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Landscape of Methane Abatement Finance 2023

Supported by:



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Related CPI works:

[The Landscape of Methane Abatement Finance \(2022\)](#)

[Global Landscape of Climate Finance \(2023\)](#)

[Landscape of Climate Finance for Agrifood Systems \(2023\)](#)

[Global Landscape of Climate Finance: A Decade of Data \(2022\)](#)

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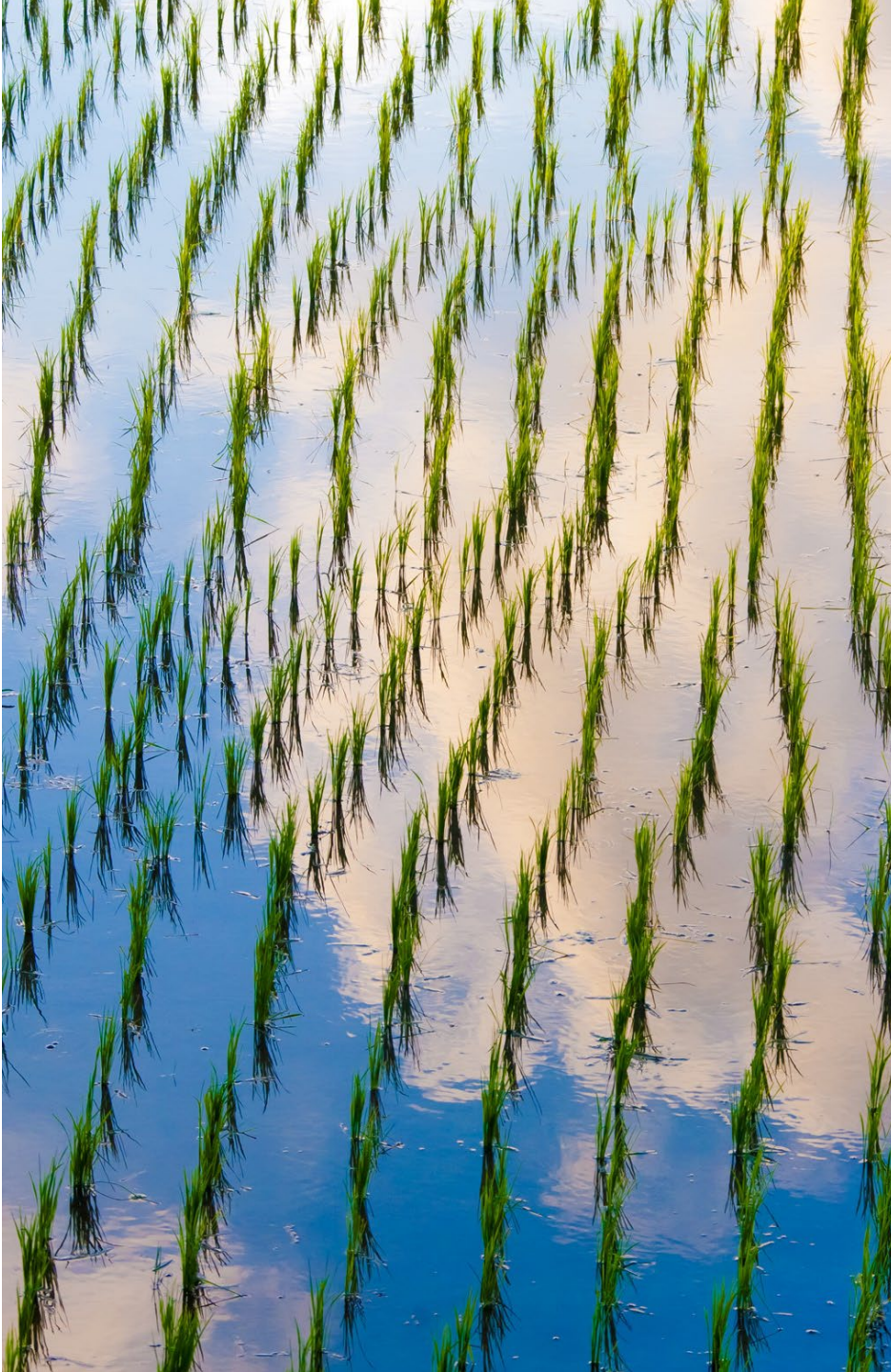


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1. Key Findings

Why does methane abatement matter?

Methane (CH₄) mitigation can yield significant short-term temperature reductions, and at significantly lower costs (UNEP and CCAC, 2022). Methane is a key driver of near-term global warming, with a 20-year warming power more than 80 times greater than that of CO₂ (Forster et al., 2021).

Atmospheric methane concentration is increasing rapidly, with levels now 2.5 times higher than in the pre-industrial era (IEA, 2023). Human-driven methane emissions account for nearly 45% of current net warming, threatening the goals of the Paris Agreement (IPCC, 2023). Methane emissions experienced record growth in 2020 and 2021. Despite the Global Methane Pledge in 2021,* they increased by a further 14 parts per billion (ppb) in 2022, marking the fourth-largest annual rise since systematic measurement began in 1983 (NOAA, 2023).

Three sectors account for 95% of human-caused emissions: AFOLU (agriculture, forestry and other land use) (40%); fossil fuels (35%), encompassing coal, oil, and natural gas; and waste (20%), including both solid waste, and wastewater (UNEP and CCAC, 2021).

The benefits of methane emissions reduction are multifold:

- Methane emissions from the fossil fuel industry provide an especially promising and immediate opportunity for climate action, with recognized and cost-effective reduction strategies, irrespective of gas value (IEA 2023; OGCI, 2023).
- Swift and targeted abatement in this sector by 2050 could prevent nearly 1 million premature deaths from ozone exposure (a hazardous air pollutant), avoid 90 million tonnes of crop losses due to ozone and climate changes, and reduce about 85 billion hours of lost labor due to heat exposure, providing approximately USD 260 billion in direct economic benefits (IEA, UNEP & CCAC, 2023).
- Beyond this, capturing methane from fossil fuel exploration and extraction processes (particularly in coal mines) reduces leaks and explosion risks, improving industrial safety.
- The agricultural sector can provide improved income through more efficient and resilient production of livestock (e.g., sustainable waste management, biogas systems, composting, and animal feed) and rice (e.g., fertilizer management, efficient rice varieties, conservation agriculture, and improved cropping patterns) (CCAC, 2021).
- In the waste sector, cutting methane can reduce risk of fires and explosions, and transform waste into food or fertilizer (CCAC, 2021).

* See Slide 32 and 34 for more detail on the Global Methane Pledge.

SOURCES AND INTERMEDIARIES

Which type of organizations are sources or intermediaries of capital for climate finance?

Values in USD billion

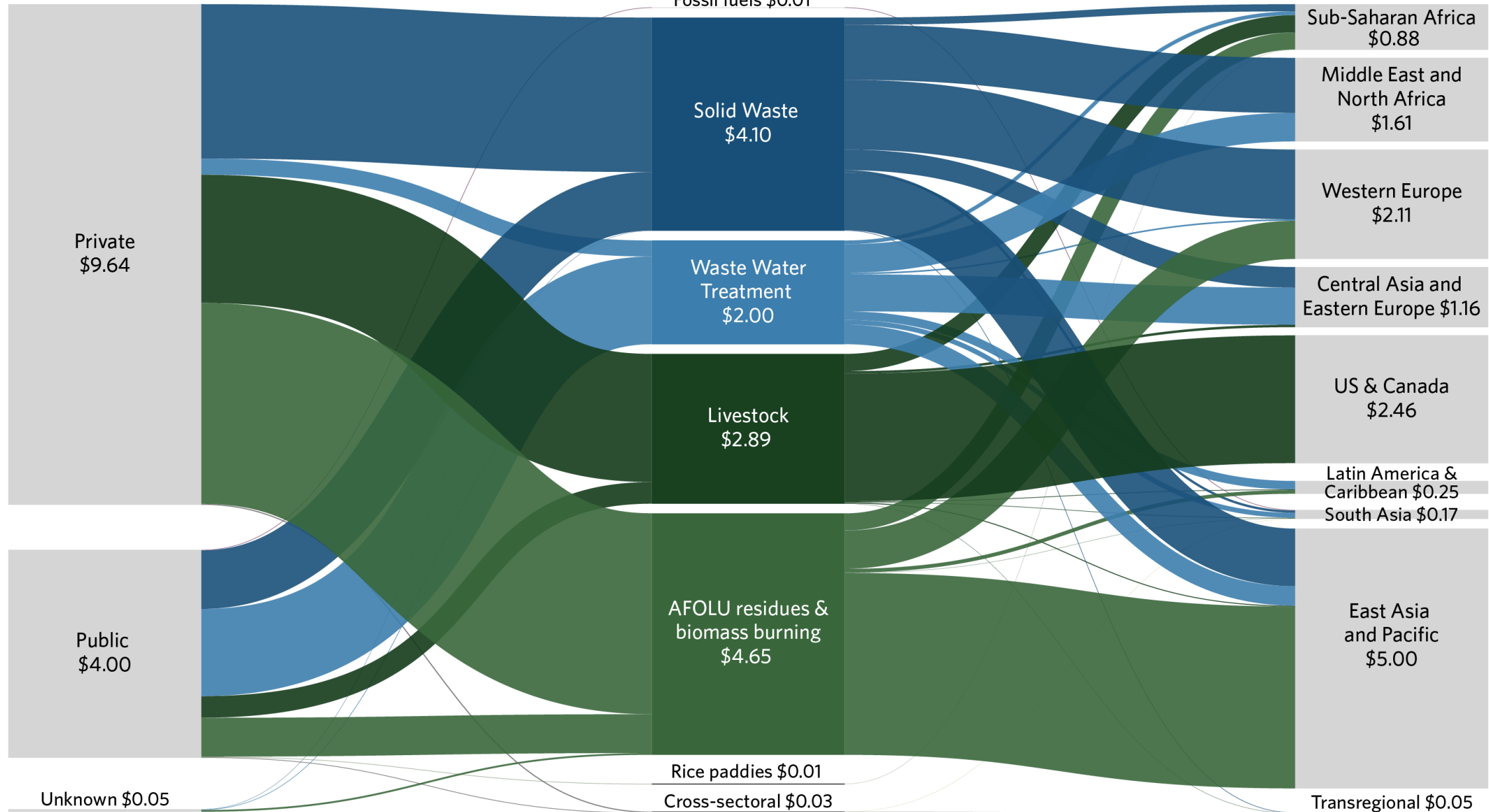
MEASURES

What methane abatement solutions is the finance used for?

