UN environment
United Nations Environment Programme

Asia Pacific Clean Air Partnership

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

25 CLEAN AIR MEASURES FOR ASIA AND THE PACIFIC

ABOUT

The Air Pollution in Asia and the Pacific: Science-based Solutions is the first-ever comprehensive scientific assessment of air pollution outlook in the region. It outlines 25 clean air measures that could achieve safe air quality levels for 1 billion people by 2030 – with numerous benefits for public health, economic development and the climate. This handbook provides an overview of the 25 clean air measures for Asia Pacific.

Read the report:
http://ccacoalition.org/solutions

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92 per cent of Asia Pacific's population – about 4 billion people – are exposed to levels of air pollution that pose a significant risk to their health.

Air pollution is not only a major health risk, it also has damaging impacts on the environment and agricultural crop yields. These impacts have significant economic consequences. While existing policies have made progress in reducing air pollution, further action is needed to bring air quality to safe levels.

The report uses highest quality data available and state-of-the-art modelling to identify the most effective 25 measures to reduce air pollution.

It takes the region's considerable diversity into account and splits the measures into three groups:

- Conventional emission controls
- Next-stage air-quality measures for reducing emissions leading to formation of fine particulates and are not yet major components of many clean air policies
- Measures contributing to development priority goals with benefits for air quality

Implementing the 25 measures is projected to cost US$300–600 billion per year, only about 5 per cent of the projected annual GDP increase of US$12 trillion in 2030.

BENEFITS OF ACTION

Health
One billion people could breathe clean air that meets stringent World Health Organization's guidelines by 2030.

Food Security
Ozone-induced crop losses could be reduced considerably – by 45% for maize, rice, soy and wheat combined. The health of natural ecosystems would also improve.

Water Security
Slow the melting of glaciers and snowfields, reduce risk of disasters related to glacier lake outburst floods, and help mitigate water insecurity for billions of people.

Climate
Carbon dioxide emissions in 2030 could be reduced by almost 20% and methane by 45%. This would decrease the expected warming by a third of a degree Celsius by 2050 and contribute to the Paris Agreement target.

Sustainable Development Goals
Improving air quality and mitigating climate change would directly contribute to realizing:

- SDG 3: Good Health and Well-being
- SDG 11: Sustainable Cities and Communities
- SDG 12: Responsible Consumption and Production
- SDG 13: Climate Action

25 CLEAN AIR MEASURES

1. Strengthen emission standards for road vehicles
2. Regularly maintain and inspect vehicles
3. Mainstream electric vehicles
4. Provide better mobility options
5. Control dust from construction and roads
6. Reduce emissions from international shipping
7. Improve post-combustion control
8. Strengthen industrial process emissions standards
9. Introduce efficient brick kilns technology
10. Control volatile organic compounds from oil and gas production
11. Improve solvent use and refinery controls
12. Use environmentally-friendly refrigerants
13. Provide clean cooking and heating options
14. Strictly enforce bans on household waste burning
15. Provide incentives for improved energy efficiency in households
16. Increase renewable electricity generation
17. Improve energy efficiency for industry
18. Recover coal mining gas
19. Improve livestock manure management
20. Strengthen management of nitrogen fertilizer application
21. Better management of agricultural crop residues
22. Prevent forest and peatland fires
23. Promote more efficient rice production practices
24. Stop biogas leakage from wastewater treatment
25. Improve solid waste management

1

Strengthen emission standards for road vehicles

Strengthen all vehicle emissions standards with a special focus on regulation of light and heavy-duty diesel vehicles. This will require collaboration between environmental agencies, transport agencies, oil companies and vehicle manufacturers, among others.

2

Regularly maintain and inspect vehicles

Introduce legislation and enforcement of regular mandatory emission checks and maintenance. This includes random tests to prevent extended use of vehicles with failed emissions abatement systems.

Centralize inspection and maintenance systems and establish self-funding mechanisms for regular audits at test centers.

3

Mainstream electric vehicles

Develop fiscal and non-fiscal policies to promote electric mobility.

Invest in required infrastructure to encourage quicker uptake of electric vehicles.

4

Provide better mobility options

Improve public transport system to encourage shift from private passenger vehicles to public transport and integrate with sustainable urban planning.

Invest in walking and cycling infrastructure (sidewalk and bike-paths, sufficient lighting, bike sharing option, etc).

5

Control dust from construction and roads

Suppress construction and road dust through dust control measures including road washing and cleaning, road paving, water spraying, installation of barrier protection, avoiding dust-generating work during windy days, etc.

