Developing an Integrated Assessment Model for South Asia

IAMs have proved useful in Europe for developing regional agreements on air pollution control. How can they help South Asia?

- What can it be used for?
- What questions can it answer?
- What is the structure?
- What are the different stages in the development?

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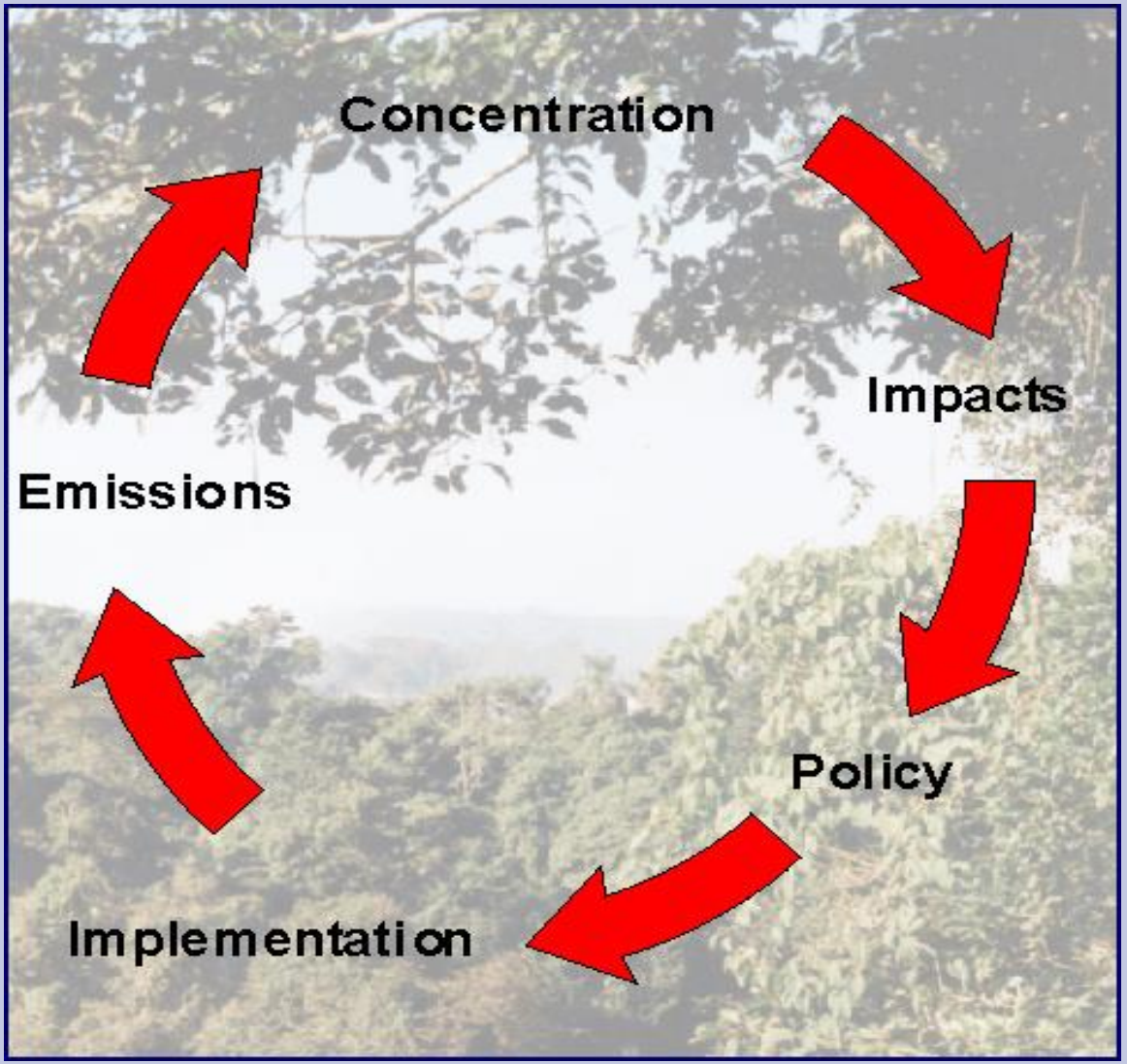
Regional Air Pollution In Developing Countries

Knowledge to underpin the Policy Process



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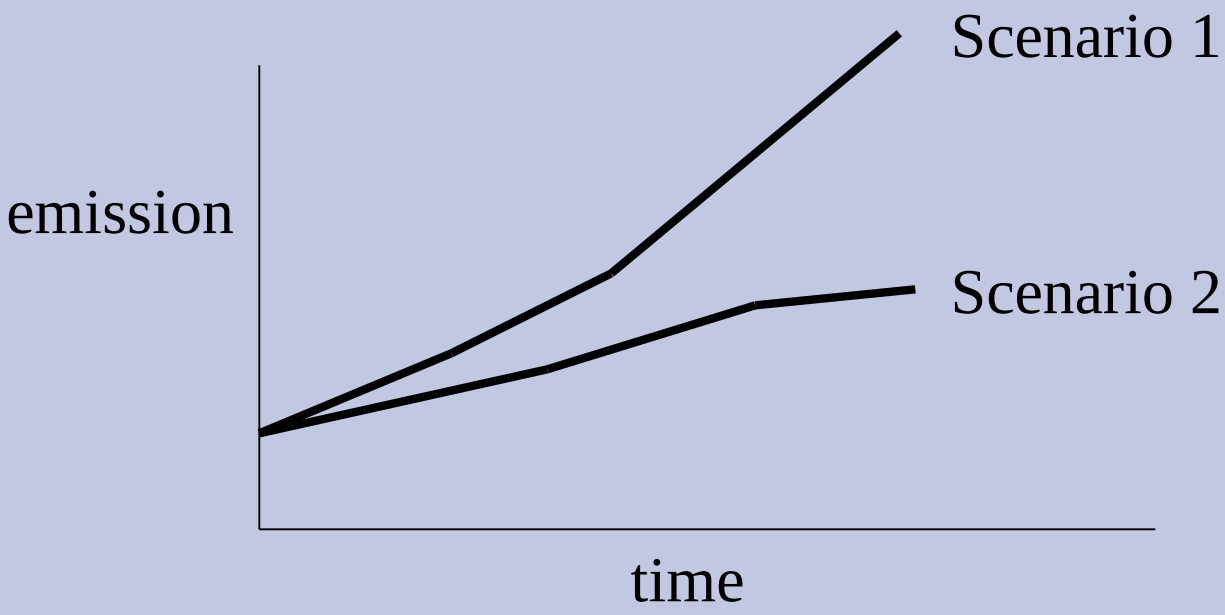
What can it be used for?

a. Investigating emission trends



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What can it be used for?

b. Investigating regional movement of pollutants

		Deposition in region			
region	emission	a.	b.	c.	……
a.	150	100	30	20	
b.	80	20	50	10	
c.	10	2	3	5	
Total deposition		122	83	35	

