

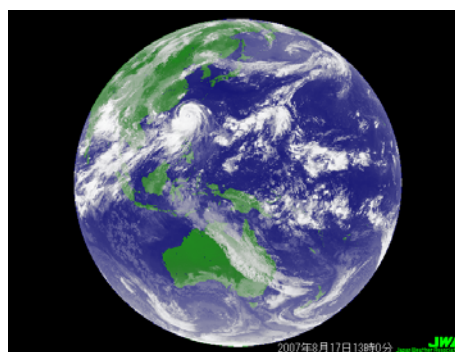
ISAP2014
Low Carbon, Resilient and
Inclusive
Development(2014.07.23)

From Climate Change to Sustainable Society

Akimasa Sumi
President
National Institute for Environmental Studies
Professor Emeritus
The University of Tokyo

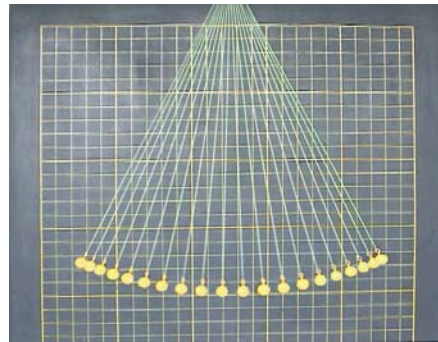
Recognition of the limit of the Earth

- Finite character of the Earth
- Limits to Growth
- Spaceship Earth



Under a limited environment,

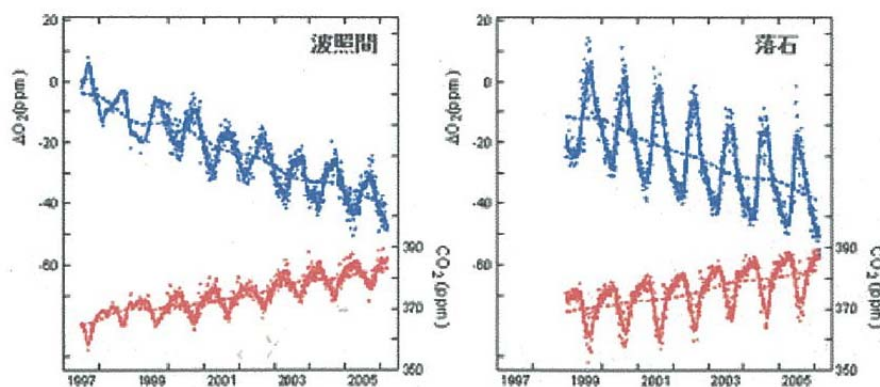
- One possible way of sustainable movement is
- A cycle or
- an oscillation



In our environment, many cycles

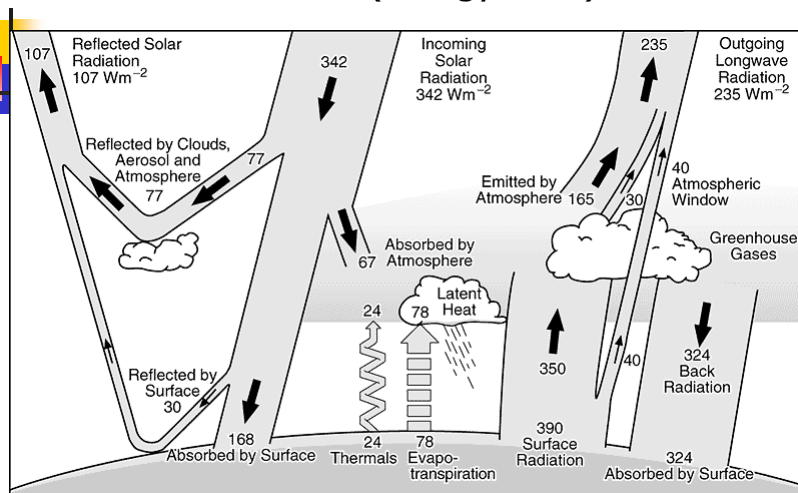
- Energy Cycle
- Water Cycle
- Carbon Cycle
- Nitrogen Cycle
- Materials Cycle etc.
- Many Cycles!

When CO₂ is emitted, O₂ is decreasing!



