International Institute for Applied Systems Analysis
IIASA www.iiasa.ac.at

science for global insight

What is IIASA?

An introduction to the International Institute for Applied Systems Analysis

Iain Stewart, Head of External Relations, Communications, & Library

CONTENTS

MAJOR GLOBAL CHALLENGES

Summer

summer
temperate
Rough winds
summer
hot
fair fair
nature
summer
fair
shade
time
life

Shall I Compare Thee To A Summer's Day?

by William Shakespeare

Shall I compare thee to a summer's day?
Thou art more lovely and more temperate.
Rough winds do shake the darling buds of May,
And summer's lease hath all too short a date.
Sometime too hot the eye of heaven shines,
And often is his gold complexion dimm'd;
And every fair from fair sometime declines,
By chance or nature's changing course untrimm'd;
But thy eternal summer shall not fade
Nor lose possession of that fair thou ow'st;
Nor shall Death brag thou wander'st in his shade,
When in eternal lines to time thou grow'st:
So long as men can breathe or eyes can see,
So long lives this, and this gives life to thee.

SUSTAINABLE DEVELOPMENT GOALS

SDG2: BY 2030, END HUNGER

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Technology &

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Infrastructure

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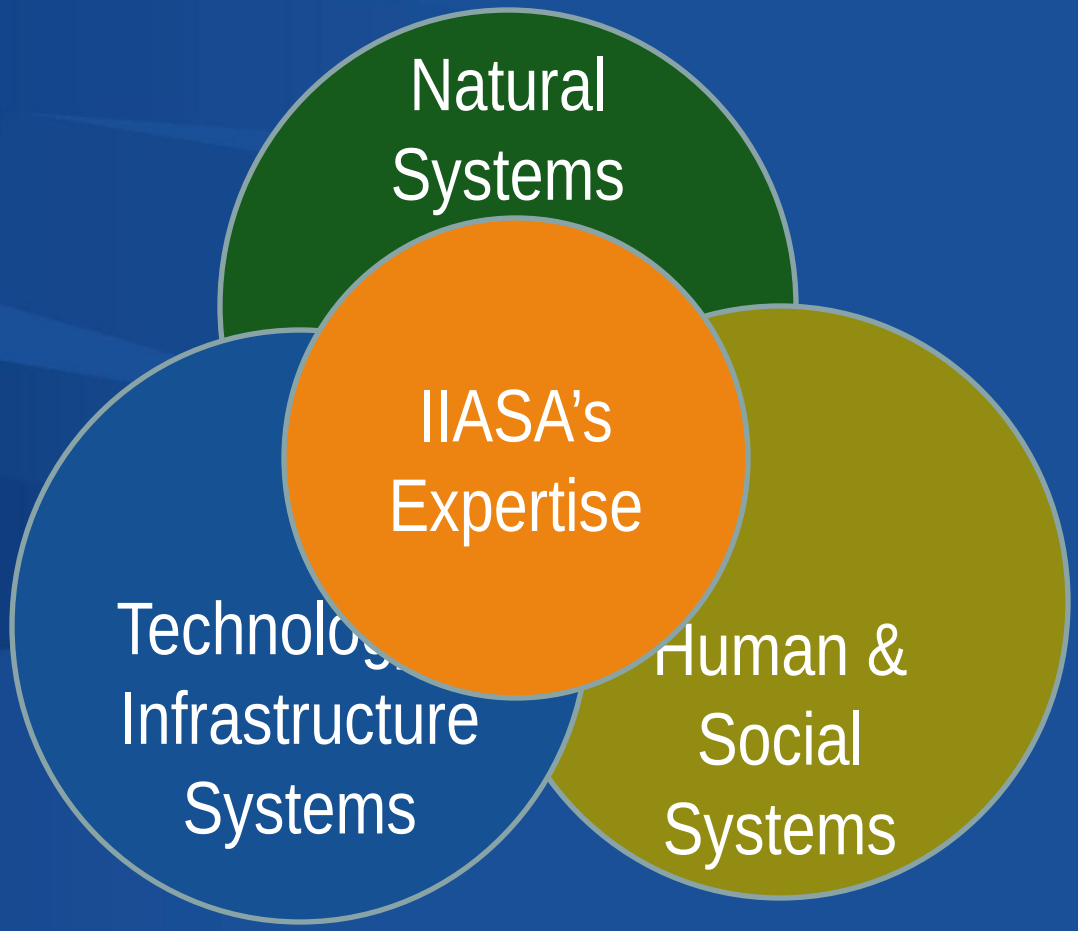
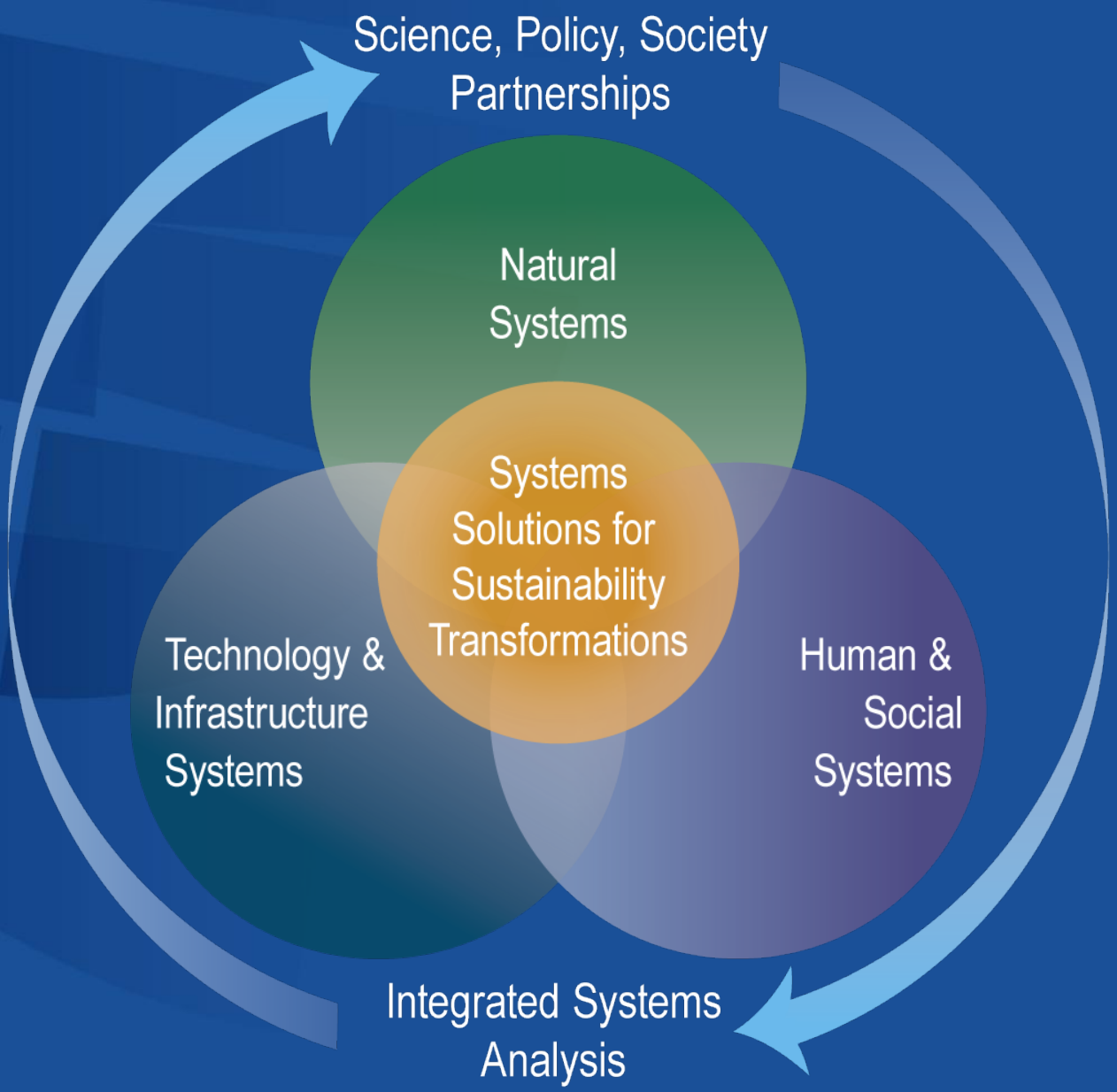
SOLVING GLOBAL CHALLENGES



