



Integrated Assessment Modeling on Air pollution and Climate Change

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Contents

- ◆ Introduction of the Air pollution modeling with the Integrated Assessment Model used for the Climate Change Study (AIM: Asia Pacific Integrated Assessment Model)
- ◆ Some examples of Air Pollution modeling studies along the Integrated Assessment Model framework.
 1. Quantification of Co-benefit of Regional Low Carbon Society Policies on Air Pollution
- ◆ Idea on a possible collaborative program

Overview of AIM (1)

AIM (Asia-Pacific Integrated Model) is an integrated assessment model to assess mitigation options to reduce GHG emissions and impact/adaptation to avoid severe climate change damages.

The model is extended to assess sustainable development policies together with Asian researchers.

(1) Emission modules

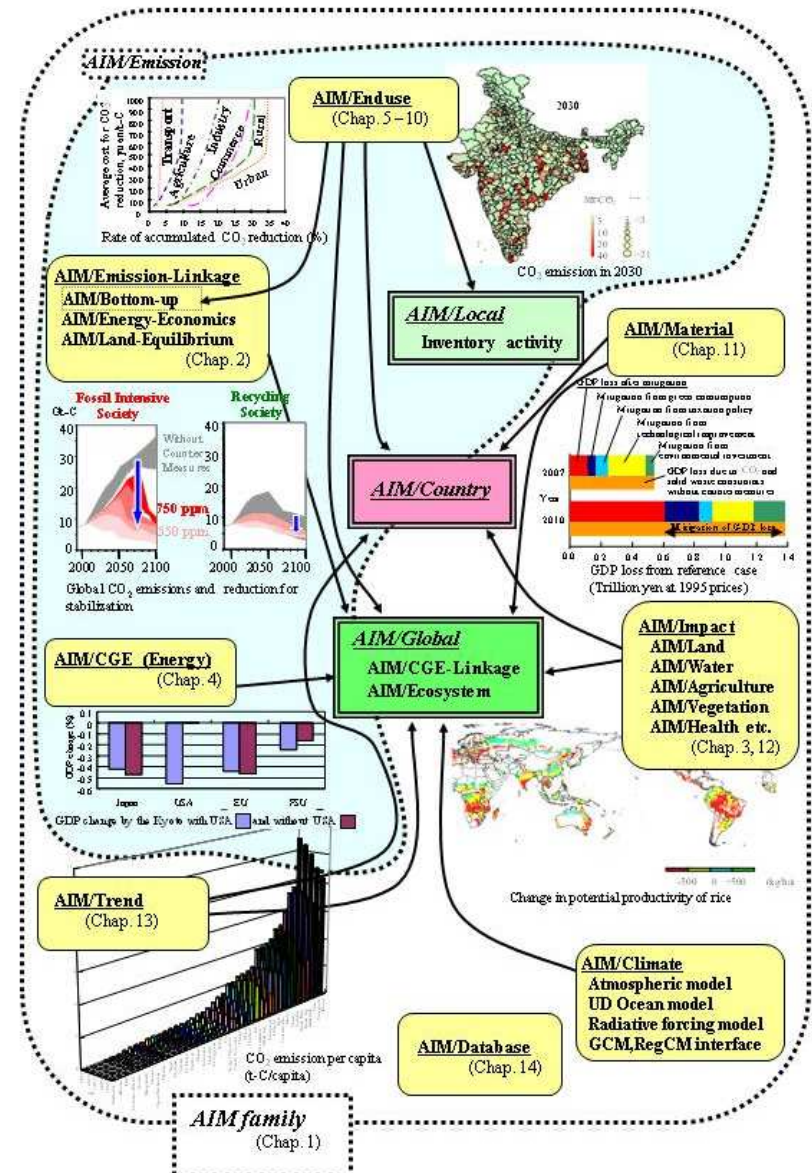
- World Economic Model
- Energy Technology Selection Model
- Material Recycle Model ▪ Industry Model
- Landuse / Landuse Change Model
- Scenario development Model ▪ Simplified Model

(2) Climate Modules...

