

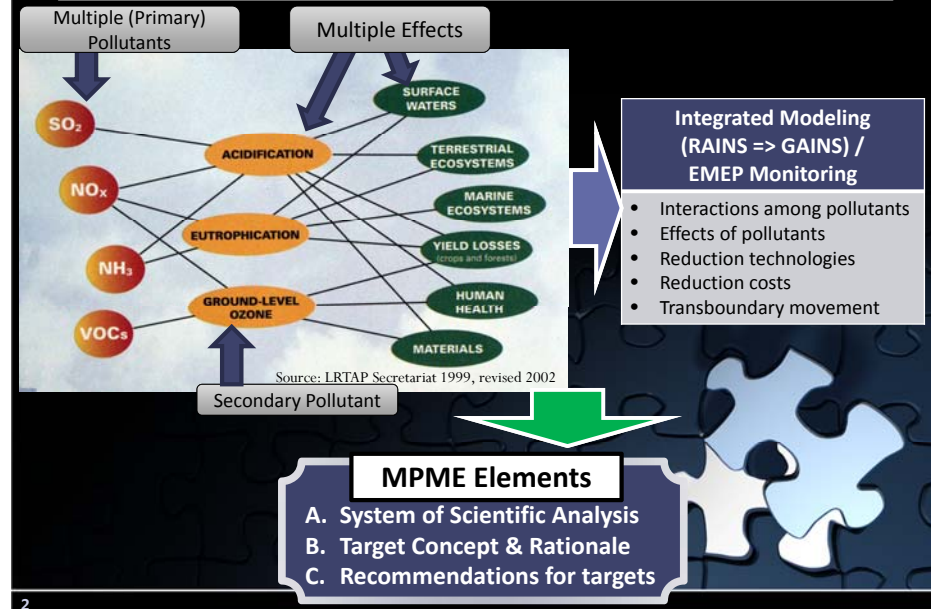
# Current status and future potential of the multi-pollutant approach to air pollution control in Japan, China, and South Korea

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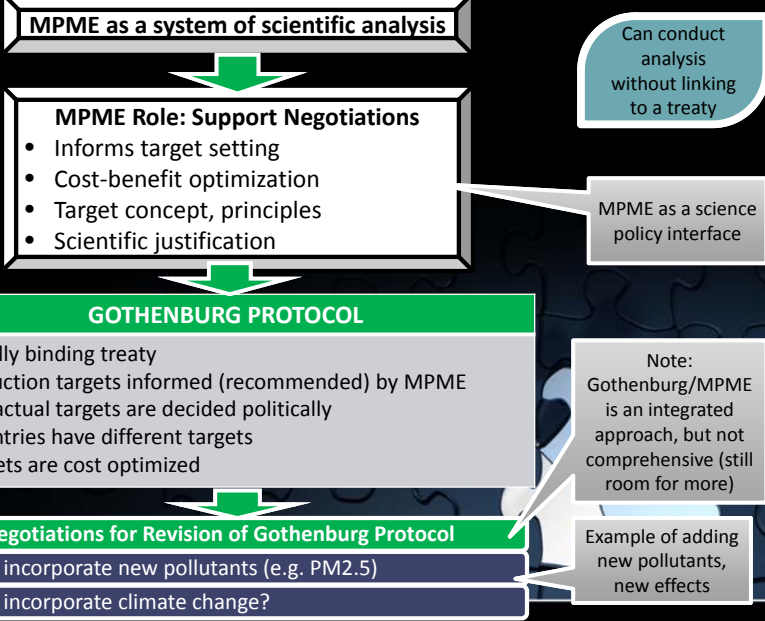
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## Concept map of the Multi-pollutant Multi-effect (MPME) approach in the Gothenburg Protocol of LRTAP



## MPME's Role in the LRTAP/Gothenburg Protocol



## Variety of Similar Concepts of MPME

- Integrated approach
- Multi-pollutant approach
- Risk based approach
- Sometimes different focuses on different multi-pollutants or different multi-effects (e.g. health, ecosystems)
- Basically it means a modeling system
  - Monitoring, modeling, transport
- Therefore, requires a certain level of scientific capacity
- Can be used in single countries or subnational geographic areas (not just for international cooperation)

