Course Information

Year	AY 2025-2026	School	UNU-IAS		
Course Title	Studies of Socio-Ecological Production Landscapes and Seascapes (SEPLS)				
Instructor & Contact Information	Mesfin Sahle Achemo (ms.achemo@unu.edu) and Suneetha M. Subramanian (subramanians@unu.edu)				
Term/Day/Period	AY 2026 Spring from April to July				
Category	Elective Course	Eligible Year	1st 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	621170				
Level	Graduate-level	Types of lesson	Lecture		

Syllabus Information

Subtitle	**Studies of Socio-Ecological Production Landscapes and Seascapes (SEPLS)**
Course Description (Word limit: 200)	Recent global assessments of life on Earth show a pervasive decline in nature driven by human activity. Biodiversity loss ranks among the three most severe risks for the next decade (World Economic Forum 2022). Understanding the dynamics in human-nature interactions across multiple scales and levels is crucial for designing and implementing interventions to enhance biodiversity conservation and ensure sustainability. Socio-ecological production landscapes and seascapes (SEPLS) – defined as dynamic mosaics of habitats and land and sea uses where harmonious human-nature interactions maintain both biodiversity and human wellbeing – manifest a sustainable model of management practices that helps us to achieve the 2050 Vision for biodiversity: living in harmony with nature. This course aims to deepen understanding of SEPLS and explore various approaches to its study. It will introduce key concepts, theories, and methodologies useful for understanding and conducting research on productive landscapes and seascapes, hinging on the concept of SEPLS.
Objectives and Learning Goals (Bullet points)	By the end of the course, students will be able to: • Identify and define core concepts, frameworks, and terminology related to socio-ecological production landscapes and seascapes (SEPLS), and science-policy interface, including the IPBES Conceptual Framework, Nature's Contributions to People (NCP), and the Kunming–Montreal Global Biodiversity Framework (GBF). • Explain SEPLS as complex social–ecological systems shaped by scale, feedback, institutions, and diverse human–nature relationships across rural and urban–rural contexts. • Apply systems and nexus thinking, spatial identification methods, and ecosystem service assessment approaches to examine real-world SEPLS cases. • Analyze trade-offs, synergies, and cross-scale interactions among biodiversity, ecosystem services, livelihoods, and governance, including urban–rural interlinkages. • Critically evaluate decision-support tools, indicators, governance arrangements, and monitoring frameworks with respect to effectiveness, equity, uncertainty, and policy relevance. • Design and develop integrated SEPLS assessments and plausible future scenarios that support adaptive management and nature-positive, socially equitable pathways aligned with global policy processes.

Requirements

This part should include the expected working hours.

This is a 2-credit graduate-level course consisting of 15 sessions, each 1 hour and 40 minutes in duration. Students are expected to participate actively in all sessions and complete required independent and group work.

The total expected workload is approximately 90 hours, distributed as follows:

- In-class sessions: ~25 hours
- Readings and preparation: ~24 hours
- Practical exercises / applied activities: ~15 hours
- Assignments and project work: ~18 hours
- Review and reflection: ~8 hours

Course Outline

Detailed information could be provided on Moodle such as the information of the lecturers, etc.

Lecture	Outline
1	Introduction: The Science–Policy interface and SEPLS
2	Systems and nexus thinking for SEPLS
3	Landscape approaches and multi-level governance
4	Identifying and mapping SEPLS
5	Urban–rural interlinkages and blue–green infrastructure
6	Equity, rights, and benefit sharing in SEPLS
7	Assessing SEPLS contributions to people
8	Ecosystem services models and decision-support tools I
9	Ecosystem services models and decision-support tools II
10	Group presentations on analytical-focused projects
11	Indicators and resilience
12	Exploring plausible futures of SEPLS (Theory)
13	Scenario development in practice
14	Final group presentations
15	Reflection and research design

