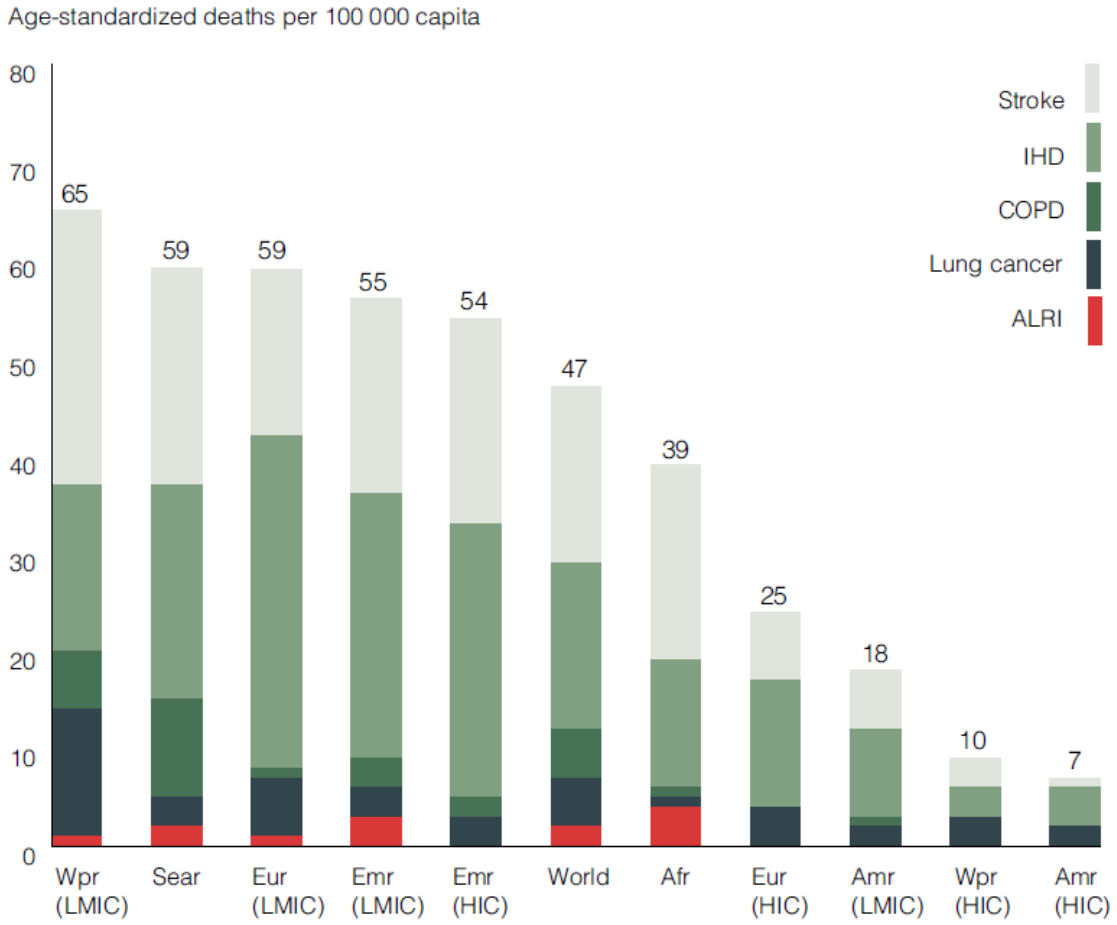
Air pollution: health impacts, air quality standards and country support

Lao PDR office,
World Health Organization Western Pacific Region

World Health Organization

7 million people die every year (WHO report)



- 94% of air-pollution-related deaths – Non-Communicable Diseases
- Nearly 90% of air-pollution-related deaths occur in low- and middle-income countries
- Nearly 2/3 occurring in WHO's SEA and WPRs.

94% of air-pollution-related deaths - NCDs

- WHO recognizes that:
  - one-quarter (24%) of all adult deaths from heart disease
  - 25% from stroke,
  - 43% from chronic obstructive pulmonary disease and
  - 29% from lung cancer.

