Agriculture subcommittee

15:00-16:30 CET – 23 July 2026

Agenda

Approval of Proposed Studies

The subcommittee formally approved the following study:

1. **Baseline and Target Setting for Reducing Methane Emissions from Rice Systems in Tanzania and Madagascar** — This project will support IMEO's agriculture methane work by generating country-specific methane emission estimates from rice systems in Tanzania and Madagascar, where current data remain limited and largely dependent on generalised emission factors. The project responds to the rapid expansion of rice production in both countries and the need to support food security while avoiding unnecessary increases in methane emissions from flooded rice systems. It combines three core elements: rice area and production-system mapping, national capacity building, and field-based methane measurements to generate country-specific emission factors, focusing on irrigated and rainfed lowland rice systems across representative rice-growing regions. Methodologies include satellite-based rice mapping, ground-truthing, household surveys, chamber-based methane measurements, laboratory analysis, and integration of field, survey, and spatial datasets using GHG accounting tools such as SECTOR, alongside training, workshops, and institutional support with national research partners. Main outputs will include spatially explicit methane emission maps, georeferenced management-practice databases, two-season methane emission datasets, country-specific emission factors, technical briefs, policy-relevant outputs, and peer-reviewed publications, supporting improved national GHG inventories, NDC-relevant planning, rice-sector mitigation strategies, and longer-term capacity for low-emission rice development.

Project Updates

Methane emissions baseline for livestock and rice systems in Colombia (Ciniro Costa Jr, CIAT) — Completed: methane emissions literature review; high-resolution GIS-based stratification map and typology of rice and livestock systems in Colombia; field campaign design. Ongoing: assessing methane recovery rate for the polytunnels and progressing deployment of the field measurement trial. The full campaign is expected to start in San Vicente del Caguán during the first week of August.

Agriculture component of the Nigeria baseline science study (Paul Balcombe, QMUL, with Abiodun Momodu, Obafemi Awolowo University) — Completed: rice methane emission capacity-building training workshop (17–19 June 2026, Ibadan, Nigeria); fabrication of chambers; selection of farms for measurement. Ongoing: rice cultivation area mapping and rice system identification; chamber measurement for CH_4 fluxes; preparation for site-level CH_4 flux measurement using a gradient-based method, planned for autumn 2026 alongside chamber measurements.

Scientific Oversight Committee

15:00-16:00 CET – 9 July 2026

Agenda

Approval of Proposed Project

The SOC formally approved the following project:

Advancing Drone-Based Methane Quantification: Method Development and Validation — This project will develop and validate standardised drone-based methane measurement methods through a two-year programme combining numerical modelling and physical drone testing. Drone-based measurement has emerged as a promising tool for site-level emissions verification, but commercial deployment has outpaced scientific understanding, and reported errors remain inconsistent across platforms, wind conditions, and terrain, undermining credibility for regulatory and reporting applications such as OGMP 2.0 and Australia's NGER scheme. The work will synthesise existing evidence and reanalyse controlled-release datasets from other IMEO-funded drone projects, characterise wind sensor performance across mounting configurations on UNSW's drone platform, and use large eddy simulation (LES) modelling with real lidar-derived terrain to simulate airflow at complex sites and identify where standard measurement assumptions break down. Controlled-release field trials across simple and complex environments, including participation in SIMFLEX, will empirically characterise measurement uncertainty, addressing why drone-based methods degrade in complex conditions, whether sampling methodology adds uncertainty, and whether an optimal, site-specific sampling strategy exists. Key applications include surface coal mines and oil and gas facilities. Expected outputs include a peer-reviewed paper and three technical reports, building toward practical, evidence-based measurement guidelines for industry, regulators, and OGMP.

International Methane Emissions Observatory

Scientific Oversight Committee

15:00-16:00 CET – 20 May 2026

Summary

Approval of Proposed Project

SOC formally approved the following project:

Airborne Methane Measurement Technology Development and Method Validation for diffuse area sources study: This study will develop and validate airborne measurement technologies and quantification methods for diffuse area sources, using hydropower systems in Brazil as the test case. Although Brazil generates approximately 80% of its electricity from hydropower, methane emissions from this sector remain highly uncertain and understudied, with existing knowledge largely limited to localized chamber measurements. The project will assess emissions across an

entire hydropower system, including the reservoir, turbines, and downstream river sections, while evaluating the feasibility of combining top-down and bottom-up quantification approaches. Airborne in-situ measurements and remote sensing observations collected during an existing research campaign in Brazil in late 2026 will be used to derive top-down methane emission estimates using mass balance and/or eddy covariance methods.

