



PBL Netherlands Environmental Assessment Agency

NAVIGATE
Next generation of advanced integrated assessment modelling to support climate policy making



SDGs and Climate Policy:

Paper under review, do not cite yet but hopefully soon 😊

How does short-term action on SDGs influence long-term climate goals?

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COMMITTED Workshop – 8th March, 2024, Lahore, Pakistan





Context



Agenda to meet social, economic and environmental goals in 2030



PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

Keep global temperature increase well-below 2°C, preferably below 1.5°C

Context

- > This study aims at understanding the **synergies** and **trade-offs** between climate policy and the SDGs agenda: how does short-term action on SDGs influences long-term climate goals?



Agenda to meet social,
economic and environmental
goals in 2030



PARIS2015
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Keep global temperature
increase well-below 2°C,
preferably below 1.5°C



Approach



Land, Water, Energy Nexus

Climate



Approach



Healthier diets:
• EAT-Lancet

Reduced food waste in primary, processing and consumption stages

Improvements in **equity** of food availability



Efficiency improvements:
• Irrigation;
• Power generation;
• Industry

Implementation of environmental flow constraints



Maximize access to electricity

Minimize the use of traditional biomass and coal for cooking and heating



Mapping and implementing protected areas



Limit the increase in global temperature to well-below 2°C (forcing target of 2.6 W/m²)



Scenarios

Integrated Assessment Models (IAMs):

- IMAGE (PBL)
- MESSAGEix-GLOBIOM (IIASA)

Scenario	Nexus SDGs Measures	Climate Target (forcing in 2100, in W/m ²)
SSP2-CF (REF)	No additional effort	6.0
SSP2-26-CF (CLIM)	No additional effort	2.6
SSP2-26-SDG-CF (SDG)	Additional measures to achieve food/water/energy/biodiversity targets	2.6





Effectiveness of actions on SDGs



Food



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Focusing on climate mitigation without sustainable development considerations might lead to an increase in food insecurity





Food



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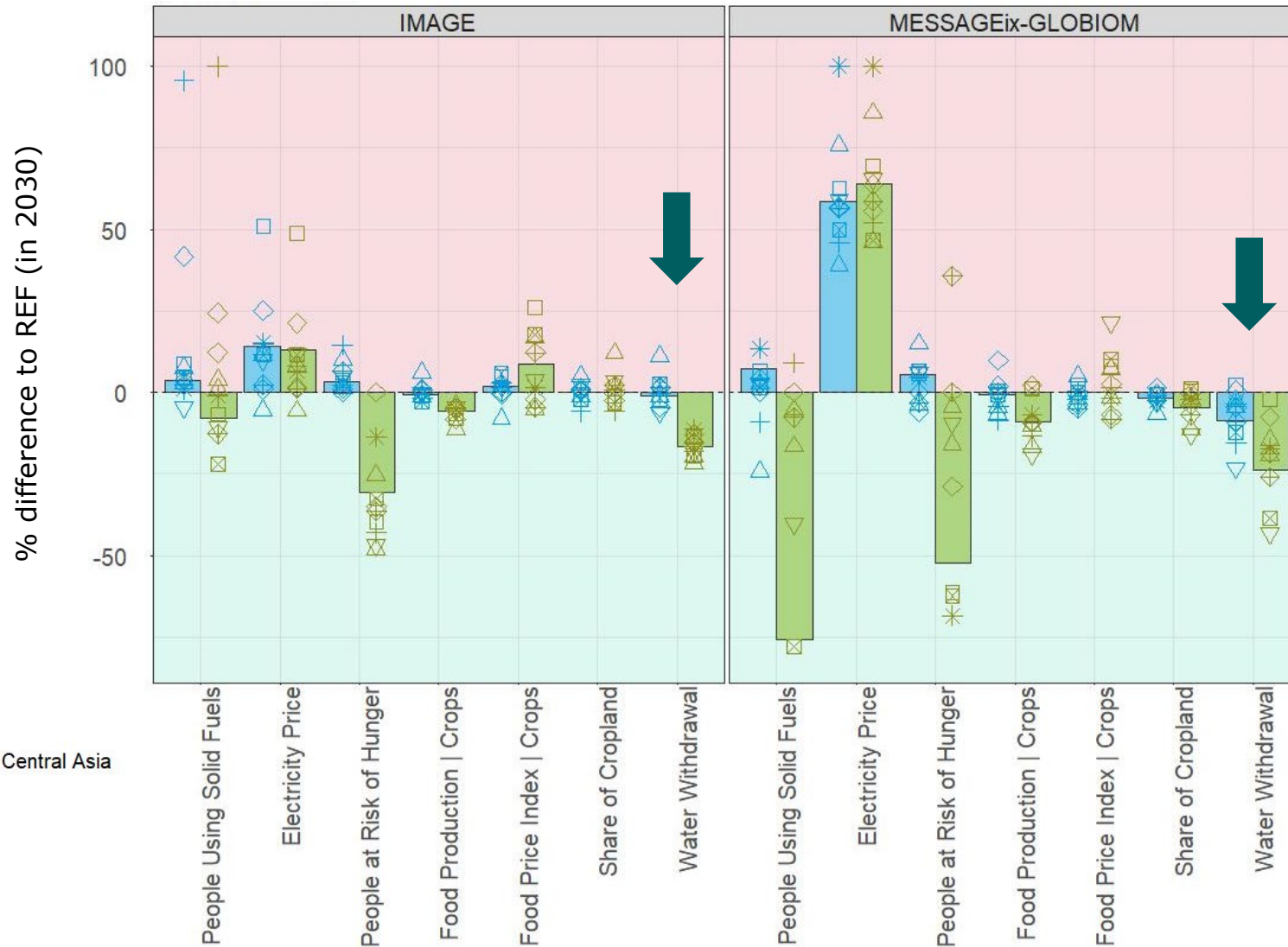
Changes in diet, reduction in food waste and equitable access to food



