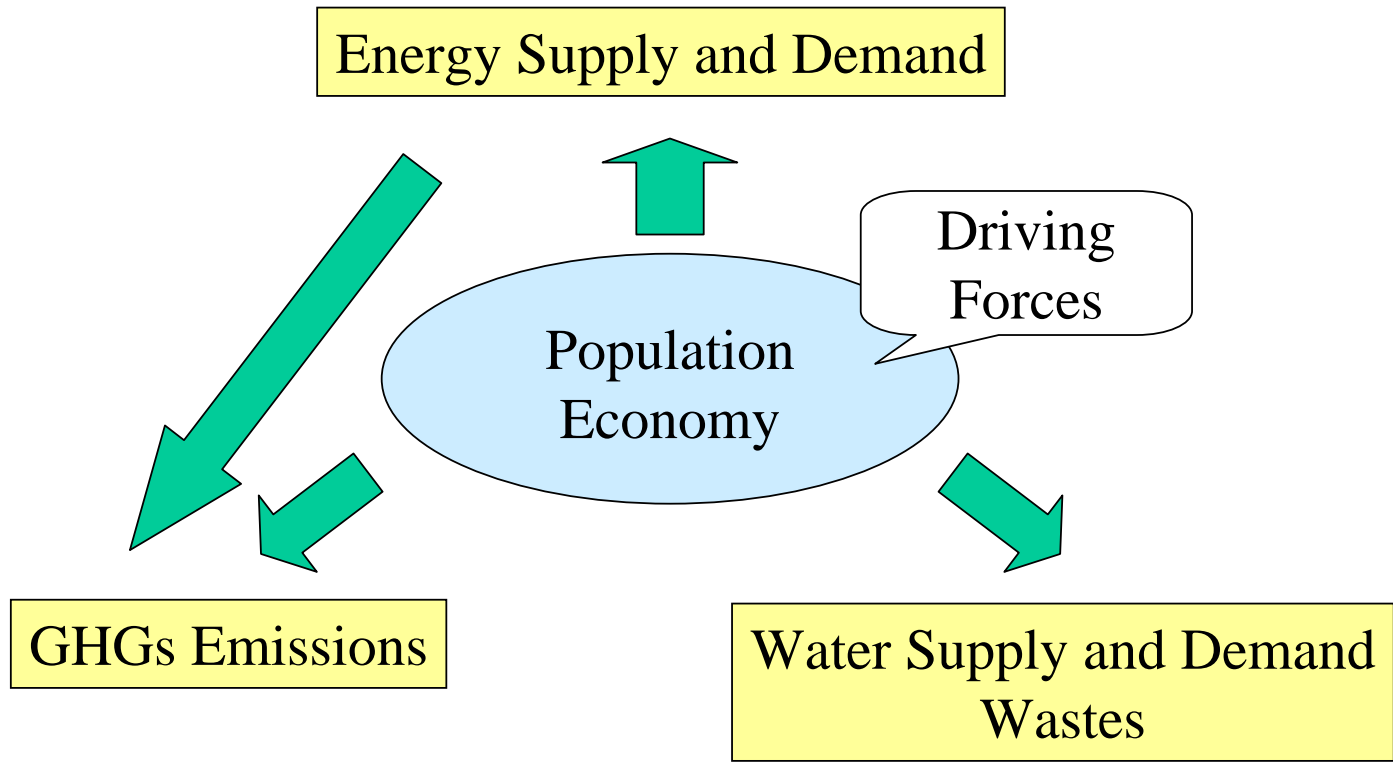
Code	Country	Group
AFG	Afghanistan	SA
BRN	Brunei	SEA
BTN	Bhutan	SA
FJI	Fiji	SP
KHM	Cambodia	SEA
KIR	Kiribati	SP
LAO	Lao	SEA
MDV	Maldives	SA
MNG	Mongolia	EA
NRU	Nauru	SP
PLW	Palau	SP
PNG	Papua New Guinea	SP
PYF	French Polynesia	SP
SLB	Solomon Islands	SP
TON	Tonga	SP
VUT	Vanuatu	SP
WSM	Samoa	SP

Code	Group
SA	South Asia
SEA	Southeast Asia
EA	Northwest Pacific and East Asia
CA	Cetral Asia
ANZ	Australia And New Zealand
SP	South Pacific

