From SDGs to Climate Change

Integrating SDGs into climate change actions

United Nations University

(UNU-IAS, Operating Unit Ishikawa-Kanazawa-OUIK)

Autumn 2022

Location: 6th fl., lecture room

Day & Time: Tuesday and Friday, 15:50 – 17:30

Lecturers:

Dr Akio Takemoto and Dr Juan Pastor-Ivars

Contact Information:

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Office Hours: by appointment

1. Course Description

Since the mid-20th century, humans have increased energy consumption and levels of greenhouse emissions. Such facts have had an unprecedented impact on climate, causing an alteration on a global scale. With recent global warming of 1.1°C and deviations in weather patterns, climate change threatens people with food insecurity, flooding, diseases, extreme heat, displacement, ecosystem transformation, degradation, and the stress it places on political, economic, and social systems. Because of this, the World Health Organization (WHO) claims climate change is the greatest threat to humans in the 21st century. A response to climate change relies on mitigation, reducing climate change, and adaptation, fitting to current or expected change. In the Paris Agreement, adopted in 2015, nations agreed to keep warming well under 2.0 °C. With the COVID-19 pandemic, greenhouse gas emissions are forecasted to decline due to travel restrictions and economic deceleration. However, this

temporary improvement will not interrupt climate change. Limiting warming to 1.5 °C would require halving emissions by 2030 and achieving near-zero emissions by 2050.

In 2015, countries adopted the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals, including Goal 13: Climate Action, which aims to take urgent action to prevent climate change and its impacts. Sustainable Development Goals (SDGs) can be seen as 'antibodies' against climate change: threatened by its effects but the remedy to reduce them. The SDGs framework interconnects society's prosperity, human health, quality education, energy savings, wildlife conservation, circular economy, cities' sustainability, correct usage of natural resources, and world peace. Therefore, SDGs should be synchronised between them to achieve Goal 13. While some SDGs goals will act as a mitigating mechanism for climate change, others will become indicators of how appropriately we adapt to it. If so, the SDGs framework will become a valuable tool to alleviate climate change not only until the 2030 Agenda but for the rest of the 21st century. In this course, we will address Goal 13 as a focal point for the mitigation and adaption of climate change interconnecting the rest of the SDGs, keeping in mind the Goals complexity.

2. **Course Objectives and Learning Goals**:

This course aims to explore the knowledge of the relationship between climate change actions and multiple SDGs. The course also examines scientific, social, and political ways to prevent climate change. First, the course overviews the international policy framework on climate change and the 2030 Agenda for Sustainable Development. Second, it examines positive and negative social, economic, and environmental impacts caused by climate change mitigation and adaptation actions at the national and local levels. The positive effects extend to various areas, such as economic growth, infrastructure development, cost-effectiveness enhancement, and health benefits. In contrast, inequity, energy poverty, job loss, biodiversity degradation, and food insecurity have emerged as negative impacts. Third, the course provides an opportunity to understand how climate policy interventions can sustainably transform society by enhancing synergies and reducing trade-offs with socio-economic impacts.

The course is comprised of the three Blocks as follows:

1. Block 1: Giving an overview of the climate science and policy framework on climate change and the 2030 Agenda for Sustainable Development: What is the scientific evidence of climate change? What is the Paris Agreement? What is the 2030 Agenda for Sustainable Development?

2. Block 2: Identifying synergies and trade-offs between climate change actions and social, economic, and environmental impacts, and finding solutions: What are the social, economic, and environmental impacts related to climate change mitigation and adaptation actions? How do specific climate change actions influence SDGs? How can climate actions enhance synergies and reduce trade-offs between climate change actions and social, economic, and environmental impacts?
3. Block 3: Designing climate change actions that have co-benefits on the SDGs: How can the climate policy be designed to contribute to the SDGs in a selected city or country?

3. Requirements and Grading Policy

Class participation and discussion (10%)

Assignment 1: Class Presentation -1 (20%)

- Time: 5 minutes
- Contents: Identify climate change policies and associated social issues in a selected country/city

Assignment 2: Class Presentation -2 (30%)

- Time: 10 minutes
- Contents: Proposals for actions to synergise climate change measures and SDGs in a selected country/city

Assignment 3: Research paper (40%)

