METHANE ALERT AND RESPONSE SYSTEM

SNAPSHOT: TOP 50 EMITTERS, COUNTRY RESPONSES AND MITIGATION

July 2026 Update

UNEP's Methane Alert and Response System (MARS) integrates data from more than 30 satellites to alert countries of major methane emissions and enable action.

This snapshot provides information on mitigation cases enabled and confirmed via MARS, country response rates to alerts, and the world's 50 largest methane sources across sectors, as detected by satellites.

MITIGATION

To date, MARS has enabled and confirmed mitigation of over 40 major methane sources. Each mitigation involved issuing a MARS notification, evaluating the response for technical accuracy and confirming through subsequent satellite data that no further emissions have been detected.

The last MARS-confirmed mitigation of a major source was in Iraq. The corroded pipeline leaked an estimated 18,600 tonnes of methane over nearly two years. This is comparable in climate impact to around 356,000 gasoline-powered cars driven for a year. Explore this mitigation case here.

Figure 1 shows where the mitigation cases have occurred, alongside information on each country's overall responsiveness to MARS alerts. The vast majority of mitigation occurs in countries with focal points who actively direct information to where it can be used to enable action.

Further information on each mitigation case is available here.

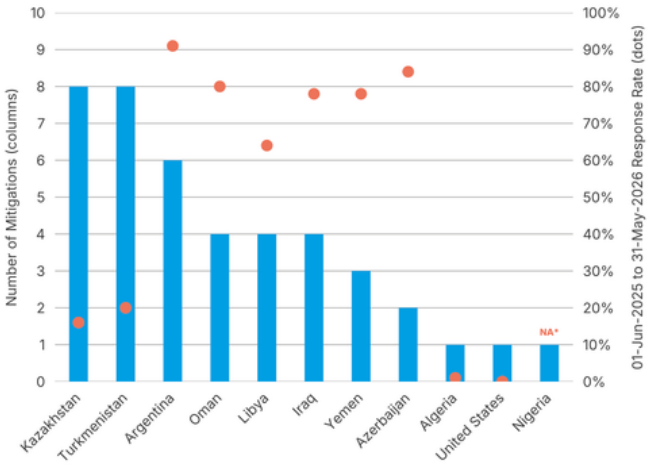

Figure 1
Number of confirmed mitigated sources by country, alongside country response rate for all MARS notified sources between 1 June 2025 and 31 May 2026

*As no sources were notified to this country during the dataset period, the response rate is not applicable.

COUNTRY RESPONSES

Recipients of MARS alerts are asked to respond to UNEP with emission status, the underlying cause of emissions and any mitigation action taken or planned.

Figure 2 depicts the total number of sources notified by country, as well as the fraction of sources for which a response was received, across countries which have or have not designated a MARS focal point.

Response is a critical step towards methane mitigation, as it requires the investigation of a MARS-detected emission source. Responses may be submitted by governments or operators.

Country response rates vary, with some countries exceeding 80 per cent, demonstrating strong engagement and effective follow-through. Others—including countries with many emission sources—are making progress as they scale their response capacity. Countries that have designated a MARS focal point are linked to higher response rates.

