

SOLUTIONS FOR AIR POLLUTION-FREE ASIA PACIFIC



Kakuko Nagatani-Yoshida
Regional Coordinator for Chemicals, Waste and Air quality
UNEP Asia and the Pacific Office
23 November 2020

This is not an ADB material. The views expressed in this document are the views of the author/s and/or their organizations and do not necessarily reflect the views policies of the Asian Development Bank, or its Board of Governors, or the governments they represent. ADB does not guarantee the accuracy and/or completeness of the material's contents, and accepts no responsibility for any direct or indirect consequence of their use or reliance, whether wholly or partially. Please feel free to contact the authors directly should you have queries.

AIR POLLUTION IN ASIA PACIFIC

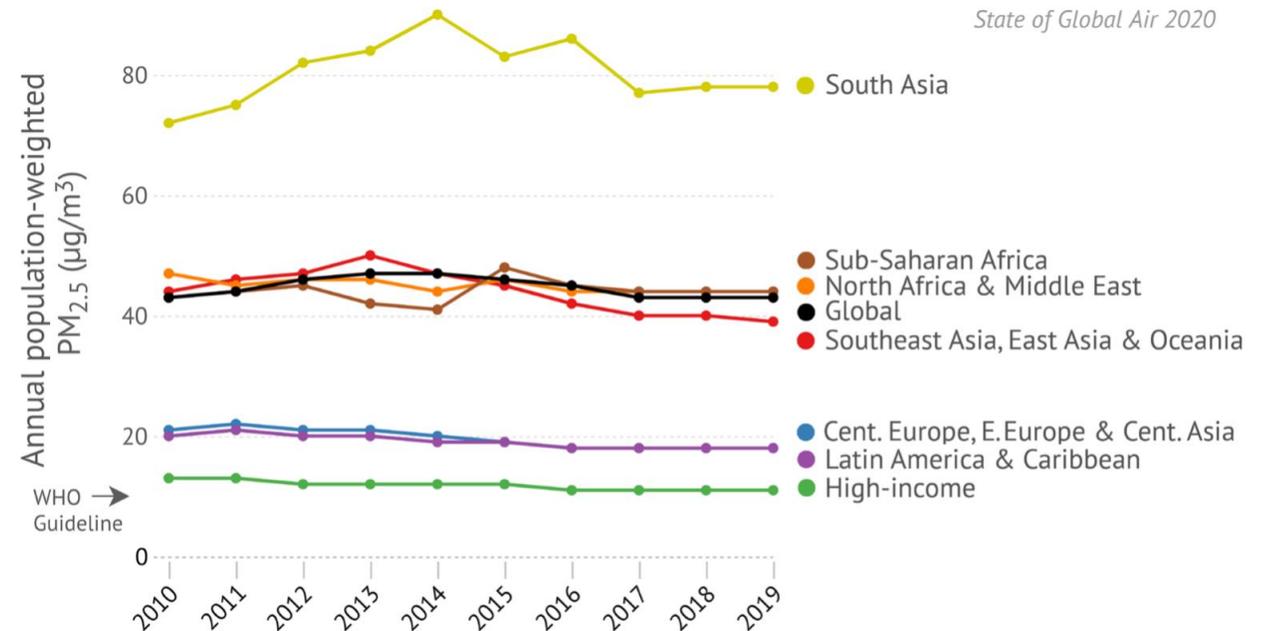
92 % of people exposed to unhealthy levels of air pollution

Over **4 million premature deaths** affecting the most vulnerable: women, children, elderly, poor with limited access to healthcare

While lockdowns to curb COVID-19 resulted in short-term pollution reduction, **early studies show that air pollution is making people more susceptible**

Since 2010, **use of solid fuels has fallen** in South, Southeast, and East Asia

Even if exposure to air pollution decrease, **burden of disease can increase if population is growing faster than exposures are falling** – observed in Southeast and East Asia



ASIA PACIFIC CLEAN AIR PARTNERSHIP

1 Deliver **technical support** to countries to develop an action plan to 25 clean air measures

2 Provide **regional platform** for knowledge sharing, and support implementation of 25 clean air measures through **outreach and partnerships**

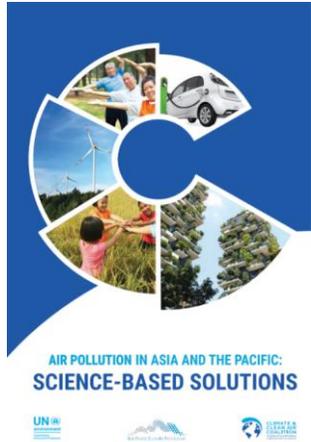
3 **Science-policy interface** and science-based policies on air quality

CALL TO ACTION BY MEMBER STATES

For UNEP to facilitate immediate and coordinated action to address air pollution and its impacts and prepare regional assessment reports on air quality issues.