- Write a research paper on a relevant topic to assignments 1 and 2. Provide an overview of climate change mitigation/adaptation actions and associated social issues in a selected country/city and identify relevant Sustainable Development Goals. Provide an overview of interventions taken by the government and non-state actors to address trade-offs and enhance synergies between climate change mitigation/adaptation actions and socioeconomic co-benefits in a selected country/city, or propose innovative measures to reduce the trade-offs and enhance the synergies.
- Propose what research is needed to understand the problems related to three prioritised SDGs better.
- Format:
  - Arial 12, 1.5 space, justified alignment, double side, cover page, references (in-text citation and bibliography can include both reports and academic articles)
  - Harvard referencing style
  - Maximum of 3,500 words (excluding references)

1. Course Outline

Lecture / Assignment	Date	Content	Instructor
Block 1: Overview of Climate Change and SDGs			
Lecture 1	29 November	Introduction of the course. Overview of the climate change science	Dr Akio Takemoto
Lecture 2	2 December	Overview of Paris Agreement and relevant socioeconomic aspects (TBC)	Dr Akio Takemoto (TBC)
Lecture 3	6 December	Overview of the 2030 Agenda for Sustainable Development (TBC)	Dr Okitasari Mahesti (TBC)
Block 2: Social, economic and environmental impacts on climate actions			
Lecture 4	9 December	Climate change and sustainable energy (TBC)	Dr Suzuki Masachika (TBC)
Lecture 5	13 December	Climate change and green-blue cities (TBC)	Dr Juan Pastor Ivars (TBC)
Lecture 6	16 December	TBC	TBC
Winter break			
Lecture 7	6 January	TBC	TBC
Lecture 8	10 January	Assignment 1 (Class presentation): Identification of a research topic	
Lecture 9	13 January	Climate change and economic development (TBC)	Dr Upalat Korwatanasakul (TBC)
Lecture 10	17 January	Climate change and biological diversity conservation (TBC)	Dr Kanako Morita (TBC)
Lecture 11	20 January	Climate change and residential sector (TBC)	Dr Ranjeeta Mishra (TBC)
Lecture 12	27 January	TBC	Dr Richa Kandpal
Lecture 13	31 January	TBC	TBC
Block 3: Design of climate policy synergising SDGs			
Lecture 14	3 February	Assignment 2 (Class presentation): Proposal for actions (group 1)	
Lecture 15	7 February	Assignment 2 (Class presentation): Proposal for actions (group 2) Summary of classes	

Lecture / Assignment	Date	Content	Instructor
Assignment 3: Research Article			

2. Course Readings (TBC)

Lecture	Topics	Overview, title and recommended readings
Lecture 1	Introduction of the course. Overview of the climate change science	
Lecture 2	Overview of Paris Agreement and relevant socioeconomic aspects	
Lecture 3	Overview of the 2030 Agenda for Sustainable Development	Title: "Climate Change and the implementation of the 2030 Agenda and the SDGs" Outline: This lecture provides an overview of the 2030 Agenda for Sustainable Development processes at the global, regional, national and local level. It discusses the governance and policymaking aspects of implementing, monitoring and following-up the SDGs; simultaneously looking at how countries are progressing on their efforts to localise the SDGs. It looks how these SDGs processes connect to other international frameworks with emphasis on climate actions, their synergies and interactions. The lecture also offers examples on emerging research and approach towards governing the SDGs. **Recommended readings:** 1. Biermann, F., Kanie, N., Kim, R.E. 2017. Global governance by goal-setting: the novel approach of the UN Sustainable Development Goals. *Current Opinion in Environmental Sustainability*, 26: 26-31. http://dx.doi.org/10.1016/j.cosust.2017.01.010 2. Forestier, O., Kim, R.E. 2020. Cherry-picking the Sustainable Development Goals: Goal prioritisation by national governments and implications for global governance. *Sustainable Development*, 28(5): 1269-1278. September/October 2020. https://doi.org/10.1002/sd.2082 3. Fukuda-Parr, S. 2016. From the Millennium Development Goals to the Sustainable Development Goals: shifts in purpose, concept, and politics of global goal setting for development. *Gender & Development*. doi: 10.1080/13552074.2016.1145895 4. Fukuda-Parr, S., McNeill, D. 2019. Knowledge and Politics in Setting and Measuring the SDGs: Introduction to Special Issue. *Global Policy*, 10, Supplement 1, January 2019. doi: 10.1111/1758-5899.12604 5. Nerini, F., Sovacool, F., Hughes, B., Cozzi, N., Cosgrave, L., Howells, E, Tavoni, M., Massimo, T., Zerriffi, J., Milligan, B. 2019. Connecting climate action with other sustainable development goals. *Nature Sustainability*. ISSN 2398-9629. 6. Dzebo, A., Janetschek, H., Brandi, C., Iacobuta, G. 2019. Connections between the Paris Agreement and the 2030