Target Index

- (1) Population: population, rate of urbanization
- (2) Economy: GDP (growth rate, per capita), GDP share (agriculture, industry, service, PFC (private final consumption), car holders
- (3) Energy: primary energy supply by fuel, final energy demand by fuel and sector, energy plant, economic intensity, carbon intensity
- (4) Environment: GHGs (CO₂, SO_x, NO_x, CH₄, N₂O, CO), wastes
- (5) Water: withdrawal, consumption (agriculture, industry, domestic), population in water stress*
- (6) Food and Agriculture*: average daily consumption, vegetable food consumption, animal food consumption, fraction of meat from feedlots, fish production, crop production, feed production, nitrogen fertilizer consumption
- (7) Land use*: crop land, irrigated cropland, potential cultivable land, mature forest, growing forest, pasture, protected, other land
- (8) Human Health*: SPM (PM₁₀, PM_{2.5})
- (9) Biodiversity*: species, degree of threat to biological diversity, area of habitat remaining

Note: sign “*” means the element under consideration

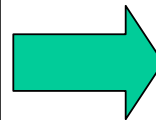
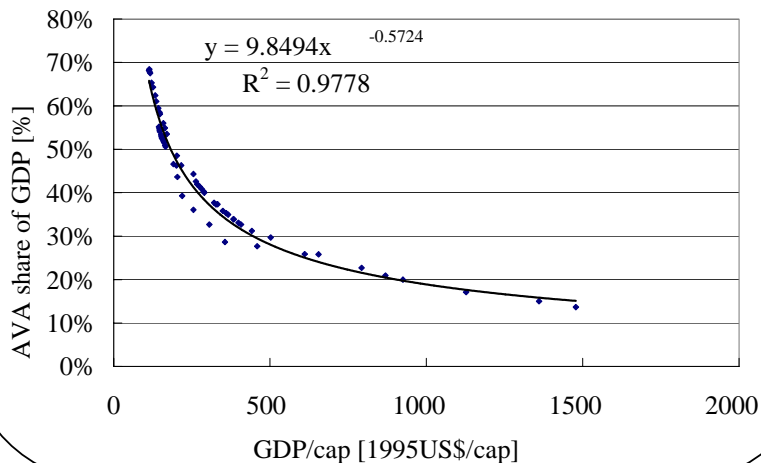