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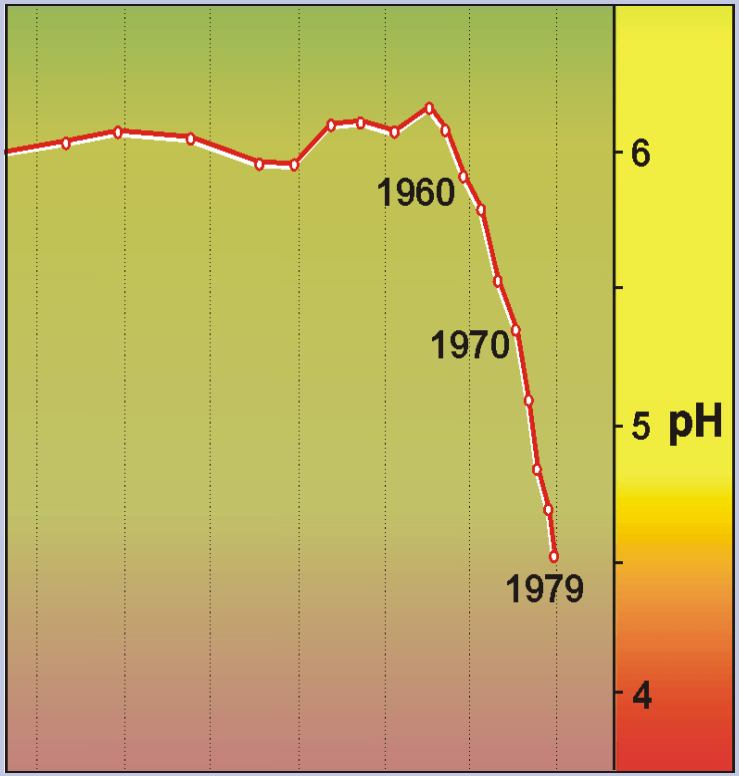
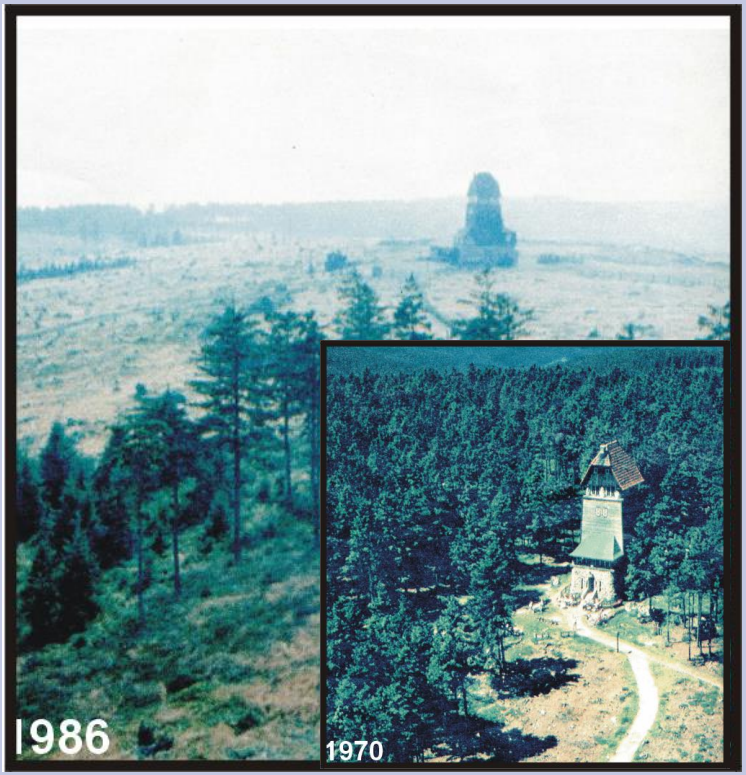
What can it be used for?

c. Assessing risks of impacts





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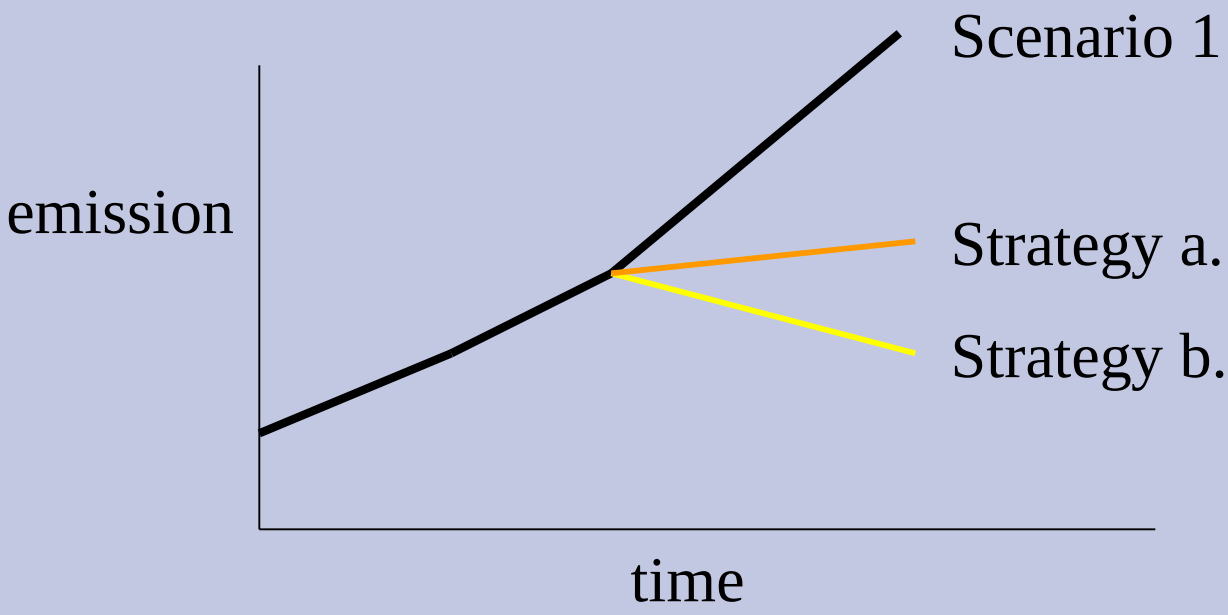
What can it be used for?

d. Developing cost-effective strategies to limit air pollution



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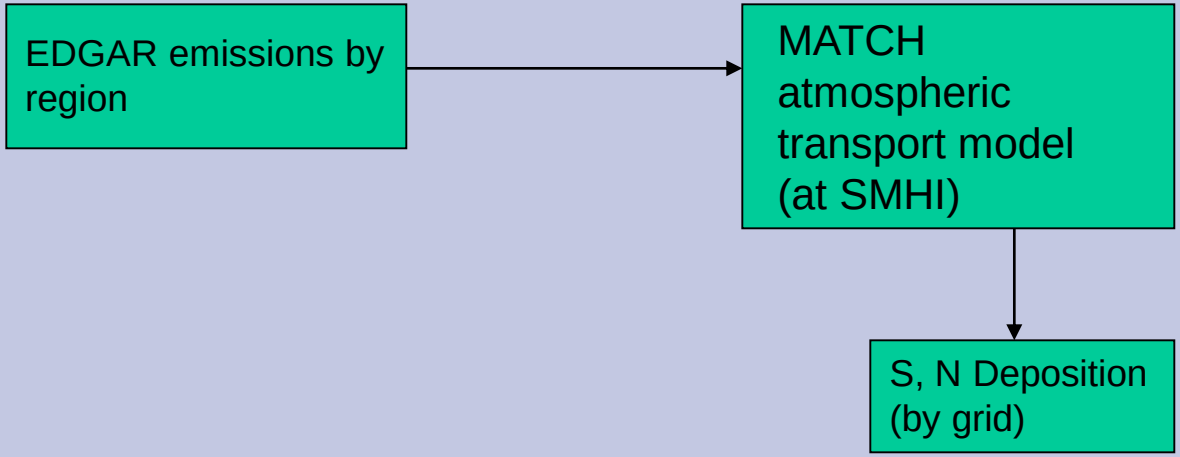
Phases in Model Development