IIASA RESEARCH FRAMEWORK



IIASA'S HISTORY

THE 1960s

Sources: US Department of Interior, The Guardian

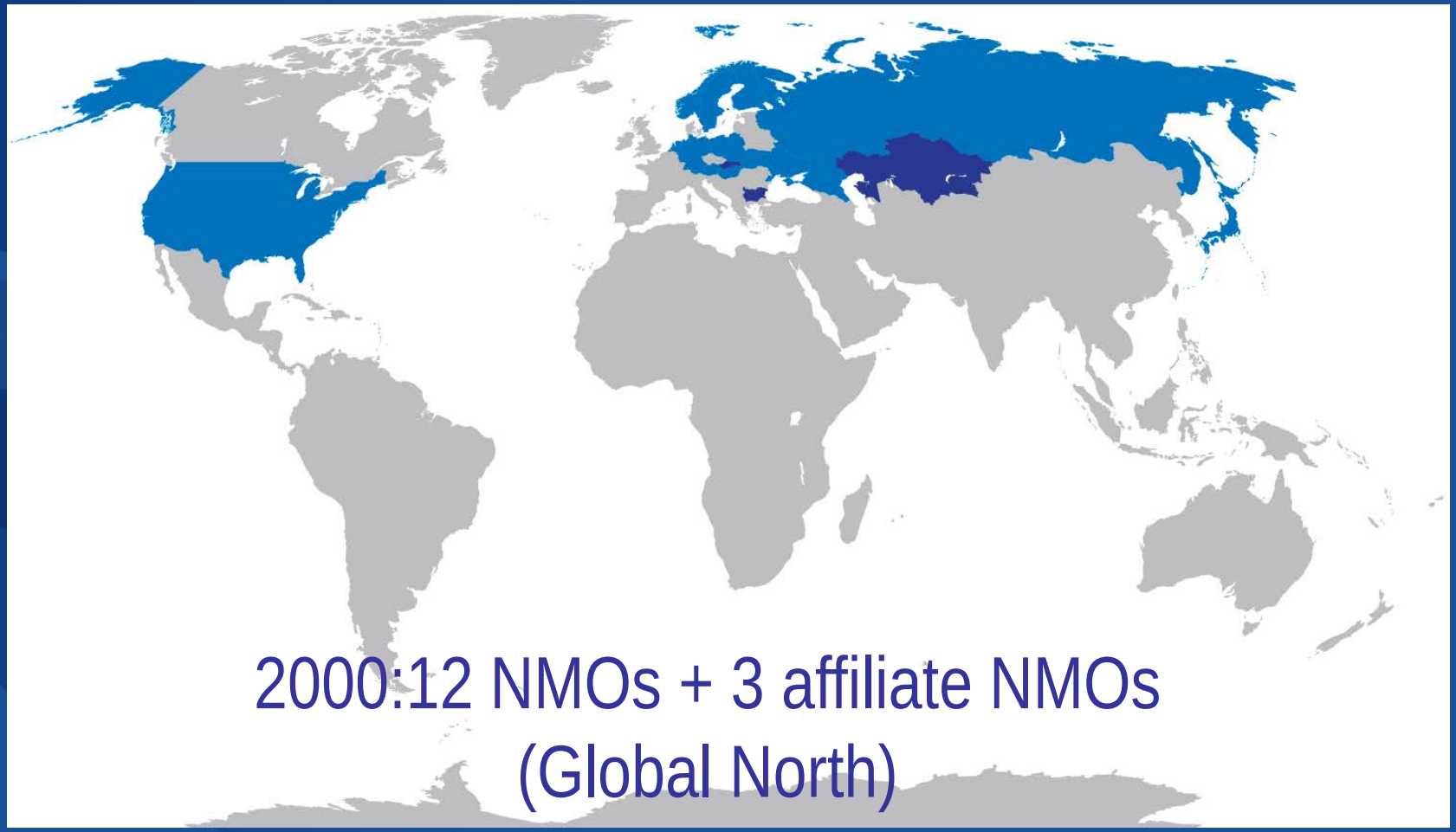
1972

Sources: IIASA

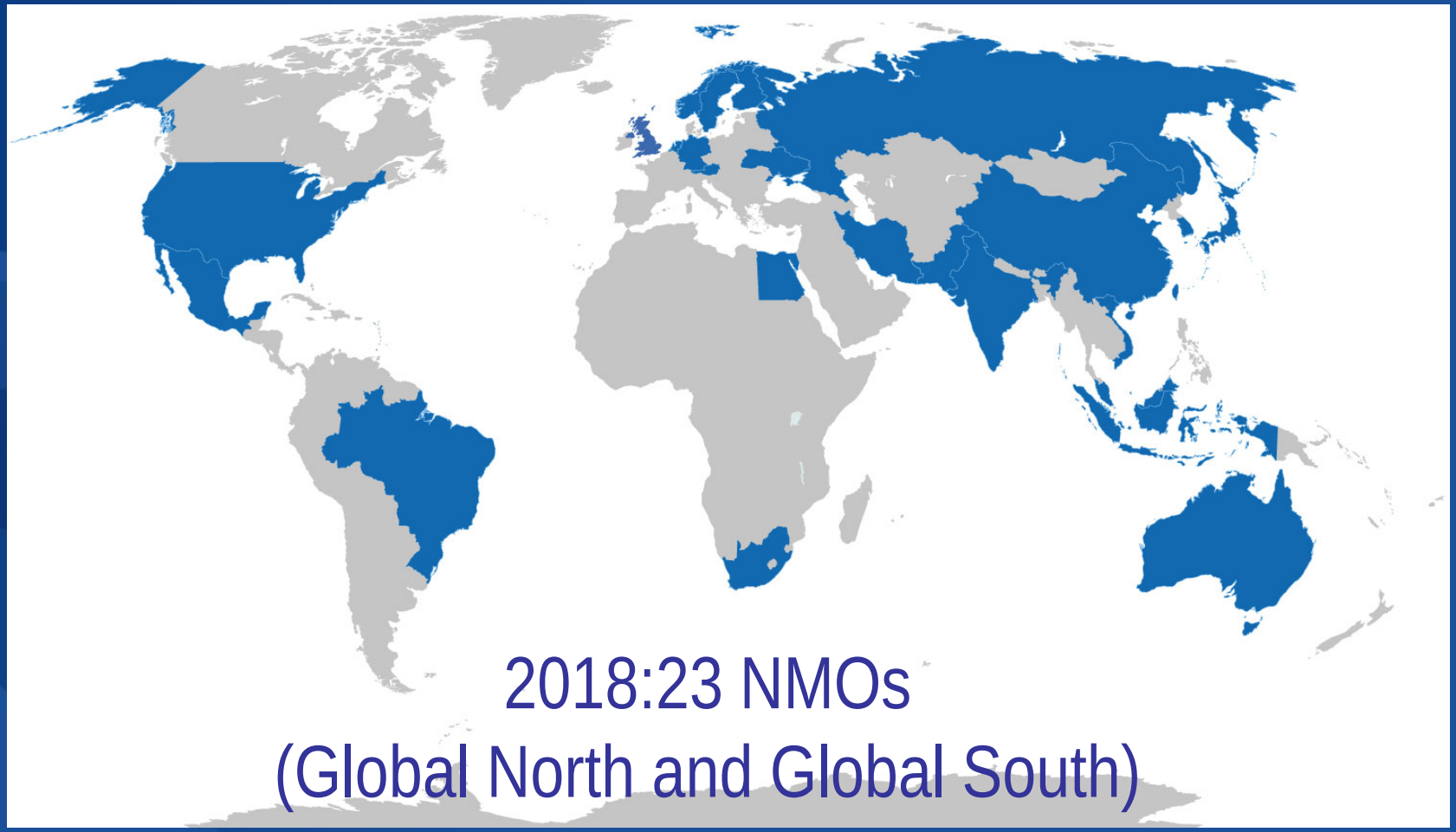
1989

2015

IIASA'S members have changed



IIASA'S members have changed



IIASA'S APPROACH

ATTRACT THE BEST SCIENTISTS (2016)

Scientific Staff	348
Research visitors to IIASA	2,229
Global research network	~3,500
Research partners	~700

NOBEL PRIZE WINNERS

Professor Tjalling Koopmans
and Professor Leonid Kantorovich
Nobel Prize in Economics (1975)

NOBEL PRIZE WINNERS

Professor Paul Crutzen
Nobel Prize for Chemistry (1995)

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NOBEL PRIZE WINNERS

Professor Thomas C. Schelling
Nobel Prize for Economics (2005)

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NOBEL PRIZE WINNERS

Intergovernmental Panel
on Climate Change
Nobel Peace Prize (2007)

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YOUNG SCIENTISTS SUMMER PROGRAM

POSTDOCTORAL FELLOWS (2017)