Model Structure

Model Procedures

Regression analysis

GDP share (AVA, IVA, SVA)
car holders
final energy demand
energy share



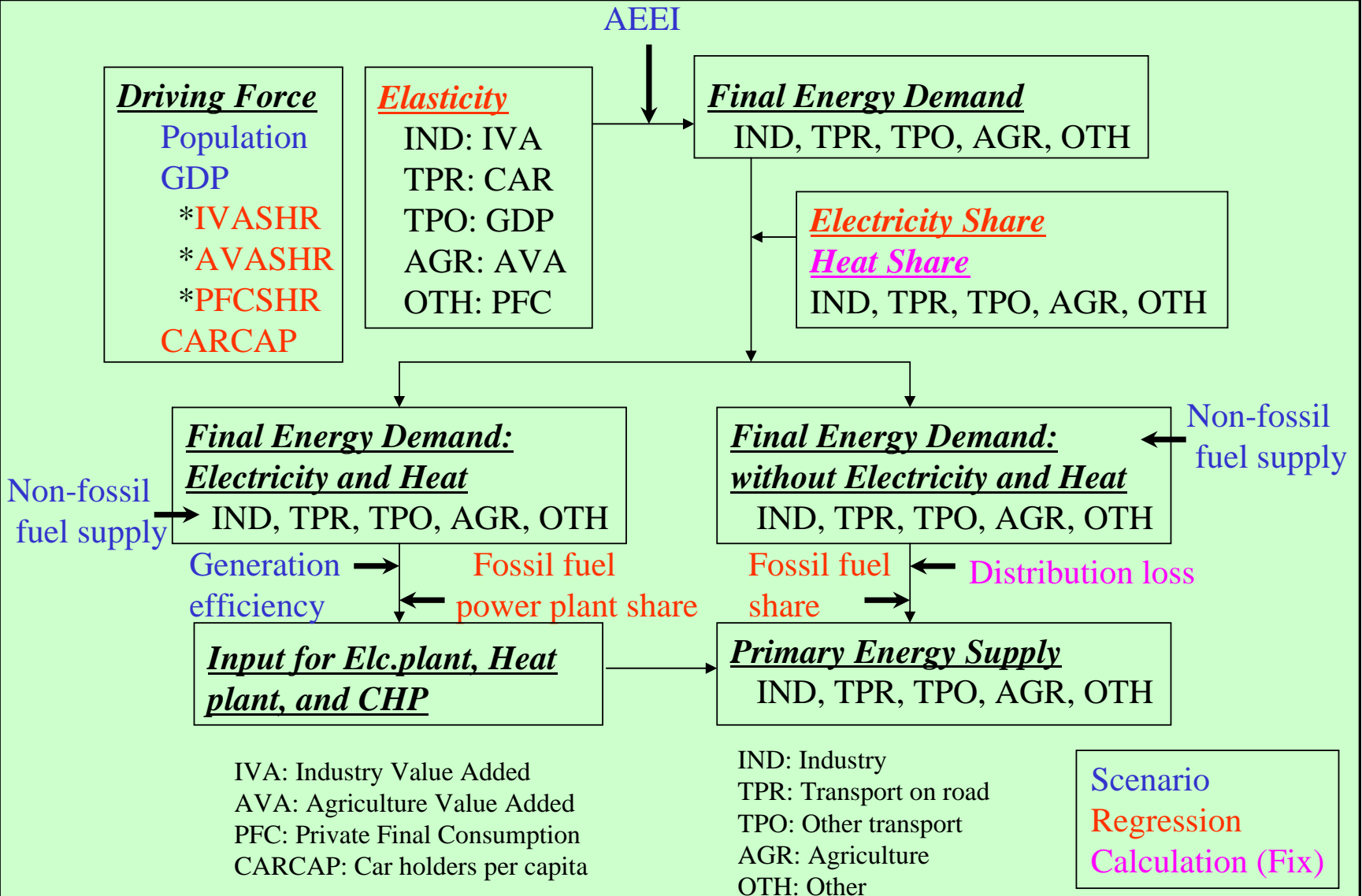
Prospect

Scenario Setting
GDP, population, AEEI
non fossil fuel supply...

Regression results
GDP share,
final energy demand...