Circulation is critical for sustainability!

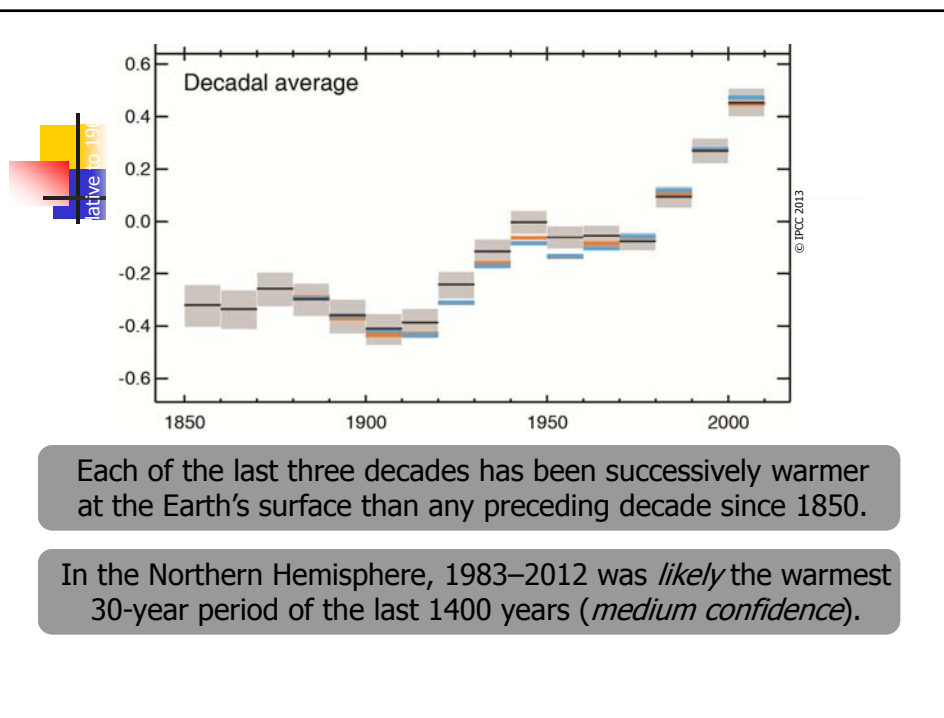
Radiation Balance(Energy Flow)

