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Collaborating for sustainable impact: partnerships across the Asia Pacific

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Session 5D: Tues 5th March, 16:15 – 17:00

Citizen Science towards a Meaningful Collaboration for Sustainable Impact

James Ronald Mesina
Mapúa Malayan Colleges Laguna, Philippines

Utilizing SDGs framework for innovative interdisciplinary (co)curricular program

Ariunaa Enkhtur, Osaka University, Japan

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Chair
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Towards a Meaningful Collaboration for Sustainable Impact

*Integrating Citizen Science **+** Community Engagement*

James Ronald O. Mesina
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# Context: Citizen science in Community Empowerment

- Involvement of the community members in various empowerment activities promoting a collaborative approach where non-professional or amateur scientists, are referred to as "citizen scientists,".

- CS encourages locals' participation in various stages of scientific inquiry, data collection, analysis, and even decision-making processes (Arpin, Hauck, et. Al, 2016).

Context: Citizen science in Community Empowerment
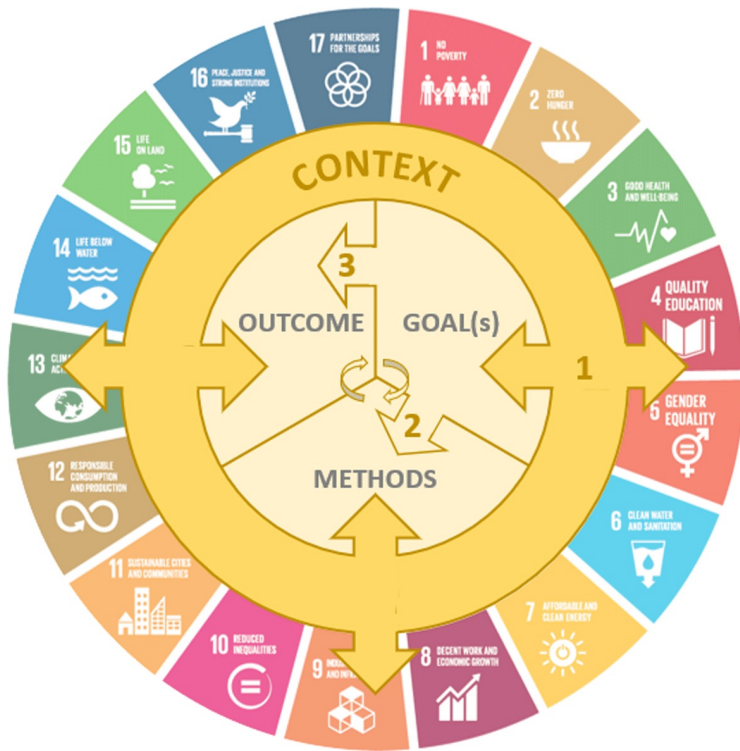
- The development of collaborative initiatives between scientists and volunteers, who often have limited formal training in science, is increasing across many research fields (e.g., Freitag & Pfeffer 2013; Bonney et al. 2014).

- CS as a democratization approach could support contextualizing SDG agendas (West and Pateman 2017) as citizens contribute with techno-scientific and socio-political knowledge relevant for sustainability transitions, given their cross-cutting nature (Sauermann et al. 2020).

