

General Flow of LCS Visions Development



AIM Training Workshop
Tokyo, Japan Oct 22-26, 2007



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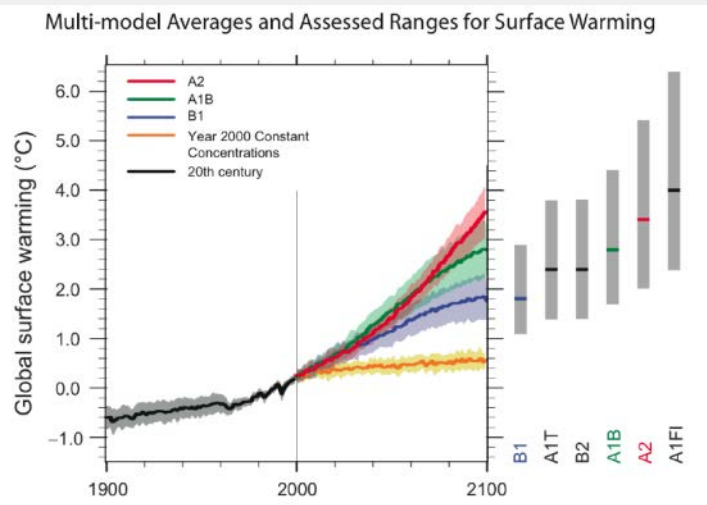
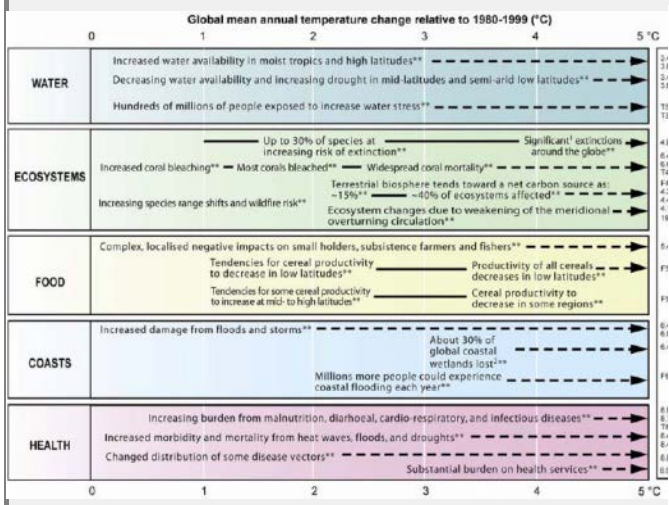
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Objective of LCS visions/scenarios

Global atmospheric concentrations of carbon dioxide, methane and nitrous oxide have increase markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years.

IPCC AR4



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Objective of LCS visions/scenarios

Economic Growth

Industrial Structure

Energy Resources

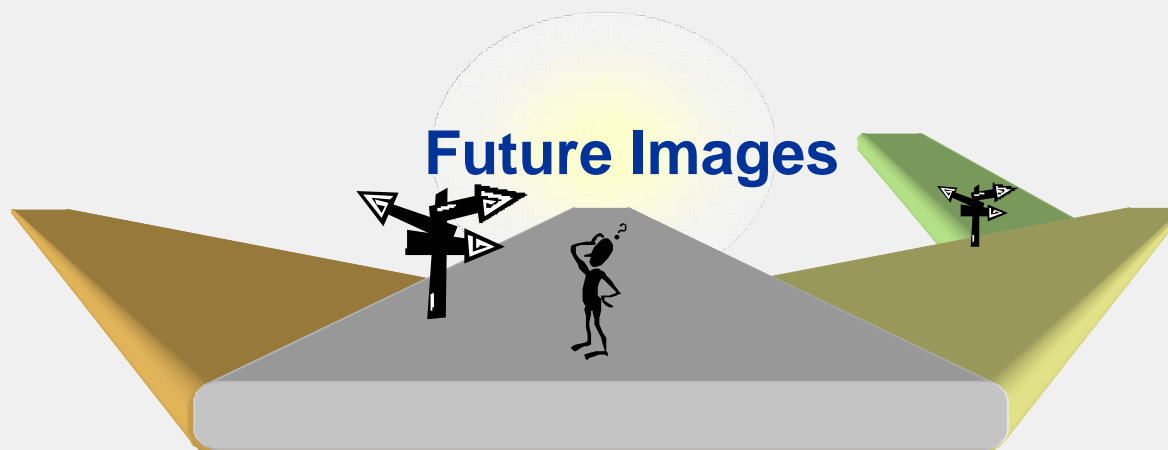
Political status

Lifestyle

Innovations

Urban Structures

Full of Uncertainty



To characterize demographic, socioeconomic, and technological driving forces underlying anthropogenic GHG emissions that cause climate change