Others

Calculation Flow of Energy Supply and Demand (Model A)



Scenarios

GEO3 scenario

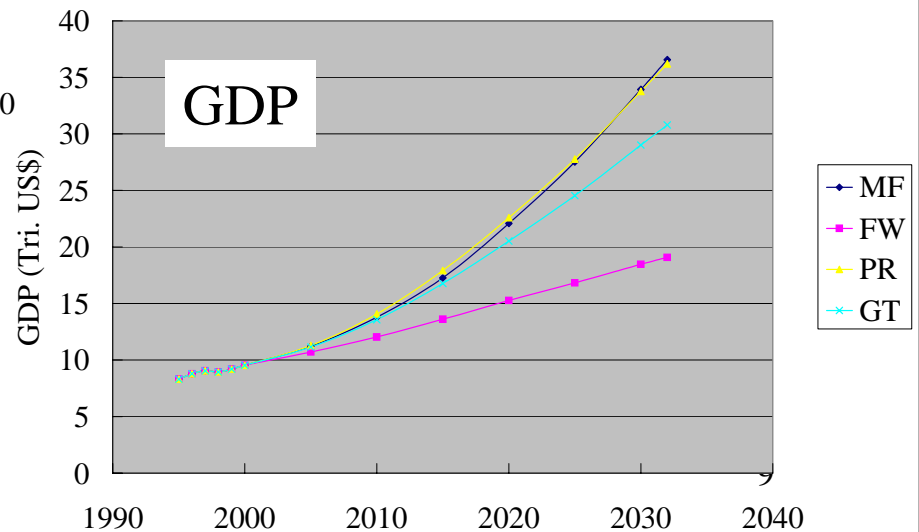
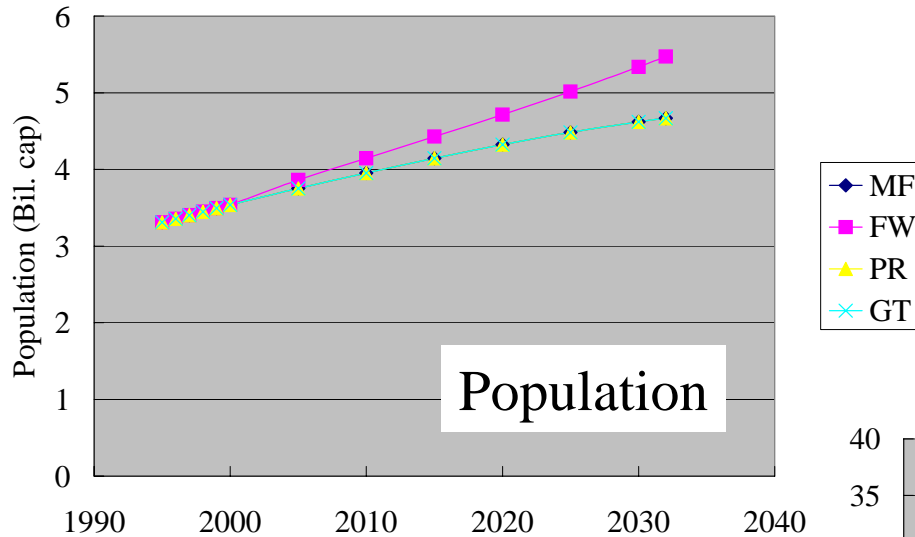
Market Forces (MF): market driven developments converge on the values and expectations that prevail in industrialized countries