Citizen Science in Community Empowerment:
3 Active Works in Progress
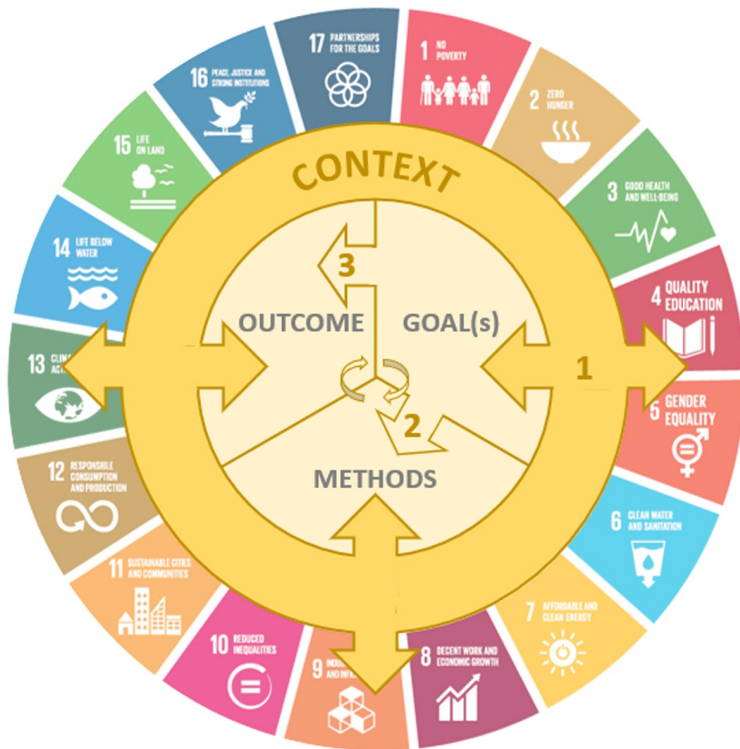
1. **Air Quality Monitoring Framework** for an Urban Community

2. **Strategic partnership for data crowdsourcing** for volcanic activity monitoring

3. **Community organizing program** in an Indigenous Community in the Philippines

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Citizen Science in Community Empowerment:
3 Active Works in Progress

D. *Deployment and Application Output*

a. Actual deployment in zone 1 (bancal junction, carmona, cavite Philippines).

a. Actual deployment in zone 2 (SLEX, carmona, cavite Philippines)

Journal of Communications

JCM www.jocm.us
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Journal of Communications

Reviewer Guide   Special Issues   Topics

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Multi Zone-Based Surface Air Quality Monitoring via Internet of Things

Dennis A. Martillano, Lyle Vince A. Dela Cuesta, Kristjan Renascence V. Mariano, and Vonn Christian Q. Mesina

Malayan Colleges Laguna, Pulo Diezmo, Cabuyao City Laguna 4025, Philippines

Collaborators:

1. College students
2. Faculty experts
3. Local government through the MENRO

Future directions of the study may explore on the use of same technology in monitoring air quality but with a wider scope.

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Citizen science comes into play with ***volunteer residents*** adopting the technology and allowing the sensors to connect to their residential internet modules to enable data transmission and regular monitoring of results.

