10TH BAQ CONFERENCE | CHANGEMAKER'S FORUM
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25 Solutions to Beat Air Pollution in Asia Pacific

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ASIA PACIFIC CLEAN AIR PARTNERSHIP

UN environment

Air pollution is a serious health crisis across Asia Pacific

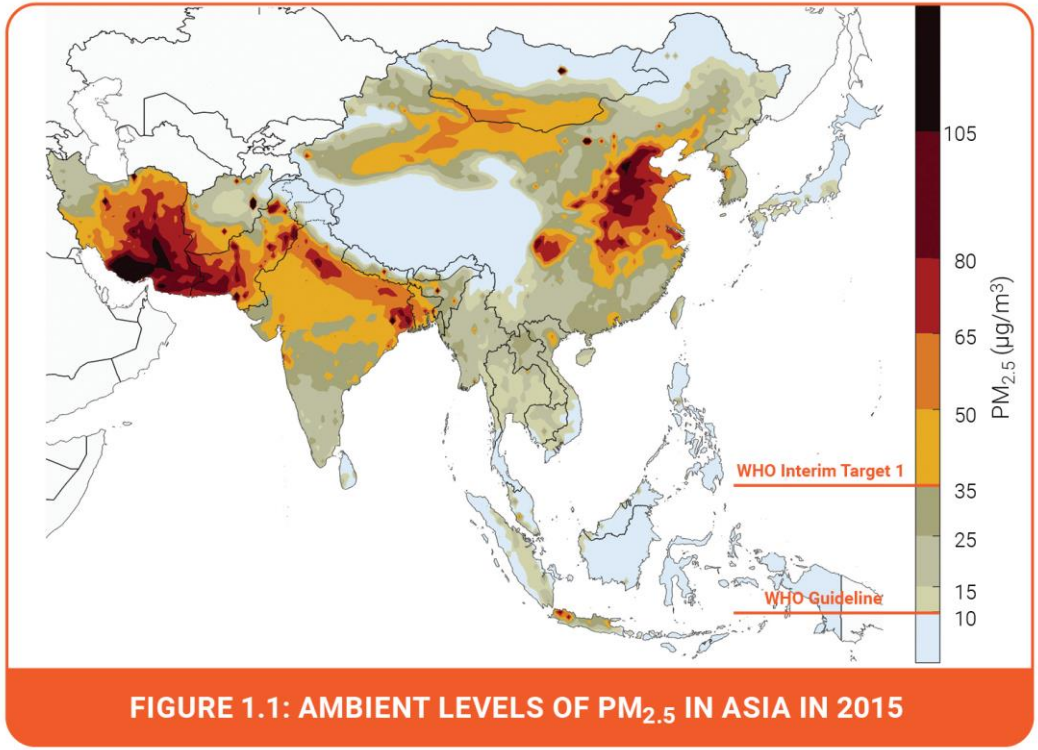


FIGURE 1.1: AMBIENT LEVELS OF $PM_{2.5}$ IN ASIA IN 2015

<8% of people in Asia Pacific enjoy clean air

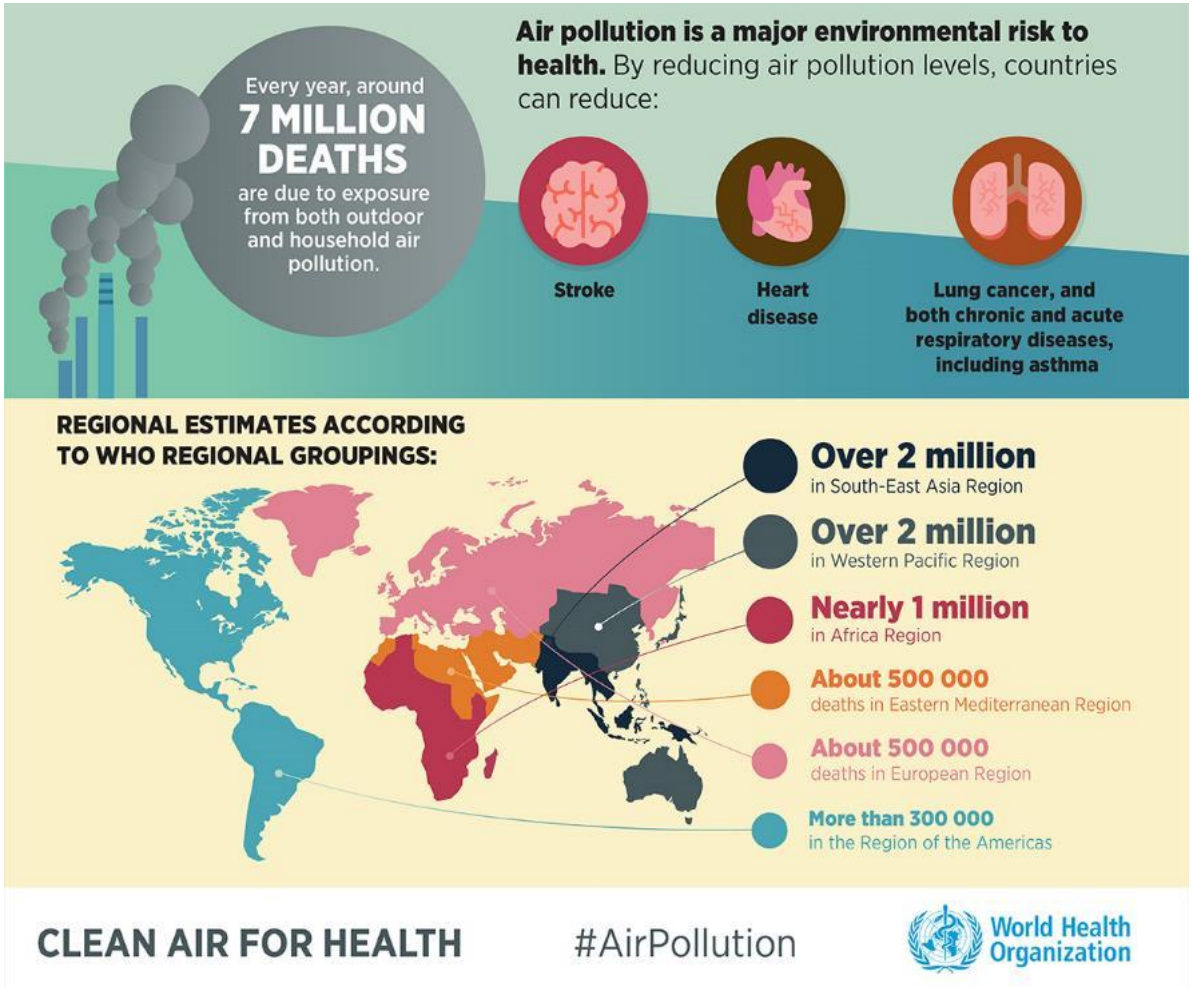
In 2015, 4 billion people were exposed to high levels of air pollution

