

Workshop: Green Jobs for the Future

Skills Development, Green Jobs and Technologies to Accelerate the Circular Economy

14-15 September 2023
Sukosol Hotel, Bangkok, Thailand / Hybrid

At glance

- **Day 1** focused on global, regional and national trends in the circular economy including circular economy policies, clean technologies, and green jobs.
- **Day 2** covered discussed the role of education in overcoming skills gaps, promoting green entrepreneurship and circular business, and intergenerational responsibilities and dialogues.
- **The workshop brought together** 40 speakers, 110 in person participants and 270 registered online participants representing universities, decision makers, students, private sector and other stakeholders from over 40 countries, mainly from Asia and the Pacific region.

Background of the workshop

Current global consumption and production of materials is one of the root causes of the triple planetary crisis of climate change, biodiversity loss and pollution. The triple planetary crisis has major impacts on work as [40% of all jobs depend on ecosystem services](#). Research finds that climate change induced heat stress may cause loss of [80 million full time jobs](#), with disproportionate impacts on the youth and women. A systemic transition to a circular economy, where materials remain in use at their highest possible value for as long as possible, can address the triple planetary crises while providing opportunities for green jobs.

The development and adoption of circular models across value chains will change the world of work, impacting employment and skills needed. It is estimated that the circular economy will create a shift in almost [80 million jobs](#) providing an opportunity to Asia and the Pacific region, where it is home to more than [600 million youth](#).

To increase awareness of the required skills for circularity and seek for solutions to overcome the skills gap, the Asian Institute of Technology (AIT) and the UN Environment Programme (UNEP), through GO4SDGs, in partnership with organisations such as Yunus Thailand, UN Institute for Training and Research (UNITAR) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) with the support of the OAK Foundation, UNYLDP, and Institute of Carbon Neutrality and Circular Economy organized a joint regional hybrid workshop on with a focus on green skills for circular economy. The workshop sessions were in follow-up to a recommendation from the Stockholm+50 International Meeting on recognising intergenerational responsibility and also contributed to the [Green Jobs for Youth Pact](#) by UNEP through GO4SDGs, ILO and UNICEF. The Pact aims to strengthen the youth employment opportunities among green jobs.

Workshop Objectives

1. Understand the importance of green jobs and green skills in transitioning to a circular economy.
2. Explore global and regional trends in the circular economy and identify opportunities for green jobs.
3. Share best practices of policies, business models and innovative initiatives related to the circular economy.
4. Highlight the role of different stakeholder groups in bridging skills gaps and equipping youth for green jobs.
5. Foster intergenerational dialogues on responsibilities in promoting green jobs and green skills for a circular economy.
6. Promote entrepreneurship as a means of creating green jobs and driving sustainability.
7. Raise awareness on available platforms and tools to promote green jobs creation and green skills building such as the Green Jobs for Youth Pact.

In partnership with

Key outcomes from the workshop

1. Enhanced awareness and understanding of the circular economy, green jobs, green skills and their significance in accelerating sustainable development in Asia and the Pacific region.
2. Provided insights into global, regional and national trends and sharing of best practices related to circular economy (policies, business models and innovative initiatives).
3. Identified opportunities and challenges for green jobs and circular business models.
4. Highlighted the role of different stakeholders in promoting circular economy through green jobs creation and green skills building.
5. Facilitated intergenerational dialogues and responsibilities in promoting green jobs and green skills for a circular economy.
6. Empowered youth with the knowledge and skills needed for green jobs and green skills building in the circular economy by sharing relevant platforms and tools such as the Green Jobs for Youth Pact.

Day 1

Opening session: Green jobs for the future

The Green Jobs for the Future workshop by AIT, UNEP, Yunus Thailand, UNESCO and UNITAR was opened by **Ms. Gita Sabharwal**, the UN Resident Coordinator for Thailand, **Professor Kazuo Yamamoto**, the President of the Asian Institute of Technology and **Mr. Takehiro Nakamura**, Head of the UNEP International Environment Technology Centre (IETC). The opening remarks were followed by a presentation on current trends for the circular economy by **Mr. Mushtaq Memon**, Regional Coordinator for Chemicals and Pollution Action at UNEP. The opening session focused on the importance of understanding the demand and supply dynamics for green jobs in the context of a circular economy. It highlighted the need for a comprehensive needs assessment at a national level, involving governments, businesses, universities, and other stakeholders. The session emphasised the importance of education and training in promoting green jobs and green skills for youth for a just and inclusive transition to a circular economy.