Policy Reform (PR): concerted action on environment and social issues occurs through incremental policy adjustments

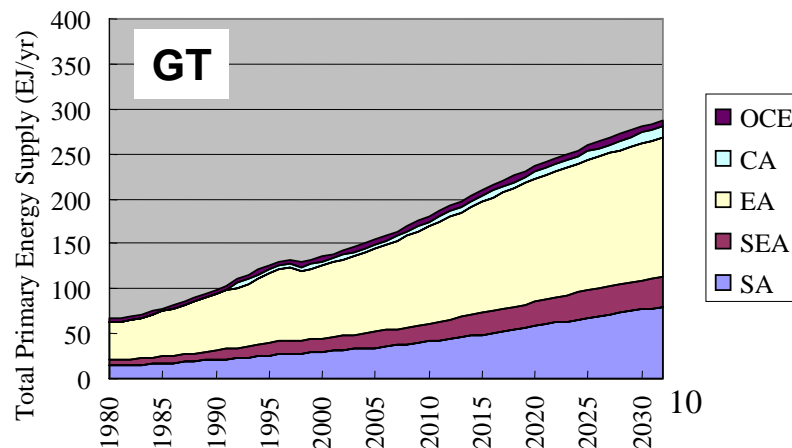
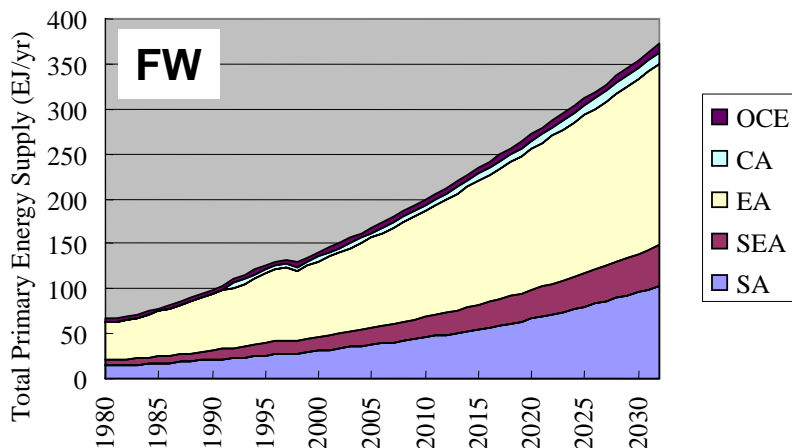
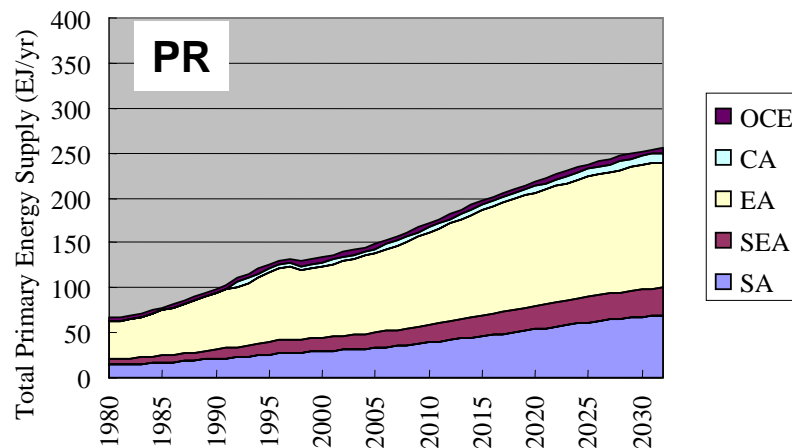
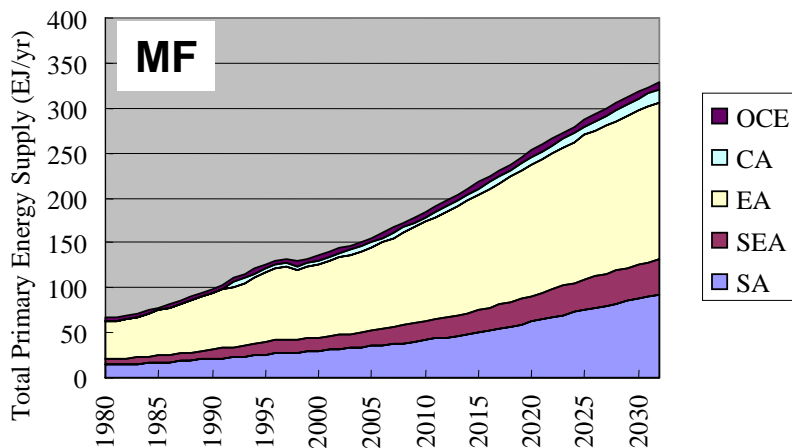
Fortress World (FW): inequality and conflict prevail, brought about by socio-economic and environmental stresses

