

Figure 1: AIM Model Development for APEIS

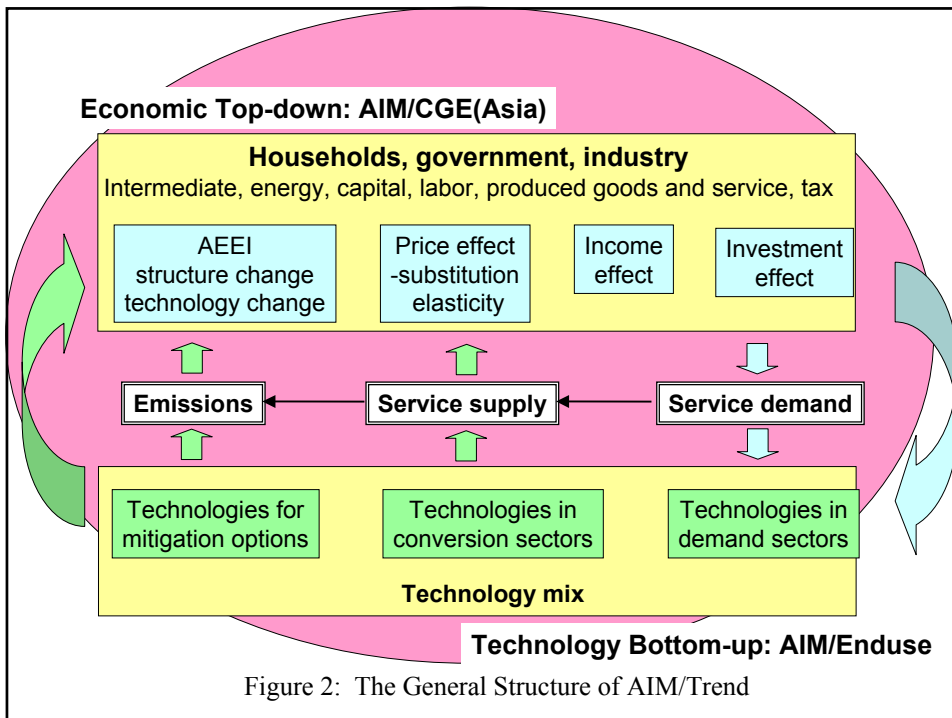


Figure 2: The General Structure of AIM/Trend

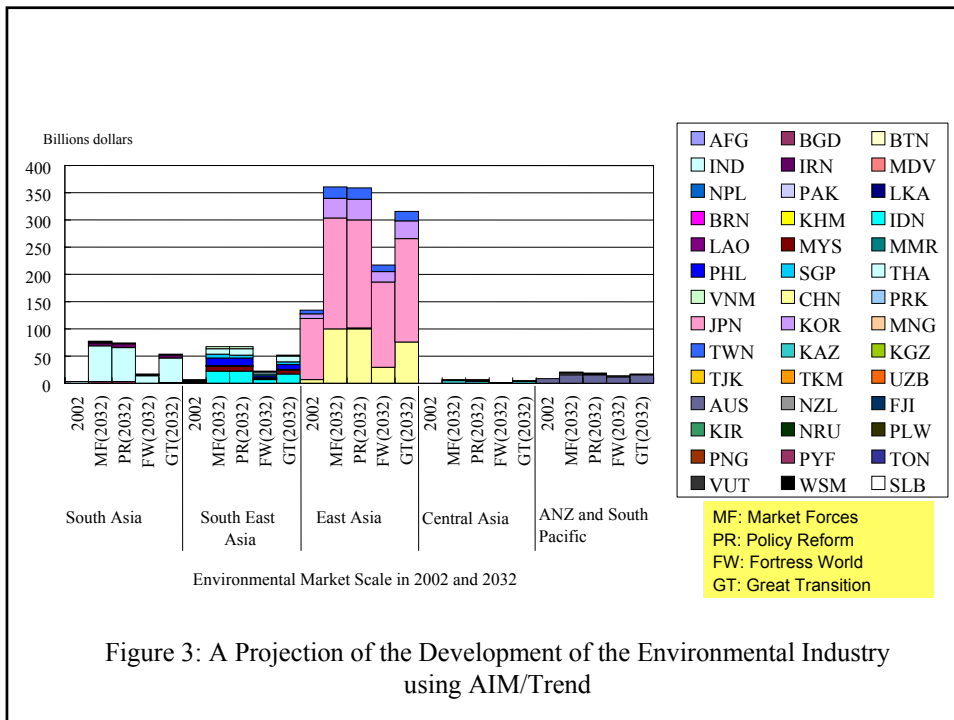


Figure 3: A Projection of the Development of the Environmental Industry using AIM/Trend