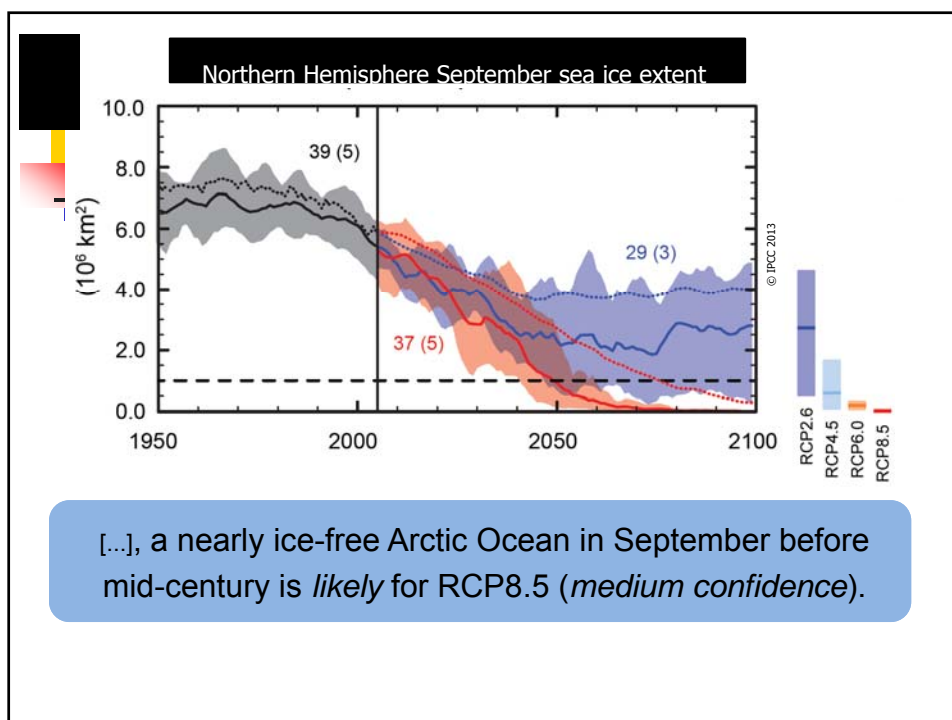
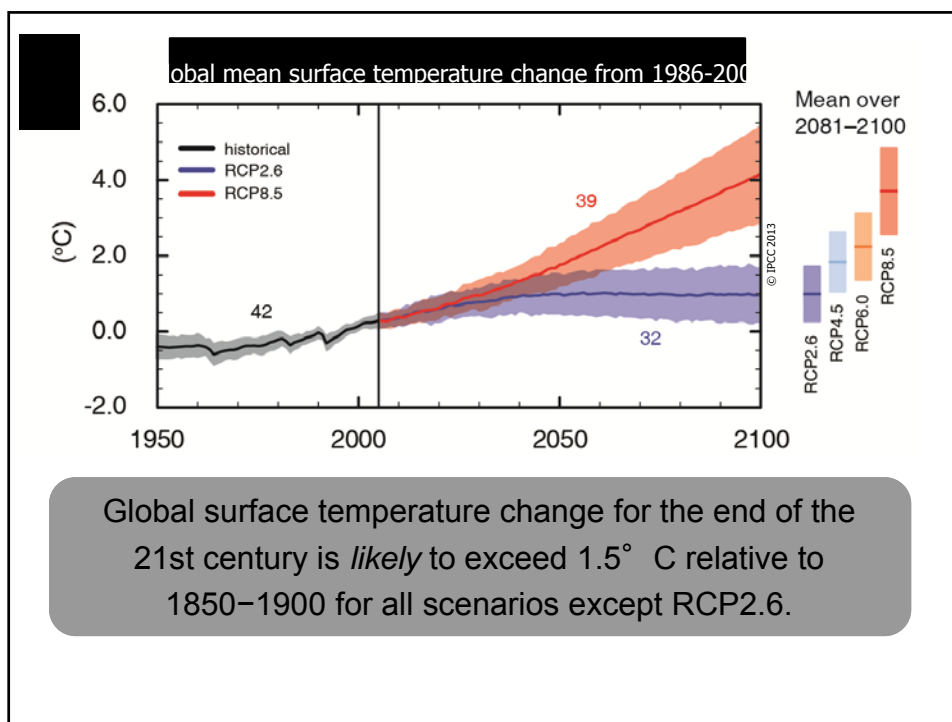


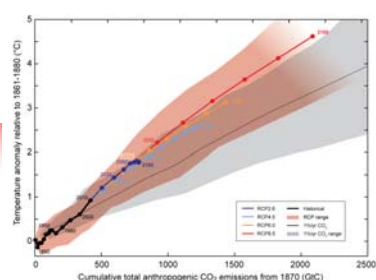
Energy Cycle cannot be separated from Water Cycle!

Global Warming

- Perturbation to the Earth Radiation Budget
- As a result, our climate is changed!







Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions.

Budget for the 2° C target: 790 GtC

CO₂ emitted until 2011: -515 GtC

Remaining emissions: 275 GtC

CO₂ emissions 2012: 9.7 GtC/yr

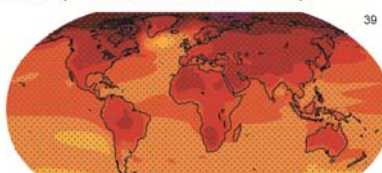
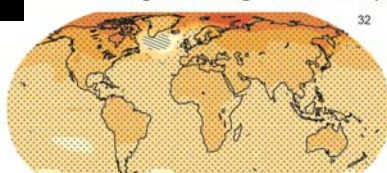
RCP2.6

CO_{2eq} = 475 ppm

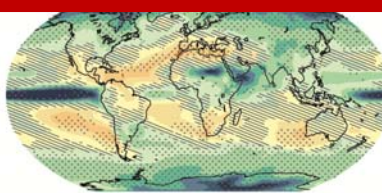
RCP8.5

CO_{2eq} = 1313 ppm

Change in average surface temperature (1986-2005 to 2081-2100)



We have a choice.