Highest numbers in South and East Asia

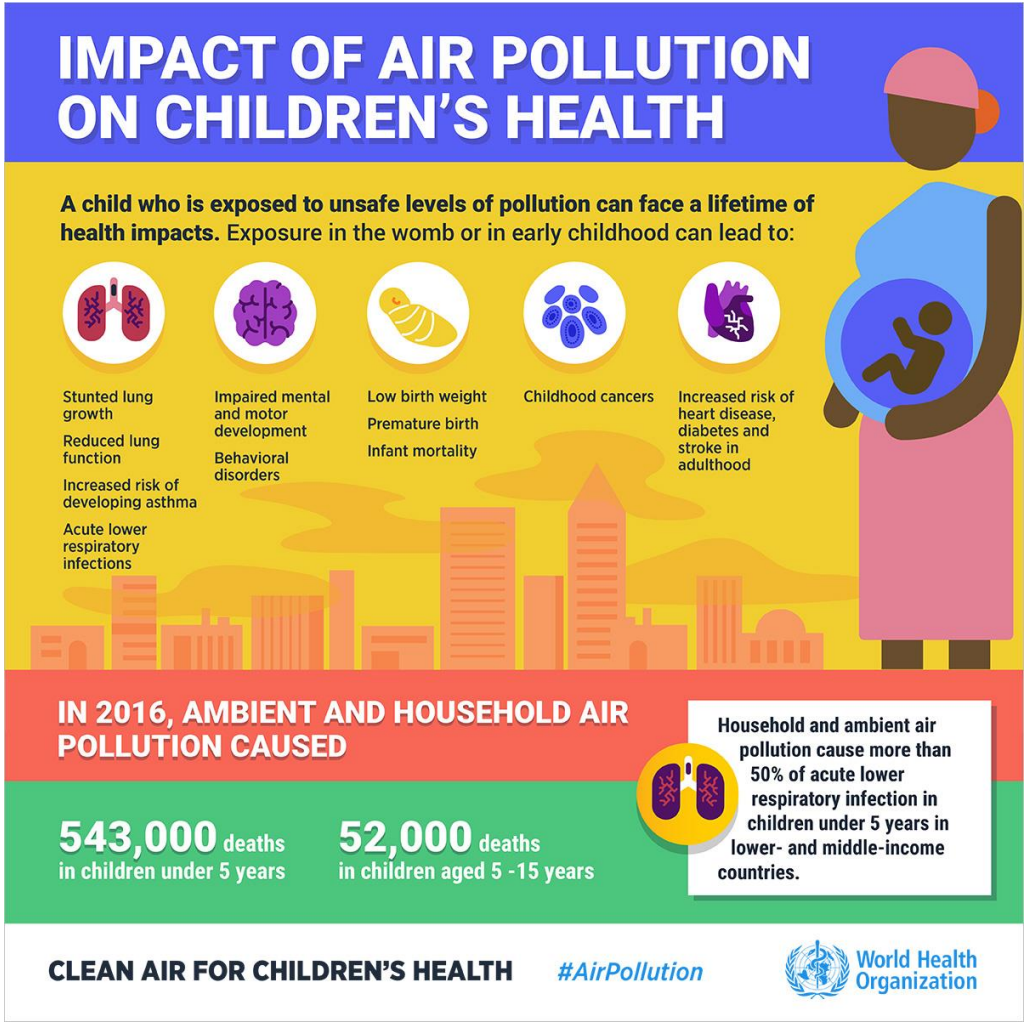
Source: UNEP, (2018) Air Pollution in Asia-Pacific: Science-based Solutions

The Silent Killer

Over 4 million premature deaths in Asia Pacific



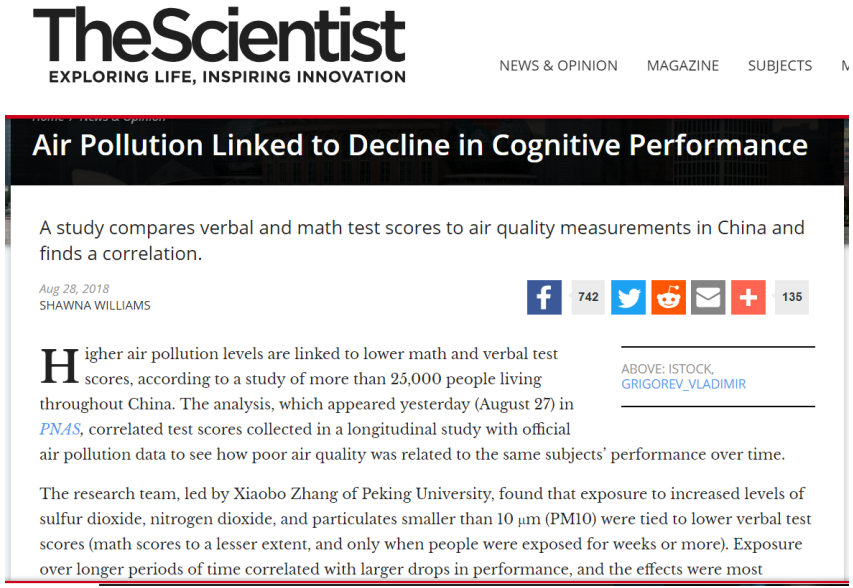
And affecting those most vulnerable



Growing scientific evidence on health impacts

There is growing evidence that air pollution could be linked to:

1. Adverse birth outcomes, e.g., preterm birth, congenital abnormalities (PM, O3, SO2);
2. Impairment of cognitive functions in adults e.g., Alzheimer's disease, Parkinson's disease, and neurodevelopmental anomalies in children (PM2.5, O3)
3. Diabetes (PM2.5)



TheScientist
EXPLORING LIFE, INSPIRING INNOVATION

NEWS & OPINION MAGAZINE SUBJECTS

Air Pollution Linked to Decline in Cognitive Performance

A study compares verbal and math test scores to air quality measurements in China and finds a correlation.

Aug 28, 2018
SHAWNA WILLIAMS

742 135

Higher air pollution levels are linked to lower math and verbal test scores, according to a study of more than 25,000 people living throughout China. The analysis, which appeared yesterday (August 27) in *PNAS*, correlated test scores collected in a longitudinal study with official air pollution data to see how poor air quality was related to the same subjects' performance over time.