Peter Bednarik (Austria), EEP, RISK

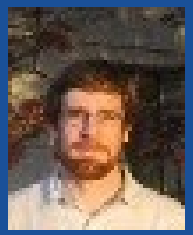
Gergely Boza (Hungary), EEP

Bushra Khalid (Pakistan), EEP, POP

Edward Byers (USA), ENE, TNT, WAT

Sibel Eker (Turkey), EEP, POP

Franziska Gaupp (Germany), ESM, RISK



Adam French (USA), RISK, ASA

Fei Guo (China), ENE, AIR

Alison Heslin (USA), RISK, POP

Mateusz Iskrzynski (Poland), EEP

Christina Kaiser (Austria), EEP

Mia Landauer (Finland), RISK, AFI

Alma Mendoza (Mexico), ESM

Sennai Mesfun (Eritrea), ESM

Chai Molina (Israel), ASA, EEP

Asjad Naqvi (Pakistan, Austria) RPV, ASA

Piera Patrizio (Italy), ESM

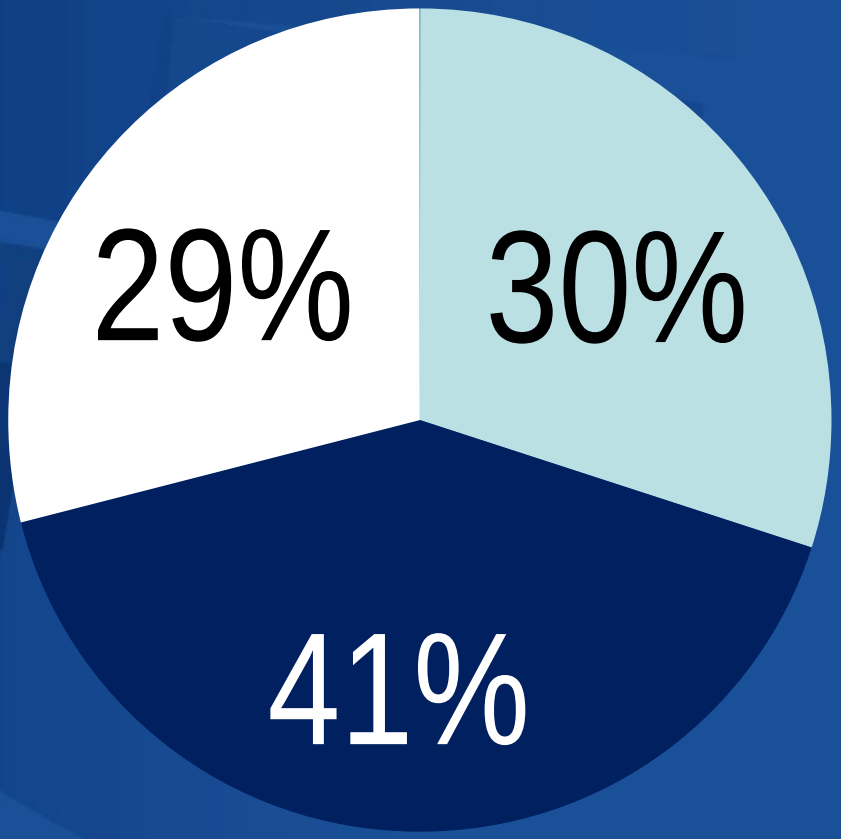
Nandita Saikia (India), POP

Matthias Wildemeersch (Belgium, Singapore), ASA, ESM

Sam Hyun Yoo (South Korea), POP

Shaohui Zhang (China), AIR, ENE

INTERDISCIPLINARY SCIENTISTS



- Natural Scientists & Engineers
- Social Scientists
- Mathematicians and others

IIASA PROGRAMS

INTERNATIONAL COLLABORATIONS (2016)

615 publications
including 406 peer-reviewed articles

Over 1,500 authors
from 159 institutions
in 50 countries

HOME OF IIASA SINCE 1972

IIASA AS A CONVENOR OF GLOBAL SCIENCE

May 2015

IPCC Expert Meeting on Scenarios

Participants: 98

IPCC
INTERGOVERNMENTAL PANEL ON
climate change

IIASA

IIASA'S MEMBERS:

Represent scientific community of a country and are often the National Academy or principal research funding agency

FUNDING

- Annual income in 2016 was €22 million of which 56% was from IIASA's National Member Organizations
- Additional funding comes from contracts and grants. Between 2012 and 2016, IIASA's research was awarded grants that amounted to €45 million. This was part of a total funding portfolio of €360 million of the external projects in which IIASA was and is involved.

EXAMPLE OF IIASA'S IMPACT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LUNG
CANCER