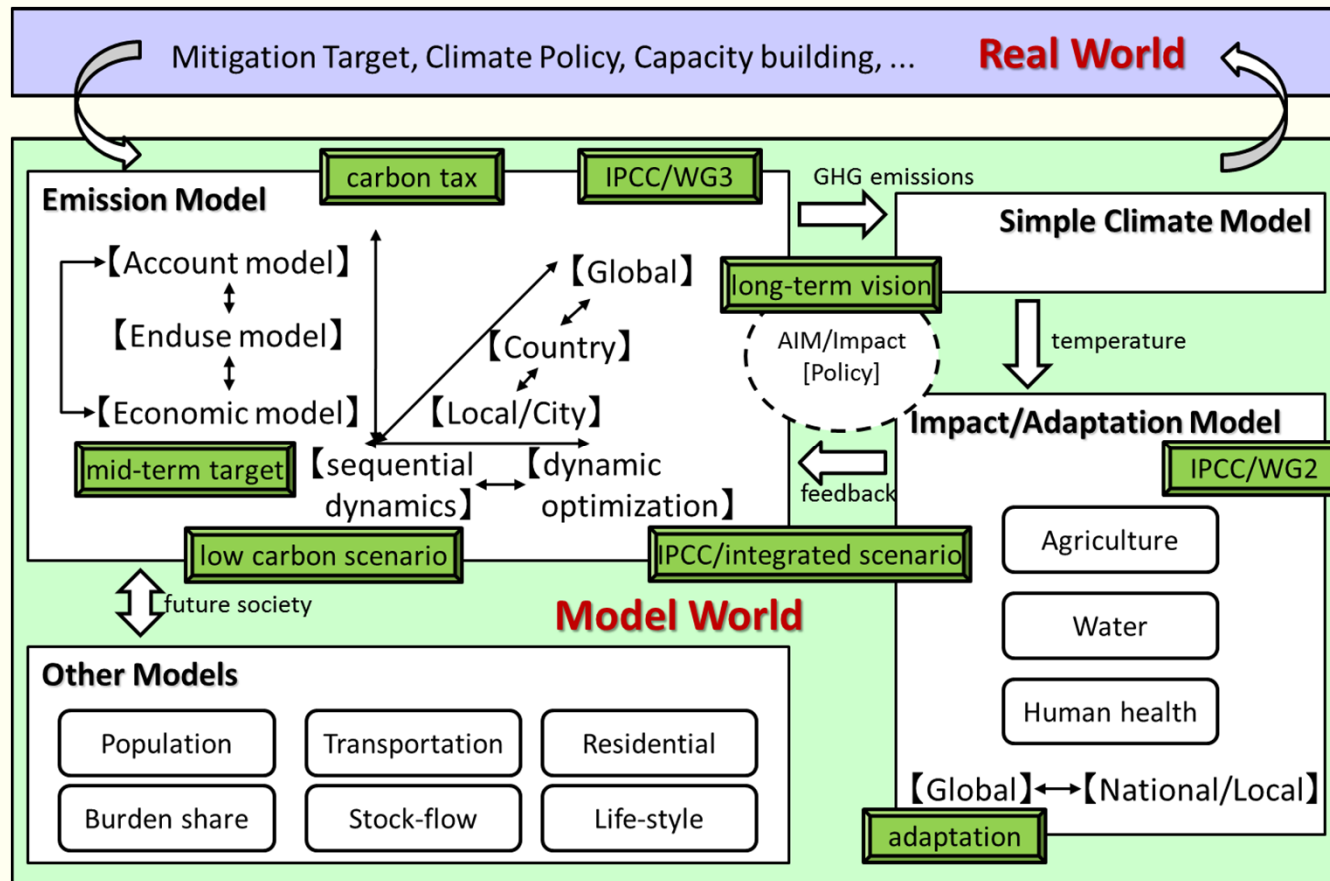
- Carbon cycle Model
- Global Average Climate Model
- Regional Climate Model
- Chemical Transport Model

(3) Impact Modules ...