ABOVE: ISTOCK, GRIGOREV_VLADIMIR

The research team, led by Xiaobo Zhang of Peking University, found that exposure to increased levels of sulfur dioxide, nitrogen dioxide, and particulates smaller than 10 μm (PM10) were tied to lower verbal test scores (math scores to a lesser extent, and only when people were exposed for weeks or more). Exposure over longer periods of time correlated with larger drops in performance, and the effects were most

Source: REVIHAAP Project Technical Report, WHO European Region, 2013, Prof. TW Wong Presentation,
School of Public Health and Primary Care The Chinese University of Hong Kong Hong Kong Special Administrative Region, China

Global Call to Action on Air Quality: UN Environment Assembly

- Highest-level decision-making body on the environment; universal membership of 193 UN Member States
- Involvement of UN organizations, specialized agencies, inter-governmental organizations, civil society and the private sector

1st UNEA 2014:

Resolution 1/7 Strengthening UN Environment's role in promoting air quality

3rd UNEA 2017:

'Preventing and reducing air pollution to improve air quality globally'

*"Air pollution: **top priority requiring immediate action**.*
Member countries requested UN Environment to support national and local efforts in addressing air pollution issues"

UNEA 3 RESOLUTION: Preventing and Reducing Air Pollution to Improve Air Quality Globally

CONTINUE ACTION FROM UNEA-1
Recall UNEA 1 Air Quality Resolution 1/7 (para 1)

MEMBER STATE ACTION
Specific initiatives e.g. CCAC
Specific issues e.g. $PM_{2.5}$, BC, CH_4
Specific sectors e.g. transport, energy

REGIONAL KNOWLEDGE SHARING
Share knowledge at regional level (para 5)
Asia Pacific: APCAP

INTERNATIONAL COOPERATION
Inter-Governmental and institutional cooperation (para 6)

UN ENVIRONMENT ACTION
Transport; Transboundary, Info sharing, Country support and technical support, Assessments, Indoor air quality, Global approaches, Second global policy assessment

MONITORING ACTION
Report back at UNEA-4

https://papersmart.unon.org/resolution/unea3

Considerable pollution reduction has been achieved

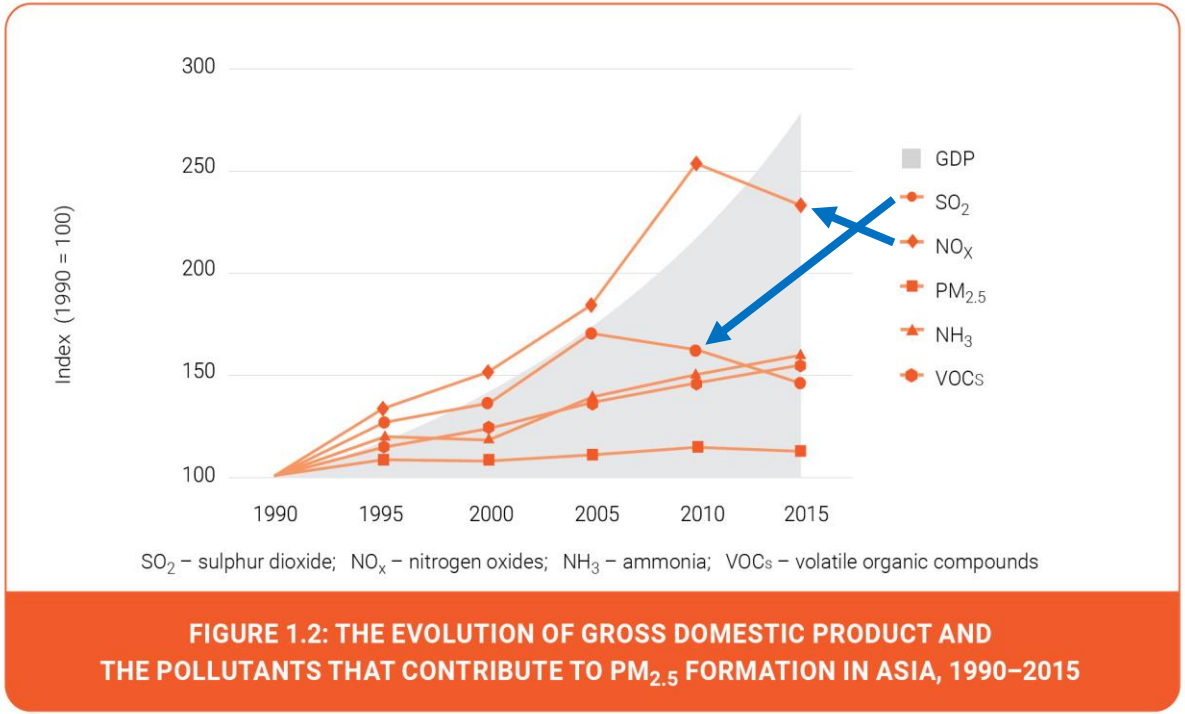


FIGURE 1.2: THE EVOLUTION OF GROSS DOMESTIC PRODUCT AND THE POLLUTANTS THAT CONTRIBUTE TO $PM_{2.5}$ FORMATION IN ASIA, 1990–2015

Current policies have an effect on air quality levels by decoupling emissions from economic growth

Source: UNEP, (2018) Air Pollution in Asia-Pacific: Science-based Solutions

Current policies will avoid further large-scale deterioration but not achieve air quality standards

