



The cost of inaction: tackling air pollution in the ASEAN region

Quantifying the cost of inaction can help promote action on air pollution in the ASEAN region with benefits for health, climate change, and sustainable development.

Despite policies that have improved air quality, the populations of the Association of Southeast Asian Nations (ASEAN) continue to experience a large health burden due to air pollution exposure. Solutions for further improving air quality exist and could result in large health benefits, as well as co-benefits, among others, for climate change and sustainable development. However, significant financing, coordination, and capacity barriers continue to limit the effective implementation of such solutions.

New work by IIASA under a 2021-2023 United Nations Environment Programme (UNEP) project aims to show that quantifying the cost of inaction on air pollution can help ASEAN countries build stronger investment cases for action and support the development of more integrated, science-based policy measures. Three initial assessments in Cambodia, Indonesia, and Thailand found the cost of inaction for the health impacts of air pollution exposure was equivalent to between 1.6% and 2.1% of each country's GDP by 2030. By following key steps and recommended good practices outlined in the new 'Guide to Assessing the Costs of Inaction of Tackling Air Pollution', as well as undertaking their own cost of inaction assessments for air pollution, ASEAN countries could:

- Strengthen their Clean Air Action Plans, Nationally Determined Contributions, Gender Strategies, Economic Development Plans, Low Emission Development Strategies, National Health Plans, and other action plans.
- Enhance national and regional capacity for undertaking cost of inaction assessments by utilizing the guide and attending training on available tools.
- Raise awareness across different stakeholder groups of the high societal and economic costs of inaction on air pollution.
- Share experiences, results, and good practices across countries to enhance regional cooperation on air quality management.
- Promote cross-governmental dialogues by engaging with multiple stakeholders and developing a framework for a multisectoral approach to air quality management.

Defining the cost of inaction

By directly quantifying the economic costs from not acting on air pollution, cost of inaction assessments can be used as an evidence base to further promote action. The cost of inaction refers to the negative consequences or losses that result from failing to act in a particular situation, in other words, it is the cost of doing nothing. In terms of air pollution, this could refer to the multiple impacts of air pollution (i.e., health, biodiversity, and climate change), as well as the other impacts from not implementing policies to reduce air pollution and not realizing the co-benefits that could come from implementing such measures (Fig. 1).

A Guide to assessing the Costs of Inaction of Tackling Air Pollution

There is currently no systematic methodology applied in the ASEAN region for quantifying the cost of inaction. As part of a 2021-2023 UNEP project, researchers at IIASA, with support from the Stockholm Environment Institute (SEI), developed a guidance document that outlines key steps and requirements for ASEAN countries to assess the costs of not taking further action on air pollution. By following the key steps, recommendations, and good practices detailed in the 'Guide to Assessing the Costs of Inaction of Tackling Air Pollution', there is a potential for ASEAN countries to:

- Improve capacities for air quality management.
- Strengthen the science-policy interface.
- Enhance regional cooperation.
- Promote and share good practices across government agencies, different stakeholder groups, and countries in the region.
- Broaden the evidence base relating to air pollution mitigation, and
- Upgrade investment cases for action.

Quantifying the cost of inaction in Cambodia, Indonesia, and Thailand

Following the approach outlined in the guide, IIASA researchers collaborated with ASEAN country partners in Cambodia, Indonesia, and Thailand and applied the IIASA Greenhouse Gas and Air Pollution Interactions and Synergies (GAINS) model to develop initial cost of inaction assessments related to health costs from exposure to air pollution.