- Water Resource Impact Model
- Agriculture Impact Model
- Potential Vegetation Impact Model
- Health Impact Model
- Economic Impact Model



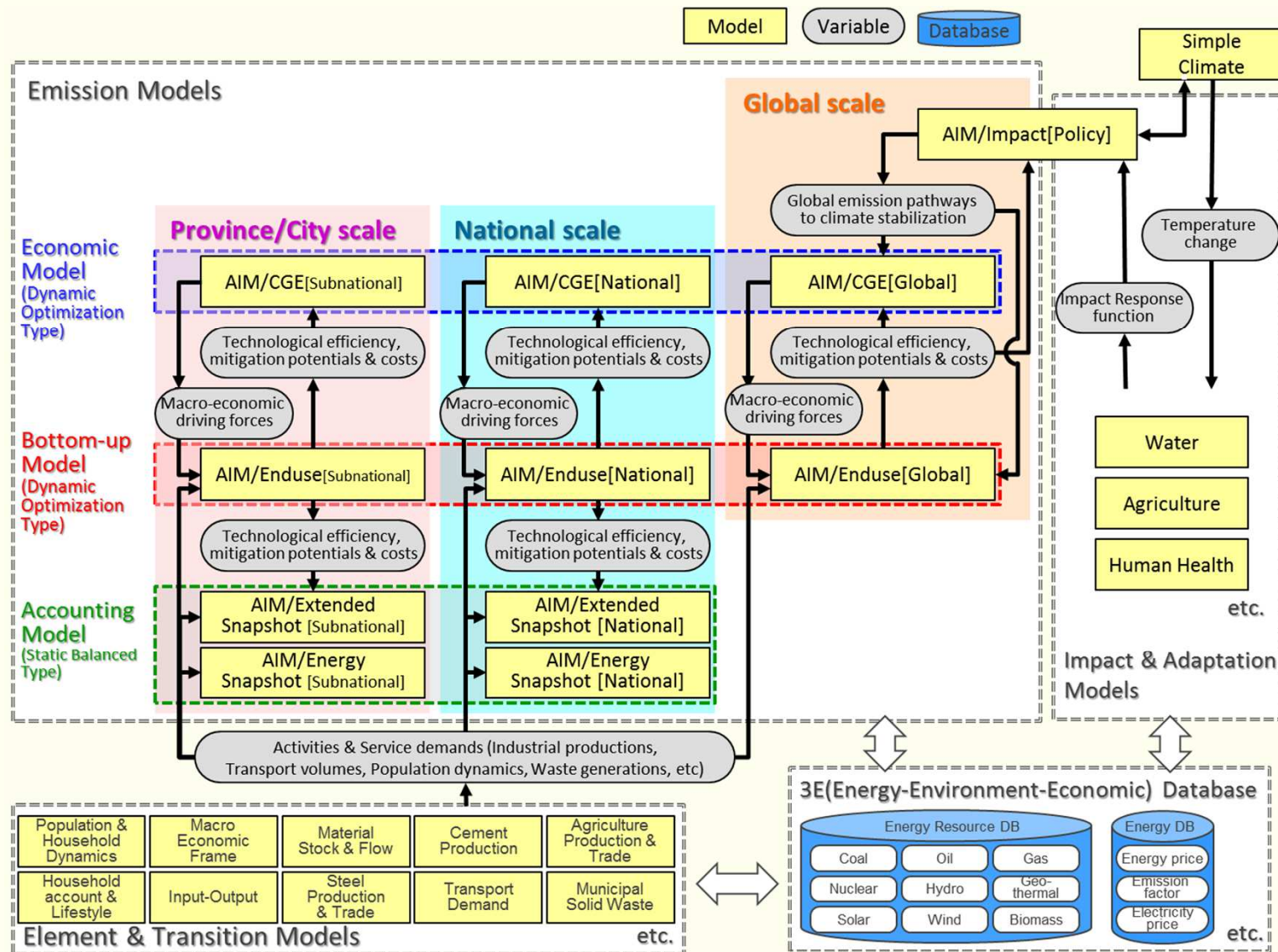
Overview of AIM (2)