13.7 BILLION USD
ANNUAL
AVERAGE

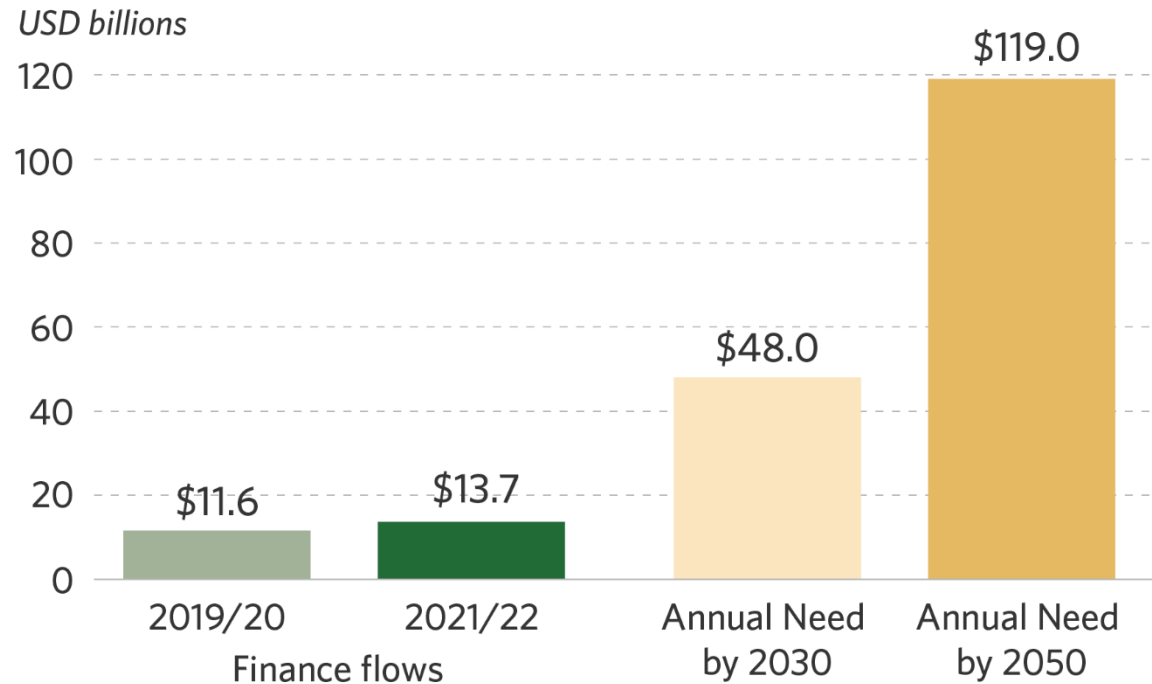
DESTINATION

Where is the finance flowing to?



At 13.7 billion, methane abatement finance is at its highest level yet, but annual flows need to be at least 3.5 times larger until 2030.

Figure 2: Global finance to methane abatement from 2019/20 and 2021/22 vs annual needs (2030, and 2050) (USD billion)



Source: Investment data tracked by CPI. 2030 and 2050 needs under a +2°C warming scenario were linearly interpolated from 2019/2020 tracked levels to calculate average annual investment needs based on Harmsen et al. (2019).

Despite increased methane reduction pledges and their status among the most powerful contributors to global temperature rise, methane emissions continue to increase.

Methane abatement is one of the most effective mitigation investments, **but finance is still far below the global estimated needs of USD 48 billion annually by 2030**

- **Funding for methane abatement has seen a small improvement of 18% since 2019/20:** the annual average increased from USD 11.6 billion in fiscal years 2019/20 to USD 13.7 billion in 2021/22.
- Estimated needs are set to grow significantly from 2030 to 2050 – **there is urgent need to accelerate finance at a continuously increasing rate.**

Even considering data gaps, this implies that **current methane emissions reduction measures fall short of those needed to meet climate goals.**

All stakeholders must collaborate on multiple fronts to reach the investment required in methane abatement activities until 2030.

The Global Methane Pledge was a first step in putting methane abatement at the center of the global climate agenda. Different stakeholders must now leverage the momentum generated by this, by contributing to the expansion of financial initiatives for methane abatement.

Boosting financial support to abate methane in the fossil sector is crucial, given its significant potential for mitigation. In addition to increasing investment, the private sector can take on a more proactive role by offering technical services across various sectors. Government grants and support from DFIs can help to leverage this private capital.

To facilitate greater private sector involvement, it is essential to reduce risks by establishing a robust regulatory framework that enables monitoring of user payments, ensures process transparency, and minimizes political risks.

Stakeholders must also collaborate to create a robust framework for quantifying and reporting methane abatement finance.

Various data gaps hinder our understanding of progress and impact, These include an inability to quantify and link methane reductions to tracked finance, limitations in assessing intent during screening process, a lack of standardized reporting, difficulty distinguishing methane finance from usual expenditure, variations in reporting practices across sources and entities, and a lack of alignment in investment needs assessment.

The Briefing Paper [How to Start When Scaling Methane Abatement Finance?](#) outlines opportunities for both public and private entities to scale methane abatement flows across three key areas: 1) International public finance, 2) domestic public finance, and 3) corporate/private sector initiatives.

Another accompanying report, [Spotlight: Financing Oil & Gas Methane Abatement in Southeast Asia](#), presents an overview of methane abatement activities and opportunities in Southeast Asia's oil and gas industry to demonstrate intervention options in practice.

No sector is receiving enough methane abatement finance, especially given the climate mitigation potential.

This report tracks flows to three primary sectors: fossil fuels, AFOLU, and waste:

Recent growth in methane abatement finance was solely in the AFOLU sector, which saw a rise of 77% in 2021/22 compared to 2019/20.

The fossil fuel sector received less than 1% of tracked finance, despite having the highest abatement potential. Better data would greatly help understanding how finance flows to the sector.

AFOLU attracted 55% of flows (USD 7.5 billion), driven by sharp rise in manure-to-energy activities. As the largest contributor of anthropogenic emissions, at 147 Mt/year, AFOLU's annual needs outstrip current flows 2.2-fold.

The waste sector accounted for 45% of finance (USD 6.1 billion), driven mainly by wastewater management and solid-waste to energy investment. This marked a drop of over USD 1 billion from 2019/20 and significantly behind the USD 20.4 billion needed per year until 2030.

70% of methane abatement finance came from private sources. Corporations represented 44% and commercial financial institutions 45% of private flows. These focused mainly on AFOLU, with a particular emphasis in the U.S. & Canada, Western Europe, and East Asia & the Pacific.

Public actors contributed 30% of methane abatement finance. Development finance institutions (DFIs) are a key public sector contributor, accounting for 68% of total methane abatement flows. The largest sectoral recipient of public finance was the waste sector (70%).

The top three recipient regions of methane abatement finance are East Asia & the Pacific (USD 5 billion), the U.S. & Canada (USD 2.5 billion), and Western Europe (USD 2.1 billion). China, with the largest methane emissions in the world, is pivotal in financing methane abatement.

Latin America and South Asia, responsible for 26% of global methane emissions (13% each), received only 1.8% and 1.3% of global methane finance, respectively. This discrepancy underscores a notable support gap in funding for these regions.

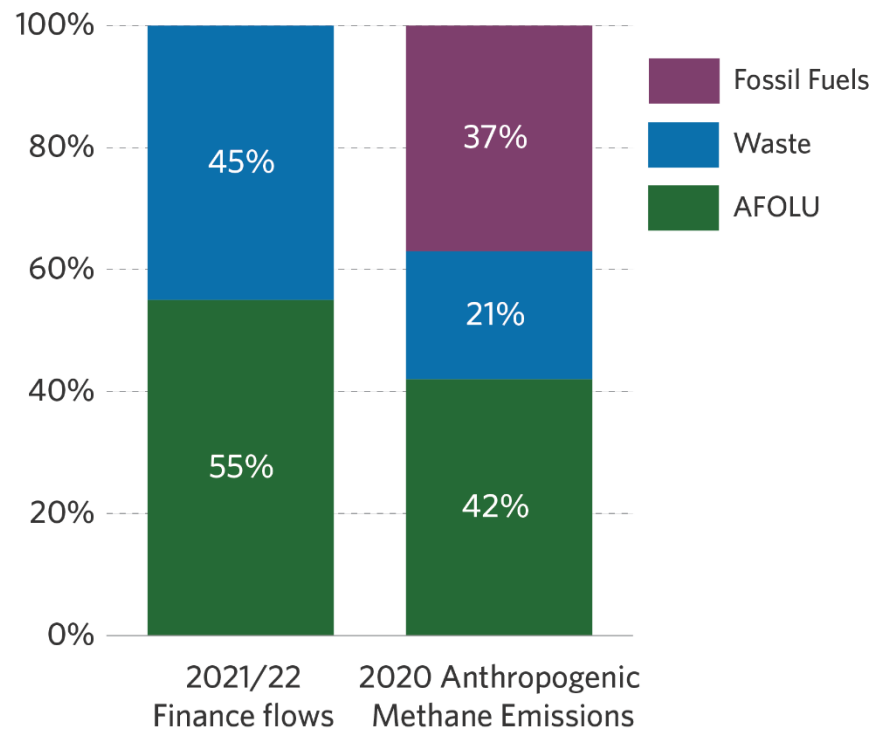
Debt was the predominant financial instrument for methane abatement finance globally, with a share of USD 7.9 billion or 57%. Equity played a close secondary role, contributing USD 5.5 billion or 40%. This mix is encouraging as it highlights a relative diversity of instruments.

Grants, whilst only a small share at USD 0.3 billion or 2%, have potential to be the most catalytic instrument type. The effective deployment of scarce grant and concessional resources offers much promise to accelerate methane abatement finance.

2. Sectoral breakdown

Tracked funds are concentrated in AFOLU and waste sectors, despite more than 1/3 of emissions originating from fossil fuels.

Figure 3: Sectoral distribution of methane abatement finance compared to anthropogenic emission sources among three main sectors.



The majority of methane abatement finance flows go to the waste and Agriculture, Forestry and Other Land Use (AFOLU) sectors, whereas **data on finance to the fossil fuel sector is virtually non-existent. This is concerning because 37% of human-caused methane emissions among the three main sectors originate from fossil fuels** (UNEP & CCAC, 2022).

The fossil fuels sector, which requires at least USD 11.2 billion in methane abatement investment per year by 2030 according to CPI estimates, faces the largest funding and data gaps. Moreover, the oil and gas subsector, with a USD 7.9 billion estimated need (See Figure 6), has the largest mitigation potential found in this study, larger even than the AFOLU and waste sectors (McKinsey, 2021).