URGENT ACTION NEEDED

Member states reiterated the urgent attention needed to address air pollution with a **UNEA-3 Resolution: Preventing and Reducing Air Pollution to Improve Air Quality Globally**



REGIONAL ASSESSMENT

Air Pollution in Asia Pacific: Science-based Solutions

The report identifies a solutions package with 25 cost-effective policy and technological measures and developed in collaboration between UNEP, APCAP, and CCAC.

<https://ccacoalition.org/en/solutions>

The 25 measures can be summarized in 3 clusters

01

FULL APPLICATION OF CONVENTIONAL MEASURES

- Strengthen emission standards for industrial process and vehicles
- Improve post combustion controls
- Control dust from construction and roads; increase green space

02

NEXT STAGE MEASURES NOT YET COMPONENTS OF CLEAN AIR POLICIES

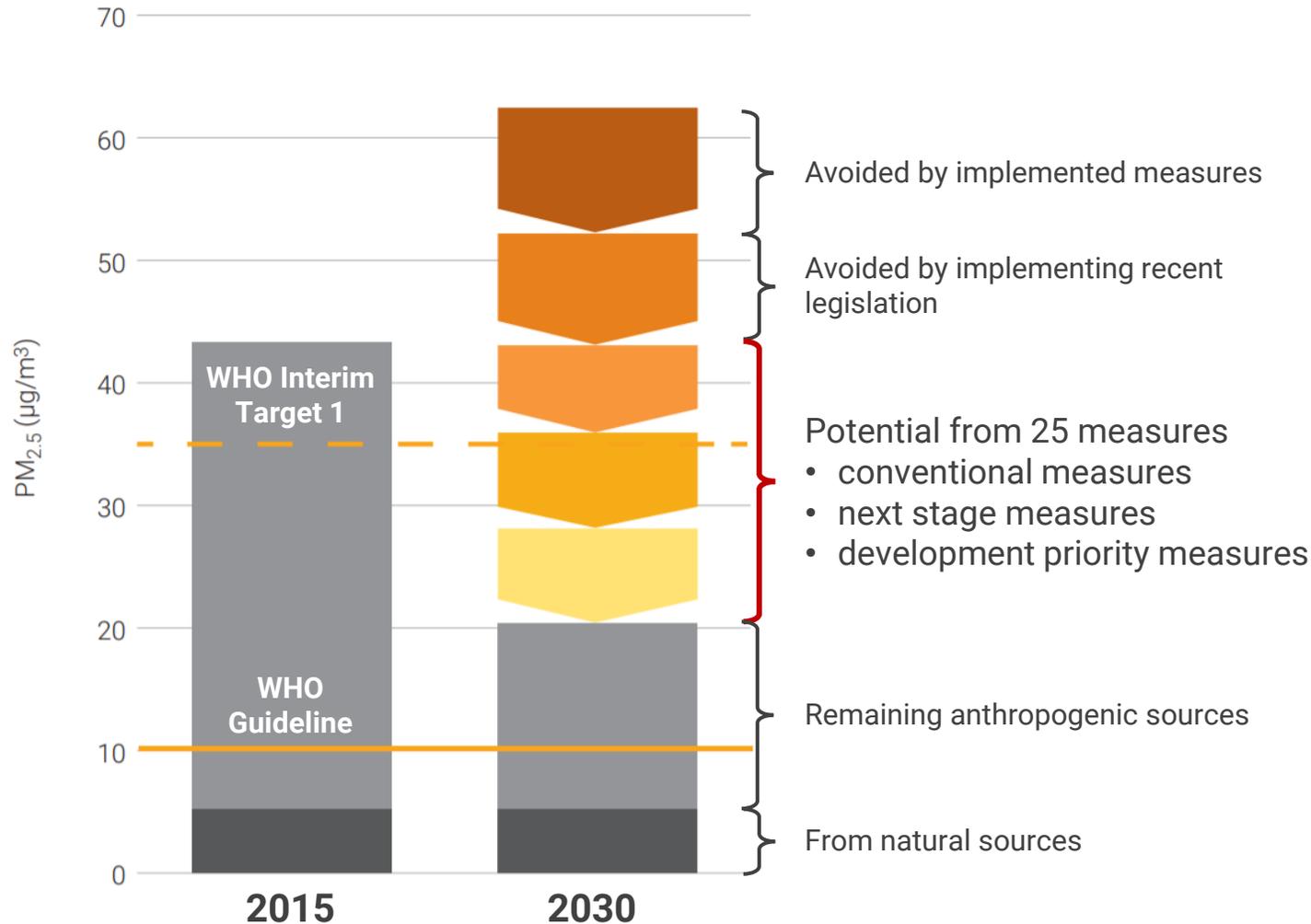
- Properly manage agricultural residues and municipal waste
- Properly manage livestock manure and nitrogen fertilizer application
- Improve solvent use and refinery controls
- Introduce efficient brick kilns technology