<http://www-iam.nies.go.jp/aim/>

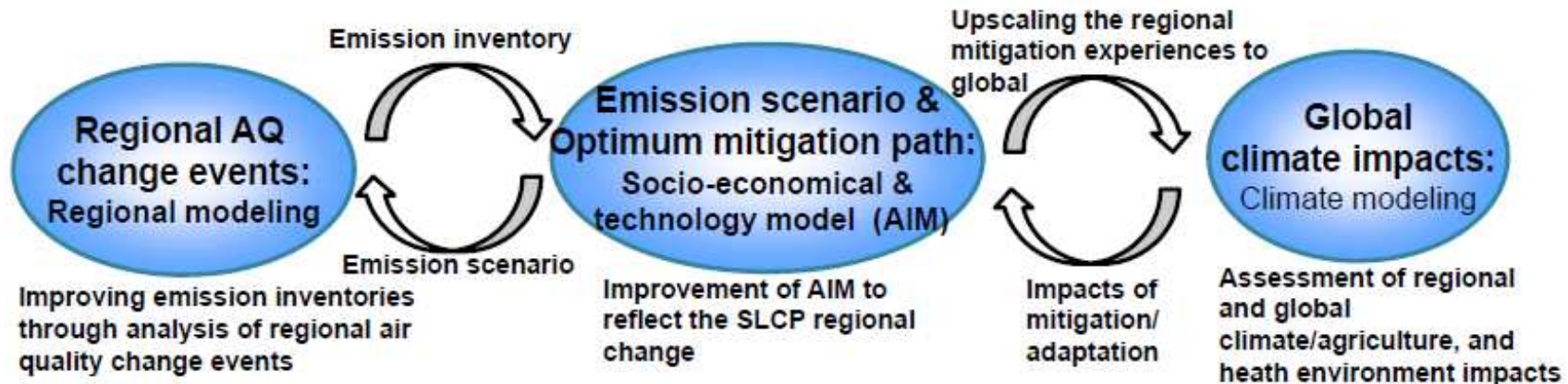


AIM models for GHG mitigation analyses



MOEJ-S12: Active evaluation of SLCP impacts and seeking the optimal pathway (2014-2018) *PI: Terry Nakajima*

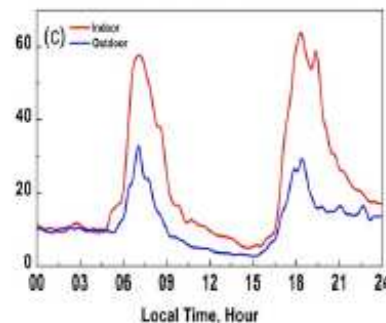
- Reduction of SLCP is easier than that of LLGHG due to their short lifetime, but the effects are very complex.
- Therefore, search for optimum mitigation paths is important for society.
- It is needed to develop an active evaluation system for LLGHG and SLCP mitigation policy, by overarching emission inventory, integrated models, and climate models.



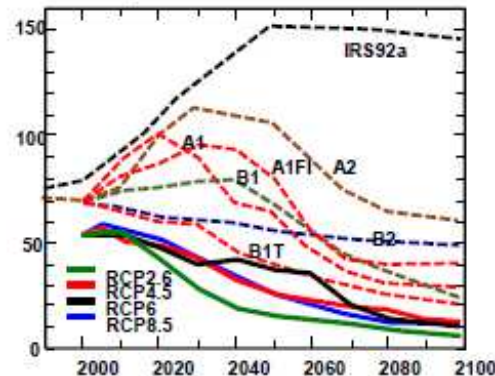
ex.: Project Surya (India)



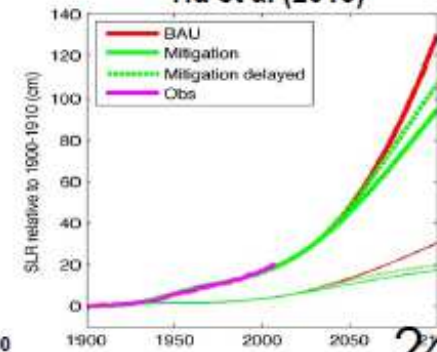
Black Carbon ($\mu\text{g m}^{-3}$)
Praveen et al (2011)



