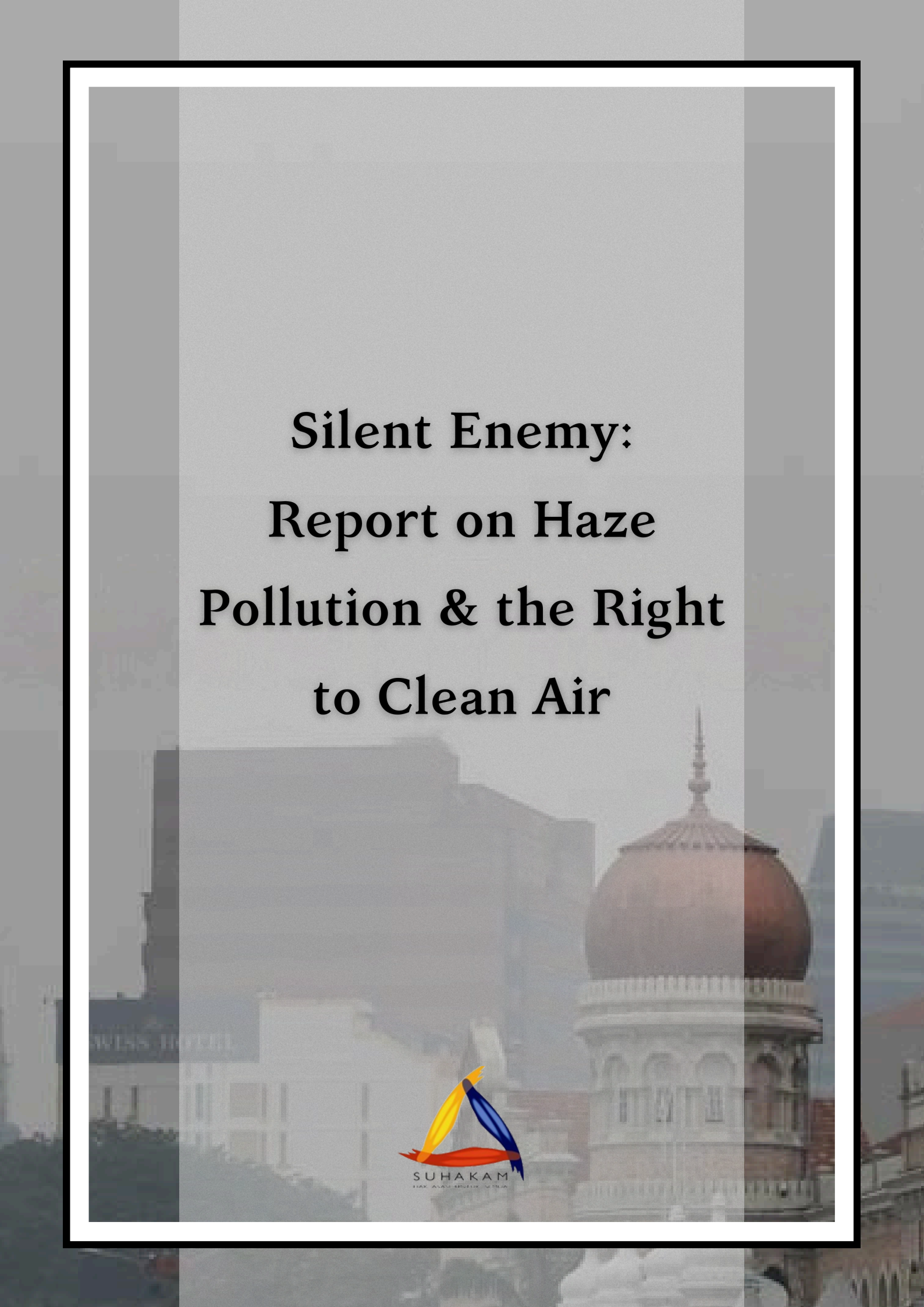
Silent Enemy: Report on Haze Pollution & the Right to Clean Air



Silent Enemy: Report on Haze Pollution and the Right to Clean Air

2024
Kuala Lumpur

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Executive Summary

The Human Rights Commission of Malaysia ("SUHAKAM"), in collaboration with CERAH Anti-Haze Action Coalition, organised a Roundtable Discussion ("RTD") to gather the diverse perspectives of subject matter experts, legal advisers, and key stakeholders in order to develop concrete plans to address the issue of domestic and transboundary haze pollution.

The RTD focused on highlighting the root causes of haze pollution from agricultural, land use change, peatlands and meteorological concerns, on its impacts on economic, health and environmental aspects. These provided the foundations for an in-depth study into fundamental gaps in existing Malaysian and regional legal frameworks that result in a lack of access to justice and information, public participation, and governance. The RTD promoted the protection of society's human rights to a safe, clean, and healthy environment free of air pollution through a broad discourse on ideas for solutions.

Transboundary haze has been a persistent environmental issue in Southeast Asia for over thirty years, significantly impacting air quality and public health. Defined by the Department of Environment as "haze pollution," it consists of fine particulate matter suspended in the atmosphere at unhealthy concentrations.

Factors Behind Haze Pollution

In Malaysia, haze pollution arises from both domestic and transboundary sources, with local contributors primarily linked to land use changes leading to peatland combustion and anthropogenic activities. Notable incidents occurred in the Kuala Langat Forest Reserve and Pekan, Pahang, as well as in Miri, Sarawak. The primary driver of transboundary haze pollution is the annual Southeast Asian haze, largely caused by seasonal fires in Indonesia, particularly from the agricultural sectors of oil palm and pulpwood production, which exploit peatlands extensively. The conversion of peatlands for agriculture and logging necessitates draining the land, rendering it prone to fires due to reduced water tables and increased organic matter concentration. Peat fires exhibit smoldering combustion, which can persist undetected for extended periods, complicating extinguishment efforts. Additionally, meteorological factors such as the El Niño-Southern Oscillation significantly influence fire outbreaks in Indonesia and Malaysia by creating conducive conditions for fires through prolonged droughts and high temperatures. While these meteorological variables enhance haze intensity, the underlying causes remain human activities linked to agriculture, forestry, and land use practices. It is crucial to address these factors to mitigate the ongoing challenge of transboundary haze pollution in the region.

The circumstances in Southeast Asia, particularly in Indonesia and Malaysia, pose significant challenges due to a complex interplay of factors. Conflicts in land ownership arise from overlapping national, provincial, and customary laws, leading to unclear jurisdiction over land and water management. This ambiguity complicates accountability for land-clearing fires, as independent farmers often occupy concession areas without legal rights, contributing to the problem. Data collection efforts by the ASEAN Specialised Meteorological Centre face limitations, as satellite-based monitoring lacks ground verification, resulting in disputes over data validity among member states. Indonesia's refusal to acknowledge certain hotspot data further hampers effective regional collaboration. Additionally, the reluctance of both Indonesia and Malaysia to disclose concession maps under the ASEAN Haze Monitoring System further complicates the identification of responsible parties for fire incidents, exacerbated by claims of national security.

Corporate structures also obscure accountability, with parent companies often disassociating themselves from fire-related incidents through a network of holding companies and shadow operations. This lack of transparency hinders efforts to eliminate unsustainable practices in palm oil plantations, as individuals responsible for land clearing face penalties while corporations remain unaccountable. Finally, vested interests within Malaysia's palm oil sector, characterised by government-linked companies and deep-rooted patron-client relationships, create a protective environment for businesses implicated in haze pollution. The government's inclination to shield these firms complicates regulatory enforcement and undermines efforts to address the root causes of haze pollution effectively. To combat haze pollution, a multi-faceted approach that tackles these systemic issues is essential.

Impacts of Haze Pollution

Haze pollution, a major environmental challenge, degrades air quality and poses significant public health risks. It also carries socio-economic consequences, affecting sectors like agriculture, transportation, and tourism.

Over 95% of the world's population breathes unhealthy air, with poorer countries most affected. Key pollutants include particulate matter ("PM") and carbon monoxide, both of which exacerbate respiratory and cardiovascular diseases.

On health risks, $PM_{2.5}$ is linked to respiratory and cardiovascular conditions, with Malaysia experiencing a 30% rise in $PM_{2.5}$-related deaths over the past decade. Haze episodes have historically caused spikes in hospitalisations and emergency visits for asthma and respiratory issues. Children are particularly at risk, with air pollution affecting cognitive development and physical health. Marginalised communities face increased vulnerabilities due to poor access to healthcare and education, especially during school closures caused by haze.

In Malaysia the cost of haze episodes is significant, with RM801.9 million in damages from the 1997 event, and RM1.49 billion in total losses in 2013. Health-related costs and productivity losses are ongoing, with increased government spending on healthcare. Meanwhile, the 2015 haze cost Indonesia USD16 billion and affected other countries in the region, including Singapore (USD500 million in losses). Key sectors impacted include tourism, transportation, agriculture, and fisheries.

Deforestation and land clearing contribute to biodiversity loss, with peatland destruction reducing carbon storage and contributing to climate change. Southeast Asia's peatlands store over 50 billion tonnes of carbon, and fires in these regions increase global CO_2 emissions. PM pollution harms ecosystems by altering species diversity, reducing marine productivity, and increasing the risk of climate-related disasters like floods. The impact of haze disproportionately affects women, children, and low-income populations, who face greater health risks and economic challenges. Migrant workers and lower-income Malaysians are especially vulnerable due to poor working conditions and limited access to healthcare.

Addressing haze pollution requires a multifaceted approach, including improved environmental policies, healthcare access, and economic support for vulnerable communities. Solutions must address both immediate air quality concerns and the broader socio-economic and environmental challenges posed by haze.

Gaps in the Legal Framework

Malaysia's environmental laws are outdated and fragmented, primarily stemming from the Environmental Quality Act 1974, with limited enforcement and weak environmental rights protection. There is no explicit constitutional recognition of environmental rights, unlike other ASEAN countries such as Thailand and Vietnam. While Malaysia supported the UN resolution declaring a healthy environment as a human right, its dualist legal system prevents direct application without domestic incorporation. Court highlighted environmental rights as part of the right to life, but this interpretation remains underutilised due to inconsistent judicial decisions and lack of legal precedents.

Malaysia ranks poorly on the Environmental Democracy Index, with limited public access to environmental information and decision-making processes. Legal barriers like the Official Secrets Act 1972 and ineffective Environmental Impact Assessment processes hinder transparency. Strategic Litigation Against Public Participation ("SLAPP") lawsuits further suppress public involvement in environmental matters.

The current civil procedure rules complicate the pursuit of environmental litigation. Issues like *locus standi* and evidence admissibility make it difficult for citizens to bring cases to court. Malaysia lacks dedicated procedural rules for environmental cases, as seen in other jurisdictions, placing undue reliance on the criminal justice system to address environmental harm. Overall, the legal framework's deficiencies—absence of constitutional environmental rights, limited public engagement, and inadequate civil procedures—hinder effective environmental protection and access to justice in Malaysia.

Malaysia's air quality legal framework is lacking in addressing ambient air quality, as it mainly focuses on regulating industrial point sources. While the country has policies like the Clean Air Action Plan and the New Malaysia Ambient Air Quality Standard, they lack legal backing. The absence of a mandatory ambient air quality standard prioritises economic development over public health. Malaysia's laws also do not explicitly prioritise public and ecosystem health or make clean air a legally enforceable right.

Furthermore, Malaysia's legal framework falls short in coordinating national laws to achieve an ambient air quality standard aligned with human and ecosystem health. There is also no mechanism in place to manage transboundary air pollution, which poses a significant challenge in addressing haze pollution in the region. The ASEAN Transboundary Haze Pollution Agreement lacks enforceable mechanisms to hold Member States accountable for transboundary pollution, leading to ineffective collaboration in addressing haze events.

Domestically, Malaysia lacks laws specifically addressing transboundary pollution, which limits the country's ability to hold Malaysian companies operating abroad accountable for haze pollution. The absence of extraterritorial provisions in Malaysian law prevents courts from addressing transboundary pollution effectively. Although the government has considered enacting a law against transboundary haze pollution, political changes have stalled its progress.

On the international front, Malaysia has committed to developing a National Action Plan on Business and Human Rights to ensure that businesses respect human rights, including the right to a clean environment. While progress has been slow, the implementation of this plan is crucial in addressing human rights violations, especially in the context of environmental pollution like haze. This plan can help improve corporate accountability and promote responsible business practices to reduce pollution.