Course Readings

- Díaz, S. et al. (2015). The IPBES Conceptual Framework — Connecting nature and people. Current Opinion in Environmental Sustainability, 14, 1-16. https://doi.org/10.1016/j.cosust.2014.11.002
- Saito, O. et al. (2012). Satoyama and Satoumi, and ecosystem services: A conceptual framework. In Duraiappah, A.K. et al. (ed.): Satoyama-Satoumi ecosystems and human well-being: Socioecological production landscapes of Japan, 17-59.
- Liu, J., et al. (2015). *Systems integration for global sustainability*. Science, 347(6225), 1258832. https://doi.org/10.1126/science.1258832
- Biggs, R., et al. (2012). *Toward principles for enhancing the resilience of ecosystem services*. Annual Review of Environment and Resources, 37, 421–448. https://doi.org/10.1146/annurev-environ-051211-123836
- Sayer, J., et al. (2013). *Ten principles for a landscape approach to reconciling agriculture, conservation, and other competing land uses*. Proceedings of the National Academy of Sciences, 110(21), 8349–8356. https://doi.org/10.1073/pnas.1210595110
- Reed, J., et al. (2016). *Integrated landscape approaches: Learning from the past to guide the future*. Global Change Biology, 22(7), 2540–2554. https://doi.org/10.1111/gcb.13284
- Natori, Y., & Hino, A. (2021). *Global identification and mapping of socio-ecological production landscapes using the Satoyama Index*. PLOS ONE, 16(8), e0256327. https://doi.org/10.1371/journal.pone.0256327
- Jonas, H. D., et al. (2018). *Other Effective Area-Based Conservation Measures (OECMs)*. PARKS, 24(SI), 9–16. Doi: 10.2305/IUCN.CH.2018.PARKS-24-SIHDJ.en
- Seto, K. C., et al. (2012). *Urban land teleconnections and sustainability*. Proceedings of the National Academy of Sciences, 109(20), 7687–7692. https://doi.org/10.1073/pnas.1117622109
- Pascual, U., et al. (2017). *Valuing nature's contributions to people: The IPBES approach*. Current Opinion in Environmental Sustainability, 26–27, 7–16. https://doi.org/10.1016/j.cosust.2016.12.006
- Chan, K. M. A., et al. (2016). *Why protect nature? Rethinking values and the environment*. Proceedings of the National Academy of Sciences, 113(6), 1462–1465. https://doi.org/10.1073/pnas.1525002113
- Natural Capital Alliance, 2026. InVEST 3.17.2. https://doi.org/10.60793/natcap-invest-3.17.2
- Folke, C., et al. (2016). *Social-ecological resilience and biosphere-based sustainability science*. Ecology and Society, 21(3), 41. https://doi.org/10.5751/ES-08748-210341
- UNU-IAS, Alliance of Bioversity International and CIAT, UNDP GEF-SGP and IGES (2024) Indicators of

Resilience in Socio-ecological Production Landscapes and Seascapes (SEPLS): 2024 Edition. https://unu.edu/sites/default/files/2024-07/Indicators%20of%20Resilience%20in%20SEPLS%202024%20Edition_V2_0.pdf

- IPBES. (2016). Summary for policymakers of the methodological assessment of scenarios and models of biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Zenodo. https://doi.org/10.5281/zenodo.3235275
- Pereira, L. M., Davies, K. K., Ferrier, S., et al. (2020). Developing multiscale and integrative nature–people scenarios using the Nature Futures Framework. People and Nature, 2(4), 1172-1195. https://doi.org/10.1002/pan3.10146

Reference

- Bagstad, K. J., et al. (2013). A comparative assessment of decision-support tools for ecosystem services quantification and valuation. https://doi.org/10.1016/j.ecoser.2013.07.004
- Bourne, P. E. (2007). Ten Simple Rules for Making Good Oral Presentations. https://doi.org/10.1371/journal.pcbi.0030077
- Grêt-Regamey, A., et al. (2017). Review of decision support tools to operationalize the ecosystem services concept. https://doi.org/10.1016/j.ecoser.2016.10.012
- Kadoya, T., & Washitani, I. (2011). The Satoyama Index: a biodiversity indicator for agricultural landscapes. https://doi.org/10.1016/j.agee.2010.11.007
- Lang, D. J., et al. (2012). Transdisciplinary research in sustainability science: practice, principles, and challenges. https://doi.org/10.1007/s11625-011-0149-x
- Levin, S. A. (1998). Ecosystems and the biosphere as complex adaptive systems. https://doi.org/10.1007/s100219900037
- Liu, J., et al. (2013). Framing sustainability in a telecoupled world. https://doi.org/10.5751/ES-05873-180226
- Zafra-Calvo, N., et al. (2017). Towards an indicator system to assess equitable management in protected areas. https://doi.org/10.1016/j.biocon.2017.05.014

Grading Policy

Rate	%	Evaluation Criteria
Exam	0	Not applicable
Papers	30	Individual paper
Class Participation	20	Attendance, active participation in discussions, and contribution to group activities
Others	50	Group presentation on ecosystem services modelling (20%) and scenario development (30%)

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Note / URL if any