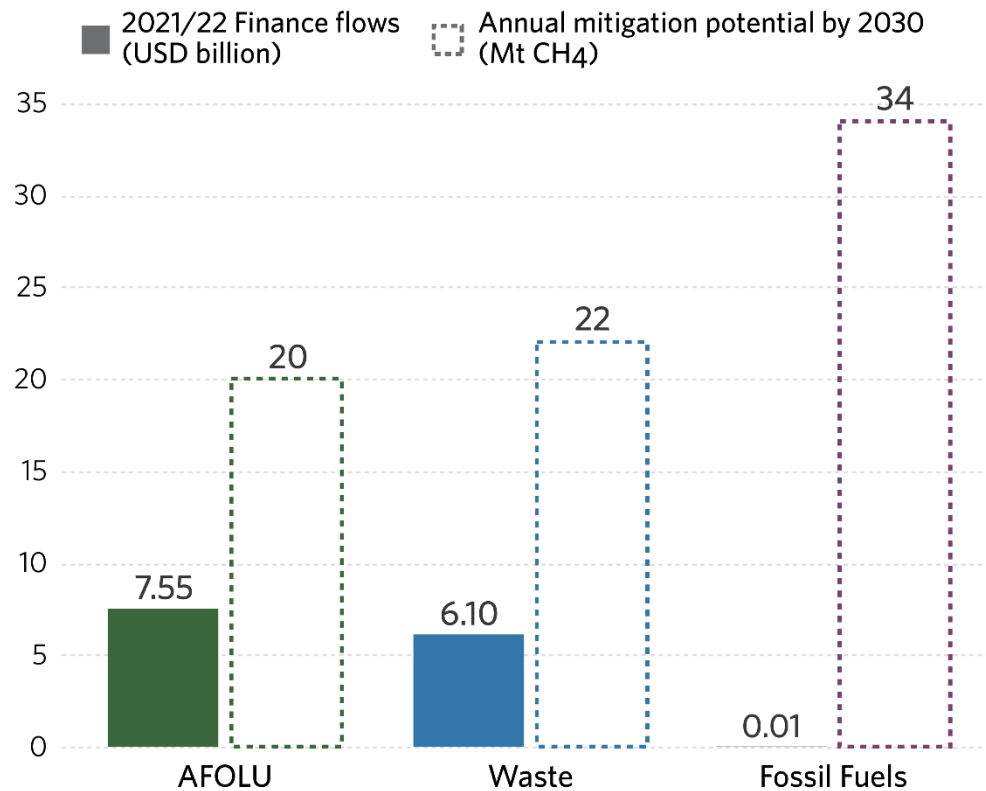
IEA, UNEP & CCAC (2023) estimated methane abatement investment needs of the oil and gas subsector are USD 9.4 billion yearly until 2030*. **This totals USD 75 billion, which represents less than 2% of the industry's total net income for 2022.**

* This estimate, which considers a 1.5°C warming scenario, is even higher than CPI's estimate (accounted for in Figure 6) which considers a 2°C warming scenario.

Source: Investment data tracked by CPI. Emissions data is from UNEP & CCAC (2022).

Finance does not flow proportionately to sectors with the highest abatement potential.

Figure 4: Sectoral distribution of methane abatement finance (USD billion, 2021/22 annual average) compared annual mitigation potential (MtCH₄/year)



Source: Investment data tracked by CPI. Annual mitigation potential from McKinsey (2021).

The largest recipient sector of methane abatement finance in 2021/2022 was **AFOLU with (USD 7.5 billion)**, followed by **waste (USD 6.1 billion)**, and **fossil fuels (USD 10.6 million)**. This marks an increase for AFOLU, and a decrease for both other sectors.

Flows to **AFOLU increased by 77% from USD 4.3 billion in 2019/20**, bringing the tracked total incrementally closer to the estimated USD 16.5 billion needed annually by 2030. **While the AFOLU sector has abatement potential of 20 MtCH₄ per year**, fragmented value chains for its highest-emitting components create challenges to scale finance (CPI, 2022b).

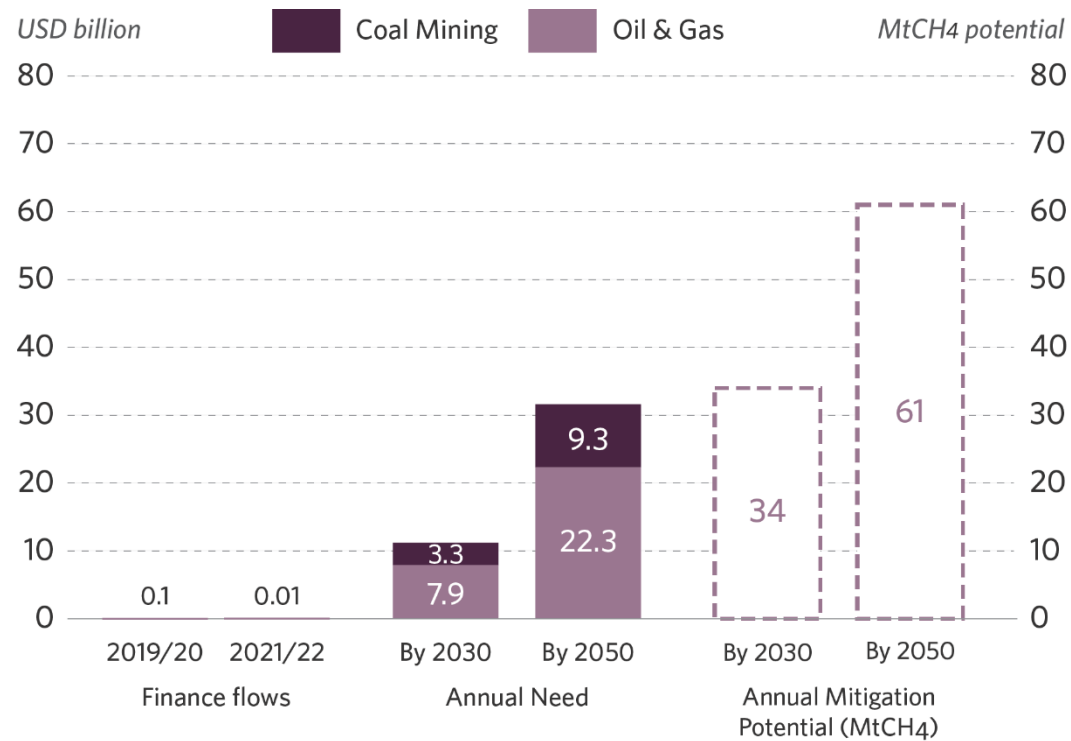
While less than 1% of tracked finance goes to fossil fuels, this sector has the highest abatement potential (34 MtCH₄ per year), given the cost-effective measures available to tackle methane in oil and gas (IEA 2023). Industry methane abatement commitments are increasing but have not yet translated into tangible investments and action (OGCI, 2023a).

Waste received the second-largest amount of methane finance in 2021/22, after AFOLU, and has the second-highest mitigation potential after fossil fuels. **Waste is distinct for being the sector that receives highest sectoral financing in the majority of regions**, although methane abatement is pursued as a co-benefit rather than a primary impact objective of investment. While private finance constitutes most of the investment in the sector, the nature of waste sector infrastructure provision also places major responsibilities on governments and municipalities to take action.

Fossil fuels received less than 1% of abatement finance in 2021/22.

While the fossil fuel sector has the highest methane abatement potential by 2030 (34 MtCH₄ per year considering only the oil and gas subsector), it receives less than 1% of related tracked finance. USD 10.6 million was tracked in 2021/22, compared to USD 0.1 billion in 2019/20.

Figure 5: Methane abatement finance to the fossil fuel sector compared to needs and annual mitigation potential



Source: Investment data tracked by CPI. 2030 and 2050 needs under a 2°C warming scenario were linearly interpolated from 2019/20 tracked levels to calculate average annual investment needs based on Harmsen et al. (2019). Annual mitigation potential comes from McKinsey (2021). Annual mitigation potential for coal mining was not available.

Investment barriers in this sector arise due to information gaps about methane sources, emissions levels and impacts, inadequate infrastructure to bring captured gas to the consumer for productive use, along with a lack of understanding of the cost-effectiveness of abatement and the lack of a regulatory framework (IEA, 2021a; IEA, 2021b).

Corporate action is growing and will play a crucial role. For example, the Aiming Zero Methane Emissions Initiative, launched by the Oil and Gas Climate Initiative in 2022, has 90 oil and gas company signatories who aim to reduce their methane emissions to "near zero" by 2030 (OGCI, 2023b).

To accelerate progress, governments can set more stringent regulations and standards, mandate project planning requirements, directly invest in new infrastructure, put a price on environmental externalities, offer financial incentives for methane capture and abatement technologies, and eliminate investment barriers (IEA, 2023).

Challenges persist in tracking methane abatement finance in the fossil fuel sector.

There are serious limitations to tracking methane abatement finance for fossil fuels, including a lack of up-to-date and transparent data and a lack of standardized reporting frameworks. This may contribute to low levels of finance tracked in the sector. Additionally, it is hard to distinguish between methane abatement investment and business-as-usual operational expenditures across the sector.

The oil and gas industry is responsible for 21% of methane emissions or 78 Mt/year (UNEP & CCAC, 2022), **with annual investment needs estimated at USD 7.9 billion until 2030**. Oil and gas methane abatement investment is staggering low compared to general investment in this subsector. For example, major oil companies in the U.S. aimed to increase upstream investment by 30% in 2022 (IEA, 2022). Tracked methane abatement finance has come primarily from public sources to date.

Existing technologies could abate 40% of oil and gas methane emissions at no net cost (IEA, 2023). There are both reputational and financial incentives to take up easy abatement possibilities across emission origins and distribution channels (McKinsey, 2021).

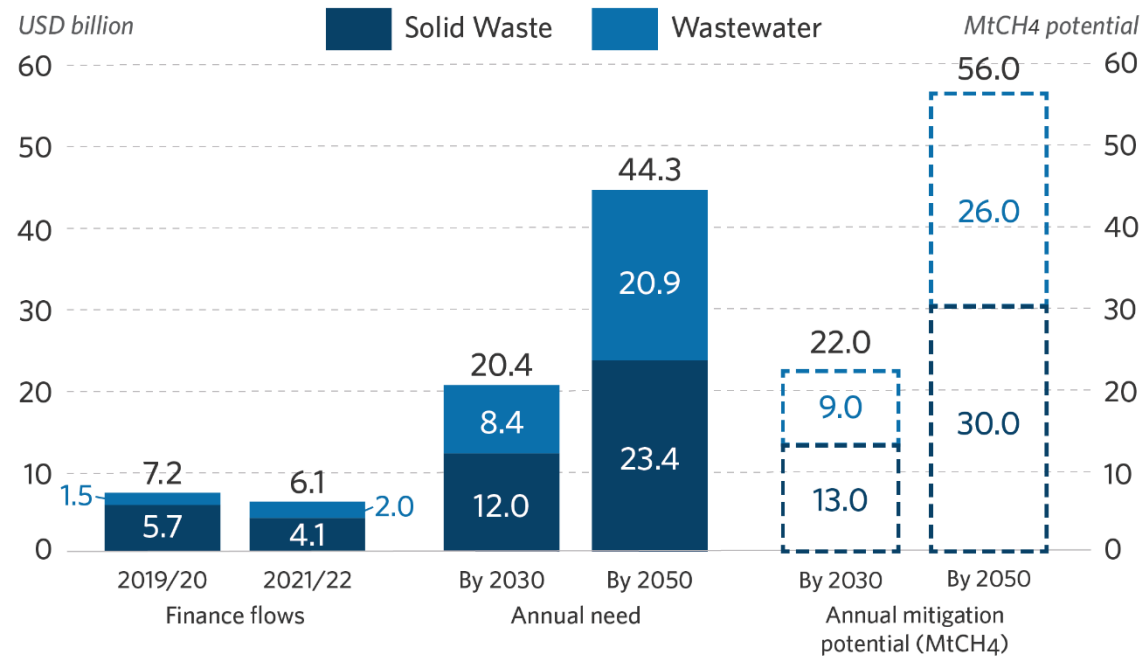
Barriers to abatement activities in this sub sector arise from continued gas subsidies, the small value of individual abatement projects despite large aggregate losses from methane emissions, and demand-constrained gas markets. Abatement investment could be accelerated by combining public action to heavily reduce or end gas subsidies with private efforts to bundle projects in order to reduce costs, and to allocate funds for deployment (Carbon Limits, 2021).