To address these gaps, SUHAKAM proposes the following recommendations:

1. for the Malaysian government to amend the Federal Constitution to expressly recognise the right to a safe, clean, healthy and sustainable environment;

2. for the Rules Committee, consisting of the Attorney General's Chambers, Judiciary, Malaysian Bar, Sabah Law Society and Advocates Association of Sarawak, to amend the Rules of Court 2012 to include specific rules of civil procedure for environmental proceedings to improve access to justice;

3. for the Malaysian government to enact a holistic framework legislation for clean air in Malaysia;

4. for the Malaysian government to take the lead at the ASEAN level to propose the development of a protocol to the AATHP to establish a legally binding commitment by each Member State to enact domestic legislation to hold account its citizens and corporations domiciled in its own jurisdiction for their contribution to land and/or forest fires in other Member States;

5. for the Malaysian government to accelerate the development of the National Action Plan on Business and Human Rights; and

6. for the Malaysian government to accelerate the implementation of the Sustainable Development Goals, especially through institutional transformations across all levels of government to ensure inclusive participation of all stakeholders.

Chairman's Message

The chronic and perennial problem of haze pollution has been plaguing us for decades. It has been impacting lives, livelihoods, economies, regional relations, climate change and our environment. The haze has been a problem that the Commission has been cognisant of. In fact, transboundary haze pollution is one of the impetuses behind the Commission's work on the development of the National Action Plan on Business and Human Rights in 2015.

Hence, when the CERAH Coalition, a broad alliance of civil society organisations, presented a comprehensive complaint about haze pollution and the right to clean air to the Commission, we welcomed it readily.

This complaint has provided the Commission with the opportunity to convene a roundtable discussion involving a wide spectrum of experts and stakeholders for a comprehensive analysis of the issue of haze pollution, the systemic gaps and potential pathways towards upholding our right to clean air and a safe, clean, healthy and sustainable environment.

The roundtable discussion was a pioneering one, being the Commission's first that is centred on environmental justice. The deliberations across the two days of discussions demonstrated that environmental issues and human rights are profoundly intertwined.

In 1948, the World Health Organisation first conceptualised that health is a fundamental human right and it should be made obtainable for everyone regardless of current socio-political and economic climates. On 8 October 2021, the UN Human Rights Council passed Resolution 48/13, recognising that having a clean, healthy and sustainable environment is a human right. This was then followed by the UN General Assembly ("UNGA") passing a similar resolution in July 2022, elevating the right to a clean, healthy, and sustainable environment as a universal human right. The UNGA's recognition is particularly significant for a country like Malaysia that does not explicitly recognise environmental rights in its Federal Constitution.

In the main, haze pollution is a manmade problem. It is a major contributor to air pollution in Malaysia and the region, with impacts experienced by everyone. However, the working class, poor and marginalised communities are disproportionately affected.

From the roundtable discussion, our analysis of the haze problem has revealed major systemic gaps in our legal and policy frameworks concerning the right to clean air, not only for Malaysians but for peoples across the ASEAN region.

"HUMAN RIGHTS FOR ALL"

Dato' Seri Mohd Hishamudin Bin Md Yunus
Chairman
The Human Rights Commission of Malaysia
24 September 2024

Acknowledgements

The Commission extends its sincere gratitude to the CERAH Coalition and Greenpeace Malaysia for their support and collaboration in co-organising the RTD held on 9 and 11 March 2022.

We would also like to express our deep appreciation to the team of experts led by Kiu Jia Yaw of Kiu & Co. This team, which included Heng Kiah Chun, Associate Professor Dr. Helena Varkkey, Azira Aziz and Mellaney Goh, played an instrumental role in shaping this Report. Their collective expertise, insights, and invaluable contributions have significantly enriched its development.

Finally, the Commission also puts on record our deepest appreciation to all Members of the Commission (2019-2022) for sharing their valuable knowledge and insights throughout the preparation and holding of the RTD, especially former Commissioner Dato' Mah Weng Kwai (2019-2022). The Commission extends its appreciation to Commissioners (2022-2025) who have approved the publication of this research as well as to all stakeholders, respondents and committed individuals who have participated and contributed their insights and views in this Report. Special thanks to the former Secretary of SUHAKAM, Dr. Cheah Swee Neo, and current Secretary of SUHAKAM, Altaf Deviyati; Deputy Secretary (Policy, Law & International Coordination), Ann Jennifer Victor Isaacs; Head of Law and International Treaties Division, Muhammad Afiq Mohamad Noor, SUHAKAM officers especially Sarah Adibah Hamzah, Yustina Ishak, Nor Diana Mohd Roslan, Siti Hanna Aisya Noorazman, Sahanah Kathirvelu and staff including Nurulhuda Rahim, for being members of the Working Committee and for their commitment and support, who have contributed in their respective ways to the development of this Report.

Glossary

AATHP	ASEAN Agreement on Transboundary Haze Pollution
AFOLU	Agriculture together with Forestry, and Other Land Use
AHRD	ASEAN Human Rights Declaration
API	Air Pollution Index
AQG	Air Quality Guideline
ASEAN	Association of Southeast Asian Nations
ASM	Academy of Sciences Malaysia
ASMC	ASEAN Specialised Meteorological Centre
COI	Cost of Illness
COPD	Chronic Obstructive Pulmonary Disease
CSOD	Corporate Sustainability Open Data
ESG	Environmental, Social and Governance
GDP	Gross Domestic Product
GLC	Government-Linked Companies
ICESCR	International Covenant on Economic, Social and Cultural Rights
NDPE	No Deforestation, No Peat and No Exploitation
PIL	Public Interest Litigation
PM	Particulate Matter
RSPO	Roundtable on Sustainable Palm Oil
RTD	Roundtable Discussion
SDG	Sustainable Development Goals
SLAPP	Strategic Litigation Against Public Participation
SME	Small and Medium Enterprises
SUHAKAM	Human Rights Commission of Malaysia (Suruhanjaya Hak Asasi Manusia Malaysia)
UKM	National University of Malaysia (Universiti Kebangsaan Malaysia)
UNICEF	United Nations Children's Fund
WHO	World Health Organisation

Part A: Background to this Report

Introduction

1. This report presents SUHAKAM's findings from a roundtable discussion on haze pollution and the right to clean air held on 9 and 11 March 2022, which was convened following a formal complaint by a coalition of non-profit organisations and civil society groups.

2. We have focused on legal and policy gaps for managing domestic and transboundary haze pollution, derived from scientific analysis and insights from the experts who participated in the roundtable discussion. We then set out six recommendations which target the root causes and impacts of haze pollution.

The complaint by the CERAH Coalition

3. On 7 December 2021, SUHAKAM received a complaint from CERAH, Greenpeace Malaysia and a coalition of civil society organisations and non-governmental organisations (collectively "CERAH Coalition") to examine existing Malaysian legislation, regulations, and rules of civil and/or criminal procedure regarding the governance of domestic and transboundary haze pollution. This appears to be the first environmental complaint received by SUHAKAM.

4. CERAH is a civil society organisation formed in 2015 in response to the chronic and persistent haze pollution. Greenpeace Malaysia is the local chapter of Greenpeace International, the global environmental campaigning network. The other members of the CERAH Coalition consisted of Sahabat Alam Malaysia (SAM), Stop Open Burning in Johan Setia, Klima Action Malaysia (KAMY), Pertubuhan Pelindung Khazanah Alam Malaysia (PEKA Malaysia), Suara Rakyat Malaysia (SUARAM), Pertubuhan Alam Sekitar Sejahtera Malaysia (GRASS Malaysia), Environmental Protection Society Malaysia (EPSM), Jaringan Ekologi dan Iklim (JEDI), Persatuan Pengundi Muda (Undi18 – MyHutan), and the Global Environment Centre (GEC).

Organising the RTD

5. As a response to the complaint, SUHAKAM, led by commissioner Dato' Mah Weng Kwai, convened a two-day, multi-stakeholder roundtable discussion ("RTD") to inquire into the multiple dimensions of the haze pollution problem.

6. The objectives of the RTD were as follows:

   6.1 To examine the gaps in the Malaysian and regional legal and policy frameworks, including legislation, regulations, and rules of civil and/or criminal procedure;

   6.2 To advise and make recommendations on ways to strengthen and protect people's rights to a safe, clean, healthy and sustainable environment, free from air pollution; and

   6.3 To make recommendations based on the themes of –

      6.3.1 Strengthening the recognition of environmental rights in Malaysia;

      6.3.2 Strengthening the governance of air quality in Malaysia;

      6.3.3 Strengthening the governance of transboundary haze pollution; and

6.3.4 Strengthening Business and Human Rights in Malaysia.

7. SUHAKAM co-organised the RTD together with the CERAH Coalition, which has a network of subject matter experts, academics, civil society organisations, and stakeholders on haze pollution. Greenpeace Malaysia, which is a core member of the CERAH Coalition, played an important coordinating and convening role.

8. The RTD was held on 9 and 11 March 2022, entitled 'Right to Clean Air: Addressing Haze Pollution in Malaysia'. The RTD was conducted on a hybrid basis, with most speakers attending physically at Sunway Putra Hotel in Kuala Lumpur and participants attending online via Zoom. This was partially due to the movement controls enforced for COVID-19, but also to enable as much participation as possible.

9. The RTD was open to members of the public. Invitations were also sent out to stakeholders from the public sector (including those involved in enforcement, investigation, prosecution, and adjudication), the private sector (including institutions representing the palm oil sector), third sector, academia, and subject matter experts.

10. To further enable public participation, SUHAKAM opened a submission channel by way of Google Forms to accept further inputs and feedback from members of the public, for one week, after the RTD was concluded. These inputs were compiled and considered in the preparation of this report.

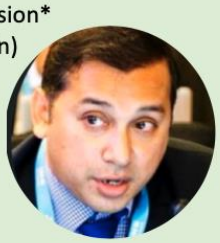
11. Many subject matter experts and stakeholders were gathered to discuss the causes and impacts of haze pollution, systemic gaps, and recommendations.

DAY 1 — **9th March 2022, Wednesday**

9:30 – 9:45	**Welcoming Remarks & Introduction** by SUHAKAM Commissioner, Dato' Mah Weng Kwai
9:45 – 10:05	**Keynote Address** by Academy of Sciences Malaysia's Prof. Dato' Ir. Dr. A. Bakar Jaafar, FASc on ASM's work on local & transboundary haze
10:05 – 10:25	**Keynote Address** by Malaysian Bar President, AG Kalidas on the rule of law and environmental governance
10:25 – 10:30	Q&A
10:30 – 10:35	Briefing on format of Day 1 Breakout Sessions
10:35 – 10:50	Coffee Break
10:50 – 12:05	**Breakout Session 1: Causes of Haze**

Breakout Session 1: Causes of Haze 10:50 – 12:05	Breakout Session 1: Causes of Haze 10:50 – 1205
Stream 1A: Agricultural, land use and meteorological factors Presentation on agriculture, land use change, peatlands and meteorological factors. (30 mins)  Subject matter expert: Faizal Parish (GEC) Discussion* (45 mins)  Facilitator: Dr. Salmah Zakaria (ASM)	**Stream 1B: Factors that allow haze pollution to persist** Presentation on land disputes, challenges with maps, corporate masks and vested interests. (30 mins)  Subject matter expert: Assoc. Prof. Dr. Helena Varkkey (UM) Discussion* (45 mins)  Facilitator: Cynthia Gabriel (C4)

12:05 – 12:20	Recap of highlights from Breakout Session 1
12:20 – 14:00	Lunch Break
14:00 – 15:30	**Breakout Session 2: Impacts of Haze**

Breakout Session 2: Impacts of Haze 14:00 – 15:30	Breakout Session 2: Impacts of Haze 14:00 – 15:30	Breakout Session 2: Impacts of Haze 14:00 – 15:30
Stream 2A: Public health impacts Presentations (45 min) by  Assoc. Prof. Dr. Nasrin Agha Mohammadi (UM) on public health impacts  And Prof Mazrura (UKM) on impacts on vulnerable groups Discussion* (45 min)  Facilitator: Dr. Khor Swee Kheng	**Stream 2B: Economic impacts** Presentations (45 min) on economic impacts by  Prof Mohd Shahwahid (UPM)  and Khor Yu Leng Discussion* (45 min)  Facilitator: Wan Portia Hamzah	**Stream 2C: Environmental impacts** Presentations (45 min) by  Prof Mohd Talib Latif (UKM) on environmental impacts  Dr. Matthew Ashfold (Nottingham) on climate change impacts Discussion* (45 min)  Facilitator: Jayaprakash Murulitharan, University of Cambridge

