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Climate and Clean Air Solutions for ASEAN

BAQ 2023
BETTER AIR QUALITY CONFERENCE
15-17 NOV • MANILA

Eric Zusman, Kaoru Akahoshi, Miho Hayashi, Zbigniew Klimont, Tatsuya Hanaoka, Christopher Malley, Supat Wangwongwatana, Nutthajit Onmek, Ittipol Paw-armart, Nguyen Thi Kim Oanh, Lai Nguyen Huy, Zbigniew Klimont, Jessica Slater, Gregor Kiesewetter, Wolfgang Schöpp, Adriana Gómez-Sanabria, Peter Rafaj, Pallav Purohit , Jens Borken-Kleefeld, Fabian Wagner, Chris Heyes, Lena Höglund-Isaksson, Binh Nguyen, Robert Sander, Laura Warnecke, Johan C.I. Kuylenstierna, Tomoki Hirayama, Kawashima Kazumasa, Yurie Goto, Markus Amann, Kevin Hicks , Matthew Hengesbaugh, Premakumara Jagath Dickella Gamaralalage, Ueno Ittipol, Jaee Nikam, Diane Archer

IGES
Institute for Global Environmental Strategies

IIASA
International Institute for Applied Systems Analysis

SEI

CLIMATE & CLEAN AIR COALITION

UNEP

CCET
IGES Centre Collaborating with UNEP on Environmental Technologies

Point of Departure

- Countries in ASEAN face air pollution and climate crises
- The sources of air pollution and climate change are often related
- Addressing address air pollution and climate change with integrated solutions can save time, money and lives

UN environment programme

CLIMATE & CLEAN AIR COALITION
a UNEP convened initiative

asean

There are 15 solutions that will be good for air quality and climate change in ASEAN

