# POLICY BRIEF: PROMOTING PROGRESS ON METHANE EMISSIONS REDUCTIONS IN MALAYSIA

## KEY RECOMMENDATIONS

1. **Government to clearly articulate a national direction on methane action.**
2. **Corporates to improve quantification and transparency of methane emissions, thereby demonstrating progress and supporting national commitments.**
3. **Civil society organisations to highlight the strong co-benefits to air quality and health that arise from action on methane.**

## CONTEXT

**The importance of methane emissions reductions:** Methane is gaining increasing attention as a significant shorter-term driver of global warming. Although current atmospheric methane levels are around 200 times smaller than that of carbon dioxide ($CO_2$), each unit of methane causes around 80 times more warming than $CO_2$ over 20 years.[1] As a result, methane emissions make the second largest contribution to global warming after $CO_2$ **(Figure 1)**. However, methane's significance is not always recognized widely or made explicit. Information is often unclear, presented in piecemeal, or through the potentially confusing lens of "$CO_2$ equivalence".

Methane emission reductions have been highlighted as a low-hanging fruit, often achievable with existing technology and at relatively low cost.[2,3] Reducing other emissions in the government and corporations through net zero pathways may be more challenging. Therefore, decisive methane action is needed even while plans for these further crucial emission reductions are developed and articulated in more detail.

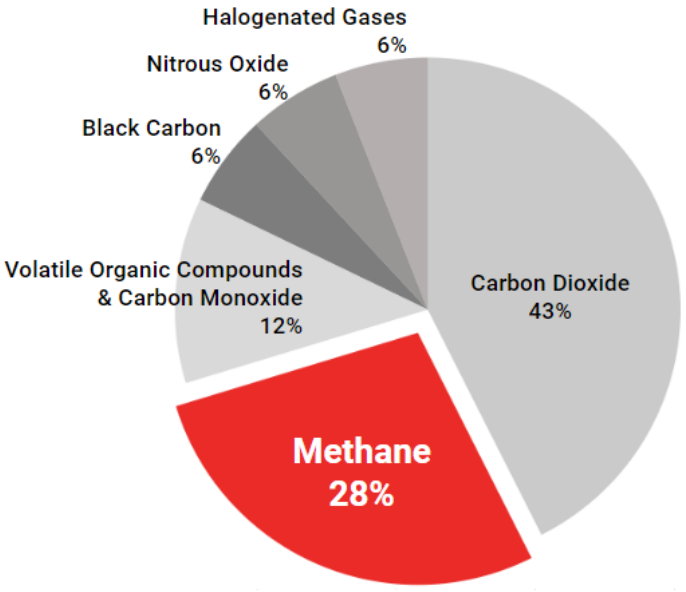


*Figure 1: Emissions contributions to 2010-2019 gross warming relative to 1850-1900.[5,6]*

**Malaysia signs the Global Methane Pledge (GMP):** To this end, the GMP was launched at the 2021 United Nations Climate Change Conference (COP26). While not legally binding, it includes the headline target to reduce global anthropogenic methane emissions by at least 30% by 2030, relative to 2020 levels **(Figure 2)**. Among other commitments, participants in the GMP:

***"Commit to take comprehensive domestic actions to achieve that target, focusing on standards to achieve all feasible reductions in the energy and waste sectors and seeking abatement of agricultural emissions through technology innovation as well as incentives and partnerships with farmers."*** [4]

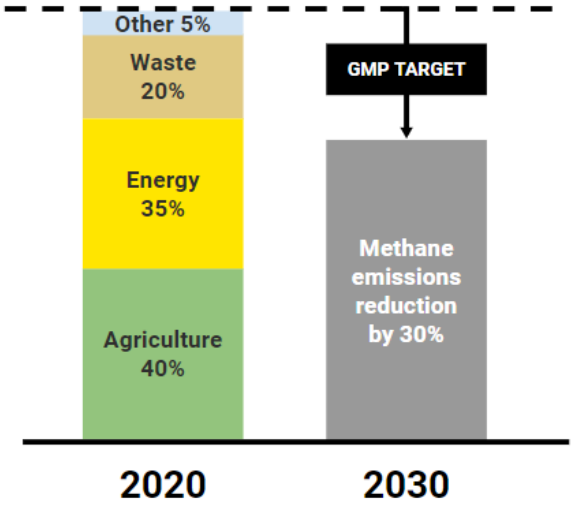


*Figure 2: Global anthropogenic emissions by sector in 2020, and reduced emissions in 2030 if the GMP target is met.[4]*