Coal mining accounted for 11% (41 Mt/year) of methane emissions (UNEP & CCAC, 2022), but finance flows for coal mine methane (CMM) abatement were not identified in 2021/2022 due to a lack of data. Analysis of voluntary carbon offset projects, credit issuances and credit retirements, gives insight into new coal mine methane capture projects (Berkeley carbon credit, 2023), although data on how much was invested in those projects is not available.

Most coal mine methane emissions originate from deep mines, both active and abandoned. Technologies to capture such methane exist and should be prioritized alongside long-term strategies to phase-out coal (IEA, 2023). Measuring and recovering these emissions presents a considerable challenge.

The waste sector received USD 6.1 billion in methane abatement finance in 2021/22, a drop of over USD 1 billion from 2019/20.

Figure 6: Methane abatement finance to the waste sector compared to needs and annual mitigation potential



Source: Investment data tracked by CPI. 2030 and 2050 needs under a 2°C warming scenario were linearly interpolated from 2019/20 tracked levels to calculate average annual investment needs based on Harmsen et al. (2019). Annual mitigation potential comes from McKinsey (2021).

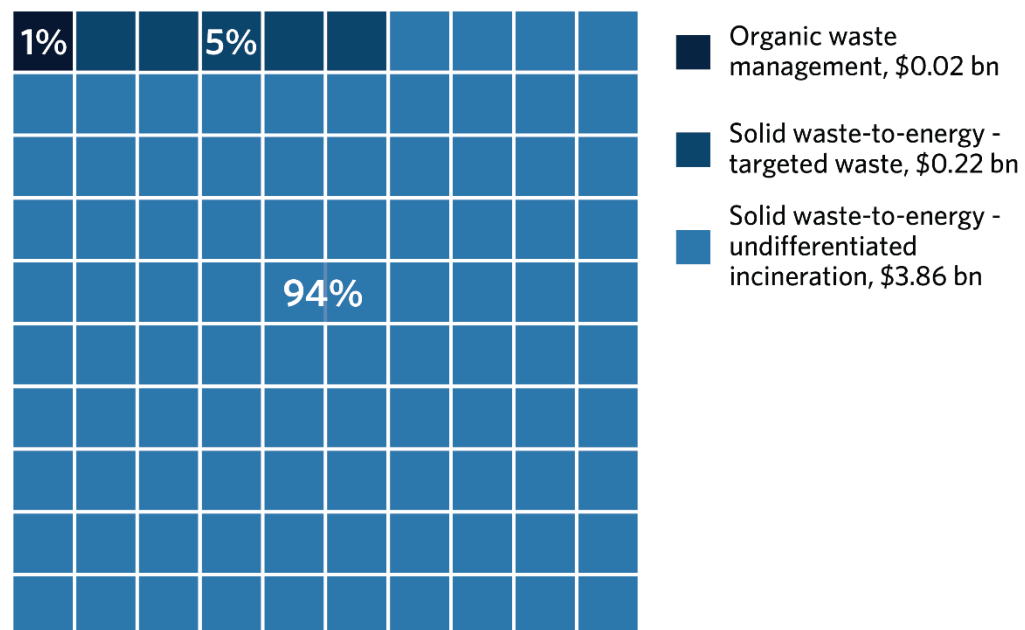
The waste sector accounted for USD 6.1 billion of tracked methane abatement financial flows, marking a drop of over USD 1 billion from 2019/20, and lagging significantly behind the estimated USD 20.4 billion needed per year until 2030. Funded activities included solid waste management and wastewater-related activities which combined have the potential to abate 22 MtCH₄ by 2030.

Over 70% of solid waste services fall under the ambit of local public authorities, resulting in strong roles for all governments and international organisations (Kaza et al., 2018). Methane abatement solutions for the solid waste and wastewater sectors are relatively expensive and capital-intensive, creating key challenges for municipalities and other public bodies in closing finance gaps. A lack of waste methane reduction reporting regulations also reduces incentives to invest.

Nevertheless, the private sector was responsible for 54% of waste finance, driven by waste-to-energy power plant investment. Further private investment in other subsectors, including wastewater, could be promoted through public-private partnerships and by leveraging risk-sharing mechanisms.

Solid waste received 67% of waste sector abatement investment.

Figure 7: Methane abatement finance in the solid waste subsector (USD billion, 2021/22 annual average)



Source: Investment data tracked by CPI.

Responsible for 43 Mt of emissions per year (UNEP & CCAC, 2022), solid waste received 30% of total methane abatement finance (USD 4.1 billion) in 2021/22. This is significantly below the USD 12 billion needed annually until 2030 to meet the needs of the subsector.

Most of solid-waste finance went to waste-to-energy projects, with waste incineration accounting for 94% of investment. Driven by the private sector which accounted for 77% of waste incineration flows, China, the UAE and the UK received over 70% of total waste incineration financial flows. While waste incinerators reduce methane emissions by diverting waste from landfill, they can cause serious air pollution if not operated properly, and may also create CO₂ trade-offs (Mutz et al., 2017).

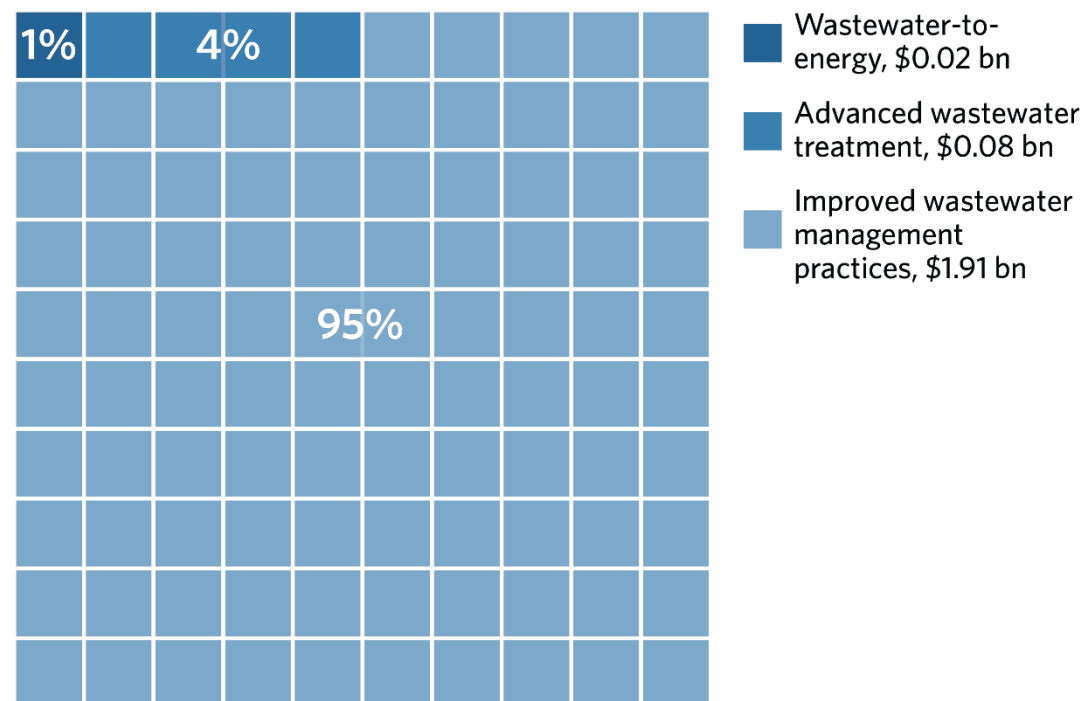
Waste-related methane emissions come mostly from landfills and open dumps. Governments could capture these emissions through biogas markets and incentives, generating renewable natural gas or using it for fertilizer production.

Targeted waste management solutions, such as landfill gas capture and food waste anaerobic digestion accounted for a smaller share of finance (USD 223 million) through government and multilateral DFIs' use of debt and grant instruments, with sub-Saharan Africa (SSA) accounting for 57% of this amount.

In addition, organic waste management attracted USD 22 million, mostly across developing countries as the first step against methane emissions from landfills.

Wastewater accounted for 33% of waste sector abatement finance.

Figure 8: Methane abatement finance in the wastewater subsector (USD billion, 2021/22 annual average)



Source: Investment data tracked by CPI.

Wastewater attracted USD 2 billion in 2021/22, marking an increase from USD 1.5 billion in 2019/20. However, this falls short of estimated investment needs of USD 8.4 billion annually until 2030.

Wastewater management received the lion's share of finance to this subsector (95%). These investments were public-sector dominated with bilateral and multilateral DFIs accounting for 73%, primarily through concessional (54%) and market-level (33%) debt. While municipalities are key stakeholders, private investment can help build supporting infrastructure for the wastewater subsector.