EFFECTS OF AIR POLLUTION

CAUSES OF AIR POLLUTION


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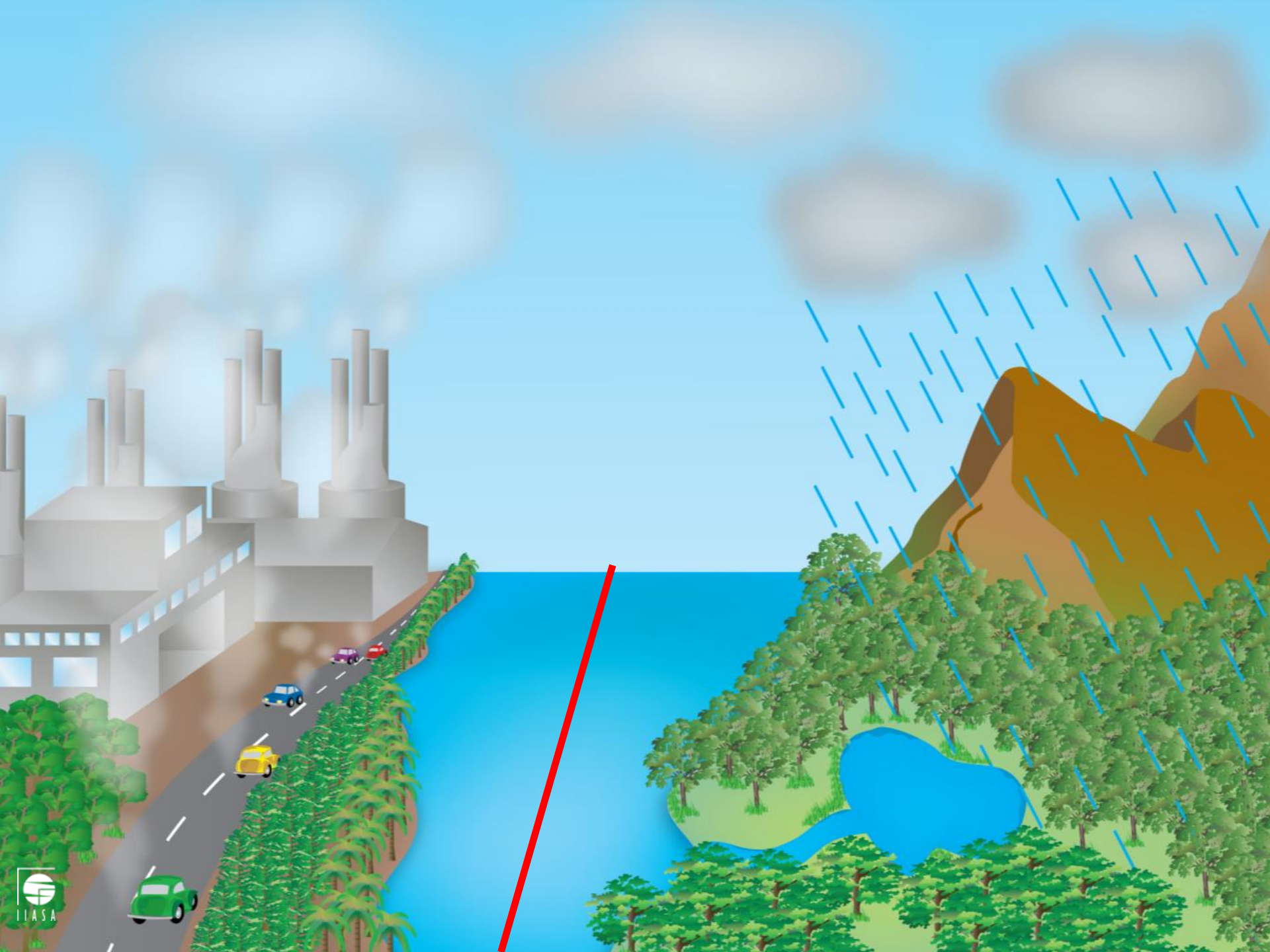
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