Welcome to the 21st Meeting of the Global Methane Initiative Steering Committee!

18 March 2024

Tomás Carbonell
GMI Steering Committee Chair
U.S. Environmental Protection Agency

Global Methane Initiative

Tour de Table

- We will call on each participant / delegation to make brief introductions
- Each participant is invited to introduce themselves (name, affiliation, and country)

Setting the Scene: Meeting Objectives and Agenda Review

Tomás Carbonell
GMI Steering Committee Chair
U.S. Environmental Protection Agency

Global Methane Initiative

GMI Steering Committee Meeting Objectives

Global Methane Initiative
Leading methane action since 2004

- Share and discuss GMI's ongoing activities and progress as reflected in updates by our Secretariat, by our Partner countries, our strategic partners and the work of our subcommittees

- Explore opportunities to foster greater collaboration to support ambitious methane mitigation

- Ensure that GMI priorities and plans align with any needs and opportunities identified through the discussion

Agenda: Morning

18 March 2024: Morning
Welcome, Opening of the Meeting
Tour de Table / Brief Introductions
Setting the Scene: Meeting Objectives, Agenda Approval and COP28 reflection
Update on Key Priorities & Subcommittee Activities
Collaboration and Progress on Methane Initiatives: Updates and Discussion
Health Break
Country Updates with Facilitated Discussion (Parts 1)
Lunch Break and Group Photo

Agenda: Afternoon

18 March 2024: Afternoon
Country Updates with Facilitated Discussion (Part 2)
Health Break
Global Opinion Survey on Methane from the Global Methane Hub
Open Discussion
Recap and Wrap-Up
Adjourn

Reminder: GMI Strategic Priorities [Updated December 2023]

Strategic Priorities:

1. Support global ambition to reduce methane emissions significantly by 2030.
2. Support individual GMI country partners in their efforts to reduce global methane emissions by providing well-coordinated support for the development and implementation of national action plans or national sector strategies, including through technical expertise and assistance for project implementation and tracking of emissions.
3. Engage the Project Network members in their efforts to actively participate in methane reduction commitments and partnerships.

Action Plan [actions within 1-5 years]:

1. Engage, assess, and strategically support Partner Countries through GMI's methane mitigation resources and expertise.
2. Re-engage with the Project Network members to integrate them more fully into Partner Country support efforts.
3. Collaborate and align with key Strategic Partners to foster high-profile opportunities.
4. Enhance communications and strengthen the flow of information.

Reflections from COP28

Claire Henley
U.S. Department of State

Global Methane Initiative

Update on Key Priorities & Subcommittee Activities

GMI Secretariat

Global Methane Initiative
Leading methane action since 2004

Summary of key priorities, next steps and timeframe
From September 2023 Steering Committee (SC) meeting

✓ Completed
○ In progress
• Not yet started

Key Priorities	SC Meeting consensus	Action Items for Secretariat post SC meeting	Timeframe
Action Plan & Strategic Priorities	Agreed to update GMI's Strategic Priorities and to create a single, integrated action plan moving forward	✓ Update the action plan and strategic priorities to reflect GMI's ongoing work and ideas generated at this meeting ✓ Share for Leadership review ✓ Upon Leadership approval, share for Steering Committee review ✓ Finalize and share by the end of 2023	✓ Sept-Oct 2023 ✓ Mid-Oct 2023 ✓ Late Oct 2023 ✓ December 2023
Project Network	Affirmed that re-engaging with and re-energizing the Project Network is a key priority for GMI success	✓ Re-engage with the Project Network members via email soliciting feedback ✓ Review feedback and increase strategic engagement accordingly • Provide an update to the Steering Committee meeting on feedback and progress made	✓ Sept-Oct 2023 • March 2024
COP28	Acknowledged there will not be a "GMI-focused" event at COP28, but agreed to identify ways to amplify GMI messaging through other events	✓ Reach out to Partner Countries to identify who may be hosting a pavilion and/or events, identify noteworthy activities to promote and to identify potential speakers, if needed. ✓ Developed and shared key talking points, video of GMI's latest accomplishments, CCAC's directory of methane-related events at COP28, and social media posts about partner country delegates participation.	✓ Early Oct 2023 ✓ November 2023
Partner Country Needs	Confirmed the importance of understanding Partner Country priorities and needs to ensure that GMI provides effective assistance	✓ Assess the priorities/needs of Partner Countries via email soliciting feedback • Share findings with the Steering Committee	✓ Dec 2023 - Feb 2024 • March 2024
Strategic Partner Collaboration	Affirmed the value of ongoing collaboration with key strategic partners (e.g., UNECE, CCAC, IEA, World Bank, Global Methane Hub)	○ Continue to collaborate with key Strategic Partners • Report on progress to Steering Committee	○ Ongoing • March 2024
2024 Global Methane Forum	Agreed that the mobilizing methane action through the Forum is a key priority and identified recommendations for enhancements	✓ Explore and include suggested enhancements into Forum planning	○ Sept 2023-March 2024

GMI Partner Country Needs Assessment

The following results show by category the "Top 3" responses for each question.

What are your country's priority topics and areas of interest for technical support for methane mitigation efforts?

Quantifying Emissions Reductions and Co-benefits

1. MRV support **(3.7)**
2. Customized subnational, national, or region-specific tools or models **(3.5)**
3. Country-level emission factors **(3.4)**

Evaluating Project-level Technical Feasibility

1. Project-specific baseline emissions quantification **(3.2)**
2. Technical and economic pre-feasibility analyses for potential projects **(3.2)**
3. Detailed technical and economic feasibility analyses for projects **(3.0)**

Identifying and/or Securing Funding

1. Information about project-level grant and funding opportunities **(2.9)**
2. Financial readiness assessments **(2.3)**
3. Guidance for completing grant or funding applications **(2.1)**

Planning and Implementation

1. National and sub-national strategic planning **(4.1)**
2. Identification of methane mitigation policies and measures **(4.1)**
3. Evaluation and reporting impacts of implemented policies **(4.0)**

- **Results based on 12 responses: Canada, Finland, Ghana, India, Israel, Saudi Arabia, Serbia, Turkey, and United States**
- **We are continuing to request feedback from delegates and will update by the Forum**

How would you prefer to engage with GMI to build capacity for methane mitigation efforts?

Events, Meetings, and Trainings

1. Sector-focused Sub-committee meetings **(4.1)**
2. International conferences (for example, Global Methane Forum) **(3.9)**
3. Peer-to-peer exchanges between countries; in country workshops **(3.8)**

Technical Resources and Outreach Materials

1. Best practice resources, training, case studies, and guidance documents **(4.4)**
2. Technical training courses (web-based or classroom) **(4.1)**
3. Country-specific profiles or reports **(3.9)**

Which stakeholder groups are you most interested in engaging with?

GMI Partners

1. Steering Committee and Subcommittee Co-Chairs **(4.4)**
2. Other delegates with similar industry/ sector interests **(4.0)**
3. Other delegates in your geographic region **(3.3)**

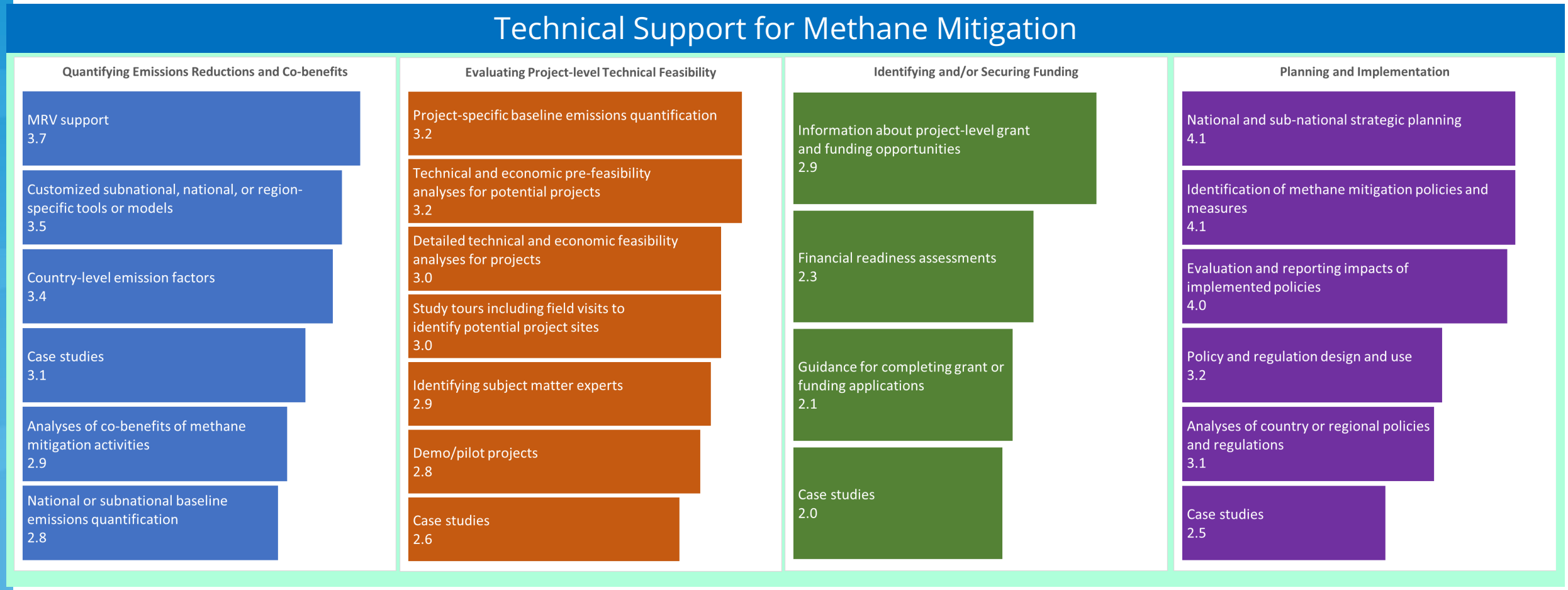
GMI Strategic Partners

1. Global Methane Hub **(4.6)**
2. Climate and Clean Air Coalition (CCAC) **(4.2)**
3. World Bank **(3.9)**

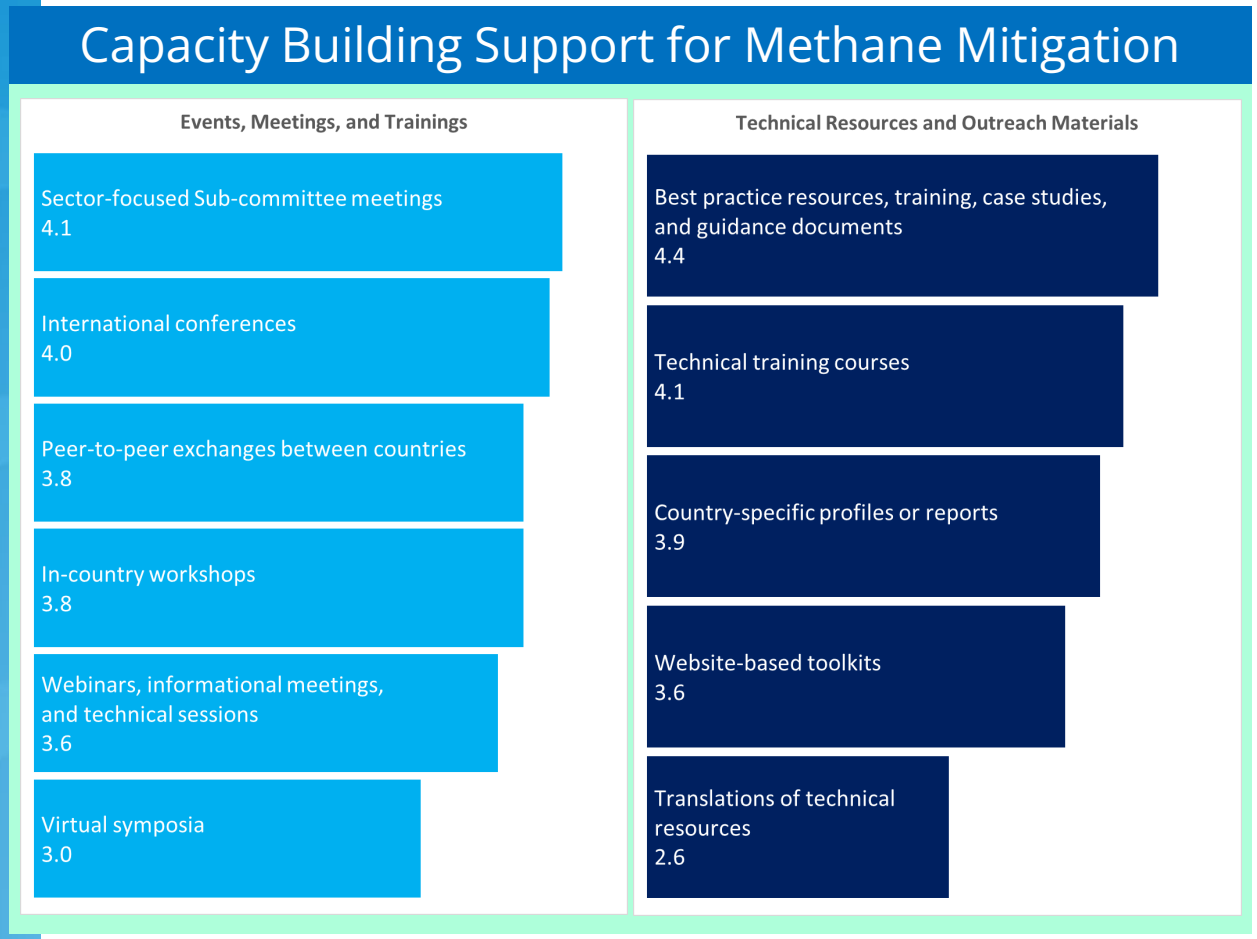
Project Network Members

1. Private Sector Entities **(4.3)**
2. Research/Academic Organizations **(4.1)**
3. Financial Institutions **(3.9)**

Country Partner Priorities



Country Partner Priorities



Re-Engaging the Project Network

The following results show the percentage of responses for each question.

Sector(s) of interest:

- 63% Biogas - Municipal Solid Waste
- 58% Biogas - Agriculture
- 53% Biogas - Municipal Wastewater
- 42% Oil & Gas
- 16% Coal Mines

Are you planning to attend the Global Methane Forum, 18-20 March 2024, in Geneva, Switzerland?

- 53% Yes
- 32% Interested in virtual option
- 16% Unsure

Have you attended a previous Global Methane Forum?

- 47% No, but familiar
- 32% No
- 21% Yes

Which of the following activities at the Global Methane Forum would be most appealing to you?

- 95% Matchmaking activity
- 63% Poster session
- 63% Lightning talks

- **Results based on 19 responses.**
- **We have reflected input in the networking activities of the Forum and will explore future options to be responsive**

Who would you most like to meet at a reception held during the Global Methane Forum?

- 79% Project funders
- 74% Project Network members within my sector or expertise
- 74% International organizations (UNECE, CCAC, Global Methane Hub, Work Bank, IEA, etc.)
- 68% Partner Country delegates and other government representatives
- 47% Project developers
- 26% Project Network members outside my sector or expertise
- 5% Private-sector led initiatives in methane mitigation

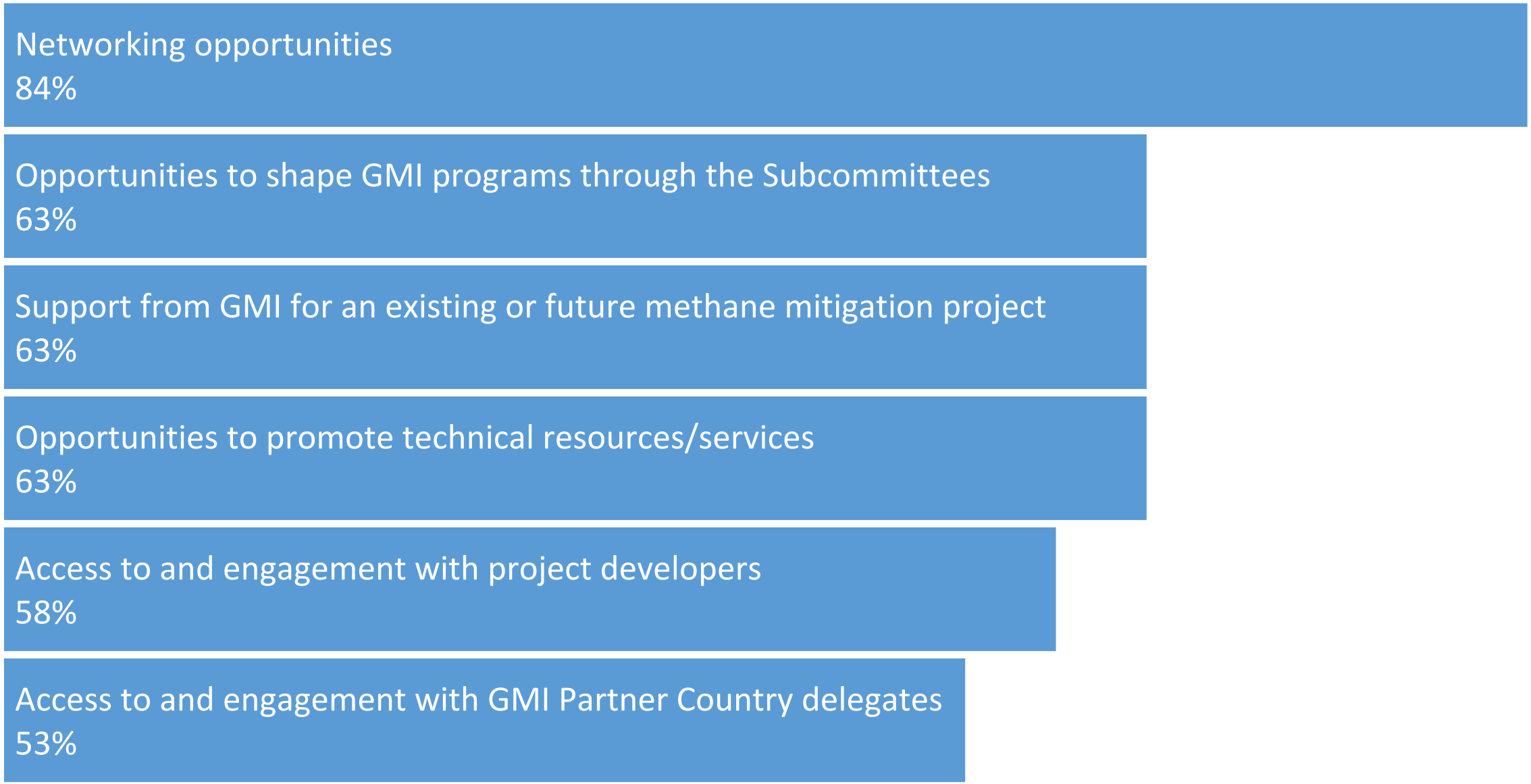
What are you hoping to get out of your participation in GMI's Project Network?