Session 1: Global and regional trends for the circular economy

Presentation: Circular Economy policy development in Thailand

Session 1 introduced Thailand's ambitious environmental goals to cut carbon emissions by 40% by 2030, doubling its original Paris Agreement commitment of 20%. This was done through a presentation by **Dr. Wijarn Simachaya**, President of Thailand Environment Institute (TEI). Thailand's new economic model focuses on bio, circular and green (BCG) economy principles with aims to shift from a linear to a circular economy. The presentation introduced several initiatives under the BCG model, including a roadmap to reduce plastic marine debris by 50% by 2027 and community-based waste management schemes.

Panel discussion: Recent trends for circular economy

The presentation on circular economy policy development in Thailand was followed by a panel discussion on recent trends for circular economy. **Dr. Trakarn Pra**, Assistant Professor at Mahidol University and **Mr. Kittikun Saksung**, Coordinator at Global Youth Biodiversity Network for Asia and Thailand emphasised the skills and job opportunities for the circular economy both in Thailand and in Asia and the Pacific region. The panel discussion was moderated by **Ms. Maria Hughes**, Associate Programme Management Officer at UNEP. Dr. Pra shared how Mahidol University is engaging students in the circular economy concept in their studies and research and Mr. Saksung mentioned that required efforts to mitigate the climate change related issues are urgent and can create opportunities across stakeholders. Both the panellists agreed that to drive progress, collaboration between government, private sector, civil society, and academia is crucial, as well as a focus on data utilisation and investment in the circular economy.

Session 2: Circular transformation through clean technologies

Panel discussion: Unlocking the economic opportunities of circular business models

The second session of the workshop consisted of two panel discussions on circular transformation. The session was moderated by **Dr. Lakeesha Ransom**, Adjunct Faculty and Mentor at AIT Entrepreneurship Center. During the first panel discussion, panellists came together to discuss unlocking the opportunities for a circular economy. Panellists represented academia and the private sector: **Mr. Vivekanand Sistla**, Head of R&D for Beauty & Wellbeing South-East Asia, Unilever; **Mr. Amorpol Huvanandana**, CEO and Co-Founder, Moreloop and **Dr. Nanqing Jiang**, Director, Institute of Carbon Neutral and Circular Economy (ICNCE). Mr. Sistla highlighted that mainstreaming sustainability into business operations requires active collaboration with partners and suppliers to drive positive change in the value chains. Dr. Jiang discussed the role of public-private partnerships in promoting the circular economy, especially in China. Mr. Amorpol shared the experience of developing a circular textiles business – a platform connecting surplus fabric from factories to potential buyers.

Panel discussion: role of skills for achieving the circular economy

The second panel discussion focused on the role of skills in driving for a circular economy. The panellists were **Dr. Sirasa Kantaratanakul**, Faculty Member at the School of Global Studies, Thammasat University and **Ms. Jiahui Hu**, Student at Tsinghua university. Dr. Kantaratanakul highlighted the importance of integrating sustainability and circular economy principles into curriculums. She emphasised that it is necessary to engage both top management and faculty members in educational institutions to ensure that concepts, such as circularity, are mainstreamed effectively. Moreover, she emphasised the need for practical, action-oriented learning experiences to prepare students for green jobs. Ms. Hu stressed the importance of training the trainers to reach remote communities and make them key players in promoting green jobs. The discussion underscored the significance of awareness and conscious consumerism as key drivers of sustainability practices in both education and industry.