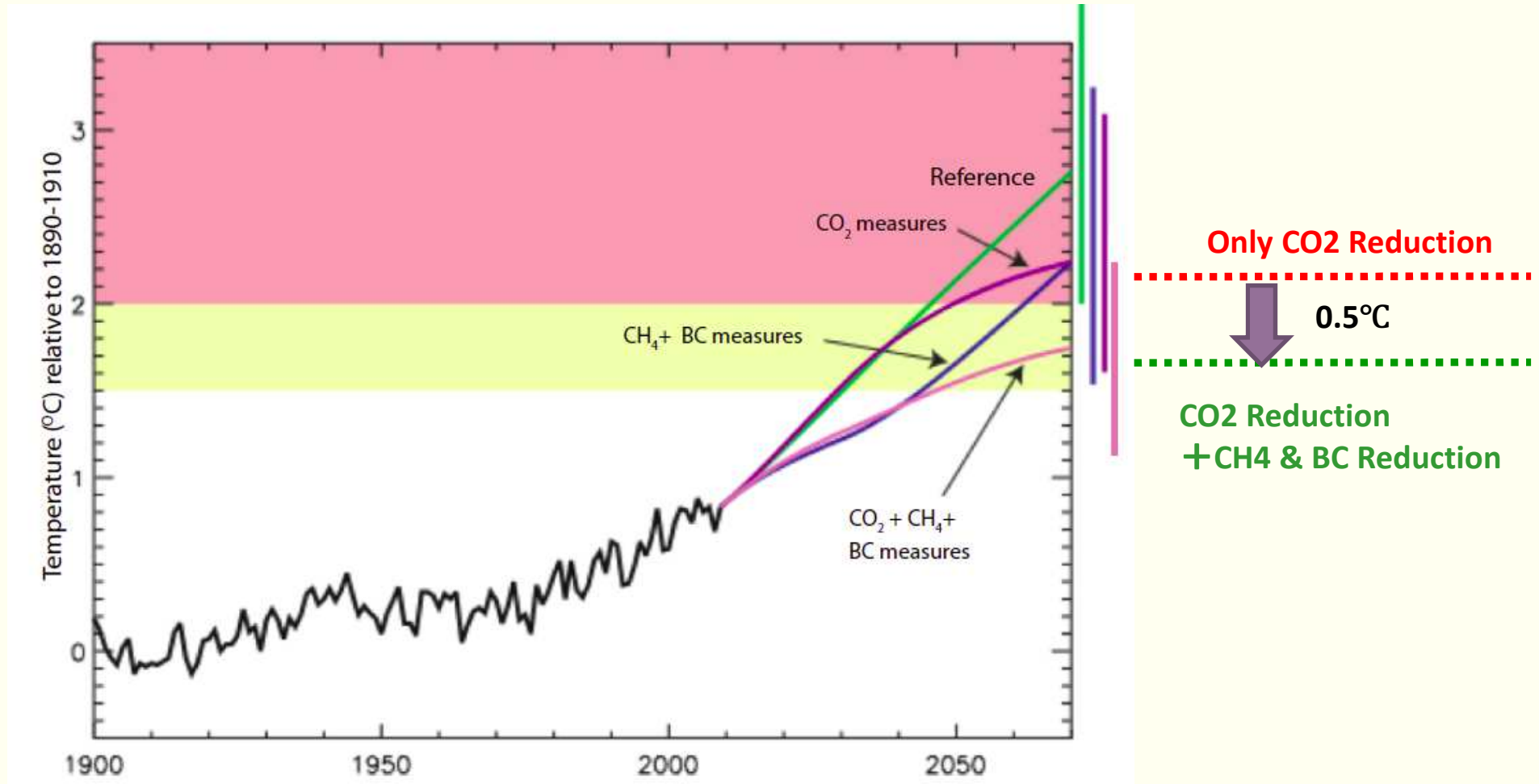
SO₂ future scenarios



Sea level rise
Hu et al (2013)