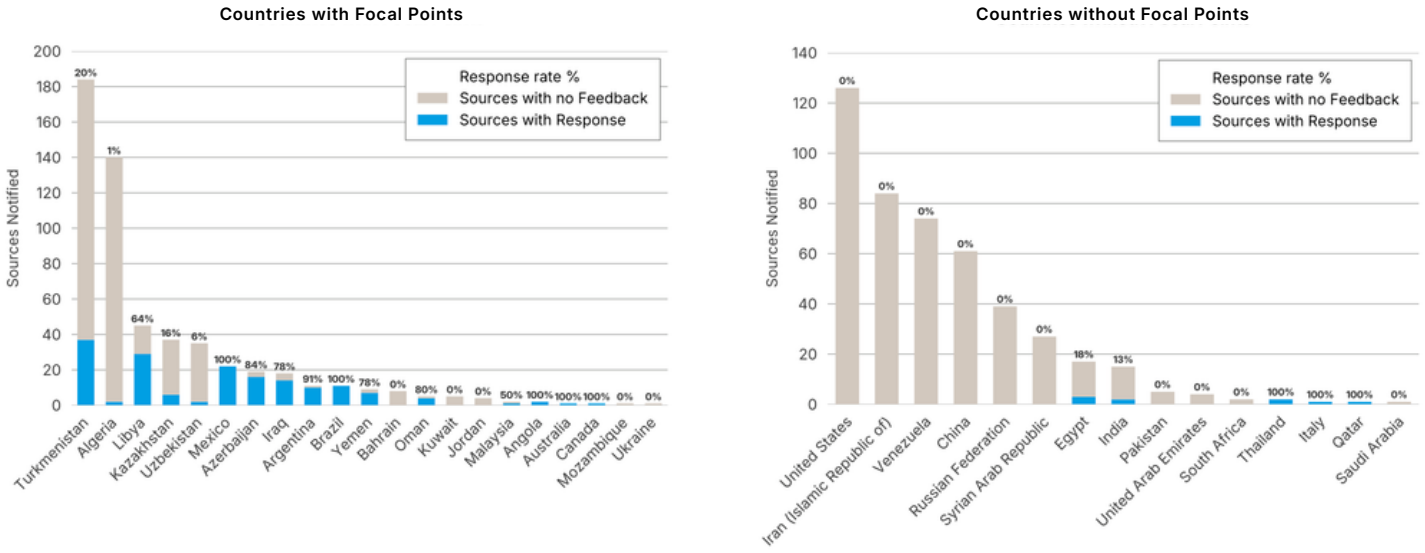

Figure 2
Response rate by country (1 June 2025 – 31 May 2026)

TOP 50 METHANE SOURCES

The map and table below present the 50 largest methane emission sources detected via satellite, based on a six-month rolling period to reflect changes over time. These are significant emitters across the oil and gas, coal, and waste sectors that emit either continuously or frequently.

Satellites detect only the largest methane emissions. While the top 50 sources identified here reflect a small share of total global emissions, they represent priorities for mitigation.