Malaysia signed the GMP in November 2021 along with around 100 other countries. Since signing nearly two years ago, the implications for action on methane emissions in Malaysia remain unclear. There has not yet been any demonstrable government initiative focusing on coordinated methane action.

**Malaysia's current methane emissions:** Malaysia's reported methane emissions **(Figure 3)** largely arise from the oil and gas (O&G) and palm oil (through mill effluent, a form of wastewater) sectors, and from solid waste (landfill sites).

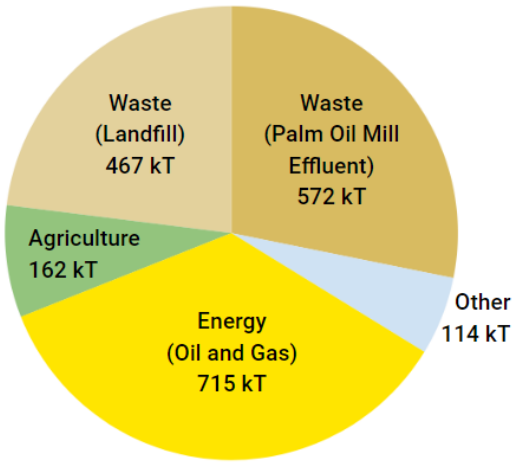


*Figure 3: Malaysia's reported methane-emitting sectors in 2019.*[7]

Action to reduce methane emissions in the O&G and palm oil sectors, which are economically crucial for Malaysia, is central to the sustainable development of both industries and presents a valuable opportunity to contribute to global climate mitigation within long-term governmental interests. Action on emissions from the solid waste sector would also be needed for a truly comprehensive national approach.

## OUR RESEARCH PROJECT

Our project, conducted since July 2022, assesses the status of, and prospects for, action on methane emissions in Malaysia through:

1. Literature review of publicly available information and data from peer-reviewed journal articles, government, scientific, and corporation publications.
2. A representative national public survey receiving 427 questionnaire responses in April-May 2023.
3. Two multi-stakeholder focus group discussions in August 2023 with representatives from government, corporations, certification bodies, embassies, international bodies and civil society.

In addition to the summary findings and policy recommendations presented here, we have published a longer policy paper focussed on the O&G and palm oil sectors, and an infosheet on the solid waste sector. Scan the QR code for more details.

## OUR RESEARCH FINDINGS

- Having signed the GMP, the government is aware that methane is an important consideration for climate change mitigation at the national level. However, the operationalisation of methane abatement as part of Malaysia's national climate commitments is still at its early stages.

***"... we recognise the importance of managing methane emissions as a highly potent greenhouse gas and have committed to join the global methane pledge to cut emissions by 30% by 2030, compared to 2020 levels"*** [8]

**- Datuk Seri Anwar Ibrahim, the 10th Prime Minister of Malaysia**

- Leading players in the methane-intensive O&G and palm oil sectors have already committed to net zero pathways, with methane emission reductions central to short-term progress to 2030. This is in line with the availability of established processes and technologies to tackle emissions, such as controls on methane "venting" in the O&G sector, and methane capture infrastructure in palm oil mills. Progress also aligns with global initiatives reflecting expectations for sustainability transitions, like the Methane Guiding Principles, Oil and Gas Methane Partnership (OGMP) 2.0, and the Science-Based Targets initiative. Much progress predates the GMP, and through such efforts, Malaysia's methane emissions may already have peaked. However, we emphasise (in **Recommendation 2** and **Box 2**) the importance of reducing the currently large uncertainties in emissions data.