- 84% Networking opportunities
- 63% Opportunities to shape GMI programs through the Subcommittees
- 63% Support from GMI for an existing or future methane mitigation project
- 63% Opportunities to promote technical resources and services
- 58% Access to and engagement with project developers
- 53% Access to and engagement with GMI Partner Country delegates
- 47% Help with using GMI tools and resources

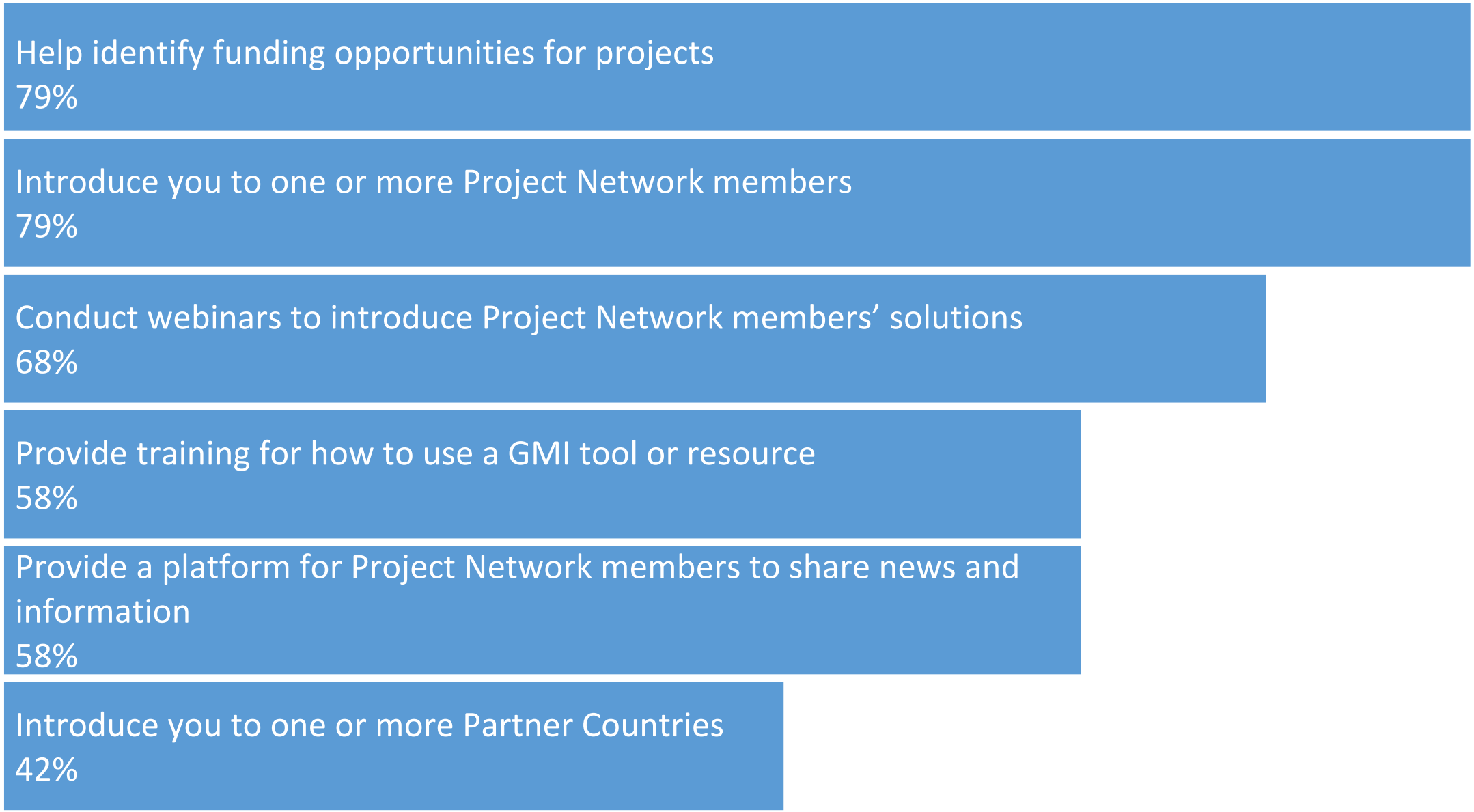
What can GMI do to help you in the near term?

- 79% Help identify funding opportunities for projects
- 79% Introduce you to one or more Project Network members
- 68% Conduct webinars to introduce Project Network members' solutions
- 58% Provide training for how to use a GMI tool or resource
- 58% Provide a platform for Project Network members to share news and information
- 42% Introduce you to one or more Partner Countries

What are you hoping to get out of your participation in GMI's Project Network?



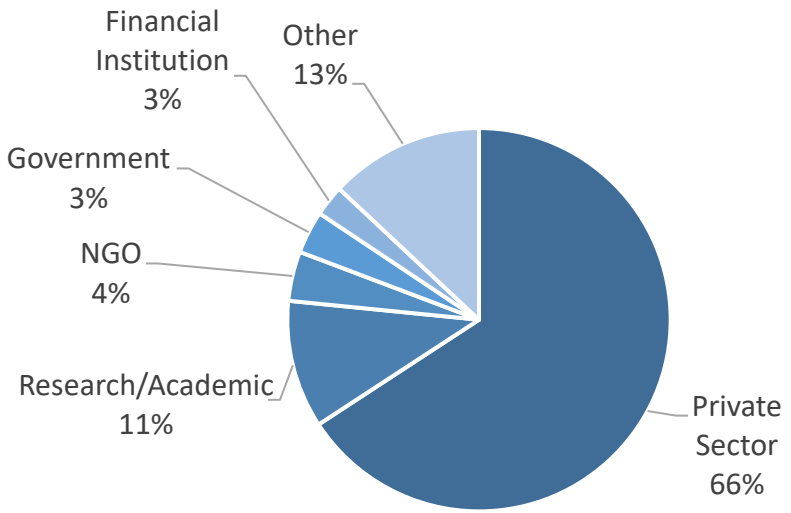
What can GMI do to help you in the near term?



Project Network Engagement

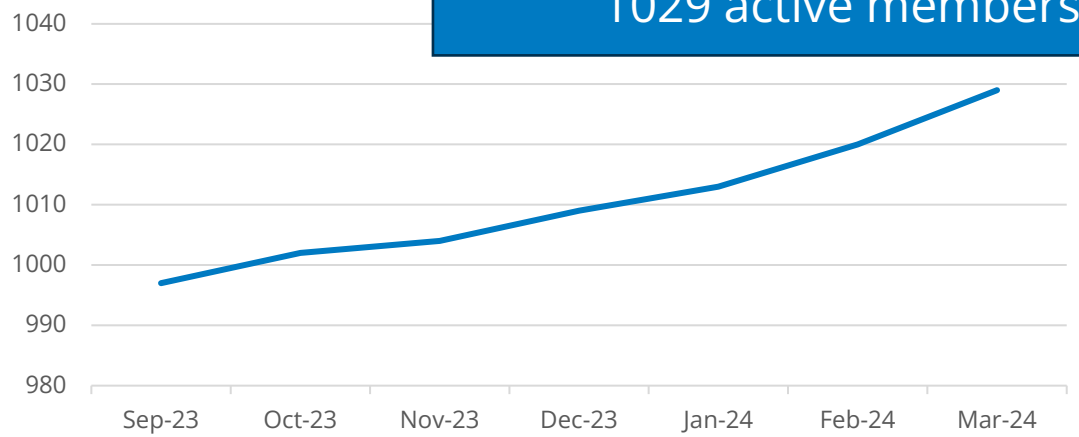
- GMI continues to actively involve Project Network members through various activities, including adding members to the mailing list and requesting feedback on how GMI can better meet their needs
- Next steps: assess connections made at the Forum, enhance the Project Network webpage, and facilitate networking opportunities

Percent of Members by Type of Organization



The Project Network has a total of 1029 active members

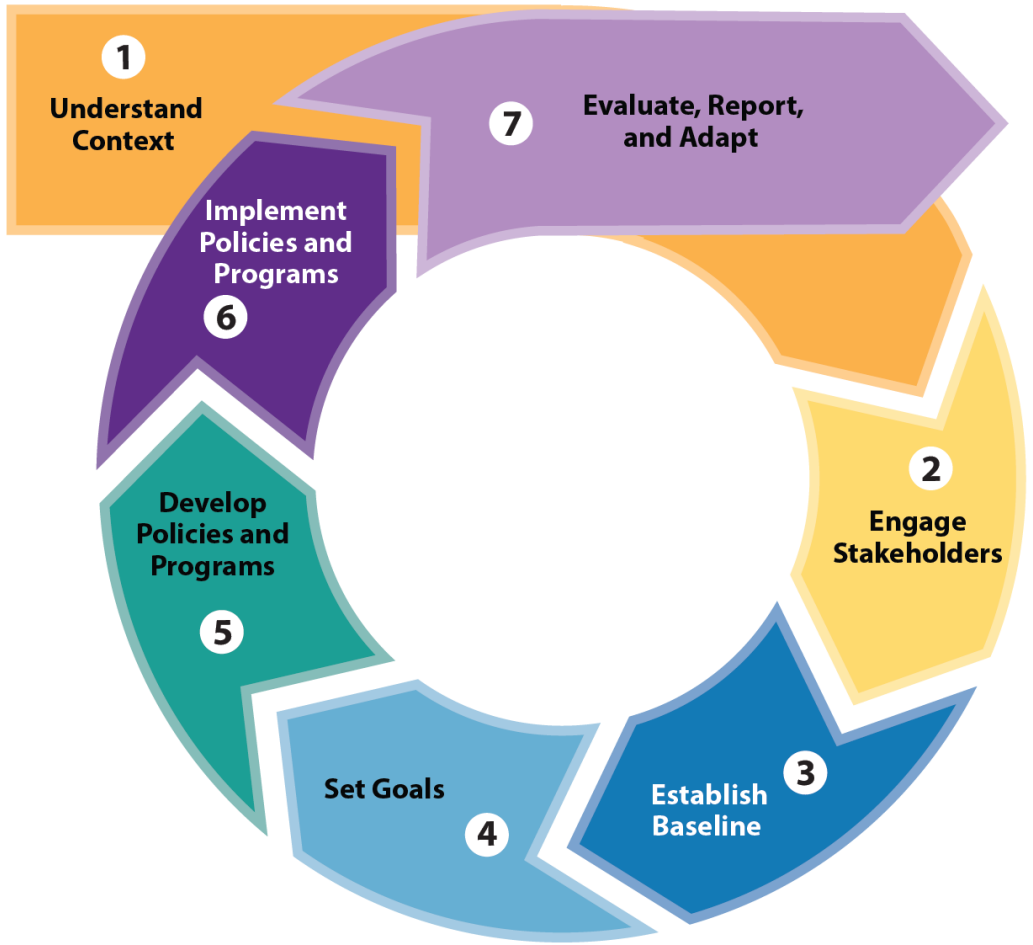
New Members Since September 2023



Global Methane Initiative
Project Network Member

New in 2024! GMI Policymaker's Framework for Addressing Methane Emissions

Global Methane Initiative
Leading methane action since 2004



https://globalmethane.org/pmf/

- **What:** A framework to help countries accelerate progress toward their methane emission reduction goals, released in February 2024
- **How:**
  - Provides a step-by-step process for developing and implementing policies, programs, and partnerships to reduce methane emissions
  - *Each step includes:*
    - **A description** to help policymakers navigate each step,
    - **Best practice activities** that policymakers can consider,
    - **General and sector-specific resource links** that can provide additional guidance and support, and
    - **An expanding portfolio of case study examples** of policies and programs from around the world to help countries learn from others' experiences.
- **Who:** Primarily for national policymakers and ministries responsible for establishing national or subnational policies but could be useful to anyone involved in the process

Other Key Secretariat Activities

- **New in 2024! GMI Methane Matters Quarterly Newsletter, featuring:**
  - A Spotlight,
  - Tools and Resources,
  - Case Studies and
  - Upcoming Events
- **Upcoming Activities:**
  - Develop photo montage to celebrate 20th Anniversary of GMI (November 2024)
  - Expand case studies on GMI website, including with Forum Methane Action Showcase posters
  - Enhance project network member contact pages

View this email in your browser

Welcome!

The Global Methane Initiative (GMI) Secretariat is pleased to announce the GMI Methane Matters Newsletter! This quarterly newsletter will deliver announcements, new resources, news, and upcoming events directly to the GMI community of Partner Countries, Strategic Partners, and Project Network members. It includes information about the innovative ways in which our multi-sector partners are working to advance business-friendly solutions that protect the climate and enrich communities.

Subcommittee Updates and Discussion

Coal Mines

Oil & Gas Systems

Biogas

(Agriculture, Municipal Solid Waste, Municipal Wastewater)

Coal Mines Subcommittee Updates

Liu Wenge, Co-chair
China Coal Information Institute (CCII) (China)

Manoj Kumar, Co-chair
Central Mine Planning & Design Institute Ltd (CMPDI) (India)

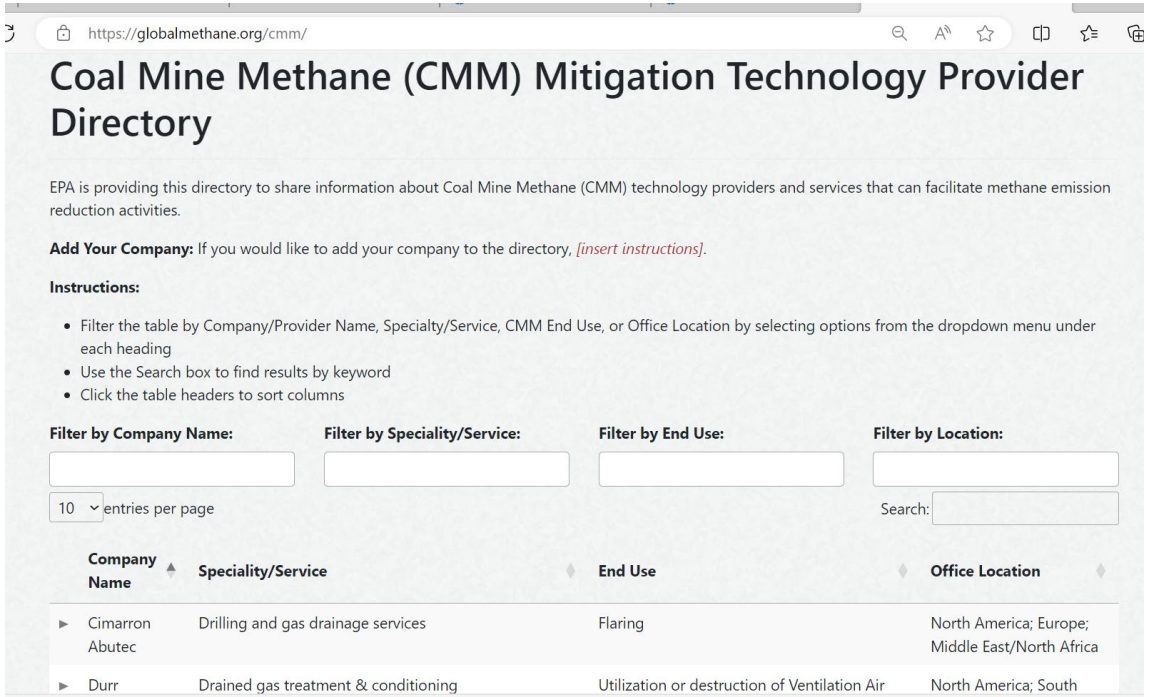
Volha Roshchanka, Co-chair
U.S. Environmental Protection Agency (EPA) (United States)

Subcommittee Activities

- Over the past 1.5 years the Subcommittee undertook a series of activities to identify challenges to coal mine methane mitigation, to brainstorm solutions, to prioritize solutions, and to develop activities.
- All materials are posted online, including activity ideas.
- The Co-Chairs ranked 30 selected activity ideas for the Subcommittee to implement. The top ranked ideas were:
  - Update the GMI Technology Database as well as add costs, examples, suppliers; also make it more interactive
  - Develop case studies with Marginal Abatement Curves (MAC) and country-specific analyses, case studies that show the economics of technological/policy solutions, and coal sector mitigation potential among those solutions
  - Develop easy to follow training (webinars, online/interactive, in-person) on how emissions are estimated through top-down methods

Upcoming Activities and Resources

- Finalizing the CMM Project List (last updated in 2021) to be released in April
  - Contains the most comprehensive information on existing CMM projects worldwide
- Commencing work to develop CMM Technology Database
  - Beta-version so far, but will be an opportunity to get involved
- Investigating the opportunity to build country-specific MAC analyses.



Biogas Subcommittee Updates

Matt Hamilton, Co-Chair
Environment and Climate Change Canada (ECCC) (Canada)

Godfred Fiifi Boadi, Co-Chair
Ministry of Sanitation and Water Resources (Ghana)

Monica Shimamura, Co-Chair
U.S. Environmental Protection Agency (EPA) (United States)

Biogas News

Fiifi Boadi
Ministry of Sanitation and Water Resources
Ghana

- New Co-Chair – new biogas perspectives from Africa
- Collaborating with LOW-M data and finance group

Future: Strengthening future partnerships with World Bank's Methane Platform and Climate and Clean Air Partnership Waste and Agriculture Hubs

2024 Workshop Series – Mobilizing Methane Action at Open Dumpsites and Landfills

- Workshop #1 (January): Global Opportunities and Strategies for Addressing Landfill Methane
  - Recording and materials available
- Workshop #2 (March): Methane Mitigation Project Phases, Practical Solutions, and GHG Emission Quantification
  - Recording and materials coming soon
- Workshop #3 (April): will feature a brand new GMI resource, the **Waste Characterization Handbook** – stay tuned!