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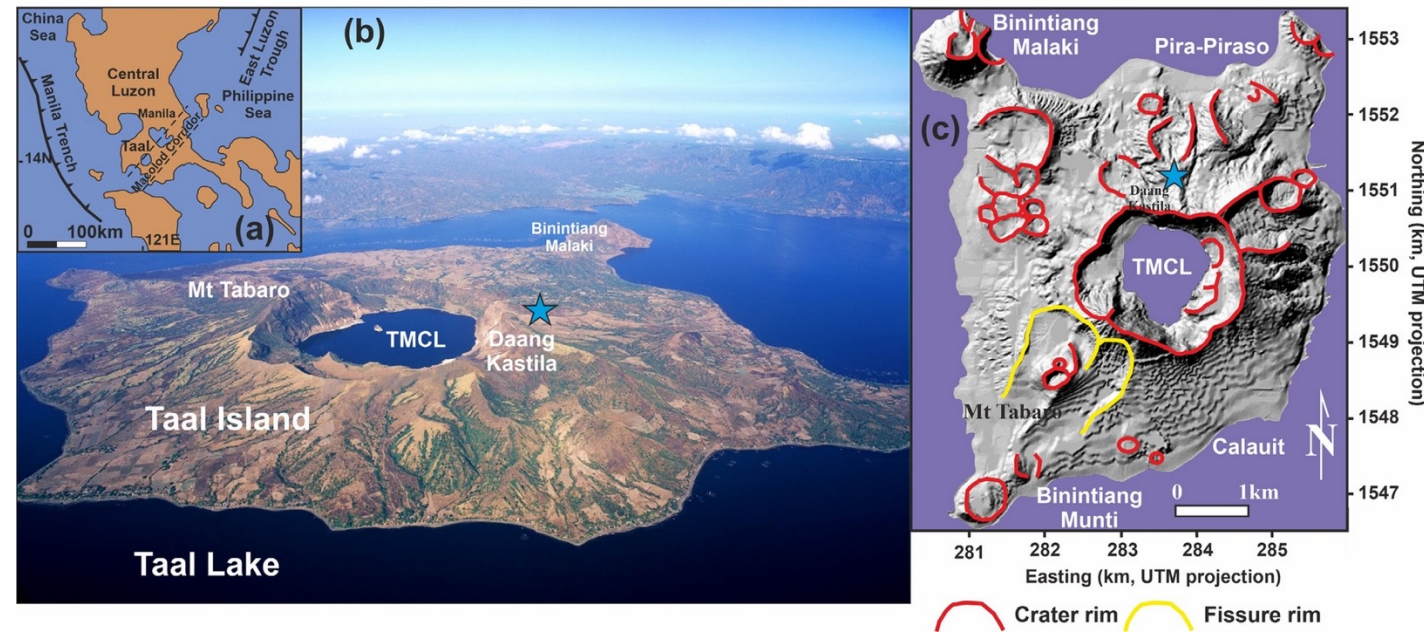
Vonn Christian Q. Mesina

Malayan Colleges Laguna, Pulo Diezmo, Cabuyao City Laguna 4025, Philippines

Potential malfunctions of the sensors can easily be reported by citizen scientists who have volunteered to assist in the monitoring activity.

Local residents may be transformed from being mere data viewers to citizen scientists who help generate data from the study.

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Citizen Science in Community Empowerment:
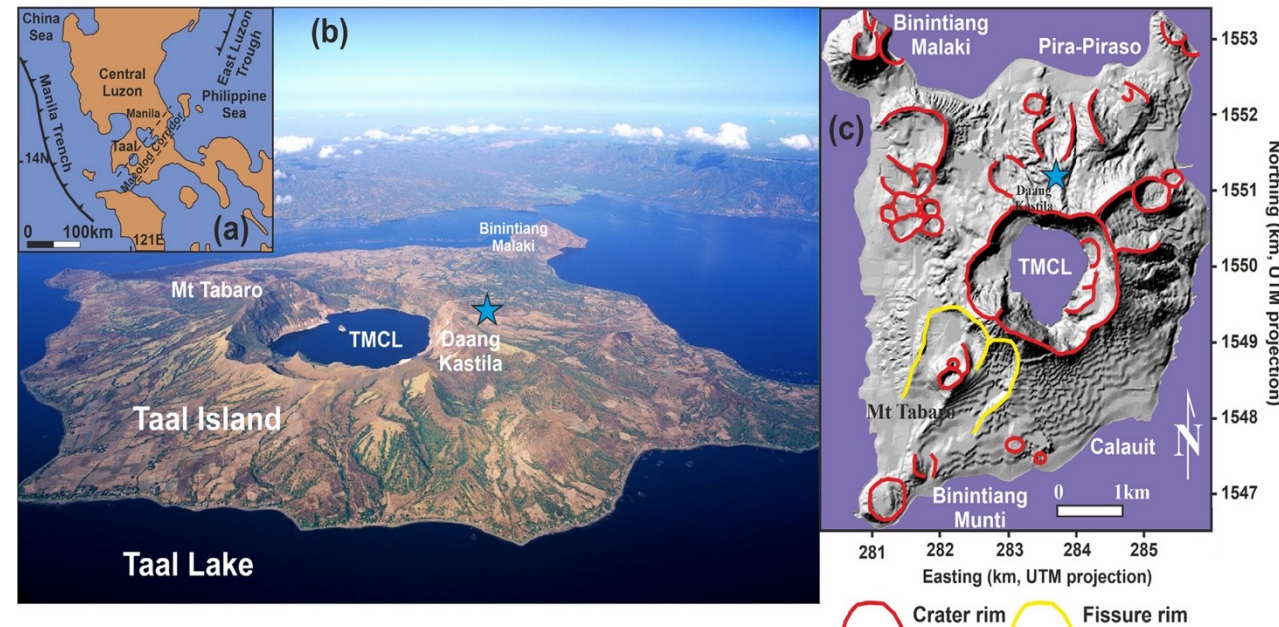## 3 Active Works in Progress