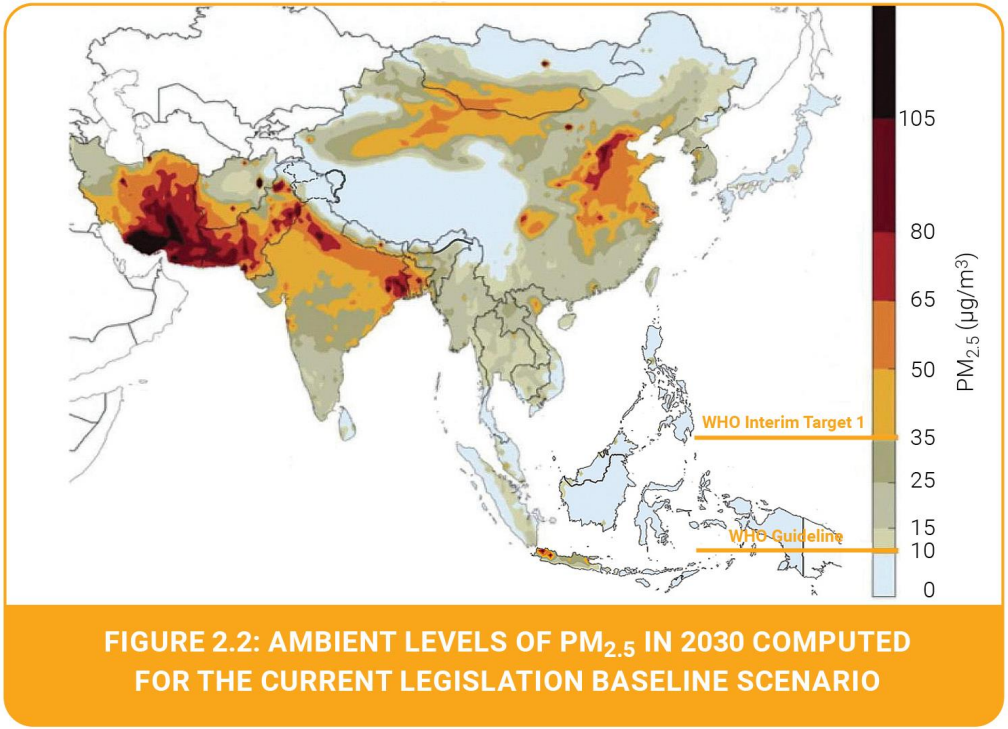


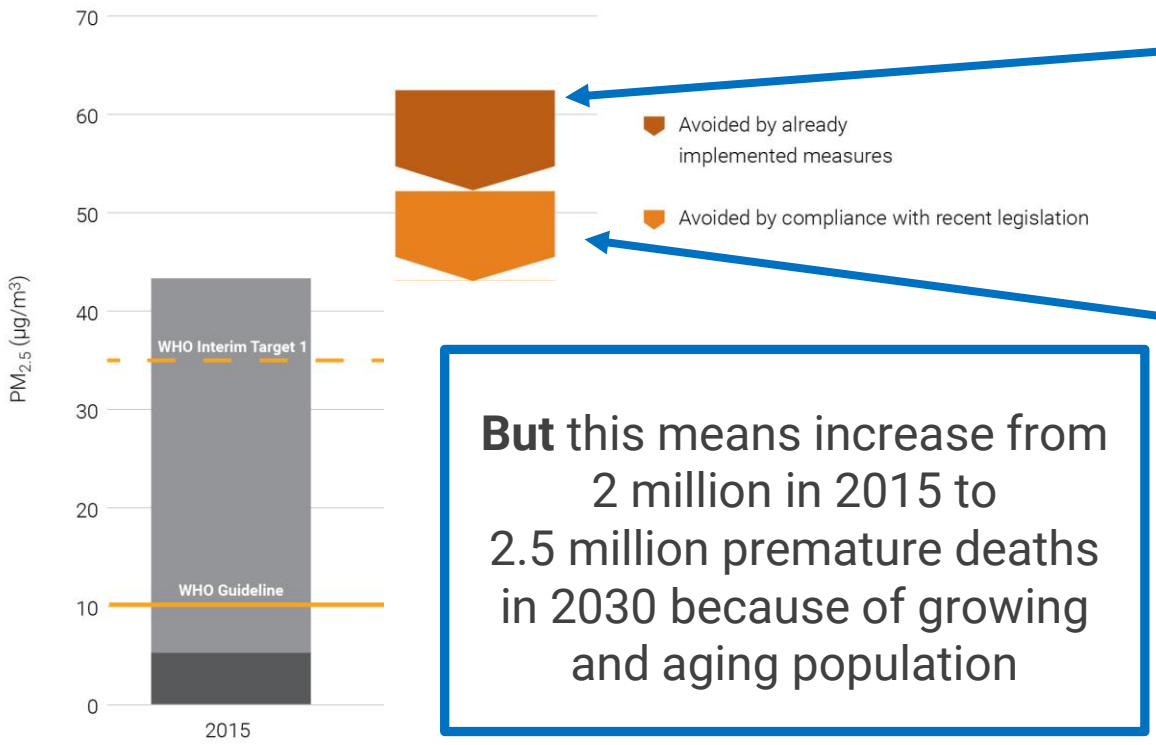
FIGURE 2.2: AMBIENT LEVELS OF $PM_{2.5}$ IN 2030 COMPUTED FOR THE CURRENT LEGISLATION BASELINE SCENARIO

Full scale implementation and 80% expected economic growth forecast could result in no further increase in air pollution while lifting tens of millions out of poverty,

But….

4 billion will remain exposed to health-damaging levels of air pollution

Source: UNEP, (2018) Air Pollution in Asia-Pacific: Science-based Solutions



But this means increase from 2 million in 2015 to 2.5 million premature deaths in 2030 because of growing and aging population

FIGURE 2.3: POTENTIAL CONTRIBUTIONS OF THE THREE PORTFOLIOS OF MEASURES TO POPULATION-WEIGHTED MEAN EXPOSURE TO $PM_{2.5}$

Implemented policies have reduced burden that would have been experienced in 2030

If fully implemented by countries that adopted recent policies, this will reduce exposure in 2030 to the same level as 2015 despite projected 80% economic growth

Source: UNEP, (2018) Air Pollution in Asia-Pacific: Science-based Solutions

We need greater ambition to reduce health impacts In the next decades

ASIA-WIDE FULL APPLICATION OF CONVENTIONAL MEASURES

NEXT STAGE AIR QUALITY MEASURES THAT ARE NOT YET MAJOR COMPONENTS OF CLEAN AIR POLICIES

MEASURES WHICH CONTRIBUTE TO DEVELOPMENT PRIORITIES WITH AIR QUALITY BENEFITS

Looking for measures that

- Lead to largest reduction in population exposed to PM2.5
- Plus methane measures to reduce tropospheric ozone
- And HFCs which reduce near-term warming

Benefits for health

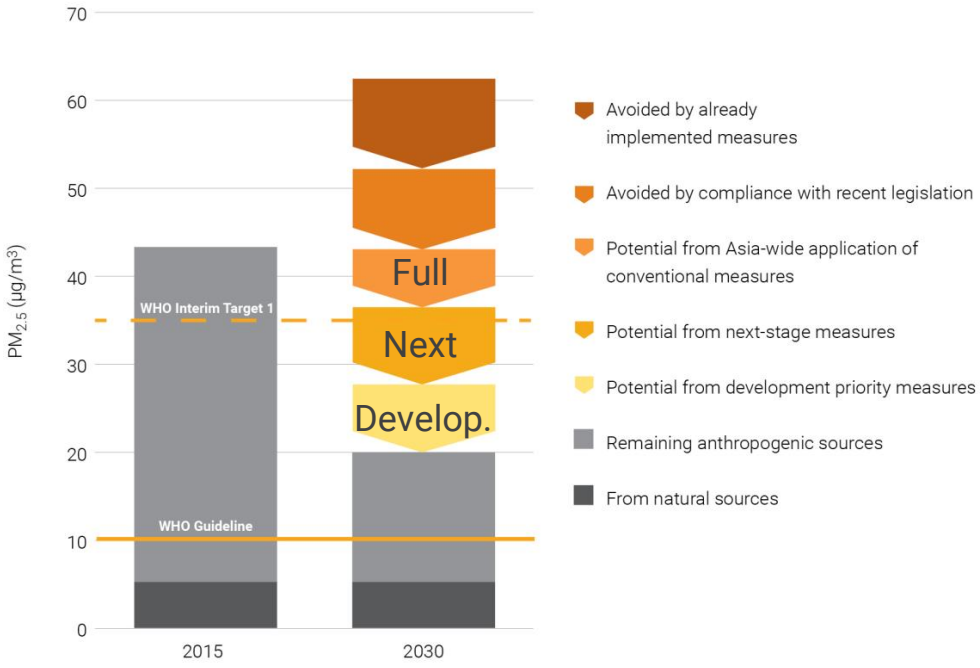


FIGURE 2.3: POTENTIAL CONTRIBUTIONS OF THE THREE PORTFOLIOS OF MEASURES TO POPULATION-WEIGHTED MEAN EXPOSURE TO $PM_{2.5}$