Oil & Gas Subcommittee Updates

James Diamond, Canada
Subcommittee Co-Chair

Collaboration and Progress on Methane Initiatives: Updates and Discussion

Tomás Carbonell
GMI Steering Committee Chair
U.S. Environmental Protection Agency

Global Methane Initiative

Collaboration and Progress on Methane Initiatives: Updates and Discussion with GMI's Strategic Partners

Facilitator: Tomás Carbonell, GMI Steering Committee Chair, U.S. Environmental Protection Agency

- Dario Liguti, United Nations Economic Commission for Europe
- Martina Otto, Climate & Clean Air Coalition
- Marcelo Mena, Global Methane Hub
- Stefania Abakerli, World Bank

Collaboration with Strategic Partners: Potential Opportunities for Enhancement

- Notifying each other in advance of upcoming meetings and opportunities where we can participate/present updates and that we can cross-promote to our partners
- Scheduling meetings jointly
- Coordinating when we send out needs assessment surveys and sharing the results
- Coordinating/collaborating on methane policy tracking , including linking to our new GMI Policymaker Framework)
- Strategic/coordinated planning on targeted country support
- Others ideas?

Health Break (15 minutes)

Global Methane Initiative

Country Updates with Facilitated Discussion

Daniel Benefoh
GMI Steering Committee Vice Chair
Ghana Environmental Protection Agency

Global Methane Initiative

Country Updates with Facilitated Discussion (Part 1)

Facilitator: Dr. Daniel Benefoh, GMI Steering Committee Vice Chair, Ghana Environmental Protection Agency, Ghana

- **China**
  - Mr. Han Jiaye and Mr. Liu Wenge
- **Finland**
  - Mr. Kaarle Kupiainen
- **India**
  - Mr. Ajay Kumar, and Mr. Chiranjib Patra
- **Indonesia**
  - Ms. Rosa Vivien Ratnawati
- **Saudi Arabia**
  - Mr. Faisal Al Qurooni and Mr. Faisal Al Musa

27.3.2024

Ympäristöministeriö
Miljöministeriet
Ministry of the Environment

Ympäristöministeriö
Miljöministeriet
Ministry of the Environment

Finland’s actions to reduce methane emissions

Kaarle Kupiainen
Ministerial Adviser, Ph.D.
Ministry of the Environment

International processes

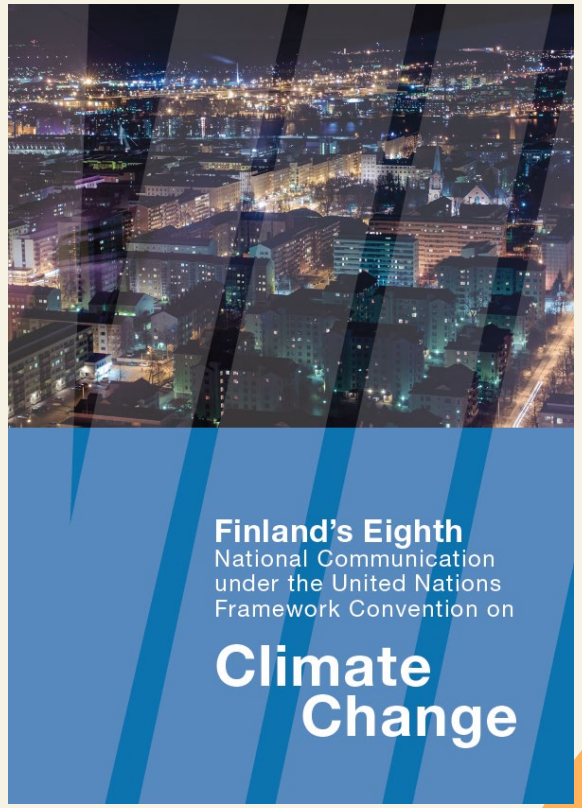
Finland is active in several international processes concerned with methane, including the following:

- **Global Methane Initiative (GMI)** partner since 2008
- Signatory to the **Global Methane Pledge** since 2021, National Action Plan in 2022
- **Climate & Clean Air Coalition (CCAC)** partner since 2012
- **The Arctic council** - Framework for Action on BC and Methane
  - managed by Arctic Council's Expert Group on Black Carbon and Methane; includes reporting of emissions and policy action of methane
  - Working Groups (i.e. the Arctic Monitoring and Assessment Programme AMAP, Arctic Contaminants Action Programme ACAP) and their Expert Groups address methane science and demonstration projects
- **UNECE CLRTAP**
- **World Bank Global Gas Flaring Reduction Partnership (GGFR)**
- **Beyond Oil and Gas initiative (BOGA)** – Finland has a "Friend" status since 2021

Finland, a carbon neutral society by 2035

- Finnish Climate Change Act (423/2022):
  - Emission reduction goals 2030 -60% / 2040 -80% / 2050 -90-95%; climate neutrality 2035; target for carbon removals
  - Specifies a Climate Change Policy Planning System
- The planning system considers CO_2-eq emissions, methane an integral part
- New government took office in 2023, targets remain, policy strategies are being updated

- Methane accounts for 8% of Finnish GHG emissions (CO_2-eq), CO_2 accounts for 80%; methane acts as a precursor for ground-level ozone
- Due to prior policy interventions in key sectors, methane emissions have almost halved between 1990-2020, further decline is expected, but scope remains limited;
- Implementation of the EU's methane strategy (2020) and regulation (provisional agreement 2023)

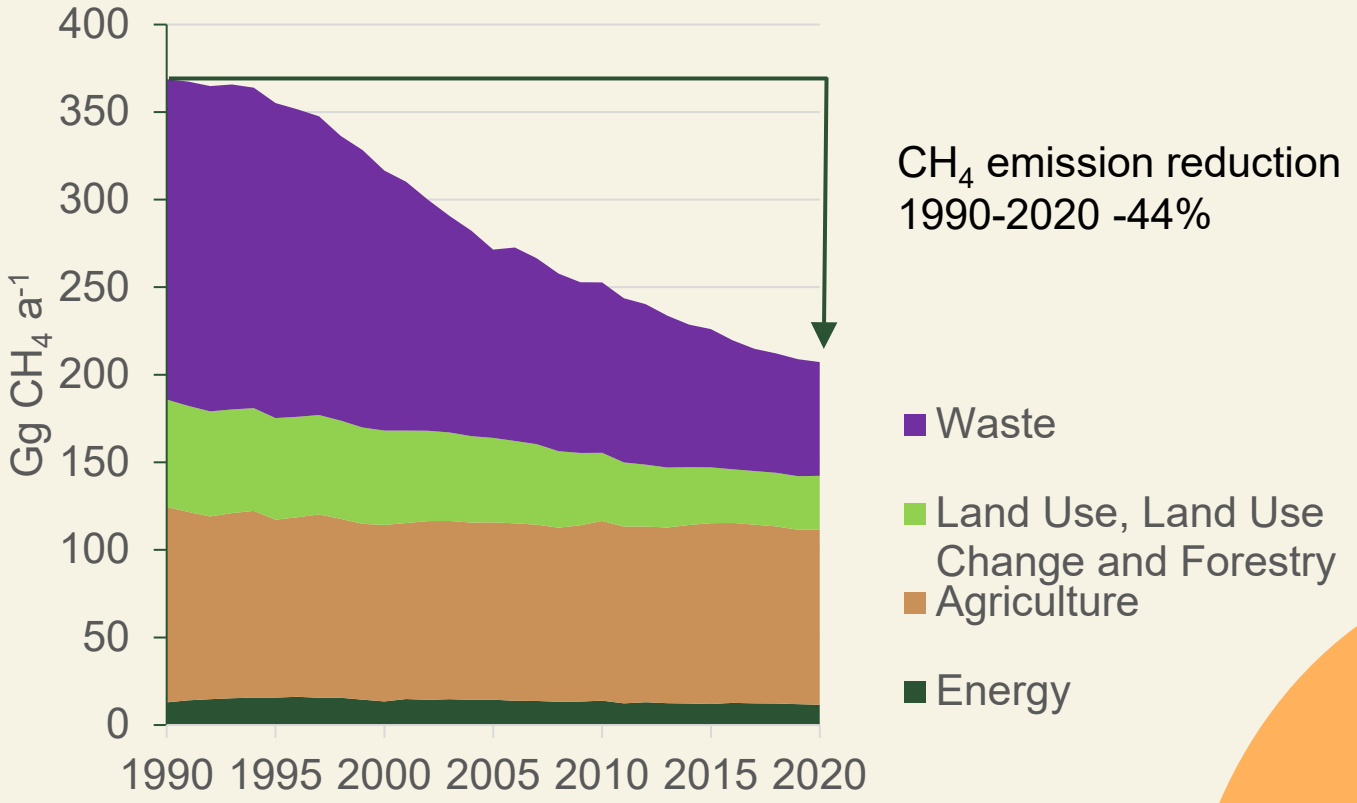


Methane emissions in 1990–2020 in Finland

Methane emissions (CH_4) have decreased by 44% from the 1990 level. This is mainly due to the improvements in waste treatment and a contraction in animal husbandry in the Agriculture sector.

Main sources by sector (% in 2020)

- Agriculture (49%) (enteric fermentation, manure management)
- Waste (31%) (landfills, wastewater treatment, composting and digestion)
- Energy (5%) (combustion, fugitive)
- LULUCF (15%) (drainage and rewetting and other management of organic and mineral soils: managed wetlands, drained organic forest soils, open burning)



Source: Finland's 2022 GHG emission inventory submission to the UNFCCC

Ympäristöministeriö
Miljöministeriet
Ministry of the Environment

Policy measures at a glance

Waste sector

- 2016 heavy restriction of **landfilling of organic waste**
- Separate collection of **biodegradable waste** (EU obligation 2024)
- **Capture and control of landfill gas** in place in most operational and out-of-use landfills (according to EU directive 1999/31/EC)
- **Wastewater** collection and treatment has been centralized; inefficient plants have been phased-out
- Promoting **biogas** production and use

Agriculture

- Manure management: promoting **biogas** production and nutrient recycling via incentives for farms and companies;
- Enteric fermentation: national and international research studies to look into **feeds and feed additives** that reduce methane from enteric fermentation

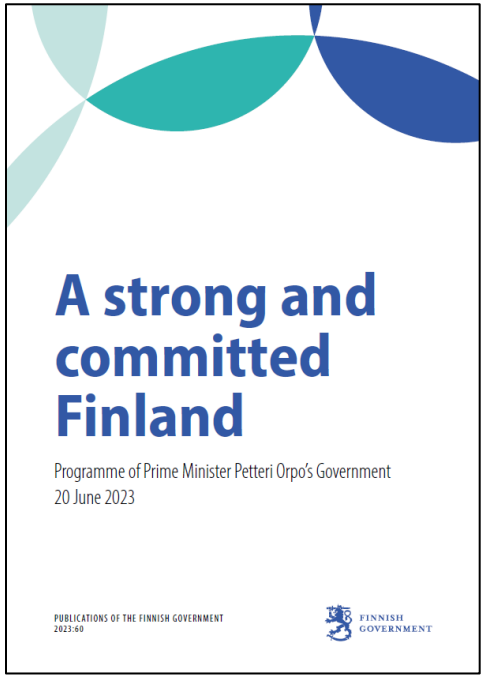
Energy

- Modern **gas distribution network**; centrally controlled **LDAR** system;
- Measures in the **residential sector** (i.e. FAPPS 2030, EU Ecodesign directive, CE labeling)
- **EU methane regulation (provisional agreement)**: obligations for the O&G and coal industry on MRV, LDAR and reducing emissions across value chains → opportunities for Finnish companies providing MRV solutions and measurement devices

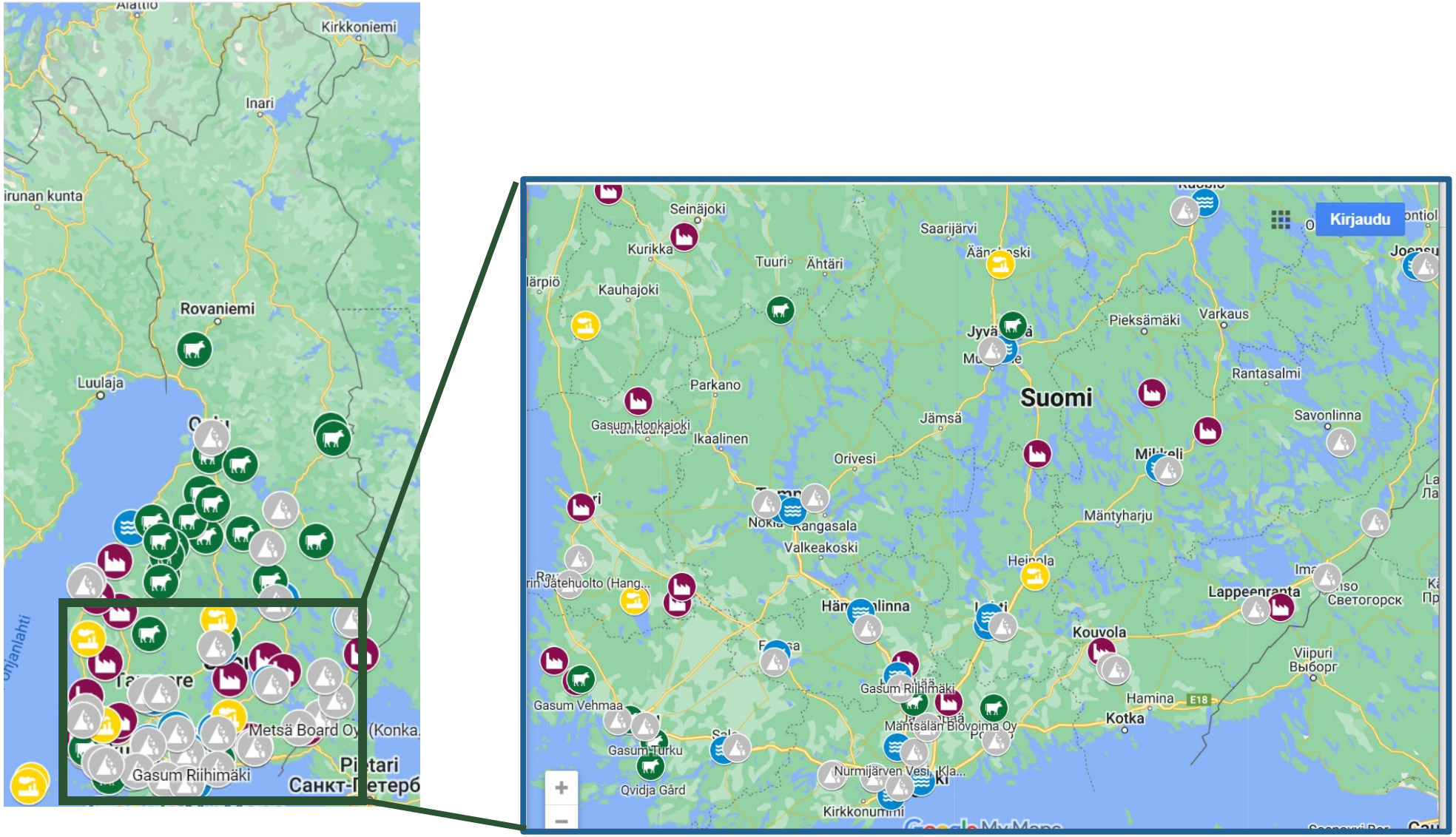
Case: Measures to promote biogas

- The new government continues to promote biogas production and use
- Objectives and measures are set out in the Government Programme, and other strategies
- The measures aim, not only to reduce CH_4 emissions, but also to
  - Reduce carbon dioxide emissions in the **transport, agricultural and waste sectors**
  - Increase national energy and nutrient self-sufficiency
  - Increase nutrient recycling and the use of organic fertilizers
- Subsidies, investment aids, RnD, promoting investments

- New report! "Sustainable practices in biogas production"



Biogas production plants in Finland



Source: Finnish Biocycle and Biogas Association (https://biokierto.fi/in-english/)

Thank you!

Point of Contact:

Kaarle Kupiainen
Ministerial Adviser, Ph.D.
Ministry of the Environment
tel. +358 50 477 2278
kaarle.kupiainen@gov.fi

Ympäristöministeriö
Miljöministeriet
Ministry of the Environment

Aleksanterinkatu 7, Helsinki | PL 35, FI-00023 Valtioneuvosto | ym.fi

Ympäristöministeriö
Miljöministeriet
Ministry of the Environment

2024 Global Methane Forum

Mobilizing Methane Action

18-21 March 2024, Geneva, Switzerland

India/Central Mine Planning & Design Institute Limited Update

Chiranjib Patra

Global Methane Initiative
Leading methane action since 2004

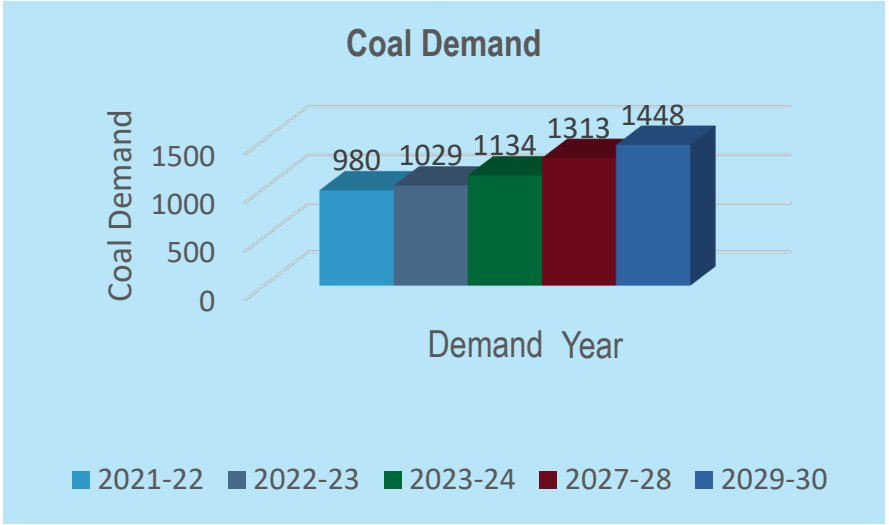
UNECE

Global Methane Hub

CLIMATE & CLEAN AIR COALITION
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS
a UNEP convened initiative

Coal Sector Demand (India)

- Coal is the most important and abundant fossil fuel in India. It accounts for 55% of the country's energy need.
- The Coal Demand in India in 2019-20 was 956 Mt and was increased to 1029 Mt by 2022-23 and it is expected to be in the range of 1.3 -1.5 Billion tonnes by 2030.