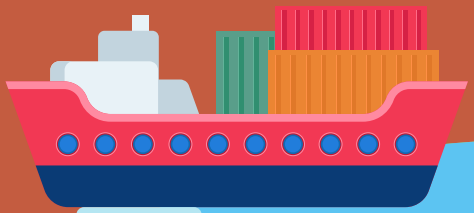
Increase green spaces and areas especially in cities. This includes public parks, gardens, etc.

6

Reduce emissions from international shipping

Require low-sulphur fuels and control of particulate emissions.

Collaborate with the International Maritime Organization to widen the ratification and implementation of International Convention for the Prevention of Pollution from Ships.



7

Improve post-combustion control

Introduce state-of-the-art end-of-pipe measures to reduce sulphur dioxide, nitrogen oxides and particulate emissions at power stations and in large-scale industry.

Examples include flue gas desulphurization for sulphur dioxide, selective catalytic reduction for nitrogen oxides, and high efficiency particulate matter controls like fabric filters, multistage electrostatic precipitators.

8

Strengthen industrial process emissions standards

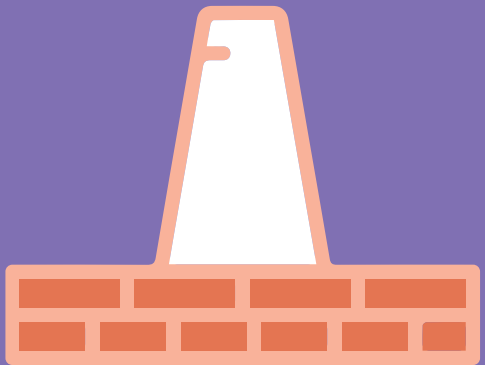
Introduce advanced emissions standards in industries, e.g., iron and steel, cement, glass production, chemicals, etc.

Strengthen production, performance and emission standards to control end-of-pipe emissions and fugitive emissions. This will stimulate investment in pollution control and/or cleaner technologies.

9

Introduce efficient brick kilns technology

Improve efficiency and introduce emissions standards to stimulate shift to more efficient brick kiln technologies (such as zig-zag, vertical shaft brick kiln or tunnel kilns). This requires collaboration among kiln owners, technical experts, and government to demonstrate benefits of cleaner kiln technology.



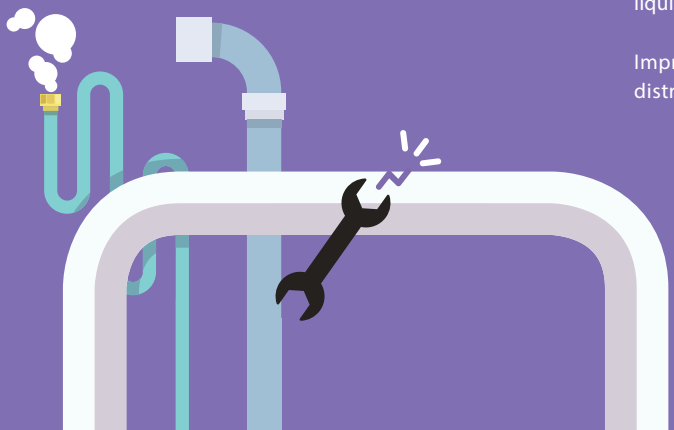
10

Control volatile organic compounds (VOCs) from oil and gas production

Encourage recovery of oil production and associated petroleum gas.

Stop routine flaring and either utilize or convert to liquids that can be sold at higher value.

Improve leakage controls in gas production and distribution networks.



11

Improve solvent use and refinery controls

Introduce low-solvent paints for industrial and do-it-yourself applications.

Improve solvents recovery in industry. If not feasible, incinerate flue gas rich in hydrocarbons.

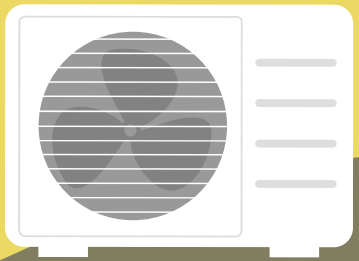
Establish leak detection and repair programs at refineries. Install double seal systems, vapor recovery unit, fixed covers and monitoring at refineries and fuel depots.

12

Use environmentally-friendly refrigerants

Ensure full compliance with Kigali Amendment to phase-down hydrofluorocarbons which are commonly used in air conditioning, refrigeration and a host of industrial products.

Establish regulations to support shift to low- global warming potential cooling agents.



13

Provide clean cooking and heating options

Use clean fuels – electricity, natural gas, liquefied petroleum gas in cities, and liquefied petroleum gas and advanced biomass cooking and heating stoves in rural areas.