Top clean air 25 measures will provide clean air [<10µg m^{-3}] to 1 billion people in 2030

And reduce number of people facing the highest WHO Interim Target (35µg m^{-3}) by 80%

Source: UNEP, (2018) Air Pollution in Asia-Pacific: Science-based Solutions

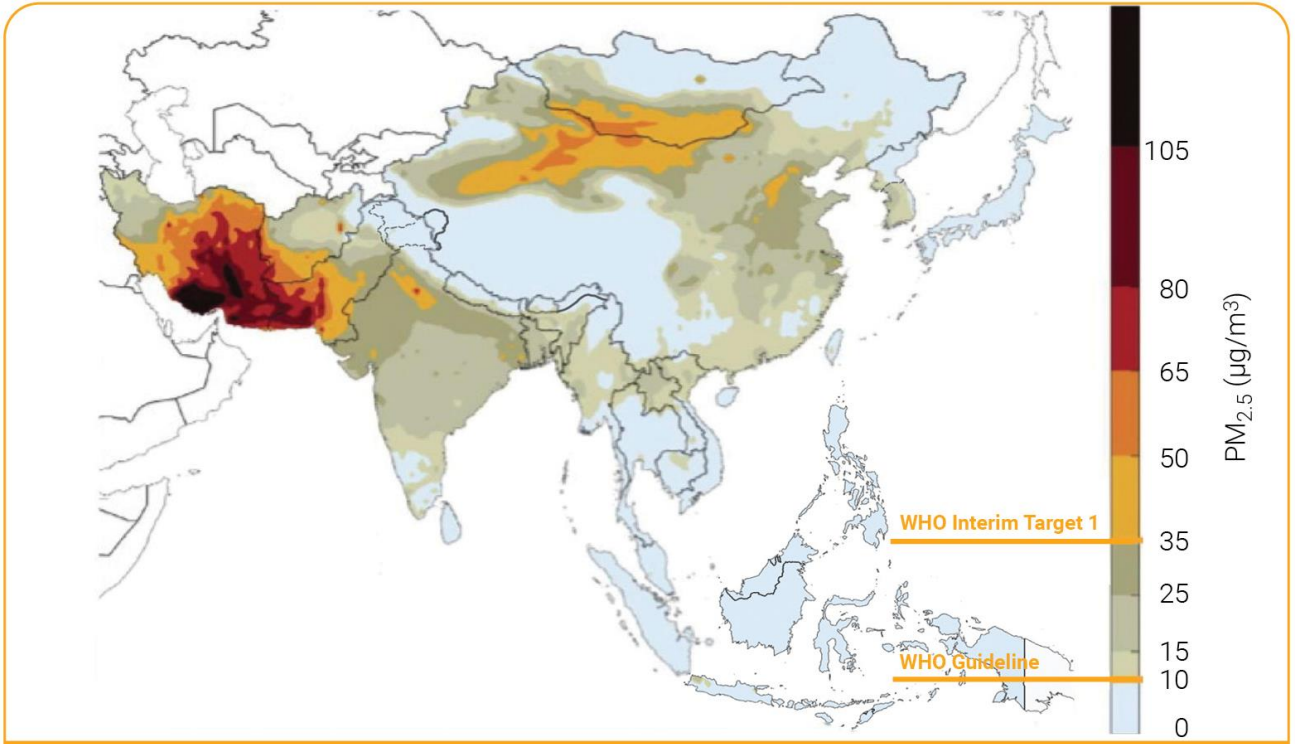


FIGURE 2.5: $PM_{2.5}$ CONCENTRATIONS IN 2030 AFTER IMPLEMENTATION OF THE TOP 25 CLEAN AIR MEASURES

$PM_{2.5}$ after implementation of the Top 25 Measures

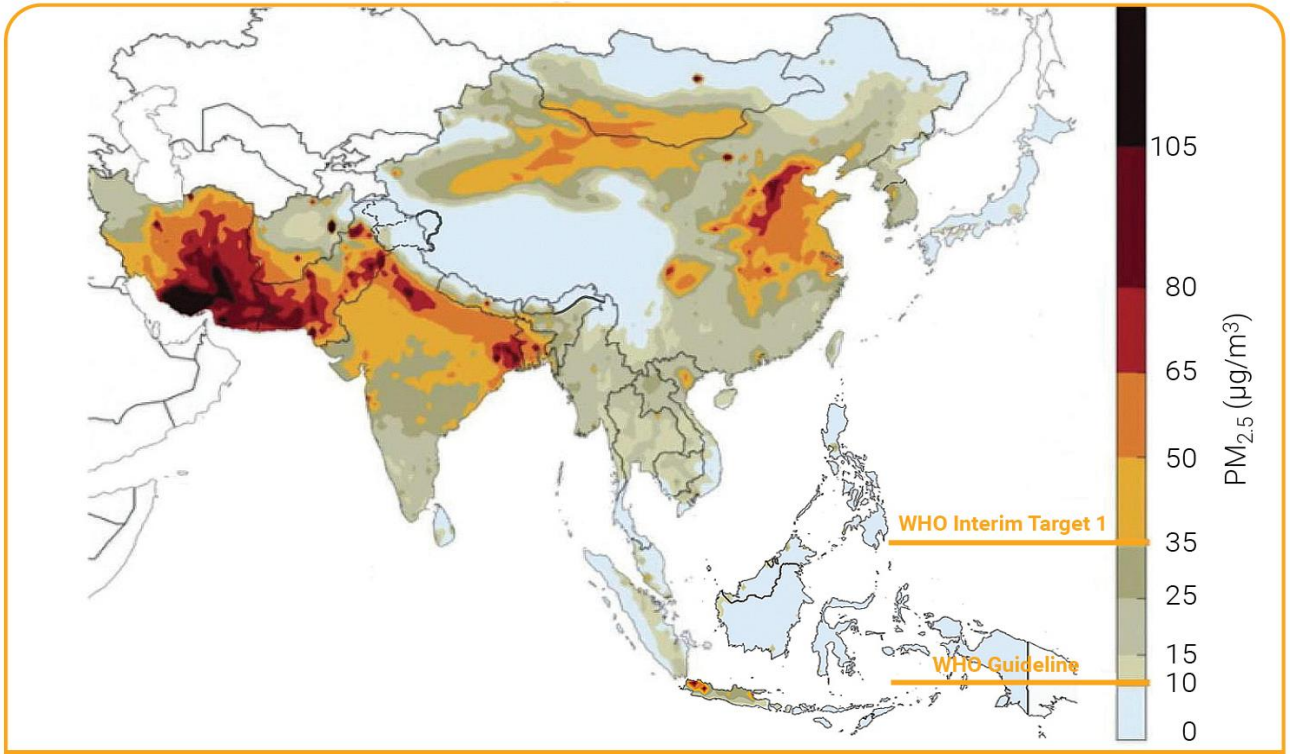
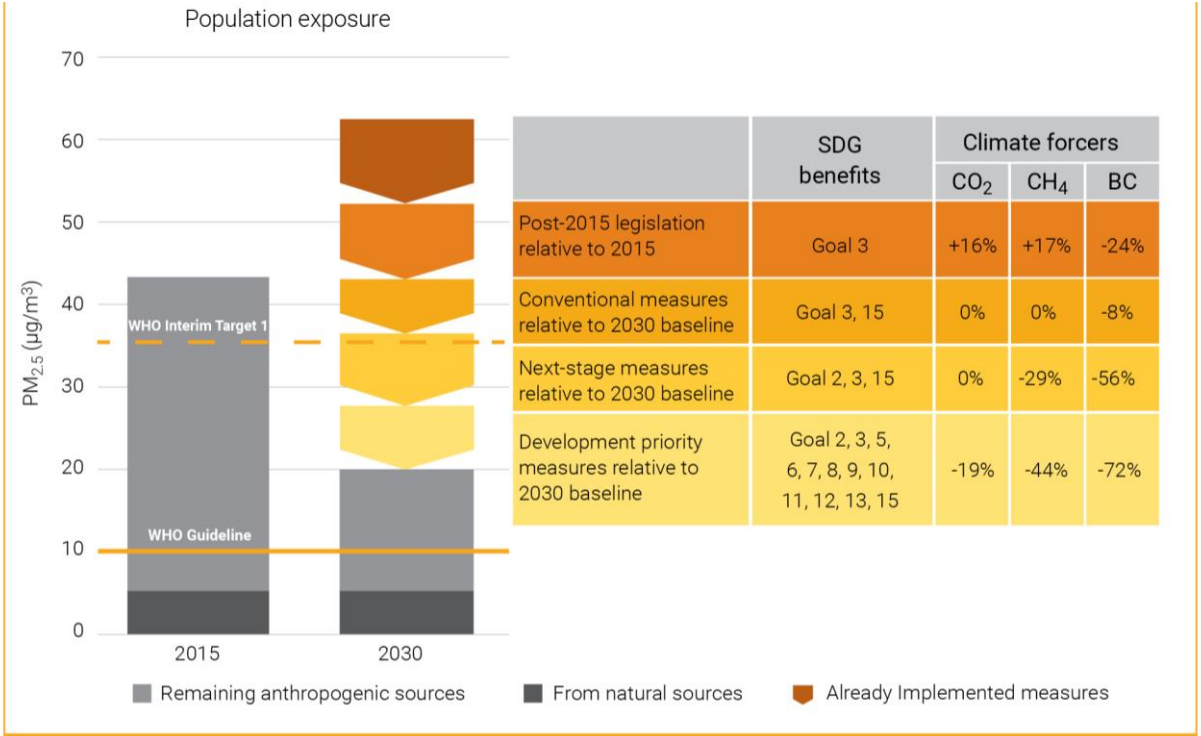