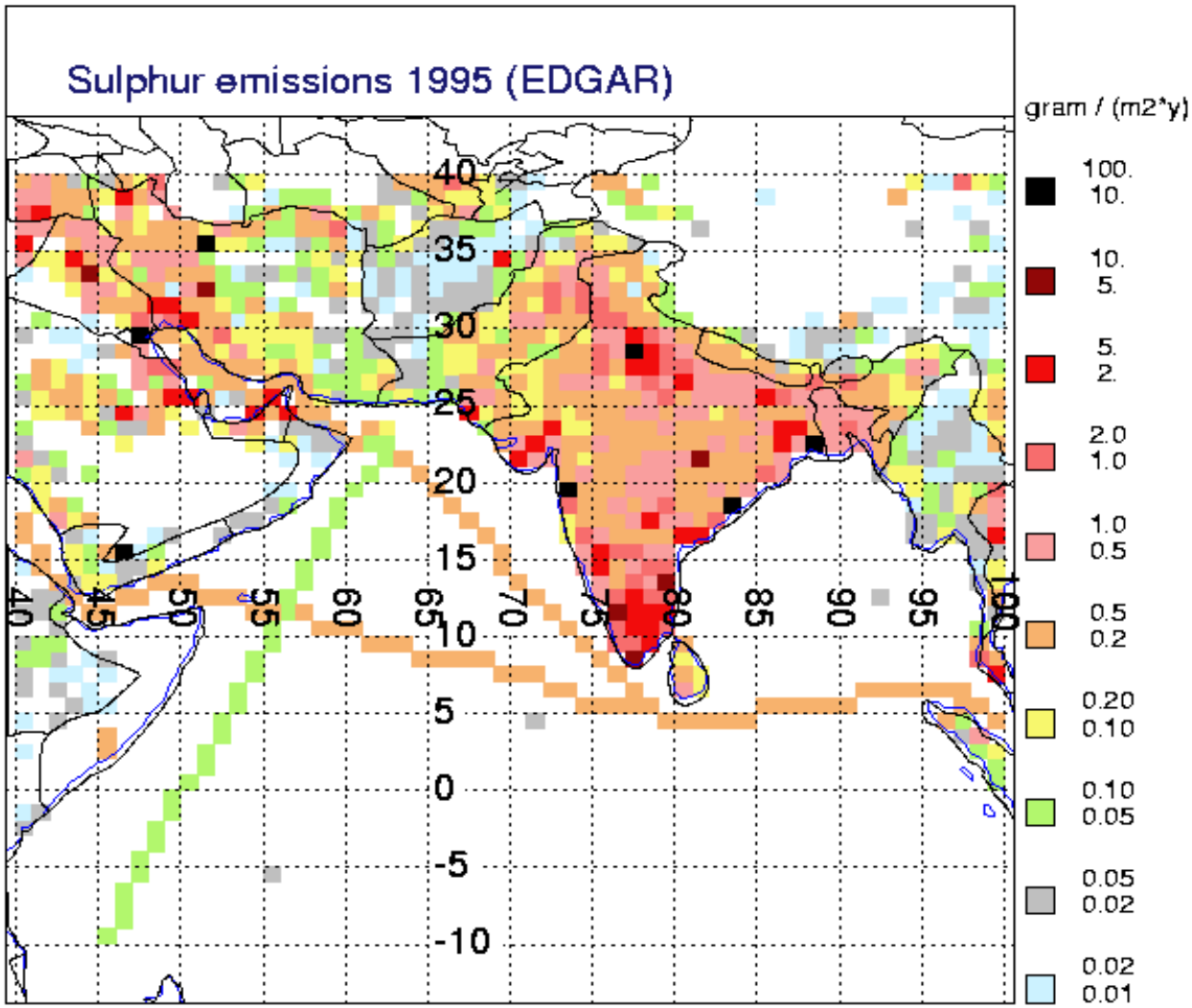
Phase I: develop model structure using internationally available data – allow NIA familiarity with model (2003)

Phase II: develop national emission inventories and ecosystem impact data for use in the model and complete the transfer of MATCH model to Asia (2004-2006)

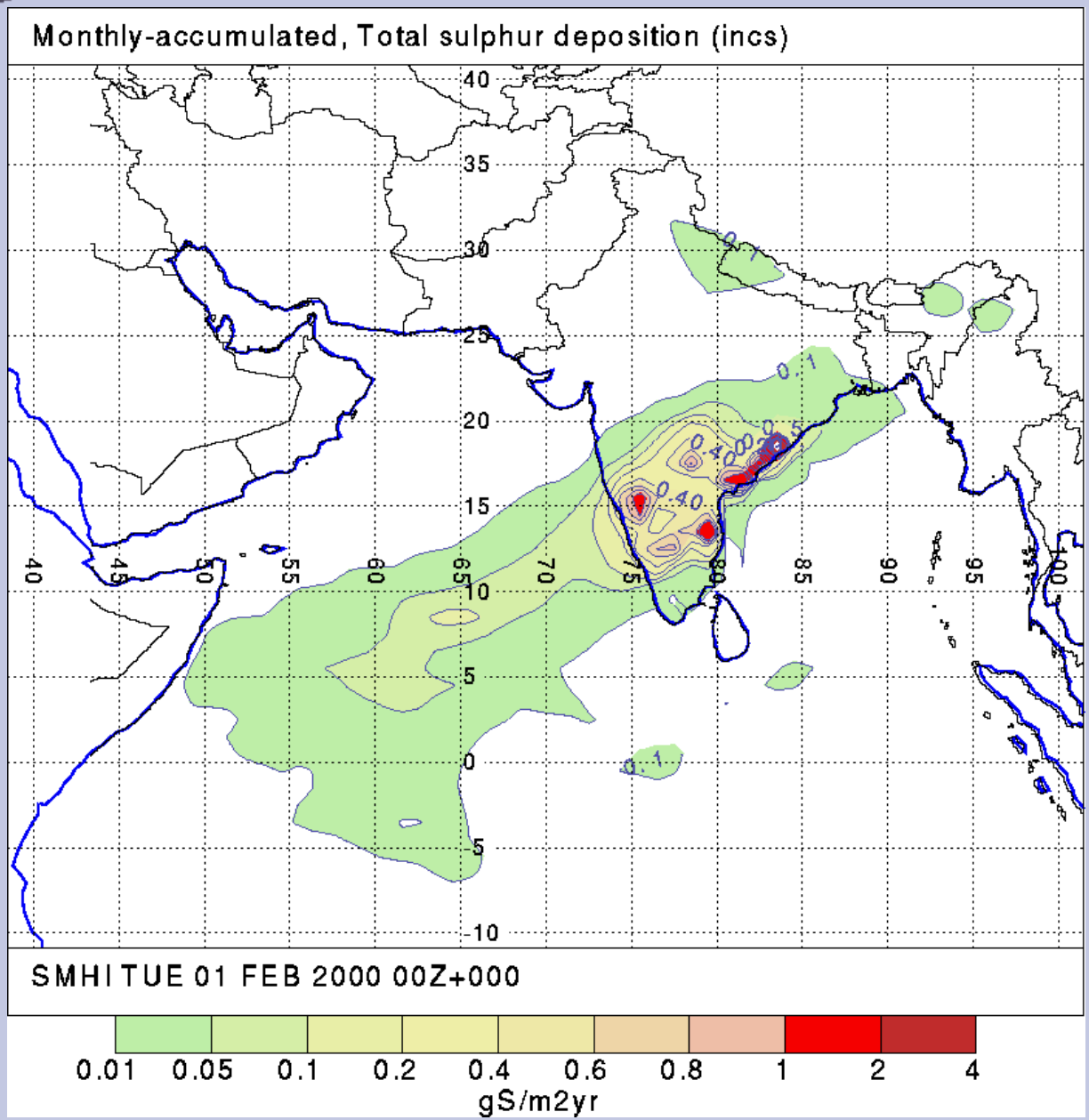
Phase III: further develop the model to include other pollutants such as ozone, PM_{10} and $PM_{2.5}$, and impacts such as crop yield losses, corrosion, visibility and health (2006-)