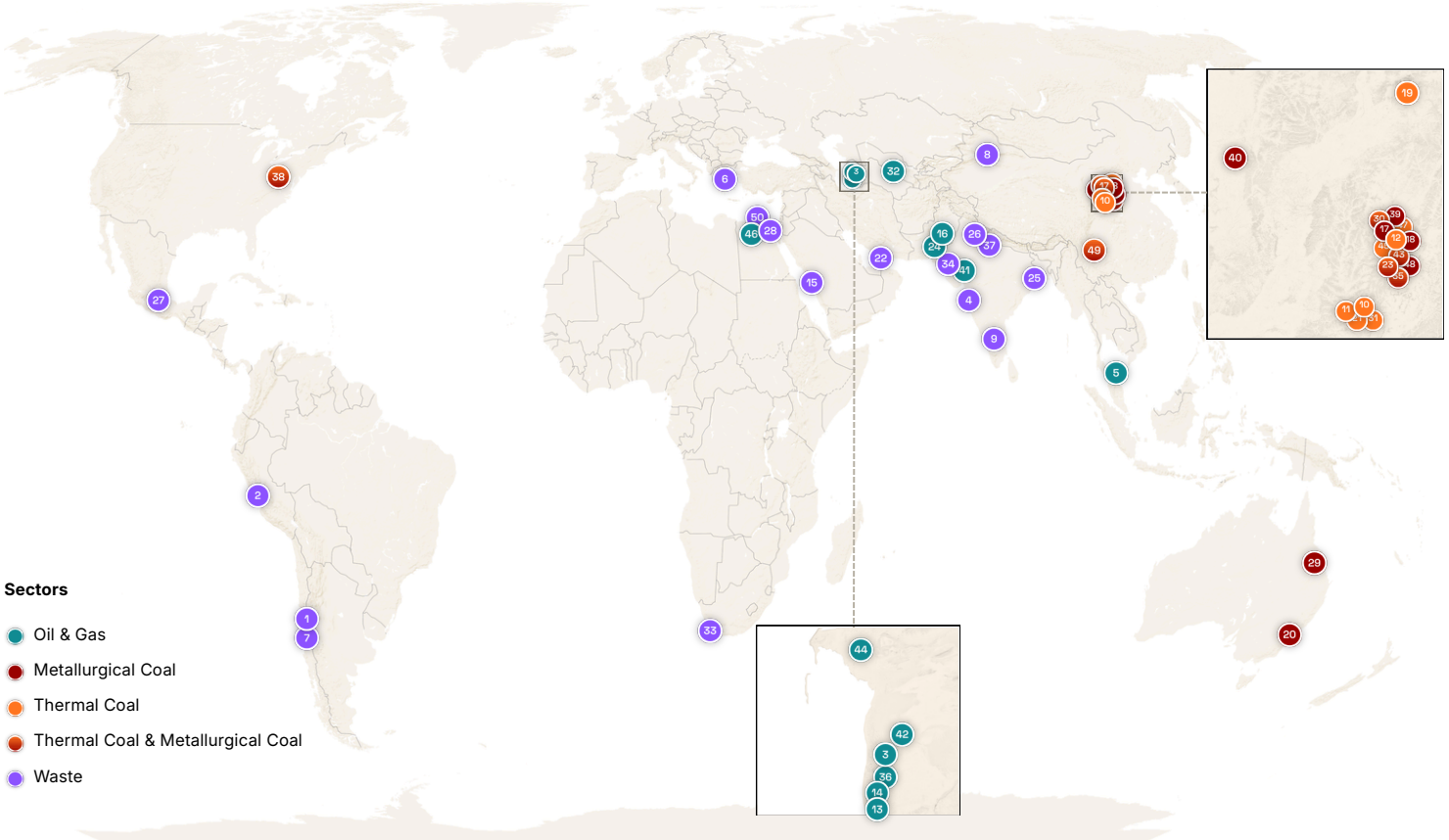

Figure 3
Top 50 methane sources globally (July 2026)

Table 1
List of top 50 methane sources

#		Country	Sector	Potential Source Type	Source ID	Coordinates	Feedback Received	Estimated Annual Emissions (tonnes CH_4)
1	▲ 1	Chile	Waste	Landfill	CHL_S_001	-32.95405, -70.79594	—	88,213
2	NEW	Peru	Waste	Landfill	PER_S_004	-11.92788, -77.1232	—	77,350
3	▲ 1	Turkmenistan	Oil and gas	Gas disposal facility	TKM_S_022	38.33075, 54.02815	Y	76,562
4	▲ 1	India	Waste	Landfill	IND_S_042	19.12256, 72.95102	—	75,248
5	▲ 1	Thailand	Oil and gas	Production offshore	THA_S_008	7.49474, 102.61433	Y	62,819
6	NEW	Greece	Waste	Landfill	GRC_S_001	38.07435, 23.65077	—	61,320
7	▲ 6	Chile	Waste	Landfill	CHL_S_002	-33.69123, -70.79734	—	60,720
8	NEW	China	Waste	Landfill	CHN_S_044	44.03981, 87.86554	—	51,508
9	▼ 2	India	Waste	Landfill	IND_S_024	13.10912, 77.65866	—	50,107
10	▼ 1	China	Thermal coal	Venting shaft	CHN_S_192	35.63986, 112.65204	—	48,004
11	▼ 1	China	Thermal coal	Drainage station	CHN_S_018	35.64253, 112.56866	—	46,603
12		China	Thermal coal	Venting shaft	CHN_S_088	36.23247, 112.94554	—	44,938
13	▲ 4	Turkmenistan	Oil and gas	Flare	TKM_S_367	37.76777, 53.9164	N	43,785
14	NEW	Turkmenistan	Oil and gas	Flare	TKM_S_026	37.92912, 53.92428	Y	41,793
15	▲ 1	Saudi Arabia	Waste	Landfill	SAU_S_011	21.65043, 39.40224	—	40,909
16	▲ 6	Pakistan	Oil and gas	Gathering and boosting facilities	PAK_S_001	27.96851, 69.80955	N	39,945
17	▲ 1	China	Metallurgical coal	Venting shaft	CHN_S_072	36.41495, 112.9372	—	35,828
18	▲ 3	China	Metallurgical coal	Venting shaft	CHN_S_098	36.24638, 112.99023	—	34,531
19	▼ 4	China	Thermal coal	Venting shaft	CHN_S_033	37.938, 113.02297	—	33,988
20	NEW	Australia	Metallurgical coal	Venting shaft	AUS_S_014	-34.18144, 150.72	—	33,463
21	▲ 2	China	Thermal coal	Venting shaft	CHN_S_195	35.60638, 112.64465	—	31,273
22	NEW	United Arab Emirates	Waste	Landfill	ARE_S_023	25.63767, 55.79347	—	28,382
23	▲ 1	China	Thermal and metallurgical coal	Drainage station	CHN_S_182	35.99206, 112.89036	—	28,287
24	NEW	Pakistan	Oil and gas	Gathering and boosting facilities	PAK_S_008	28.05525, 69.36555	N	28,119
25	NEW	India	Waste	Landfill	IND_S_056	22.53444, 88.4253	—	24,966

