

Implications of Climate policies for SDGs, including co-benefits and tradeoffs for biodiversity and health

MOEJ-IIASA collaborative research activity

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EANET/IIASA International Workshop: Strengthening the Science-Policy Interface for Clean Air and a Sustainable Future in Asia

18 December 2022









National Institute for Environmental Studies, Japan



MOEJ-IIASA – Part B Paris Agreement and SDGs



COP21 · CMP11 **PARIS 2015** UN CLIMATE CHANGE CONFERENCE











Climate Policy Impact on SDGs: 1.5°C



Source: Krey et al. (2021)



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Source: Krey et al. (2021)

MOEJ-IIASA, Part B

Focuses on SDG interactions:



Phase 1: Health co-benefits of national climate policies – Zig Klimont

Phase 2.1: Interactions between climate policies and biodiversity – David Leclere, Petr Havlik, Shinichiro Fujimori



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Phase 2.2: Energy-food-water- health nexus Bhutan - Miho Kamei

Phase 2.3: National dashboard for Asia (multi-sector vulnerability & exposure) – Ed Byers

Illustrative results:

Change in premature mortality due to ambient PM_{2.5} in 2050 (million people)

IASA





Update on Asia climate impacts, vulnerability and mitigation <u>dashboards</u>

Asia Sustainable Development Explorer (working title)

Energy, Climate & Environment Program

September 2022

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Overview of dashboard activity

Dedicated website & tool on sustainable development for Asia

- Focus on both mitigation and (avoided) climate impacts
- functionality to compare mitigation and impacts side-by-side.... Illustrating trade-offs and co-benefits of mitigation pathways
- MOEJ-IIASA tool with regional focus dashboard on south / south-east Asia, including Japan
- Collaboration with ENGAGE to add stories and scenarios

New & updated datasets and indicators

- Updated to CMIP6 climate data
- Additional indicators, including temperature-precipitation extremes, air pollution (GAINS), more land & biodiversity
- New and improved e-Policy Briefs as *Stories*

New online and customized interface

• Building on the Climate Solutions Explorer framework, dedicated website for this project



Asia Sustainable Development Explorer

What are the risks of climate change for Asia?

Experience our Interactive Impacts maps 🛛

How can we tackle climate mitigation and sustainable development together?

Explore sustainable development pathways for Asia

Impacts of climate change mitigation on clean air and health benefits

R

Read more



Immediate climate action and SDG progress unlocks important socioeconomic co-benefits

SDGs Air quality Climate mitigation Water Asia Read more



EXPLORER 1



More and updated indicators (30+)

NEW menu design with SDG focus

- Precipitation & Temperature extremes
- Wet-bulb temperatures & heat-waves
- Hydrology & water resources
- Energy demands for cooling
- Agriculture
- Land & biodiversity
- Air pollution
- New indicator selection by:
 - relevant Sectors (Health, Energy, Water, etc)
 - SDG goals
- Based on most recent CMIP6 data and WCRP Expert Team on Climate Change Detection and Indices (ETCCDI)
- Download netcdf and image export



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Asia

Targeted policies to achieve sustainable development brings opportunities to mitigate climate change, adapt and reduce vulnerabilities.

Written by local experts using the best data, these stroles chart national transitions to sustainable societies and include analysis on the trade-offs and co-benefits of development in Asia.













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Biodiversity & Climate Trade-offs, synergies and integrated strategies

David Leclere, Shinichiro Fujimori, Petr Havlik, Volker Krey, Oliver Fricko, Keywan Riahi

Hand-shake research between ecosystem modeling and integrated assessment models



This artwork illustrates the main findings of the article, but does not intend to accurately represent its results (https://doi.org/10.1038/s41586-020-2705-y)

Milestone in biodiversity research with IIASA and NIES in leading roles

Conservation efforts are key but not enough. Additionally tackling the drivers of habitat loss (via diet shift, reduced waste, sustainable increases in trade and crop yields) needed.

Leclère et al, 2020

Climate protection within biodiversity boundaries

Biodiversity protection



Climate protection







Research framework for Asia



Courtesy of Fujimori, 2022



Climate protection not always good for biodiversity



WORK IN PROGRESS

Can be either neutral or slightly beneficial on average

But very uncertain effect: - across IAMs - across BDMs



Thank you.

Discussion.....

