

Course Information			
Year	AY 2025-2026	School	UNU-IAS
Course Title	Climate Change Mitigation through the Measurement, Reporting and Verification (MRV) of Greenhouse Gas Emissions		
Instructor & Contact Information	Mahesti Okitasari, Naoyuki Okano ( <a href="mailto:okitasari@unu.edu">okitasari@unu.edu</a> , <a href="mailto:okano@unu.edu">okano@unu.edu</a> )		
Term/Day/Period	AY 2026 Spring / 20 Apr – 20 Jul 2026 / 3 <sup>rd</sup> period		
Category	Elective course	Eligible Year	1 <sup>st</sup> year and above Credits 2
Classroom	Lecture room, 6th floor in the UNU building	Campus	UNU-HQ, Tokyo, Japan
Main Language	English		
Class Modality Categories	On-Campus		
Course Code	641010		
Level	Graduate-level	Types of lesson	Lecture

Syllabus Information	
Subtitle	Practicum on the Implementation of the Paris Agreement
Course Description	<p>“Transparency” is regarded as a vital element to ensure the Paris Agreement functions as a vehicle through which government parties can provide information on their climate action commitments with being reviewed by external experts. Under Article 13 of the Paris Agreement, Parties are responsible for reporting on regular data on countries’ GHG emissions and removals, progress of the implementation of their nationally determined contributions (NDCs), climate change impacts and adaptation and levels of support and capacity-building through specific reports and tables. The concept of “transparency” can be found in many areas of practitioners’ work on climate action, and often, they are not explained how they differ from and relate to each other. As to measurement, report, and verification (MRV) of GHG emissions and removals, which are often used synonym for transparency, there are different sets of rules operated in layers, which are relevant to each other, i.e., international, national, sector, entity or facility-level, as well as project level.</p> <p>The course is provided by lectures by professionals and practitioners in the field, hands-on training of GHG emissions calculation and reporting applying relevant methodologies, and site visits to observe actual efforts by the private sector to reduce GHG emissions through the installation of decarbonization technologies and their MRV.</p>
Objectives and Learning Goals	<ul style="list-style-type: none"> <li>• Develop an understanding of how multilayered MRVs facilitate climate action among multiple stakeholders in support of the Paris Agreement implementation.</li> <li>• Learn about theory and practices of transparency at the national level, including policy measures, support and finance as well as methodological aspects of GHG inventory (e.g., data collection procedures sourced from national statistics in line with the Intergovernmental Panel on Climate Change (IPCC) guidelines), referring to the modalities, procedures and guidelines (MPGs) of the Enhanced Transparency Framework (ETF) under the Paris Agreement.</li> <li>• Examine GHG emissions and climate action at the entity or facility level, including policy measures, support and finance as well as methodological aspects of GHG inventory (e.g., scopes and data collection procedures, incl. measurement and estimation) referring to requirements by standards (e.g., ISO and GHG protocol), legislations (e.g., emission trading schemes ) as well as initiatives (e.g., SBTi, TCFD).</li> <li>• Develop the capacity to integrate information and knowledge gained through lectures and hands-on practices on transparency and GHG MRV, and to formulate strategies to enhance and lead climate actions at various levels.</li> </ul>

Requirements

The course requires students to attend all classes, to arrive on time, to complete readings and to participate actively in class discussions. This means asking questions and sharing knowledge in every class. At the discretion of the instructor, frequent late arrivals or absences may result in a lower grade. Please note that the first session is of particular importance and cannot be missed. Students are also strongly encouraged to regularly follow the latest news on climate change and sustainable development issues, as these topics will be frequently discussed in class. Relevant reporting archives will be shared by the instructor during the class. The expected working hours per week are five hours, including pre-readings, lecture attendance, and review for assignments.