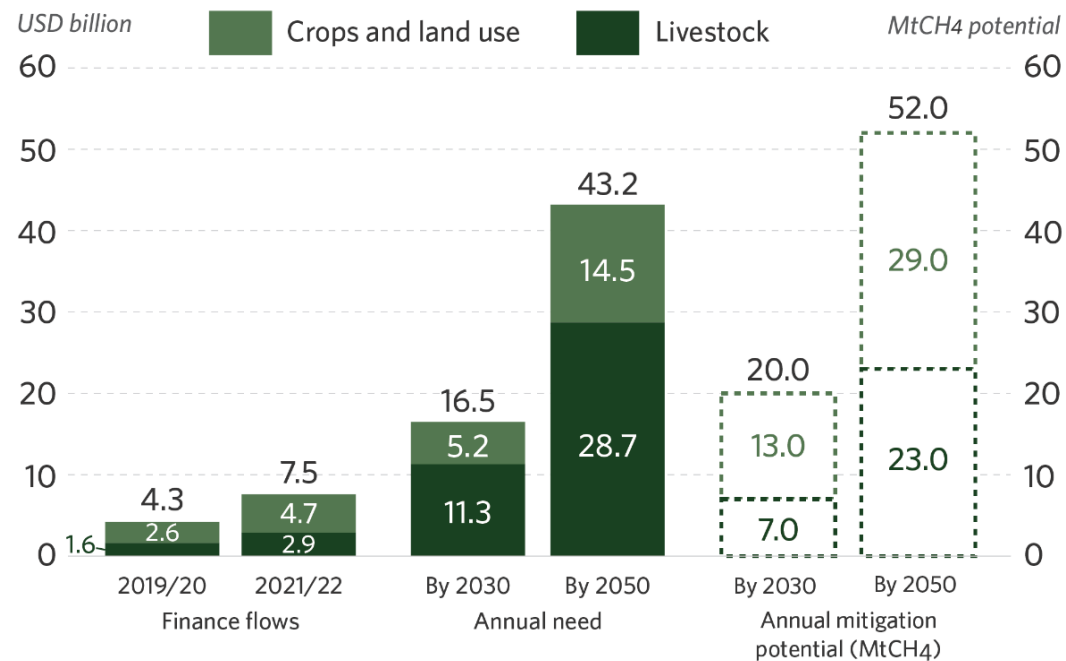
There are further untapped opportunities in the subsector. Increasing and centralizing the amount of wastewater collected and treated is the single most effective solution (McKinsey, 2021). Investment in large wastewater treatment facilities could be a key first step, providing high methane recovery benefits.

The methane reduction effect of upgrading to centralized wastewater treatment facilities is unlikely to be the sole factor driving such finance, but recognizing this benefit can justify higher investment (CPI, 2022b).

AFOLU attracted USD 7.5 billion, an increase of USD 3.3 billion from 2019/20.

AFOLU is the largest contributor to human-made methane emissions, at 147 Mt/year (UNEP & CCAC, 2022). Most emissions come from hard-to-abate subsectors such as enteric fermentation, food waste and rice paddies, which have fragmented value chains that hinder solution scalability. **AFOLU methane abatement investment needs (USD 16.5 billion per year until 2030) outstrip current flows more than 2.2-fold.**

Figure 9: Methane abatement finance to AFOLU sector compared to needs and annual mitigation potential



Source: Investment data tracked by CPI. 2030 and 2050 needs under a 2°C warming scenario were linearly interpolated from 2019/2020 tracked levels to calculate average annual investment needs based on Hamsen et al. (2019). Crops and Land Use needs estimates refer to rice paddies activities. Annual mitigation potential comes from McKinsey (2021).

Alongside the production of high-methane foods (e.g., rice, pork and beef), food loss and waste is a key contributor.

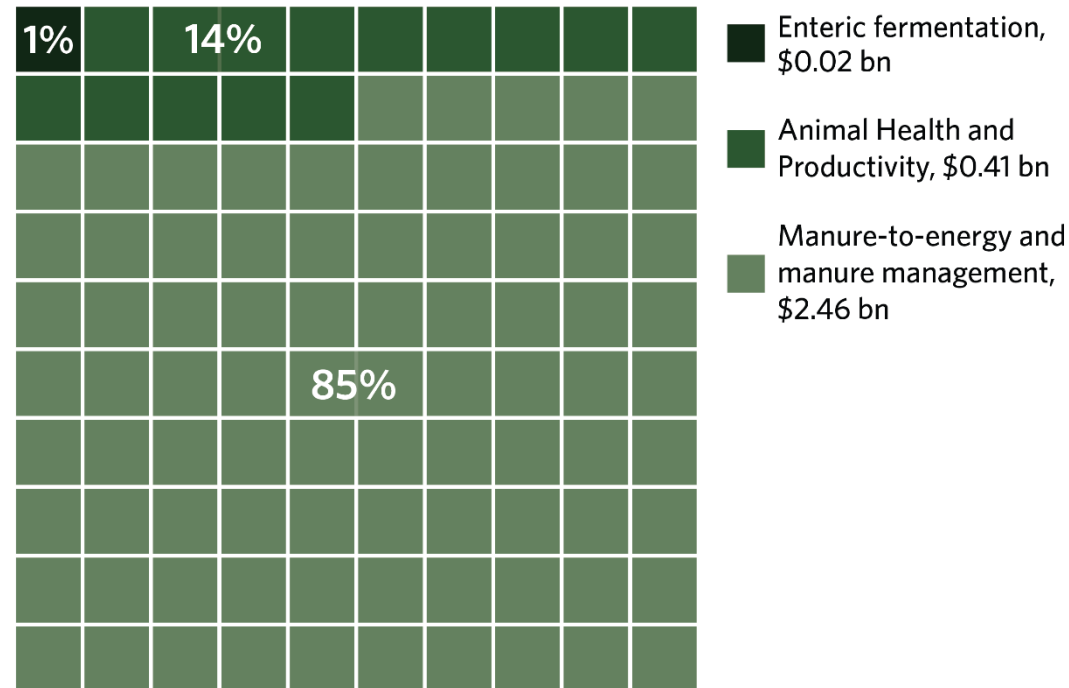
One third of food produced for human consumption is lost or wasted (Climate Works, 2023). Harnessing the recent sharp rise in venture capital investments towards climate technology to direct funds to initiatives that aim to reduce food loss could be an avenue to grow finance in the sector (CPI, 2023b).

There is also a strong need for innovation to improve yield efficiency, as well as to create direct mitigation technologies such as methane-inhibiting fertilizers, as well as shifts towards plant-based diets. The private sector is increasingly fostering innovations in areas such as methane-reducing feed additives and feed-mix optimization through R&D and venture capital.

Likewise, alternative strategies for managing water, soil carbon, nitrogen, and land offer established solutions for rice and crop farmers (McKinsey, 2021). However, most tracked projects are currently at the pilot stage, with a lack of enabling environment to reach larger scale (CPI, 2022b).

Livestock saw a sharp abatement investment rise vs 2019/20.

Figure 10: Methane abatement finance in livestock subsectors (USD billion, 2021/22 annual average)



Source: Investment data tracked by CPI.

In 2021/22, methane abatement finance to livestock-related activities attracted USD 2.9 billion annually. While this is a significant rise from USD 1.6 billion in 2019/20, it falls far short of the estimated USD 27 billion required per year until 2050 to meet the subsector's abatement needs.

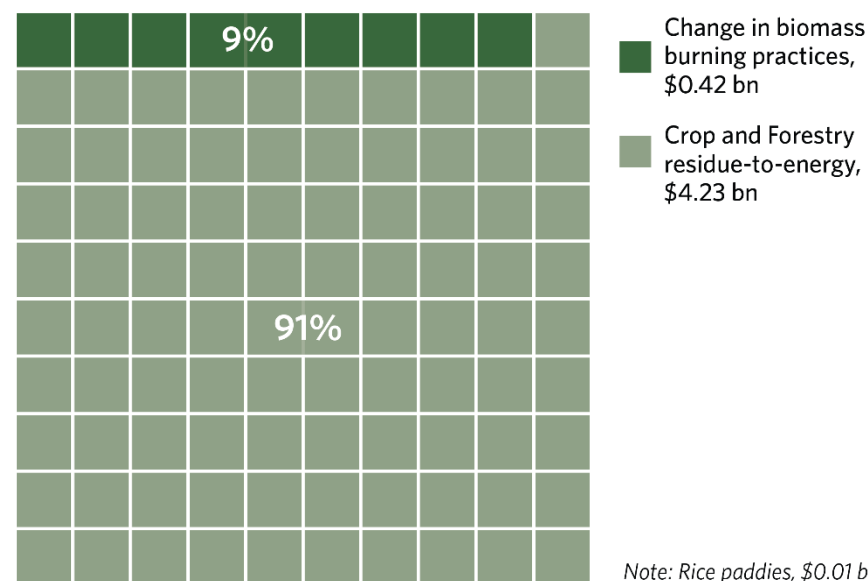
USD 2.5 billion, a sharp rise, went to manure-to-energy measures, up from the USD 257 million in 2019/20. Tracked data primarily covers the U.S., due to government efforts to track and finance such initiatives, particularly through grant funding for biodigester projects in California (CPI, 2022b).

On the other hand, animal health and productivity, which represented the majority of finance flows in 2019/20 at USD 1.3 billion, plummeted to USD 0.4 billion in 2021/22. Similar to 2019/20, the public sector accounted for 95% of flows to this subsector, with multilateral DFIs being the primary funders (86%). This can be attributed to significant data gaps on private investment, and issues with methane tagging of projects with multiple activities.

Enteric fermentation accounted for USD 20 million, a rise from USD 9 million in 2019/20. However, more investment is needed given the hard-to-abate nature of enteric fermentation and the projection that it will account for 50% of methane emissions by 2100 under the 2°C temperature rise scenario (Harmsen et al., 2019). There has been a lack of dairy and beef sector initiatives to invest in enteric fermentation to date (FAIRR 2022).

Crop and land use investment went primarily to residue-to-energy solutions.

Figure 11: Methane abatement finance in crops and land use subsectors (USD billion, 2021/22 annual average)



Source: Investment data tracked by CPI.

Marking a strong rise from investment of in USD 2.6 billion 2019/20, the crops and land use subsector received USD 4.7 billion in 2021/22, representing 62% of all AFOLU methane abatement investment.

Crop and forestry residue-to-energy solutions received over 90% of this investment (USD 4.2 billion) and 56% of overall finance to the AFOLU sector. These projects were mainly concentrated in Japan (67%) followed by France, Korea, Cote d'Ivoire and China (each accounting for around 5-7%).

For crop and forestry residue to energy projects, commercial FIs were the primary source of finance with project-level market rate debt accounting for 63% of the finance. **We note that the additionality of these projects is difficult to measure**, since it is unknown whether these residues would have been burnt on production site (causing methane emissions from incomplete combustion), disposed of or landfilled in a business-as-usual scenario.

Change in biomass burning practices, such as measures aiming to prevent the land-use practice of human-led peat, savannah, and forest burning, saw a sharp growth in finance from USD 11 million in 2019/20 to USD 421 million in 2021/22. This growth shows increased importance of reducing agricultural practices resulting in incomplete combustion of organic matter which is responsible for releasing methane in the atmosphere along with air pollution concerns (CCAC, 2015; CPI, 2022b).