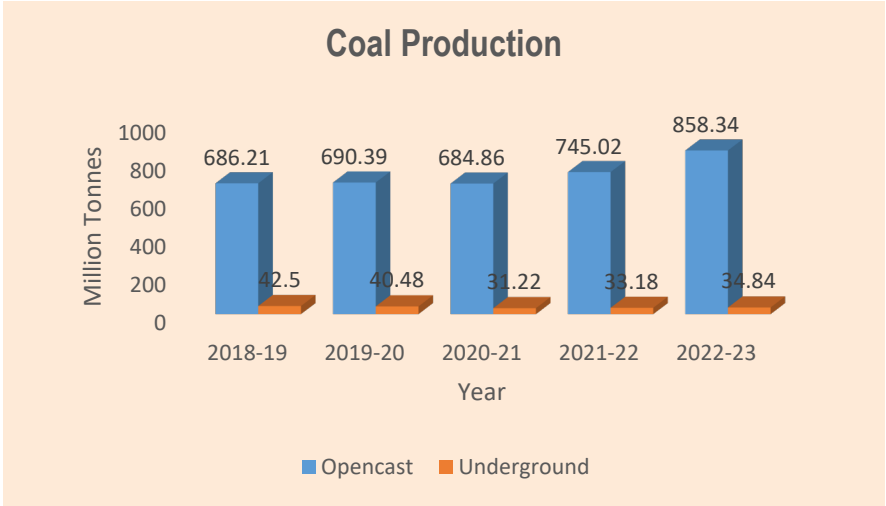


Source: Ministry of Coal (India)

Coal Production Over the Past 5 Years

- Coal Production in India:

Year	Open Cast Production (Mt)	Underground Production (Mt)	Total Coal Production(Mt)
2018-19	686.21	42.5	728.71
2019-20	690.39	40.48	730.87
2020-21	684.86	31.22	716.08
2021-22	745.02	33.18	778.21
2022-23	858.34	34.84	893.19



Source: Ministry of Coal (India)

- Coal India Limited (CIL) is at the forefront of the nation's coal production. CIL alone produces around 79% of the country’s entire coal output.

Coal India Limited :Fuelling India's energy needs

- Coal India Limited (CIL), operating under the aegis of the Ministry of Coal, Government of India.
- CMPDI is one of the subsidiaries of CIL, providing almost all the consultancy services prior to mining, during the mining operation and after the mining operations under one roof.
- Key highlights of CIL:
  - Coal Production: 703.20 MT
  - Employees: 239210
  - Net Worth: ₹57,224.76 Crore(6893Million USD)
  - Profit Before Tax: ₹38,000.81 Crore (4578 Million USD)

Coal Mine Methane Outlook

- India has published the 3rd Biennial Update Report to the UNFCC in 2021, which contains the inventory of Green House Gases (GHG) for the year 2016.
- India, Third National Communication and Initial Adaptation Communication to UNFCC submitted by MoEFCC in Dec 2023.
- It brings out the various initiatives of Govt. of India for mitigation and adaptation.
- The total fugitive emissions in the year 2019 were 35,898 GgCO2e, of which 47 per cent were from coal mining and post mining operations and 53 per cent were from oil and natural gas production and handling systems.
- Between 2016 and 2019, fugitive emissions to the atmosphere decreased by 3 per cent

Coal Mine Methane Emission

- CMPDI in collaboration with USEPA working to establish a methodology to estimate Fugitive Emission from Opencast mines of India.

India’s commitments in COP26

- India is committed to playing an active role in combating climate change through a reduction in greenhouse gas emissions.
- India’s Five Commitments at COP26:
  - Develop capacity to generate 500GW of non-fossil fuel based energy by 2030.
  - Meet 50% of the country’s energy needs with renewable energy by 2030
  - Significant reduction in estimated carbon emissions from the current level by one billion tonnes, by the year 2030.
  - Minimise the economy’s carbon intensity by 45% till 2030, from 2005 levels.
  - Goal of achieving net zero emissions by 2070.

Ways Ahead

- CIL is diversifying its business into various sectors such as solar power and New and renewable energy resources (Non-Conventional) to achieve country's vision of net zero emission.
- India is taking all efforts to make coal mining sustainable to environmental, social and economic dimensions.
- Identifying areas where AMM projects can be taken up.

Thank You

Indonesia Update on Current Methane Priorities at Global Methane Initiative – Steering Committee Meeting

Geneva, Switzerland
18 March 2024

Indonesia's Enhanced NDC

Sector	GHG Emission Level 2010* (MTon CO2-eq)	GHG Emission Level 2030			GHG Emission Reduction				Annual Average Growth BAU (2010-2030)	Average Growth 2000-2012
		MTon CO_2-eq			MTon CO_2-eq		% of Total BaU			
		BaU	CM1	CM2	CM1	CM2	CM1	CM2		
1. Energy*	453.2	1,669	1,311	1,223	358	446	12.5%	15.5%	6.7%	4.50%
2. Waste	88	296	256	253	40	43.5	1.4%	1.5%	6.3%	4.00%
3. IPPU	36	69.6	63	61	7	9	0.2%	0.3%	3.4%	0.10%
4. Agriculture	110.5	119.66	110	108	10	12	0.3%	0.4%	0.4%	1.30%
5. Forestry and Other Land Uses (FOLU)**	647	714	214	-15	500	729	17.4%	25.4%	0.5%	2.70%
TOTAL	**1,334**	**2,869**	**1,953**	**1,632**	**915**	**1,240**	**31.89%**	**43.20%**	**3.9%**	**3.20%**

Notes: **CM1**= Counter Measure 1 (*unconditional mitigation scenario*)
CM2= Counter Measure 2 (*conditional mitigation scenario*)

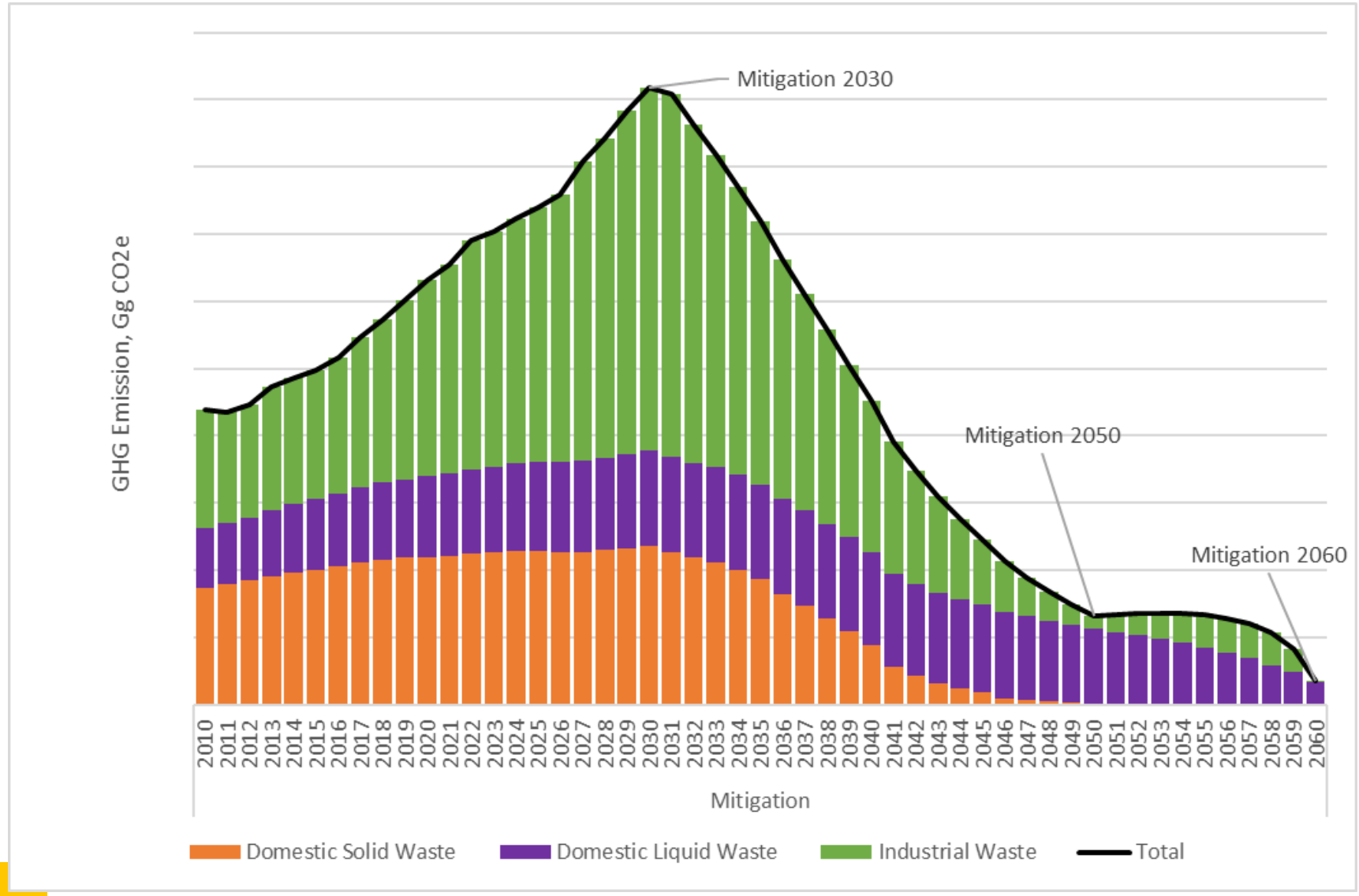
*) Including fugitive.
**) Including emission from estate and timber plantations.

Indonesia's Priority on Methane Mitigation

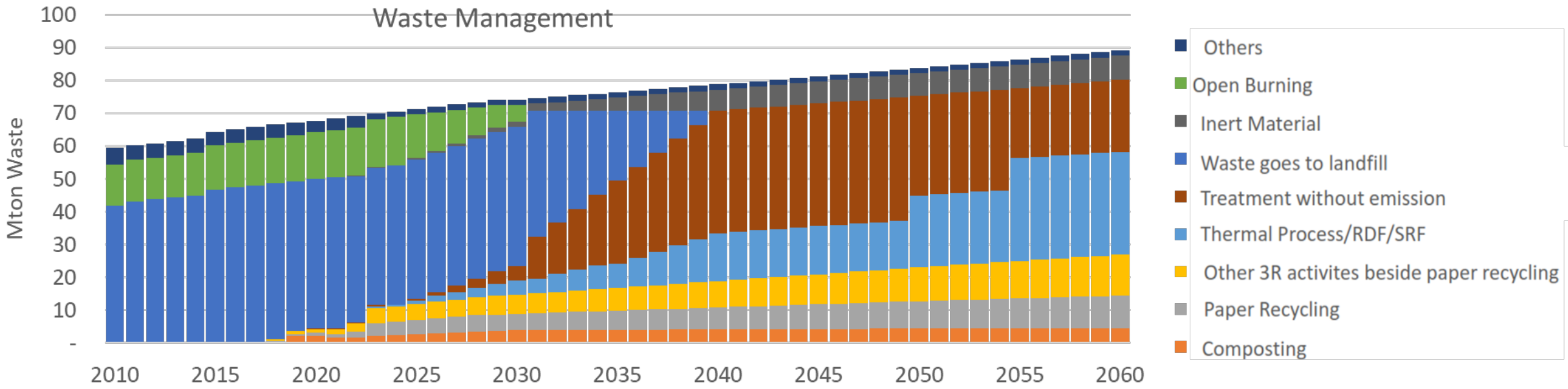
a. **Utilization of 3R paper (reuse, reduce, recycle)**
b. **Composting**
c. **Integrated WWTP management**
d. **WWTP Management**
e. **Utilization of waste into energy (Waste-to-energy, RDF)**
f. Increased crop production and crop intensity
g. Selection of rice varieties with low GHG emissions
h. Utilization of livestock manure for biogas
i. Improvement of animal feed supplements
j. Implementation of a water-saving rice irrigation system
k. Integrated agricultural system
l. Reduce food loss and food waste
m. More efficient use of fuel in the transportation system, use of biofuel for transportation and electricity generation, replacement of coal with gas, use of EBT, and use of CCS/CCUS technology in industry

***Waste Sector**

Zero Waste Zero Emission 2050 Target



Target of Domestic Solid Waste Management in Zero Waste Zero Emission Operation Plan



Example: Banyumas Regency

GENERATED WASTE

535.23 TONNES/ DAY

REDUCTION

65.72 %
351.75 TONNES/DAY

HANDLING

32.30 %
172.88 TONNES/DAY

UNMANAGED

1.98 %
10.6 TONNES/DAY

MANAGED WASTE

98.02 %
524.63 TONNES/DAY

Source: National Waste Management Information System (Sistem Informasi Pengelolaan Sampah Nasional (SIPSN) (https://sipsn.menlhk.go.id/sipsn)

Banyumas Environmental and Educational Based Final Processing Site

Residue from Integrated Waste Disposal Place / Recycling Center

± 50-60 tonnes/day

Environmental and Educational Based Final Processing Site

Waste Segregation Machine

Residue
(Textiles, diapers, twigs, etc)

Pyrolysis
5 pyrolysis unit in final processing site with capacity 8 m^3 /hour

Low- Value Anorganic

Processing into RDF

Processing into Paving Block / Plastic roof tiles

Organic

Maggot

Landfill

THANK YOU

Ministry of Environment and Forestry
Republic of Indonesia
2024

وزارة الطاقة
MINISTRY OF ENERGY

المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

Methane Emissions Mitigation in the Oil and Gas Industry in Saudi Arabia

Saudi Arabia – GMI SC Update
March 2024

www.moenergy.gov.sa

KSA has maintained an upstream methane intensity[1)] of 0.05% in 2022, which is already well below the OGCI ambition to achieve 0.20% by 2025

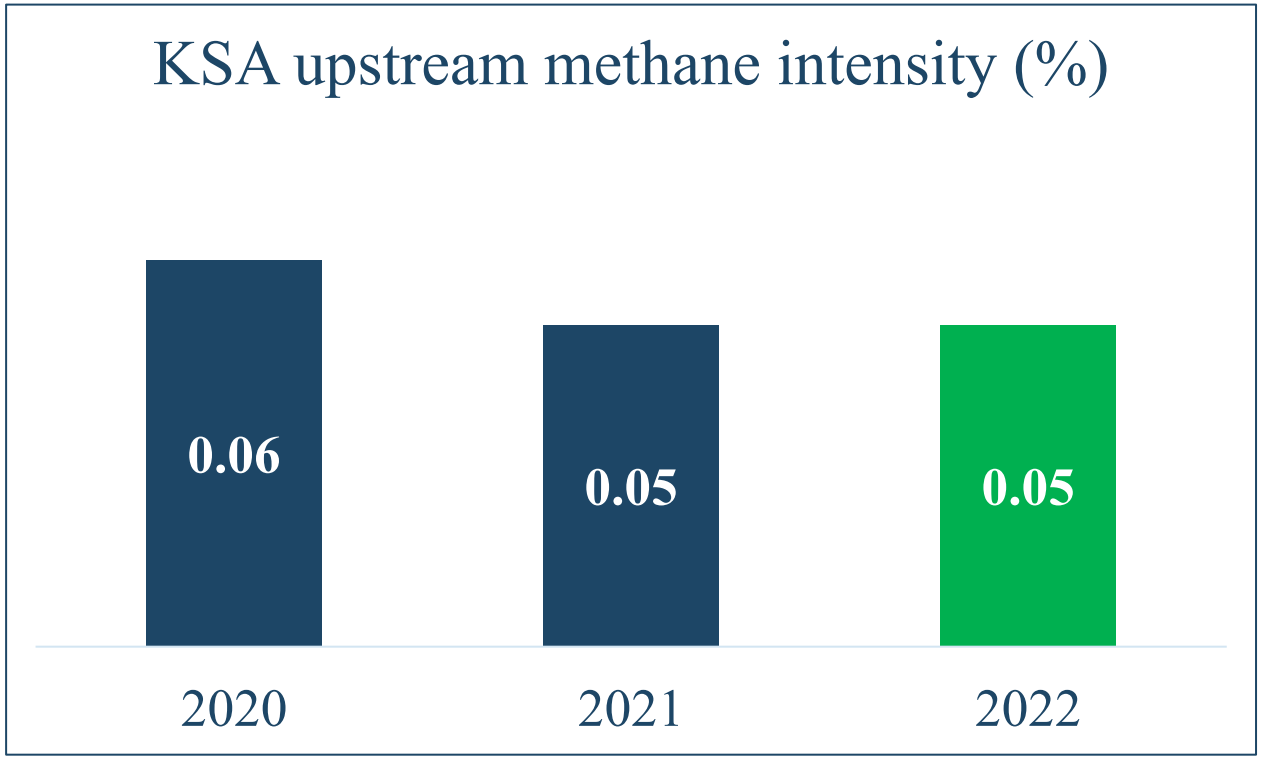
KSA's upstream methane intensity and reduction efforts

This has been achieved through:

1. Flare minimization
2. Leak detection and repair programs and deploying breakthrough technologies

And will be enhanced by:

3. Commitments and pledges

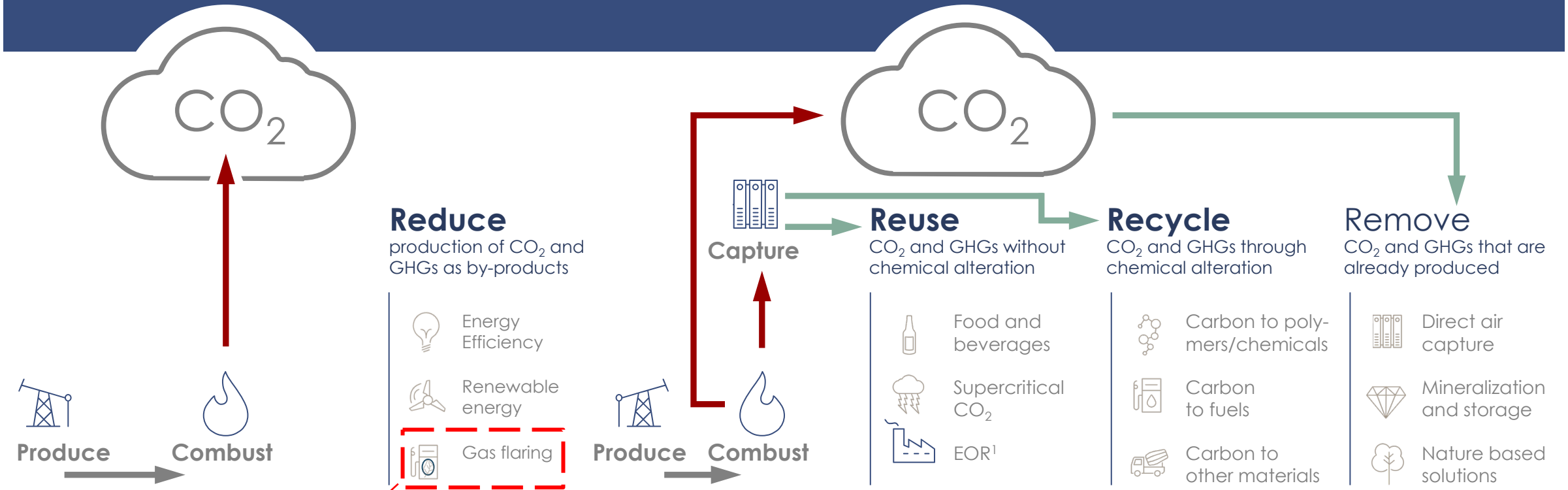


وزارة الطاقة
MINISTRY OF ENERGY

1) Methane emissions from upstream operations per volume of marketed natural gas

Why flaring? KSA has adopted the Circular Carbon Economy (CCE) approach in 2020 to achieve net-zero by 2060. Monitoring flaring "Reduces" emissions.