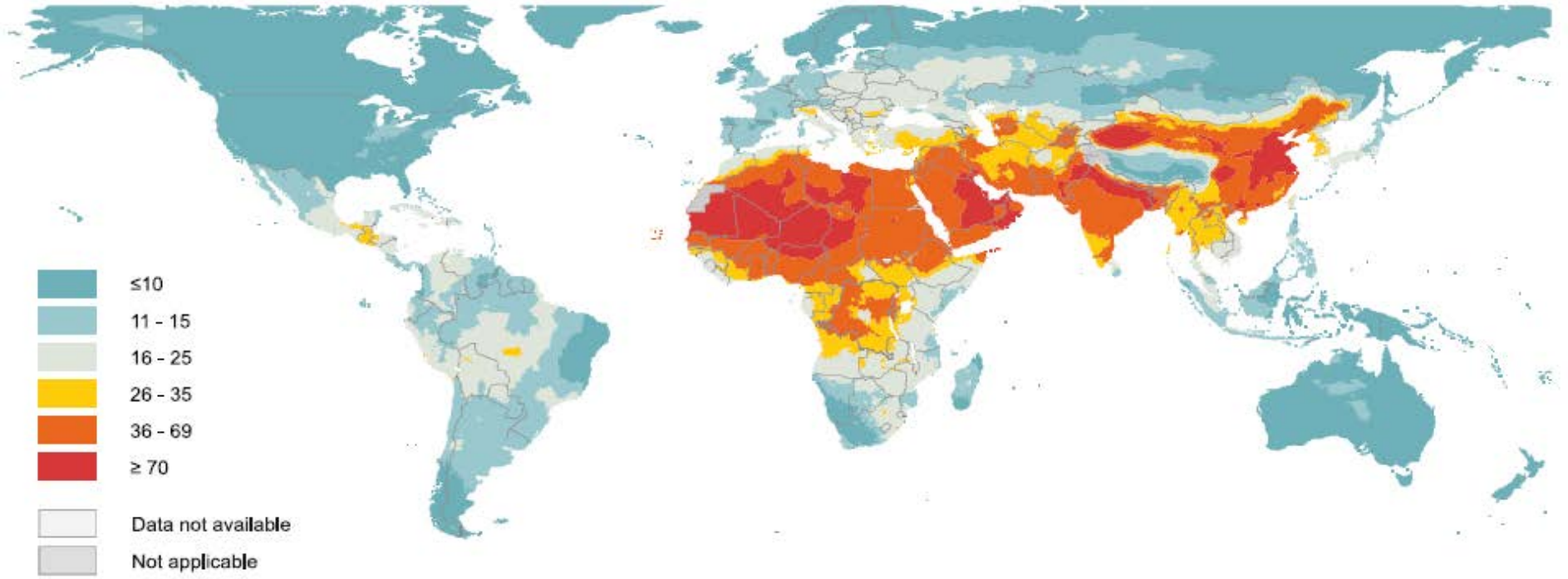
- In 2013, the WHO's International Agency for Research on Cancer (IARC) determined definitively that **air pollution is carcinogenic to humans,** contributing significantly to the **incidence of lung cancer.**

Air pollution and health impacts in Lao PDR

- Environmental burden of diseases constitutes 26 % of total diseases burden.
- Lower respiratory infection (11.9%), diarrheal diseases (6%), ischemic heart disease (5.8%) leading causes
- **Household air pollution is one of top 15 risk factors** of disease burden in Lao PDR.
- 46 percent of population use solid fuel for cooking

Global map of modelled annual median concentration of PM2.5

Air pollution represents the biggest environmental risk to health. A new WHO air quality model confirms that **92% of the world's population (1/10 peopl) lives in places where air quality levels exceed WHO limits*.**