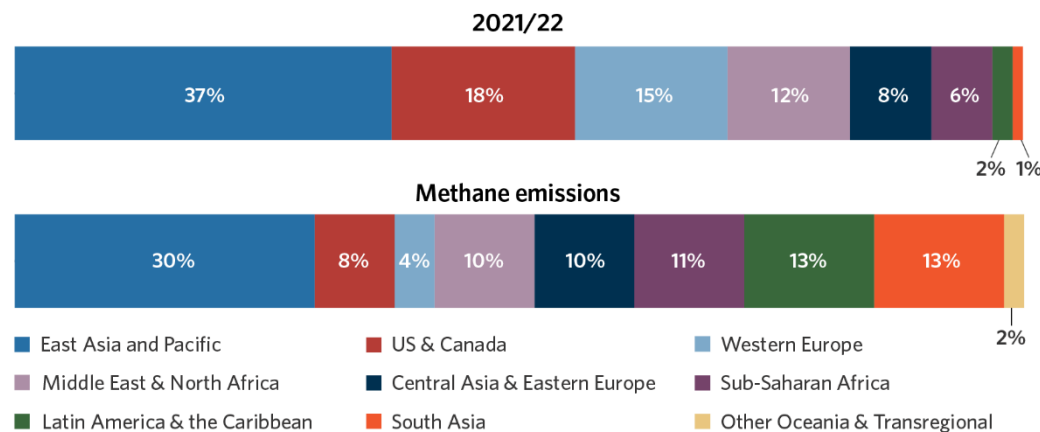
Investment in rice paddy abatement solutions only attracted USD 10 million, mostly for pilot projects. This is a fraction of the USD 5.2 billion needed annually until 2030. Rice paddy emissions are hard-to-abate, which when combined with a lack of market readiness, make solutions comparatively costly and there is a pressing need for more R&D and innovation (Harmsen et al., 2019).

3. Geographic breakdown

East Asia and the Pacific received the largest share of finance, and Western Europe led on North-South flows.

The top three recipient regions of methane abatement finance are East Asia and the Pacific (USD 5 billion); the U.S. and Canada (USD 2.5 billion); and Western Europe (USD 2.1 billion).

Figure 12: Regional breakdown of methane abatement finance (USD billion, 2021/22 annual average), and methane emissions (2020)



Source: Emissions data come from EDGARv8.0 (Crippa et al., 2023); Investment data tracked by CPI.

In East Asia and the Pacific, China and Japan drove most flows. While China led methane finance in 2019/20, Japan moved to the fore in 2021/22 with USD 2.8 billion, primarily going to biomass-to-energy plants.

Abatement finance in China in 2021/22 fell to USD 1.3 billion from USD 4 billion in 2019/20. China's 2023 Methane Reduction Plan signals commitment, but lacks explicit targets (Reuters, 2023). As the world's largest methane emitter, it is essential that China commits to financing methane abatement. The country will also need technical and financial support for monitoring, reporting and verification (MRV) (ICAT, 2022).

Private sources dominated contributions in the U.S. and Canada, with corporations providing USD 2.4 billion, exclusively to the AFOLU sector.

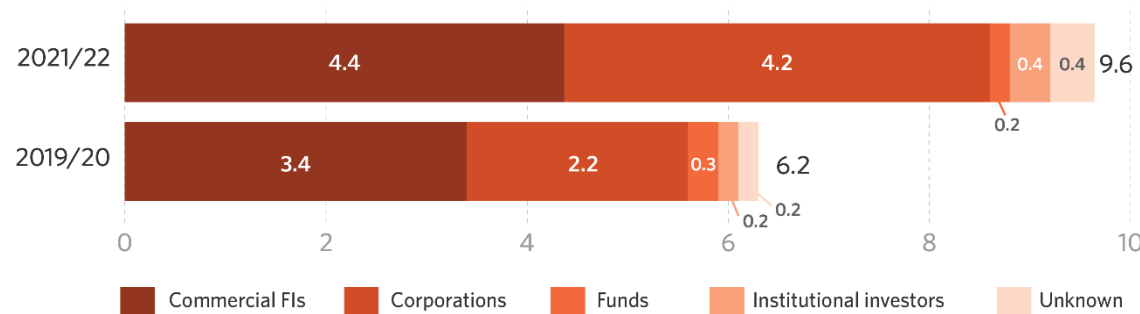
Western Europe notably balanced financial outflows and inflows. Abatement investments within the region amount to USD 1.9 billion, while USD 1.7 billion flows from the region to elsewhere, mainly to Central Asia and Eastern Europe (CAEE; USD 489 million), and the Middle East and North Africa (MENA), at USD 710 million.

Despite Latin America and South Asia accounting for 26% of global methane emissions (13% each), they only received 1.8% and 1.3% of global methane finance, highlighting a support gap. The report [Spotlight: Financing Oil & Gas Methane Abatement in Southeast Asia](#) presents an overview of abatement activities and opportunities in Southeast Asia's oil and gas industry.

4. Sources of finance

70% of methane abatement finance came from private sources.

Figure 13: Sources of methane abatement finance by actor type (USD billion, annual averages from 2019/20 and 2021/22)



Source: Investment data tracked by CPI.

Private sources formed the largest portion of methane finance in 2021/22, amounting to USD 9.6 billion. This marks a significant **55% increase** on that tracked for 2019/20.

Private finance drove the overall methane finance increase from 2019/20, mostly through commercial FIs (USD 4.4 billion) and corporations (USD 4.2 billion).

The key financial instrument for commercial FIs was project-level market rate debt, split between the AFOLU (USD 2.7 billion) and waste sectors (USD 1.6 billion).

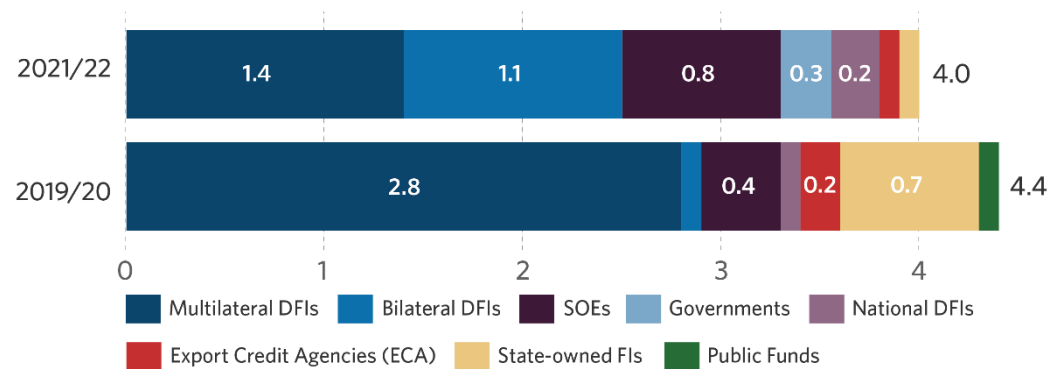
The largest increase from 2019/20 to 2021/22 was driven by corporations, rising by over USD 2 billion. This predominantly came from the U.S. in the form of balance sheet finance, going to AFOLU.

Private finance plays a substantial role in Global North regions of U.S. and Canada and Western Europe, along with East Asia & Pacific. MENA's trends are driven by the UAE, whose finance is mostly private, contrary to all other states in the region. Other regions are larger recipients of public finance.

Progress in mobilizing private finance is critical, whilst the quantum remains low – the direction of movement is encouraging. It is now vital to understand how these flows can be catalysed and sustained.

Public methane finance in 21/22 was USD 4 billion, a 10% decrease from 2019/20.

Figure 14: Sources of methane abatement finance by actor type (USD Billions, annual averages from 2019/20 and 2021/22)



The largest sources were multilateral and bilateral DFIs, contributing USD 1.4 billion and USD 1.1 billion, respectively.

Multilateral DFI finance saw a 50% drop, driving the overall decline in public finance; much of which was due to China's reductions of USD 500 million for AFOLU and USD 1 billion for waste. China's higher flows in 2019/20 were driven by a one-time sustainable livestock project as well as funding for waste-to-energy plants. **Most multilateral DFI finance was in the form of project-level debt**, both as market-rate and low-cost debt.

A positive is that bilateral DFI financing increased almost fifteenfold compared to 2019/20, with 91% of investments committed to the waste sector.

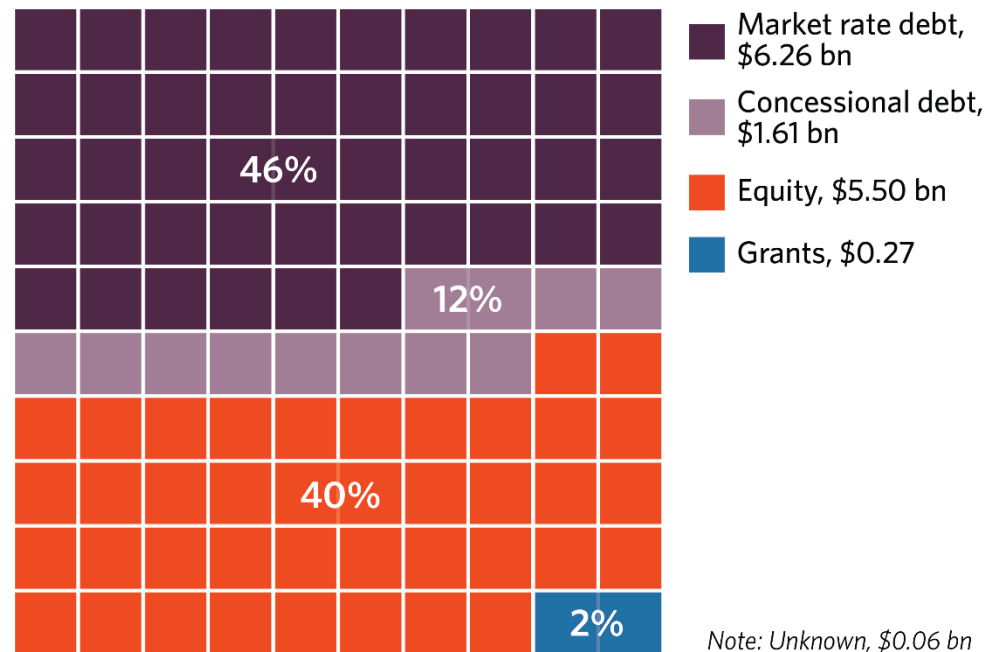
Of Western Europe's USD 1.2 billion in public finance, USD 269 million circulated within the region, with USD 267 million going to CAEE (mostly via multilateral DFIs), USD 268 million to MENA, and USD 170 million to SSA (both mostly via bilateral DFIs).

However, North-South flows were not evident in the U.S. and Canada, which retained almost all their methane finance.

70% of public finance was committed to the waste sector, reflecting waste often being the responsibility of governments and municipalities (Kaza et al., 2018).

The majority of finance flows through debt and equity, but grants and concessional capital play key roles.

Figure 15: Sources of methane abatement finance by instrument type (USD billion, 2021/22 annual average)



Source: Investment data tracked by CPI.

Methane abatement finance flows primarily through debt and equity instruments. Debt accounted for 57% (split 46% market rate and 12% concessional debt), equity contributed 40%, and grants 2%.