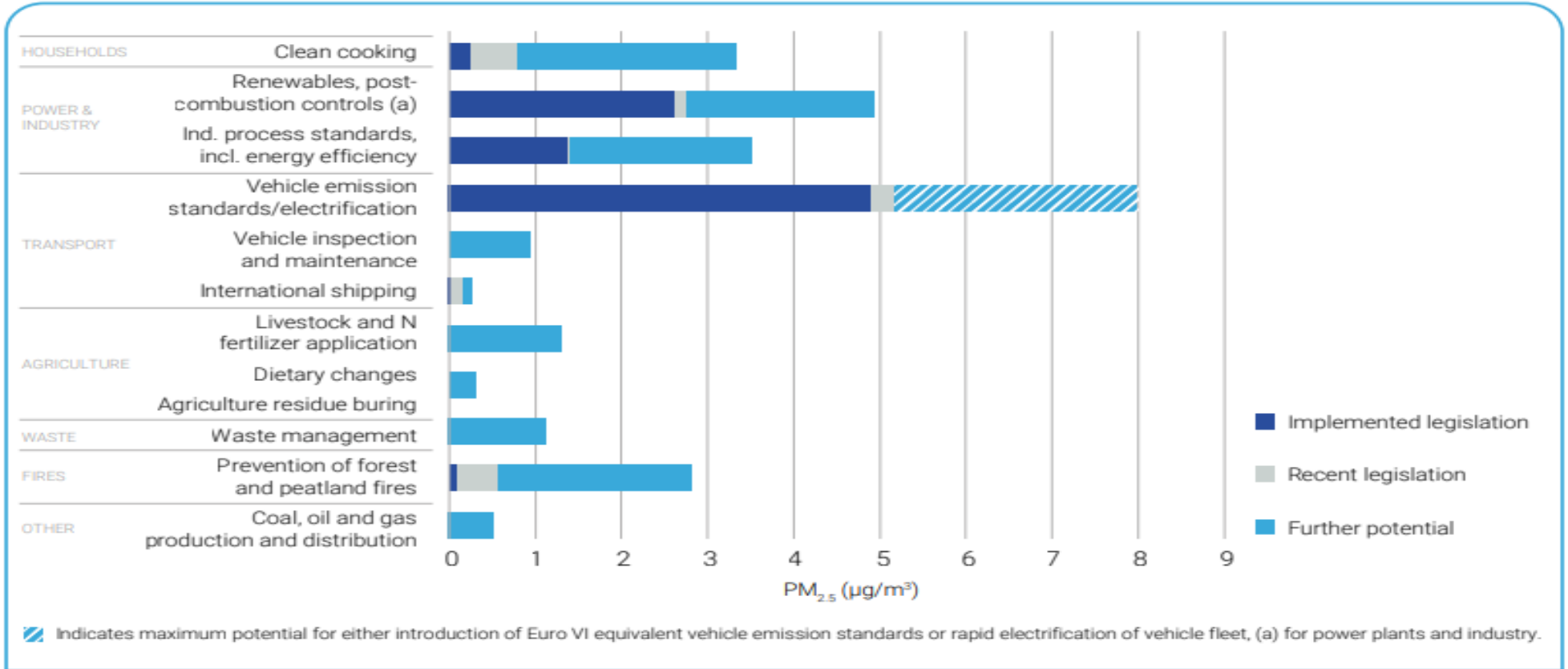


FIGURE 8. IMPACT OF THE PRIORITY SOLUTIONS (MEASURES WITH DIRECT AIR QUALITY BENEFITS SHOWN) ON $PM_{2.5}$ CONCENTRATIONS IN THE ASEAN REGION BY 2030

Many of these solutions have positive impacts of other SDGs

	Goal 1: No Poverty	Goal 2: Zero Hunger	Goal 3: Good Health and Well-being	Goal 4: Quality Education	Goal 5: Gender Equality	Goal 6: Clean Water and Sanitation	Goal 7: Affordable and Clean Energy	Goal 8: Decent Work and Economic	Goal 9: Industry, Innovation and Infrastructure	Goal 10: Reduced Inequality	Goal 11: Sustainable Cities and Communities	Goal 12: Responsible Consumption and Production	Goal 13: Climate Action	Goal 14: Life Below Water	Goal 15: Life on Land	Goal 16: Peace and Justice Strong Institution	Goal 17: Partnerships to active the goal
Clean Cooking	✓		✓		✓		✓		✓				✓				
Post-combustion controls			✓				✓		✓						✓		
Industrial Process Standard			✓				✓		✓		✓	✓	✓		✓		
Emission Standard-transport			✓			✓	✓				✓		✓		✓		
Vehicle inspection and maintenance			✓				✓		✓		✓	✓	✓		✓		
Maritime Shipping			✓				✓						✓	✓			✓
Livestock and N fertilizer													✓	✓	✓		✓
Dietary Change											✓	✓	✓				
Agriculture residue burning			✓						✓		✓		✓		✓		✓
Waste Management			✓			✓		✓	✓		✓	✓	✓	✓	✓		✓
Prevention of forest, peatland fires													✓		✓		✓
Coal, oil and gas production							✓		✓			✓	✓				
Rice paddies			✓			✓						✓	✓		✓		
Wastewater treat ment			✓			✓	✓						✓				
Controlling F Gases							✓					✓	✓				

Those solutions would help the region come close to WHO air quality guidelines by 2030