Course Outline

Lecture	Date	Time	Outline (Contents and schedule are subject to change)
1	20 Apr	14:00-15:40	Introduction to the concept of transparency, its objectives, essential elements and functions (20 Apr – TBC, OECC and Dr. Atsushi Sato, MURC)
2	20 Apr	15:50-17:30	Overview of the National GHG Inventory System and Transparency Reporting and Assessment (20 Apr – Dr. Atsushi Sato, MURC)
3	27 Apr	14:00-15:40	Methodological aspects of national inventory system – Energy sector (27 Apr – Dr. Atsushi Sato, MURC)
4	27 Apr	15:50-17:30	Methodological aspects of national inventory system – Industrial Process and Product Use (IPPU), and Waste sectors (27 Apr – Dr. Atsushi Sato, MURC)
5	11 May	14:00-15:40	Methodological aspects of national inventory system – Agriculture, and Land Use, Land-Use Change and Forestry (LULUCF) sectors (11 May – Dr. Atsushi Sato, MURC)
6	11 May	15:50-17:30	Policy measures for mitigation and adaptation, support and finance related to transparency and reporting under the UNFCCC (11 May – Dr. Atsushi Sato, MURC)
7	18 May	14:00-15:40	Basics of entity/facility level transparency and GHG MRV including Scope 1, 2 and 3 emissions (18 May – Mr. Akihiro Tamai, & Hiroshi Naruse OECC)
8	25 May	14:00-15:40	Details of entity/facility level transparency and GHG MRV including mandatory reporting system of GHG emissions (25 May – Mr. Naruse Hiroshi, OECC)
9	1 June	14:00-15:40	The incentive mechanisms and carbon disclosure - Task force on Climate-related Financial Disclosures (TCFD), Science Based Target Initiative (SBTi) and International Sustainability Standards Board (ISSB) – Part 1 (1 Jun – Mr. Kimihiro Kuromizu, OECC)
10	8 June	14:00-15:40	The incentive mechanisms and carbon disclosure - Task force on Climate-related Financial Disclosures (TCFD), Science Based Target Initiative (SBTi) and International Sustainability Standards Board (ISSB) – Part 2 (8 Jun – Mr. Kunihiko Kobayashi, and Mr. Takayama, OECC)
11	15 June	14:00-15:40	Linkage of transparency and GHG MRV to carbon markets - Part 1: ETS and crediting mechanisms (15 Jun – Mr. Jun Watanabe, OECC)
12	22 June	14:00-15:40	Linkage of transparency and GHG MRV to carbon markets - Part 2: Integrity standards Core Carbon Principle, VCMI's code of practice, and the SBTi's Corporate Net-Zero Standard (22 Jun – Mr. Jun Watanabe, OECC)
13	29 June	14:00-15:40	Incorporation of GHG MRV into practice towards enhanced climate action and expanded business profile (29 Jun – Mr. Makoto Kato, OECC)
14	6 July	14:00-15:40	Observing corporates' efforts to GHG MRV and enhanced mitigation actions (6 Jul – Mr. Makoto Kato, OECC)
15	13 July	14:00-15:40	Discussion and presentation - Transparency and MRV as driving forces for enhanced climate action will be explained and discussed (13 Jul - TBC, OECC and Dr. Atsushi Sato, MURC)

Course Readings

- UNFCCC (nd) History of the Conventions. <https://unfccc.int/process/the-convention/history-of-the-convention#Climate-Change-in-context>
- UNFCCC (nd) What is transparency? <https://unfccc.int/process-and-meetings/transparency-and-reporting/about-transparency/what-is-transparency>
- UN (nd) All about the NDCs. <https://www.un.org/en/climatechange/all-about-ndcs>
- UNFCCC (nd) Moving towards implementing an Enhanced Transparency Framework. <https://unfccc.int/enhanced-transparency-framework>

	<ul style="list-style-type: none"> <li>• IPCC (nd) FAQs of Task Force on National Greenhouse Gas Inventories – IPCC. <a href="https://www.ipcc-nggip.iges.or.jp/faq/faq.html">https://www.ipcc-nggip.iges.or.jp/faq/faq.html</a></li> <li>• MOEJ (nd) Partnership to Strengthen Transparency for Co-Innovation (PaSTI). <a href="https://www.env.go.jp/earth/ondanka/pasti/en/index.html">https://www.env.go.jp/earth/ondanka/pasti/en/index.html</a></li> <li>• MRV Information Platform for ASEAN Member States. <a href="https://mrv-info.com/index.html">https://mrv-info.com/index.html</a></li> <li>• GREENHOUSE GAS PROTOCOL. <a href="https://ghgprotocol.org/">https://ghgprotocol.org/</a></li> <li>• Task Force on Climate-related Financial Disclosures. <a href="https://www.fsb-tcfd.org/">https://www.fsb-tcfd.org/</a></li> <li>• The International Financial Reporting Standards Foundation. <a href="https://www.ifrs.org/">https://www.ifrs.org/</a></li> </ul>												
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