15:30 – 15:45	Coffee Break
15:45 – 16:15	Recap of highlights from Breakout Session 2 Summary from Stream 2A Summary from Stream 2B Summary from Stream 2C
16:15 – 16:25	Concluding Remarks & Briefing on end of Day 1

DAY 2

11th March 2022, Friday

9:30 – 9:45	**Welcoming Remarks & Recap** by SUHAKAM Commissioner, Dato' Mah Weng Kwai
9:45 – 10:00	**Keynote Address** by UN Security Council Ombudsperson and former Chief Justice Tun Richard Malanjum on gaps in the legal system and challenges to access to justice
10:00 – 10:15	**Keynote Address** by Datuk Prof Shad Saleem Faruqi (UM) on environmental rights and the Federal Constitution
10:15 – 10:20	Briefing on format of Day 2 discussions
10:20 – 10:35	Coffee Break
10:35 – 12:05	**Plenary Sessions: Gaps in the legal framework**

Plenary P11: Fundamental gaps

10:35 – 11:15	Presentations (40 min) by Chee Yoke Ling (TWN) on the fundamental gaps in public participation and access to information Roger Chan Weng Keng (M'sian Bar) on access to justice
11:15 – 12:00	Discussion* (45 min) Facilitator: Roger Chin (Sabah Law Society)
12:00 – 12:05	Recap of highlights from Plenary P11

Plenary P12: Gaps in governance of transboundary haze pollution

14:30 – 15:10	Presentations on the gaps in transboundary haze pollution governance (40 min) by  Prof Dato' Aishah Bidin (UKM, ASM)  Kiu Jia Yaw (M'sian Bar)
15:10 – 15:55	Discussion* (45 min)  Facilitator: Dr Helena Varkkey (UM)
15:55 – 16:00	Recap of highlights from Plenary P12

16:00 – 16:15	Coffee Break
16:15 – 17:05	**Breakout Session 3: Recommendations**

Breakout Session 3: Recommendations 16:15 – 17:05	Breakout Session 3: Recommendations 16:15 – 17:05	Breakout Session 3: Recommendations 16:15 – 17:05	Breakout Session 3: Recommendations 16:15 – 17:05
Stream 3A: Strengthening the recognition of environmental rights in Malaysia Facilitated questions and discussions*  Facilitator: Theiva Lingam (SAM)	**Stream 3B: Strengthening Malaysia's air quality governance** Facilitated questions and discussions*  Facilitator: Firdaus Husni (MCCHR)	**Stream 3C: Strengthening governance of transboundary haze pollution** Facilitated questions and discussions*  Facilitator: Azira Aziz	**Stream 3D: Strengthening Business and Human Rights in Malaysia** Facilitated questions and discussions*  Facilitator: Chee Yoke Ling (TWN)

17:05 – 17:15	Recap of highlights from Breakout Session 3
17:15 – 17:25	**Closing Remarks** by Dato' Mah Weng Kwai
17.25 – 17.45	Press conference

12. This report is the culmination of the discussions and findings from the RTD and a desk review of literature and developments since the RTD and sets out 6 recommendations moving forward.

13. The RTD was held under the Chatham House Rule. As such, statements contained in this report that are not otherwise linked to any citation or source have been derived directly from the discussions during the RTD.

Part B: Factors Behind Haze Pollution

Introduction

14. Transboundary haze has been a major challenge that has plagued Southeast Asia for more than three decades. The Department of Environment refers to "haze pollution" as "the prevalence of fine particulate matter that is suspended in the atmosphere in unhealthy concentrations".

15. In Malaysia, haze pollution originates from domestic and transboundary sources. Local sources of haze are mostly related to land use change leading to peatland combustion, as well as other local anthropogenic activities. Some examples of local sources were found in the Kuala Langat Forest Reserve and Pekan, Pahang (March 2021) and in Miri, Sarawak (March 2019).[1]

16. The main source of transboundary haze pollution is the annual Southeast Asian haze, attributable to seasonal fires in Indonesia arising from peat and forest fires. The agricultural sectors that contribute the most to this are oil palm and pulpwood production, which use 73% and 26% of peatlands respectively.[2]

Business and economic activities driving land use and land use change

17. The main drivers of peat fires in Indonesia and Malaysia have been land-use change for community-based and commercial-scale agricultural purposes.[3] Agriculture and logging activities on peatlands require the land to be drained of water, causing them to degrade and dry up. Dried peatlands are a serious fire risk as their high organic matter content catches fire easily.[4] The exploitation of peatlands lowers the water table, increasing the frequency and severity of peat fires.[5]

18. Peatland fires result in a smouldering combustion which occurs when organic soil burns steadily without flames and permeates slowly into the soil.[6] Smouldering combustions can last for long periods, spanning from weeks to months under conditions with low temperature, high moisture content and low oxygen concentrations.[7] Peat fires may be undetectable when they burn underground; they are also hard to extinguish as they may burn again during the next dry period.[8]

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[1] Academy of Sciences Malaysia. (2018) ASM Local & Transboundary Haze Study, pp. 24 and 90.
[2] Miettinen, J., Shi, C., Soo C. L. (2016) Land cover distribution in the peatlands of Peninsular Malaysia, Sumatra and Borneo in 2015 with changes since 1990, *Global Ecology and Conservation, Volume 6*.
[3] Varkkey, H. (2013) Patronage politics, plantation fires and transboundary haze, *Environmental Hazards, 12:3-4*, p. 200, DOI: 10.1080/17477891.2012.759524.
[4] Usup, A., Takahashi, H. & Limin, S. H. (2000) Aspect and mechanism of peat fire in tropical peatland: a case study in Central Kalimantan 1997. In: *Proceedings of the International Symposium on Tropical Peatlands, Hokkaido University and Indonesian Institute of Science, Bogor, Indonesia*, pp. 79-88.
[5] Evers, S., Yule, C. M., Padfield, R. et al. (2017) Keep wetlands wet: the myth of sustainable development of tropical peatlands-implications for policies and management, *Global Change Biology 23*, pp. 534-549.
[6] Rein, G., Cleaver, N., Ashton, C. & Pironi, P. (2008) The severity of smouldering peat fires and damages to forest soil, *Catena 74(3)*, pp. 304-309.
[7] Turestsky, M. R., Benscoter, B., Page, S. et al. (2015) Global vulnerability of peatlands to fire and carbon loss, *Nature Geoscience 8*, pp. 11-14.
[8] Blake, D., Hinwood, A. L. & Horowitz, P. (2009) Peat fires and air quality: volatile organic compounds and particulates, *Chemosphere 76*, pp. 419-423.

19. During the RTD, Faizal Parish, Director of the Global Environment Centre, shared that about 90% of transboundary haze in Southern ASEAN come from peatland fires, while Northern ASEAN haze is linked to slash and burn practices and contract farming for maize.

Meteorological considerations

20. The El Nino-Southern Oscillation ("El Nino") phenomenon is an irregular periodic variation in winds and sea surface temperature. It can create very suitable conditions for large-scale fire outbreaks in various parts of Indonesia and Malaysia as the region experiences longer drought phases and warmer temperatures.[9]

21. Anomalous winds during June to August are largely southerly, enhancing climatological summer monsoon winds which facilitate the long-range transport of smoke from Sumatra and Kalimantan northward to Singapore and Malaysia.[10] During September to November, fires can become active in Sumatra and Kalimantan as these regions experience a deficit in rainfall.[11]

22. Even though meteorological factors such as El Nino, wind direction, and temperature have been found to influence the intensity of haze episodes,[12] they are considered secondary factors. This is because the fires that cause damage are primarily associated to human related activities in agriculture, forestry, and plantation.[13]

Factors that make haze pollution difficult to tackle

Conflicts in land ownership

23. Land in remote areas of Indonesia is governed by national, provincial, and customary laws. These laws do not draw a clear boundary of who holds jurisdiction over the issue of land and water management. This results in a mismatch between *de jure* and *de facto* land occupancy and ownership inside and outside plantations, which means there is lack of clarity to pinpoint responsibility for fires.

24. In the context of conflicts between agricultural companies and local inhabitants, fires are allegedly used for both arson and establishing land claims.[14] Independent farmers have been identified to be operating within concession areas (i.e., land allocated to companies for plantation development) even though they do not have legal interests to occupy land there, suggesting that they may be responsible for some burning inside concessions.

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[9] Supra, n 1, p. 30.
[10] Latif, M. T., Othman, M., Idris, N. et al. (2018) Impact of regional haze towards air quality in Malaysia: A review, *Atmospheric Environment 177*, pp. 34.
[11] Ibid
[12] Ibid
[13] Field, R. D., van der Werf, G. R. & Shen S. P. (2009) Human amplification of drought-induced biomass burning in Indonesia since 1960s, *Nature Geoscience, Vol. 2*, pp. 185-188.
[14] Gaveau D. L. A, Pirard, R., Mohammad A. S. et al. (2016) Overlapping Land Claims Limit the Use of Satellites to Monitor No-Deforestation Commitments and No-Burning Compliance, *Conservation Letters, A Journal of the Society for Conservation Biology*, doi: 10.1111/conl.12256.

Data Challenges

25. Regional fire situations are monitored by the ASEAN Specialised Meteorological Centre ("ASMC") as designated by the Regional Haze Action Plan 1997.[15] However, the gathering of data via satellite-based hotspots (i.e., thermal anomalies possibly indicative of fires) can be inaccurate without ground-truthing, which involves verifying hotspots with on-site observations.

26. Moreover, there is a lack of consensus over Member States' meteorological datasets, leading to disputes over the validity of ASMC data.[16] For example, Indonesia has refused to acknowledge ASMC hotspot data in the past, causing the data to be underutilised and unused.

27. In addition, the current ASEAN framework allows for each Member State to present individual technical findings at working group meetings. Even though this highlights their different meteorological capabilities, it also results in prolonged debates over the validity of each country's data due to the difference in quality and consistency of data sources.[17] This will arguably hamper the possibility and effectiveness of an integrated analysis.

Withholding of Mapping Information

28. Indonesia and Malaysia have both declined to make concession maps available under the ASEAN Haze Monitoring System. During the Fifteenth Meeting of the Sub-Regional Ministerial Steering Committee on Transboundary Haze Pollution in July 2013, the Indonesian Environment Minister insisted that the public disclosure of such information was prohibited by their laws on freedom of information.[18] At the same meeting, the then Minister of Natural Resources and Environment of Malaysia expressed that land matters fell under the authority of the state governments, thus, the federal government would not be able to publish concession maps details.[19] This overemphasis on security concerns has made it difficult to link hotspots to responsible parties.

29. Malaysia has recently given permission to the Roundtable on Sustainable Palm Oil ("RSPO") to publish Malaysian concession maps in Indonesia.[20] Conversely, the Indonesian government has resisted court rulings to publish concession data and Hak Guna Usaha ("HGU"), a land use permit. Most notably, the Supreme Court of Indonesia had previously made a landmark decision whereby the government is obliged to publish data on Kalimantan Palm Oil HGU.[21] This was upheld in a later 2020 decision where the State Administration

[15] Para. 8, 1997 Regional Haze Action Plan, adopted in Singapore on 23 December 1997.
[16] Murulitharan, J. & Ashfold, M. (2021) Depoliticising Southeast Asia's Forest Fire Pollution, *East Asia Forum,* 17 August https://www.eastasiaforum.org/2021/08/17/depoliticising-southeast-asias-forest-fire-pollution/.
[17] Ibid
[18] Tan, A. K. J. (2014) 'Can't we even share our maps?': Co-operative and Unilateral Mechanisms to Combat Forest Fires and Transboundary "Haze" in Southeast Asia, *Transboundary Pollution: Evolving Issues of International Law and Policy*, p. 22.
[19] Ibid
[20] Roundtable on Sustainable Palm Oil. (2019). RSPO Gets Green Light to Publish All Oil Palm Members' Concession Maps, *RSPO*, December 11, https://rspo.org/rspo-gets-green-light-to-publish-all-oil-palm-members-concession-maps/.
[21] Putusan Mahkamah Agung Nomor 121 K/TUN/2017, 6 March 2017 https://putusan3.mahkamahagung.go.id/direktori/putusan/feb6010cce27551f7d413980c7023c1f.

Court ordered the release of all plantation data and maps in the country, yet the land ministry had refused to comply with this on the grounds of national security.[22]

Corporate Masks

30. Corporate ownership and control of ostensibly independent companies can easily be hidden through holding companies and nominees.[23] Through this, parent companies can often escape being linked to fire incidences. Shadow companies also may not be beholden to headquarter policies and commitments. Such corporate masks can undermine efforts to end the use of fire on plantations and other unsustainable practices.