The low volume of grants and concessional debt highlight strong opportunities to use public finance to catalyze further capital. Both instruments play an essential role for leveraging private capital in methane abatement activities, providing powerful incentives and risk buffers. Such efforts can address private investors' concerns and tip projects to viability.

Grants make higher proportions of tracked climate finance in general (5%) than they do for methane abatement finance (CPI, 2023a). For grant levels in methane abatement to match these percentage levels, they would need to increase by 2.6 times, reaching an approximate sum of USD 0.7 billion.

Policy makers should focus on driving new grant and concessional resources from current levels. Governments and public finance decision makers should deploy these precious resources as tailored instruments in a coordinated effort, focusing on the highest mitigation potential opportunities. Any such increases should be sustained over time to unlock further capital in hard-to-invest technologies and geographies.



5. Methodological Approach

Consistent methodology allows for trends analysis.

Figure 16: Classification used to report methane abatement finance

	TARGETED MEASURES	ADDITIONAL BENEFICIAL MEASURES
FOSSIL FUEL SECTOR	Upstream and downstream leak detection and repair	Renewables for power generation
	Recovery and utilization of vented gas	
	Improved control of unintended fugitive emissions from the production of oil and natural gas	Improved energy efficiency and energy demand management
	Coal mine methane management	
WASTE SECTOR	Solid waste management	Reduced consumer waste and improved waste separation and recycling
	Wastewater treatment	
AFOLU SECTOR	Livestock enteric fermentation and productivity	Reduced food waste and loss
	Livestock manure management	
	Rice paddies	Adoption of healthier diets
	AFOLU residues and biomass burning practices	

This report follows the tracking methodology and taxonomy established by The Landscape of Methane Abatement Finance (CPI, 2022b).

We analyze tracked finance for methane reduction by source of finance, financial instrument, sector, activity, and geographic destination.

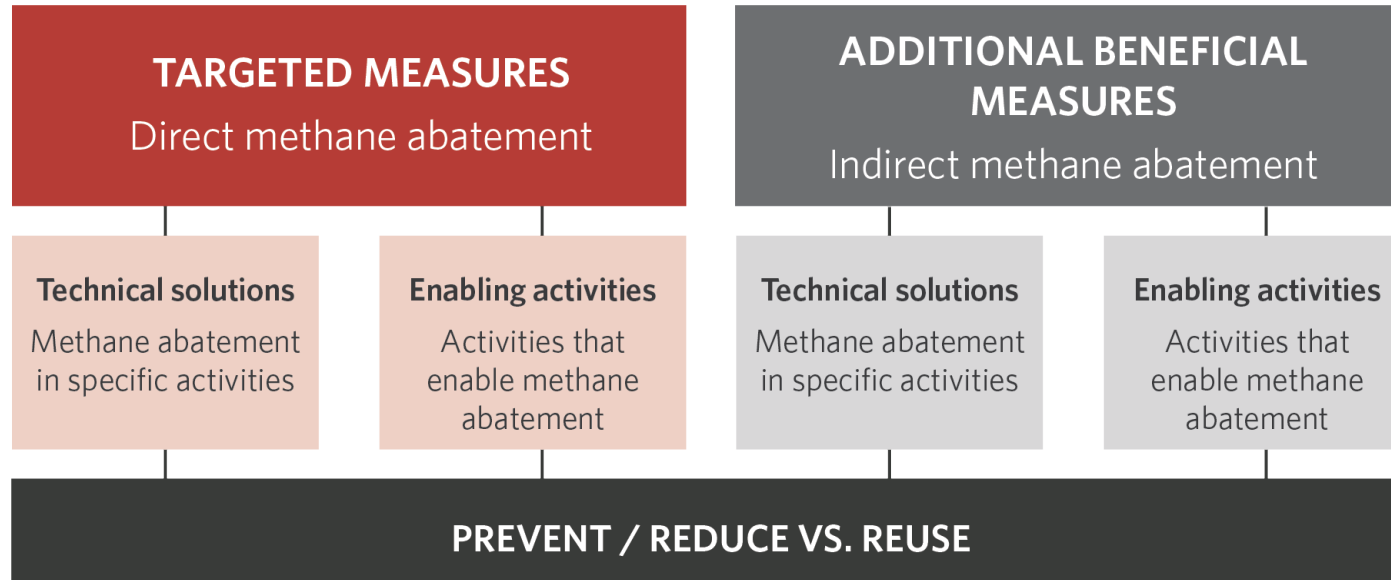
Major obstacles remain in tracking methane abatement finance, as highlighted in Slide 30:

We outline plans for future improvements in methane abatement finance tracking methodology and taxonomy on Slide 38.

Note: Throughout this report numbers refer to targeted measures only.

Tracking methane abatement finance is key to increasing flows.

Figure 17: Proposed taxonomy for methane abatement finance tracking



Note: Throughout this report numbers refer to targeted measures only.

This report presents findings at the start of COP 28, to stimulate enhanced methane abatement ambitions and commitments of public and private sector actors.

It is a follow-up to CPI's Landscape of Methane Abatement Finance (CPI, 2022b), the first-of-its-kind tracking of methane mitigation finance, which assessed global investment in methane abatement activities in 2019 and 2020 and created a baseline against which to measure investment needs and progress.

This tracking work provides insight on trends in methane abatement finance, to transparently and reliably measure progress in line with the objectives of the Global Methane Pledge, to spur ongoing international efforts to reduce methane emissions.

Several data gaps limit our understanding of progress and impact.

Our findings analyze 2021 and 2022 finance flows and are based on analysis of the dataset produced for CPI's Global Landscape of Climate Finance 2023 (CPI, 2023a), and other external datasets*. Despite sustained efforts to improve coverage of methane abatement data collected since CPI's last report (CPI, 2022b), no additional datasets have been found, and significant gaps persist for public domestic finance as well as domestic and international private flows, particularly from corporations (CPI, 2022a). Findings presented should be interpreted with these data constraints in mind. Data gaps include:

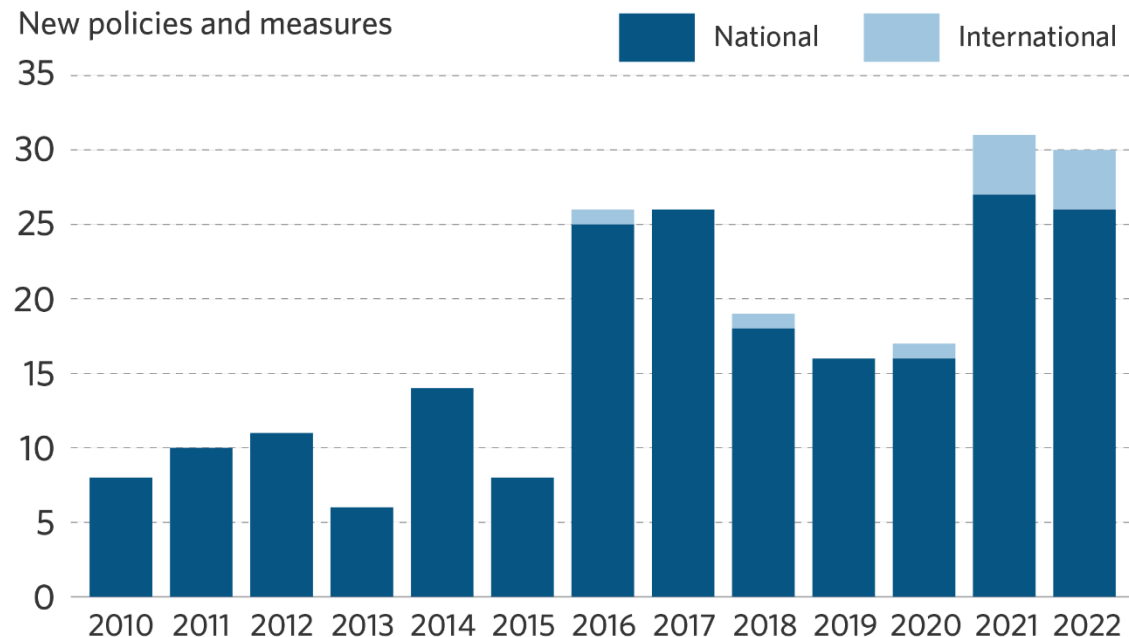
- **Inability to quantify actual methane emission reductions** associated with tracked finance. This stems from the fact that many tracked projects are at an early stage. The goal is instead to capture trends in recent financial decisions. Abatement potential and related limitations are highlighted throughout the report, where relevant.
- **Inability of current screening process to assess intentionality of methane finance.** The methodology focuses on projects and project components that have an established methane abatement goals or the potential to achieve reductions.
- **Lack of standardized reporting** and difficulty in distinguishing between business-as-usual expenditure in fossil fuel and AFOLU sectors.
- **Differences in reporting practices** across data sources and reporting entities.
- **Nascency and lack of alignment in assessing investment needs.** This report uses the Harmsen study (Harmsen et al., 2019) to estimate cost of implementation, however, multiple studies produce different estimations of the cost of implementing various methane mitigation strategies. There is a lack of alignment among estimates methane abatement finance needs, in terms of metrics and granularity (actors, geographies, etc.).

* Berkeley Carbon Credit Voluntary Registry Offsets Database, California Department of and Agriculture's Dairy Digester Research & Development Program, World Bank Private Participation in Infrastructure (PPI) Project Database. We also investigated Global Methane Initiative's (GMI) International Coal Mine Methane Projects Database and Clean Development Mechanism (CDM), but both datasets did not contain flows for the years covered in this report.

6. Emerging Opportunities

Abatement efforts have notably increased since the Global Methane Pledge, with potential to unlock even more capital.

Figure 17: New policies and measures related to methane abatement, 2010-22



Source: Global Methane Tracker (IEA, 2023)

The Global Methane Pledge, which aims to reduce methane emissions by at least 30% below 2020 levels by 2030, was announced at COP 26 in 2021. It had received commitments from 151 countries by November 2023, accounting for over 50% of global anthropogenic methane emissions. China and India, the top two methane emitters, have not yet joined.

Since the introduction of the pledge, there has been a notable uptick in national and international policies and measures to mitigate methane emissions.

The Climate and Clean Air Coalition has created country-specific methane profiles and established a Methane Roadmap Action Programme to aid the further development and implementation of national methane roadmaps or action plans.

It is crucial for these commitments to be driven by effective political leadership and to take into account aligning financial support with the emissions profiles and abatement potential of specific sectors.