In a very recent development, **two (2) Philippine universities** have inked ***a strategic partnership agreement*** in coming together to establish a ***volcanic activity monitoring scheme*** in the areas around Taal Volcano in the Philippines.

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Citizen Science in Community Empowerment: 3 Active Works in Progress

Objectives:

1. Establish a crowdsourcing model for putting up satellite remote sensors in key areas near the volcano.
2. Encourage local residents to regularly send photos and time-lapse videos of any volcanic plume or any indicator of unrest.
3. In the long run, empower the community to build resilience through active citizen participation.

Citizen Science in Community Empowerment:
3 Active Works in Progress

Collaborators:

1. College students
2. Faculty experts
3. Local government units
4. International advocates of sustainability and resilience (visiting faculty and students)

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Mapua Malayan Colleges Laguna has a focus area for community engagement. It is an indigenous community in Porac, Pampanga.

With more than 500 families living within the 10-kilometer permanent danger zone of the Mount Pinatubo, the community continues to live to preserve their indigenous way of life.

Citizen science involves the participation of the indigenous peoples in gathering the necessary information on the following:

1. Demographic data and historical information about the community after their displacement in 1991.
2. Personal information of the IPs to support their birth registration and acquisition of government documents
3. Needs analysis for community engagement and capacity-building.
4. Academic records of learners and teachers.
5. Reporting of environmental disasters and calamities for quick response
6. Initial assessment of the impacts of environmental disasters and calamities.
7. Development of a visitors' program with "lived experience"- a livelihood program for the Aetas.

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Collaborators:

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In the literature of Citizen Science, the following are the ENTRY POINTS for collaboration and community engagement:

1. Knowledge Sharing and Awareness Promotion
2. Environmental Stewardship
3. Promotion of Public Health
4. Policy Advocacy
5. Community Resilience
6. Local Economy and Livelihoods
7. Inclusivity and Equity
8. Technology and Skills Development
9. Civic Engagement

Sources: Sanneke,J.M. Grootjans [a], M.M.N. Stijnen [a b], M.E.A.L. Kroese [a], D. Ruwaard [a], Ir M.W.J. Jansen (2022)

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To summarize…

- Citizen science projects aim to empower and involve local communities in scientific endeavors and community organizing strategy development.

- Projects become more meaningful if stakeholders think of activities that will impact their lives or environments.

- This approach helps bridge the gap between scientific experts and the public, fostering a sense of ownership, knowledge, and understanding within the community.

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To summarize…

- Citizen science provides an opportunity for the participants to have a deeper understanding of critical concepts like inclusion, sustainability, and resilience.

- Citizen science + community engagement and service-learning build stronger connections between researchers and community members, leading to a more inclusive and supportive learning environment.

- Involving citizens in scientific research empowers them to take ownership of their community's environmental well-being.