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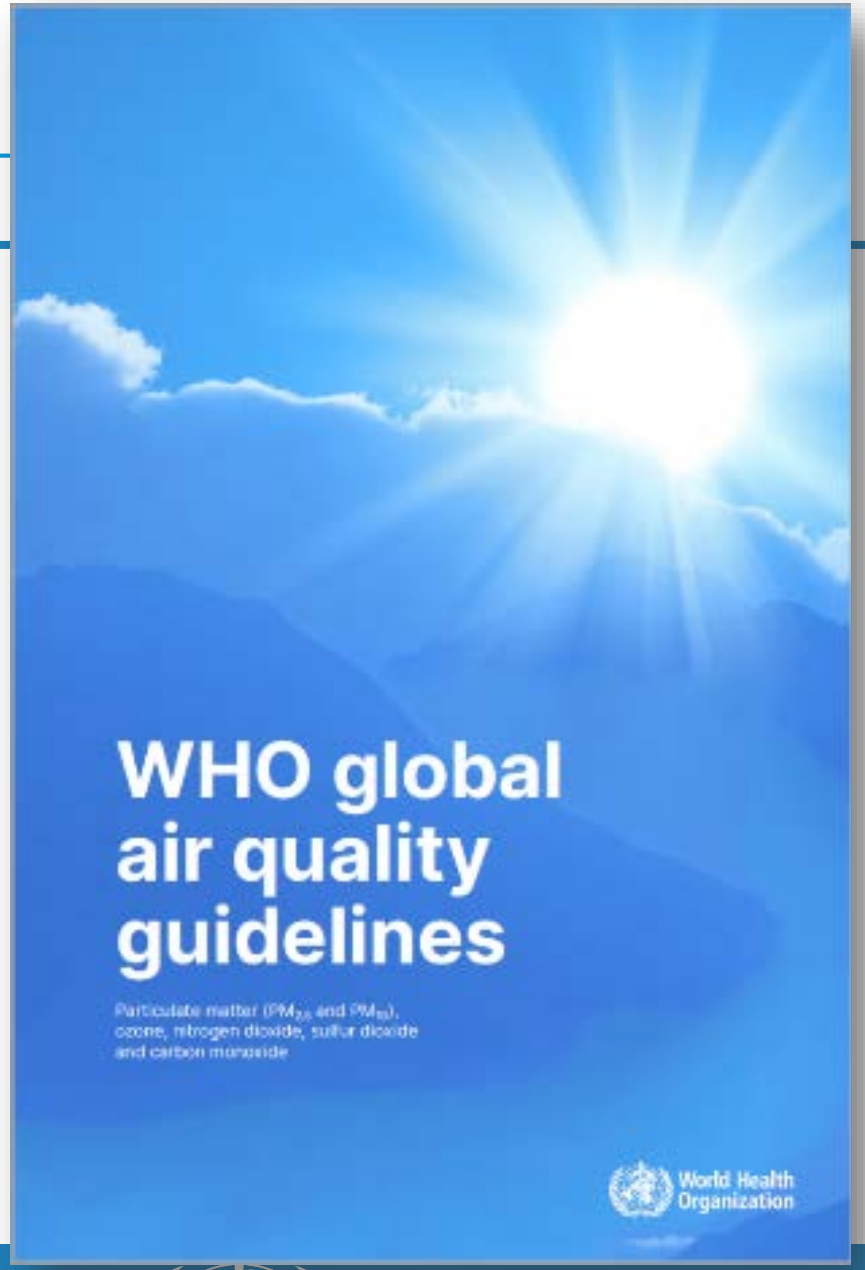
WHO AQ Standards = AQM Cornerstone

- Summary of recommended AQG levels and interim targets

Pollutant	Averaging time	Interim target				AQG level
		1	2	3	4	
$PM_{2.5}$, µg/m³	Annual	35	25	15	10	5
	24-hour[a]	75	50	37.5	25	15
PM_{10}, µg/m³	Annual	70	50	30	20	15
	24-hour[a]	150	100	75	50	45
O_3, µg/m³	Peak season[b]	100	70	–	–	60
	8-hour[a]	160	120	–	–	100
NO_2, µg/m³	Annual	40	30	20	–	10
	24-hour[a]	120	50	–	–	25
SO_2, µg/m³	24-hour[a]	125	50	–	–	40
CO, mg/m³	24-hour[a]	7	–	–	–	4