Near-simultaneous ground-based measurements conducted by local partners, including floating chambers and bubble traps, will enable comparison between independent measurement techniques. Additional flask sampling throughout the hydropower system will support isotopic and trace species analyses to evaluate source attribution within different system components. The study will provide the first dedicated airborne methane measurements over hydropower infrastructure in South America and improve understanding of methane emissions from tropical hydropower reservoirs. Results will also support future methane assessment activities within the International Methane Emissions Observatory in regions where hydropower reservoirs are prevalent.

International Methane Emissions Observatory

Scientific Oversight Committee

15:00-16:00 CET – 09 April 2026

Agenda

Approval of Proposed Project

SOC formally approved the following project:

Integrated Multi-Scale Quantification and Validation of Methane Emissions from Active and Post-Mining Coal Operations in the Upper Silesian Coal Basin, Poland, Europe: This study aims to strengthen methane Monitoring, Reporting, and Verification (MRV) systems for the coal sector by developing and integrating high-precision in situ monitoring, UAV-based quantification methods, satellite reconciliation approaches, and post-mining methane assessment methodologies. The primary focus is on underground coal mining emissions in the Upper Silesian Coal Basin in Poland, while also supporting methane MRV activities in countries including China and Colombia. The project includes continuous methane flux monitoring using TDLAS-based systems, expansion of high-precision measurements to additional active mines, UAV-based methane quantification and methodological validation, satellite data reconciliation, and assessments of ventilation air methane (VAM) mitigation potential. The study will also synthesize findings from previous International Methane Emissions Observatory coal methane studies conducted in Poland to support the development of comprehensive and standardized MRV methodologies for underground mining operations.

In parallel, the project will expand methane quantification efforts to surface lignite mining, post-mining activities, and abandoned mines in Poland using UAV observations and sensitive open-path TDLAS analyzers. Methane fluxes from operating and decommissioned sites will be compared with national greenhouse gas inventories, publicly reported emissions, and IPCC emission factor assumptions to evaluate reporting accuracy and characterize emission evolution following mine closure. The study will provide one of the first structured empirical datasets on

post-mining methane emissions in Central Europe while supporting EU Methane Regulation and Just Transition reporting requirements. In addition, the project includes international knowledge transfer activities, including support for the Colombia coal-sector baseline study and the development of MRV recommendations informed by experience gained in Poland, with the longer-term goal of contributing to a broader global assessment of abandoned mine methane emissions.

International Methane Emissions Observatory

Scientific Oversight Committee

15:00-16:00 CET – 12 March 2026

Agenda

Approval of Proposed Projects- SOC formally approved the following projects:

1. Columbia Baseline Coal Sector Science Study: This study is a component of the International Methane Emissions Observatory multi-sector baseline studies, which aim to develop measurement-based methane emission estimates at the national scale, with Colombia selected as the focus country. The project will integrate top-down and bottom-up approaches to monitoring, reporting, and verification (MRV) of methane emissions from the coal sector, building on scientific understanding and methodologies developed through previous IMEO-supported studies in Poland and Australia. The study will also leverage Carleton University's expertise to test innovative approaches for quantifying emissions from open-pit coal mines and demonstrate how national methane inventories can be improved through the synthesis of atmospheric measurements, bottom-up observations, and activity data.

The project benefits from strong political and scientific collaboration, including engagement with government stakeholders, advocacy groups, industry representatives, and international research partners. The study also builds upon ongoing methane monitoring and mitigation activities supported by the Global Methane Hub and led by the advocacy group POLEN. In parallel, collaboration with major Colombian coal operators may enable direct access to mining facilities, while methodological developments from the project could also support related methane studies in Australia. The outcomes are expected to advance cost-effective and high-quality approaches for estimating methane emissions from both underground and surface coal mining operations and position Colombia as a potential leader in coal-sector MRV development.