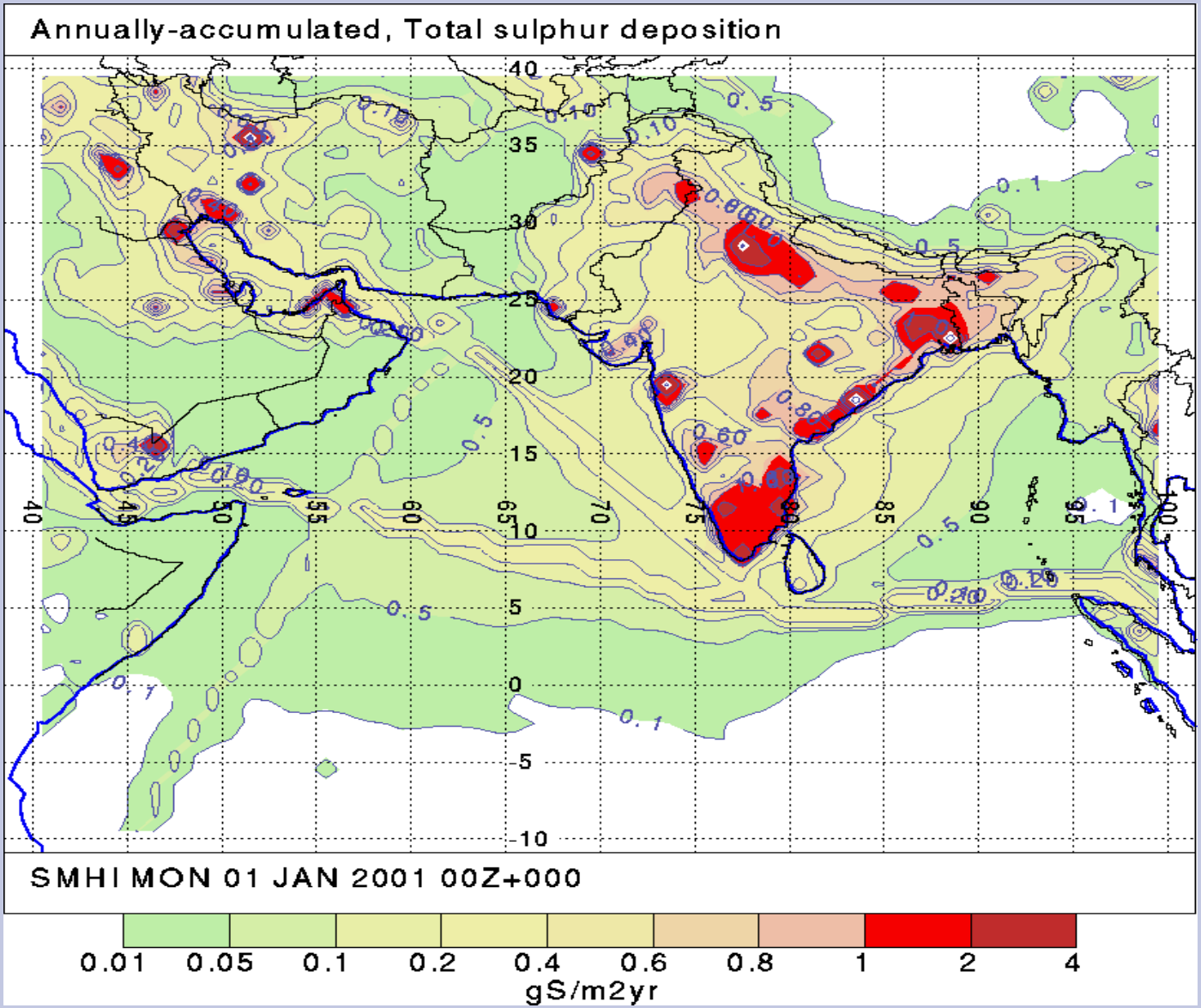
PHASE I: linking international emissions to deposition