## Main Arguments

### Conventional Thinking

- MPME is an integrated approach.
- MPME is closely linked to a legally binding treaty (LRTAP).
- Therefore, MPME may not be feasible in East Asia

### Main Results

- MPME consists of several components.
- MPME is a system of scientific analysis, not a treaty
- MPME assists decision making about targets (sci./policy link)
- **MPME improves effectiveness, lowers costs**
- **Can set targets without MPME, but will be less effective**
- Components can be separated and implemented in steps
- China, Japan, Korea, already moving towards MPME steps (can be used domestically, not just for international treaties)
- Less developed countries can also begin steps

MPME is a science policy interface

### International cooperation can be helpful without a treaty

- Focus can be on information sharing & capacity building
- Can use MPME in E. Asia as a scientific system w/o a treaty
- Scientific epistemic community can promote MPME

5

## Northeast Asian Countries Already Moving in MPME Direction (Domestically)

Country	Direction
China	<ul style="list-style-type: none"> <li>➤ China GAINS (not endorsed by the government)</li> <li>➤ Regional management system in 12<sup>th</sup> FYP =&gt; Future domestic LRTAP?</li> <li>➤ Beijing Olympics control system: Mini-temporary domestic LRTAP</li> <li>➤ Government is supporting related research</li> </ul>
Korea	<ul style="list-style-type: none"> <li>➤ Korean GAINS under development</li> <li>➤ Related research underway</li> </ul>
Japan	<ul style="list-style-type: none"> <li>➤ Developing systems similar to GAINS</li> <li>➤ Related research underway</li> </ul>
Russia	<ul style="list-style-type: none"> <li>➤ Member of LRTAP</li> <li>➤ Promoting NEA LRTAP-type framework in NEASPEC</li> </ul>

6

## China: Regional Air Pollution Management

- 12th Five Year Plan On The Prevention And Control Of Air Pollution In Key Regions
- Further elaborated by the Air Pollution Action Plan of Sept. 2013

- China's domestic pollution is transboundary;
- Provinces & local governments can't address internal pollution
- Designates key regions and city clusters
- Sets up coordination mechanisms
- Regional management is a key policy
  - Stronger targets & implementation measures
  - (e.g. stronger EIA, tech. requirements, industrial adjustment, key projects, etc.)



### Analysis

- Good policies on paper / difficult to implement
- Sets up a coordination structure
- (But coordination may be difficult)
- Originates from Beijing Olympics w/modeling
- Modeling/MPME analysis could be incorporated
- Could become domestic LRTAP
- Beijing Olympics: Was a mini (temporary) domestic LRTAP



7

## Importance of National Models (not just unified regional model)

- ❖ Countries can address domestic transboundary movement
  - ❖ Countries can estimate international transboundary movement
  - ❖ Analysis of cost effectiveness can be used domestically
- NEA countries already developing them.

### European/LRTAP Case

- Development of several national GAINS models (e.g. Italy, Ireland)
- Only some countries have national models
- National GAINS models are more detailed
- Used to negotiate obligations with EU and implementation with local governments

8

## Major Advantages of MPME (& GAINS-type Models)

- Cost Effective Reductions
- Differentiated Targets (in International Agreements)
- Countries can't achieve reductions on their own (and costs are not minimized)
- LRTAP: country can negotiate with LRTAP & local authorities

Not just about transboundary movement

East Asian countries should be interested in cost effectiveness and differentiated targets.