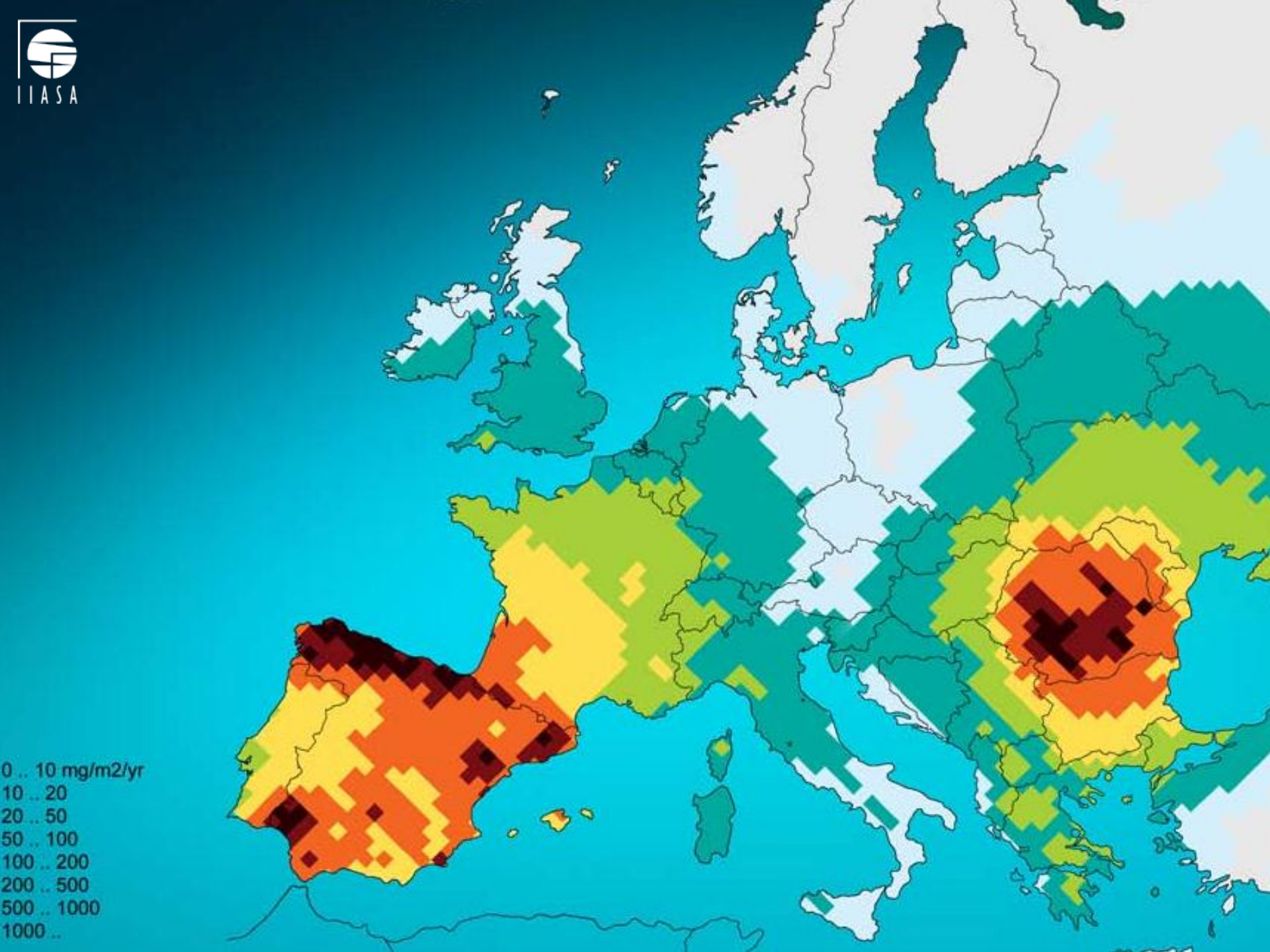
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0 .. 10 mg/m2/yr
10 .. 20
20 .. 50
50 .. 100
100 .. 200
200 .. 500
500 .. 1000
1000 ..