To characterize the sensitivity, adaptive capacity, and vulnerability of social and economic systems in relation to climate change.

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Definitions of the terms

Terms	Description
Projection	A projection can be regarded as any description of the future and the pathway leading to it.
Forecast/ Prediction	When a projection is branded "most likely," it becomes a forecast or prediction.
Scenario	Socioeconomic scenarios in general have been developed to aid decisionmaking under conditions of great complexity and uncertainty in which it is not possible to assign levels of probability to any particular state of the world at a future point in time.
Storyline	A narrative description of a scenario that highlights the scenario's main characteristics, relationships between key driving forces, and the dynamics of the scenarios.
Vision	Picture of the desirable future (snapshot).

*Mainly excerpt from IPCC reports

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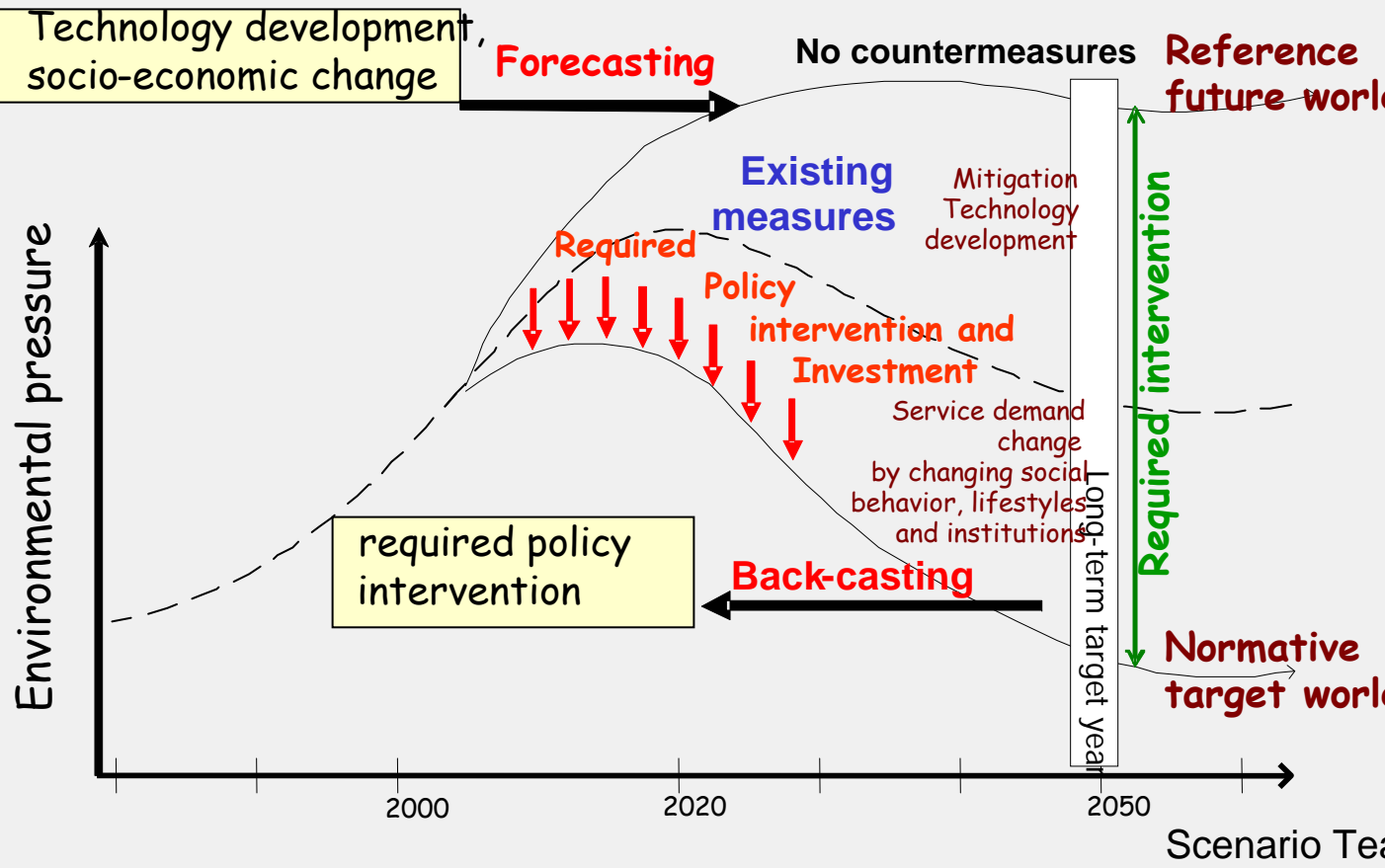
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Back-casting approach