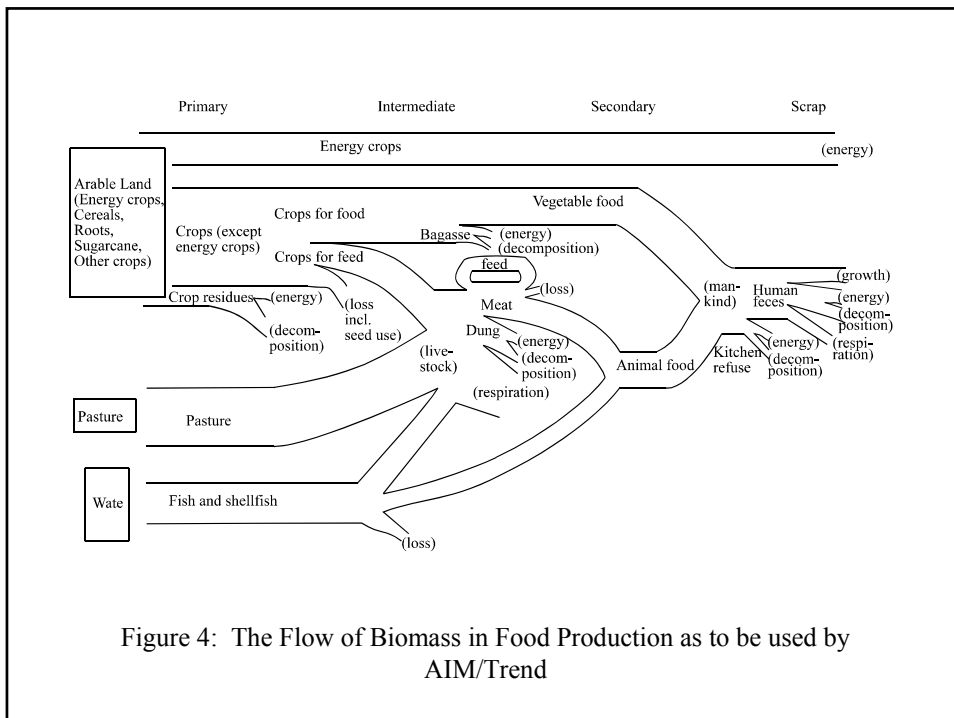
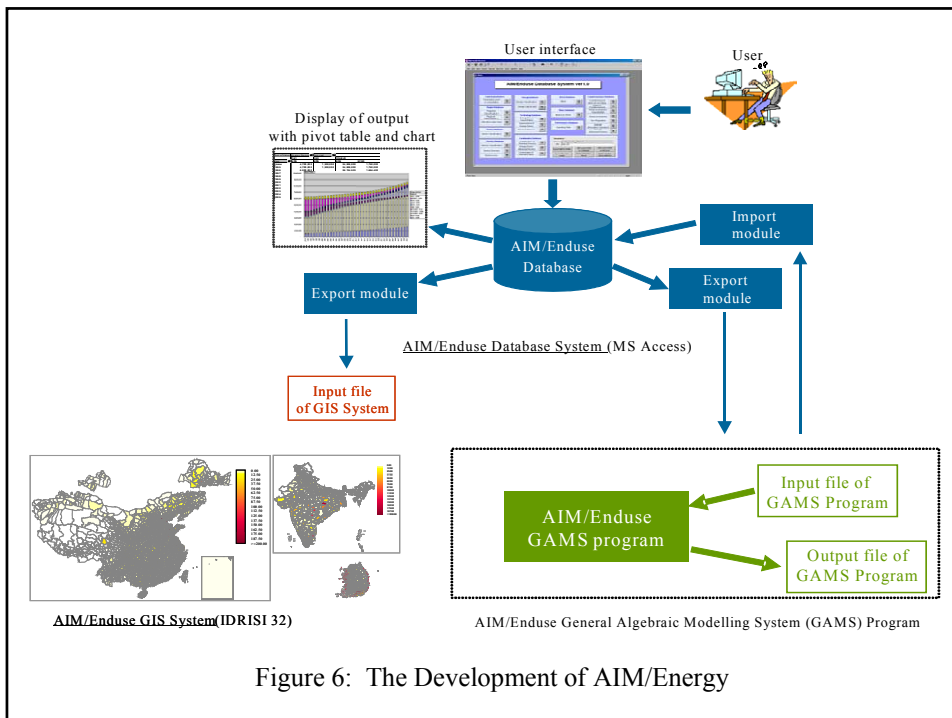