From a **linear carbon economy…** **Reuse and Remove)**



Flaring can also result in methane emissions in the case of incomplete combustion and therefore it is important in the context of methane emissions.

1) EOR: Enhanced Oil Recovery

وزارة الطاقة
MINISTRY OF ENERGY

KSA has reduced its flaring intensity[1] in 2022 to 4.61 scf/boe (the lowest ever) compared to 5.51 scf/boe in 2021 – And is committed to reach ZRF[2] by 2030

Flare minimization achievements and targets

The master gas system

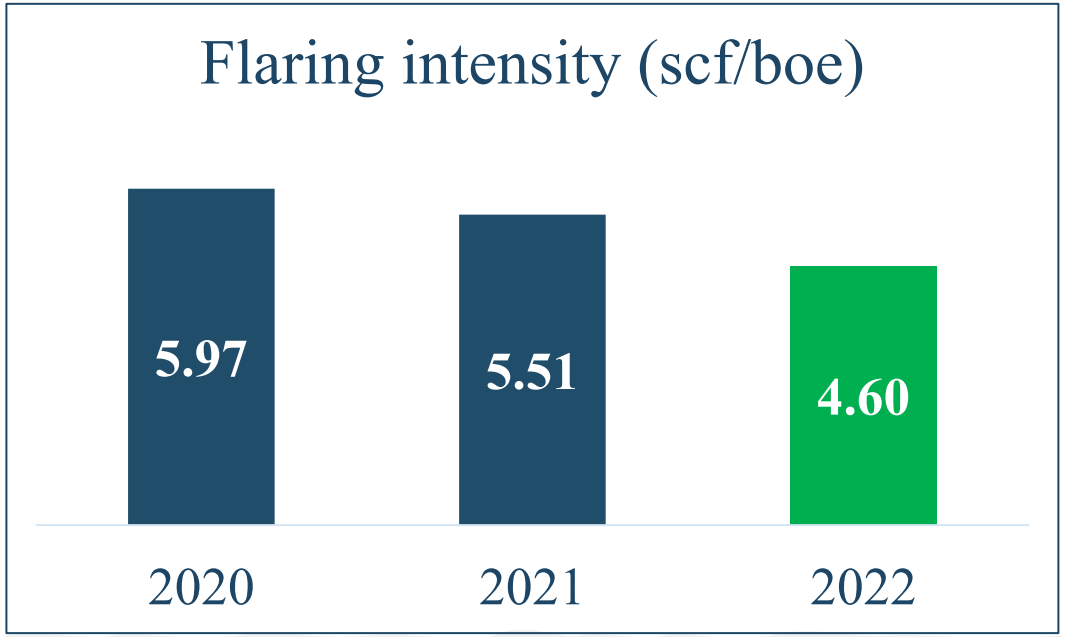
Developed in the 1970s to capture and reuse gas, which eliminated associated gas flaring

The flare minimization roadmaps

A comprehensive flare minimization roadmap has identified priorities, plans and targets for all facilities, which led to maximized flaring reduction

The flare gas recovery systems (FGRS)

Significant investments, installations and improved operations of in-house FGRS across several facilities. Two new FGRSs were installed in 2022



A flare volume of < 1% of total raw gas production has been maintained since 2012

وزارة الطاقة
MINISTRY OF ENERGY

1) Volume of hydrocarbon gas flared in the oil and gas industry per barrel of oil equivalent produced; 2) ZRF = Zero Routine Flaring

In addition, a comprehensive LDAR (leakage, detection and repair) program covering all operating facilities and tagging millions of components is deployed

Methane leak detection and repair program

The leak detection program…

- Detect & quantify

- Repair leaks

- Verify leak reduction

…is exhaustive by design

- LDAR was applied to all operating facilities in KSA and thousands of points (valves, flanges, connectors, pumps, compressors, and tanks) were surveyed to minimize methane leaks
- The LDAR program was launched on all oil and gas operating facilities in 2018

وزارة الطاقة
MINISTRY OF ENERGY

1) LDAR = Leak Detection and Repair

Implementing LDAR (leakage, detection and repair) program has several benefits and some challenges that can be overcome by complementing technologies

Methane leak detection and repair program

1 | **Reduction of fugitive emissions**

2 | **Reduction of product losses**

3 | **Assurance of health and safety for facility workers and operators**

Challenges: LDAR is a highly demanding program since it entails manual data collection, reporting, and is labor-intensive. It can be complemented by technologies like satellite, drones, etc.

1) LDAR = Leak Detection and Repair

Striving for even more, KSA pledged to reduce upstream methane emissions to near zero and to participate in the efforts to cut 30% of methane emissions by 2030

KSA's methane commitments and pledges

Near zero-methane initiative

Saudi Aramco is an establishing member of the zero-methane initiative

The global methane pledge

Saudi Arabia is a participant in the global methane pledge

Zero Routine Flaring initiative

Saudi Aramco is committed to the World Bank's "Zero Routine Flaring by 2030"

وزارة الطاقة
MINISTRY OF ENERGY

المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

Thank You

www.moenergy.gov.sa

Lunch Break and Group Photo (2 hours)

Global Methane Initiative

Country Updates with Facilitated Discussion

Daniel Benefoh
GMI Steering Committee Vice Chair
Ghana Environmental Protection Agency

Global Methane Initiative

Country Updates with Facilitated Discussion (Part 2)

- **Facilitator**
  - Mr. Nagaraju M., GMI Steering Committee Vice Chair, Additional Secretary, Ministry of Coal, Government of India
- **Canada**
  - Ms. Diane de Kerckhove
- **Ghana**
  - Dr. Daniel Benefoh
- **Nigeria**
  - Ms. Bahijjahtu Abubakar
- **Serbia**
  - Ms. Dragana Mehandžić and Ms. Sandra Lazic
- **United States**
  - Ms. Pamela Franklin

Country presentation on methane reduction - Ghana

Ghana

Ghana is an early mover on methane mitigation

- In 2010, Ghana joined a few partner countries on mitigating methane and in 2012 joined six partner countries to birth the CCAC.
- We moved from a pioneer member to a co-chair of CCAC, vice chair of GMI and co-chair of the biogas sub-committee
- Ghana is confident that this GMI/CCAC deserves our time and investment.
- Ghana is a decade champion of national planning and institutional strengthening for methane mitigation.

Methane in Ghana (inventory system - trends)

- Levels in 2021 - 336.2 Gg ~ 27.6 $MtCO_2e$
- Represents a 32% increase over a decade.
- Sources:
  - Livestock >> 41%
  - Wastewater and solid waste >> 34%
  - Rice cultivation >> 5%
  - Oil and gas >> 4%
  - Others >> 16%
- Projected to “more than double” by 2030 along a “no-action trajectory”.

The focus of action areas:

- Sustainable rice cultivation for methane management (AWD technology)
- Waste to compost (biological treatment)
- Biogas (W2E)
- Food waste management (proposed food cold chain model)
- Landfill gas management (ongoing feasibility of Kpone LG2E)
- Flaring control (regulatory - Petroleum Exploration and Production Act 919, 2016)
- Commercialisation of the downstream gas market (set up gas infrastructure).
- Livestock (improve feed management - proposed technology work)

Policy response:

- Nationally determined contributions
- National Action Plan to mitigate SLCP
- National environmental sanitation policy
- National energy transition and investment plan
- National carbon market framework

Funding approaches we are pursuing

- Carbon finance > compost and sustainable rice
- PPP models >> composting facilities
- Commercial models (Safisana example – waste to energy)
- Carbon/PPA (blend financing)
- Vertical funding (GCF – food waste proposal being developed)

Way forward

- Q2: develop a national methane road map for Ghana.
- Q4: start revision of nationally determined contributions (methane-specific target)
- Q4: developing long-term low-emission development plan (planning stage).
- Q4: project development on livestock feed management (carbon finance).
- Q3: start reviewing methane inventory in Ghana
- Q4: reviving the methane inter-ministerial taskforce [oil & gas task group, waste & biogas task group, agriculture task group, finance/policy/governance task group)

2024 Global Methane Forum

Mobilizing Methane Action

18-21 March 2024, Geneva, Switzerland

Update:
United States Actions on Methane

Pamela M. Franklin, Ph.D.
United States
Environmental Protection Agency

Global Methane Initiative
Leading methane action since 2004

UNECE

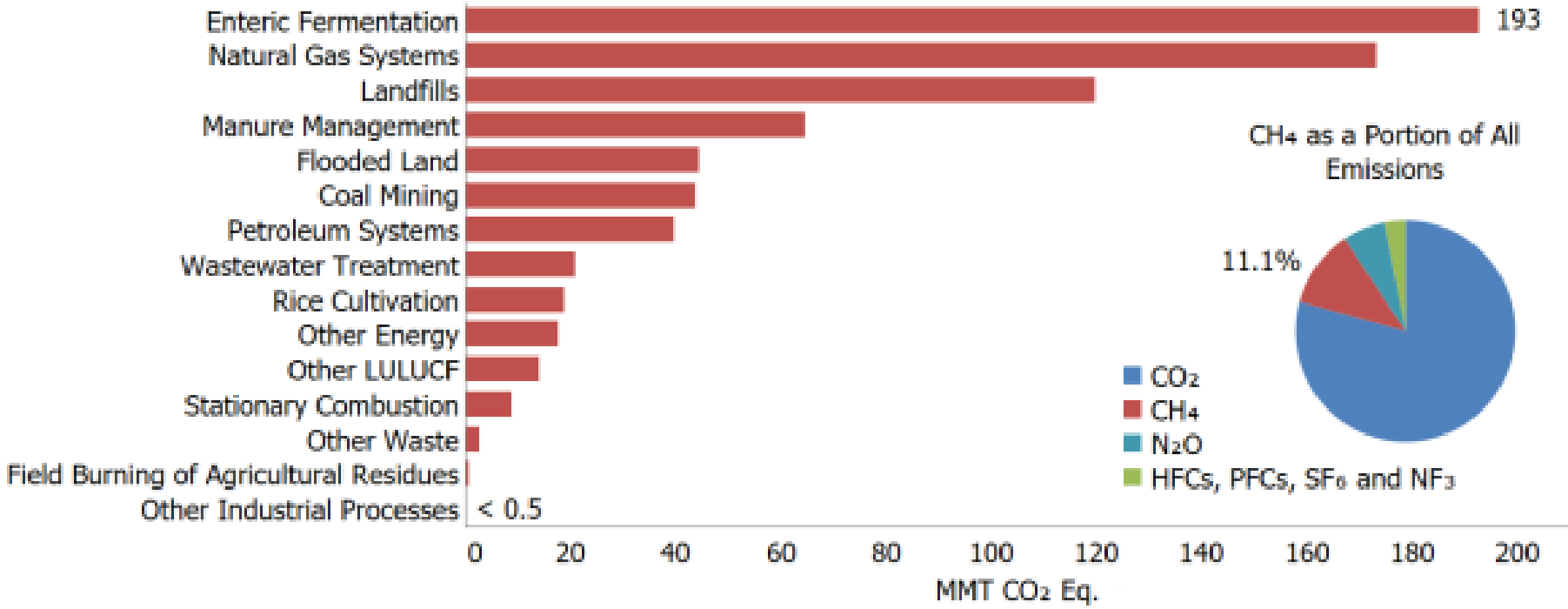
Global Methane Hub

CLIMATE & CLEAN AIR COALITION
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS
a UNEP convened initiative

US Methane Emissions

- Based on the *Draft U.S. Inventory of Greenhouse Gas Emissions and Sinks: 1990-2022*, methane comprises 11.1% of total US greenhouse gas emissions

Figure ES-9: 2022 Sources of CH_4 Emissions



U.S. EPA Clean Air Act Regulations: New Source Performance Standards / Emissions Guidelines

- The Inventory of the U.S. Greenhouse Gas Emissions and Sinks indicates that natural gas and petroleum systems are the largest industrial source of methane emissions in the U.S.
- In December 2023, EPA issued a Final Rule to reduce methane and other harmful air pollution from both new and existing oil and natural gas operations.
- The rule will sharply cut emissions from 2024-2038 by 58 million tons of methane, nearly 80 percent lower than without the rule, and avoid 16 million tons of smog-forming VOC emissions & 590,000 tons of air toxics; equivalent to over 200 million homes' energy use for one year.

Rule Highlights:

- Recognizes and encourages innovation in methane detection technology
- Includes a program to leverage third-party expertise to find large emissions ("super emitters")
- Ensures that all well sites, centralized production facilities, and compressor stations are routinely monitored for leaks
- Eliminates routine flaring of natural gas from new oil wells after a two-year phase-in & reduces flaring of natural gas from existing wells
- Requires use of best management practices to minimize or eliminate venting of emissions from gas well liquids unloading

Inflation Reduction Act of 2022: Methane Emissions Reductions Program

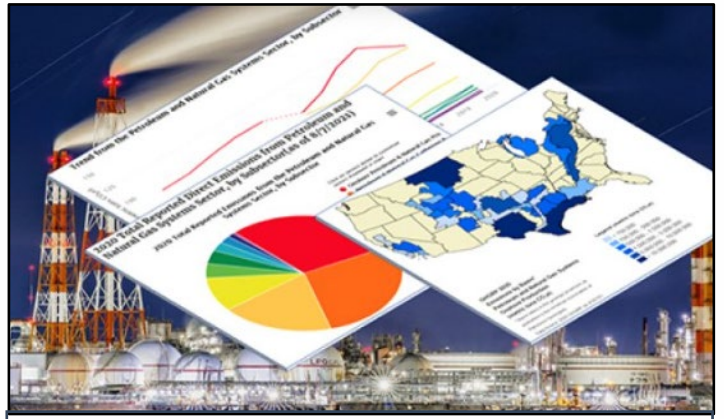
https://www.epa.gov/inflation-reduction-act/methane-emissions-reduction-program

Financial and Technical Assistance

EPA is partnering with the U.S. Dept of Energy to provide more than $1 billion to accelerate the transition to no- and low- emitting technologies, activities associated with low-producing conventional wells, support for methane monitoring, and funding to help reduce methane emissions from oil and gas operations.

Waste Emissions Charge

An annual charge on wasteful methane emissions from oil and gas facilities that exceed specified thresholds, set by Congress, from an owner or operator of an applicable oil and gas facility. The charge starts at $900 per metric ton of wasteful emissions in 2024, increasing to $1,200 for 2025, and $1,500 for 2026 and beyond.



Greenhouse Gas Reporting Program Subpart W Revisions

Revisions to the Petroleum and Natural Gas Systems category of the GHGRP to improve data accuracy, increase the use of empirical data, and collect data at a more granular level to improve verification and transparency of the data collected.

Other U.S. Actions: Oil & Gas Methane Mitigation

- Pipeline and Hazardous Materials Safety Administration
  - Under the *Protecting our Infrastructure of Pipelines and Enhancing Safety Act of 2020,* proposed rule to reduce methane emissions from new and existing gas transmission, distribution, and regulated gas gathering pipelines, underground natural gas storage facilities, and liquefied natural gas facilities.
- Department of the Interior
  - The *Bipartisan Infrastructure Law of 2021* allocated $4.7B to DOI to manage an orphan well plugging program for states, tribes, and federal agencies.
- Department of Energy
  - Collaboration with U.S. EPA on Methane Emissions Reductions Program actions; formation of a GHG Supply Chain Emissions Measurement, Monitoring, Reporting, and Verification (MMRV) Framework Working Group.

Thank you!

Pamela M. Franklin, Ph.D.

Methane Partnerships Branch

Climate Change Division, Office of Atmospheric Protection

U.S. Environmental Protection Agency

Email: franklin.pamela@epa.gov

www.globalmethane.org

Global Methane Initiative

Health Break (15 minutes)

Global Methane Initiative

Global Opinion Survey on Methane

D'Seanté Parks
Global Methane Hub

Global Methane Initiative

Global Methane Hub

Methane Public Opinion Poll:

Policy Executive Report

November-December 2023

BSG

RESEARCH > STRATEGY > IMPACT

Table of Contents

Methodology

Benenson Strategy Group conducted a 10-minute online poll in 17 countries between November 14th and December 11th, 2023.

In each country, we collected no less than n=750 responses from people currently residing in the country who are 18 years of age or older and who have internet access. The margin of error for the total sample of each country is approx. ±3.58%*. Weights were applied to age, gender, and education to ensure collected samples were representative of adults 18+ who have internet access in each country.

Research was conducted in the following countries:

- Australia
- Brazil
- Canada
- Chile
- China
- Germany
- India
- Italy
- Kenya
- Mexico
- Nigeria
- Norway
- Senegal
- South Korea
- Tanzania
- The United Kingdom
- The United States

*Margin of error varies slightly between countries due to differences in sample size.