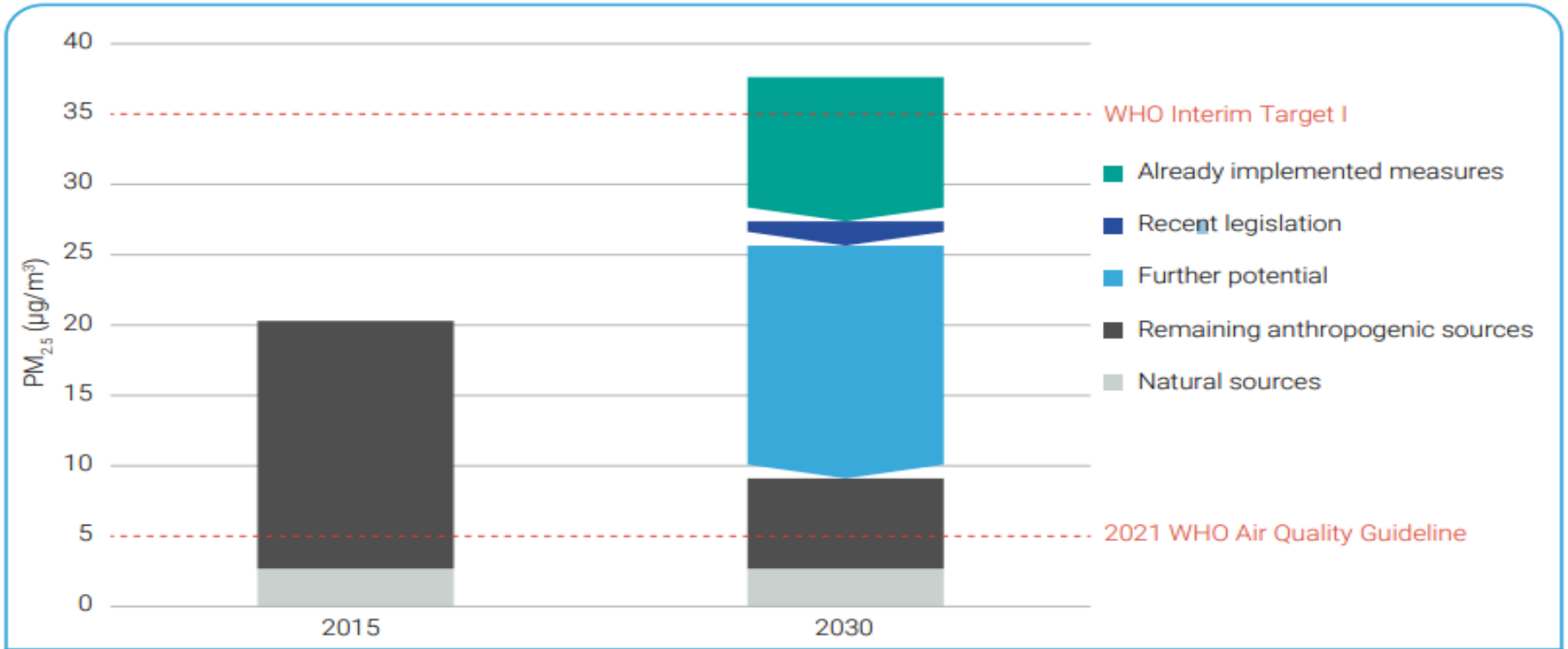


FIGURE 10. CONTRIBUTIONS TO REDUCTIONS IN POPULATION-WEIGHTED MEAN EXPOSURE TO $PM_{2.5}$ IN 2015 AND 2030 IN THE ASEAN REGION