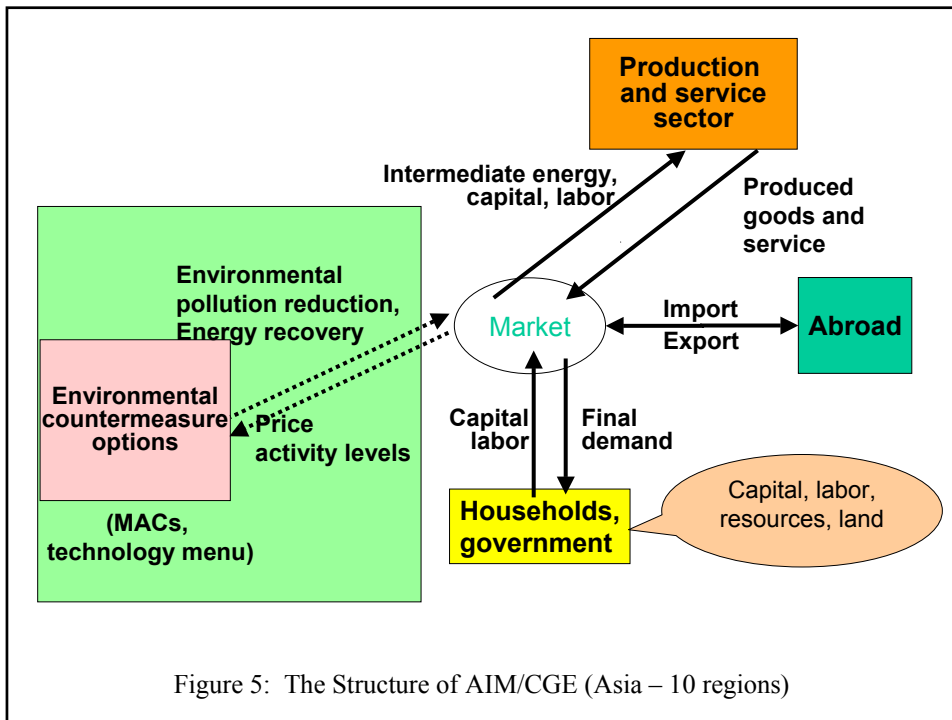
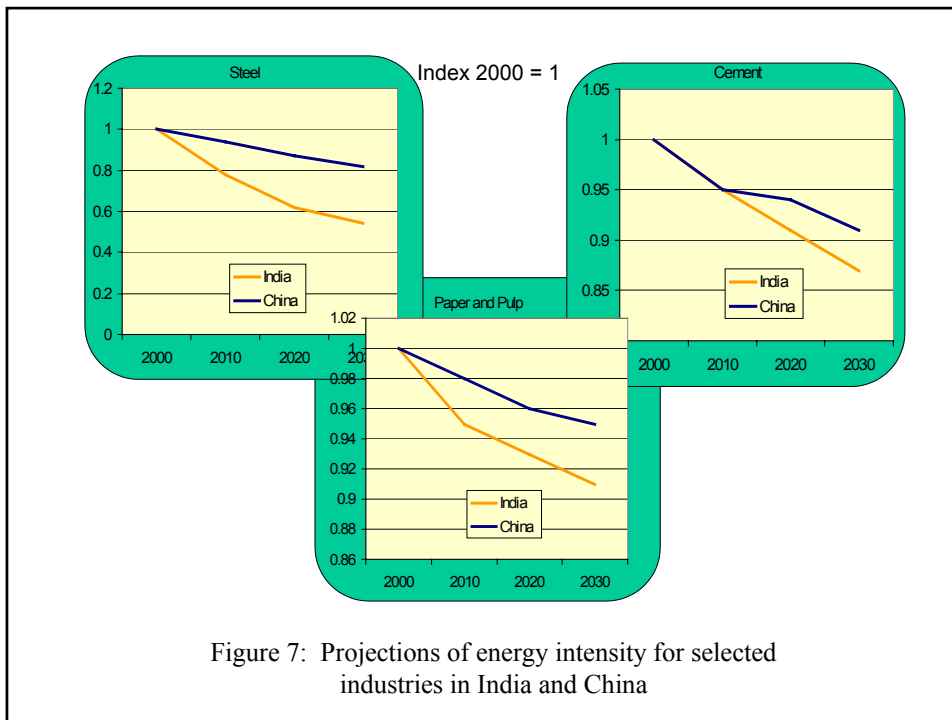