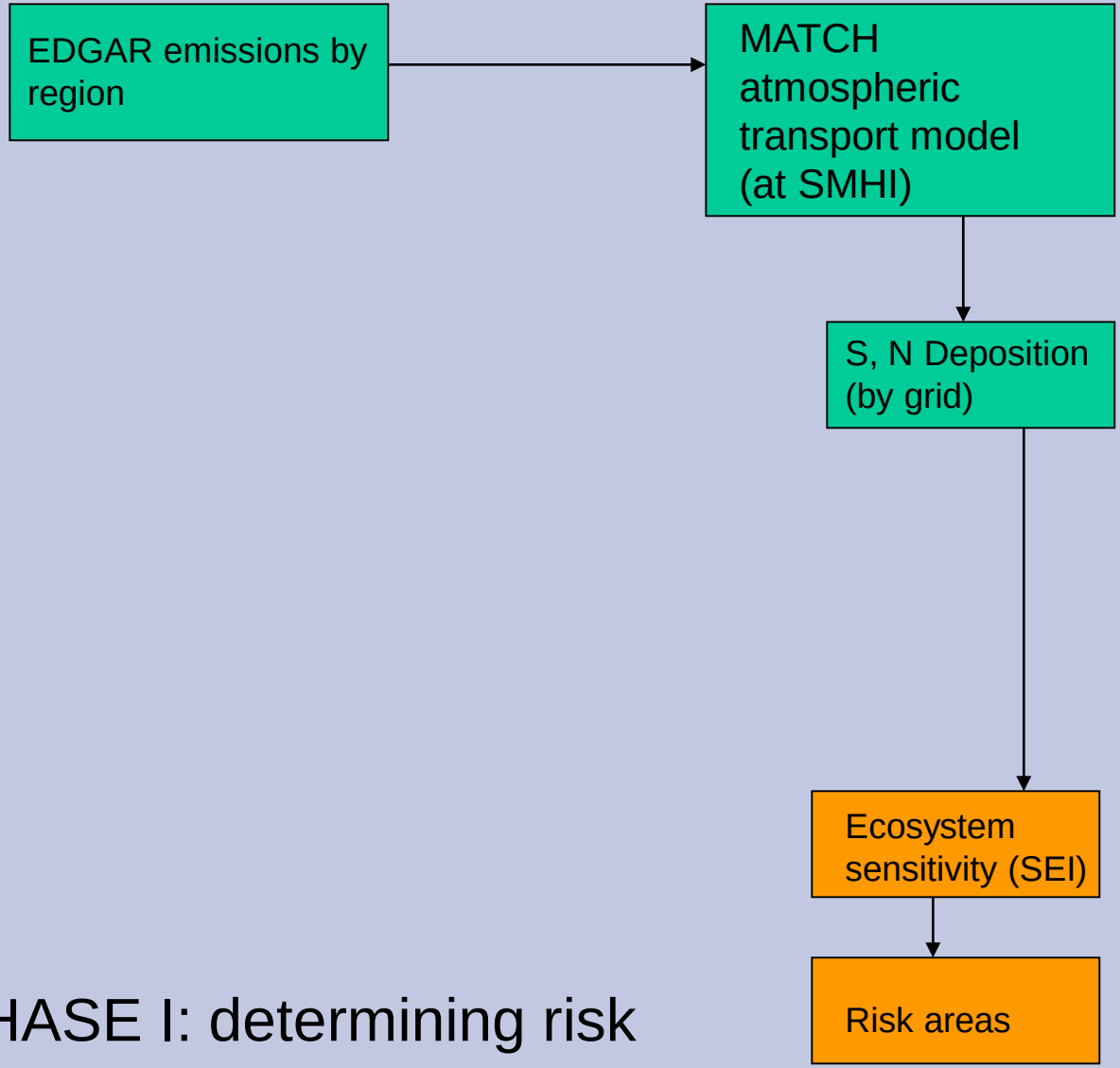
EDGAR emissions of sulphur in S Asia



MATCH model run for emission region ‘India south-central’ (Andhra Pradesh + Karnataka + Goa)