31. Many individuals are often employed by large corporations to clear land for plantations.[24] While the Indonesian government had aggressively addressed this by imposing heavy penalties, the actual companies behind the land clearing remain at large as only the individuals are held accountable.

32. A 2018 report by Chain Reaction Research highlighted how shadow companies within the palm oil industry pose financial risks for investors and hinder progress towards stopping deforestation, drainage of peatlands, and exploitation of local communities.[25] Essentially, the existence of corporate masks inhibits the transparency of palm oil supply chains, making it difficult to accurately attribute responsibility to the right entity.

Vested Interests

33. The Malaysian palm oil sector consists mainly of government-linked companies and private companies with close links to the government.[26] The web of connections, when analysed through a patronage framework, reveal close patron-client relationships and vested interests. It has been observed that the Malaysian government downplayed and obscured the role and complicity of Malaysian businesses and/or investors when their operations overseas have been alleged to contribute to haze pollution. The close patronage relationships and vested interests results in a government that is more inclined to protect and defend the actions of such firms in Indonesia.[27]

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[22] Jong, H. N. (2021) Final court ruling orders Indonesian government to publish plantation data, *Mongabay Environmental News*, June 10, https://news.mongabay.com/2021/06/final-court-ruling-orders-indonesian-government-to-publish-hgu-palm-oil-plantation-data/.

[23] Koalisi Anti Mafia Hutan et al. (2018) Removing the Corporate Mask: An Assessment of the Ownership and Management Structures of Asia Pulp & Paper's Declared Wood Suppliers in Indonesia, May 30, Jakarta, Indonesia.

[24] Vice.com. (2019) We Meet the People Burning down Indonesia's Forests, *Vice.com,* 23 September https://www.vice.com/en/article/59nydz/people-burning-down-indonesia-forests?utm_campaign=sharebutton&fbclid=IwAR0j5r4ReNmN4i00CShnftb4QIlP_Q73HKLSliwnA_C__3qfWuRggBS_0pw.

[25] Chain Reaction Research. (2018) Shadow Companies Present Palm Oil Investor Risks and Undermine NDPE Efforts, June 21, https://chainreactionresearch.com/report/shadow-companies-present-palm-oil-investor-risks-and-undermine-ndpe-efforts/.

[26] Varkkey, H. (2013) Malaysian investors in the Indonesian oil palm plantation sector: home state facilitation and transboundary haze, *Asia Pacific Business Review, 19:3*, 381-401, p. 386
DOI: 10.1080/13602381.2012.748262.

[27] Ibid, p. 394.

Part C: Impacts of Haze Pollution

Introduction

34. Haze pollution contributes to a range of environmental issues, specifically compromising air quality. In effect, it poses significant health risks as the fine particles can penetrate the respiratory system, leading to respiratory ailments and exacerbating pre-existing conditions.

35. Additionally, haze pollution has socio-economic implications, affecting various sectors such as agriculture, transportation, and tourism.

Public Health Impacts

36. According to the State of Global Air Report 2018,[28] more than 95% of the world's population is breathing unhealthy air, with the poorest nations being the hardest hit. Air pollution issues include haze, open burning (local and transboundary), acid rain, and climate change.

37. Particulate matter ("PM") and carbon monoxide ("MO") are two main parameters that determine the level of a haze episode. The composition of $PM_{2.5}$ is dominated by inorganic ions (e.g., sulphate and ammonium), metals (e.g., potassium, iron, and aluminium), and organic markers (e.g., levoglucosan).

38. Particle size and composition of PM affect its impacts on human health. PM irritates lung linings, triggering asthma attacks and causing inflammation. Pulmonary inflammation and/or particles absorbed into the blood may also increase blood viscosity, coagulability, clot formation, and other cardiovascular ischemic events.[29] Moreover, polycyclic aromatic hydrocarbons ("PAH") in PM is also hazardous and toxic.[30]

39. In Malaysia, the Air Pollution Index ("API") is used to measure the severity of air pollution on public health.[31]

Status	Health Effect	API
Good	Low pollution without any bad effect on health.	Below 50
Moderate	Moderate pollution that does not pose any bad effect on health.	51 - 100
Unhealthy (for sensitive group)	Worsen the health condition for elderly, pregnant women, children, and people with heart and lung complications.	101 - 200
Very Unhealthy	Worsen the health condition and low tolerance of physical exercises to people	201 - 300

[28] Health Effects Institute. (2018) State of Global Air 2018. *Special Report*. Boston, MA: Health Effects Institute.
[29] Brook, R., Franklin, B., Cascio, W. E. et al. (2004) Air pollution and cardiovascular disease—a statement for healthcare professionals from the Expert Panel on Population and Prevention Science of the American Heart Association. Circulation. 109:2655–2671.
[30] Nor Azura S., Latif, M. T., Sahani, M. et al. (2019) Distribution, sources and potential health risks of polycyclic aromatic hydrocarbons (PAHs) in $PM_{2.5}$ collected during different monsoon seasons and haze episode in Kuala Lumpur, *Chemosphere, Volume 219*, pp. 1-14, https://doi.org/10.1016/j.chemosphere.2018.11.195.
[31] Department of Environment Malaysia. https://apims.doe.gov.my/pdf/API_Calculation.pdf.

	with heart and lung complications. Affect public health.	
Hazardous	Hazardous to high-risk people and public health.	More than 300

40. The State of Global Air Report 2020 shows that $PM_{2.5}$-related fatalities in Malaysia rose by 30% in the past 10 years. In 2019, there was an estimated 10,600 deaths caused by air pollution.[32]

41. Studies have demonstrated significant associations between smoke exposure and increases in physician visits for respiratory problems, respiratory emergency department visits, and respiratory hospitalisation.[33] In the 1997 haze episode, the outpatient visits for asthma and respiratory diseases in Kuching increased by two to three times, while the number of patients increased from 250 to 800 in Kuala Lumpur.[34]

42. Haze episodes can also trigger the declaration of a state of emergency when the pollution exceeds categorically dangerous levels. This was seen during September 1997 when the API level reached 839 in Kuching and eastern Sarawak. A state of emergency was announced for the second time in history on 11 August 2005 for Kuala Selangor and Port Klang when the API level exceeded 500.

Impacts on Children

43. Air pollution can affect children even before they are born. The risk of spontaneous abortions, underweight infants, birth defects, and infant death increases when the mother is exposed to polluted air during pregnancy.[35] Other lifelong impacts include decreased lung growth and functions, as well as chronic respiratory and cardiovascular diseases.

44. In a longitudinal study, children exposed to smoke through living in Sumatra or Kalimantan at 12-36 months during the 1997 fires were found to have lower grades of completed schooling, lower scores in cognitive tests, and slower physical growth than children who were not exposed.[36]

45. The risks faced by children overlap between health concerns and education, especially for children in marginalised communities. A study by UNICEF, Universiti Kebangsaan Malaysia, and Universiti Malaysia Sabah [37] found that marginalised children have increased

[32] Health Effects Institute. (2020) State of Global Air 2020. Data source: Global Burden of Disease Study 2019. IHME, 2020. https://www.stateofglobalair.org/data/#/health/plot?country=MYS&pollutant=pm25&measure=death&deathMetric=number&geography=country&region=country&subregions=Malaysia&outcome=burden&regionToggle=0&globals=true&hideCountry=false.

[33] Reid, C. E., Brauer, M., Johnston, F. H. et al. (2016) Critical review of health impacts of wildfire smoke exposure. *Environmental Health Perspectives 124*, pp. 1334–1343, http://dx.doi.org/10.1289/ehp.1409277.

[34] Academy of Sciences Malaysia. (2017) Report of the Forum on the Impact of Haze on Human Health in Malaysia by the Medical and Health Sciences Discipline Group.

[35] UNICEF. (2017) Danger in the air: How air pollution may be affecting the brain development of young children around the world, *Data, Research and Policy Working Paper November 2017*, https://www.unicef.org/sites/default/files/press-releases/glo-media-Danger_in_the_Air.pdf.

[36] Lo Bue, M. C. (2019) Early Childhood during Indonesia's Wildfires: Health Outcomes and Long-Run Schooling Achievements, *Economic Development and Cultural Change, University of Chicago Press, vol. 67(4),* pp. 969-1003.

[37] UNICEF. (2021) Impact of Climate Change on Children: A Malaysian Perspective Study Objectives & Components, September.

vulnerabilities as they are susceptible to infectious diseases due to lack of access to safe water, improper garbage disposal habits and low awareness of personal hygiene.

46. During a haze episode, there are disruptions in transportation and quality of education hampering access to schools and education, low access to basic services and supplies such as health services, safe water, and food. For example, the 2019 haze episode saw 2500 schools being closed in Malaysia and 1300 in Kalimantan.[38]

Economic Impacts

Economic Impacts in Malaysia

47. Cost of illness ("COI") is used as a measurement for economic losses caused by a haze episode. The main reference for calculating the COI incurred by the local population is adopted from an empirical study on the 1997 haze event in Malaysia.[39] The COI is calculated by totalling the cost of treatment, hospitalisation, and total productivity losses from illnesses. For the 1997 haze episode, the estimated economic cost for Malaysia was RM801.90 million.

Type of damage	RM Million	USD Million	Percentage (%)
Adjusted cost of illness	21.02	8.41	2.62
Productivity loss during the state of emergency	393.51	157.40	49.07
Decline in tourist arrivals	318.55	127.42	39.72
Flight cancellations	0.45	0.18	0.06
Decline in fish landings	40.58	16.23	5.00
Cost of fire-fighting	25.00	10.00	3.12
Cloud seeeding	2.08	0.83	0.26
Expenditure on masks	0.71	0.28	0.09
Total damage cost	801.90	321.00	100

Aggregate value of haze damage in 1997[40]

48. In 2013, the total loss accounting for COI, foregone income opportunities, and willingness to pay to avoid a decline in the quality of life was RM1.49 billion for all households.[41] In

[38] Al Jazeera. (2019) Malaysia, Indonesia Shut Thousands of Schools as Haze Worsens, *Aljazeera.com,* 19 September, https://www.aljazeera.com/news/2019/9/19/malaysia-indonesia-shut-thousands-of-schools-as-haze-worsens#:~:text=Thousands%20of%20schools%20have%20been,Indonesia%20sent%20air%20quality%20plummeting.

[39] Othman, J. & Mohd Shahwahid H. O. (1999) Cost of Trans-boundary Haze Externalities. *Jurnal Ekonomi Malaysia, 33*. ISSN 0127-1962.

[40] Mohd Shahwahid, H. O. & Othman, J. (1999) Causes and impacts of fires: Malaysia, eds Glover, D & Jesup, T, in Indonesia's Fire and Haze: The Cost of Catastrophe, Singapore, Institute of Southeast Asian Studies.

[41] Latif, M. T., Othman, M., Idris, N. et al. (2018) Impact of regional haze towards air quality in Malaysia: A review, *Atmospheric Environment 177*.

2015, the total economic loss from haze incidents was RM1.07 billion, whereas the total COI was RM64.81 million in 2017. It was also estimated that the average annual economic loss due to inpatient healthcare is RM273,000.[42] This increase in healthcare costs has also led to an increase in government spending.

49. The productivity of air travel was also impacted with delays and flight cancellations due to visibility impairment. In September 2015, it was reported that the Kuala Lumpur, Kuching, and Penang international airports were all affected by the haze event. There were also transportation loss and damage due to crashing of vehicles, disruption of marine traffic, and interruption of cargo shipping.

50. Similarly, haze pollution affects fish farmers and fisheries as they are unable to reach their fish cages in open seas. This threatens food security, especially for the urban poor (B40). The Forest Research Institute Malaysia even reported that two varieties of hybrid rice had a 50% reduction in growth rate during a haze episode as the pollution reduces solar radiation,[43] severely hampering crop productivity.

51. The 2015 haze had reportedly caused economic losses in the tourism, sports, and food industries as well due to shutdowns.

52. More recently, the Centre for Research on Energy and Clean Air ("CREA") estimates that the health impacts of observed ambient air pollution result in an annual economic cost of RM303 billion.[44] This occurs as a result of healthcare and medical spending due to increased prevalence of diseases or disabilities related to air pollution, forced absence from work that affects incomes, as well as the cost of lost livelihoods and economic productivity resulting from premature death.

