



ISSUE BRIEF:

Air Pollution as a Risk Factor
for Non-Communicable
Diseases: *Lessons from
Thailand and the ASEAN region*

**Disclaimer:**

This issue brief explores opportunities for integrated, cross-sectoral approaches and stronger investment cases for action in the ASEAN context and shares experiences of Thailand and other ASEAN countries that demonstrate some ways forward. This is produced based on available online sources. If new information is available, please contact Ekbordin Winijkul at AIT (ekbordinw@ait.ac.th).

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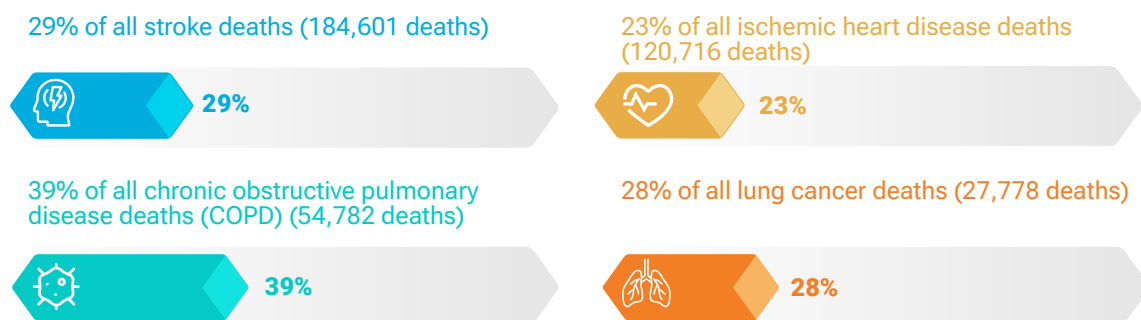
Air pollution and Non-Communicable Diseases (NCDs) are two growing and interlinked problems for ASEAN countries. Many studies now show how and why air pollution is one of the leading causes of NCD deaths in the region. However, the co-benefit of tackling NCDs is often not used to justify taking action to tackle air pollution, and air pollution mitigation is not often integrated into strategies to prevent NCDs. As a result, there are missed opportunities for integrated, cross-sectoral approaches and stronger investment cases for action. This issue brief explores this problem in the ASEAN context and shares experiences of Thailand and other ASEAN countries that demonstrate some ways forward.

Air pollution and NCDs

There is now a robust and growing body of evidence demonstrating the link between air pollution and NCDs. In 2018, air pollution was recognized by the third UN High-Level Meeting on NCDs as one of the five most important modifiable risk factors that globally cause the largest burden of morbidity and mortality (cardiovascular diseases, cancer, diabetes, chronic respiratory diseases and mental health) (NCD Alliance, n.d).

In the ASEAN region, improvements in life expectancy and reductions in mortality, coupled with increasing risk factors related to economic growth, rapid urbanization, climate change and unhealthy lifestyles, mean that NCDs are becoming responsible for the dominant share of the overall disease burden. As Figure 1 shows, 19% (or 0.43 million) of all deaths from NCDs in the ASEAN region were attributable to air pollution. Of these deaths, over two thirds were due to ischemic heart disease or stroke [IHME, 2019]. Long-term exposure to air pollution has been shown to be the third leading modifiable risk factor for NCDs after an unhealthy diet and tobacco use in the ASEAN region in 2019.

In the ASEAN region, air pollution is estimated to cause around 428,094 deaths from NCDs in 2019 (IHME, 2019). This includes:



Source: IHME (2019) (authors own analysis)