Substitute coal with briquettes for cooking and heating.

14

Strictly enforce bans on household waste burning

Strictly enforce bans on open burning of household waste. Burning ban needs to be complemented with comprehensive solid waste management plan including proper waste collection system, recycling, waste treatment, and awareness raising.

15

Provide incentives for improved energy efficiency in households

Provide incentives to improve energy efficiency of household appliances, buildings, lighting, heating and cooling.

Encourage rooftop solar installations.

16

Increase renewable electricity generation

Establish renewable energy targets and supporting policies to achieve target. This includes providing incentives to foster extended use of wind, solar and hydro power for electricity generation and phase out least efficient plants.

Leverage public pressure to switch from fossil fuels to renewables.

17

Improve energy efficiency for industry

Introduce ambitious energy efficiency standards for industry.

Include energy efficiency targets for industry in national development plans.

18

Recover coal mining gas

Encourage pre-mining recovery of coal mine methane gas.

Provide fiscal incentives, well-defined gas property rights and unsubsidized free gas market.

19

Improve livestock manure management

Introduce covered storage (floating or permanent covers) and efficient application of manure (when plants need fertilizers, rapidly incorporate manure in soil or as narrow bands in canopy or grassland).

Encourage anaerobic digestion to reduce methane with unchanged ammonia or nitrogen content.

Consider low emission options for new animal housing: regular floor scraping, air ventilation cleaning, closed storage tanks.

20

Strengthen management of nitrogen fertilizer application

Establish efficient nitrogen fertilizer application (right timing and amount). Substitute urea and ammonium bicarbonate with e.g. ammonium nitrate fertilizer.

Promote alternative formulations, e.g., neem coated urea, or use of urease inhibitors, where available and affordable.

21

Better management of agricultural crop residues

Manage agricultural crop residues, including strict enforcement of bans on open burning. Complement burning ban with measures that use the residues. This includes alternative off-site use, technologies that plough residue into fields, no-till agricultural practice, or using residues as bedding for livestock or biogas digesters.

22

Prevent forest and peatland fires

Improve and enforce forest, land and water management and fire prevention strategies. This includes fire spread protection zones, fire alarm and brigade system, prohibit access to forests during droughts, and ban on land clearing.

23

Promote more efficient rice production practices

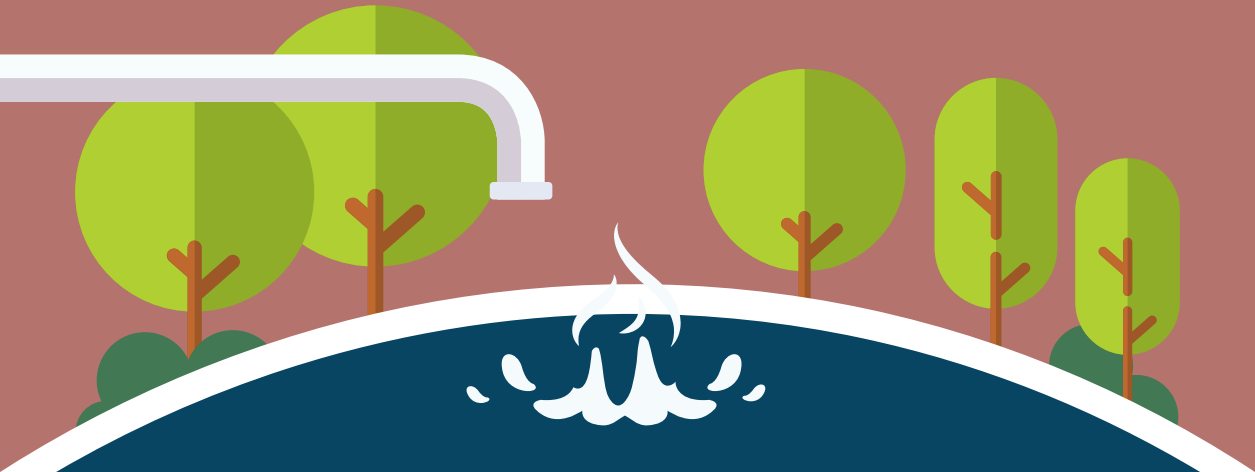
Encourage intermittent aeration of continuously flooded rice paddies (e.g. alternative wetting and drying – practice of allowing the water table to drop below the soil surface at one or multiple points during a growing season).

24

Stop biogas leakage from wastewater treatment

Introduce well-managed two-stage treatment with biogas recovery.

Promote decentralized wastewater treatment units.



25

Improve solid waste management

Encourage centralized waste collection with source separation and treatment, including gas utilization.

For more information, please contact

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