Economic Impacts in Southeast Asia

53. The World Bank[45] estimated the 2015 haze and wildfires costed the Indonesian government approximately USD16 billion (1.9% of GDP); while the 2019 haze episode affecting eight provinces of Riau, Jambi, South Sumatra, Central Kalimantan, East Kalimantan, South Kalimantan, West Kalimantan, and Papua carried an economic loss of approximately USD5.2 billion (0.5% of GDP).

54. ASM observed that the 2015 haze episode was estimated to cost Singapore USD500 million.[46] Meanwhile, the Nanyang Technological University estimated the losses to be higher at SGD1.83 billion (approximately USD1.3 billion), amounting to 0.45% of GDP.[47]

55. These costs arise from healthcare expenditures, loss of productivity, loss of tourism, loss of business and cost of mitigation.[48] In particular, the haze episodes have reduced the outputs

[42] Othman, J., Sahani, M., Mahmud, M. & Sheikh Ahmad, M. K. (2014) Transboundary smoke haze pollution in Malaysia: Inpatient health impacts and economic valuation', *Environmental Pollution 189*, pp. 194-201.
[43] Nichol, J. (1997) Bioclimatic impacts of the 1994 smoke haze event in Southeast Asia', *Atmospheric Environment, vol. 31, no. 8*, pp. 1209-1219.
[44] Centre for Research on Energy and Clean Air & Greenpeace Malaysia. (2022) The Health & Economic Impacts of Ambient Air Quality in Malaysia.
[45] Singapore Institute of International Affairs. (2019) SIIA Haze Outlook for Southern ASEAN, Special Report - June 2019, p. 3.
[46] Academy of Sciences Malaysia. (2018) ASM Local & Transboundary Haze Study, pp. 12.
[47] Quah E., Chia W. M. et al. (2021) Economic impact of 2015 transboundary haze on Singapore, *Journal of Asian Economics 75*, 101329, p. 14.
[48] Ibid

in both manufacturing and construction sectors.[49] There are also losses arising from lost visibility, scenic views, and recreational activities.[50]

Environmental Impacts

Environmental degradation

56. The process of land clearing and deforestation, which results in haze pollution, contributes to biodiversity loss, and weakens ecosystems.[51] The replacement of large forest areas by oil palm plantations supports fewer species than its virgin forest.[52]

57. For example, the decline of the Bornean orangutan population by 60% within 60 years is largely attributed to the destruction of peatlands.[53] Biodiversity is a great loss for both Malaysia and Indonesia as they are two out of 17 megadiverse countries in the world.[54]

58. PM suspended in ambient air is a dominant pollutant[55] and it has many known effects on both natural and managed ecosystems.[56] Its interference with biodiversity is long-term, which can lead to the eventual loss of ecosystem goods and services.

59. PM is known to deposit externally on vegetative surfaces or penetrate soil. This affects species diversity due to changes in competition, disturbance of the biochemical cycle, and the decline in the organism's ability of self-regulation. Additionally, the effect of PM on water is mainly associated with reducing the productivity of fishes and other marine organisms.[57]

Climate change

60. Factors that contribute to haze pollution also contribute to climate change due to the emission of greenhouse gases. Southeast Asian peatlands store over 50 billion tonnes of carbon, which is twice more than other forests. CO_2 emissions from peatland drainage and fires in Southeast Asia contribute to the equivalent of 2.5% to 4% of current global CO_2 emissions from the combustion of fossil fuel.[58]

61. Agriculture together with Forestry, and Other Land Use ("AFOLU") accounts for 50–60% of Indonesia's annual emissions in a normal year, more so during a severe haze year. Globally,

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[49] Ho, R. C., Zhang, M. W., Ho, C. S. et al. (2014) Impact of 2013 South Asia haze crisis: study of physical and psychological symptoms and perceived dangerousness of pollution level, *BMC Psychiatry 14*, pp. 1-8.
[50] Quah, E. (2002) Transboundary pollution in Southeast Asia: The Indonesian fires. *World Development, 30(3),* pp. 429–441.
[51] Akhtar, R. et al. (2018) Climate Change and Air Pollution, The Impact on Human Health in Developed and Developing Countries, *Springer International Publishing AG*, pp. 244-247.
[52] Fitzherbert, E., Struebig, M. J., Morel, A. et al. (2008) How will oil palm expansion affect biodiversity? *Trends in ecology & evolution 23(10)*, pp. 538-545.
[53] International Union for Conservation of Nature (2017) IUCN Issues Brief, Peatlands and Climate Change, https://www.iucn.org/resources/issues-brief/peatlands-and-climate-change.
[54] Mittermeier, R. A., Robles-Gil, P., & Mittermeier, C. G. (Eds.). (1997) Megadiversity: Earth's biologically wealthiest nations. Mexico: CEMEX/Agrupaciaon Sierra Madre.
[55] Supra, n 10, p. 34.
[56] Grantz, D. A., Garner, J. H.B. & Johnson, D. W. (2003) Ecological effects of particulate matter, *Environment International 29*, pp. 213-239.
[57] Zuhara, S. & Isaifan, R. (2018) The Impact of Criteria Air Pollutants on Soil and Water: A Review, *Journal of Environmental Science and Pollution Research, Volume 4 Issue 2*, pp. 278-284.
[58] Hooijer, A., Page, S., Canadell, J. G. et al. (2010) Current and future CO2 emissions from drained peatlands in Southeast Asia, *Biogeosciences*, doi:10.5194/bg-7-1505-2010.

AFOLU accounts for just under 25% of man-made greenhouse gas emissions. The Indonesian Ministry of Environment and Forestry reports that the average emissions level from the forestry sector was about 440 million tonnes of CO_2e annually between 2000 and 2018, or some 214 million tonnes of CO_2e if emissions from peat fires are excluded.

62. Total carbon emissions from fires have a non-linear relationship with seasonal dryness.[59] Borneo's forest loss has increased local daily temperatures and temperature extremes, as well as reduced daily precipitation.[60] Conversely, global warming caused by climate change also promotes fires and haze due to increased temperatures and longer drought periods.[61]

63. Tropical peatlands are recognised as among the most concentrated stores of "irrecoverable carbon" that should be prioritized for protection and sustainable management.[62] Current uncontrolled burning for the expansion of plantations has led to massive forest cover losses in Indonesia and Malaysia. This has greatly reduced the amount of carbon sinks, which increases the amount of greenhouse gas emissions.

64. Natural peat swamp forests serve as vital water catchment and control systems, playing a crucial role in mitigating flood peaks and ensuring water availability during dry periods. This becomes paramount in the context of climate change adaptation, as unpredictable weather patterns increasingly impact water security for communities, leading to a heightened risk of natural disasters, particularly intense floods.

Intersecting Risks

65. Air pollution and haze pollution does not affect everyone equally. This is illustrated by the network of connections between social categories such as race, class, and gender, especially when this may result in additional disadvantage or discrimination. The haze pollution crisis must be viewed through this lens to observe the disproportionate harm suffered by the public due to such disadvantages and discrimination.

66. Vulnerability manifests along **gender** lines. Women have been found to be more vulnerable to ambient air pollution than men.[63] Women also have a higher risk for decreased cognitive function associated with increased exposure to PM_{10} and $PM_{2.5-10}$ compared to men.[64]

67. **Children**, especially **girls**, who stay at home during a haze-triggered school closure are more likely to be abused, as reported in a study on PPR Sungai Bonus.[65] The girls in this study reported that they felt unsafe due to a lack of privacy and having inadequate space for

[59] Yin, Y., Ciais, P., Chevallier, F. et al. (2016). Variability of fire carbon emissions in Equatorial Asia and its non-linear sensitivity to El Niño. *Geophysical Research Letters. 43*. 10.1002/2016GL070971.
[60] McAlpine, C. A., Johnson, A., Salazar, A. et al. (2018) Forest and Borneo's Climate, *Environmental Research Letters, Volume 13, Number 4*.
[61] Fernandes, K., Verchot, L., Bethgen, W. et al. (2017) Heightened fire probability in Indonesia in non-drought conditions: the effect of increasing temperatures, *Environmental Research Letters, vol. 12, no. 5,* DOI 10.1088/1748-9326/aa6884.
[62] Noon, M. L., Goldstein, A., Ledezma, J.C. et al. (2022) Mapping the irrecoverable carbon in Earth's ecosystems, *Nature Sustainability 5*, pp. 37–46, https://doi.org/10.1038/s41893-021-00803-6.
[63] Liu, G., Sun, B., Yu, L. et al. (2020) The Gender-Based Differences in Vulnerability to Ambient Air Pollution and Cerebrovascular Disease Mortality: Evidences Based on 26781 Deaths. *Global heart, 15(1),* p. 46. https://doi.org/10.5334/gh.849.
[64] Kim H., Noh J., Noh Y. et al. (2019) Gender Difference in the Effects of Outdoor Air Pollution on Cognitive Function Among Elderly in Korea, *Front Public Health. Dec 10; 7:375*. doi:10.3389/fpubh.2019.00375.
[65] Kassim K. & Kasim M. S. (1995) Child sexual abuse: psychosocial aspects of 101 cases in an urban Malaysian setting, *Child Abuse and Neglect 19 (7)*, pp. 793-799; Kasim M. S. et al. (1994) Social factors in relation to physical abuse in Kuala Lumpur, Malaysia, *Child Abuse and Neglect 18(5*), pp. 401-407.

sleeping and studying, especially being confined indoors in cramped living spaces during bad weather.

68. **Education background and income levels** also contribute to increased vulnerabilities towards air pollution. A study in Klang Valley[66] found that that people with higher education backgrounds (i.e., diploma and beyond) and higher incomes (>RM10,000/month) were more aware on haze hazards and practiced better safety measures. This was in comparison with people with lower education backgrounds (i.e., no formal education, only primary/secondary education) and lower incomes (<RM3,000/month).

69. Communities with lesser education and income are more susceptible to haze impacts as they may not be able to afford spending on personal protective equipment (e.g., face masks) and medical treatments. There is also limited access to protection supplies and medical treatment due to poor transport infrastructure in remote areas.[67] Moreover, governmental advice on haze precautions is given generally to the entire population, whereby different income brackets are not distinguished, and the specific needs of poorer populations are ignored.[68]

70. Additionally, the lower income population has a predisposition to higher morbidity levels, leading to greater susceptibility to ill health.[69] This may be due to rural communities relying heavily on agriculture as their primary source of income, causing them to spend more time outdoors and getting greater exposure to air pollution.[70] They are unable and unwilling to afford suspension of their economic activities during a haze episode.

71. **Types of jobs** contribute to increased vulnerabilities to haze pollution exposure. Research conducted in Brunei show that outdoor construction workers experience 4 to 5 times the average haze-related health problems compared to the general population due to prolonged exposure to unhealthy air from worksites.[71] Simultaneously, the lack of safe accommodation causes them to live in ramshackle or incomplete buildings at construction sites, increasing their exposure to haze pollution. It was also found that many sick workers are unable to seek treatment due to the lack of money and the fear of losing their jobs if they were absent from work.

72. Extrapolating this to Malaysia, it is deducible that haze pollution significantly, and perhaps disproportionately, affects migrant workers and B40 Malaysians (Malaysians who have low income or are at the bottom 40% income tier of society) who are mainly employed in the construction industry. There is a strong correlation between socioeconomic status and vulnerability to environmental hazards. Additionally, the precarious employment conditions and weak bargaining position of these groups make it difficult for them to advocate for better working conditions or take breaks or stop work when air quality is unhealthy or hazardous.

73. From the above, solutions to address air pollution and haze pollution require a multifaceted approach to address the intricacies of the overlapping issues. By recognising the

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[66] Low, B. S., Selvaraja, K. G., Ong, T. H. et al. (2020) Education background and monthly household income are factors affecting the knowledge, awareness and practice on haze pollution among Malaysians, *Environmental Science and Pollution Research 27*, pp. 30419–30425, https://doi.org/10.1007/s11356-020-09196-z

[67] Martin, S., Rieple, A., Chang, J. et al. (2015) Small farmers and sustainability: Institutional barriers to investment and innovation in the Malaysian palm oil industry in Sabah, *Journal of Rural Studies, 40*, pp. 46-58.

[68] Varkkey, H., Copeland, A. (2020) Exchanging health for economic growth: Haze in the context of public health and political economy in Malaysia, *Journal of Social Healthy, vol. 3, issue 1.*

[69] Mariapun, J., Hairi, N. N. & Ng, C. (2016) Are the Poor Dying Younger in Malaysia? An Examination of the Socioeconomic Gradient in Mortality, *PLoS One, 1334*, pp. 1-12, https://doi.org/10.1371/journal.pone.0158685.