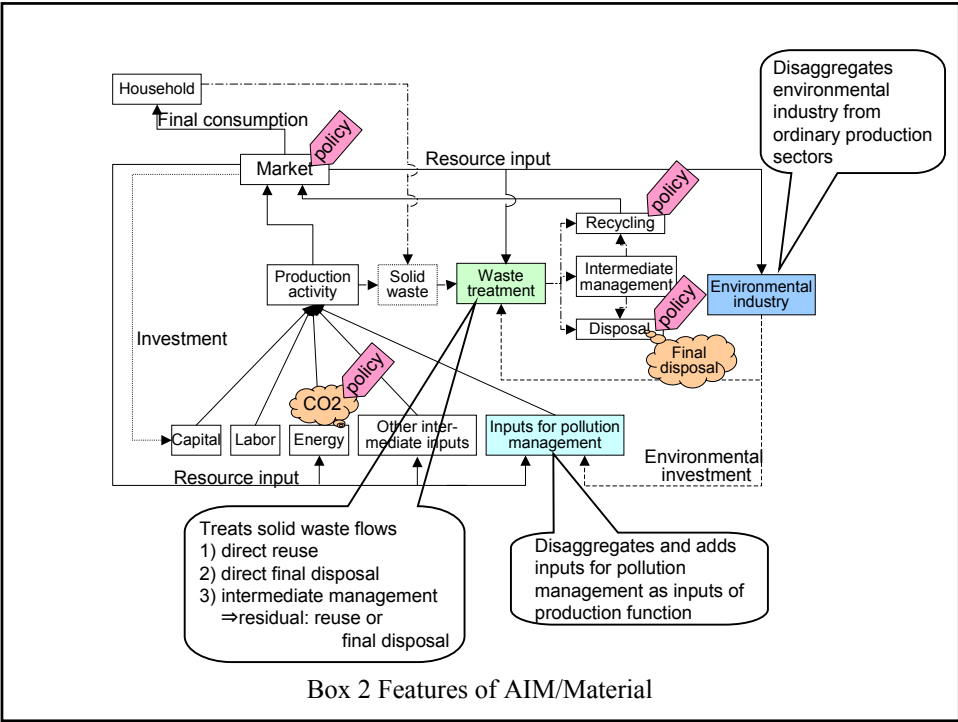
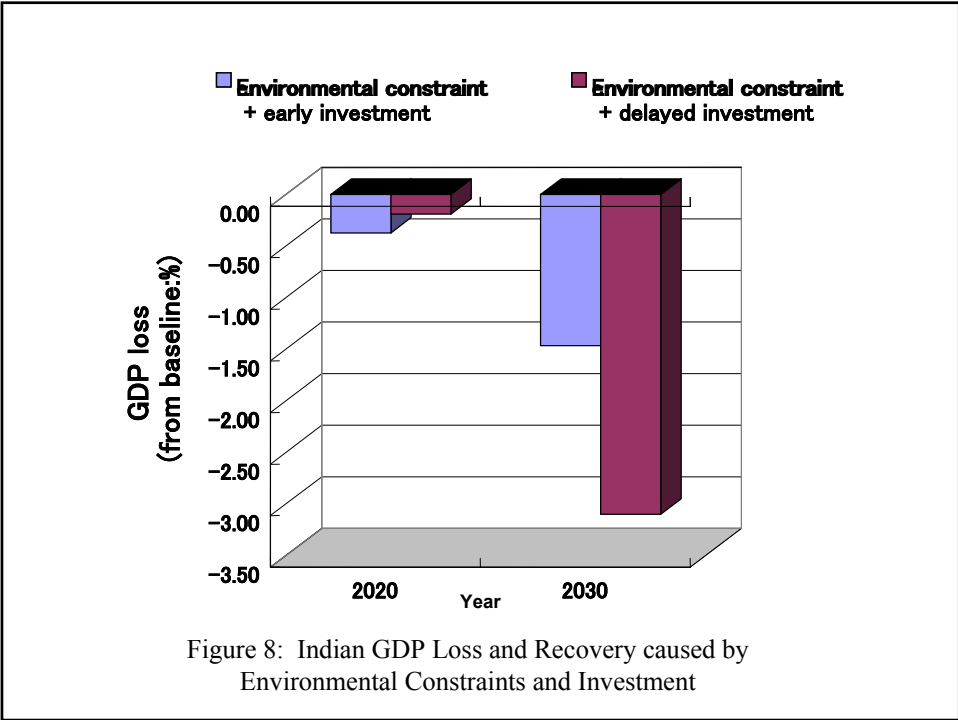
Figure 4: The Flow of Biomass in Food Production as to be used by AIM/Trend