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Flow of LCS visions development



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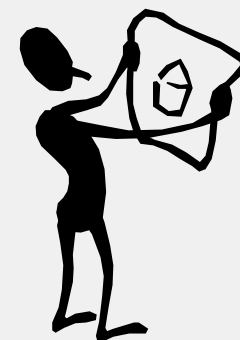
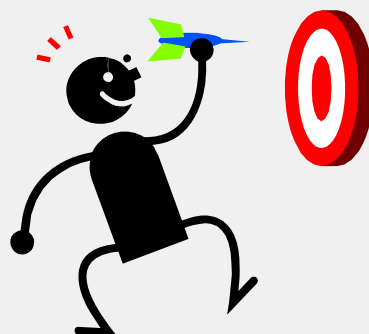
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Target Settings



	Vision A	Vision B
Environmental target	70% reduction from 1990	
Socio economic target	Annual GDP growth: 2%/capita	Annual GDP growth: 1%/capita

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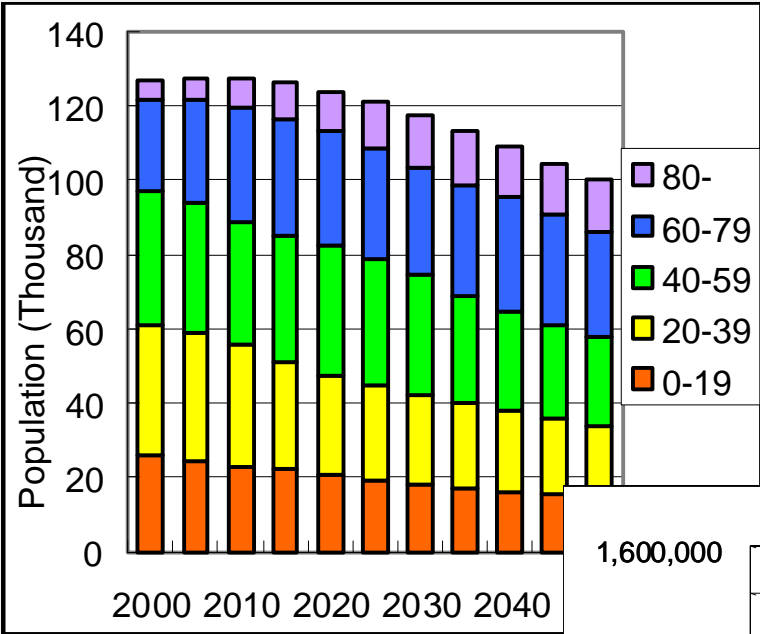
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Narrative visions development

Vision A “Doraemon”	Vision B “Satsuki & Mei”
Vivid, Technology-driven	Slow, Natural-oriented
Urban/Personal	Decentralized/Community
Techno-centric Centralized production /recycle	Self-sufficient Local production for local consumption
Comfortable and Convenient	Social and Cultural Values
	 <p>Akemi Imagawa</p>