-50 -40 -30 -20 -10 0 10 20 30 40 50 (%)



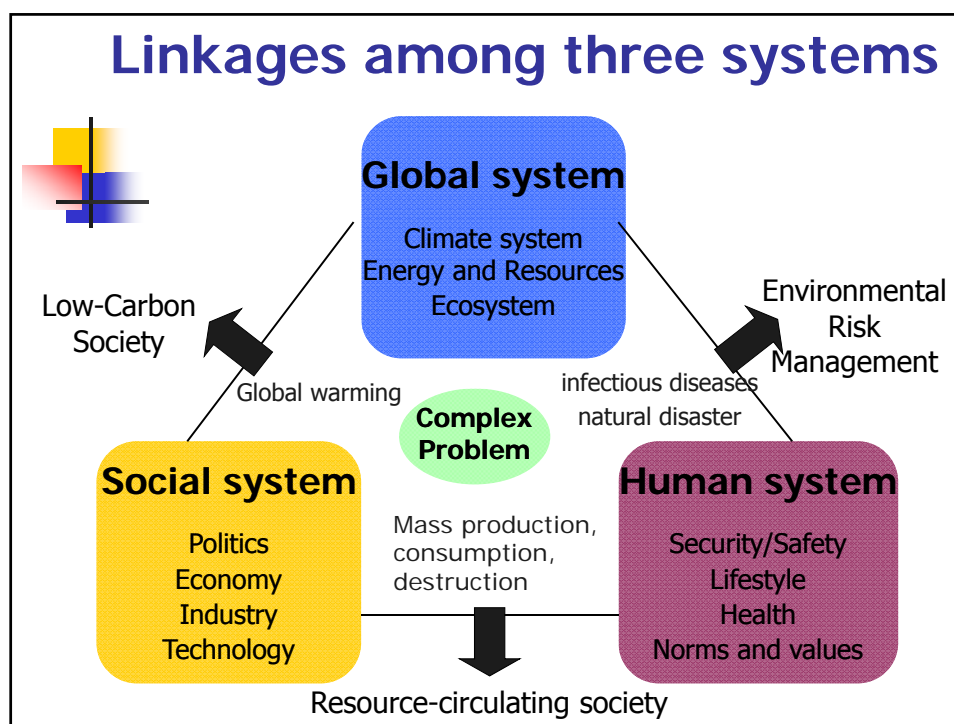
Now is a time to take actions!

- Generally it is acceptable, but the details are not!
- Many stakeholders
- There are many excuses for not-taking actions
- Different values
- Diverse interests
- Consensus Building



Win-win relationship

- Vision of the Future Society
- Low Carbon Society
- Material Cycle Society
- Nature-friendly Society
- Integration of Three Society+Safety

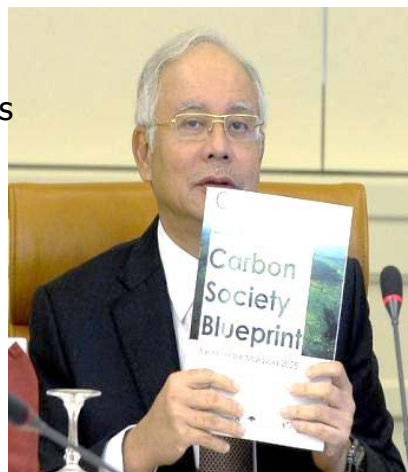


"Development of Low Carbon Society Scenarios for Asian Regions "In the case of "Iskandar Malaysia"