How to Interpret and Use Research Findings

This research is representative of adults 18+ who have access to the internet

- ✓ Levels of internet access vary widely in the countries we surveyed
- ✓ In countries with high internet penetration, our sample is closest to an accurate representation of the general adult population
- ✓ In countries with lower internet penetration, our sample is higher income, more educated, and more likely to live in and around cities than the general population

Internet Penetration by Country (2020)*

Australia	98%	Canada	89%	Nigeria	64%
United Kingdom	97%	Italy	85%	India	63%
South Korea	95%	Brazil	77%	Kenya	40%
Norway	95%	Chile	76%	Tanzania	52%
Germany	93%	China	76%	Senegal	28%
United States	92%	Mexico	75%		

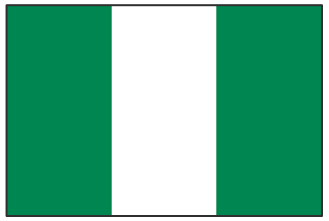
*Internet penetration data sourced from Statista and Internet World Stats

Research Results

In the 17 countries that we conducted research in, most believe climate change is caused by humans, and feel its impact – but the intensity of this impact varies

In all 17 countries, **a majority believe** the climate is changing as a result of human activity

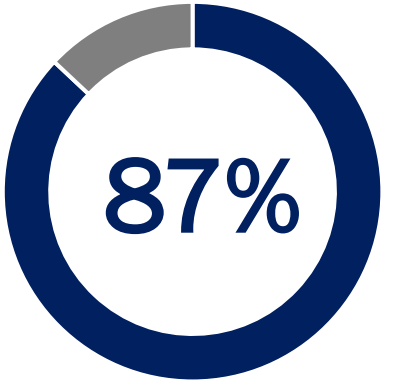
91%
South Korea is highest



57%
Nigeria is lowest

However, the level of belief varies significantly between countries:

Very few people believe the climate is not changing, but a sizeable minority think climate change is not the result of human activity

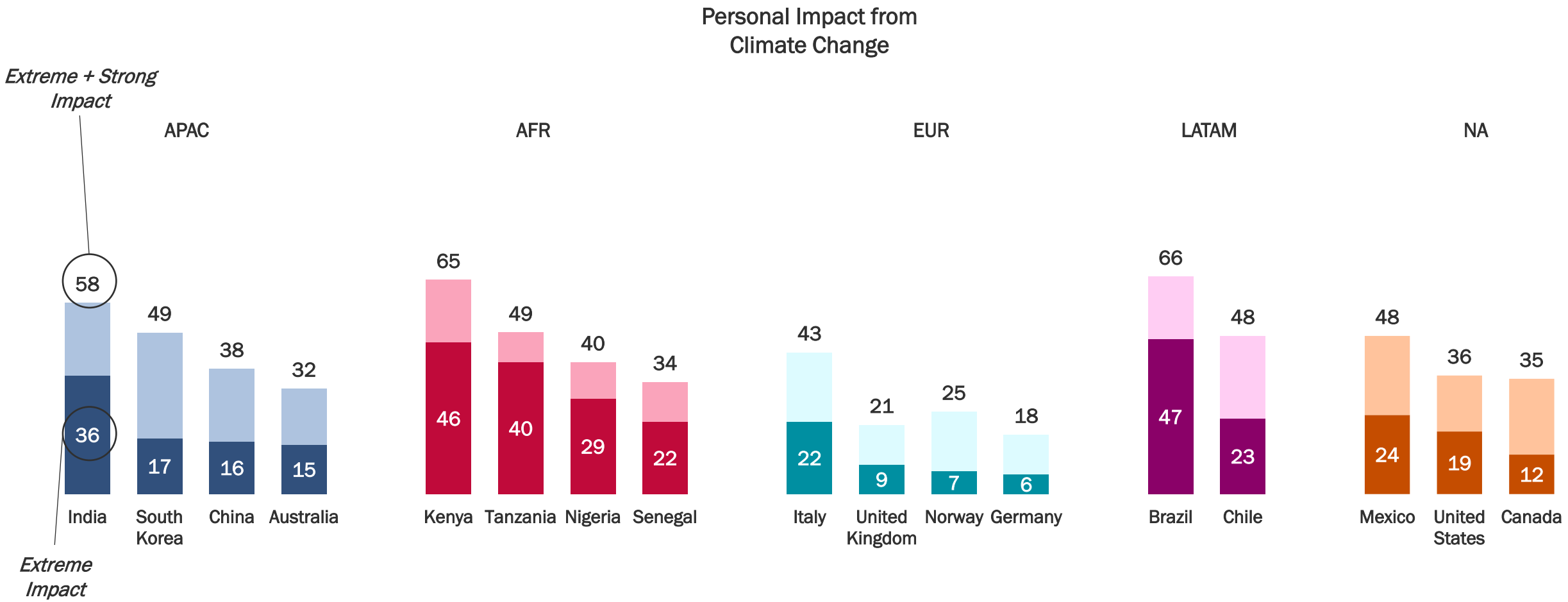


agree climate change has *at least some impact* on their life

In **developing nations** and the **global south,** the impact is generally perceived as **strong or extreme**...

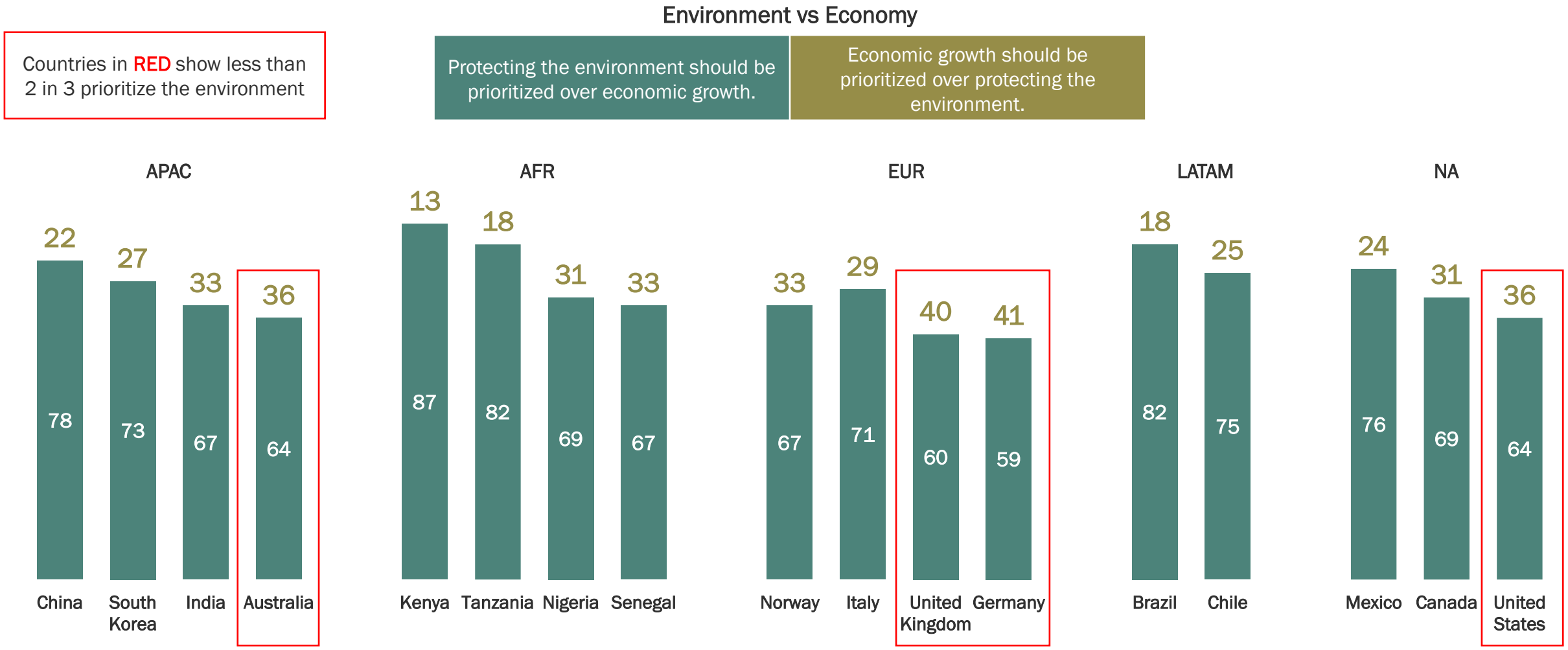
...while in **wealthier countries**, respondents tended to be **less personally concerned** about the impacts of climate change

The strongest impact from climate change is felt in the Global South, while developed countries are more insulated from this impact, or feel it less intensely



A majority in all 17 countries prioritize protecting the environment over economic growth, but variance in the margin reflects varied national priorities – and some slightly more challenging local political environments for methane reform

Countries in **RED** show less than 2 in 3 prioritize the environment



While methane familiarity is high across countries and regions, “informed familiarity” is much lower; across the 17 countries, there is little variation in understanding what methane is and where it comes from

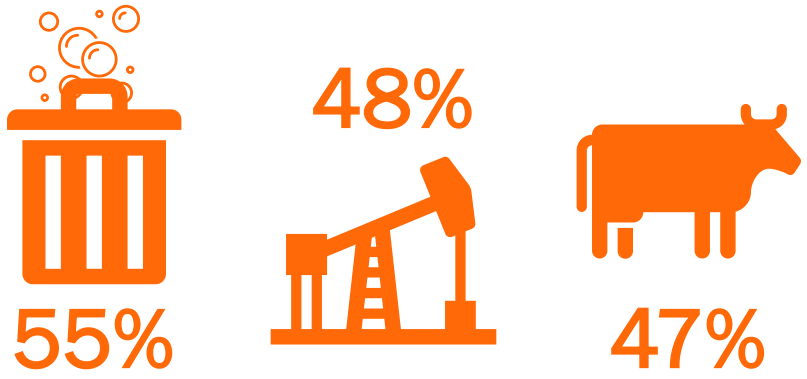
Methane familiarity is above 50% in all but one country that we surveyed*

However, almost half of people (49% in the total study) who *think* they are familiar with methane don’t know that it is harmful for global climate

Informed familiarity – being familiar with methane *and* able to identify methane as harmful for the global climate – is 37% across all 17 countries

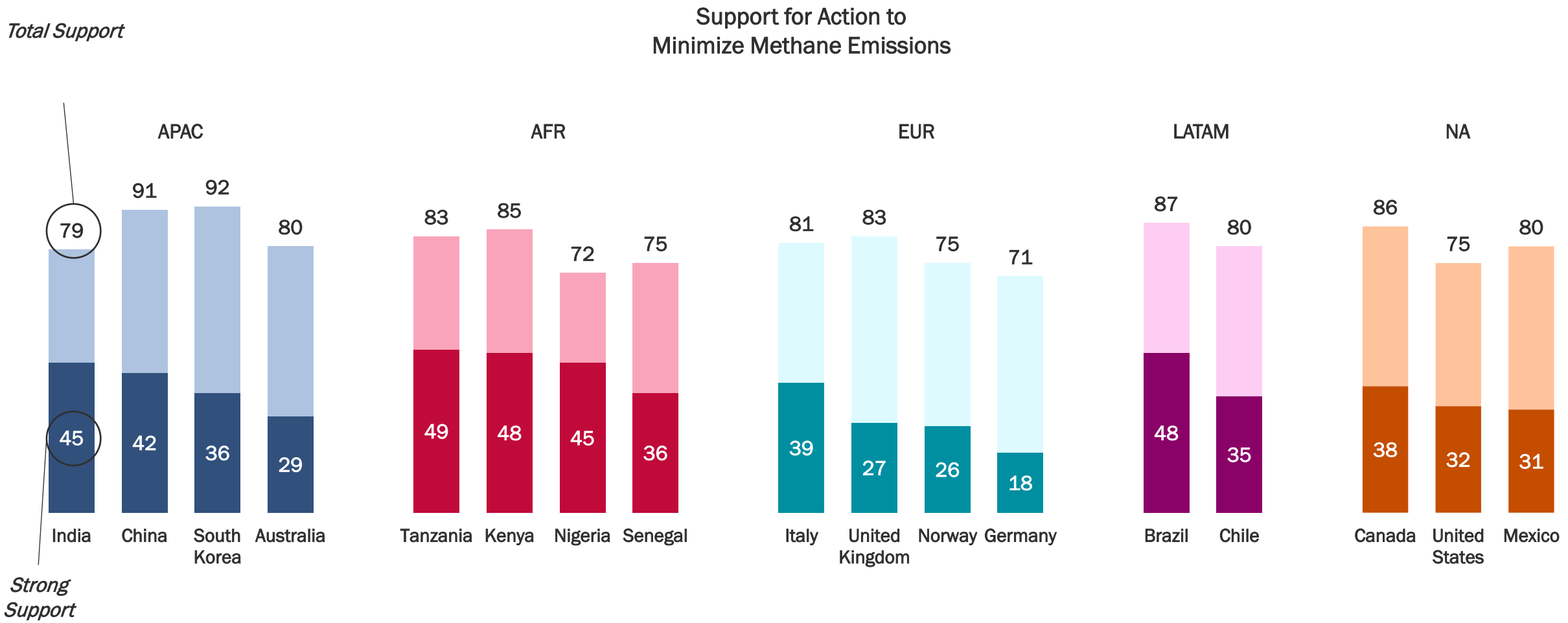
*Methane familiarity in Senegal is 34%

Landfill gas, oil wells, and cow manure are perceived as the most common sources of methane emissions…

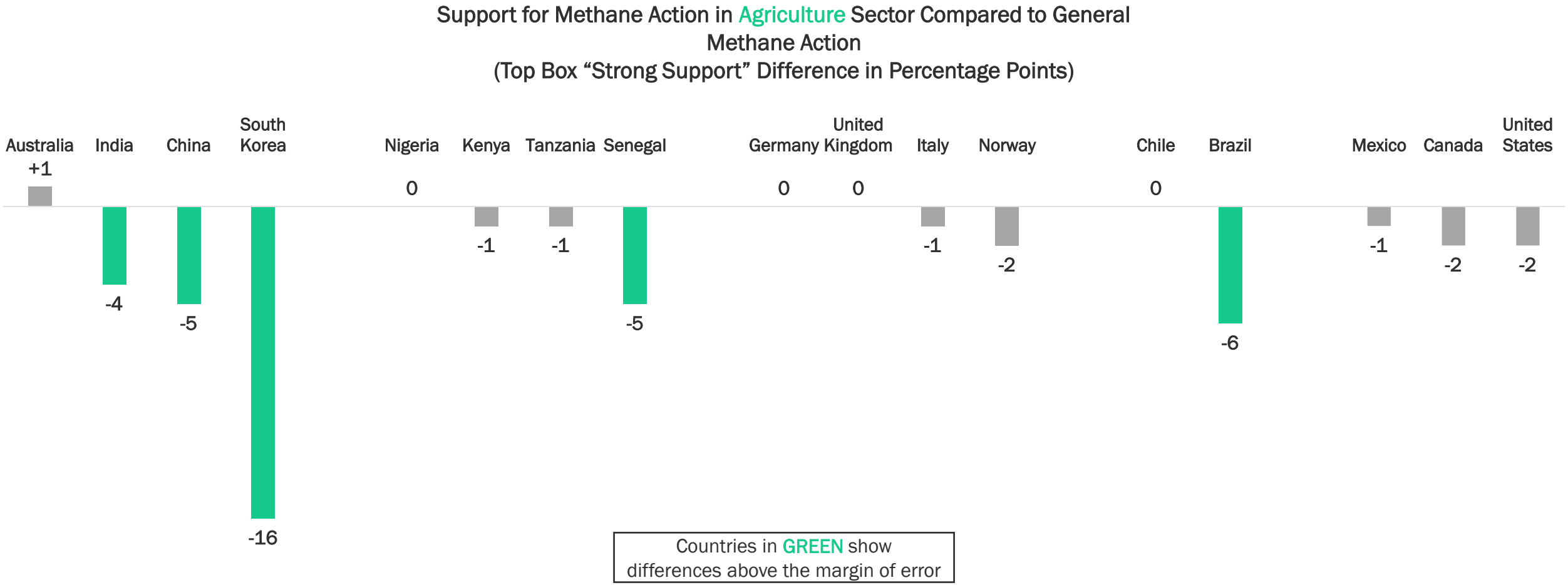


… and across countries, the most common methane associations are methane as a gas (40%) and methane as an energy source (29%)

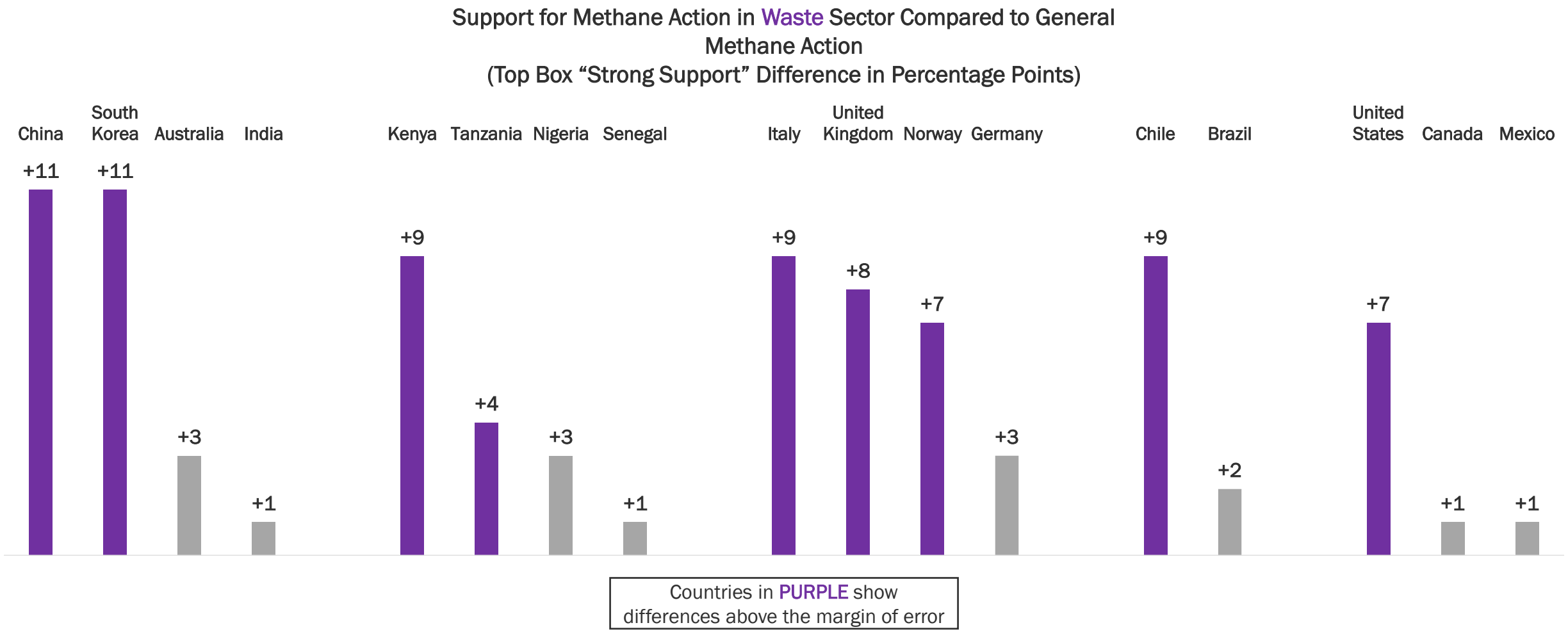
Total support for actions to minimize methane is high across countries, *intense* support—which more often leads to policy change—varies widely