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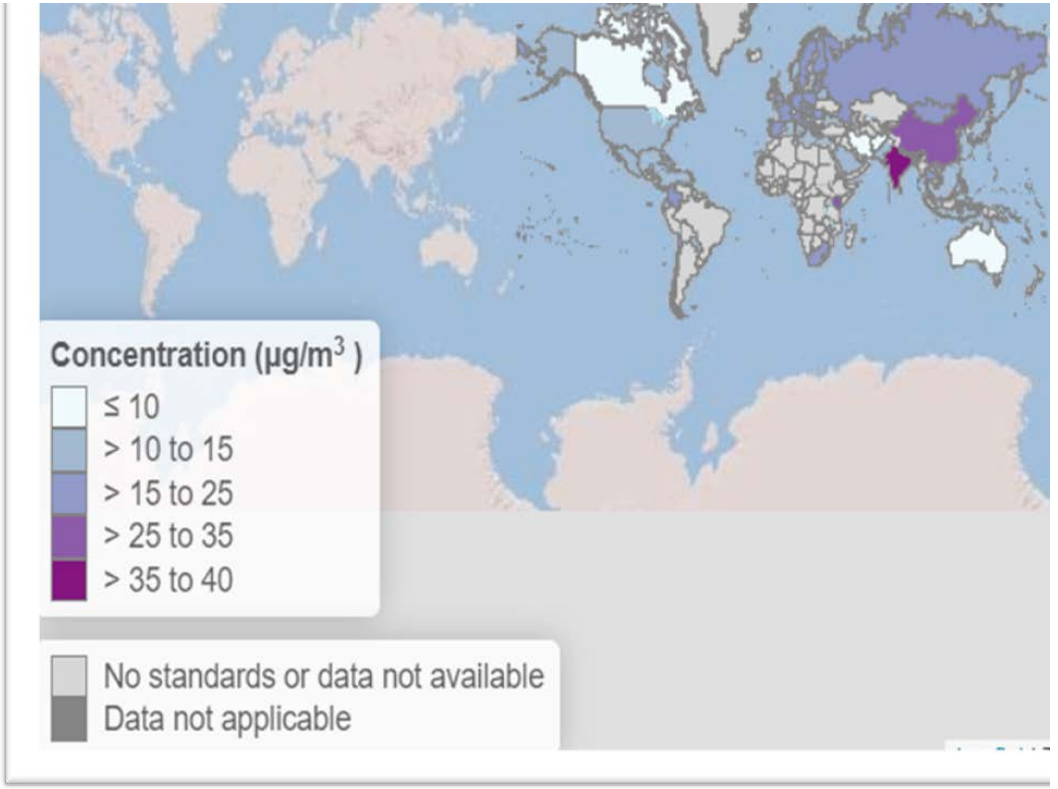
WHO Global air quality guidelines and national standards

- WHO Global guidance: provides thresholds/limits for key air pollutants and interim targets to promote a gradual shift from high to lower concentrations.

- to transform the recommended AQG levels into legally enforceable national standards

Pollutant	Averaging Time	2005 AQGs	2021 AQGs
$PM_{2.5}$, $\mu g/m^3$	Annual	10	5
	24-hour[a]	25	15
PM_{10}, $\mu g/m^3$	Annual	20	15
	24-hour[a]	50	45
O_3, $\mu g/m^3$	Peak season[b]	-	60
	8-hour[a]	100	100
NO_2, $\mu g/m^3$	Annual	40	10
	24-hour[a]	-	25
SO_2, $\mu g/m^3$	24-hour[a]	20	40
CO, mg/m^3	24-hour[a]	-	4



https://www.who.int/data/gho/data/themes/air-pollution

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WHO recognizes air pollution as health risk - WHO Resolution 68.8 (2015)

SIXTY-EIGHTH WORLD HEALTH ASSEMBLY WHA68.8

Agenda item 14.6 26 May 2015

Health and the environment: addressing the health impact of air pollution

The Sixty-eighth World Health Assembly,

Having considered the report on health and the environment: addressing the health impact of air pollution;[1]