Great Transitions (GT): a new development paradigm emerges in response to the challenge of sustainability, supported by new values and institutions

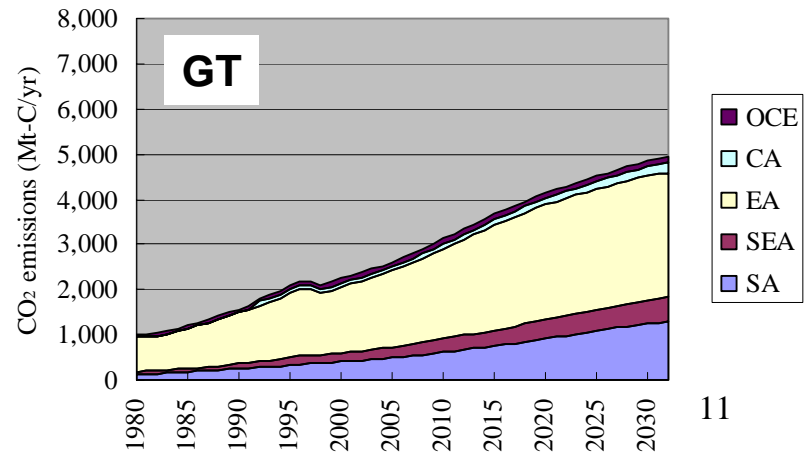
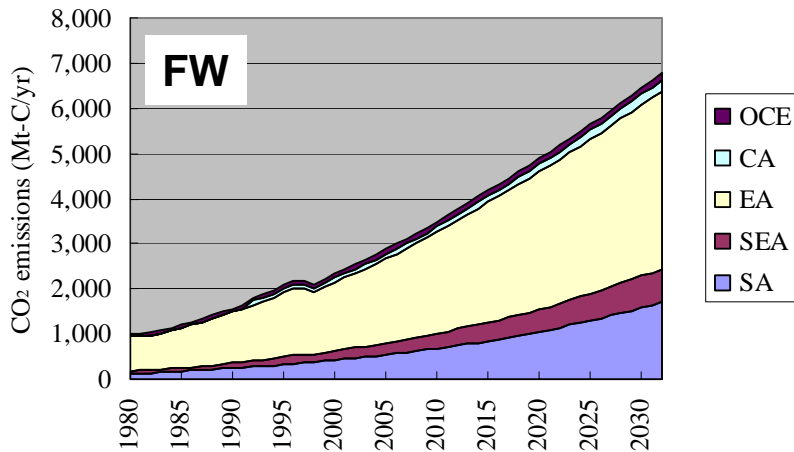
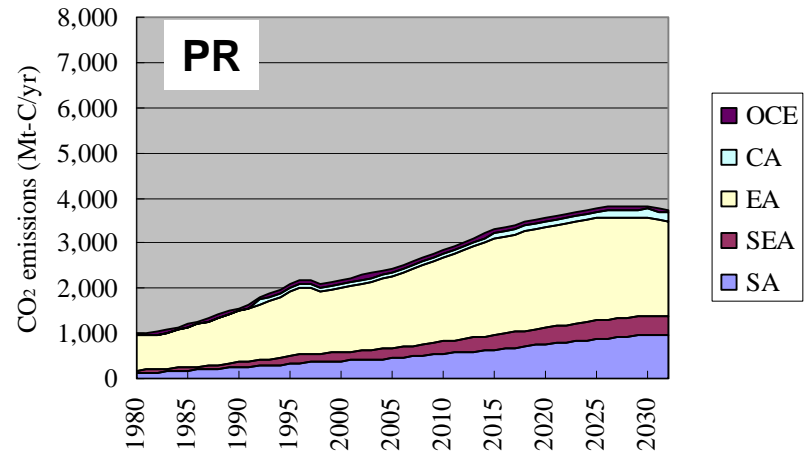
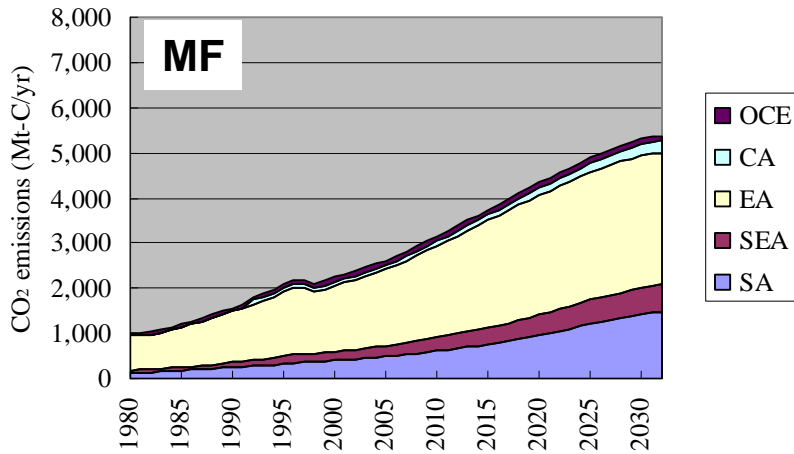
Scenarios of Population and GDP