[70] Supra, n 68.

[71] Odihi, J. O. (2001) Haze and Health in Brunei Darussalam: The Case of the 1997-98 Episodes, *Singapore Journal of Tropical Geography, 22(1)*, pp. 38-51. http://dx.doi.org/10.1111/1467-9493.00092

intersectional nature of air pollution's impact, policymakers can design more effective and equitable solutions that protect everyone's right to a safe, clean and healthy environment.

Part D: Gaps in the Legal Framework

Introduction

74. Malaysia has an extensive set of environmental laws, mainly those carrying criminal liability under the Environmental Quality Act 1974 ("EQA")[72]. However, environmental governance and sustainable management of natural resources remains dated and fragmented.

75. The civil justice system faces inherent shortcomings in addressing issues related to haze pollution, primarily attributed to the absence of clear and established environmental rights in the Federal Constitution. This deficiency poses a significant challenge for affected citizens attempting to assert their claims, creating a barrier to seeking legal redress for the consequences of environmental harm.

Gaps in Environmental Governance

Gaps in the Recognition of Environmental Rights in the Federal Constitution

76. The Stockholm Declaration 1972[73] gives international recognition to environmental rights. Principle 1 of the Declaration sets out the fundamental right to an environment of a quality that permits a life of dignity and well-being. When this is not explicitly spelled out in the Federal Constitution, the right to a healthy environment is often implied from the right to life.[74] In *Tan Tek Seng*,[75] Gopal Sri Ram JCA held that "the expression of life in the Constitution does not refer to mere existence, but incorporates matters that form the quality of life, including the right to live in a reasonably healthy and pollution free environment".

77. While this judgment marked a significant moment for environmental law in Malaysia, its progress was reversed in *Sugumar Balakrishnan*[76] where the Federal Court declined to give a generous interpretation for Article 5(1) and held that "life or personal liberty" does not include those other things that are integral to life itself. Nonetheless, this narrow approach was later rejected by another Federal Court panel in *Sivarasa Rasiah*[77] which held that this restrictive approach to constitutional interpretation clearly goes against previous established authorities.

78. Despite the more "prismatic approach" to the interpretation of one's right to life, there has yet to be an environmental case that directly tests the full scope of environmental rights that may have been implied within the ambit of the right to life. This lack of legal precedent leaves lingering uncertainty for future cases and hinders the robust development of environmental rights jurisprudence in Malaysia, especially since such environmental rights have not been explicitly included in the Federal Constitution.

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[72] Environmental Quality Act 1974 (Act 127).

[73] Declaration of the United Nations Conference on the Human Environment, Report of the United Nations Conference on the Human Environment, U.N. Doc. A/CONF.48/14 Rev. 1 (1972).

[74] Article 5(1) of the Federal Constitution stipulates that "No person shall be deprived of his life or personal liberty save in accordance with law." This has often been referred as the provision that recognises the constitutional right to life.

[75] Tan Tek Seng v. Suruhanjaya Perkhidmatan Pendidikan & Another [1996] 1 MLJ 261.

[76] Pihak Berkuasa Negeri Sabah v. Sugumar Balakrishnan [2002] 3 MLJ 72.

[77] Sivarasa Rasiah v. Badan Peguam Malaysia & Anor [2010] 2 MLJ 333.

79. On 26th July 2022, the United Nations General Assembly declared access to a clean, healthy and sustainable environment as a universal human right.[78] Malaysia, with 161 other nations, voted in favour of the historic resolution. The resolution recognises that the impact of climate change, the unsustainable management and use of natural resources, the pollution of air, land and water, the unsound management of chemicals and waste, and the resulting loss in biodiversity interfere with the enjoyment of this right. It further recognises that environmental damage has both direct and indirect negative consequences for the effective enjoyment of all human rights.

80. Despite the Malaysian government voting in support of the resolution, the full potential of the resolution cannot be automatically applied in Malaysian courts because Malaysia's is a dualist legal system. International treaties must be explicitly incorporated into the domestic legal system to have any effect. Without the explicit recognition of environmental rights in the Federal Constitution, Malaysia may not adequately translate the resolution's principles into effective policies and practices.

81. For comparison, some ASEAN countries have incorporated environmental rights into their constitutions. For example, Section 43 of Thailand's Constitution states that "A person and community shall have the right to manage, maintain and utilise natural resources, environment and biodiversity in a balanced and sustainable manner, in accordance with the procedures as provided by law." This illustrates the extent of environmental rights enjoyed by Thai citizens which also includes sustainability concerns.

82. Article 43 of Vietnam's Constitution provides that "everyone has the right to live in a clean environment and has the obligation to protect the environment." Article 63 further provides that "the State shall adopt environmental protection policies; manage and use natural resources in an efficient and sustainable manner; conserve nature and biodiversity; and take the initiative in preventing and controlling natural disasters and responding to climate change." This shows a further step in enshrining environmental rights whereby the government is explicitly named as the duty bearer to safeguard such rights.

83. In Malaysia, the absence of an explicit recognition that one's right to a safe, clean, healthy and sustainable environment is a fundamental liberty leaves a vacuum in the legal system. The individual pieces of environmental legislation enacted at different stages of Malaysia's history provide a limiting patchwork of provisions to pin liability on polluters. Clarity in the expression of environmental rights in Malaysia's jurisprudence will enable the incorporation of core principles such as the polluter pays principle, intergenerational responsibility and the precautionary principle. Without a constitutional expression of this right, law enforcers, prosecutors, lawyers and judges lack the foundational scaffolding to apply existing law and principles to the increasingly confounding ecological challenges of air pollution, climate change, biodiversity loss and pollution.

Limited Access to Information and Public Participation

84. Principle 10 of the Rio Declaration states that information on hazardous materials and activities within communities needs to be accessible to all citizens. Everyone shall be given the opportunity to participate in the decision-making process and that States shall facilitate and encourage public awareness by making such information widely available. There must also be access to justice, including the right to redress and remedy.

[78] UN General Assembly Resolution A/76/L.75. (2022) UN General Assembly declares access to clean and healthy environment a universal human right. *UN News.* https://news.un.org/en/story/2022/07/1123482.

85. In Malaysia, there is a general lack of public engagement and transparency for environmental issues. In 2015, Malaysia ranked 69 out of 70 countries in environmental democratic rights by scoring 0.58 out of the Environmental Democracy Index ("EDI"), where the global average is 1.42.[79] The EDI assesses the state of national laws that protect transparency, participation, and justice in environmental decision-making.

86. The Official Secrets Act 1972 has been misused to withhold information on air pollution as the API was considered a state secret during the 1997 and 2005 haze crisis. Even though the authorities have since improved on the accessibility of environmental information, access to data (such as health) remains limited.

87. The Environmental Impact Assessment ("EIA") process is provided under the Environmental Quality (Prescribed Activities) (EIA) Order 1987 and Section 34A of the EQA. In practice, EIAs are not implemented meaningfully due to the presence of conflicting state legislations that do not mandate EIAs.[80] Public participation is hampered since local communities do not have an entrenched right to review policy decisions and development plans with environmental consequences.

88. Additionally, Strategic Litigation Against Public Participation ("SLAPP") seeks to stop citizens from exercising their political rights to participate in decision-making. In Malaysia, SLAPP is seen in the form of defamation cases used to silence environmental groups from speaking out.[81] SLAPP can be very effective in shutting down public participation as it is often very intimidating, expensive and overwhelming to defend against.

89. During the RTD, the inadequacy or lack of public participation in air quality governance as well as general environmental governance was highlighted repeatedly. Discussants cited examples where public consultation meetings were not inclusive, with only selected stakeholders being invited; and where exercises to obtain public feedback appeared to be performative. There is a need to address access to information and public participation in the preliminary stages of development planning to prevent haze pollution. For example, projects relating to infrastructure development, land conversion, deforestation and degazetting of forests require public input and feedback before commencement. An early engagement will allow for potential environmental impacts like haze pollution to be identified and addressed proactively. Public feedback on land use changes can reveal concerns about fire risks which may lead to greater mitigation measures.

Gaps in the Rules of Civil Procedure for Environmental Proceedings

90. During the RTD, President of the Malaysian Bar, Mr. AG Kalidas pointed out that the general civil procedure rules make it difficult to bring environmental cases to court. Besides the difficulties in establishing *locus standi*, there are also issues concerning admission of evidence and pre-emptive orders which do not meet the usual criteria for preventive injunctions.

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[79] Lee, P. (2015) Malaysia ranked near bottom of the class by environmental democracy watchdog, 20 May, https://www.thestar.com.my/news/nation/2015/05/20/malaysia-low-environmental-ranking/.

[80] Ketua Pengarah Jabatan Alam Sekitar & Anor v Kajing Tubek & Ors [1997] 3 MLJ 23.

[81] For example, 'Samling Urged to Withdraw RM5m Defamation Suit against Environmental Group' (The Edge Markets, 9 August 2021) https://www.theedgemarkets.com/article/samling-urged-withdraw-rm5m-defamation-suit-against-environmental-group.
Razak R, 'Report: Pahang Govt Sues Environmental Activist for Defamation over Logging Issue' (Malay Mail, 18 June 2022) https://www.malaymail.com/news/malaysia/2022/06/18/report-pahang-govt-sues-environmental-activist-for-defamation-over-logging-issue/12932.

91. By way of explanation, civil procedure rules are like guidelines for ensuring the fair and efficient resolution of disputes in courts (i.e., civil cases). The rules set out how cases are to be filed in court, the order in which documents are to be submitted, how evidence should be presented, and much more. The design of the systems established by these rules have a direct bearing on access to justice. Presently, the rules governing how civil cases are to proceed in civil courts are known as the Rules of Court 2012.

92. At the RTD, the former Chief Justice, Tun Richard Malanjum, emphasised on the pressing need for dedicated civil procedure rules for environmental proceedings which is a key component for improving access to justice. His successor, Tun Tengku Maimun Tuan Mat had also on various occasions reiterated the importance of specific procedural rules for environmental cases.

93. This was echoed by Mr. Roger Chan, chairperson of the Bar Council Environment & Climate Change Committee. Also, Prof. Dato' Aishah Bidin, Malaysian Representative to ASEAN Intergovernmental Commission of Human Rights ("AICHR"), highlighted obstacles to access to justice posed by *locus standi* requirements.

94. From the RTD, there is a consensus that access to justice must be improved to adequately utilise the civil justice system to uphold environmental justice. The current heavy reliance on the criminal justice system to manage all manner of environmental pollution has caused it to suffer under severe pressure. Recently, the Department of Environment stated that it requires an additional 3,000 enforcement personnel to address the number of pollution incidents in the country.[82]

95. A well-functioning judiciary is essential for achieving Goal 16,[83] which is about promoting peaceful and inclusive societies, providing access to justice for all and building effective, accountable and inclusive institutions at all levels. Specific environmental proceedings rules empower citizens and civil society groups to hold polluters accountable and ensure environmental rights are protected. With improved access to justice, more environmental cases can be heard and adjudicated justly, effectively and efficiently. This will enable the judiciary, a cornerstone of the separation of powers principle, to contribute to the meaning of sustainable development through case law, in a rights- and evidence-based approach.

Lack of a Holistic, Robust Air Quality Legal Framework

96. Malaysia's approach to managing air quality is by regulating industrial point sources and prescribed activities. This is mainly done through the Environmental Quality Act 1974 and the Environmental Quality (Clean Air) Regulations 2014.

97. While regulating point sources is important, this is only one piece of the puzzle. Malaysia's laws do not directly regulate ambient (outdoor) air quality. This is a fundamental gap in the protection of human health and the health of the natural environment.

98. The Department of Environment has produced the New Malaysia Ambient Air Quality Standard (in 2015), but this is only a policy guidance, and has no explicit relation to a legal basis. It has also developed the Clean Air Action Plan 2010, although that is only limited to activities within its own jurisdiction.

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[82] Bernama. (2023) DOE needs 3,000 additional enforcement personnel, *New Straits Times* https://www.nst.com.my/news/nation/2023/11/984972/doe-needs-3000-additional-enforcement-personnel.

[83] This is one of the 17 United Nations Sustainable Development Goals, discussed in more detail in the Conclusion below.

98.1 Ambient air quality is determined by the collective impact of various human activities. This ranges from industrial processes that emit pollutants to planning permissions that diminish the environment's ability to absorb pollutants.

98.2 As such, any endeavour to regulate for an ambient air quality standard must have the fully integrated and coordinated support and participation of all ministries, agencies and levels of government (federal, state and local governments).