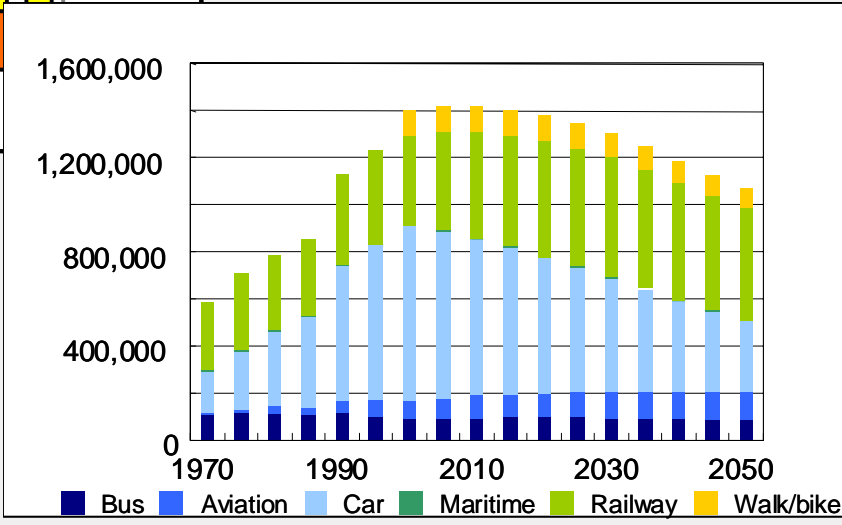
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Quantification of the visions



Population changes

Transportation demand
(mil. Person-km)



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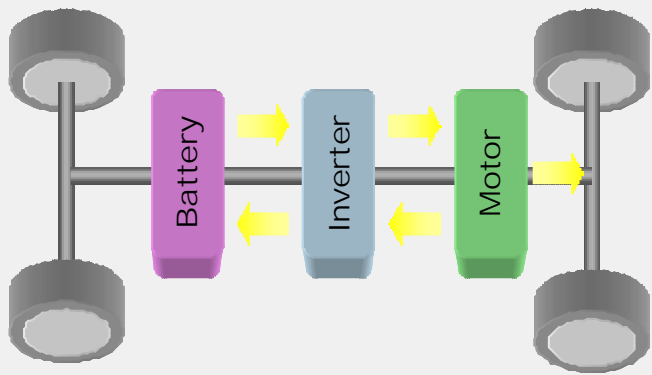
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Discussion on appropriate measures

Electric Vehicles (EV)

In an electric vehicle (EV), a battery or other energy storage device is used to store the electricity that powers the motor. EV batteries must be replenished by plugging in the vehicle to a power source. Some electric vehicles have onboard chargers; others plug into a charger located outside the vehicle. Both types, however, use electricity that comes from the power grid. Although electricity production may contribute to air pollution, EVs are considered zero-emission vehicles because their motors produce no exhaust or emissions.