Session 3: Realising the circular economy opportunities for youth through green skills development (Green Jobs for Youth Pact)

Presentation: Introduction on Green Jobs for Youth Pact

Ms. Adriana Zacaria Farah, the Head of GO4SDGs, UNEP gave an introductory presentation to the Green Jobs for Youth Pact. The pact was launched at the 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27) and is jointly implemented by the International Labour Organisation (ILO), the UN International Children's Emergency Fund (UNICEF) and UNEP through GO4SDGs. Ms. Farah emphasised the urgent need for a transition from a linear to a circular economy in response to the triple planetary crises of climate change, biodiversity loss, and pollution. Ms. Farah stressed that circular approaches in key sectors could significantly reduce global ecological footprints and generate new jobs.

Presentation: Action to Scale Circular Jobs

Followed by an introductory presentation, **Ms. Jana Rue Glutting**, Labour Market Consultant at Circle Economy gave a presentation on ongoing action to scale circular jobs and methods to measure the impact. Ms. Rue Glutting provided an overview of the circular economy's potential to transform jobs and emphasised the importance of skills development and decent work in this transition. Further, she highlighted the regional implications, including job transformation, working conditions, and gendered patterns in skill development towards circular jobs, demand for industry specific skills and challenges of attracting youth to circular jobs.

Presentation: PAGE Academy and Green Jobs

The Partnership for Action for a Green Economy (PAGE) is a partnership of 5 UN Agencies supporting the development of an inclusive green economy in member countries across the world. The focal point of PAGE in Indonesia, **Ms. Diah Ratna Pratiwi**, gave a presentation on how PAGE perceives the role of skills in driving for the green economy and how PAGE is scaling green skills both globally and in the case of Indonesia. Ms. Pratiwi introduced practical initiatives in Indonesia, such as green economy modelling courses for students and a national youth competition on food loss and waste, and highlighted the role of youth engagement and skills development in green and circular economy efforts.

Panel Discussion: Green Jobs for Youth

The panel discussion brought together the members of the Green Jobs for Youth Pact and the Global Alliance of Universities for Climate, a network of universities addressing climate change through education. The panel discussion was moderated by **Ms. Young Ran Hur**, the Regional Coordinator for GO4SDGs in Asia and the Pacific region and the panellists were **Mr. Felix Weidenkaff**, Regional Youth Employment Specialist and ILO Regional Office for Asia and Pacific, **Ms. Antonia Mandry**, Education Specialist and UNICEF and **Ms. Alice Ho**, Chief Youth Officer at Global Alliance of Universities for Climate. According to Mr. Weidenkaff, green jobs can be found in various sectors that use environmentally friendly processes. Ms. Mandry talked about the importance of starting skill development from a young age and integrating climate education into both formal and informal education. Ms. Ho emphasised the need for comprehensive educational programmes, mentorship and exposure to climate governance processes to equip youth with the necessary skills.

Session 4: Assessing skills gap and green jobs in Asia and the Pacific

Presentation: Partnering for Green Skills Building and Youth Entrepreneurship

Mr. Pathit Ongvasith, General Manager and Co-Founder of Yunus Thailand emphasised in an introductory presentation the need for educational programmes that equip young people with a broad range of transferable skills to address climate challenges and drive positive change through bottom-up and locally-led initiatives that are aligned with higher-level commitments for a sustainable future. He also emphasised how multi-stakeholder collaboration is a crucial mechanism to assess skills gaps, build partnerships, and empower youth.

Panel Discussion: Driving green jobs and entrepreneurship: Bridging the skills Gap(s) through a multi-stakeholder approach

The introductory presentation was followed by a panel discussion on bridging the skills gap hindering the scaling of green jobs and the role of intergenerational collaboration to create impact. The discussion was moderated by **Mr. Amir Radfar**, Green TVET Consultant/TUV Rheinland and invited panellists were **Ms. Suthida Chang**, Leader of the Thailand Chapter at the ASEAN Youth Organisation, **Ms. Siyuan Yang**, Student, South China University of Technology and **Mr. Nophol Techaphangam**, Founder and CEO of nornorn as panellists. Mr. Radfar talked about developing comprehensive assessment models to evaluate and address green skills gaps within educational institutions and organisations whereas Ms. Chang highlighted the role of organisations such as the ASEAN Youth Organisation in empowering youth to become sustainability ambassadors. Mr. Techaphangam described through his own experiences the journey of starting a circular business and acquiring green skills. Ms. Yang discussed her research from the perspective of green skills development. The session ended in with an interactive survey gathering the views of almost 100 in person and online participants on overcoming green skills gaps.