Implementing the solutions would also mitigate climate change

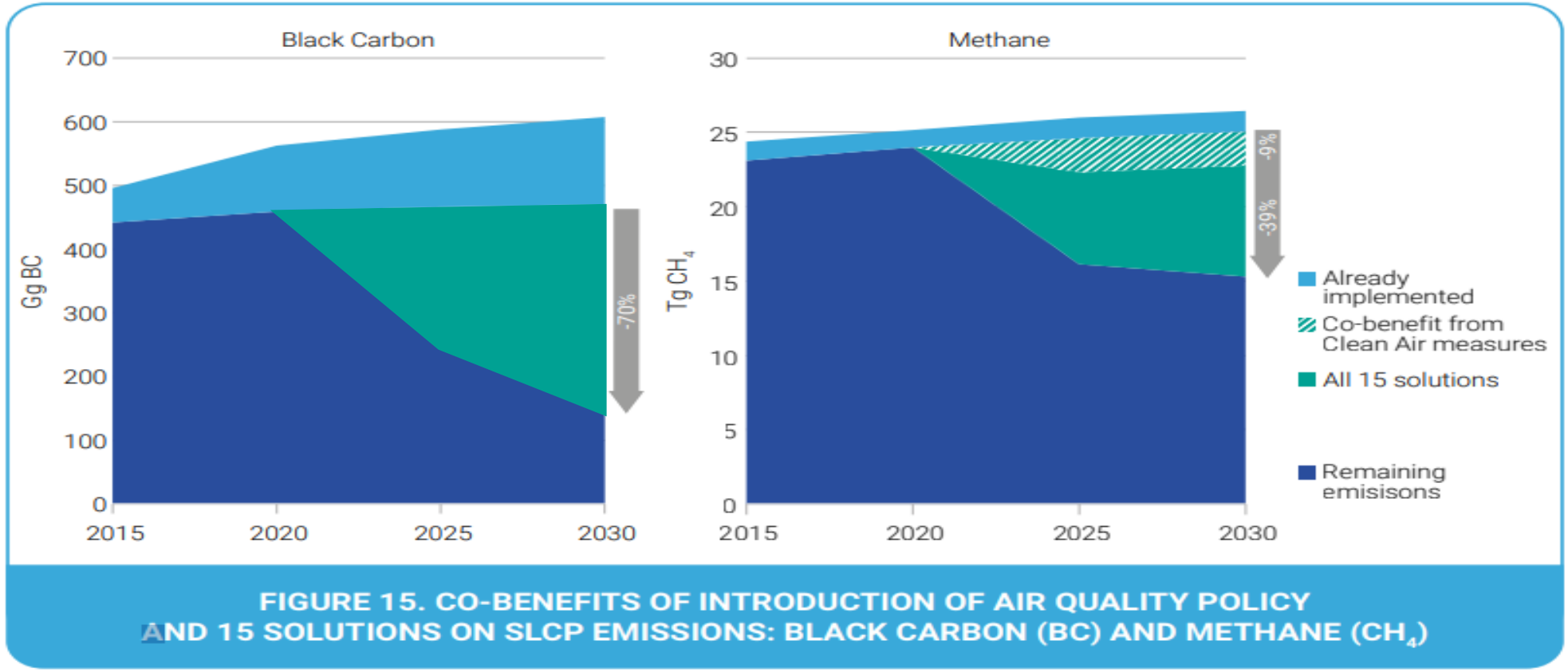


FIGURE 15. CO-BENEFITS OF INTRODUCTION OF AIR QUALITY POLICY AND 15 SOLUTIONS ON SLCP EMISSIONS: BLACK CARBON (BC) AND METHANE (CH_4)

Some of the key solutions focus on the waste sector

- **Organic Waste Diversion with Composting and Anaerobic Digestion :** Minimizing the food waste sent to landfills to avoid methane generation
- **Landfill Gas Capture and Use:** Capturing or oxidizing landfill CH4 to prevent methane from entering the atmosphere.
- **Prevention of Open Waste Burning :** Promoting alternatives to open burning to reduce black carbon emissions
- **Thermal Treatment:** pollution-free Incineration, RDF, industrial co-combustion with MBT

Monitoring can be done from the points of waste generation/recycling, GHG/SLCPs emissions, health impact caused by air pollution, crop yields, etc.

IGES knowledge products for outreach and impact generation on the waste sector

<case study>

- Source Separation in Sri Lanka
- Composting in Sri Lanka
- Composting in Bandung, Indonesia

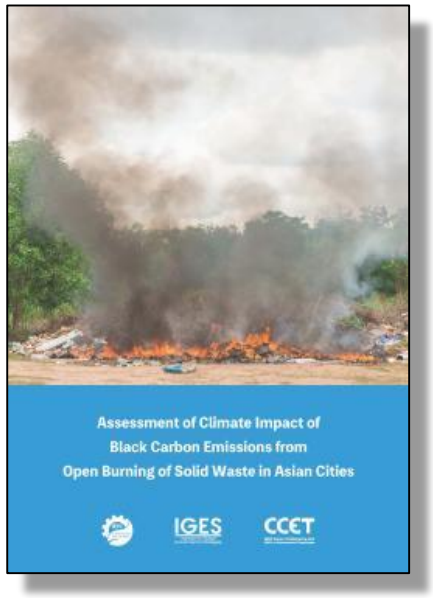
<guideline>

- Composting
- MBT
- WtE incineration, etc.

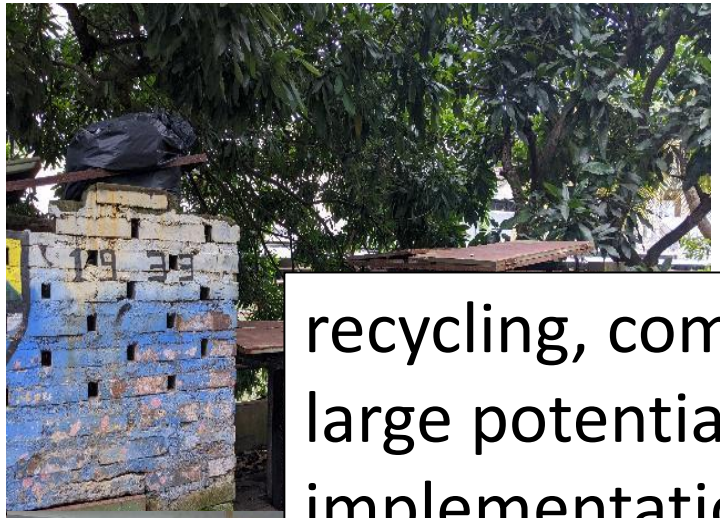
<on-going and pipeline projects with CCAC>