98.3 Without a mandatory ambient air quality standard, public health would be deprioritised and would inevitably be eclipsed by economic developmental pressures.

99. It is useful to refer to the global study of national air quality legislations of countries around the world published by the United Nations Environment Programme in 2021 entitled "Regulating Air Quality: The First Global Assessment of Air Pollution Legislation".[84] Its assessment approach sets out the key features of a robust national air quality governance framework. Against this, one can observe the following main gaps in Malaysia's present air quality legal framework:

99.1 Malaysia lacks an explicit legal recognition of every person's right to clean air (or a safe, clean, healthy and sustainable environment for the matter).

99.2 Malaysia's laws do not explicitly make public and ecosystem health as their main objectives. Their contents too, do not correspond to these goals.

99.3 Malaysia does not have a legally binding and enforceable ambient air quality standard. The New Malaysia Ambient Air Quality Standard is only a policy guideline. There is no institutional responsibility for ambient air quality, nor a legal requirement on any government institution to develop plans to improve air quality.

99.4 Malaysia lacks citizen empowerment in air quality governance. While there have been significant improvements in public access to air quality levels, it is important for public knowledge about air quality to be facilitated by legal requirements of public access to air quality information, public participation in air quality governance, and, justiciable rights to clean air.

99.5 There is a lack of legal coordination of national laws and policies to achieve an ambient air quality standard that is compatible with human and ecosystem health.

99.6 Malaysia has no legal mechanism for managing or addressing transboundary air pollution.

99.7 The New Malaysia Ambient Air Quality Standard falls short of the values prescribed in the World Health Organisation's 2021 global air quality guidelines.[85] Malaysia's current permitted average pollutant concentrations remain far beyond the guidelines recommended by the World Health Organisation as can be seen below.

[84] United Nations Environment Programme. (2021) Regulating Air Quality: The first global assessment of air pollution legislation.

[85] World Health Organization. (2021) WHO Global Air Quality Guidelines, Particulate matter ($PM_{2.5}$ and PM_{10}), ozone, nitrogen dioxide, sulphur dioxide and carbon monoxide, Geneva.

Pollutant	Averaging Time	Malaysian Ambient Air Quality Standards (2020)	WHO, 2005 Guidelines	WHO, 2021 Guidelines
Fine Particles ($PM_{2.5}$)	24-hour	**35**	25	15
	Annual	**15**	10	5
Coarse Particles	24-hour	**100**	50	45
	Annual	**40**	20	15
Ozone (O_3)	1-hour	**180**	-	-
	8-hour	**100**	100	100
Nitrogen Dioxide (SO_2)	1-hour	**280**	200	200
	24-hour	**70**	-	25
	Annual	**-**	40	10
Sulfur Dioxide (SO_2)	24-hour	**80**	20	40
	1-hour	**250**	-	-

National Ambient Air Quality Standards ($\mu g/m^3$)[86]

100. Additionally, according to the report by CREA,[87] Malaysia's air quality standards are also not adequately institutionalised. Instead, they should be time-bound and enforceable, such as being embedded in primary air quality legislation. Such laws should also include consideration of the economic cost of inadequate air quality standards, as well as a clear timeframe and plan for implementation and enforcement.

101. Presently, there is also no requirement for interdisciplinary assessment and expert public health input in setting and updating existing air quality standards.[88] This should also be supplemented by a regular review process to update the standards in alignment with the latest scientific knowledge and global standards.

Gaps in Governance Against Transboundary Haze Pollution

Limitations of the ASEAN Transboundary Haze Pollution Agreement 2002

102. Under Article 3, Paragraph 3 of the ASEAN Transboundary Haze Pollution Agreement 2002 ("AATHP"), ASEAN Member States have the sovereign right to exploit their own resources but have the responsibility to "ensure that activities within their jurisdiction or control do not cause damage to the environment and harm to human health of other States or of areas beyond the limits of national jurisdiction." While it is significant that Article 3 provides for State responsibility to ensure that their activities do not cause transboundary pollution, the AATHP lacks the legally binding mechanism for Member States to hold each other to account on this responsibility.

[86] Supra, n 44, under 02 The State of Air Quality in Malaysia.
[87] Supra, n 44, under 05 Conclusions and Recommendations.
[88] Ibid

103. From the RTD, it is clear that transboundary haze pollution and the fires that cause them are not natural phenomena but a largely manmade problem. In Part B, it is established that a series of factors come together to heighten the risk of fires: land use change, conflicts in land ownership, weakening of peatland ecosystems, data challenges, withholding of mapping information, corporate masks, state-corporate patronage networks and vested interests. The AATHP does not address most of these factors. The AATHP almost exclusively focusses on preventing land and/or forest fires and managing their impact,[89] with collaboration among Member States focussed on sharing of information regarding hotspots and fire-fighting resources.[90]

104. Member States should also "support scientific and technical research programmes" related to the root causes and consequences of transboundary haze pollution.[91] However, this has not been operationalised beyond basic knowledge-sharing.[92] The AATHP framework negotiations also failed to incorporate scientific findings into their substantive discussions.

105. Despite its legally binding status, the AATHP was watered down during the negotiation process, with no enforcement or dispute resolution mechanisms.[93]

106. On February 2021, the ASEAN Secretariat published the Roadmap on ASEAN Cooperation towards Transboundary Haze Pollution Control with Means of Implementation. However, it failed due to lack of ground truthing actions to ensure sustainable forest and peatland management in Sumatera and Kalimantan. Furthermore, ASEAN was unable to progress with the establishment of the ASEAN Coordinating Center on Transboundary Haze Pollution since 2015, illustrating a lack of cooperative will from all parties.

107. The AATHP does not clarify the roles played by external parties in the execution of rulemaking and dispute resolution mechanisms. It only explains the roles in joint emergency response, technical cooperation, and scientific research.[94]

108. The imprecise language used in its key provisions make the AATHP susceptible to different interpretations by different State Parties.[95] This has led to interpretations of provisions that minimise State obligations, defeating their original intent. For example, "appropriate measures" allows State Parties to exercise their own discretion, which may vary according to state interests.

No Domestic Legislation to Address Transboundary Pollution

109. Prof. Dato' Aishah Bidin observed that the existing provisions addressing air pollution relating to haze may be considered sufficient within the domestic legal context. However, they are inadequate in providing the required complementary measures to effectively enforce prohibitions that control air pollution as haze pollution is generally a transboundary issue; there are no specific extraterritorial provisions in Malaysian law for transboundary

[89] Articles 5 to 11, AATHP.
[90] Articles 12 to 16, AATHP.
[91] Article 17, AATHP.
[92] Murulitharan, J. & Ashfold, M. (2021) Depoliticising Southeast Asia's Forest Fire Pollution, *East Asia Forum,* 17 August, https://www.eastasiaforum.org/2021/08/17/depoliticising-southeast-asias-forest-fire-pollution/.
[93] Nguitragool, P. (2011) Negotiating the Haze Treaty. *Asian Survey, 51(2),* pp. 356-378.
[94] Fikri, M. (2022) Environmental agreement under the non-interference principle: the case of ASEAN agreement on transboundary haze pollution, *International Environmental Agreements 22*, pp. 139–155, https://doi.org/10.1007/s10784-021-09545-4.
[95] Jones, D. S. (2006) ASEAN and transboundary haze pollution in Southeast Asia, *AEJ 4, 431–446*, pp. 439, DOI: 10.1007/s10308-006-0067-1.

pollution in general. The lack of extraterritorial laws relating to pollution have prohibited Malaysian courts to hold Malaysian companies abroad to account.

110. Additionally, Mr. AG Kalidas, when observing that the main body of environmental laws are dated and fragmented, highlighted that there is no practical redress or effective access to justice for harms suffered from transboundary haze. The lack of enabling substantive law coupled with the lack of dedicated rules of court for environmental proceedings have ensured that no litigation or prosecution have been brought in Malaysia for transboundary haze pollution, even though the right to clean air has been impinged upon at a nation- and region-wide scale.

111. Mr. Kiu Jia Yaw, co-deputy chair of the Bar Council Environment & Climate Change Committee observed that Malaysian authorities are not vested with express mandate to investigate, prosecute or try Malaysian transnational corporations that have been linked to transboundary haze pollution, while Malaysian citizens encounter too much friction in the legal system to bring civil claims against Malaysian transnational corporations. This results in there being no meaningful access to justice.

112. Following the severe haze events in 2013 and 2019, the Malaysian government began to review the need for a domestic law against transboundary haze pollution. On 21 February 2020, the Pakatan Harapan government announced its decision to enact a domestic legislation that would empower the government to take action against Malaysian businesses operating overseas that cause transboundary haze pollution.[96] The Pakatan Harapan collapsed later that month following a defection by a group of Members of Parliament. The newly formed Perikatan Nasional government subsequently shelved the tabling of the legislation.[97]

113. For comparison, Singapore enacted its Transboundary Haze Pollution Act in 2014 which makes it an offence "to engage in or condone a conduct which causes or contributes to any haze pollution in Singapore". The law empowers Singaporean regulators to prosecute any company or individual responsible for causing transboundary haze pollution in Singapore.[98] However, this legislation has been criticised as ineffective.[99] Without legal integration with neighbouring countries, particularly Indonesia, proper implementation of the law was not possible without the cooperation of Indonesian authorities. Indonesia claimed that the law was a violation of their sovereignty by rejecting Singapore's request for information contained in notices issues under the law.[100]

114. Interestingly, Mr. Kiu Jia Yaw pointed out that Article 4, Paragraph 3 of the AATHP sets out an obligation upon Member States to adopt legislative measures to implement their obligations under the AATHP. He argues that this can be interpreted to include enacting a domestic transboundary haze pollution legislation.

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[96] Press release of the then Ministry of Energy, Science, Technology, Environment and Climate Change.
[97] Tabling of Transboundary Haze Act shelved, *New Straits Times*, 3 August 2020.
[98] World Resources Institute. (2014) STATEMENT: Singapore's New Haze Pollution Law "a New Way of Doing Business" https://www.wri.org/news/statement-singapores-new-haze-pollution-law-new-way-doing-business.
[99] Taylor, M. (2020) Malaysia walks away from law to tackle firms over forest fires, Reuters, 17th August, https://www.reuters.com/article/us-malaysia-wildfire-environment-politic-idUSKCN2531FK.
[100] Ng, K. (2017) Transboundary Haze Pollution in Southeast Asia: The Effectiveness of Three Forms of International Legal Solutions, *XJEAIL 1*, p. 239, http://dx.doi.org/10.14330/jeail.2017.10.1.11.

Overdue National Action Plan on Business and Human Rights

115. In 2011, the United Nations published the Guiding Principles on Business and Human Rights ("UNGP").[101] It is a set of principles developed to promote responsible business conduct and address human rights abuses that might occur in business operations or global supply chains. Consisting of three core pillars, the first pillar provides that States have existing obligations to respect, protect and fulfil human rights and fundamental freedoms. Secondly, business enterprises play an important role in complying with applicable laws and respecting human rights. And the third pillar states that rights and obligations need to be matched with appropriate and effective remedies when breached.

116. These principles are to be applied regardless of size, sector, location, ownership, and structure of the business. While not legally binding, the UNGP sets out corporate responsibility to uphold and respect human rights, which include the right to a clean, healthy, and sustainable environment. As highlighted in the previous section on the causes of haze, large corporations are able to escape liability using corporate masks. Moreover, the situation is also complex for small businesses as they may not have the resources to meet these human rights obligations. With improved Business and Human Rights ("BHR") considerations, corporate accountability would be improved to address haze pollution.

117. To implement the UNGPs, the UN Working Group on BHR has urged countries to develop national action plans on BHR.[102] The Malaysian government has committed to developing a National Action Plan on Business and Human Rights ("NAPBHR") with the cabinet giving its approval on 6 December 2019.[103] The Legal Affairs Division of the Prime Minister's Department (*Bahagian Hal Ehwal Undang-undang*) ("BHEUU") has been given the mandate to lead the effort, in collaboration with SUHAKAM and the UN Development Programme. The aim is to establish a framework to implement BHR, through an inclusive and participatory process, ensuring that businesses in Malaysia respect human rights throughout their operations. This would include aspects such as labour rights (e.g., provision of fair wages and safe working environments) and environmental rights (e.g., minimising pollution and responsible waste management).

118. The NAPBHR was expected to be completed by 2021.[104] However, progress has been slow.[105] It is crucial to accelerate the development and subsequent implementation of the NAPBHR to address Malaysia's actual and potential human rights violations.