FIGURE 2.2: AMBIENT LEVELS OF $PM_{2.5}$ IN 2030 COMPUTED FOR THE CURRENT LEGISLATION BASELINE SCENARIO

…..compared to the baseline ….

…..a big improvement!

Helping achieve sustainable development goals



	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%

FIGURE 2.10: IMPACT OF THE TOP 25 CLEAN AIR MEASURES IN REDUCING POPULATION EXPOSURE TO $PM_{2.5}$, AND BENEFITS FOR CLIMATE AND THE SUSTAINABLE DEVELOPMENT GOALS

All measures link to key SDGs attainment

All 25 measures reduce:
CO_2 by ~20%
CH_4 by ~40%
BC by ~70%
HFC by ~80%

Source: UNEP, (2018) Air Pollution in Asia-Pacific: Science-based Solutions

Benefits for climate

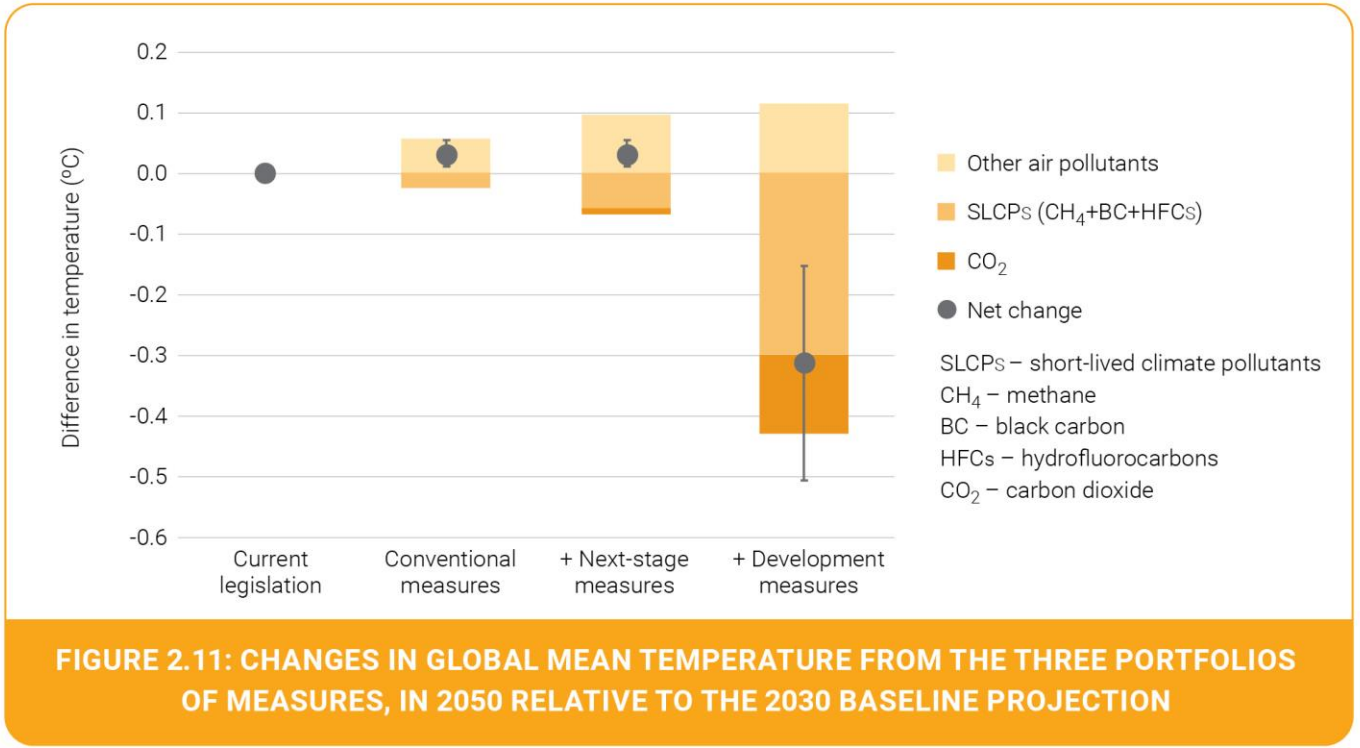


FIGURE 2.11: CHANGES IN GLOBAL MEAN TEMPERATURE FROM THE THREE PORTFOLIOS OF MEASURES, IN 2050 RELATIVE TO THE 2030 BASELINE PROJECTION