Emerging opportunities: International pledges and initiatives

International initiatives include:

- The **Global Methane Pledge Energy Pathway**, a multi-country effort launched in June 2022 (by the U.S., E.U., Argentina, Canada, Denmark, Egypt, Germany, Italy, Japan, Mexico, Nigeria, Norway, and Oman) to reduce methane emissions in oil and gas. The goal is to inspire all nations to maximize cost-effective methane mitigation in the sector, striving to eliminate routine flaring at the earliest opportunity and no later than 2030 (European Commission, 2022a).
- The **Methane Finance Sprint**, which aims to mobilize USD 200 million by COP 28 to support methane reduction activities in developing countries (The White House, 2023).
- Following the **Global Methane Pledge** signing, the U.S., E.U., Japan, Canada, Norway, Singapore, and the U.K. jointly declared in November 2022 their commitment to reduce methane emissions across the fossil energy value chain. This includes adopting measures and policies for rapid emissions reduction, establishing robust monitoring, reporting, and verification systems, offering financial and technical assistance, and incentivizing reductions in imported fossil fuels (European Commission, 2022b).
- At COP 27, the U.S. and E.U. extended the World Bank's Global gas Flaring Reduction Partnership to cover methane emissions reductions, creating the **Global Flaring and Methane Reduction Partnership** (IEA, 2023).
- The **Inter-American Development Bank** is launching the **Too Good To Waste initiative**, extending eligibility to all borrowing countries. This regional endeavor aims to expedite solid waste management projects across Latin America and the Caribbean to mitigate associated methane emissions. The initiative's activities, funded with non-reimbursable resources, encompass structuring bankable projects for concrete methane reduction, creating financial instruments to boost revenues for waste management, monitoring and verifying emissions mitigation, and facilitating capacity building and knowledge dissemination.

Box: Philanthropy-driven solutions

Philanthropists have recognized the need to invest more in methane. Inspired by the Global Methane Pledge, in 2021 more than 20 leading foundations pooled their resources to form the Global Methane Hub, committing over USD 300 million to catalyze political will and act with urgency this decade (CCAC, 2023). Targeted and effective deployment of these, and additional resources, will play an influential role in progressing methane abatement financing.

Emerging Opportunities: National Action Plans

The Global Methane Pledge expects signatory countries to voluntarily develop and implement methane reduction measures within their own borders. This could include regulations, incentives, and investments in sectors like fossil fuels, waste, and agriculture. Signatory countries can be encouraged to develop mechanisms to track progress, typically reporting on the reduction of emissions over time or the amount of finance disbursed to achieve the goals. New reporting requirements under the UNFCCC can push for countries to integrate methane into their NDCs.

An increasing number of countries are releasing national action plans to address methane emissions. These typically outline the steps a country intends to take to meet its methane reduction targets. This can include regulations and incentives for various sectors, as well as clear timeframes for implementing these measures. Reporting mechanisms are also common to monitor and report on the progress of these plans.

- **Canada's** Methane strategy targets a 35% reduction in domestic methane emissions on 2020 levels by 2030. This involves a commitment to reduce methane emissions from the oil and gas sector by 75% from 2012 levels by 2030. Canada has also committed to allotting USD 2 million over four years to support developing countries' methane mitigation efforts.
- **The U.S.** is targeting the oil and gas industry by introducing a charge on emissions through the Inflation Reduction Act. There is also a provision of financial and technical assistance valued at USD 1.55 billion for methane abatement.
- **Colombia** became the first country in South America to regulate flaring and fugitive emissions from upstream oil and gas activities in 2022.
- **Nigeria** introduced guidelines for emissions management in the upstream oil and gas sector to eliminate routine gas flaring by 2030 and reduce fugitive methane emissions by 60% by 2031.
- **Vietnam's** National Action Plan on Methane Reduction targets a 30% reduction in methane emissions from 2020 levels by 2030.
- **China**, the largest methane emitter, has released a plan detailing its strategy to address methane emissions, delineating specific measures to reduce emissions from sources such as coal mines, rice paddies, landfills, and other methane-emitting sources. Notably, the plan lacks explicit targets for emissions reduction (Reuters, 2023).
- **The E.U.'s** Methane Action Plan delineates policies and initiatives aligned with the Global Methane Pledge, aiming to achieve a 30% reduction in global emissions by 2030. The E.U.'s overarching objective is to progressively diminish greenhouse gas emissions, working towards climate neutrality by 2050. It also outlines methodologies for tracking policies and measures that have a direct impact on sectoral methane emissions (European Commission, 2020). In November 2023, the E.U. Methane Regulation was finalized: to minimize unnecessary release and leaks of methane, including those of oil, gas and coal imports (European Commission, 2023).

7. Recommendations and Next Steps

Recommendations from the landscape report

Policy related

- **Mitigating methane emissions presents a clear opportunity for policy makers**, as well as public and private investors, to take substantial strides in curbing global warming within this decade, as highlighted by UNEP and CCAC (2021).
- **Sustained political leadership is required** to continue the increased attention and initial progress that is being made in recognizing and acting on the potential to mitigate methane emissions.
- **The challenge will be to turn the emerging commitments and attention into practical and tangible interventions and policies** for reducing methane emissions. These are starting to be prioritized, as international commitments like the Global Methane Pledge and national action plans show.
- **Reducing risks by providing much stronger, more effective, regulatory framework** that monitors user payments, ensures process transparency and minimizes political risks can create an enabling environment for private sector involvement.
- **Progress on tracking of financing is critical** to building a better, clearer, more granular understanding of the opportunities to accelerate progress and deliver the scale of investment required to lower methane emissions swiftly. Next steps are outlined on Slide 38.

Finance related

- **Finance dedicated to methane abatement continues to fall short** of that needed to effectively decrease emissions at the pace required to avert the most severe consequences of climate change.
- **Grants and concessional capital from governments and DFIs, must play a catalytic role** in leveraging private capital. Their design and impactful deployment is of paramount importance.
- **Scaling up finance for the fossil sector is essential** as it has the largest mitigation potential and is often cost effective.
- **Current investments fail to target the regions and sectors most in need**, despite the availability of cost-effective abatement solutions in the market,
- **The private sector must play a more active role**, increasing flows and the provision of technical services across all sectors.

This report is accompanied by a policy brief on “[How to Start When Scaling Methane Abatement Finance](#)”, which lays out entry points for stakeholders in methane abatement finance in three areas: 1) domestic policies 2) international public finance and 3) within the private sector. These entry points are also summarized on slide 37.

All actors have a role in scaling methane abatement finance

Table 1: Examples of entry points for advancing methane abatement finance

Actors/Priorities	Implement regulations and fiscal policy tools	Promote R&D	Embed methane abatement in strategy	Deepen investment opportunities	Improve MRV of methane emissions
Governments and policy makers	<ul style="list-style-type: none"> Establish and enforce: stringent methane emission limits by sector. 	<ul style="list-style-type: none"> Prioritize R&D and innovation for grant financing or other government-provided finance for methane abatement. 	<ul style="list-style-type: none"> Set methane reduction targets in NDCs. Incorporate methane reduction strategies in sectoral roadmap for net zero. 	<ul style="list-style-type: none"> Use fiscal policy tools to encourage investment, including tax incentives/cuts for methane abatement projects. 	<ul style="list-style-type: none"> Establish sector-specific guidelines and methodologies for the monitoring, verification and reporting of methane emissions. Mandate tracking and reporting of methane emissions.
Public international finance institutions	<ul style="list-style-type: none"> Providing technical assistance and project preparation support to developing countries where capacity is limited. 	<ul style="list-style-type: none"> Promote international cooperation on research and development to enable knowledge transfer of best available technologies (BAT) across different countries 	<ul style="list-style-type: none"> Prioritize methane abatement in lending strategies. Encourage and support the development of standardized methodologies for reporting methane abatement finance across projects. 	<ul style="list-style-type: none"> Increase of concessional finance through blended finance structures or innovative financial instruments with a view of attracting more finance, particularly in hard to invest sectors and regions. 	<ul style="list-style-type: none"> Support the adoption of a common framework or endorsing existing international standards like the Global Methane Assessment undertaken by the Climate & Clean Air Coalition and the United Nations Environmental Program (UNEP and CCAC, 2021).
Private corporations and financial institutions	<ul style="list-style-type: none"> Work with industry association members to establish industry-wide best practices for intentional methane emission reduction projects within the context of abatement finance. 	<ul style="list-style-type: none"> Directly invest in research and innovation for methane abatement technologies to gain a competitive advantage for methane reduction solutions. 	<ul style="list-style-type: none"> Incorporate methane within net zero targets Engage with net zero associations to encourage adoption of consistent reporting standards on methane abatement, in line with the Taskforce on Climate-related Financial Disclosures. 	<ul style="list-style-type: none"> Implement best available methane abatement technologies and incorporate best practices within opex and capex that reduce methane. 	<ul style="list-style-type: none"> Develop guidelines for methane emissions monitoring for project selection and reporting to ensure consistency and transparency. Measure methane emissions across the value chain.

Future methane abatement finance tracking

Assessing a methane abatement finance baseline is fundamental to measuring progress over time. Against the backdrop of data limitations, it is key to deepen tracking of methane abatement finance through the following future research agenda:

- **Refining taxonomy to track methane abatement finance:** The taxonomy originally sourced from the Climate & Clean Air Coalition (CCAC) could be reviewed and expanded to include additional sectors or subsectors. This would provide a more comprehensive and nuanced understanding of evolving methane abatement solutions and their financial aspects.
- **Identifying options for reporting and tracking methane abatement finance:** Collaboration among different stakeholders will be essential to create a robust framework for quantifying and reporting methane abatement finance. Building on the refined taxonomy to track methane abatement finance, CPI could explore options on how methane abatement finance could be transparently reported.
- **Exploring new data sources and developing methodologies:** In pursuit of a more robust and accurate methodology, CPI is committed to exploring new data sources, particularly on methane abatement spending by corporations and in public domestic budgets. Whilst data directly reported by private and public actors is lacking, further data could be obtained using advanced data science and estimation techniques. By identifying and integrating new sources, CPI aims to improve the depth and breadth of our data collection, thereby enhancing the quality of our analyses.
- **Further improving finance needs assessment:** In order to understand progress of methane abatement finance against needs, it is essential to have a clear understanding of methane abatement finance needs. Research in this area is still developing and further work is needed to achieve more granular understanding on who could provide what type of capital and where. This could help coordinate scaling of methane abatement finance.
- **Updating historical data:** A new methodology, enriched with a refined taxonomy and supplemented data sources, will be instrumental in recalibrating and updating the values for the years 2019-2022. This will not only ensure the accuracy of historical records but also provide a baseline for assessing progress and trends in methane abatement finance.

Through these efforts, CPI seeks to maintain the highest standards of accuracy and relevance in our analysis of methane abatement finance, reflecting our commitment to providing valuable insights for policy makers, investors, and stakeholders engaged in mitigating methane emissions and addressing climate change.

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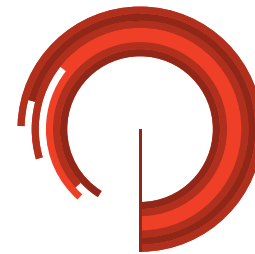
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