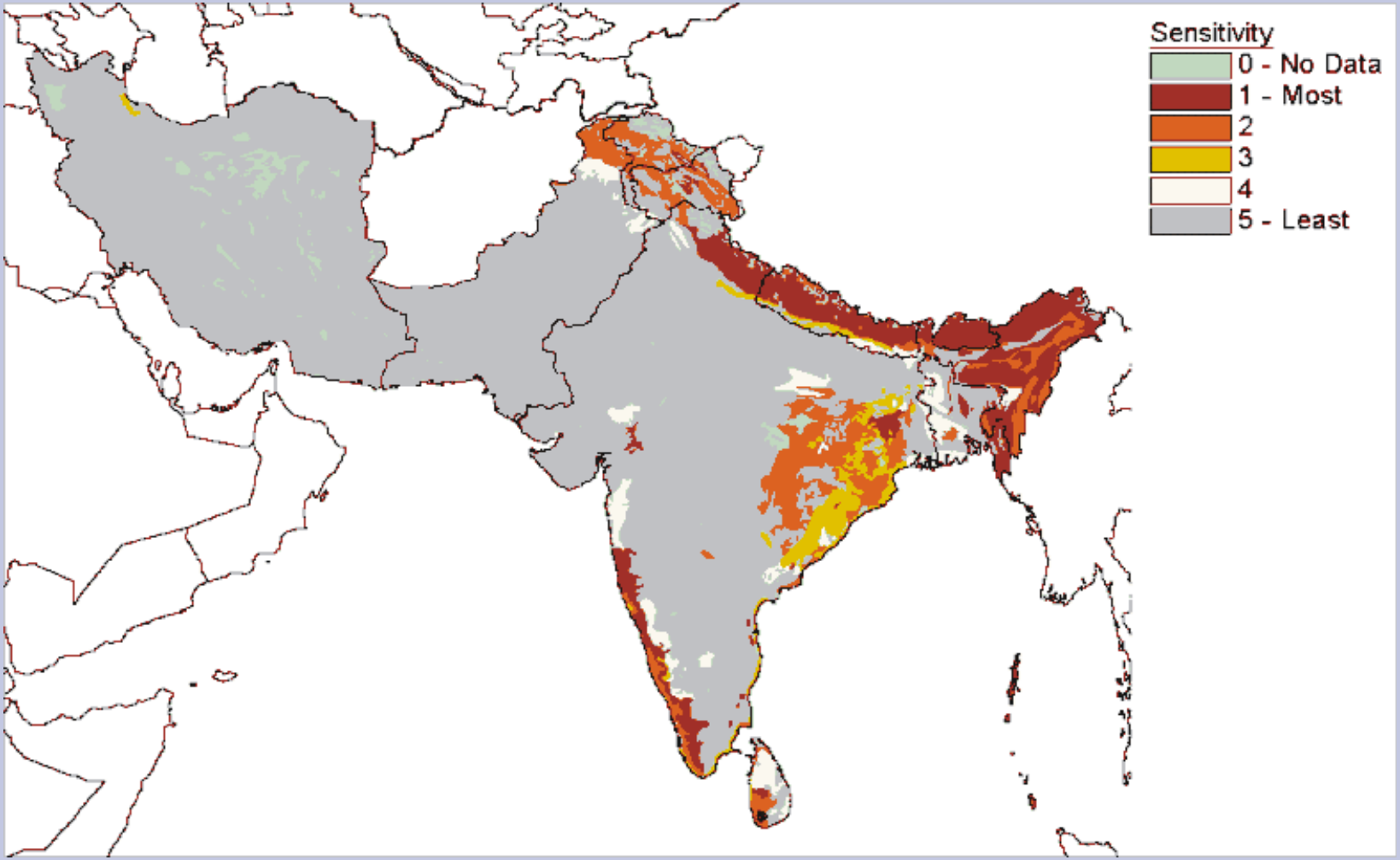


Deposition of sulphur in S Asia using the MATCH model



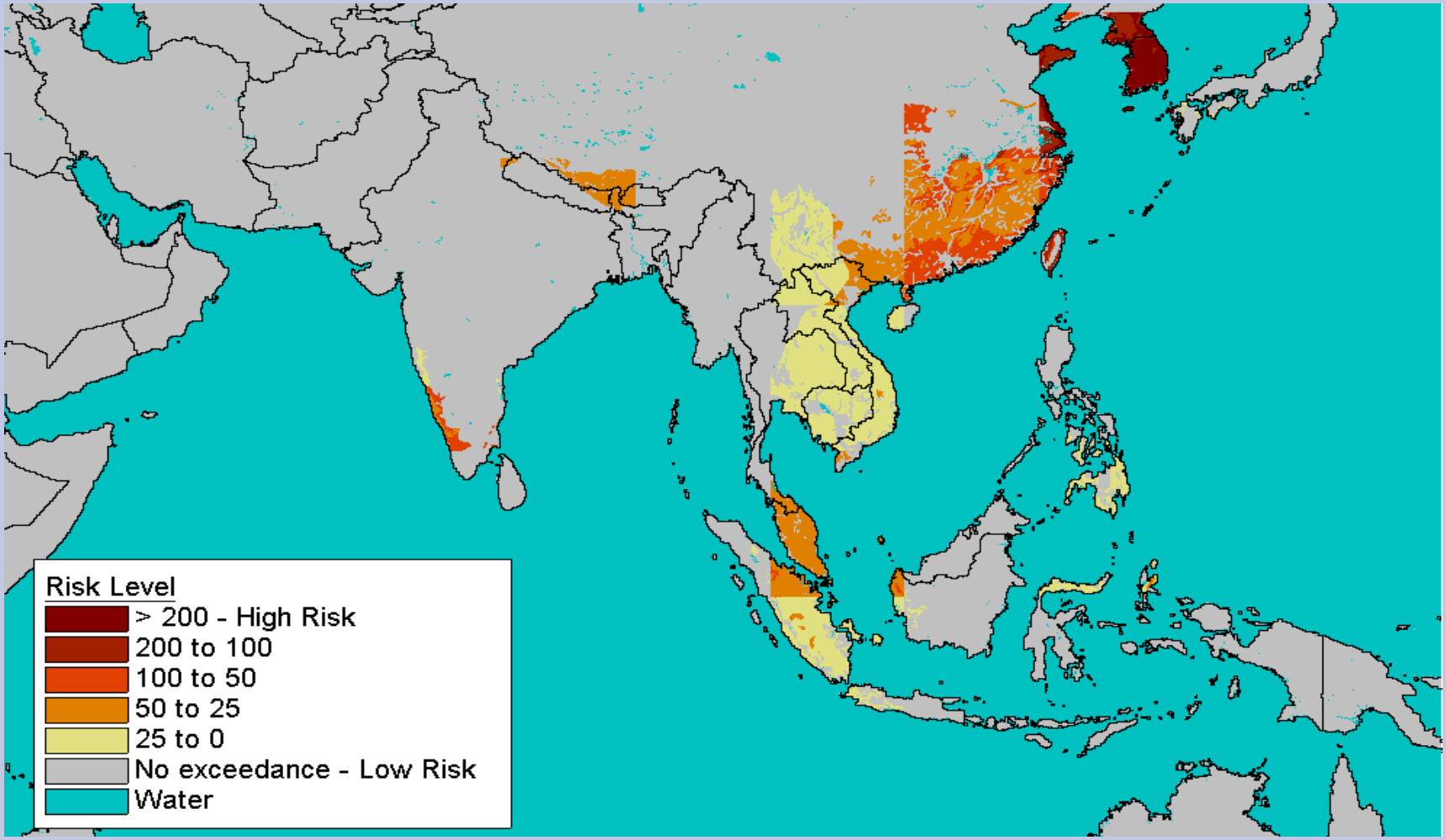
PHASE I: determining risk from available maps

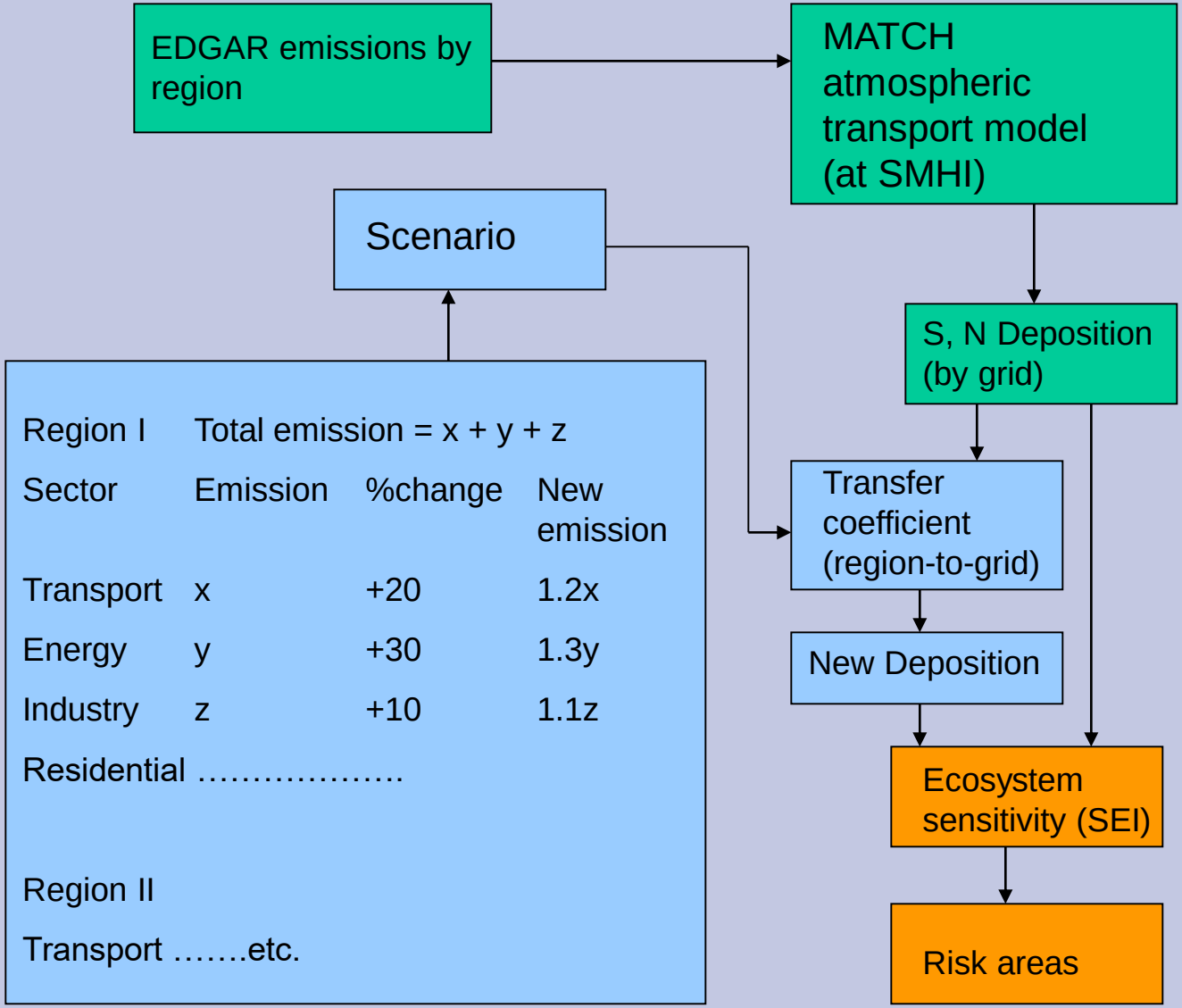
Terrestrial Ecosystem Sensitivity to Acidic Deposition in South Asia