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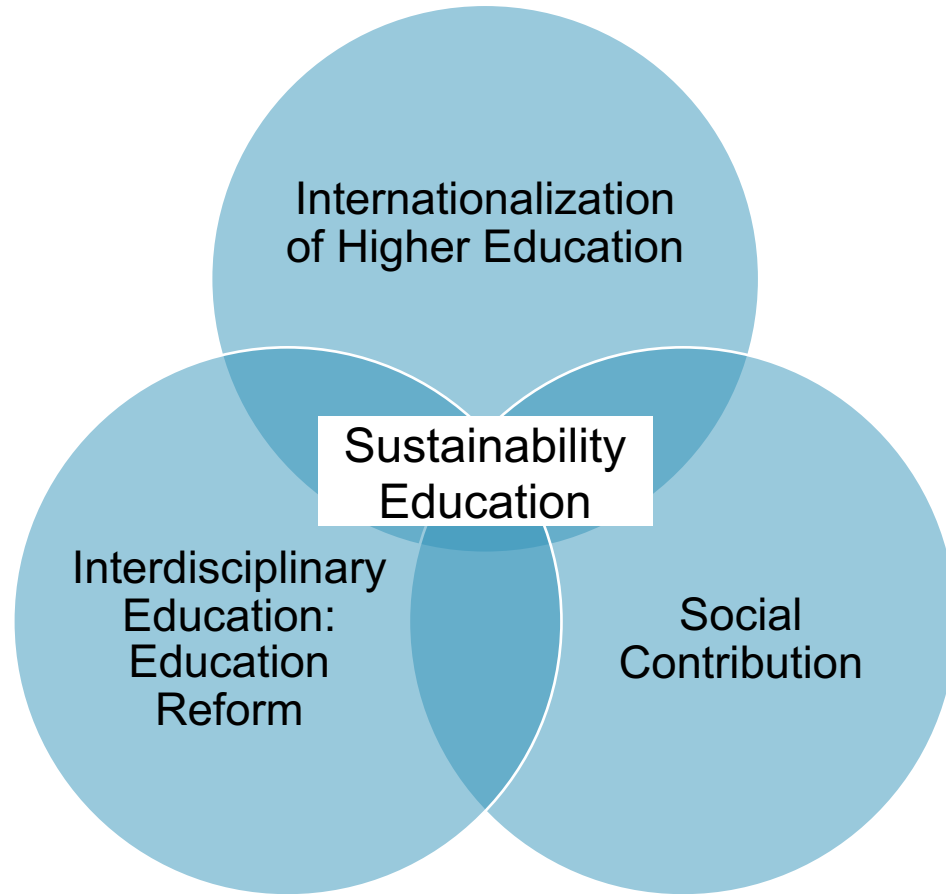Ariunaa Enkhtur, Xixi Zhang, Ming Li

Osaka University

March 5, 2024

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Background

- 2015: SDG 4 on Quality Education; ESD in the Target 4.7

- ESD into universities' curricula, although often as part of broader campus sustainability initiatives (Jodoin, 2019)

- Higher education for sustainable development (HESD):
  ❖ Challenges: institutional resistance to change (Johnston, 2013), SDGs not easily transferable to content areas (Kleiman, 2010)
  ❖ Positive Outcomes: student-centered learning, critical thinking skills, to cope with change (Leicht, Heiss & Byun, 2018), to take action for sustainable development (Mogensen & Schnack, 2018)

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Internationalization of Higher Education and Sustainable Development

- The "third mission" of HEIs → disconnected from universities' internationalisation agenda (Jones et al., 2021).

- international engagement of HEIs → highly relevant to sustainable development in both positive and negative ways (Nikula & McBride, 2023).

  - The CO_2 emissions from students' travels (14.01 and 38.54 megatons in 2014) → similar to annual emissions Croatia or Jamaica (Shields, 2019).

  - Existing hegemonic status quo reinforced in global partnerships, student mobility, curriculum internationalisation (Stein, 2017) → negative impacts to global equity, justice, the sustainable development (McCowan, 2023).

  - Potential positive impacts → develop intercultural understanding and global citizenship (Tsiligiris & Ilieve, 2021), research collaborations and innovative solutions to tackle local and global problems (e.g. Ramaswamy et al., 2021),

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Internationalization of Higher Education and Sustainable Development

- Internationalisation of HEIs reflected Japan's strategy for SDGs → collaborative research to drive innovation or fostering human resources

- Japan's action plan for SDGs → accepting international students as part of "empowering all people", promoting collaboration with industries and international partners, and creating inclusive environment for young, female, or foreign researchers (Edwards & Ashida, 2020, p. 113).