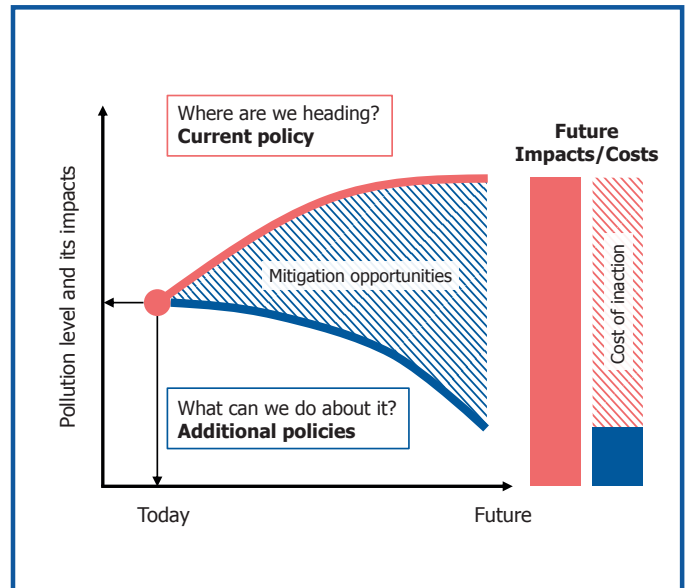


Figure 1: Schematic detailing how air pollution levels and impacts can change into the future under different policy scenarios and the concept of the cost of inaction as the difference in impact costs in two alternative future scenarios.

Key findings

The health burden from air pollution in ASEAN countries could be reduced through implementing specific clean air solutions.

A recent assessment, Clean Air and Climate Solutions for ASEAN, identified specific clean air solutions across multiple sectors which could successfully reduce air pollution in the ASEAN region. Implementing 12 of these clean air solutions (shown in Fig. 2) could significantly reduce population exposure to harmful air pollution with benefits for health. By 2030, it is estimated that 3 thousand premature deaths in Cambodia, 130 thousand premature deaths in Indonesia and over 17 thousand premature deaths in Thailand could be avoided per year by implementing all 12 solutions compared to implementing only current policy legislation. Putting these solutions into practice will also have multiple other co-benefits, including for climate change and the Sustainable Development Goals.

Reducing air pollution could have economic benefits.

The negative health impacts from air pollution exposure have large financial costs, which could be lowered by taking new mitigation action. The economic costs from some of the health impacts



Figure 2: 12 clean air solutions which, if implemented, could reduce air pollution exposure in ASEAN countries.

- * Includes also potential scope for what accelerated electrification of vehicle fleet can achieve, i.e., most likely less than half of that could be achieved by electrification 2030
- ** Improvements to coal, oil and gas production and distribution, including through reducing leaks and utilizing captured gas.

associated with air pollution exposure in 2030 quantified in these assessments, range from almost US\$ 1.2 billion in Cambodia, US\$ 43 billion in Indonesia, and US\$ 18 billion in Thailand, which is equivalent to 2.6-3.1% of each country's GDP in 2030. Implementing the 12 clean air solutions could

significantly reduce these costs. Therefore, the cost of inaction on air pollution in the three countries by 2030 is estimated at US\$ 0.8 billion, US\$ 27 billion, and US\$ 13 billion per year in Cambodia, Indonesia, and Thailand respectively. This is equivalent to between 1.6% and 2.1% of each country's GDP by 2030 (Fig. 3).