Lecture	Topics	Overview, title and recommended readings
		Agenda. *Working Paper September 2019*. Stockholm Environment Institute. 7. Gustafsson, S., Ivner, J. 2018. Implementing the Global Sustainable Goals (SDGs) into Municipal Strategies: Applying an Integrated Approach, in W. Leal Filho (ed.) *Handbook of Sustainable Science and Research*, World Sustainability Series, https://doi.org/10.1007/978-3-319-63007-6_18
Lecture 4	Climate change and sustainable energy	Title: "Social, economic and environmental impacts through climate actions: climate change and sustainable energy"
Lecture 5	Climate change and green-blue cities	Title: "Green and Blue Infrastructure for Climate Change and Mitigation. The case of Kanazawa City" Outline: The benefits of a green and blue infrastructure will be introduced, in concrete when mitigating and adapting climate change. The case of Kanazawa city will explained. **Recommended readings:** 1. Bai, Xuemei, Richard J. Dawson, Diana Ürge-Vorsatz, Gian C. Delgado, Aliyu Salisu Barau, Shobhakar Dhakal, David Dodman, Lykke Leonardsen, Valérie Masson-Delmotte, and Debra Roberts. "Six research priorities for cities and climate change" Nature 555, no. 7694 (2018): 23-25. 2. Beninde, Joscha, Michael Veith, and Axel Hochkirch. "Biodiversity in cities needs space: a meta-analysis of factors determining intra-urban biodiversity variation." *Ecology letters*18, no. 6 (2015): 581-592. 3. Cocks, ML, & Shackleton, C.M. (Eds.). (2020). Urban Nature: Enriching Belonging, Wellbeing and Bioculture (1st ed.). Routledge. Chapter 2: Pastor-Ivars, Juan. The veil, the clearing and the flow New commons of Japanese traditional gardens in Kanazawa city https://library.unu.edu/cgi-bin/koha/opac-detail.pl?biblionumber=41947 4. Connop, Stuart, Paula Vandergert, Bernd Eisenberg, Marcus J. Collier, Caroline Nash, Jack Clough, and Darryl Newport. "Renaturing cities using a regionally-focused biodiversity-led multifunctional benefits approach to urban green infrastructure." *Environmental Science & Policy* 62 (2016): 99-111. 5. Childers, Daniel L., Mary L. Cadenasso, J. Morgan Grove, Victoria Marshall, Brian McGrath, and Steward TA Pickett. "An ecology for cities: A transformational nexus of design and ecology to advance climate change resilience and urban sustainability." *Sustainability* 7, no. 4 (2015): 3774-3791. 6. Gill, S.E., Handley, J.F., Ennos, A.R., Pauleit, S., 2007. Adapting cities for climate change: the role of the green infrastructure. Built Environ. 33 (1), 115–133

Lecture	Topics	Overview, title and recommended readings
		7. Jabareen, Yosef. "Planning the resilient city: Concepts and strategies for coping with climate change and environmental risk." Cities 31 (2013): 220-229 8. Josh Foster, Ashley Lowe, Steve Winkelman, 2011. The Value of Green Infrastructure for Urban Climate Adaptation. Centre for clean air policy. http://ccap.org/assets/The-Value-of-Green-Infrastructure-for-Urban-Climate-Adaptation_CCAP-Feb-2011.pdf 9. Kabisch, Nadja, Niki Frantzeskaki, Stephan Pauleit, Sandra Naumann, McKenna Davis, Martina Artmann, Dagmar Haase et al."Nature-based solutions to climate change mitigation and adaptation in urban areas: perspectives on indicators, knowledge gaps, barriers, and opportunities for action." *Ecology and Society* 21, no. 2 (2016). 10. Malcolm, Stephanie E. Austin, Lea Berrang-Ford, and James D. Ford. "Public health adaptation to climate change in large cities: A global baseline." *International Journal of Health Services* 46, no. 1 (2016): 53-78. 11. Masson, Valéry, Colette Marchadier, Luc Adolphe, Rahim Aguejdad, Paolo Avner, Marc Bonhomme, Geneviève Bretagne et al. "Adapting cities to climate change: A systemic modelling approach." *Urban Climate* 10 (2014): 407-429. 12. McDonnell, Mark J., and Ian MacGregor-Fors. "The ecological future of cities" *Science* 352, no. 6288 (2016): 936-938. 13. McPhearson, Timon, Susan Parnell, David Simon, Owen Gaffney, Thomas Elmqvist, Xuemei Bai, Debra Roberts, and Aromar Revi. "Scientists must have a say in the future of cities." Nature News 538, no. 7624 (2016): 165. 14. Nick Watts et.al Health and climate change: policy responses to protect public health. The Lancet, Volume 386, Issue 10006,2015, Pages 1861-1914 15. PASTOR-IVARS, Juan. ed. (2019) Restoring Kinship with Nature through Japanese Gardens: The Challenge to Achieve a Sustainable Commons in Kanazawa UNU-IAS OUIK, Kanazawa, Japan. 132pp. https://ouik.unu.edu/wp-content/uploads/Booklet5-Restoring-Kinship-with-Nature-through-Japanese-Garden.pdf 16. Prieur-Richard, A.-H., Walsh, B., Craig, M., Melamed, M. L., Colbert, L., Pathak, M., … Ürge-Vorsatz, D. (2018). Extended version: Global Research and Action Agenda on Cities and Climate Change Science. Montreal. Puppim De Oliveira, J. A. (2013). 17. The Economic Value of Green Infrastructure. Natural Economy North West (2008) http://www.greeninfrastructurenw.co.uk/resources/The_Economic_Value_of_Green_Infrastructure.pdf 18. Yang, Li, and Yanan Li. "Low-carbon city in China." *Sustainable Cities and Society* 9 (2013): 62-66.