Dialogues on youth leadership for green future and green skills

Panel discussion: Green future and youth leadership

To sum up day 1 of the workshop, two youth-led panel discussions were organised. They were moderated by **Ms. Alice Ho**, Chief Youth Officer at Global Alliance of Universities for Climate. The first panel discussion on Green future and youth leadership introduced the following speakers: **Ms. Jiadan Yu**, Team Lead of Government & Public Affairs at United Nations Institute for Training and Research (UNITAR), **Mr. Michael Meallem**, Director, Center for Social Impact, Payap University Centre for Social Impact, **Mr. Yingyilong Hu**, Student, Chulalongkorn University, **Ms. Siyuan Yang**, Student, South China University of Technology, **Ms. Molley Htar Maung**, Student, Asian Institute of Technology, and **Mr. Yiqin Liang**, Student at East China Normal University. The conversation touched upon the concept of common but differentiated responsibilities (CBDR) in international environmental law and explored ways to ensure its unbiased implementation. Additionally, the discussion highlighted the resources and support systems available to help young leaders develop their leadership skills in the context of environmental advocacy. Overall, the dialogue showcased the commitment of both experts and youth to drive positive change and foster a sustainable world.

Panel discussion: Green energy and shared future for humankind

The speakers in the second panel discussion were **Ms. Maria Hughes**, Associate Program Management Officer at UNEP, **Mr. Callum Mackenzie**, Co-Founder & Director of Yunus Thailand, **Mr. Yunhao Li**, Student at South China University of Technology, **Ms. Rahma Ayla Zehra**, Student at Asian Institute of Technology, **Ms. Eaindray Aung**, Student at Asian Institute of Technology, **Mr. Kaif Sally**, Student at Open University of Sri Lanka, and **Mr. Vivek Raj Singh**, Student at Indian Institute of Science, Bangalore. The panellists highlighted the importance of green skills, youth entrepreneurship, and the application of artificial intelligence. The main takeaways included the need for adaptable, proactive individuals who can develop innovative solutions, the importance of inclusive collaboration across sectors and communities, and the role of education institutions in equipping students with green skills. Overall, there is a growing recognition of the circular economy as a tool to address the triple planetary crisis and drive systemic change toward a more sustainable future.



Day 1 Group Photo

Day 2

Session 5: The Role of education in overcoming the skills gap – The demand for green skills

Presentation: Creating circular businesses through circular design

Day 2 of the workshop began with a session focusing on the increasing demands for green skills among different stakeholders. To set the scene, the moderator of the session, **Ms. Thanyaporn Krichtitayawuth**, Executive Director of UN Global Compact Network Thailand talked about the examples of circular economy business models in various countries including Thailand. She emphasised the importance of adopting a new mindset for solving environmental problems. Further, she show-cased existing methods for training and certification in circular design to encourage businesses to explore circular opportunities for sustainability.

Presentations and Panel discussion: Green skills demand from different sectors

Ms. Krichtitayawuth moderated a panel discussion with two panellists: **Mr. Soonthorn Yongvibulsiri**, ESG & Sustainability Director at SCG Packaging and **Mr. Jirapat Horesaengchai**, Programme Manager of New Energy Nexus. Mr. Yongvibulsiri spoke about SCG Packaging's evolution with a focus on sustainability emphasising goals such as achieving Net Zero emissions and making products recyclable or compostable while collaborating with suppliers and customers. Mr. Horesaengchai introduced the work of the New Energy Nexus, which accelerates clean and renewable energy entrepreneurship in various countries, including Thailand. He emphasised the importance of sustainability and circular economy entrepreneurship, highlighting their support programmes for start-ups in clean energy and climate finance sectors.