- There is generally low awareness among the Malaysian public of methane's potency as a greenhouse gas (GHG). **More than half of our national survey respondents (58%) were unaware of methane in the context of climate change.** Moreover, public awareness on the high methane-emitting sectors in Malaysia is also lacking. **In our survey, electricity generation was incorrectly thought to emit more methane in comparison to the leaks occurring along the O&G supply chain.**

# POLICY RECOMMENDATIONS

While signing up to the GMP is an important step, more must be done for Malaysia to demonstrably fulfil the commitments associated with the pledge.

***RECOMMENDATION 1: The government to clearly articulate a national direction for methane action***

The Malaysian government does not have a methane strategy or policy. Sector-specific regulations focusing on methane emissions are either not present, vague, or not publicly accessible. Corporations need clear directives from the government on standards, technology innovation, incentives, and partnerships to achieve methane abatement targets in line with the GMP. Hence, it is important for the government to clearly articulate a direction on methane action. Examples exist in other emerging and developing countries **(Box 1)**, and a comprehensive methane abatement handbook for policymakers published recently by the US Department of Commerce also offers insights to reinforce sector-specific directives.[9]

**Box 1: Insights on methane policy directions in developing countries**

*Methane governance in national climate frameworks*

In 2022 Mexico amended its General Law of Climate Change 2012 and Special Program on Climate Change 2021-2024 to include methane governance.

Bangladesh has incorporated methane governance into its National Action Plan for Reducing Short-Lived Climate Pollutants.

After signing the Global Methane Pledge, Vietnam declared its Methane Action Plan 2030 with specific methane reduction targets for 2025 and 2030.

*Sector-specific methane emissions guidelines in the public domain*

The Nigerian Upstream Regulatory Petroleum Commission established the Guidelines for Management of Fugitive Methane and Greenhouse Gases Emissions in the Upstream Oil and Gas Operations in Nigeria in 2022.

Colombia began to regulate methane-emitting activities in their O&G sector, by empowering its National Hydrocarbons Agency through the Ministry of Mines and Energy Resolution 40066/2022.

● An alternative to a separate, specific methane policy is to streamline methane governance within the national climate framework. This is an opportune time to do so as the Malaysian National Policy on Climate Change 2009 is currently being reviewed and the Climate Change Act is being developed.

● Broader energy and waste policy and sector-specific methane emission guidelines should be crafted with the GMP goals in mind. Regulatory agencies like Petronas' Malaysian Petroleum Management (MPM) and the Malaysian Palm Oil Certification Council oversee environmental and sustainability standards for their respective sectors. There have been improvements specifically related to methane emissions. MPM has updated their Minimum Environmental Standard to require all O&G upstream operators to quantify methane emissions in line with the OGMP 2.0 Framework, and the Malaysian Palm Oil Board has mandated new and expanding palm oil mills to install methane capture infrastructure. However, in these cases, further details on the requirements and effectiveness of the regulations are not yet publicly available, and there remains no link to an overall government direction and sectoral expectation in line with the GMP.

***RECOMMENDATION 2: Corporations to improve quantification and transparency of methane emissions, thereby demonstrating progress and supporting governmental commitments***

Most of Malaysia's methane emissions, particularly in the O&G and palm oil sectors, arise from activities in corporations. Indeed, GMP signatories…

***"Welcome and encourage announcements of further parallel specific … commitments taken by the private sector".***

Further corporation improvements in quantification approaches and in the transparency of emissions data will be important to demonstrate progress at the corporation level, and has great potential to support Malaysia's climate commitments.

● Available information indicates Malaysia's methane emissions may have peaked and started to decline. However, quantifying progress on emissions reductions with confidence remains challenging. Different reporting approaches, and incomplete information on the assumptions and uncertainties in quantification approaches, hinder independent analyses of emissions reported by both the government and corporations. At present, the Malaysian government and its corporations may be missing an opportunity to gain recognition for actively reducing methane reduction due to lack of transparent, comprehensive and coherent reporting. Wider deployment of measurement-based emission quantification is a key option to promote transparency and to improve confidence in progress **(Box 2)**.