25 clean air measures could avoid 0.3˚C of warming by 2050

Source: UNEP, (2018) Air Pollution in Asia-Pacific: Science-based Solutions

Examples of successful implementation of solutions

RENEWABLES FOR POWER GENERATION

Case study: China, India, Indonesia, Japan, Thailand, and the Philippines' renewable programs. Seoul's (Korea) one less nuclear power plant

Enabling / Success Factors: Including renewable power generation in energy and climate policies. Public pressure to switch from fossil fuels and nuclear to renewables

AGRICULTURAL CROP RESIDUE MANAGEMENT

Case study: Thailand's open burning controls

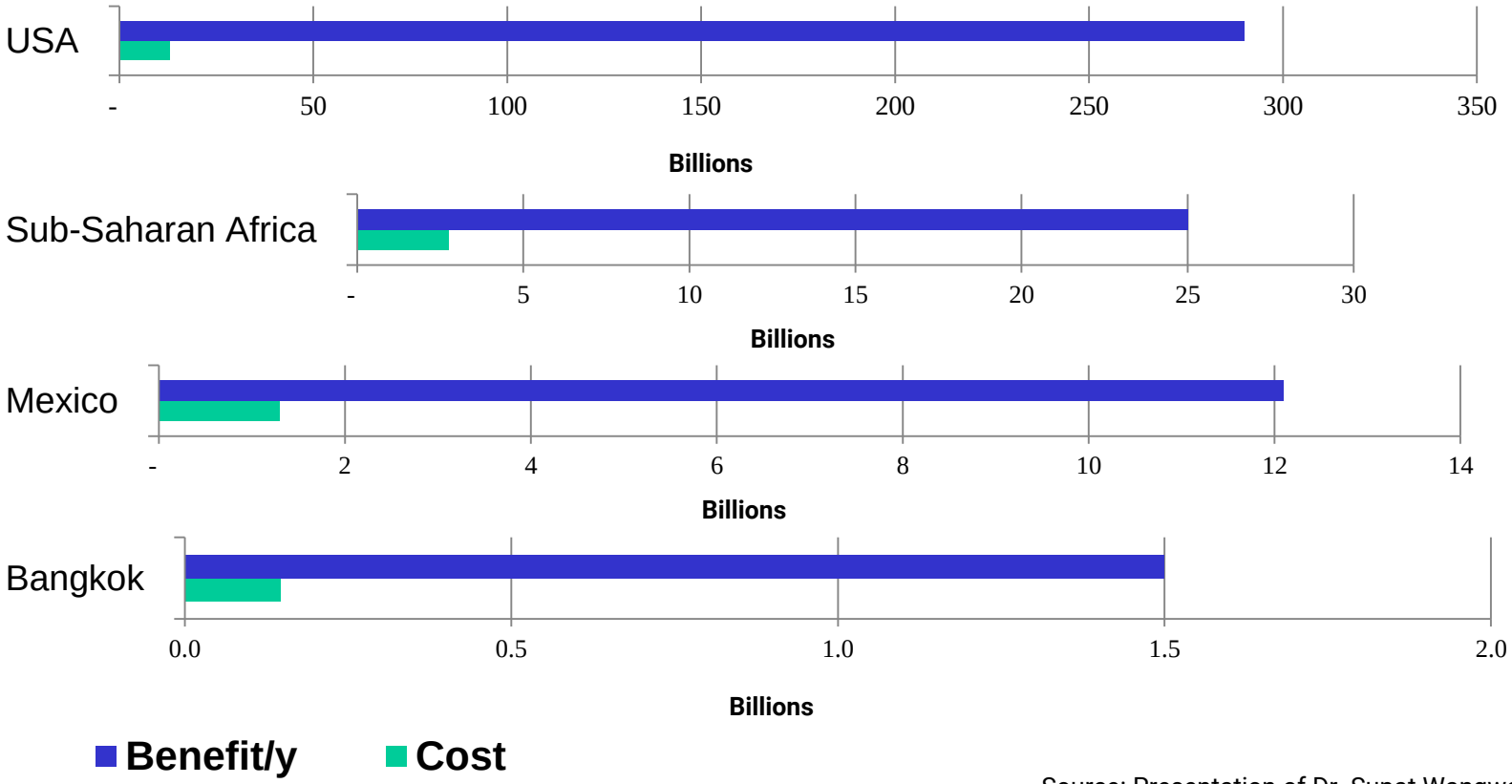
Enabling / Success Factors: Growing awareness of pollution sources/impacts. Complementing burning bans with other use options with involvement of farmers, alternative off-site use of crop residues, technologies that plough residues on fields

VEHICLE INSPECTION AND MAINTENANCE

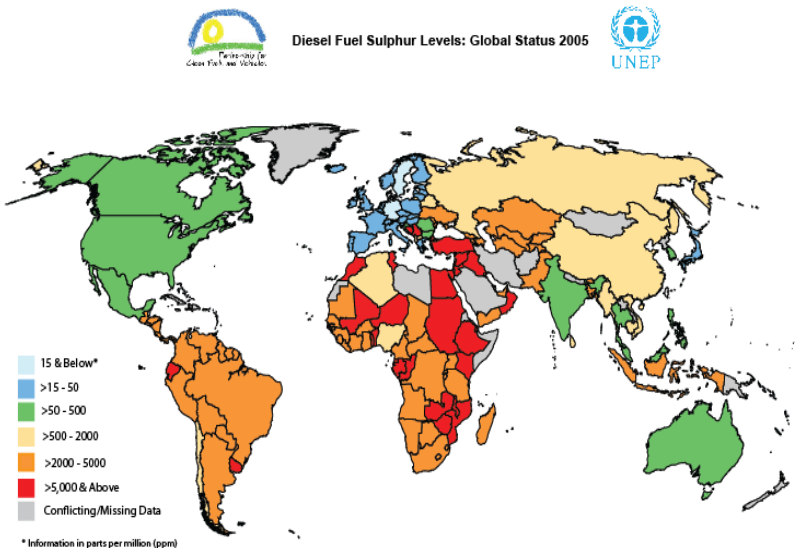
Case study: Tokyo's (Japan) diesel control strategy

Enabling / Success Factors: Centralized I&M systems, developed through multi-agency collaboration. Self-funding mechanism for regular audits at test centres