Reaffirming its commitment to the outcome document of the Rio+20 Conference "The future we want", in which all States Members of the United Nations committed to promoting sustainable development policies that support healthy air quality in the context of sustainable cities and human settlements, and recognized that reducing air pollution leads to positive effects on health;[2]

Noting with deep concern that indoor and outdoor air pollution are both among the leading avoidable causes of disease and death globally, and the world's largest single environmental health risk;[3]

Acknowledging that 4.3 million deaths occur each year from exposure to household (indoor) air pollution and that 3.7 million deaths each year are attributable to ambient (outdoor) air pollution, at a high cost to societies;[4]

Aware that exposure to air pollutants, including fine particulate matter, is a leading risk factor for noncommunicable diseases in adults, including ischaemic heart disease, stroke, chronic obstructive pulmonary disease, asthma and cancer, and poses a considerable health threat to current and future generations;

Concerned that half the deaths due to acute lower respiratory infections, including pneumonia in children aged less than five years, may be attributed to household air pollution, making it a leading risk factor for childhood mortality;

[1] Document A68/18.

[2] UNEA resolution 1/7, PP6.

[3] Global Health Observatory http://www.who.int/gho/phe/en/ (accessed 18 March 2015).

[4] WHO. Burden of disease from ambient air pollution for 2012. http://www.who.int/phe/health_topics/outdoorair/databases/AAP_BoD_results_March2014.pdf?ua=1 (accessed 1 December 2014).

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SIXTY-NINTH WORLD HEALTH ASSEMBLY A69/18

Provisional agenda item 13.5 6 May 2016

Health and the environment

Draft road map for an enhanced global response to the adverse health effects of air pollution

Report by the Secretariat

1. In May 2015, the Sixty-eighth World Health Assembly adopted resolution WHA68.8, in which the Director-General was requested, inter alia, to propose to the Sixty-ninth World Health Assembly a road map for an enhanced global response to the adverse health effects of air pollution. In response to this request, an early version of the draft road map was considered by the Executive Board at its 138th session.[1] A revised and elaborated draft road map is provided in the present report (see Annex 1), and includes a proposed monitoring and reporting framework with indicators and objectives to track progress.

2. The initial period covered by the proposed road map and its related actions is 2016–2019, at the end of which the road map will be updated to incorporate results from monitoring, feedback and evaluation, and submitted to the Health Assembly by the Secretariat. In addition, it will be aligned with priorities included in the thirteenth general programme of work.[2]

3. In response to the urgent need that had been identified for the health sector to respond to the effects on health associated with air pollution, the Health Assembly through resolution WHA68.8, inter alia, noted with deep concern that indoor and outdoor air pollution are both among the leading avoidable causes of disease and death globally, and the world's largest single environmental health risk; and acknowledged that 4.3 million deaths occur each year from exposure to household (indoor) air pollution and that 3.7 million deaths each year are attributable to ambient (outdoor) air pollution, at a high cost to societies. In addition, the Health Assembly, inter alia, underscored that the root causes of air pollution and its adverse impacts are predominantly socioeconomic in nature, and was cognizant of the need to address the social determinants of health related to development in urban and rural settings, including poverty eradication, as an indispensable element for sustainable development and for the reduction of the health impact of air pollution. Furthermore, the Health Assembly, inter alia, recognized that in order to contribute to national policy choices that protect health and reduce health inequities, the health sector would need to engage in cross-sectoral approaches to health, including adopting a Health in All Policies approach.