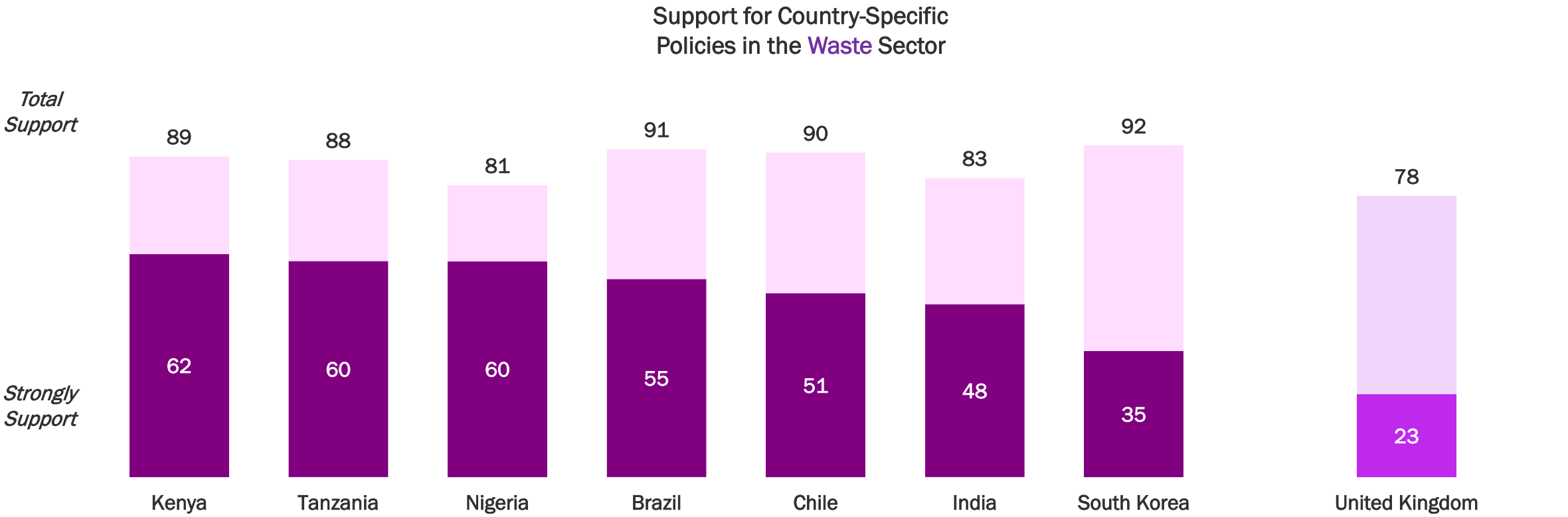
Less enthusiasm exists for policy change in the agriculture sector than for non-sector-specific methane action – this is particularly true in countries with agriculture-based economies



Across the study, waste is the sector with the highest appetite for methane action – this is true in both developed and developing nations



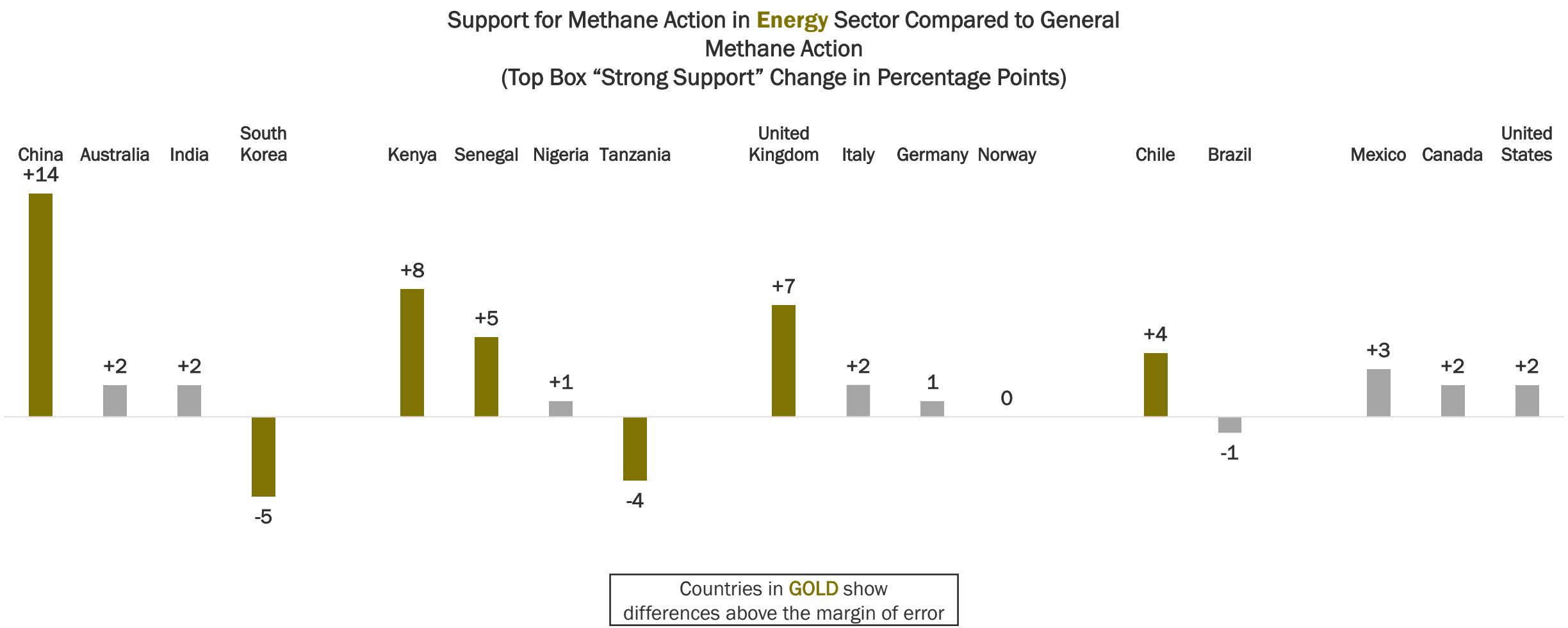
A waste sector-specific methane reduction proposal is popular in every country where such policy was tested; South Korea's majority weak support may result from pre-existing food waste regulations



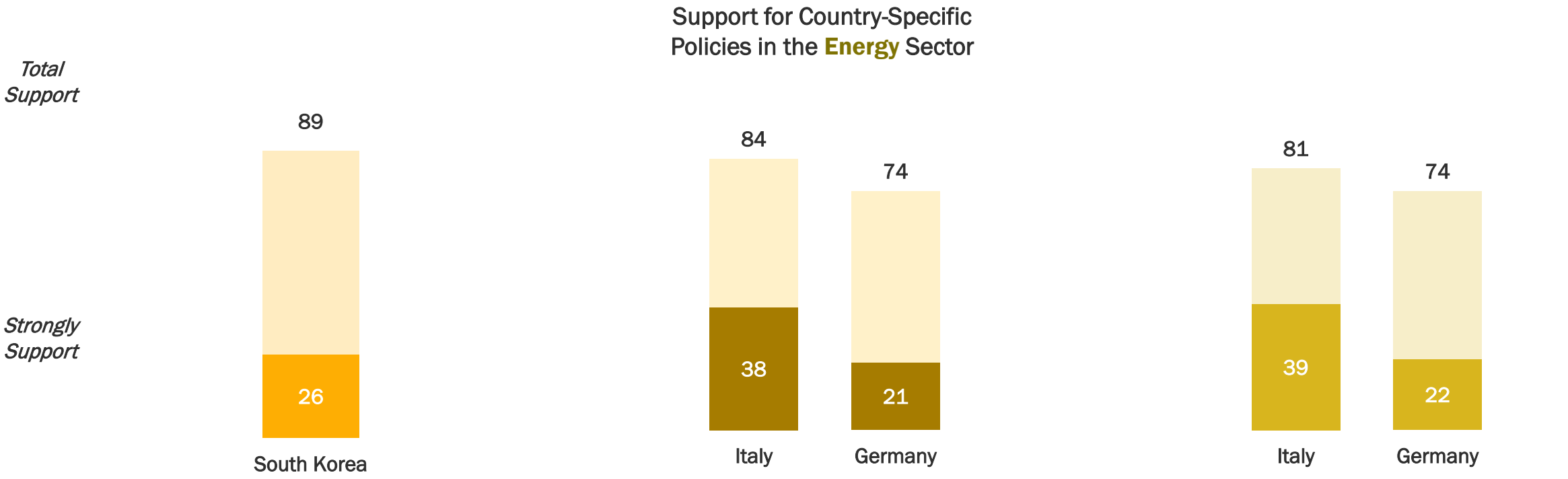
The implementation of a policy that bans organic waste disposal into landfills and promotes source reduction, segregation, edible food rescue (food banking), composting, and other solutions that reduce food loss and waste through a circular approach.

The implementation of a policy that bans biodegradable waste disposal into landfills.

Action in the energy sector, while not as popular as the waste sector, still has broad support across countries – China has particularly strong support compared to general methane action



Support for reform in the energy sector is lukewarm in South Korea; Italy is more in favor of regulating oil gas imports than Germany, and there is no statistically significant difference in support between an EU and country-level regulation in either nation

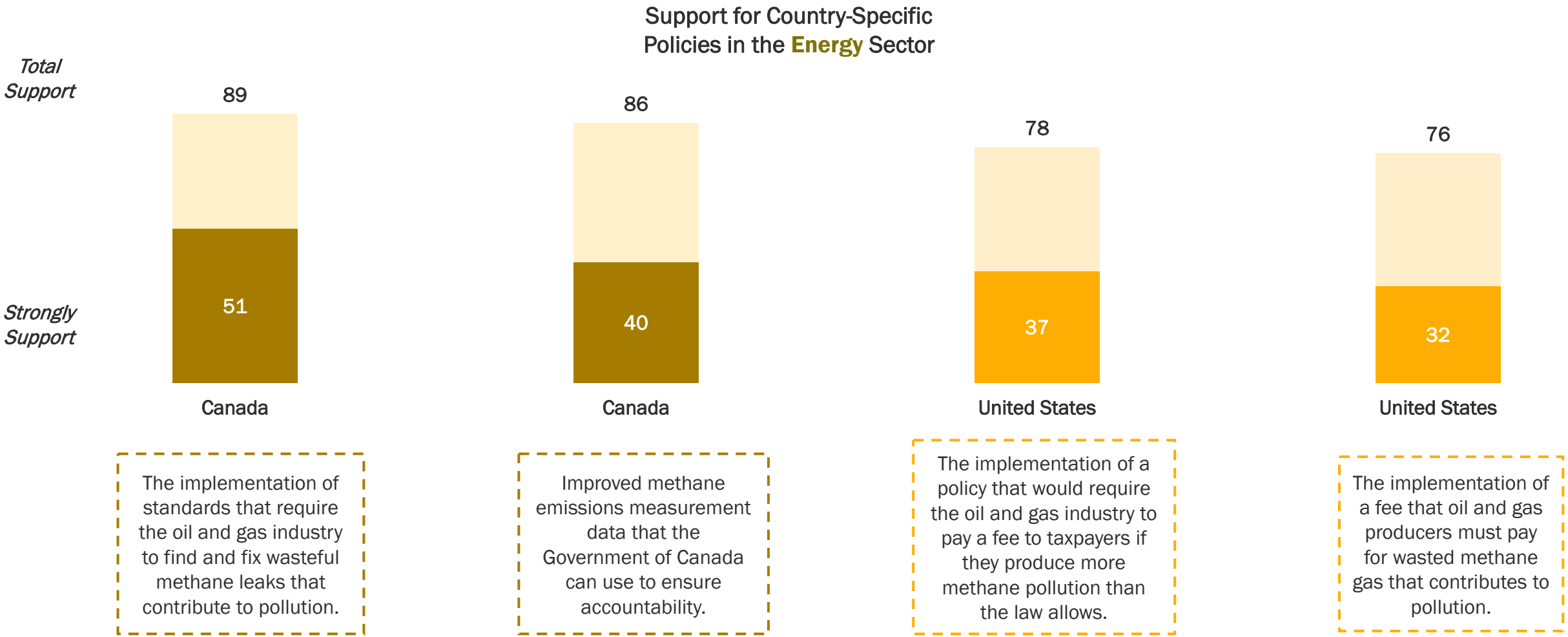


The implementation of a policy that requires other countries to minimize methane pollution and flaring when producing the oil and gas they export to South Korea.

European countries implementing policies that require other countries to minimize methane pollution and flaring when producing the oil and gas they export to Europe.

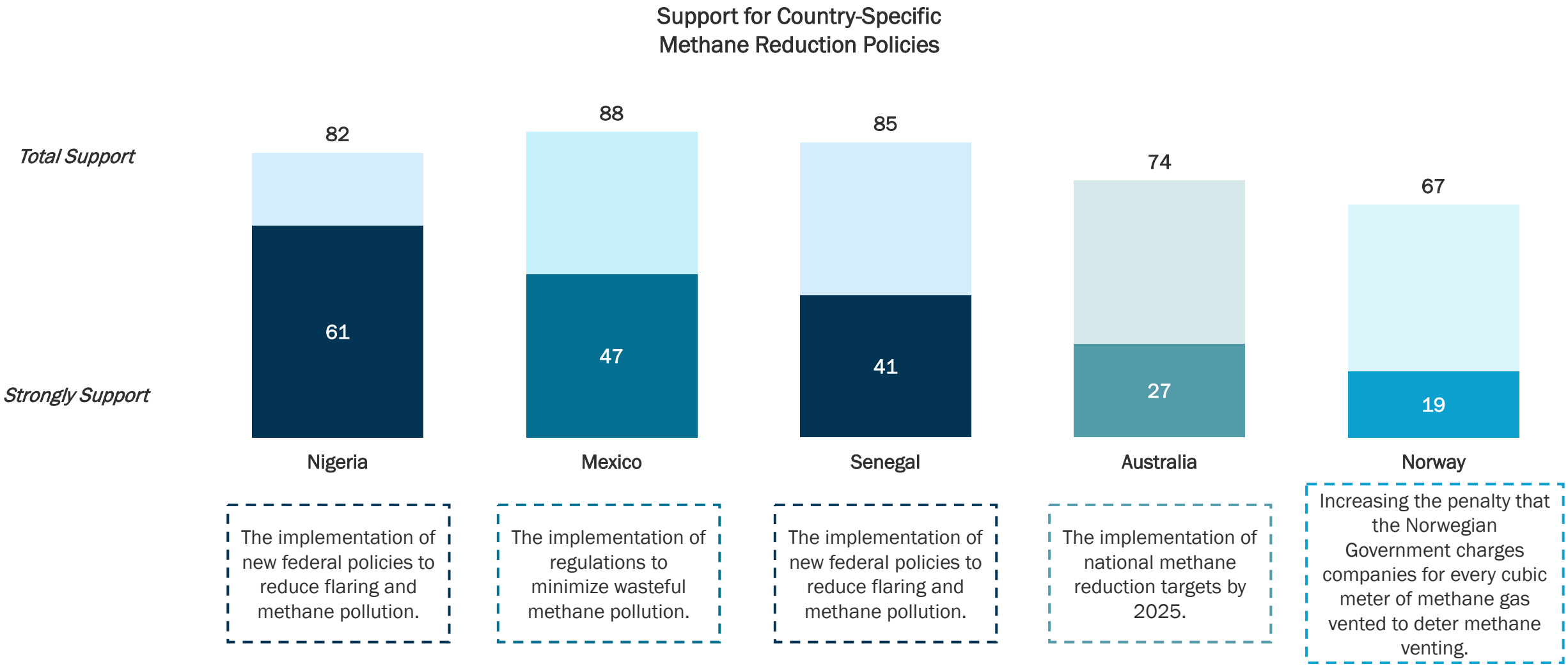
The implementation of a policy that requires other countries to minimize methane pollution and flaring when producing the oil and gas they export to [COUNTRY]...

In Canada, the more “exciting” policy to regulate energy companies has stronger support than the policy “with teeth” to implement measurement requirements; in the US, framing regulation with “a fee to taxpayers” increases strong support for reform by 5pts



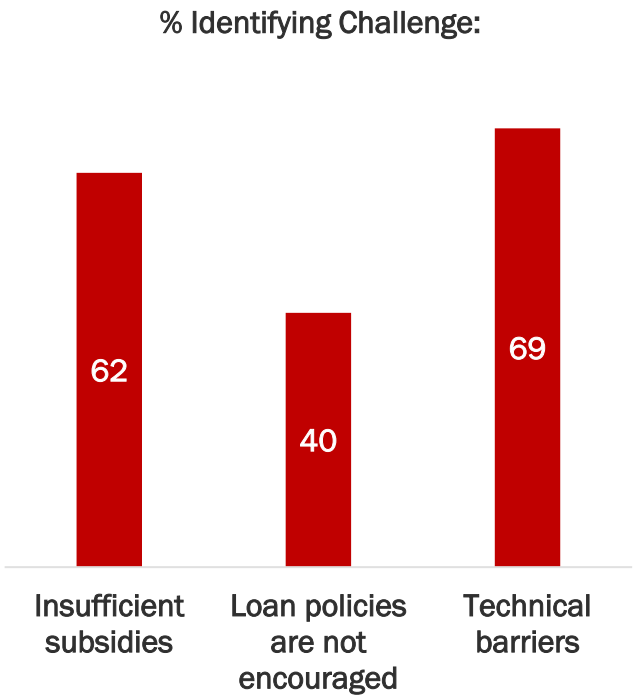
Q17. To what extent do you support or oppose the following in [COUNTRY]?