Trade-offs: without equity of food availability, measures on healthier diets might increase food insecurity

This transition is an enormous **challenge**, that shouldn't be overlooked

- Region
- △ Latin America
 - ◇ North America
 - * Subsaharan Africa
 - ⊕ EU28
 - ◇ Russia, Eastern Europe and Central Asia
 - △ Middle East
 - ▽ East Asia
 - South Asia
 - ⊠ Southeast Asia
 - + Japan, Korea and Oceania
- Scenario
- CLIM
 - SDG



Reduction of water withdrawals due to ensuring environmental flows and efficiency improvements in water use in agriculture, power generation and industry

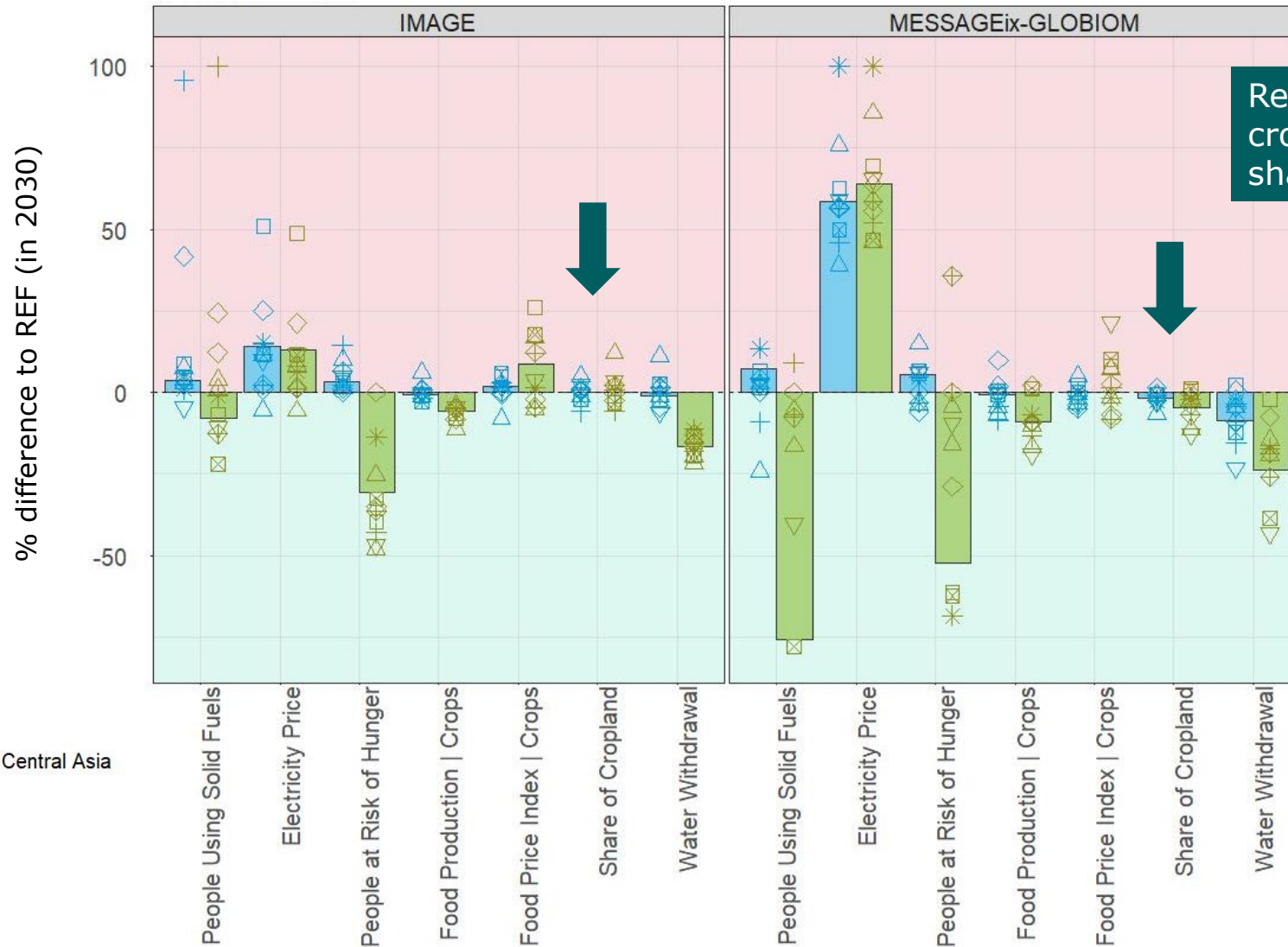




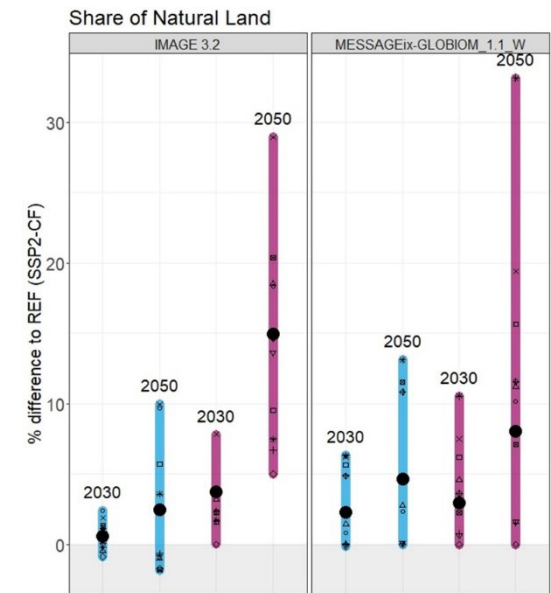
Reduction in population relying on solid fuels (i.e., traditional biomass, coal) in most regions, including South Asia



Increases in energy prices, due to increase in costs for cleaner energy



Reduction in the share of cropland and increase in the share of natural land





SDGs and climate strategies



Climate



Less need of negative emissions in the long-term



REF 2020 vs all scenarios 2100
Gt CO₂-eq/yr





Conclusions



- > **Clear positive effects** of combining the agendas on sustainable development and climate policy, with near-term action on SDGs positively influencing the achievement of long-term climate goals
 - **Reduction of population at risk of hunger and relying on solid fuels**
 - **Increased preservation of natural lands and biodiversity**
 - **Sustainable management of water**
 - **Improved access to cleaner energy**



Conclusions

- **When combined with equity in food availability**, shifting towards **healthier diets and reducing food waste** have positive impacts across multiple SDGs, increasing food security, with co-benefits to sustainable water management, biodiversity protection and the climate goals
- The **transition is still enormously challenging**, and the implementation of measures needs to carefully focus on synergies and avoid trade-offs
 - Increases in food prices due to pressure in the land system in multiple regions and shifting towards less carbon-intensive diets without ensuring equity in food distribution could, in fact, lead to higher food insecurity



Conclusions

- Combining climate policies and the SDGs agenda results in a smaller temperature overshoot and consequently **less need for negative emissions** by the end of the century to meet the global climate goals
- This reflects the synergies between the two types of policies, with **short-term action on SDGs** helping achieve the **long-term climate goals** in a more sustainable way



COMMITTED future

- > For a COMMITTED future:
 - Improve the representation of the nexus in the models
 - Enhance the understanding of nexus dynamics and interactions
 - Importance of the nexus for the achievement of climate goals and its policy relevance



Thank you!

More info can be found at:

NAVIGATE – Next Generation of Advanced Integrated Assessment Modelling to Support Climate Policy Making (<https://www.navigate-h2020.eu/>)

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