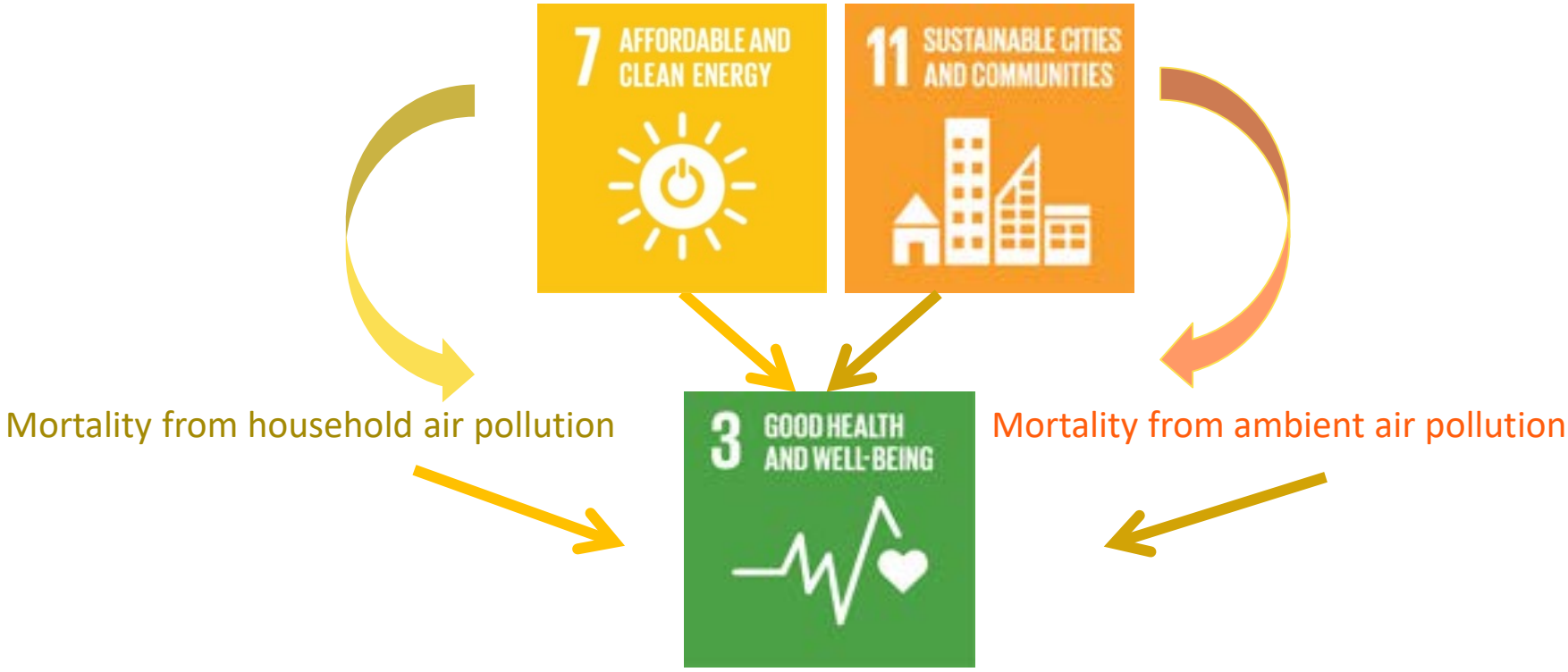
[1] See document EB138/17 and the summary record of the Executive Board at its 138th session, sixth meeting (document EB138/2016/REC/2).

[2] Following on from the Twelfth General Programme of Work, 2014–2019, the thirteenth general programme of work commences in 2020.

WHO Custodian agency to monitor the SDGs related to Air Pollution and Health Impact

SDG 7.1.2: Percentage of population with primary reliance on clean fuels and technologies at the household level

SDG 11.6.2: Annual urban mean concentration of particulate matter (PM2.5), population-weighted



Mortality from household air pollution

Mortality from ambient air pollution

SDG 3.9.1: Mortality from air pollution

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WHO Air pollution programme, its scope of support