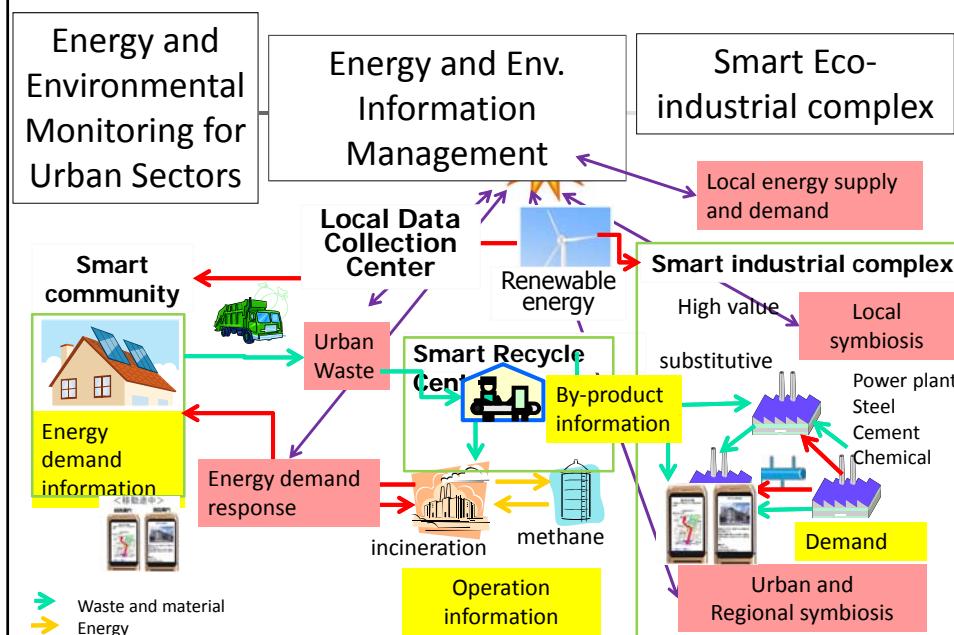
Japanese experience on
Low Carbon Scenarios & Roadmaps
+
Malaysian challenge on
Implementation of Low Carbon Visions



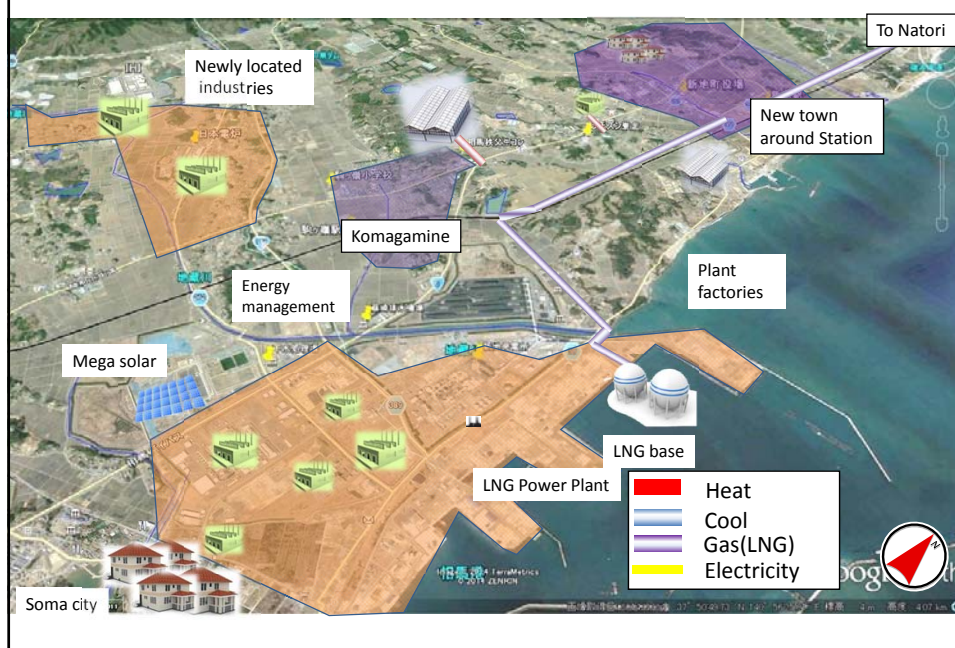
Premier of Malaysia provided
permission in the 13th IRDA
Steering Committee to start
the Iskandar Low Carbon
Society planning
(December 11th, 2012)