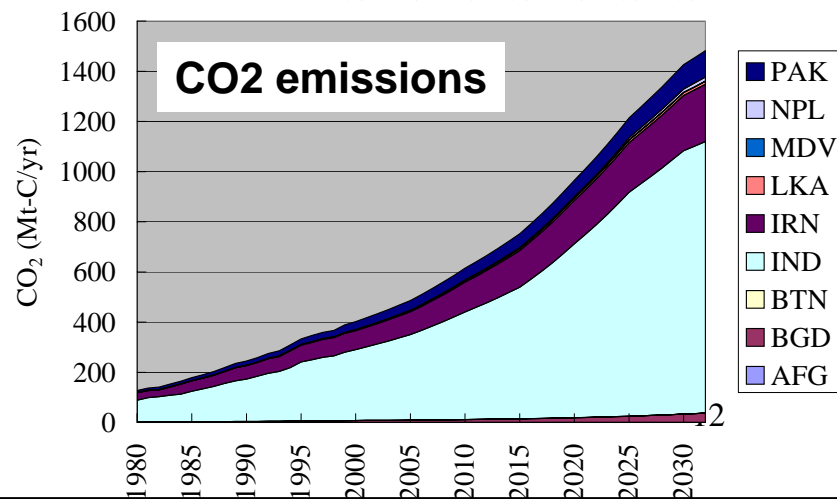
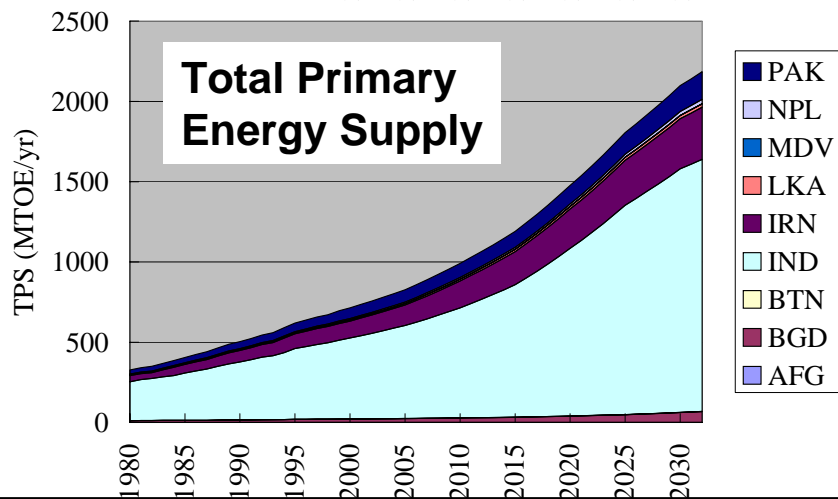
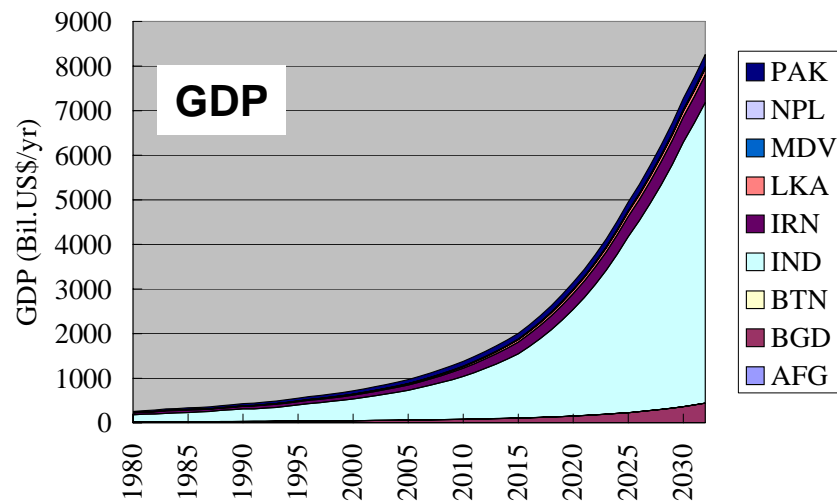
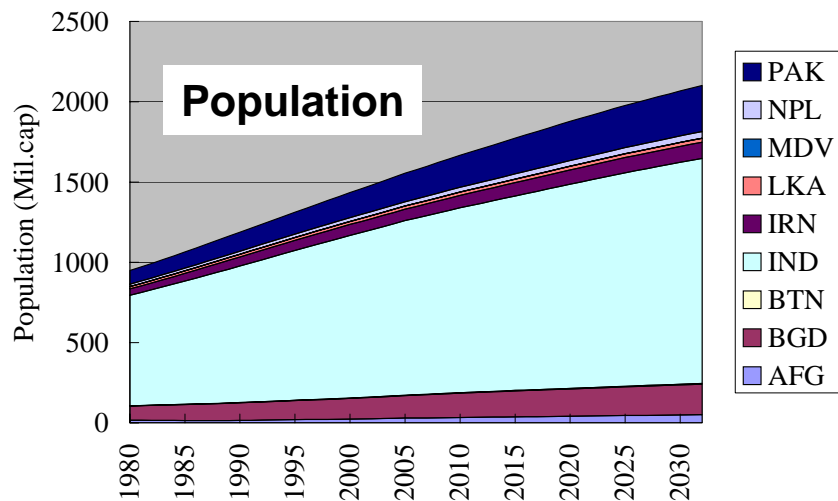
Scenarios of Total Primary Energy Supply