Figure 1: NCD deaths from air pollution in the ASEAN region

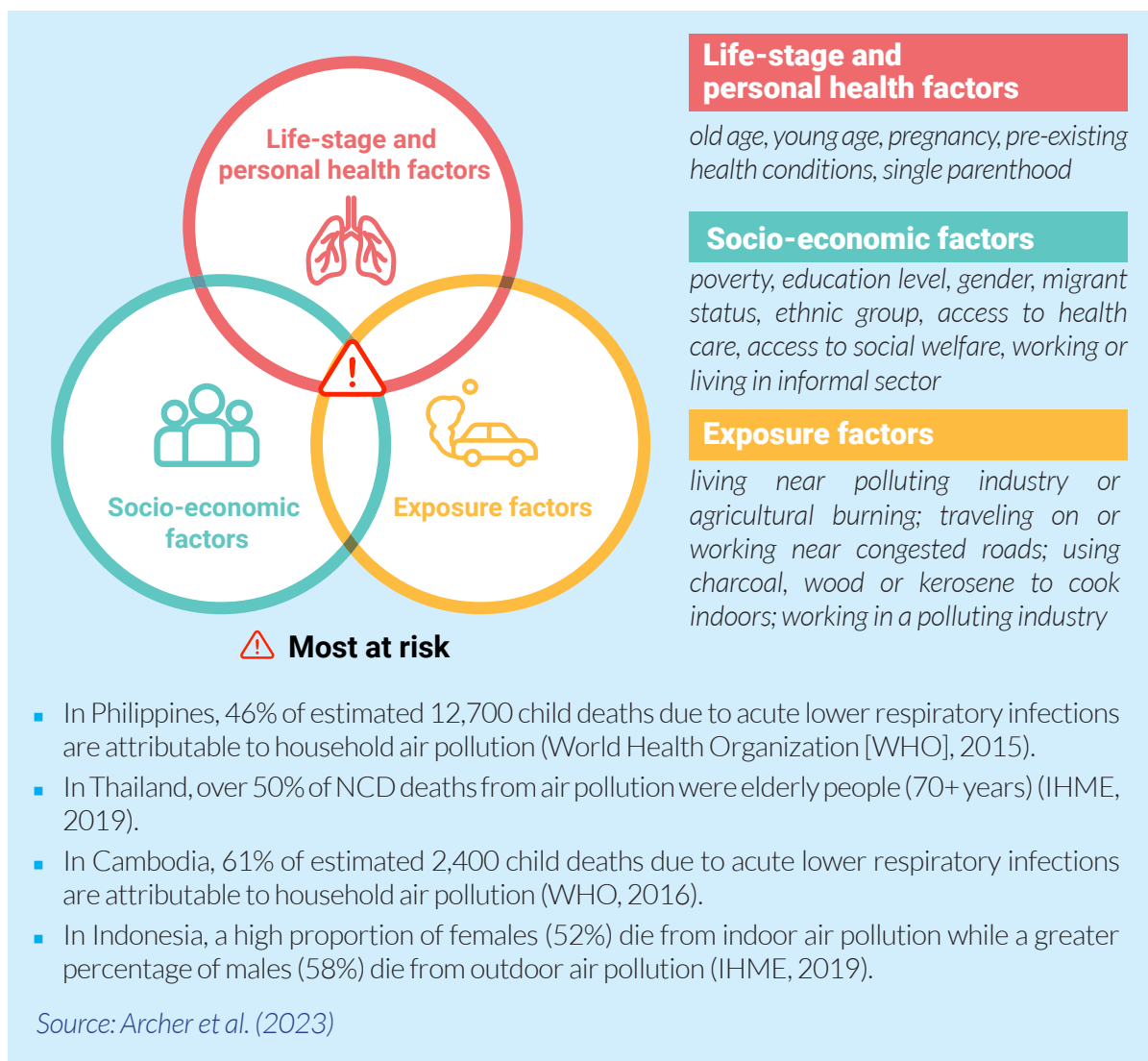


Figure 2: Air pollution is a higher risk factor for NCDs for some groups

The impact of air pollution on NCDs is also uneven. It is significantly greater in low- and middle-income countries (LMICs) (Fuller et al., 2022) and varies significantly among different groups (see Figure 2). Factors such as gender, ethnicity, migrant status and age affect both level of exposure to air pollution at home and work, and the subsequent health ramifications and healthcare accessibility. These vulnerability and exposure factors can overlap and cumulative, which means that individuals subject to multiple factors can be at the highest level of risk.

Current policies on the prevention and control of NCDs

Since 2010, NCDs have been rising on national and global health and development agendas. However, at the global level, poorly progressing the actions to reduce NCDs with no country on track to achieve 2025 global targets set by the World Health Assembly back in 2013 and the declaration by the UN General Assembly High-Level Meeting on NCDs in 2018 (World Health Organization [WHO], 2023). Globally, NCDs have remained significantly underfunded with only 1–2% was allocated to NCDs from total development assistance for health between 2000 and 2020 (World Cancer Research Fund International, 2022).