119. The NAPBHR, when completed, will be able to play a significant role in mainstreaming human rights amidst the increasing importance of Environmental, Social, and Governance ("ESG") in corporate Malaysia. A well-defined NAPBHR can provide a clear roadmap for companies seeking to integrate human rights considerations into their decision-making processes, risk management strategies, supply chain management, and overall operations.

120. The current ESG landscape in Malaysia is being shaped by a multitude of actors. They range from the Ministry of International Trade and Industry to regulators such as Bank Negara Malaysia, Bursa Malaysia, and Securities Commission Malaysia, as well as a myriad of stakeholders such as certification bodies and business chambers. The vast differences in size, sectors, markets, and supply chains can lead to confusion about implementation for smaller

[101] United Nations Guiding Principles on Business and Human Rights HR/PUB/11/04.
[102] OHCHR. (2016) National action plans on business and human rights. https://www.ohchr.org/en/special-procedures/wg-business/national-action-plans-business-and-human-rights.
[103] Legal Affairs Division, Prime Minister's Department. https://www.bheuu.gov.my/pdf/bhr.pdf.
[104] Ibid
[105] BHEUU has partly attributed the delay to the Covid-19 pandemic. Jacob, K. (2023) Labour: Waiting for the Business and Human Rights Action Plan, *The Edge Malaysia,* https://theedgemalaysia.com/node/695030.

businesses. As such, a clear and coherent NAPBHR will be essential to ensure all businesses integrate a rights-based approach into their operations and supply chains.

121. Relating to the problem of haze pollution, the NAPBHR will be crucial for the adoption of sustainable land management practices that minimise deforestation and promote more responsible usage of land. More importantly, BHR principles can be implemented to increase transparency of supply chains to promote accountability. The NAPBHR could require companies to disclose their sourcing practices and ensure traceability throughout their supply chains. This would allow the public and the government to hold companies accountable through avenues such as bringing polluting companies to court.

Conclusion

122. A key takeaway from the RTD is that air pollution cannot be addressed in isolation. It cannot be the responsibility of one ministry nor addressed from a mono-disciplinary lens. Neither can air quality be improved and protected by changes in the legal system alone. From a national and regional perspective, the right to clean air can only be protected through an integrated, all-of-government and all-of-society approach to development. In other words, sustainable development.

123. The United Nations Sustainable Development Goals ("SDG") are a shared blueprint to achieve a better and more sustainable future for all by 2030. Malaysia, together with almost all other UN member states have committed to this agenda. The SDG framework is essential for integrating multiple policy objectives such as building economic growth while tackling air pollution, climate change and strengthening environmental governance.[106]

124. There are 17 goals and 169 targets. Specifically applicable to haze pollution, Target 3.9 seeks to "substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination". As these policies are closely linked to energy, climate change, transport, trade, agriculture, biodiversity and other issues, there is a need to consider other SDGs.

    124.1 For example, Goal 13 is on urgent action to combat climate change and its impacts. There are close interlinkages between haze pollution and climate change, especially since both are serious environmental issues that affect public health and well-being. Government policy interventions for haze pollution need to be considered together with climate mitigation.

    124.2 Goal 16 concerns access to justice and having effective, accountable and inclusive institutions. In particular, Target 16.7 seeks to ensure responsive, inclusive and representative decision-making. This highlights the need for local communities to be involved in development projects, including land-use changes for plantations. The government and businesses are advised to establish mechanisms which facilitate this process, such as through the meaningful application of the Environmental and Social Impact Assessments. Local communities must be given the opportunity to be heard.

    124.3 Target 16.a aims to ensure public access to information and protection of fundamental freedoms. Reiterating the need to ensure access to data and transparency of businesses, there is also the need to enhance the right to information relating to environmental concerns, apart from air quality. This can be realised by mandating corporate ESG reporting and human rights due diligence exercises. Such

[106] Rafaj, P., Kiesewetter, G., Gül, T. et al. (2018) Outlook for clean air in the context of sustainable development goals, *Global Environmental Change, Volume 53*, pp. 1-11, https://doi.org/10.1016/j.gloenvcha.2018.08.008.

data should then be made accessible to all government agencies, academic institutions and the public.

124.4 Further, Target 17.17 encourages effective partnerships between public-private and civil society. It has been recognised that the different sectors of society have different experiences and resources that should be synergised to tackle the haze pollution problem. In particular, the importance and role of civil society must be recognised as they provide grassroots perspectives that is often lacking in policy-level decision-making.

124.5 Lastly, Target 17.19 encourages the measurement of a country's development beyond using gross domestic product ("GDP") alone. Going "beyond GDP" can have a profound impact on haze pollution which stems from a systemic prioritisation of economic wealth before the health of people and the planet. Embracing aspects such as health, biodiversity, access to education and livelihoods in measuring progress will profoundly improve the formulation of laws and policies.

Part E: Recommendations

Introduction

125. From the rich discussions and insights gathered in the course of the RTD, as well as a desk review of the literature and developments that has taken place since, key gaps in Malaysia's legal system are evident, as set out in Part D.

126. In an attempt to address them, SUHAKAM proposes the following recommendations.

Recommendation 1: Amend the Federal Constitution to expressly recognise the right to a safe, clean, healthy and sustainable environment

127. SUHAKAM urges the Malaysian government to amend the Federal Constitution to expressly recognise every person's right to a safe, clean, healthy and sustainable environment.

128. Further, the amendment should require that Malaysia's natural resources and heritage be managed on the basis of comprehensive long-term considerations which will safeguard this right for future generations as well.

129. The amendment should also require that, in order to safeguard the aforesaid right, the public should have access to information on the state of the environment and on the effects of any encroachment on nature that is planned or carried out.

130. In July 2022, Malaysia has voted in favour of the United Nations General Assembly resolution which declared access to a healthy environment as a universal human right.[107] The resolution calls upon states, international organisations, and business enterprises to scale up efforts to ensure a healthy environment for all. The Malaysian government should urgently follow through to expressly enshrine this right in the Federal Constitution as a fundamental liberty.

131. Such a constitutional amendment will provide the normative foundation for the interpretation of all present and future legislation, regulations and policies, thereby:

    131.1 elevating environmental considerations from the realm of discretion to one of legal duty across all government bodies and public institutions, at all levels, as well as across the federal and state government dichotomy;

    131.2 improving the alignment of Malaysia's legal system with sustainable development; and

    131.3 enabling Malaysia's efforts against climate change and a just transition from fossil fuels and other practices that contribute to climate change.

[107] United Nations General Assembly (UNGA) Resolution - The Right to A Clean, Healthy and Sustainable Environment (2022) UN Doc A/76/L.75.

Recommendation 2: Amend the Rules of Court 2012 to improve access to environmental justice

132. SUHAKAM recommends that the Rules Committee, consisting of the Attorney General's Chambers, Judiciary, Malaysian Bar, Sabah Law Society and Advocates Association of Sarawak, urgently amend the Rules of Court 2012 ("Rules") to include specific rules of civil procedure for environmental proceedings in order to improve access to justice.

133. Just as the Rules have specific provisions to facilitate arbitration proceedings, admiralty cases, probate proceedings and more, the Rules should have specific provisions to cater for, and facilitate, civil cases that involve environmental rights and interests.[108]

134. The amendments should comprehensively address issues relating to *locus standi* and parties, admissibility of evidence, applications for pre-emptive and interim reliefs, addressing strategic litigation against public participation,[109] provide for the involvement of experts and costs.

Recommendation 3: Enact a Clean Air Act for Malaysia

135. SUHAKAM urges the Malaysian government to enact a holistic framework legislation for clean air in Malaysia.

136. This clean air legislation should have the following:

    136.1 an explicit overarching purpose of protecting public health and ecosystem health, thereby protecting every person's right to safe and clean air;

    136.2 a mandatory ambient air quality standard. This should be aligned with international standards and the World Health Organisation air quality guidelines. The legislation should set out interim targets to guide reduction efforts towards the timely achievement of "safe levels of exposure" to air pollution;

    136.3 the establishment of a national clean air administration structure chaired by the Prime Minister, with the Ministry of Natural Resources and Environmental Sustainability leading the steering committee, and all other relevant ministries[110] organised into appropriate technical committees, including a technical committee for civil society and other stakeholders;

    136.4 legal mechanisms that facilitate:

        136.4.1 public access to air quality information;

        136.4.2 public participation in air quality governance; and

        136.4.3 justiciable rights to clean air;

[108] Other jurisdictions that have specific environmental proceedings rules include the Philippines, Colombia and India.
[109] Such cases are often referred to as SLAPP suits. These are lawsuits that are brought to censor, intimidate or silence public interest groups so that they abandon their criticism, opposition or environmental proceedings.
[110] This should include all ministries whose jurisdiction involve activities and/or policies that will affect air quality, such as the Ministries of Agriculture and Food Security, Energy Transition and Water Transformation, Entrepreneurship Development and Co-operatives, Education, Finance, Foreign Affairs, Health, Home Affairs, Housing and Local Government, Human Resources, Investment, Trade and Industry, Plantation and Commodities, Rural and Regional Development, Science, Technology and Innovation, Tourism, Arts and Culture, Transport, Women, Family and Community Development, and Works.

136.5 a section that specifically addresses transboundary air pollution that:

136.5.1 empowers and requires the government to hold citizens and businesses domiciled in Malaysia that contribute to transboundary air pollution to account, through the Malaysian criminal and civil justice systems;

136.5.2 empowers private persons and civil society groups to hold such citizens and businesses to account through the Malaysian civil justice system;

136.5.3 empowers and requires government agencies to:

(a) requisition relevant information[111] from such citizens and businesses;

(b) provide appropriate access to such information to stakeholders, civil society groups and members of the public in a meaningful way that would help achieve the purpose of protecting public health and ecosystem health;

(c) if requested, provide appropriate access to such information to ASEAN Member States;

136.6 express recognition of the universal right to a safe, clean, healthy and sustainable environment, polluter pays principle, no-harm principle and precautionary principle; and

136.7 reflect the UN Guiding Principles on Business and Human Rights.

Recommendation 4: Improve the AATHP to strengthen the rule of law in ASEAN

137. SUHAKAM recommends that the Malaysian government take the lead at the ASEAN level to propose the development of a protocol to the AATHP to establish a legally binding commitment by each Member State to enact domestic legislation[112] to hold to account its citizens and corporations domiciled in its own jurisdiction for their contribution to land and/or forest fires in other Member States.

138. Such domestic legislation must:

138.1 empower domestic law enforcement agencies and institutions to investigate and prosecute for extra-territorial wrongdoings related to land and/or forest fires;

138.2 empower domestic law enforcement agencies and institutions to requisition the disclosure of information regarding extra-territorial business operations, practices and activities in other Member States, including that of subsidiaries and entities that are directly or indirectly controlled; and

138.3 facilitate Member States in the sharing of information regarding transnational business operations, practices and activities.

139. The protocol will explicitly state its objectives as:

139.1 protecting every ASEAN citizen's right to a safe, clean, healthy and sustainable environment, including the right to clean air;

[111] These should include details of business operations overseas, ownership and control in foreign entities, supply chains, and must extend to the factors that contribute to fires and haze pollution identified in Part B above.
[112] And where there are existing legislation that may be utilised, to amend them accordingly.

139.2 enhancing the availability of information, access to information and public participation;

139.3 strengthening the application of the rule of law, particularly on transnational businesses.

140. In practice, the protocol will only be effective when all Member States have enacted their own domestic legislation that contain the foregoing mechanisms. Hence, the protocol must set out a time frame for all Member States to comply with this commitment.

141. While the protocol has to be framed around the mischief of land and/or forest fires (because it is only an extension of the AATHP), Member States should be encouraged to broaden their domestic legislation to apply to all types of pollution, environmental harms and human rights infringement.

Recommendation 5: Accelerate the Development of the National Action Plan on Business and Human Rights

142. SUHAKAM urges the Malaysian government to prioritise and accelerate the development of Malaysia's National Action Plan on Business and Human Rights ("NAPBHR").

143. SUHAKAM reiterates its commitment to work closely with the Malaysian government and other collaborators in this effort.

144. For the development of a robust NAPBHR, it is crucial to not only accelerate efforts but also prioritise an inclusive and participatory process.

Recommendation 6: Accelerate the implementation of the Sustainable Development Goals

145. SUHAKAM urges the Malaysian government to accelerate the implementation of the SDGs, especially through institutional transformations across all levels of government to ensure inclusive participation of all stakeholders.