In non-sector specific policy proposals, we see a continued trend of stronger support in the Global South, with less intensity of support for policy reform in developed nations

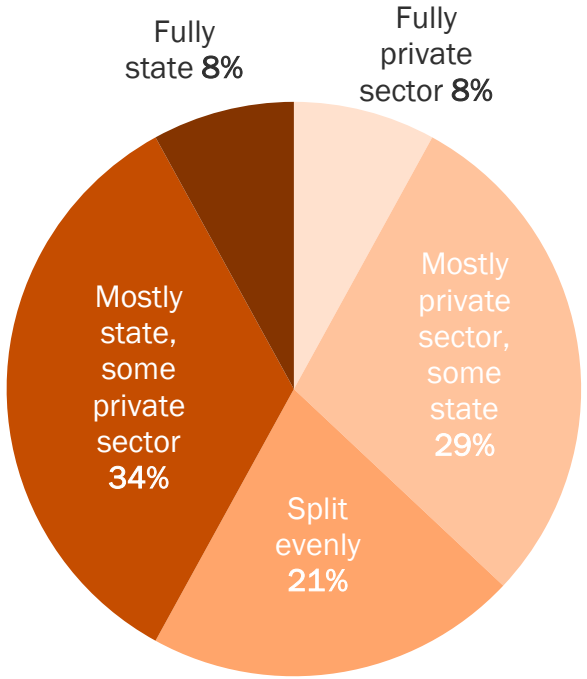


Q17. To what extent do you support or oppose the following in [COUNTRY]?

In China, technical barriers and insufficient subsidies are seen as leading challenges to methane recycling efforts; the Chinese public sees both the state and private sector as playing a role in decommissioning abandoned coal mines



In your view, what challenges exist, if any, for the national incentive measures for the recycling and utilization of low-concentration methane?



When it comes to decommissioning coal mines and transferring mining rights from enterprises to the state, who do you think should bear the governance costs of abandoned mines?

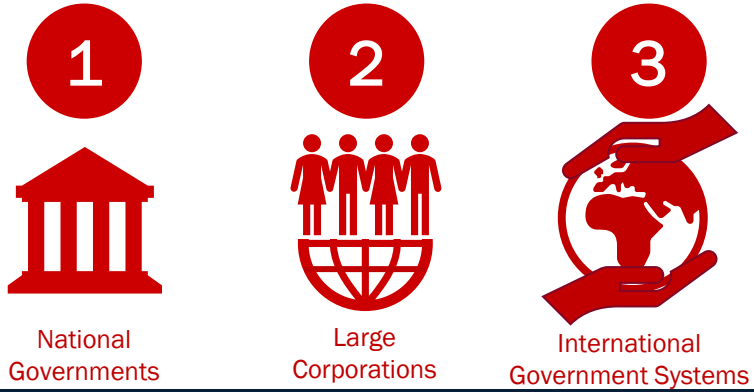
Large corporations and national governments are seen as both *most to blame* and *most capable of action* on climate; news outlets and scientists are top climate change information sources in every country

Large corporations, national governments, and individual citizens are the most to blame for environmental harm...

Perceived blame:

...but most believe that individual citizens are not capable of creating meaningful change to minimize the impacts of climate change

Perceived capability:



51% see international government systems as very capable

44% see international NGOs as very capable

Top Climate Change Information Sources

- Local news outlets
- International news outlets
- Local scientists
- International scientists

Only...

19%

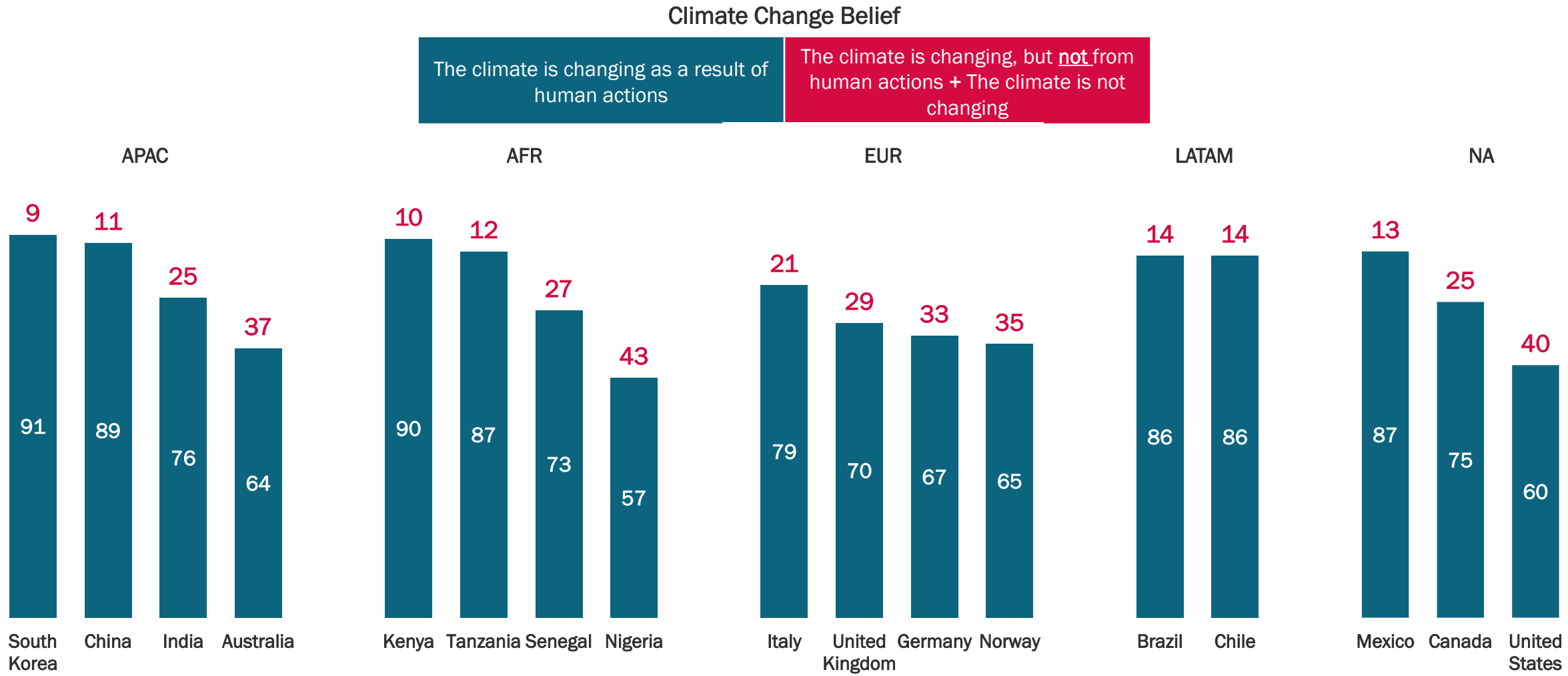
28%

...get their information about climate change from celebrities or politicians

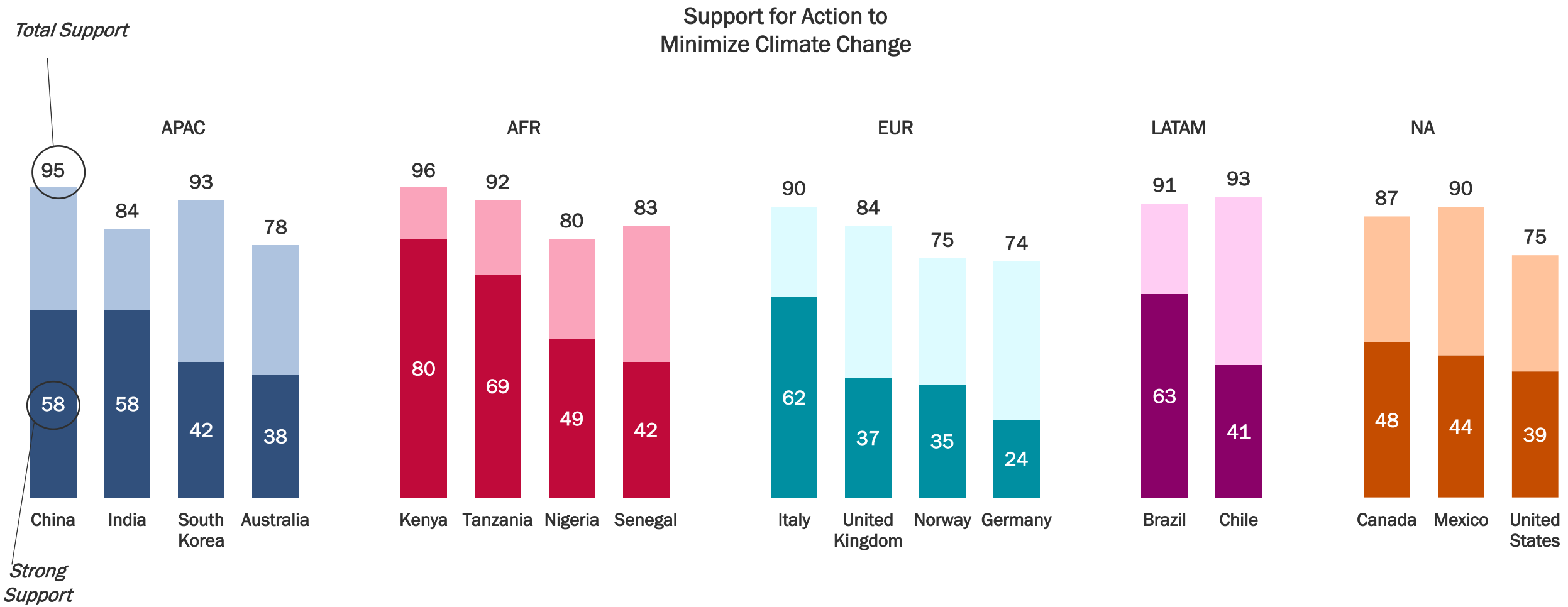
Q20/Q21 stakeholder options for blame and capability : 1) individual citizens, 2) small businesses/local farmers, 3) large corporations, 4) financial institutions, 5) local/state/regional governments, 6) national governments, 7) international government systems, 8) international non-government organizations.

Appendix

Belief in anthropogenic global warming (AGW) varies widely across countries, but never dips below 50%; except for Nigeria, the Global South has higher levels of AGW belief

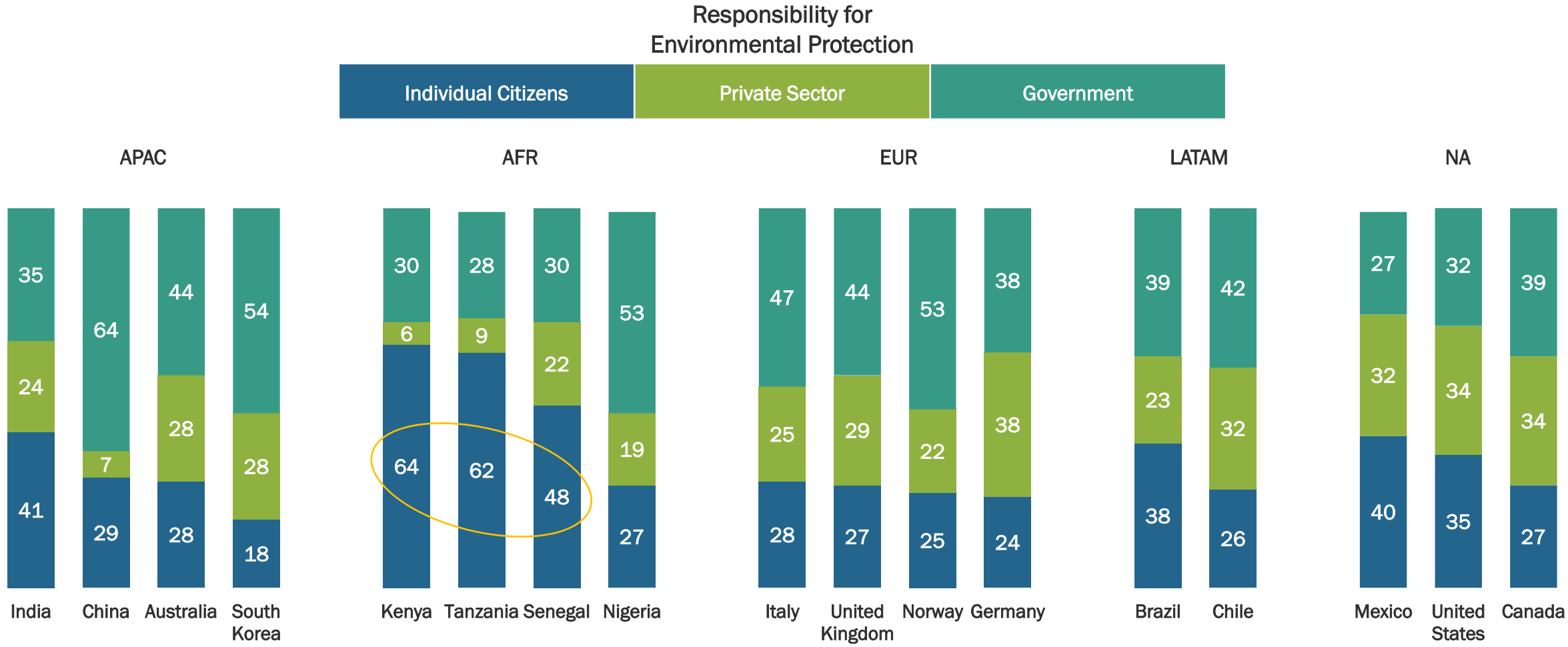


Likewise, the Global South has the highest support for climate change action – particularly in the West, support for climate action is polarized by political party

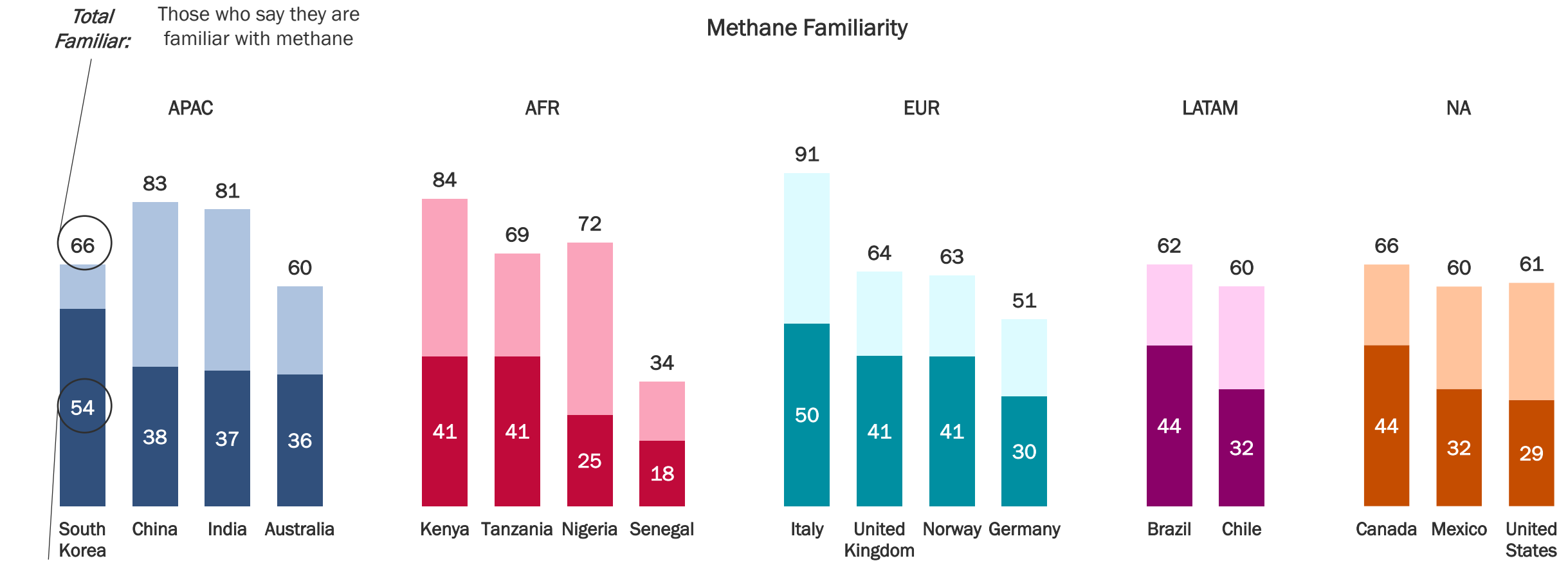


Q5. How much, if at all, do you support actions taken to minimize the impacts of climate change?

In countries where the government is seen as less capable – particularly nations in the Global South – the public views environmental protection as primarily a responsibility of individual citizens



Lack of informed familiarity about methane is currently a barrier to growing support for reform: many who are "familiar" with methane aren't aware of its negative climate impact



This study is representative of the 17 countries we conducted research in – it is NOT representative of *all* countries

- ✓ This data is an international study, representative of public opinion among the adult populations with internet access in 17 countries
- ✓ When "total study" figures are referenced, they are representative of the 17 countries surveyed, weighted for population size*
- ✓ When "regional" figures are referenced, they are representative of the countries we surveyed in that region, weighted for population size*

- ✕ This data is not a global study; it is not meant to be representative of public opinion in all nations
- ✕ "Total study" figures are NOT representative of the entire world
- ✕ "Regional figures" are NOT representative of the entire region/continent

Example: APAC methane familiarity = 78%

X 78% of all APAC countries are familiar with methane. X

✓In Australia, China, India, and South Korea, approx. 78% of adults with access to the internet are familiar with methane. ✓

TOTAL STUDY ≠ GLOBAL

Global Methane Hub

BSG
RESEARCH › STRATEGY › IMPACT

Thank You

PROJECT TEAM

Natalie Lupiani
Vice President
nlupiani@bsgco.com

Shannon Currie
Vice President
scurrie@bsgco.com

Liz Dunne
Of Counsel
ldunne@bsgco.com

Mike Kulisheck
SVP of Research
mkulisheck@bsgco.com

Sarah Stellick Seepaulsingh
Associate
ssseepaulsingh@bsgco.com

Jacob Coughlin
Senior Analyst
jcoughlin@bsgco.com

Open Discussion

Tomás Carbonell
GMI Steering Committee Chair
U.S. Environmental Protection Agency

Global Methane Initiative

Recap and Wrap-Up

Tomás Carbonell
GMI Steering Committee Chair
U.S. Environmental Protection Agency

Global Methane Initiative

Thank You!

Steering Committee Next Steps:

- Join us for the virtual Post-Forum Steering Committee debrief on Wednesday. 3 April 2024

Secretariat Next Steps :

- Work with strategic partners to define next steps on enhancing collaboration
- Continue to publish GMI cross-sectoral quarterly newsletters to promote GMI and GMI Partner Country progress and successes
- Develop case studies to showcase GMI Partner Country activities, successes, and lessons learned
- Complete requested follow-up activities from this Steering Committee meeting

Global Methane Initiative

globalmethane.org