In the light of available evidence, the link between air pollution and NCDs is confirmed. The policy actions to reduce the exposure to air pollution and to improve the air quality have huge potential to reduce NCD burdens and to help countries to achieve these targets. However, progress of incorporating air pollution with NCD strategies has not yet caught up with the evidence. The WHO's recently expanded list of 'best buys', approved at the 76th World Health Assembly in March, 2023 as part of the NCDs Global Action Plan 2023-2030, does not yet contain actions to address air pollution¹. This is reflected in national investment cases on NCDs, such as the 2021 Thailand case, which analyzes air pollution as a risk factor but does not include recommended interventions (Ministry of Public Health of Thailand, 2021). A policy analysis of ASEAN countries' national NCD strategies (see Annex 1) shows that half of these countries do not consider either outdoor or indoor air pollution as a risk factor. Only Philippines and Indonesia include both indoor and outdoor air pollution as risk factors for NCDs. Even though indoor or outdoor air pollution is identified as a risk factor in national NCD strategies, recommended actions are fewer in number and lack details, compared to actions to tackle other risk factors, such as tobacco smoke.

A separate but related issue refers to challenges in cross-sectoral data and knowledge sharing. Many stakeholders from Cambodia, Lao PDR, Indonesia and Thailand who participated in the consultations and workshops held under the 2021-2023 UNEP project "Strengthening ASEAN Member State Policies with Environmental Health Data on Costs of Inaction and Co-Benefits," identified a gap or lack of access to data on the health impacts of air pollution as a significant challenge preventing accurate assessment of the costs and benefits associated with air pollution mitigation options².

Case studies from Thailand and the ASEAN region

Given the resource gaps, budgetary pressures and broad spectrum of challenges that Southeast Asian countries face, health and environment policymakers should be able to avoid siloed actions and prioritize solutions that maximize co-benefits at least cost. This section gives some examples of how Thailand and other ASEAN countries have addressed NCDs and air pollution together.

Updating air quality standards to align with new WHO guidance on health impacts

In light of the new 2021 WHO guidelines on air quality that reflect a much stronger body of evidence on the health impacts (WHO, 2021), Thailand undertook a review of its National Ambient Air Quality Standards (NAAQS). Following consultations across government departments, the new annual and 24-hr average standards – aligned with WHO Interim Target 3 – were introduced in June 2022 and 2023, respectively. The new standard should enable a stronger framework for regulating, monitoring and mitigating air pollution and its impact on NCDs in Thailand.

¹The WHO is currently compiling a compendium of guidance on health and environment, including air pollution. Subsequent updates to the 'best buys' list will draw on the compendium and analyses of the effectiveness of existing interventions.

² Reports from the consultations and workshops will be made available on the UNEP project site: <https://www.unep.org/regions/asia-and-pacific/our-projects/strengthening-asean-member-state-policies-environmental>.

Modelling the NCD health costs of not tackling air pollution

Assessments conducted in 2023 by the International Institute for Applied Systems Analysis (IIASA) under a UNEP project, looked at the health costs of not taking further action on air pollution in three ASEAN countries. Looking at COPD, Ischemic heart disease, stroke, lung cancer, acute lower respiratory infections and type 2 diabetes figures, that analysis estimated that by 2030, three thousand premature deaths in Cambodia, 130 thousand premature deaths in Indonesia and over 17 thousand premature deaths in Thailand could be avoided annually by implementing 12 new mitigation measures. This action would save an estimated US\$ 0.8 billion, US\$ 27 billion, and US\$ 13 billion per year in Cambodia, Indonesia, and Thailand respectively, equivalent to between 1.6% and 2.1% of each country's Gross Domestic Product (GDP) by 2030. These assessments support these three countries to build stronger investment cases for action and to develop more integrated, science-based policy measures³.

Protecting the health of vulnerable groups against air pollution in Bangkok

Thailand's Ministry of Health, Bangkok Metropolitan Administration, and Pollution Control Department have developed an action plan for different levels of PM_{2.5} concentration in Bangkok. This plan includes sending doctors to visit vulnerable groups at schools, nurseries, and elderly homes. Additionally, if the PM_{2.5} concentration is high for more than three consecutive days, a Public Health Emergency Operation Center will be established in Bangkok to provide assistance to vulnerable groups. This coordinated effort aims to provide equal protection to all groups of people (Ministry of Public Health, 2022).

Strengthening the recognition of air pollution as a risk factor in national NCD strategies

While most countries do not strongly recognize air pollution as a risk factor in national strategies to tackle, some do recommend measures. For example, Indonesia's 2015-2019 National Strategic Action Plan For The Prevention And Control of Non-communicable Diseases (Ministry of Health of the Republic of Indonesia, 2016) recognized both indoor and outdoor air pollution as risk factors and recommended some sector-specific actions, such as that the Ministry of Transport should draft a policy on restricting the use of private vehicles and encourage public transport in order to reduce ambient air pollution.