9

## Necessary Capacity for MPME

Key Foundation: Scientific Capacity  
(Many developing countries lack)

How to capacity is a key for including developing countries, especially SEA

### Scientific

- Analytical capability (human resources)
- Multidisciplinary cooperation
- Monitoring capability

### Administrative

- Officials need some technical understanding
- Ability to coordinate between departments
- Legal framework that allows differentiated targets

### International cooperation

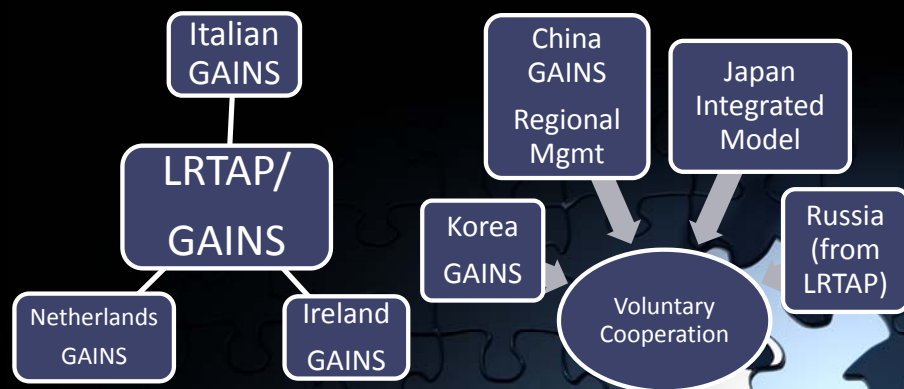
- Means for international cooperation among scientists
- Mechanism for information sharing
- Means for scientists to communicate with policymakers

10

## MPME Cooperation Images

LRTAP: TOP DOWN

EAST ASIA: BOTTOM UP?



- Only a few countries have national GAINS
- National models based on central one

- 4 NEA countries developing models
- Models have significant differences
- Maybe benefits from cooperation

11

## MPME Steps and Choices: Overall

### Main Ideas

- MPME can be introduced in a stepwise manner
- Range of possible focuses for pollutants & effects
- Focus first on scientific analysis, then incorporate into policy (variable scientific support for an influence on targets)
- Targets: range of possible magnitudes, types, principles

### Scientific Analysis

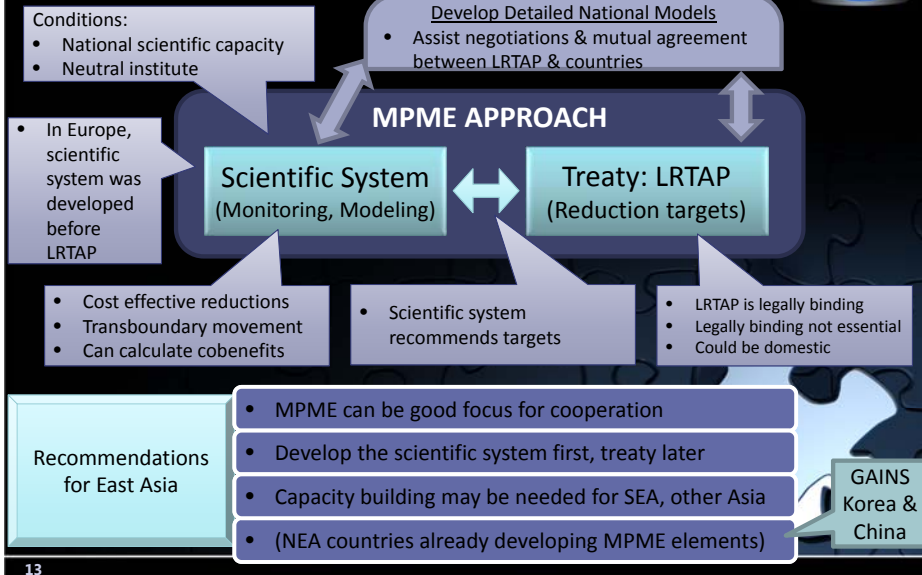
- Start with studies & models
- Focus on interactions & effects
- Less emphasis on transboundary aspects

### Policy

- Start with domestic policy framework
- International cooperation can use various models
- International cooperation can be voluntary
- May recommend differentiated targets

12

# Multipollutant-MultiEffect Approach and Regional Cooperation



**Thank You!**

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