Box 1 AIM technology file (extract)

| Classification | Technologies (equipment) |
|---------------------------------|---|
| Iron & Steel | Coke oven, Sintering machine, Blast furnace, Open hearth furnace (OH), Basic oxygen furnace (BOF), AC-electric arc furnace, DC-electric arc furnace, Ingot casting machine, Continuous casting machine, Continuous casting machine with rolling machine, steel rolling machine, Continuous steel rolling machine, Equipment of coke dry quenching, Equipment of coke wet quenching, Electric power generated with residue pressure on top of blast furnace (TRT), Equipment of coke oven gas, OH gas and BOF gas recovery, Equipment of co-generation |
| Non-ferrous metal | Aluminum production with sintering process, Aluminum production with combination process, Aluminum with Bayer, Electrolytic aluminum with upper-insert cell, Electrolytic aluminum with side-insert cell, crude copper production with flash furnace, crude copper production with electric furnace, Blast furnace, Reverberator furnace, Lead smelting-sintering in blast furnace, Lead smelting with closed blast furnace, Zinc smelting with wet method, Zinc smelting with vertical pot method |
| Building materials | Cement: Mechanized shaft kiln, Ordinary shaft kiln, Wet process kiln, Lepol kiln, Ling dry kiln, Rotary kiln with pre-heater, dry process rotary kiln with pre-calcer, Self-owned electric power generator, Electric power generator with residue heat; Brick & Tile: Hoffman kiln, Tunnel kiln; Lime: Ordinary shaft kiln, Mechanized shaft kiln; Glass: Floating process, Vertical process, Colburn process, Smelter |
| Chemical industry | Equipment of synthetic ammonia production: Converter, Gasification furnace, Gas-making furnace, Synthetic column, Shifting equipment of sulphur removing, Equipment of caustic soda production: Electronic cell with graphite process, Two-stage effects evaporator, Multi-stage effects evaporator, Equipment of rectification, Ion membrane method; Calcium Carbide production: Limestone calciner, Closed carbide furnace, Open carbide furnace, Equipment of residue heat recovery; Soda ash production: Ammonia & salt water preparation, limestone calcining, distillation column, filter; Fertilizer production: Equipment of organic products production, Equipment of residue heat utilization |
| Petrochemical Industry | Facilities of atmospheric & vacuum distillation, Facilities of rectification, Facilities of catalyzing & cracking, Facilities of cracking with hydrogen adding, Facilities of delayed coking, Facilities of light carbon cracking, Sequential separator, Naptha cracker, de-ethane separator, diesel cracker, de-propane cracker, facilities of residue heat utilization from ethylene |
| Paper-making | Cooker, facilities of distillation, facilities of washing, facilities of bleaching, evaporator, crusher, facilities of de-water, facilities of finishing, facilities of residue heat utilization, facilities of black liquor recovery, Co-generator, Back pressure electric power generator, condensing electric power generator |
| Textile | Cotton weaving process, Chemical fiber process, Wool weaving & textile process, Silk process, Printing & dyeing process, Garment making, Air conditioner, Lighting, Facilities of space heating |
| Machinery | Ingot process: Cupola, Electric arc furnace, fan; Forging process: coal-fired pre-heater, Gas-fired pre-heater, Oil-fired pre-heater, Steam hammer, Electric-hydraulic hammer, Pressing machine; Facilities of heat processing: Coal-fired heat processing furnace, Oil-fired heat processing furnace, Gas-fired heat processing furnace; Electric processing furnace; Cutting process: Ordinary cutting, high speed cutting |
| Irrigation | Diesel engine, Electric induct motor |
| Farming works | Tractor, Other agricultural machine |
| Agricultural products process | Diesel engine, Electric induct motor, processing machine, coal-fired facilities |
| Fishery | Diesel engine, Electric induct motor |
| Animal husbandry | Diesel engine, Electric induct motor, Other machines |
| Space heating in resident | Heat supplying boiler in thermal power plant, Boiler of district heating, Dispersed boiler, Small coal-fired stove, Electric heater, Brick bed linked with stove (Chinese KANG) |
| Cooling in resident | Air conditioner, Electric fan |
| Lighting in resident | Incandescent lamp, Fluorescent lamp, Kerosene lamp |
| Cooking & Hot water in resident | Gas burner, bulk coal-fired stove, briquette-fired stove, Kerosene stove, Electric cooker, cow dung-fired stove, firewood-fired stove, methane-fired stove |
| Electric Appliance | Television, Cloth washing machine, Refrigerator, others |
| Space heating in service sector | Heat supplying boiler in the thermal power plant, Boiler of district heating, dispersed boiler, Electric heater |
| Cooling | System of central air conditioner, Air conditioner, Electric fan |
| Lighting | Incandescent lamp, fluorescent lamp |
| Cooking & Hot water | Gas burner, Electric cooker, Hot water pipeline, Coal-fired stove |
| Electric Appliance | Duplicating machine, computer, Elevator, others |
| Passenger & freight transport | Railway (passenger & freight): Steam locomotive, Internal combustion engine locomotive, Electric locomotive; Highway (passenger & freight): Public diesel vehicle, Public gasoline vehicle, Private vehicle, Large diesel freight truck, Large gasoline vehicle, small freight truck; Waterway (passenger & freight): Ocean-going ship, Coastal ship, Inland ship; Aviation (passenger & freight): Freight airplane, passenger airplane |