Session 6: The role of education in overcoming the skills gap – Intergenerational dialogue and responsibilities

Presentation: Guidebook for education circular economy

In continuation to discussing the increasing demands for green skills, session 6 looked at how education can and is meeting the increasing demands for green skills. The session was moderated by **Ms. Pawitra Chamnanrot**, Project Manager at the Chula Zero Waste Initiative. **Professor Indrajit Pal**, Faculty Member at AIT presented a recently published guidebook on embedding circular economy concepts into higher education curricula, introducing methodologies and highlighting case studies.

Presentation: Intergenerational dialogues and responsibilities

The Youth Advisor for the Green Jobs for Youth Pact and the Representative of the Children and Youth Major Group to UNEP **Mr. Zuhair Ahmed Kowshik** shared a presentation on youth involvement in UN negotiations on plastic pollution. He reflected his presentation to his own experiences, emphasising the importance of green jobs and skills in addressing environmental challenges. He highlighted the need for a broader recognition of the Green Jobs for Youth Pact, its inclusion in policy processes, collaboration with member states, and engagement with the private sector to promote green jobs and upskilling the youth to create sustainable solutions.

Panel discussion: Existing solutions to increase green skills

Following the presentations, a panel discussion brought together experts from the education sector: **Professor Fei Mo**, faculty member, Beijing Foreign Studies University (BFSU), **Dr. Nattapong Kongprasert**, Assistant Professor at Srinakharinwirot University and representative from the Sustainable University Network (SUN) Thailand and **Mr. Ilja Riecki**, working as a project officer at in Lifelong Learning and Literacy team, UNESCO Multisectoral Regional office in Bangkok. Professor Mo described the BFSU's approach, emphasising collaboration between different faculties, offering targeted courses on sustainable development, and providing students with flexibility for cross-cultural experiences and internships to develop these skills effectively. Professor Kongprasert, introduced the work of the SUN Thailand, highlighting existing campus projects related to waste management, smart universities, and future plans on knowledge sharing education courses on SDGs in the upcoming years. Mr. Riecki highlighted the current landscape of skills development and training particularly in the context of green jobs in the Asia-Pacific region underlining the necessity to ensure equitable access to education to accelerate sustainable development.

Presentation: Skills needed for Green Jobs

Dr. Jeff Seadon emphasised in his presentation the importance of adopting a systems thinking approach to address the complexities of the circular economy and highlighted the key skills required such as customer handling, communication, repair, coordination, and consulting. Through his presentation, Dr. Seadon emphasised how the circular economy will change existing occupations in addition to creating entirely new ones.

Session 7: Entrepreneurship for catalysing green skills

Presentation: Mattresses-as-a-service – a circular business example

The session discussed the role of entrepreneurship as a way to catalyse green skills. It was moderated by **Dr. Lakeesha Ransom**, Adjunct Faculty and Mentor at AIT Entrepreneurship Center. **Mr. Nophol Techaphangam**, Founder and CEO of nornorn, a circular economy subscription platform for recycling mattresses, presented his journey to circular entrepreneurship. He emphasised the interdisciplinary nature of green entrepreneurship, and the importance of resilience, adaptability, optimism, and problem-solving in pursuing a career in sustainability.

Presentation: Enabling youth entrepreneurship with finance

Ms. Vinutha Raju from Massive Earth Foundation presented a LowCarbon.Accelerator programme to support green start-ups in Asia and the Pacific region. The Accelerator is implemented in collaboration with UNEP and it supports climate technology start-ups working in five key sectors of i) microplastics, ii) renewable energy, iii) agri-food, iv) sustainable textiles, and v) cooling by providing mentoring, industry connections, and access to venture capital. Ms. Raju highlighted that the programme has received applications from 420 start-ups across 30 countries, with notable participation from women-led enterprises.