Understanding how people are affected by air pollution in Lao PDR and Vietnam

Closely involving stakeholders – including in particular groups that are vulnerable, marginalized or disproportionately affected - is crucial to understand the full impacts of air pollution on NCDs and develop practical, sustainable and equitable solutions. In Vietnam, modelling by the Stockholm Environment Institute (SEI) identified the health benefits of introducing clean cook stoves in Hanoi. Highlighting these benefits raised awareness amongst local groups and helped the development and uptake of locally appropriate solutions (Zusman et al., 2022). In Lao PDR, the United Nations Development Programme (UNDP) applied the Social Innovation Platform (SIP) approach to the problem of air pollution, including through sensemaking, deep listening, co-creation and prototyping exercises. Taking this qualitative approach allowed the bottom-up development of new insights into the causes, impacts and effective leverage points for interventions on air pollution (UNDP, 2023).

³ The three assessments will be made available on the UNEP project site: <https://www.unep.org/regions/asia-and-pacific/our-projects/strengthening-asean-member-state-policies-environmental>.

Developing local capacities to generate and use data on air pollution's health impacts

Across the ASEAN region, training is offered to support the development of local capacities to conduct and use mitigation assessments that include assessment of the impact of air pollution on NCDs. This includes training on the Greenhouse Gas and Air Pollution Interactions and Synergies (GAINS) model, the Low Emissions Analysis Platform – Integrated Benefits Calculator (LEAP-IBC), and the Environmental Benefits Mapping and Analysis Program (BenMAP). Guidance documents are also available online, such as the recently published Guide to Assessing the Costs of Inaction of Tackling Air Pollution, developed by IIASA under a UNEP project (IIASA, 2023).

Recommendations

For ASEAN countries:

- Ministries of health are encouraged to monitor and share data on the health impacts of air pollution and strengthen the official recognition of both indoor and ambient air pollution as a major risk factor in national strategies to tackle NCDs, in support of the 2015 World Health Assembly resolution WHA68.8.
- It is recommended for ministries of environment to include assessment of the impacts of air pollution on NCDs in the development and funding of new air pollution management measures.
- National investment cases should be developed or updated with support from the WHO and UN agencies, to highlight the specific health and economic benefits of tackling air pollution as an NCD risk factor.
- National coordination mechanisms should be established to facilitate knowledge and data sharing between environment, health and planning ministries to support policy coherence that recognizes air pollution's role as a key risk factor for NCDs.
- Research institutions and academia should be supported to collect and analyze data on the local impacts of air pollution on NCDs, including to understand who is at the highest risk and how to protect them.
- All stakeholders are encouraged to consult with civil society and citizen's groups to understand and act on the unequal health impacts of air pollution on different population groups.

For regional and international actors:

- Regional health frameworks (such as the ASEAN Post-2015 Health Development Agenda) and air pollution agreements (such as the ASEAN Agreement on Transboundary Haze Pollution) should be updated to reflect new evidence on the health impacts of air pollution.
- ASEAN countries should be supported to take advantage of new funding for NCD action that has emerged in light of the COVID-19 pandemic, to assess and tackle air pollution as a risk factor for NCDs. This includes the new UN Multi-Partner 'Health4Life' Trust Fund, established in 2021 by WHO, UNICEF and UNDP, which should begin issuing grants in 2023.
- Regional efforts to recover and learn from the COVID-19 pandemic, as well as to prepare for future pandemics, should reflect evidence that demonstrates the links between exposure to air pollution, NCDs and mortality from COVID-19.
- International donors and research institutions should continue supporting the development of local capacities to assess and use data on the health impacts of air pollution to develop stronger and more integrated policy measures.

Annex

National NCD strategies that take air pollution into account as a risk factor*

	Outdoor air pollution as a cause of NCDs, along with measures to reduce outdoor air pollution	Indoor air pollution as a cause of NCDs, along with measures to reduce indoor air pollution
Yes	Indonesia, Philippines, Vietnam	Cambodia, Indonesia, Lao PDR, Vietnam
No	Brunei, Cambodia, Lao PDR, Malaysia, Myanmar, Singapore, Thailand	Brunei, Malaysia, Myanmar, Philippines, Singapore, Thailand

**This summary is based on available online sources. If new information is available, please contact ekbordinw@ait.ac.th.*

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