- regional roadmap to tackle open burning of waste in Asia
- Methane reduction roadmap in Cambodia and Micronesia

https://ccet.jp/publications



Assessment of community-level waste activities (Indonesia)

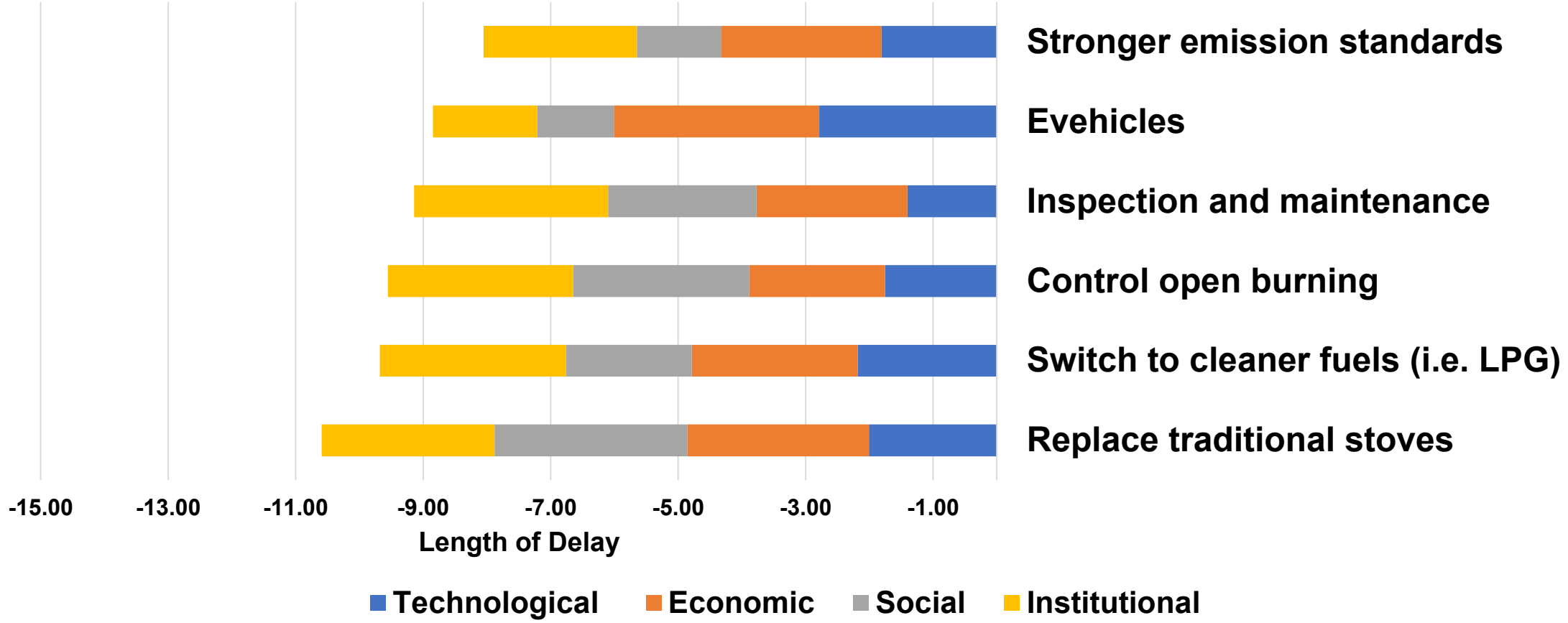


recycling, composting, and anaerobic digestion can provide large potential emission reduction but sustainable implementation depends on <u>reducing the cost of sorted waste collection, establishing markets of the products made of recycled materials, and cooperation from residents</u>