● More transparent corporation reporting and measurement-based emission quantification can lead

to benefits beyond demonstrating progress. Transparent sharing of usable operational data between corporations and the government can support the "continuous improvement" of the national emissions inventory expected of GMP participants. Transparency over emissions data from leading corporations already committed to global monitoring, reporting and verification (MRV) initiatives can also encourage the adoption of best practices on methane in the wider sector, helping to realise the potential for rapid emission reductions if abatement actions can be scaled industry-wide. There are also opportunities for within- and cross-sector sharing and national growth of technical expertise **(Box 2)**.

**Box 2: Insights on methane emissions from atmospheric measurements**

Atmospheric methane measurements, collected from ground-based, airborne, and remote-sensing platforms, support independent "top-down" approaches that can validate emissions reported in "bottom-up" national inventories which are typically based on activity statistics and assumed emissions factors.

**While "top-down" measurement-based estimates have not yet been demonstrated in Malaysia, worldwide evidence suggests frequent discrepancies with the "bottom-up" approach.** For instance, aircraft and satellite measurements in Mexico indicated substantial different O&G sector methane emissions than those reported in the national inventory.[10,11]

Similarly, **measurements have also highlighted the importance of intermittent "super-emitter" events that are not accounted for in bottom-up estimates,**[12] and have been used to assess whether actions to reduce methane emissions are working as expected.[13]

While MRV regimes vary, challenges to deploy measurement-based quantification may be more general, with opportunities for international and cross-sector capacity exchanges. All sectors need to identify true emission sources and demonstrate the effectiveness of abatement measures, and can contribute coherently to tracking national progress.

***RECOMMENDATION 3: CSOs to highlight the strong co-benefits to air quality and health that arise from action on methane***

- Public awareness on methane as a specific GHG in Malaysia is low, though general awareness on climate change is high. SDG 17 on Peace, Justice, and Strong Institutions highlights the importance of public participation in the operationalisation of global initiatives like the GMP, as an important motivator for government and corporation action. To increase public concern and participation towards the GMP goals, CSOs should highlight the strong air quality and health co-benefits arising from methane action **(Box 3)**.

- Current policy and governance processes often treat climate and air quality as separate issues, which risks missing opportunities to advance a more coordinated sustainable development **(Box 3)**. The Global Climate and Health Alliance recently reported over two-thirds of countries, including Malaysia, fall short of integrating the health benefits of cleaner air within climate actions reported in Nationally Determined Contributions.[14] Therefore, a more integrated view of decision-making on methane (and broader climate) action, for example, including costs and benefits related to air quality impacts on health, can potentially lead to a stronger economic case for implementing emission abatement measures. Such cases can also emphasise significant, tangible health benefits felt locally, and in the near term.

**Box 3: Insights on co-benefits of methane abatement to climate and health**

Anthropogenic methane sources often also produce health-damaging air pollutants, including particulate matter. Methane also harms human health by contributing to the formation of tropospheric ozone, which causes ~500,000 premature deaths worldwide annually. Global action aligned to the GMP could potentially halve this impact, demonstrating that GHG reductions also result in air quality and health co-benefits.[15]

Also relevant to climate action in Malaysia, substantial air quality and health benefits are expected in transitioning from polluting coal-fired electricity towards renewables,[16,17] and in reducing regional peat fires that cause "haze" air pollution.[18,19] Coal recently made the largest contribution to electricity generation,[20] and to the reported GHG emissions in Malaysia.[7] Meanwhile, peat fires are among the largest contributors to Indonesia's reported GHG emissions in severe "haze" years such as 2006, 2015 and 2019.[21]

- Resources exist to support CSOs working in this area. Worldwide there are examples of moves to integrate methane into air quality regulations.[22] International bodies such as the Climate and Clean Air Coalition (CCAC), which is mentioned in the text of the GMP, are working to connect climate and clean air action. The CCAC includes non-state actors in its partnership, generates policy-relevant evidence,[23] and provides funding opportunities. Additionally, tools developed internationally to support more coordinated assessments of climate and air quality policy co-benefits are increasingly available.[24,25]

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