- Top Global University (TGU) → report on institutions' activities related to SDGs

- "Social co-creation" through Internationalization in J-Mirai project

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SDGs Virtual Student Exchange Program, Osaka University

Internationalization of Higher Education

Sustainability Education

Interdisciplinary Education: Education Reform

Social Contribution

Goals:

1) Promote online student exchange activities in the COVID and post-Covid era, connect Osaka University students and students at partner universities around the world

2) Raise awareness of social issues and the SDGs and encourage students to take an active role in making solutions

3) Foster creative, innovative thinking, digital and communication skills that are necessary for future work lives

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Program design

Programs	Workshop (Video Production Workshop (2023~))	Curricular program (Intensive Online Course (2022~))	Co-Curricular program (Student Video Contest (2021~))	Co-Curricular program (Virtual Student Forum (2021~))
Target students	Osaka University students, Exchange students	Partner university students with MOUs on virtual study abroad	All students at partner universities	All students at partner universities & public

Local public activities (Social contribution, PR)

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Video Production Workshop

- Science communication skills: how to tell story
- Curiosity about local and global issues related to SDGs
- Team work

Instructor: professional movie director

Students: 37 students from 16 schools/graduate schools

Workshop plan:

Date/Time	10:00 11:00 12:00 13:00	17:00 18:00		
9/30 （**Sat**）	・Video Production basics and process ・Equipment introductions	Lunch	・Camera workshop ・Shooting	
10/1 （**Sun**）	・Postproduction basics ・Editing workshop	Lunch	・Editing workshop	・Group presentations

SDGs Summer Intensive Course

Faculty members:
- thematic lectures by professors from 3 graduate schools (experts in their fields)
- Student advocacy groups from Japan and overseas shared their experiences
- Core faculty members facilitated the course

Student demographics:
- 136 students from 15 countries/regions, 66% (N=89) Female; 44% (N=46) Male
- 53% (N=69) from humanities & social sciences, the rest from STEM
- Majority undergraduate (69%, N=92), Masters: 24%, N=33, Doctoral: 7%, N=10

Course structure
- Intensive summer exchange course, 1 credit, 7 days all online
- 50% of the course discussions based using Zoom breakout rooms
- Problem-possible solution-action/advocacy approach:
  - students come up with action plans at the end of class
- Assessment based on discussions and reflection papers

Motivation for taking the course
- Partner university students and international students at U1: mainly interested in SDGs
- Japanese students: Opportunity to practice English

Course structure (2022 example)

Four themes:

Orientation & Introductions

SDGs Overview in Japan and Globally

Gender Issues in Japan

Related SDGs → 3 GOOD HEALTH AND WELL-BEING | 4 QUALITY EDUCATION | 5 GENDER EQUALITY

Equity & Decent Work

Related SDGs → 5 GENDER EQUALITY | 8 DECENT WORK AND ECONOMIC GROWTH | 10 REDUCED INEQUALITIES | 12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Climate Change & Energy
"

Related SDGs → 7 AFFORDABLE AND CLEAN ENERGY | 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE | 11 SUSTAINABLE CITIES AND COMMUNITIES | 13 CLIMATE ACTION

Biodiversity & the Environment

Related SDGs → 13 CLIMATE ACTION | 14 LIFE BELOW WATER | 15 LIFE ON LAND

Student Activists' Presentation: Youth Involvement

Students' Discussion Session: Action Plan

SDGs Student Video Contest

- Up to 3 Minutes

- Eligibility: Any student at Osaka University and its over 600 partner universities around the world

- Grant prize 100, 000 yen and other prizes.