03

MEASURES WHICH CONTRIBUTE TO DEVELOPMENT PRIORITIES WITH AIR QUALITY BENEFITS

- Clean cooking and heating
- Promoting use of electric vehicles
- Renewables for power generation
- Improved public transport
- Energy efficiency for households and industry

WITHOUT POLICY INTERVENTIONS, EXPOSURE TO PM2.5 WOULD INCREASE BY 50% BY 2030



Measures contribute to SDGs and climate action

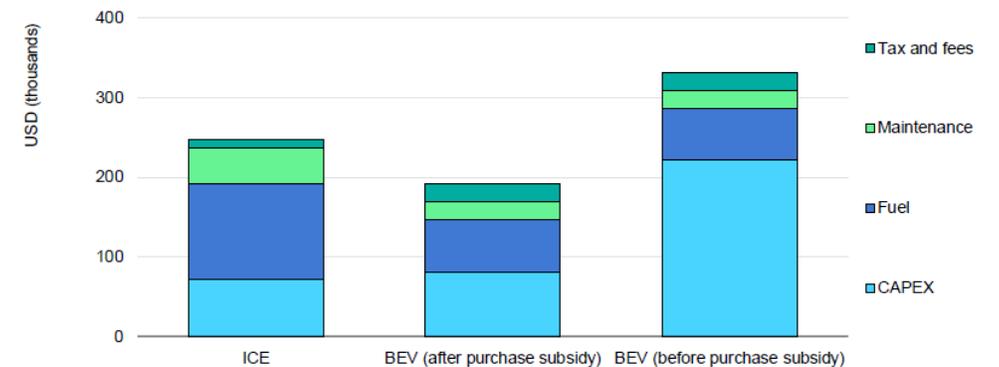
	SDG benefits	Climate forcers		
		CO ₂	CH ₄	BC
Post-2015 legislation relative to 2015	Goal 3	+16%	+17%	-24%
Conventional measures relative to 2030 baseline	Goal 3, 15	0%	0%	-8%
Next-stage measures relative to 2030 baseline	Goal 2, 3, 15	0%	-29%	-56%
Development priority measures relative to 2030 baseline	Goal 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15	-19%	-44%	-72%

MOBILITY

- **Integrating electric buses in Transjakarta bus system** supported by UNEP-CTCN, implemented by ITDP
- Interest to electrify and better integrate intermediate public transport modes, like angkots, seongtaws, jeepneys, in addition to three-wheelers
- **Emissions inventory for inland water transport in Bangkok** found that switching boat engines to Euro VI with 10 ppm sulfur fuel could reduce 98% of PM2.5 emission from baseline
- **New report: Used Vehicles and Environment:** Japan is the second largest exporter of used vehicles worldwide between 2015 and 2018. Substantial imports of used vehicles in Pakistan, Sri Lanka, Bangladesh, Myanmar, Mongolia, and Cambodia, among others.



Figure 2.1 Total cost of ownership for various bus types in Shenzhen



IEA 2020. All rights reserved.