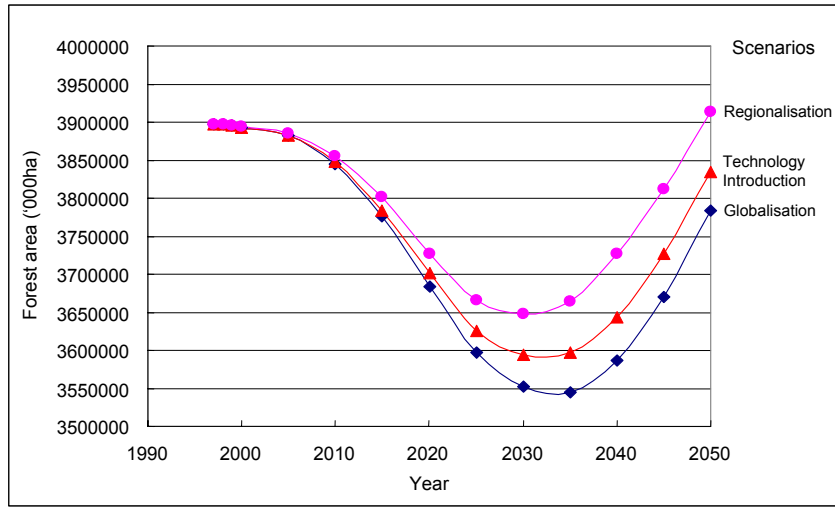


Figure 9: Projections for the world's area of forests under different scenarios

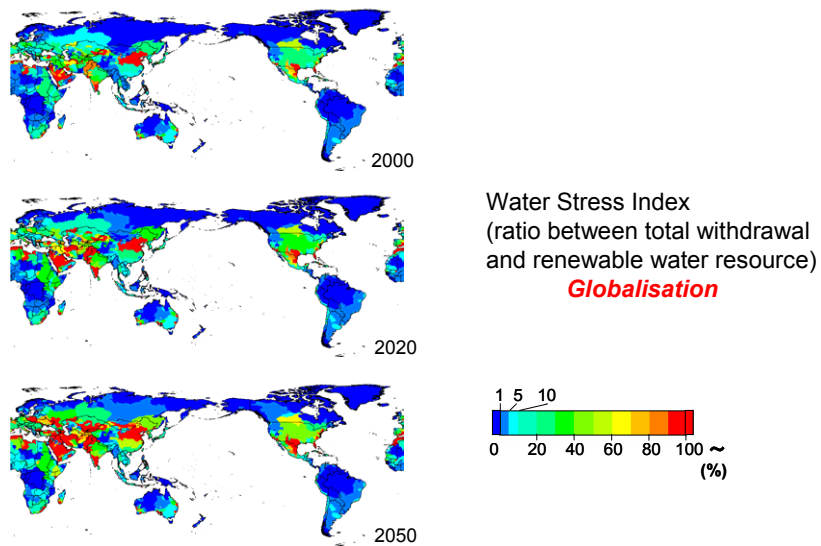


Figure 10: Simulations of global water stress prepared using AIM/Water