- 2021~2023 received **256** videos from **65** universities in **23** countries and regions

- Focus
✓ Address Local and global issues
✓ Align with the SDGs in video narrative
✓ Present innovative solutions
✓ Express ideas with creative flair

- External judges includes experts from NGOs, filmmakers, and student representatives

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SDGs Student Forum

- Providing an opportunity for students around the world to <u>think together about SDGs through online dialogues</u>.

- Intended for
  - Osaka University students, faculty, and staff
  - Students, faculty, and staff at Osaka University's overseas partner universities
  - Students, citizens, and members of companies and municipal governments interested in SDGs

- 2021~2023: **479** participants from <u>more than **50** universities around the world</u>.

- Program
  - Osaka University's SDGs Activities
  - Keynote from guest speakers from partner universities
  - Video Awards Ceremony
  - Student Discussion Session
  - OU President's speech

Public activities
Osaka University Co-Creation Day

- 142 participants
- Screening video works created by students from various parts of the world
- Showcasing ideas and efforts on how students can contribute to solving global challenges
- Conduct small quiz and raise awareness

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Public activities

"Let's Take Action" SDGs Symposium

- Online (Zoom Webinar) in Japanese (with simultaneous English translation)

- **305** participants from all over the world

- Target participants

  - Osaka University students

  - Students at partner universities overseas

  - Faculty and staff

  - Citizens and public members

- Guest speakers:

  - The director of United Nations Information Centre in Tokyo

  - Osaka University Alumni's Solutions

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Partnership with diverse stakeholders

Evaluations, reporting, revisions

Programs for general public, community members

Negotiate with course share, credit exchange, establish VSM MOU etc.

Global uni. partners

Local partners

General public

Facilitation through Virtual platforms

Reach out to local agents, social entrepreneurs, NGOs

Recruit, guide, mentor students from beginning to end

International and local students

Diverse faculties

Administrative units

Course registration, recruitment, technical support,

Consultation with faculty members from social, natural, engineering schools

Conclusion

- SDGs Framework helped us bring together diverse stakeholders beyond academic community

- It helped us find mutual interests and values beyond mere international student recruitment

- It helps maintain local and global partnership through frequent contact, joint activities

- The program was well received by institutional leadership

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References

Jodoin, J. (2019). Using Education for Sustainable Development (ESD) for Language Learners: Study of University Approaches. Kyoto University, PhD dissertation.

Johnston, L. F. (Ed.). (2013). Higher education for sustainability: Cases, challenges, and opportunities from across the curriculum. New York: Routledge

Kitamura, Y., & Hoshii, N. (2010). Education for sustainable development at Universities in Japan. *International Journal of Sustainability in Higher Education*, *11*(3), 202-216.

Kleiman, P. (2010). Staging Sustainability: Making Sense of Sustainability in HE Dance, Drama and Music. In Sterling., S. (Ed.) *Sustainability Education: Perspectives and Practice across Higher Education* (pp. 155–72). New York: Taylor & Francis.

Leicht, A., Heiss, J., & Byun, W. J. (Eds). (2018). *Issues and trends in education for sustainable development.* Paris: UNESCO.

Lefebvre, Henri. "The production of space (1991)." *The people, place, and space reader*. Routledge, 2014. 289-293.

Liu, J. (2021). Japan. Sustainability and climate action in the higher education system. In T. McCowan, W. L. Filho, and L. Brandli (Eds.) *Universities facing climate change and sustainability*, 83-91.

Nikula, P. & McBride, K. (2023). "The Age of Sustainable Education Abroad: Key Questions and Trends." In K. McBride & P. Nikula (Eds.), *Sustainable Education Abroad: Striving for Change* (pp. 1-10). The Forum on Education Abroad. 10.36366/SIA.4. 978-1-952376-34-4.

Nomura, K., & Abe, O. (2010). Higher education for sustainable development in Japan: Policy and progress. *International Journal of Sustainability in Higher Education*, *11*(2), 120-129.

Nhamo, Godwell, and Vuyo Mjimba, eds. *Sustainable development goals and institutions of higher education*. Berlin/Heidelberg, Germany: Springer, 2020.

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