Cut sulfur dioxide by 30%

Moderate costs

Ecosystem highly resilient to acid rain

Cut sulfur dioxide by 30%

Very high costs

Ecosystem highly vulnerable to acid rain

THE RAINS MODEL

For 43 European countries:

- Pollution generation & control options, including costs
- Atmospheric transport and deposition
- Impacts on the environment

ASK THE RAINS MODEL

Any number of “What if…?” questions:

- How much would it cost to reduce sulfur dioxide levels to a given standard for all of Europe?
- For the worst-affected areas only?
- What is the cheapest way to stop acidification of forest soils in Bohemia?
- What would be the impact of a new emissions standard for, say, power plants on eutrophication? On acidification? On ozone formation?

RAINS gives answers to such questions, usually within minutes.

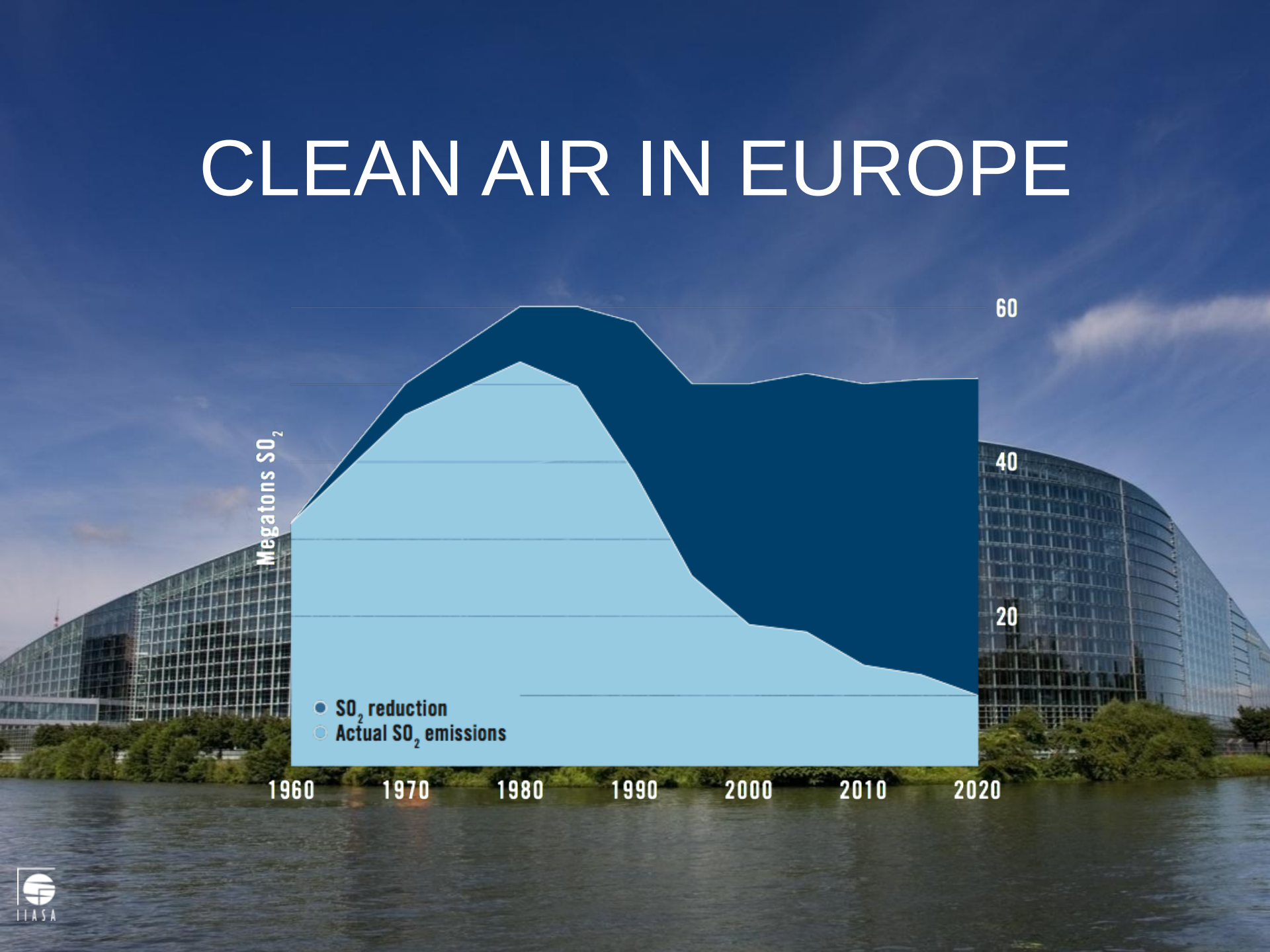
INTERNATIONAL TREATY

Convention on Long-range Transboundary Air Pollution

- Signed by 33 European governments
- One of the most successful multilateral treaties protecting the environment
- Helped Europe to cut sulfur dioxide emissions by 60% over the past 20 years
- With support of RAINS, treaty and EU now tackles multiple air pollutants (SO_2, NO_X, NH_3, VOCs, PMs)

RAINS extended to include greenhouse gases (GAINS) and used by numerous parties and organizations involved in climate change negotiations

CLEAN AIR IN EUROPE



IIASA RESEARCH HAS HAD A POSITIVE IMPACT

1. Convention on Long-range Transboundary Air Pollution of the United Nations Economic Commission for Europe
2. EU National Emissions Ceiling Directive
3. EU Thematic Clean Air Strategy
4. EU Climate and Energy Strategy for 2030
5. Climate and Clean Air Coalition to reduce short-lived climate pollutants
6. Objectives of the UN Secretary General's Sustainable Energy for All Initiative
7. Helps Brazil with long term planning for future energy
8. Emission scenarios for IPCC Third, Fourth and Fifth Assessment Reports
9. Catastrophe Bonds to make Mexican public finances resilient to major natural disasters
10. Pest management practices in forests in North America and Scandinavia
11. Forest management practices in Russia
12. Underpins US Dept of Justice antitrust case against Microsoft (technology lock-in)

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Thank you

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