Lecture	Topics	Overview, title and recommended readings
Lecture 6	TBC	TBC
Lecture 7	TBC	TBC
Lecture 8	Assignment 1: Class presentation: Identification of topics	
Lecture 9	Climate change and economic development	Title: "Climate change and economic development" Overview: Pro-environment parties tend to consider economic development a culprit of environmental degradation, while pro-economic development parties often ignore the significance of environmental issues. Nevertheless, in 2015, all United Nations Member States adopted the 2030 Agenda for Sustainable Development with 17 Sustainable Development Goals (SDGs), emphasising the synergies, rather than trade-offs, among economic, social, and environmental developments. Therefore, this lecture introduces different perspectives of economic and environmental developments while pointing out difficulties in synergising these two development goals. **Recommended readings:** 1. CNBC (2019). Climate change to slow global economic growth, new study finds. https://www.cnbc.com/2019/08/20/climate-change-to-slow-global-economic-growth-new-study-finds.html 2. Dell, M., Jones, B.F., and Olken, B.A. (2008). Climate Change and Economic Growth: Evidence from the Last Half Century. DOI 10.3386/w14132 3. Lenaerts, K., Tagliapietra S., and Wolff G.B. (2021). Can climate change be tackled without ditching economic growth?. Working Paper 10/2021, Bruegel. 4. Marchant, N. (2021). This is how climate change could impact the global economy. https://www.weforum.org/agenda/2021/06/impact-climate-change-global-gdp/ 5. Nunn, R., O`Donnell, J., Shambaugh, J., Goulder, L.H., Kolstad, C.D., and Long, X. (2019). Ten facts about the economics of climate change and climate policy. https://www.brookings.edu/research/ten-facts-about-the-economics-of-climate-change-and-climate-policy/ 6. Okitasari, M., Kandpal, R., and Korwatanasakul, U. (2021). COVID-19 and Progress on Subnational Localisation of the SDGs. https://i.unu.edu/media/ias.unu.edu-en/attachment/21058/COVID-19-Progress-on-SDGs.pdf 7. Organisation for Economic Co-operation and Development (OECD) (2015). The Economic Consequences of Climate Change. https://doi.org/10.1787/9789264235410-en 8. OECD (2017). Investing in Climate, Investing in Growth. OECD Publishing, Paris, https://doi.org/10.1787/9789264273528-en

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		9. Tol, RSJ (2018). The Economic Impacts of Climate Change. Review of Environmental Economics and Policy, 12(1). https://doi.org/10.1093/reep/rex027 10. United Nations (UN) (2021). Goals 8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all: https://sdgs.un.org/goals/goal8 11. UN (2021). Goal 12: Ensure sustainable consumption and production patterns: https://www.un.org/sustainabledevelopment/sustainable-consumption-production/ 12. UN (2021). Cities and Pollution https://www.un.org/en/climatechange/climate-solutions/cities-pollution
Lecture 10	Climate change and biological diversity conservation	
Lecture 11	TBC	TBC
Lecture 12	TBC	TBC
Lecture 13	TBC	TBC
Lecture 14	Assignment 2 : Class presentation: Proposal for actions (group 1)	
Lecture 15	Assignment 2: Class presentation: Proposal for actions (group 2) Summary of classes	