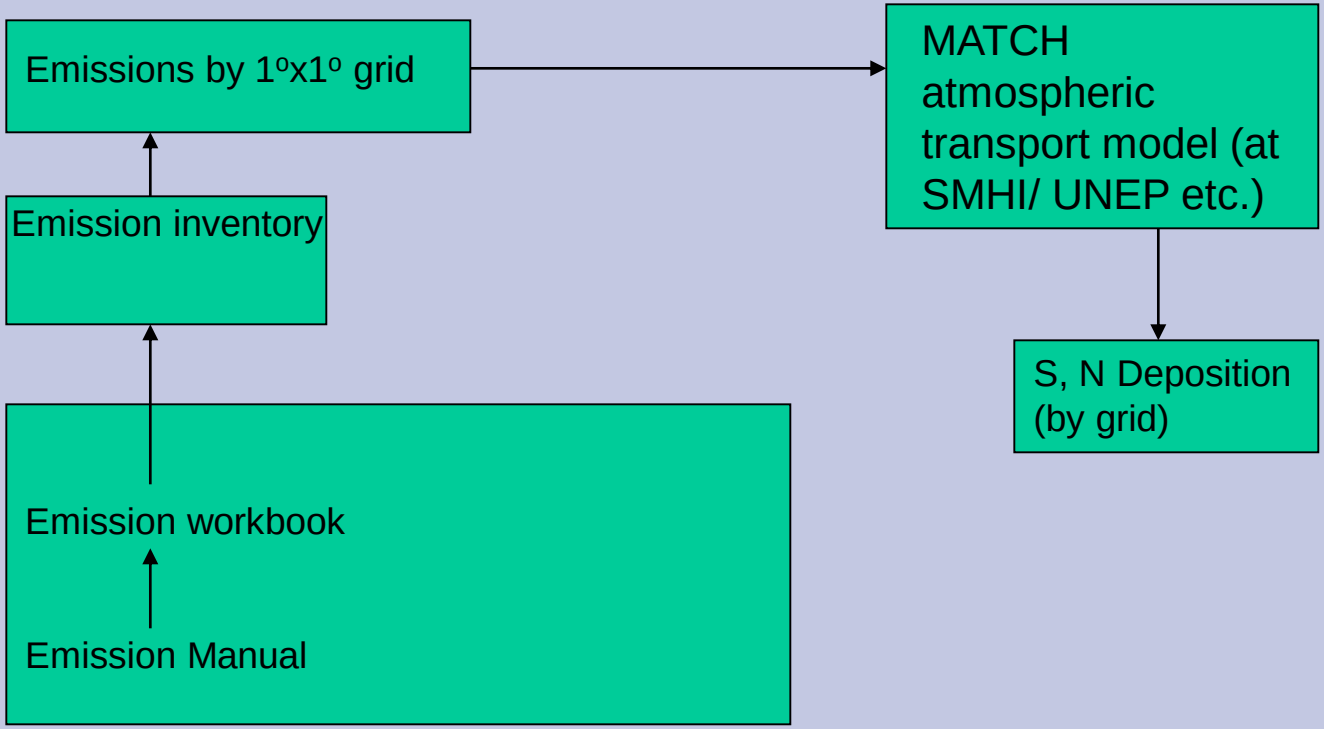
Source: Kuylenstierna *et al*. 2001

Estimated Risk of acidification

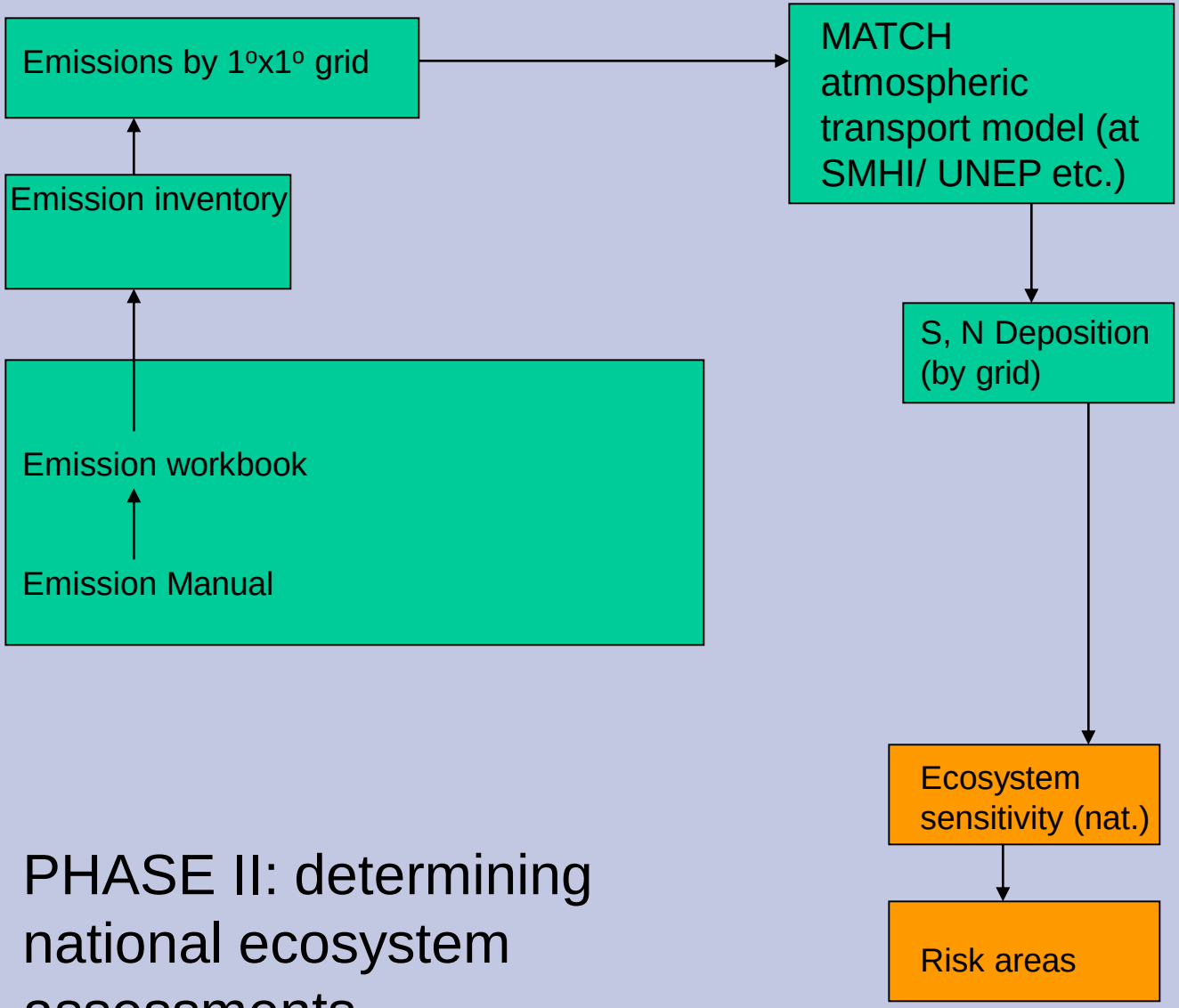




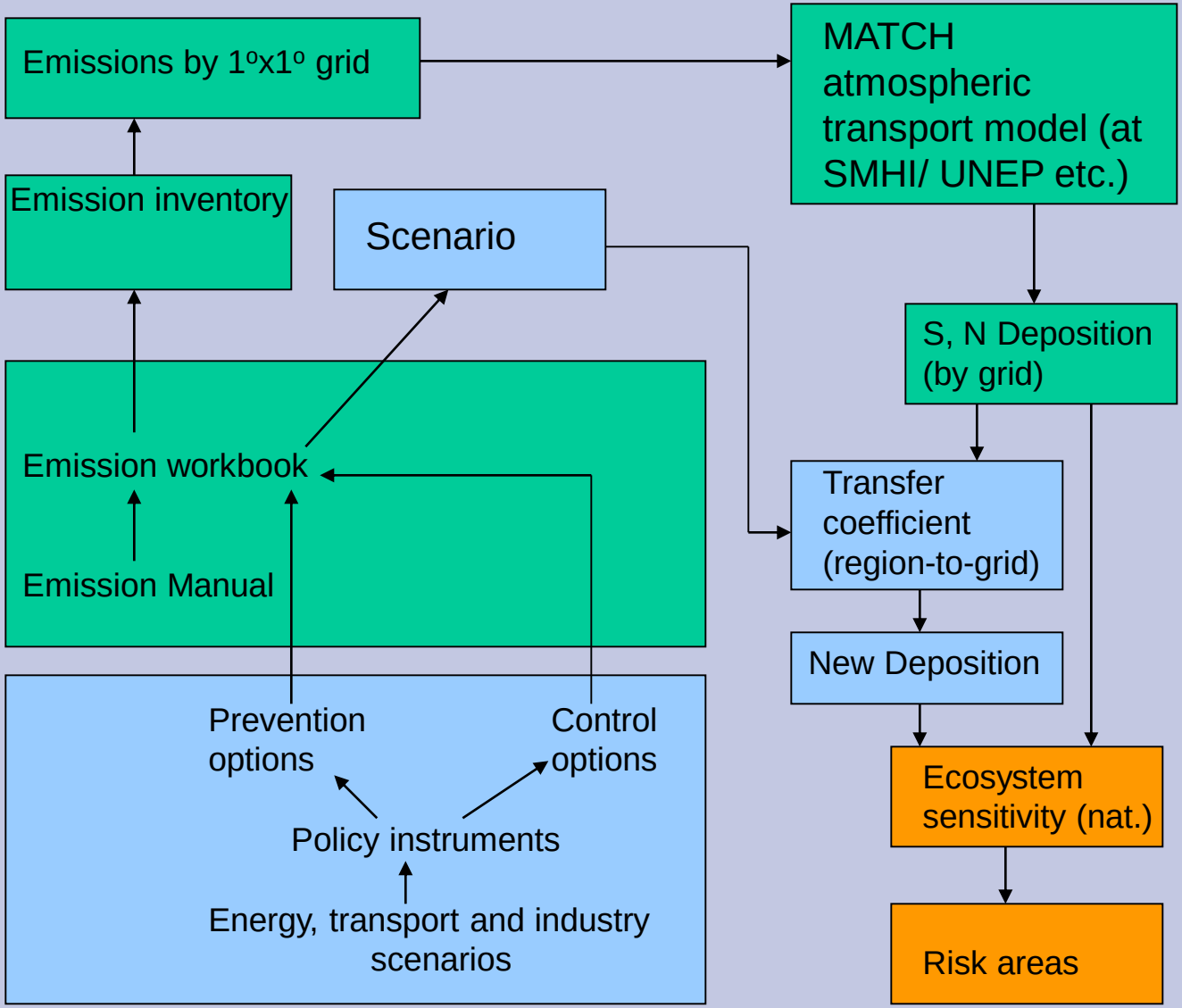
PHASE I: Investigating simple scenarios