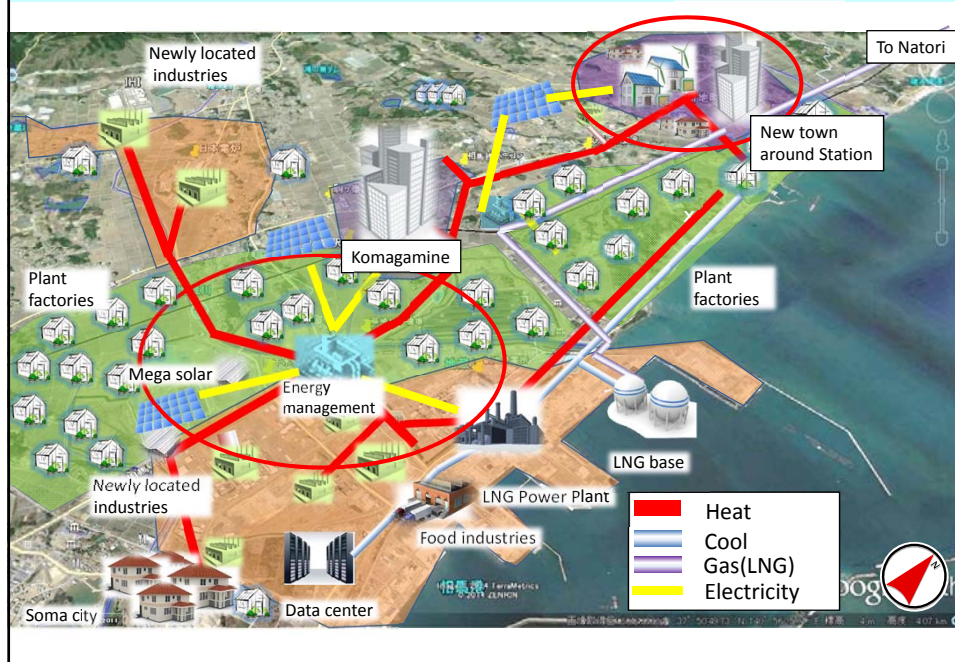
Eco-City Monitoring and Modelling System in Asia

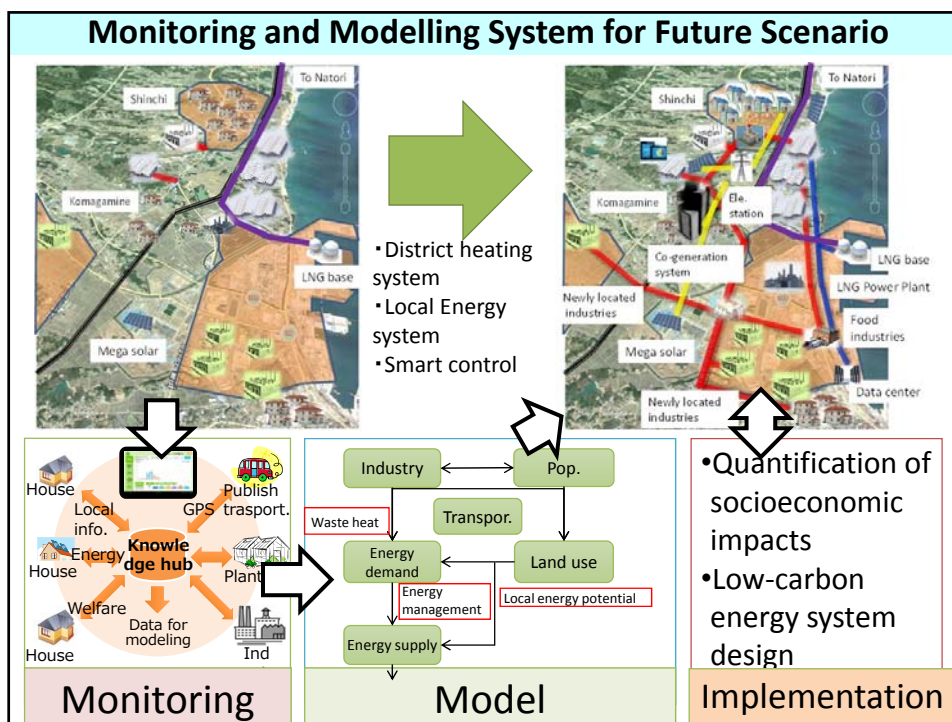


BaU scenario in Fukushima Shinchi town in 2030



Energy Network Scenario in Fukushima Shinchi Town in 2030





Commonness and Diversity

- Globalization and local/regional character
- Value
- Quality of life
- Tolerance and mutual respect



We need

- Sharing knowledge and information
- Modeling is critical
- Accessibility and accountability
- Again, Tolerance



Thank you!