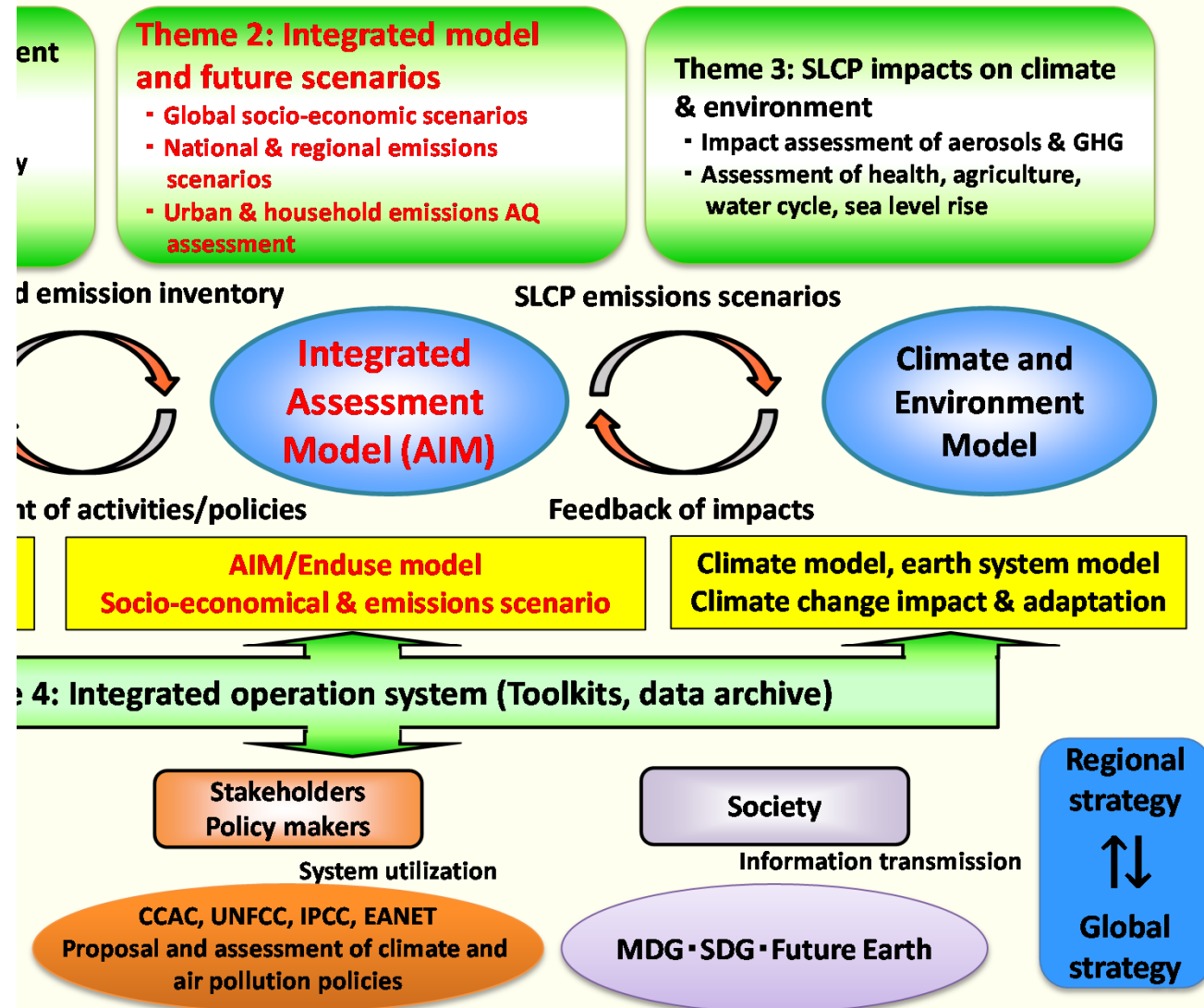
Reduction of Short lived Climate Pollutants and Global average temperature



Source) Figure6.1, UNEP/WMO (2011) Integrated Assessment of BC and tropospheric O₃

SLCP emission in AIM model

Integrated evaluation system for LLGHG and SLCP mitigation policy, by inventory, integrated assessment models, and climate models.



https://www.yunbaogao.cn/report/index/report?reportId=5_1877

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