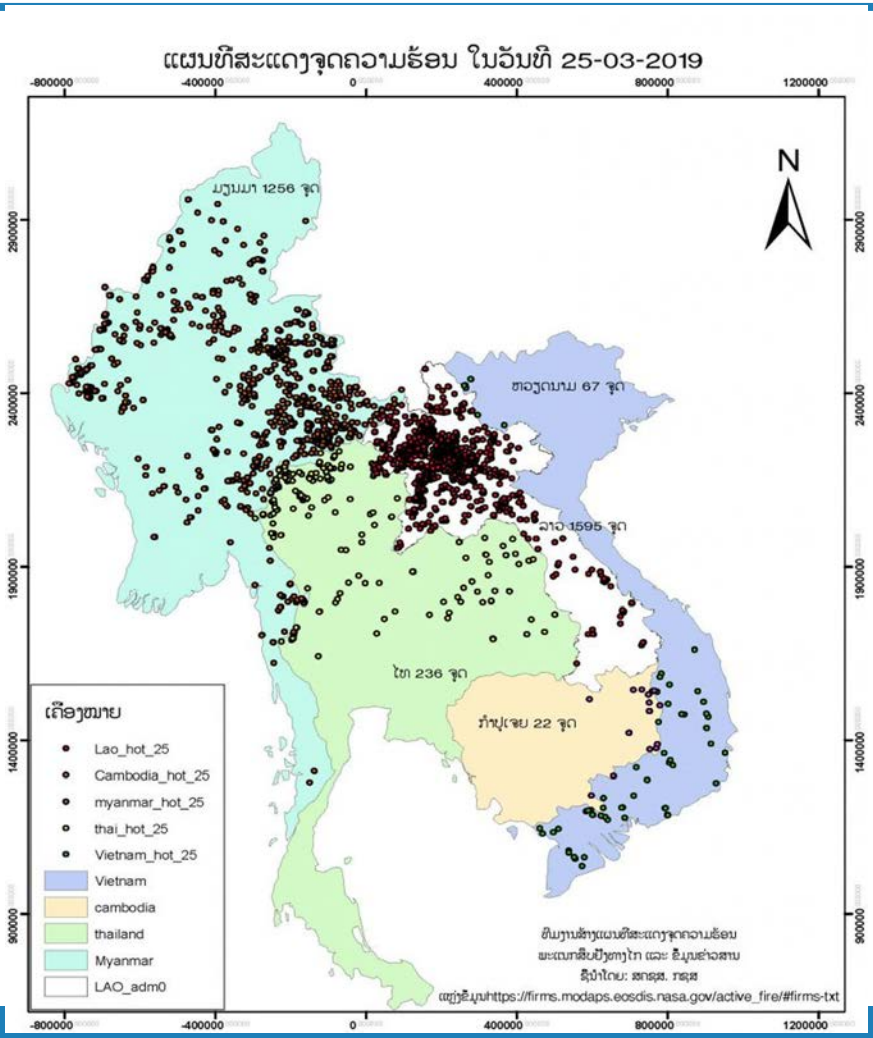
Objective 1: Enhancing air quality monitoring capacity (PM2.5) in VNT Capital in 2020 and Expanding at high risk provinces (hotspot) in North, Central provinces

Objective 2: TA to the government in revising AQ standards, AQI, and communication plans and advocacy materials

Objective 3:Establishing system to share data and translate AQ monitoring data in public health communication, health impact assessment and actions

Objective 4.1: Providing TA to the government in developing/revising air quality standard

Enhancing AQ capacity in VNT and expanding monitoring units (PM2.5) at high risk provinces (hotspot)



1) Vientiane Capital - 2 units
2) North: 6 Provinces 2 in each/12 total
3) Central: Vientiane province, Huaphanh, Xiengkhuang – 6
4) South: Sekong and Savannakhet – 4

Total 20 units
KOALA unit proposed to be provided, installed and local staff trained.

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Communication and action plans

Core elements would be:

- Community campaign to encourage community and individuals stop burning stubble and forest for plantation
- Public Education - enforcement of rule for community and individuals to stop burning waste in yard, stop using incinerator, solid fuel for cooking (electric stove is promoted)
- Improve city waste management system, promote 3Rs (reduction, reuse recycling practice)
- Support infrastructure development project for building cycling/waking environment, greening environment/green space and paved/green path
- Health education and communication for public and vulnerable groups

Summary

- Air pollution represents the biggest environmental risk to health in the Region
- WHO Global Air Quality Guideline updated in 2021 with interim target to shift from high to lower concentrations of air pollutants
- To reach the target, there is need to transform recommended Air Quality Guideline levels into legally enforceable national standards and shift from higher to lower concentrations
- WHO provides technical support to the country in revising air quality standards and expanding air quality monitoring