Benefits outweigh costs: Moving to low Sulphur fuels



Source: Presentation of Dr. Supat Wangwongwatana



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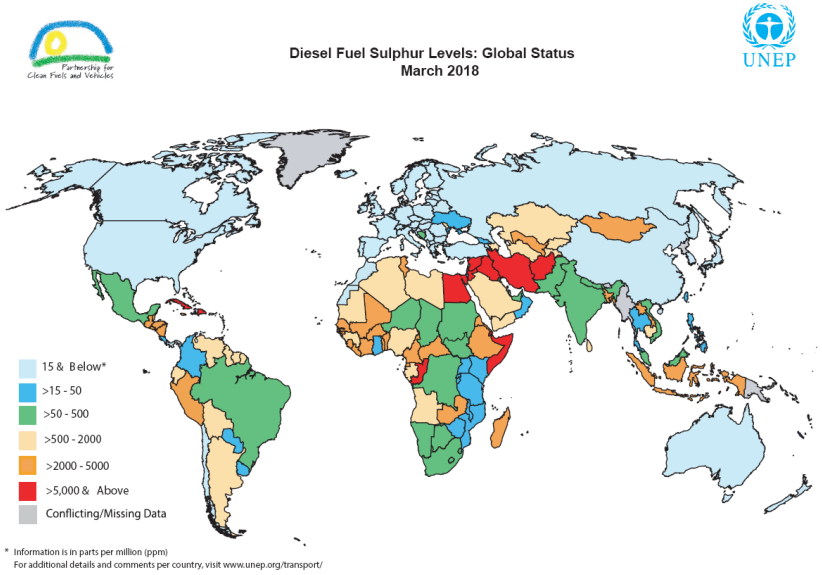
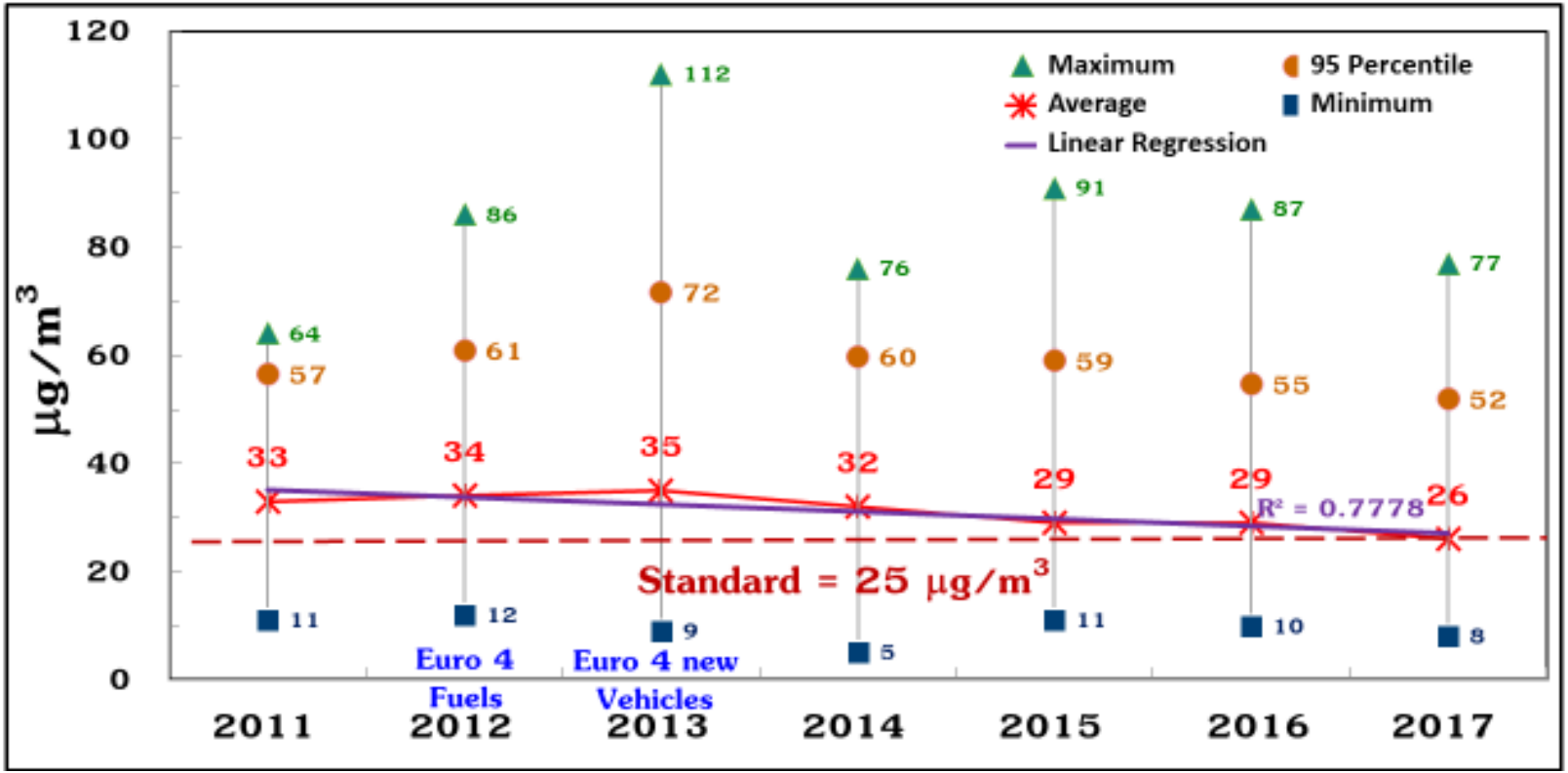
We are on track! The world is moving towards low-Sulphur fuels



Impact of cleaner fuels and vehicles in Bangkok on $PM_{2.5}$



Source: Presentation of Dr. Supat Wangwongwatana

Let’s make it happen for healthy people and environment

COOPERATION IS KEY

Successful adoption and effective implementation will require concerted effort and integrated action from governments, businesses and civil society.

BENEFITS OUTWEIGH THE COST

Implementing the measures is projected to cost US $ 300-600 billion per year. This is only about one twentieth of the annual increase of US $ 12 trillion in GDP that is projected by 2030 and will deliver substantial benefits including savings on pollution control.

TECHNOLOGY AND FINANCING FOR THE MEASURES

Many measures are aligned with national development priorities and could be supported from domestic public finance. Private sector and businesses are ready to invest in cleaner technologies, provided a favourable enabling environment is in place. Climate finance mechanisms are available.

UN Environment: Improving air quality in Asia Pacific

REGIONAL COOPERATION AND KNOWLEDGE SHARING

POLICY SUPPORT AND CAPACITY BUILDING

DATA AND INFORMATION

SCIENCE FOR POLICY

Asia Pacific Clean Air Partnership

StR

Partnership for Clean Fuels and Vehicles

Climate & Clean Air Coalition to Reduce Short-Lived Climate Pollutants

BREATHE LIFE
Clean Air. Healthy Future.

EANET

Asia Pacific Regional Forum on Health and Environment with WHO

eMob Electric Mobility

GFEI Global Fuel Economy Initiative

Global Clean Ports

CONTACT US

FEEL FREE TO KEEP IN TOUCH.
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