2. Developing Global South-Ready Landfill Methane Measurement Technologies and Workflows: This study aims to develop practical, low-cost methane measurement workflows that complement satellite-based monitoring and support methane mitigation efforts in regions with limited technical capacity. While satellite observations are increasingly effective for detecting methane plumes, low-tech ground-based approaches remain essential for validating and reconciling remotely detected emissions with field observations, particularly in areas where advanced techniques such as tracer correlation methods are not feasible. Building on lessons learned from pilot studies, including landfill campaigns, the project will focus on translating complex methane datasets into accessible, field-ready methodologies suitable for operators, regulators, and agencies in the Global South.

The study will leverage the SIMFLEX controlled release facility in Canada, which provides a unique dataset of more than 200 controlled methane releases under well-characterized wind conditions. This dataset offers an exceptional opportunity to test, calibrate, and compare a wide range of methane measurement approaches, including satellites, aircraft, drones, and low-tech walking surveys. The project will develop open-source algorithms and operational protocols while systematically evaluating how reduced sensor precision and limited meteorological data affect measurement performance. The outcomes are expected to bridge the gap between methane detection and actionable mitigation planning by enabling practical, defensible, and cost-effective methane quantification and localization approaches that can be deployed without requiring landfill site access.

International Methane Emissions Observatory

Scientific Oversight Committee

15:00-16:00 CET – 12 February 2026

Agenda

1. Data Integration and SMP database

The SOC was informed on the development of an integrated Bayesian modelling framework for improving methane emissions estimates from coal mining systems. The framework synthesises diverse bottom-up and top-down datasets within a transparent probabilistic framework. Deterministic pre-processing standardises multiple measurement types—including satellite observations, coal methane content measurements, mine-level reporting data, and sub-mine emission estimates—into directly comparable emission intensities, before Bayesian inverse modelling generates posterior methane emission estimates with quantified uncertainty. The framework accounts for methodological assumptions, mitigation impacts, and varying data quality, and enables sensitivity analyses related to prior selection, production adjustments, and uncertainty treatment. By integrating complementary datasets with probabilistic uncertainty handling, the approach supports more robust methane monitoring, reporting, and verification (MRV) for the coal sector and improves the development of mine-level and system-level methane inventories.

2. Initial discussion on waste project: SOC was informed on the following waste project, which will be presented in the next SOC meeting:

Developing Global South-Ready Landfill Methane Measurement Technologies and Workflows — Develops and tests low-cost methane measurement workflows for landfills in low- and middle-income countries, assessing affordable approaches against controlled release experiments to produce standardised workflows and field-ready guidance for reporting and mitigation planning.

International Methane Emissions Observatory

Scientific Oversight Committee

15:00-16:00 CET – 8 January 2026

Agenda

Introduction to the Steel Methane Programme's Mine-Level Emission Database

The SOC was informed on the Steel Methane Programme (SMP), which aims to improve methane MRV and mitigation in the metallurgical coal sector. Coal mine methane adds a quarter to steel's climate footprint and is addressable at less than 1% of the cost of steel. The SMP database covers mine-level emissions of approximately half of the global steel supply chain (around 250 mines), integrating bottom-up inventories, measurements, and satellite data through IMEO's multivariate Bayesian model to produce a best-estimate mine-level emission profile. Estimating mine-level emissions is challenging given spatial and temporal heterogeneity driven by site characteristics, operating conditions, and regional factors. The programme leverages the complementary strengths of different approaches — bottom-up inventories for completeness and consistency, measurements for accuracy, and satellites for independent validation — combined through a data integration algorithm. IMEO's Methane Science Studies, including work in India, Poland, China, and Australia, can feed directly into the database.

Deep Dive into REMEDI (Repository of Empirical Methane Emissions for Data Integration)

The SOC was informed on REMEDI, which consolidates fragmented methane data of varying quality, granularity, and scope into a holistic, unbiased view of emitters. The repository holds empirical, geo-tagged, and time-stamped methane emission rates from science-grade measurements across all anthropogenic sectors, at site-level and larger scales, drawing solely on published data. Emissions are categorised using UNFCCC source categorisations, with no component-level data included. REMEDI currently contains 279 papers in list (195 with emission rates added), 4,233 individual emission rates, and 176 studies. Ongoing work includes a changelog for long-term consistency, scientific engagement, and the addition of new publications and peer-reviewed methods including MethaneAIR/MethaneSAT.