Sectors: Oil & Gas · Metallurgical Coal · Thermal Coal · Thermal Coal & Metallurgical Coal · Waste

Note: IMEO currently provides MARS notifications for sources detected in the oil and gas sector. In May 2026, IMEO announced the launch of a pilot phase for rapid alerts in the coal and waste sectors.

#		Country	Sector	Potential Source Type	Source ID	Coordinates	Feedback Received	Estimated Annual Emissions (tonnes CH_4)
26	▼ 12	India	Waste	Landfill	IND_S_022	28.74244, 77.1562	—	24,615
27	▼ 1	Mexico	Waste	Landfill	MEX_S_099	19.40711, -98.84907	—	24,615
28	NEW	Egypt	Waste	Landfill	EGY_S_019	30.25634, 31.56229	—	24,352
29	NEW	Australia	Metallurgical coal	Venting shaft	AUS_S_028	-21.88795, 147.99512	—	23,301
30	▼ 1	China	Thermal and metallurgical coal	Venting shaft	CHN_S_157	36.38906, 112.87599	—	22,566
31	▼ 1	China	Thermal coal	Drainage station	CHN_S_196	35.59816, 112.68846	—	22,075
32	NEW	Turkmenistan	Oil and gas	Transmission pipelines	TKM_S_256	40.45467, 62.13602	N	21,900
33	NEW	South Africa	Waste	Landfill	ZAF_S_006	-33.77659, 18.54222	—	20,348
34	▼ 3	India	Waste	Landfill	IND_S_017	22.98321, 72.56738	—	20,340
35	▼ 2	China	Thermal and metallurgical coal	Drainage station	CHN_S_175	36.0917, 112.86259	—	19,955
36	▲ 7	Turkmenistan	Oil and gas	Oil and gas facility (generic)	TKM_S_438	38.09913, 54.02161	N	19,646
37	NEW	India	Waste	Landfill	IND_S_026	28.62423, 77.32729	—	19,622
38	NEW	United States of America	Thermal and metallurgical coal	Venting shaft	USA_S_422	39.64805, -80.41903	—	18,571
39	▼ 4	China	Metallurgical coal	Venting shaft	CHN_S_205	36.48173, 112.98686	—	18,493
40	▼ 4	China	Metallurgical coal	Venting shaft	CHN_S_337	37.3317, 110.99532	—	17,958
41	▲ 1	India	Oil and gas	Flare	IND_S_014	23.48031, 72.27994	N	17,607
42	NEW	Turkmenistan	Oil and gas	Gas disposal facility	TKM_S_020	38.50625, 54.19757	Y	16,679
43	▼ 4	China	Thermal and metallurgical coal	Drainage station	CHN_S_161	36.13813, 112.92011	—	16,450
44	▼ 6	Turkmenistan	Oil and gas	Pipeline	TKM_S_029	39.46192, 53.77668	Y	16,386
45	▼ 4	China	Thermal coal	Venting shaft	CHN_S_328	36.25226, 112.88337	—	16,206
46	▲ 2	Egypt	Oil and gas	Gas disposal facility	EGY_S_055	29.78652, 28.15206	Y	15,011
47	NEW	China	Thermal coal	Flare	CHN_S_118	36.39735, 113.02675	—	14,771
48	▼ 3	China	Metallurgical coal	Venting shaft	CHN_S_212	36.10827, 112.98069	—	14,348
49	▼ 2	China	Thermal and metallurgical coal	Coal mine facility (generic)	CHN_S_840	26.34904, 104.67365	—	13,578
50	NEW	Egypt	Waste	Landfill	EGY_S_043	30.44543, 30.78879	—	11,037

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