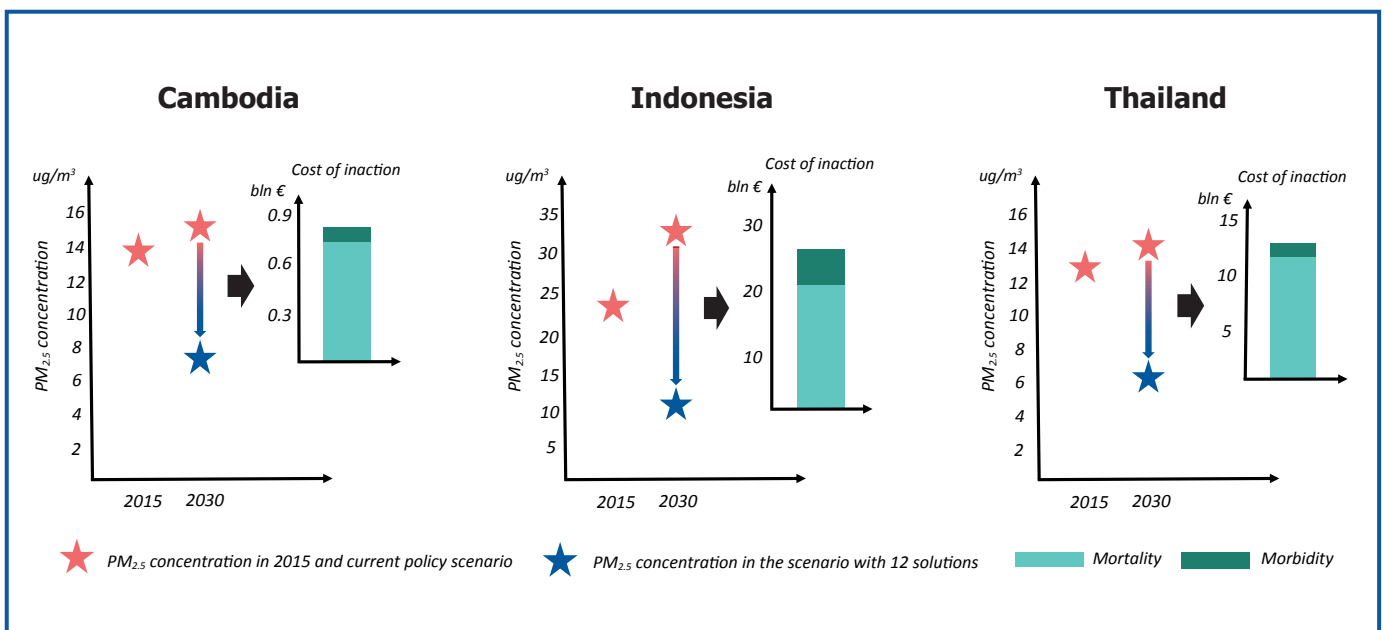


Figure 3: Differential PM_{2.5} concentrations and associated cost of inaction in Cambodia, Indonesia and Thailand in 2030 for the current policy scenario and an alternative scenario where 12 key solutions are implemented.

The costs of inaction for air pollution in ASEAN countries are high and widening the scope of assessments will increase these costs. The cost of inaction assessments which were developed in this project only quantify the costs of air pollution exposure from some of the main health endpoints related to air pollution exposure. However, there are multiple other costs associated with not tackling air pollution. These include costs from not achieving some of the multiple co-benefits from policy implementation, as well as the other direct benefits associated with reducing emissions of air pollution.

There are multiple co-benefits from taking action on air pollution, including for climate change and sustainable development. Within the national assessments, it was estimated that implementing the 12 clean air solutions could result in greenhouse gas reductions of 2.5, 181.6, and 80.2 Mt CO₂-eq in Cambodia, Indonesia, and Thailand respectively by 2030. Therefore, implementing new clean air measures could also help countries achieve their climate targets as set out in their Nationally Determined Contributions (NDCs).

PUBLICATIONS THIS POLICY BRIEF IS BASED ON

Kiesewetter, G., Klimont, Z., Ru, M., & Slater, J. (2023). Assessment of the Cost of Inaction of Tackling Air Pollution in Cambodia. International Institute for Applied Systems Analysis and the United Nations Environment Programme, Laxenburg, Austria.

Kiesewetter, G., Klimont, Z., Ru, M., & Slater, J. (2023). Assessment of the Cost of Inaction of Tackling Air Pollution in Indonesia. International Institute for Applied Systems Analysis and the United Nations Environment Programme, Laxenburg, Austria.

Kiesewetter, G., Klimont, Z., Ru, M., & Slater, J. (2023). National Assessment of the Cost of Inaction of Tackling Air Pollution in Thailand. International Institute for Applied Systems Analysis and the United Nations Environment Programme, Laxenburg, Austria.

Wagner, F., Slater, J., Kiesewetter, G., & Klimont, Z. (2023). Guide to Assessing the Costs of Inaction of Tackling Air Pollution. International Institute for Applied Systems Analysis and the United Nations Environment Programme, Laxenburg, Austria.

'Clean Air and Climate Solutions for ASEAN' report (CCAC/UNEP, 2023)



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