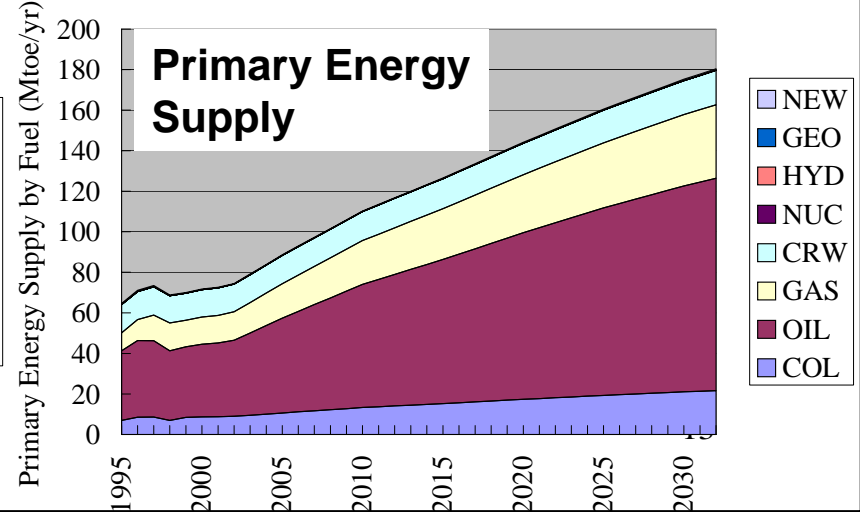
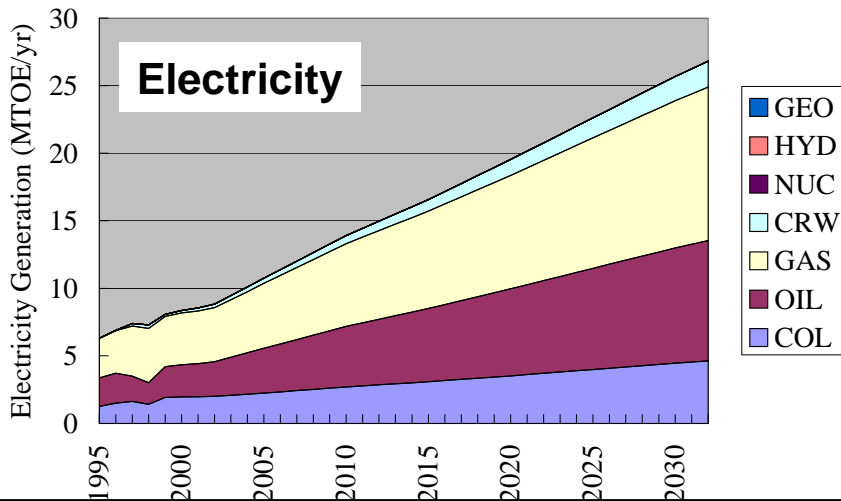
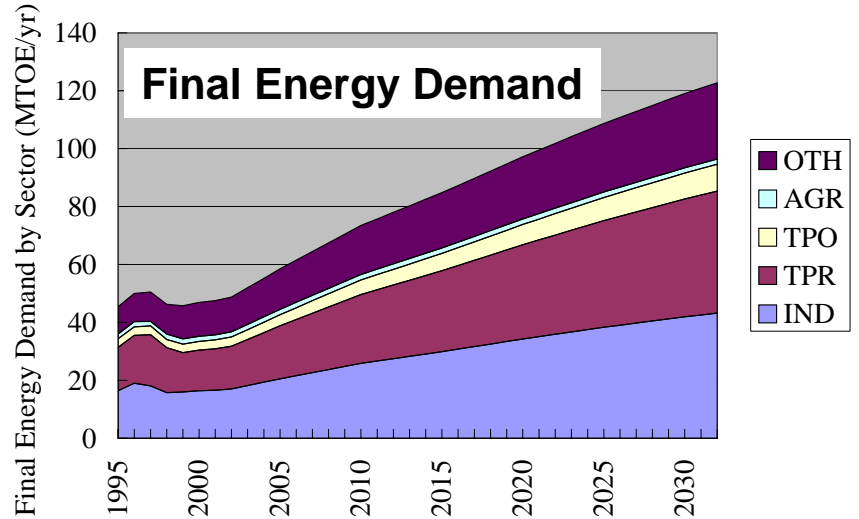
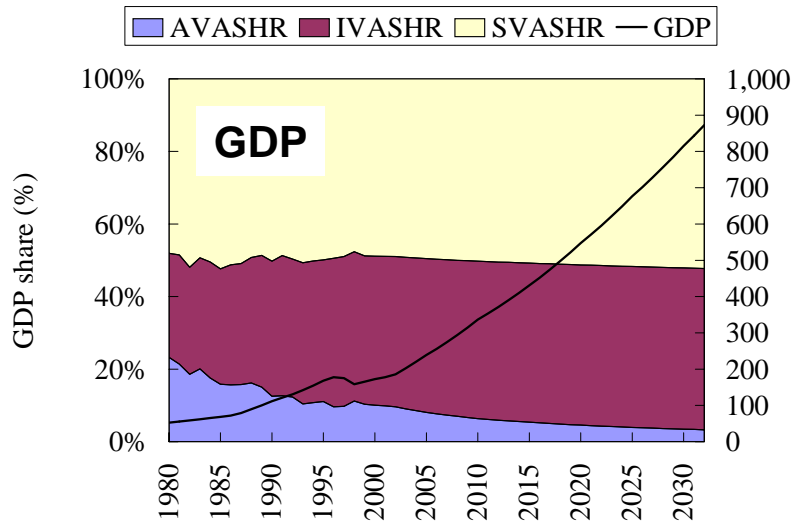
Scenarios of CO₂

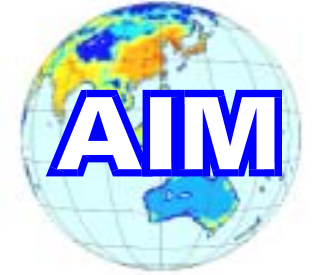


Scenarios of SA region (MF)



Scenarios of Thailand (MF)





Next steps

- Revised AIM/Trend model (version.2).
- Scenarios should be checked by experts in each region.
- Develop renewables, nuclear ,gas supply scenario.
- Add waste sector, food/biomass sector...
- Other role of AIM/Trend model:
database, display of scenario results

AIM/Trend scenarios can be used as input data for other AIM models (AIM/CGE, AIM/Country...)