Panel Discussion: Interactive discussion on the opportunities on gaining green skills through entrepreneurship: Overcoming Challenges in Green Entrepreneurship

The speakers in the panel were **Professor Nophea Sasaki**, Asian Institute of Technology, **Dr. Tanujjal Bora**, Assistant Professor and Director of Center of Excellence in Nanotechnology, Asian Institute of Technology, **Dr. Paul Eaimkhong**, Innovation Manager at National Science and Technology Development Agency (NSTDA), **Ms. Yang Xinyan**, Student at Northwestern Polytechnic University, and **Ms. Phurichaya Putporng**, Student at Asian Institute of Technology. Professor Sasaki discussed how entrepreneurship plays a crucial role in shaping students' skills for the green economy, emphasising the need to redefine sustainability and find opportunities. Dr. Bora discussed the importance of academia adapting to real-world challenges and entrepreneurial thinking. Dr. Eaimkhong, emphasised the importance of fostering an innovative and open-minded mindset to tackle environmental issues effectively. Ms. Putporng talked about coming out of her comfort zone to bring some changes in the society in terms of green jobs. Ms. Xinyan presented a project called "Zero Carbon Campus" that aimed at encouraging sustainable behaviour among students on campus.

Session 8: Workshop on developing action plans to scale the circular economy

The final session was an in-person, interactive group work activity for students to design and develop action plans for the circular economy. The session was moderated by **Qin Jun** from City University of Hongkong. The session began by an introductory presentation from **Professor Nophea Sasaki** on how to develop an Action Plan for Nature-based Solutions toward Net-Zero Emissions at AIT. After the presentation, students had 40 minutes for their group work after which they presented the results. The workshop was closed by **Professor Dieter Trau**, Director of AIT Entrepreneurship Centre and by Professor Nophea Sasaki. In his remarks, Professor Trau emphasised the significant changes in the job landscape with many traditional jobs disappearing, especially in the context of transitioning to a green economy and the importance of replacing these jobs with green and sustainable opportunities, both for youth and existing workers.



Panel discussion with youth

Annex 2: Agenda

Agenda-at-a-glance	
Day 1 Skills are necessary for the circular economy	Day 2 Future green jobs across value chains – what skills are needed
9:00-9:45	Session 5 9:15-10:45
Opening of workshop and setting the scene	The role of education in overcoming the skills gap – Part 1, The demand for green skills
9:45-10:15 Break (photo + coffee)	<ul style="list-style-type: none"> • The demand for green skills • What is the role of educational institutions in scaling green jobs?
Session 1 10:15-11:05	
Global and regional trends for the circular economy	
<ul style="list-style-type: none"> • Why is the circular economy necessary for global and regional processes • What is the situation regarding accelerating the circular economy? 	
11:05-11:15 Break	10:45-11:15 Break
Session 2 11:15-12:30	Session 6 11:15-12:30
Circular transformation and clean technology development.	The role of education in overcoming the skills gap – Part 2, Existing solutions
<ul style="list-style-type: none"> • Successful circular business models and technology development • Unlocking the economic opportunities of circular business models 	<ul style="list-style-type: none"> • Driving for societal change through education • Existing solutions and actions for overcoming the skills gap • Partnerships, community action and capacity building
12:30-13:30 Lunch break	12:30-13:30 Lunch break
Session 3 13:30-14:45	Session 7 13:30-14:45
Realising the circular economy opportunities for youth through green skills development (Green Jobs for Youth Pact)	Entrepreneurship as a way to scale green skills and jobs
<ul style="list-style-type: none"> • The Green Jobs for Youth Pact in increasing youth access to green jobs • How can green skills development increase employment opportunities for youth? 	<ul style="list-style-type: none"> • How can youth acquire green skills through entrepreneurship • The role of SMEs in scaling green jobs
14:45-15:15 Break	14:45-15:15 Break
Session 4 15:15-16:30	Session 8 (in-person only) 15:15-16:30
Skills gap for green jobs in Asia and the Pacific – interactive discussion on assessing the skills gaps	Peer learning session on developing green skills
<ul style="list-style-type: none"> • How to identify the main skills gaps hinging the scaling of green jobs? • How to overcome these gaps? 	<ul style="list-style-type: none"> • An interactive session with professionals (public and private sector, university alumni etc) in the sustainability sectors and university students.
Youth Dialogue 16:30-18:00	
Youth Leadership for green skills and green future	