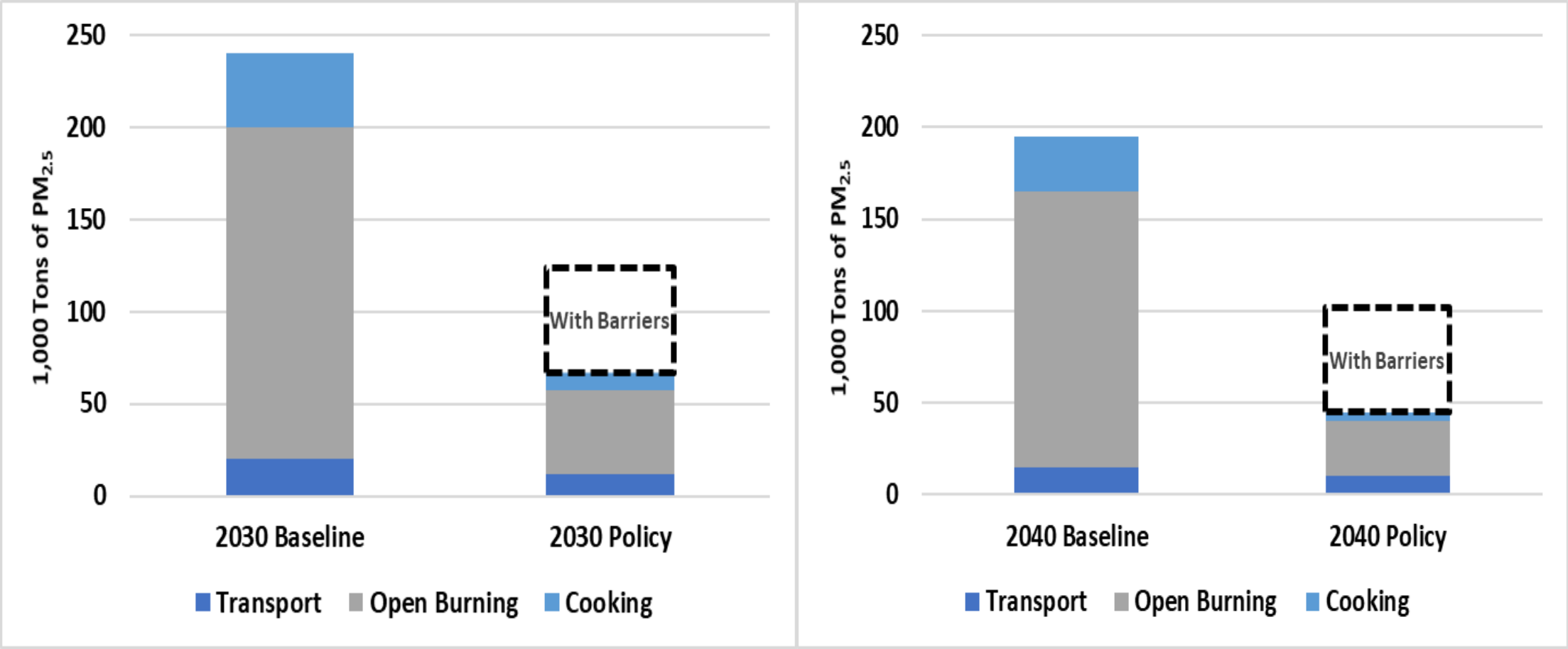
There may be challenges to implementing these solutions

Technological	Refers to lack of access to cleaner technology or fuels as well as technologies or infrastructure that would support the options implementation (i.e. for electric vehicles this would include charging stations).
Economic	Refers to high cost of cleaner technology or fuels as well as policies (i.e. subsidies) that keep the prices of less clean alternatives artificially low.
Institutional	Refers to lack of coordination between and capacity within relevant agencies as well as limits on policies promoting cleaner options.
Social	Refers to lack of acceptance or limited awareness of the benefits of the cleaner alternatives as well as lack of mechanisms that can raise awareness or support engagement/participation in selecting cleaner alternatives.

These challenges could potentially slow implementation: The case of Thailand



These delays could also affect emission reduction potential



Regional cooperation around four areas can help spread knowledge and strengthen implementation of priority solutions

1. Analytical tools	**Tools to develop integrated emission inventories and mitigation strategies**
2. Policy integration	• **Integrating air pollution into NDCs and MRV systems**
3. Solutions	• **Adopting priority solutions for open burning/peat burning, clean cooking, waste burning**
4. Project Funding	• **Help secure funding for tangible demonstration projects**