Ref. Alternative Fuel and Advanced Vehicle Center



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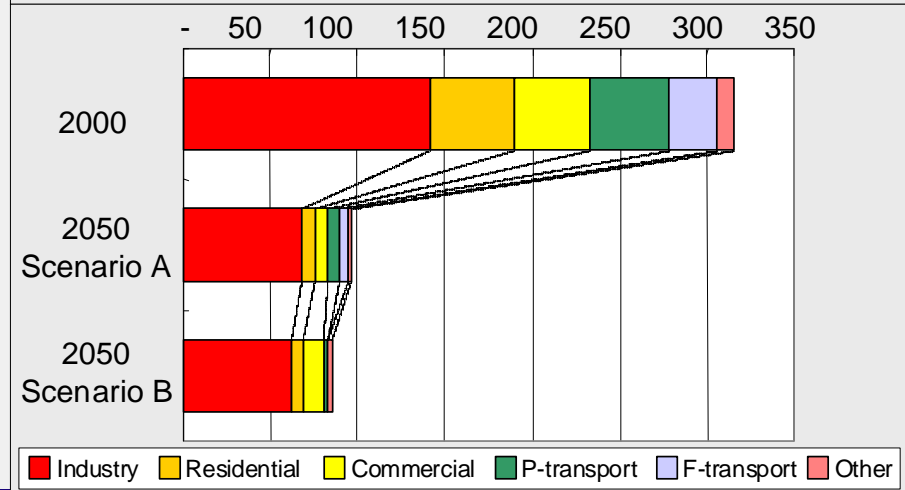
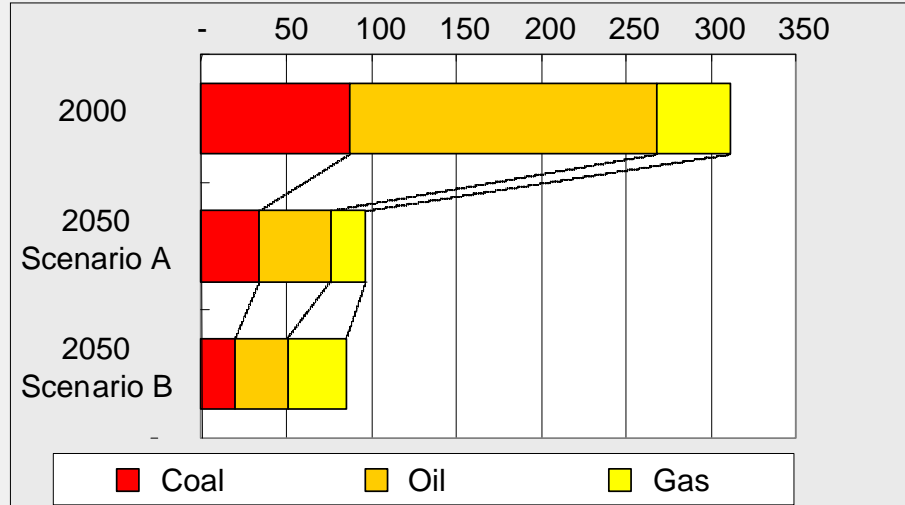
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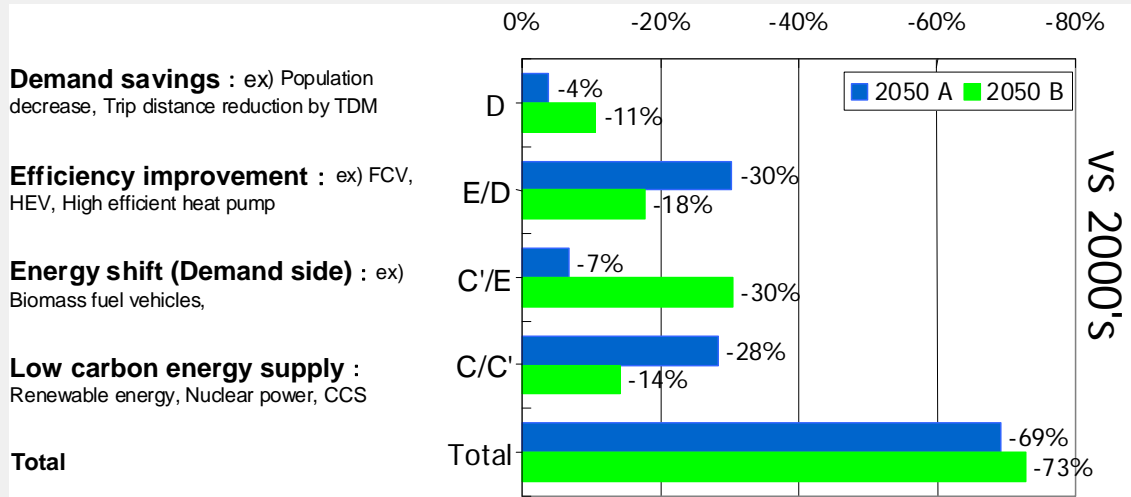
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Evaluation of scenarios visions



$$\frac{\Delta C}{C} = \frac{\Delta D}{D} + \frac{\Delta(E/D)}{(E/D)} + \frac{\Delta(C'/E)}{(C'/E)} + \frac{\Delta(C/C')}{(C/C')} + \text{Cross term}$$

D: Driving forces (service demand)
 E: Energy Consumption
 C': CO₂ emission without measures in transformation sector
 C: CO₂ emission with measures in transformation sector
 E/D: Energy Intensity
 C'/E: CO₂ intensity in end-use sector (without measures in transformation sector)
 C/C': Change of CO₂ intensity by measures in transformation sector

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Any Questions?



Thank you for your attention!!

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