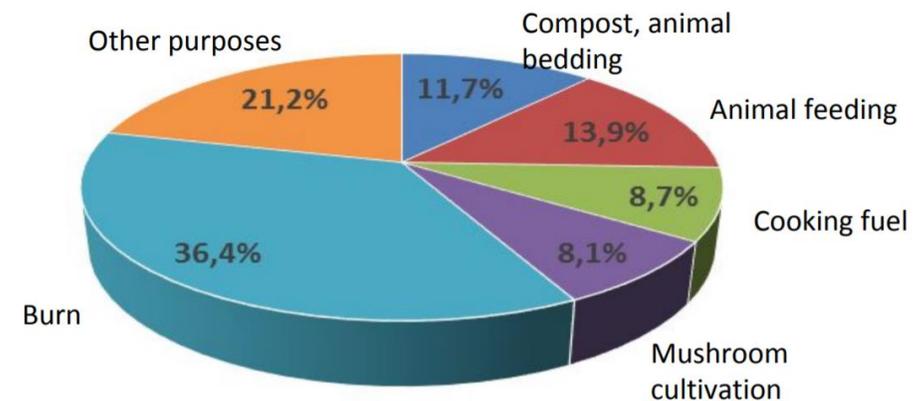
Notes: Capex = capital expenditure; ICE = internal combustion engine; BEV = battery electric vehicle. Conversion rate: CNY 1 = USD 0.14. The figure shows the TCO for the operations over the vehicle lifetime, which typically is eight years in Shenzhen. While the capital costs for e-buses in Shenzhen appear to be high relative to their ICE counterparts, the cost of Euro VI 12 metre diesel bus is around USD 300 000 to 400 000, far exceeding these prices and also higher than the non-subsidised BEV costs in Shenzhen. Costs of battery replacement (if any) have not been explicitly considered as part of this comparison.

Source: Case study on Shenzhen by Berlin, Zhang and Chen (2020).

OPEN BURNING

- Development is a major driver for biomass burning. Drivers include: Economic profits, consumption, urbanization, land use changes, poverty eradication, etc.
- Example: Hanoi
- Every year, Hanoi has ~1 million tons of straw and other agricultural residues.
- Developed "Review of existing good practices to address open burning" shared with Hanoi government and local partners
- Conduct survey to assess volume and type of household waste generated and straw burned
- Draft policy recommendation on specific solutions

**Uses of straw after harvesting
(2017 estimate)**





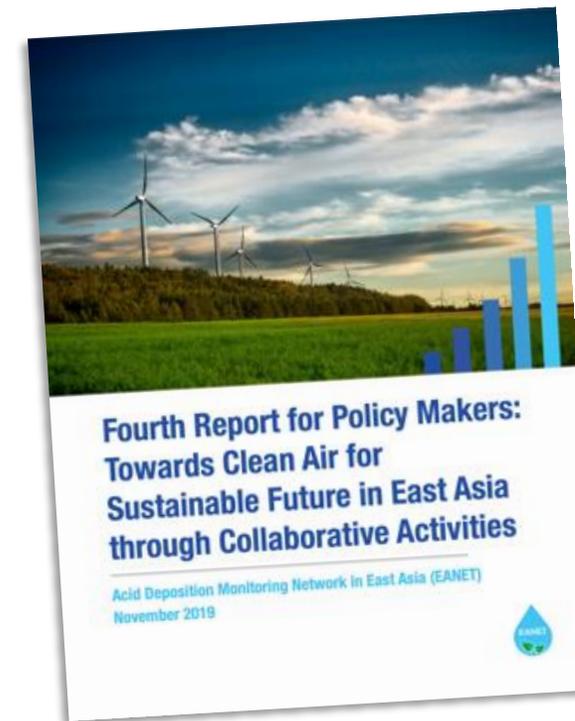
MONITORING

Acid Deposition Monitoring Network in East Asia (EANET): established in 2001 as an intergovernmental initiative in East Asia to **create common understanding** on the state of acid deposition problem in East Asia, **provide scientific-based reference** for governmental decision-making process, and **encourage cooperation** among participating countries.

Participating countries: Cambodia, China, Indonesia, Japan, Lao PDR, Malaysia, Mongolia, Myanmar, Philippines, Republic of Korea, Russia, Thailand, and Viet Nam. **UNEP serves as Secretariat for EANET.**

Major activities: acid deposition monitoring, data compilation and analysis, promotion of quality control & assurance, technical support & capacity building, research, public awareness, and cooperation & information exchange with other initiatives.

Current Development: EANET is currently finalizing its third Medium-Term Plan (2021-2025), with a strong willingness to **expand the scope of activities from acid deposition to include air pollution.**



[Read the RPM4 Report](#)



Awareness Forum on Prevention of Air Pollution, Bangkok 2019

Thank you!