PHASE II: determining national emissions in S Asia



PHASE II: determining national ecosystem assessments



PHASE II: Investigating national scenarios

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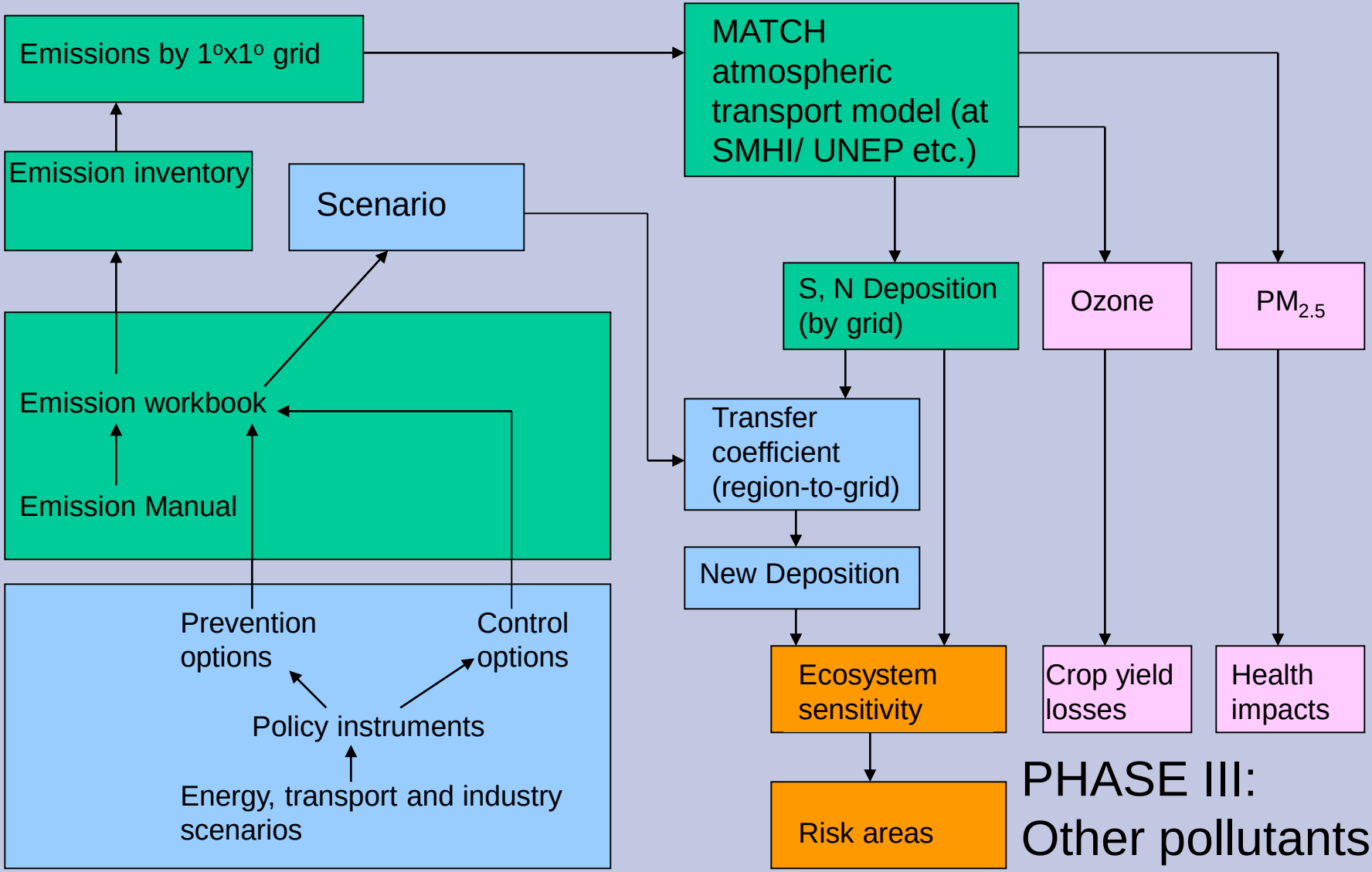

PHASE III: Other pollutants and impacts