

# Greening education: Transforming circular economy education for future generations

**Date: 7 July 2025**

**Time: 10:00-11:40 Beijing time zone**



**UNU  
IAS**



**BASEL CONVENTION**

# Opening Remarks

## **Prof. Jinhui Li**

Basel Convention Regional Center for Asia and the Pacific (BCRC), Tsinghua University, Beijing, PR China.



# Group Photo

# Presenters

Chair By:



Anupam



Emmanuel



Zhu



Subarna



Usha



Kulbir



Chinara



Kamani



Nutinee





# Circular economy and sustainable resource management in university grounds operations

**Dr. Emmanuel D. Delocado**

Director, Ateneo Institute of Sustainability / Assistant Professor, Department of Biology, Ateneo de Manila University, the Philippines

# Circular Economy & Sustainable Resource Management in University Ground Operations

**Emmanuel D. Delocado**  
Director, AIS  
edelocado@ateneo.edu



**Ateneo  
Institute of  
Sustainability**



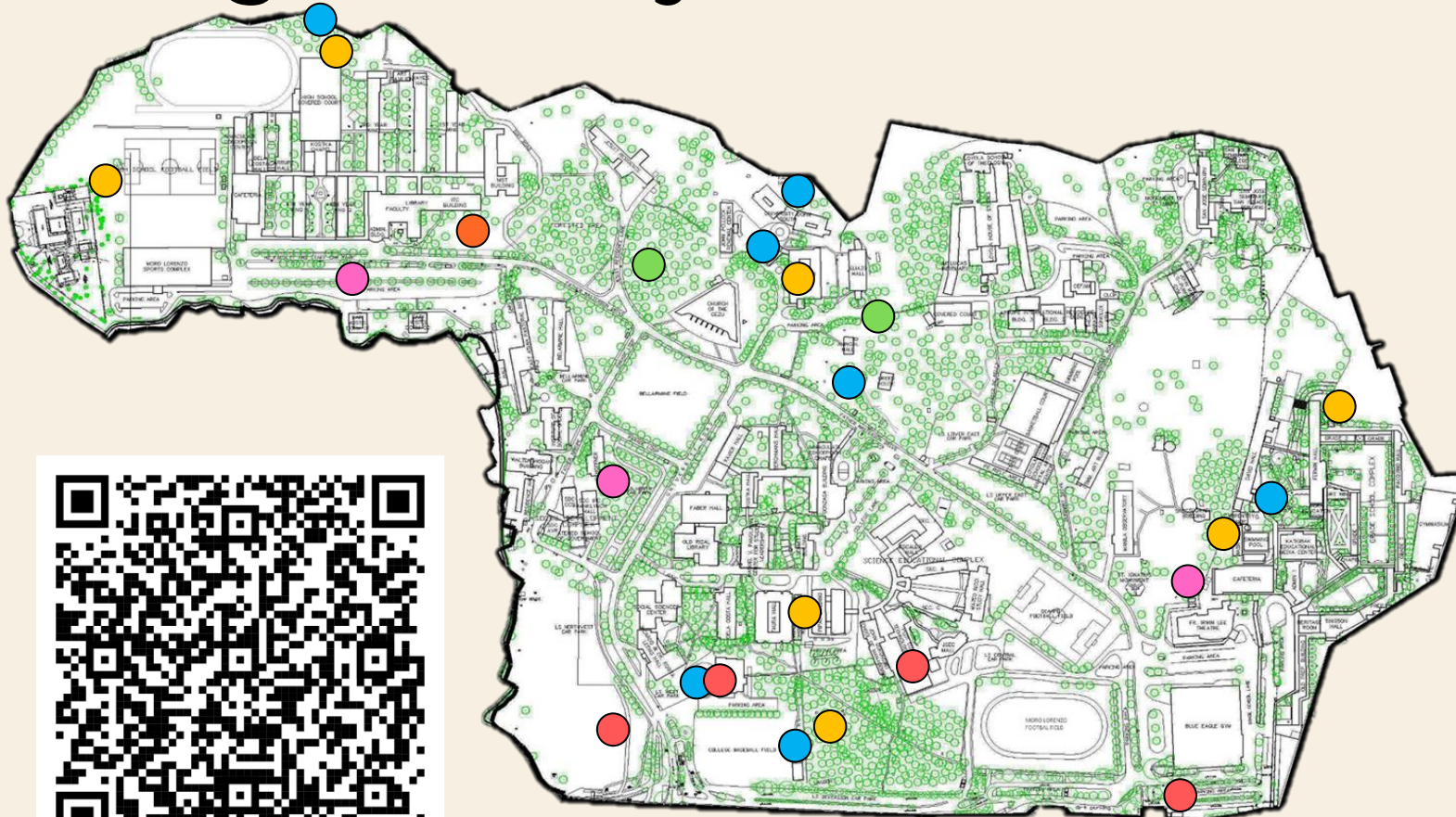
# Ateneo de Manila sits amidst the bustling metropolis





# Amidst the urban jungle

## The Loyola Heights campus as a living laboratory



*Virtual Sustainability Walk*

Materials Recovery Facility

Vermicomposting Facility

Detention Pond

Rainwater Harvesting System

Wastewater Treatment & Reuse

Wildlife Sanctuary

Arboretum of Threatened Phil Trees

Solar Energy Heating

Photovoltaic Systems

Electric Vehicle Charging Station

Stockpile of Emergency Supplies

**Circularity in the operations of  
Ateneo de Manila entails *deliberate* design  
and well *discerned* decision**



# Energy management

Road to 100% renewable energy with <20% solar energy

Carbon neutrality in Scopes I & II by 2030



# Energy management

Charging station for electronic jeepneys for the university population





# Water management

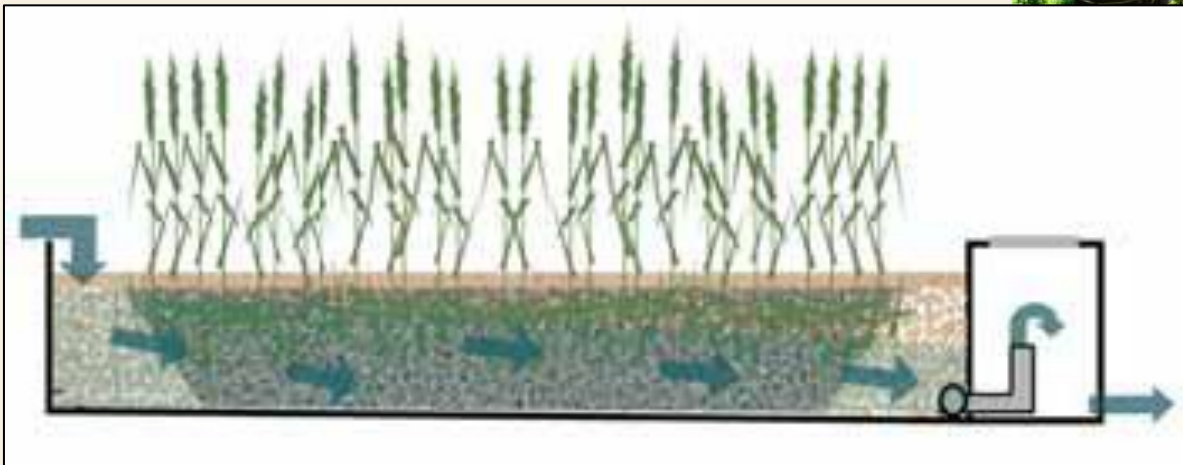
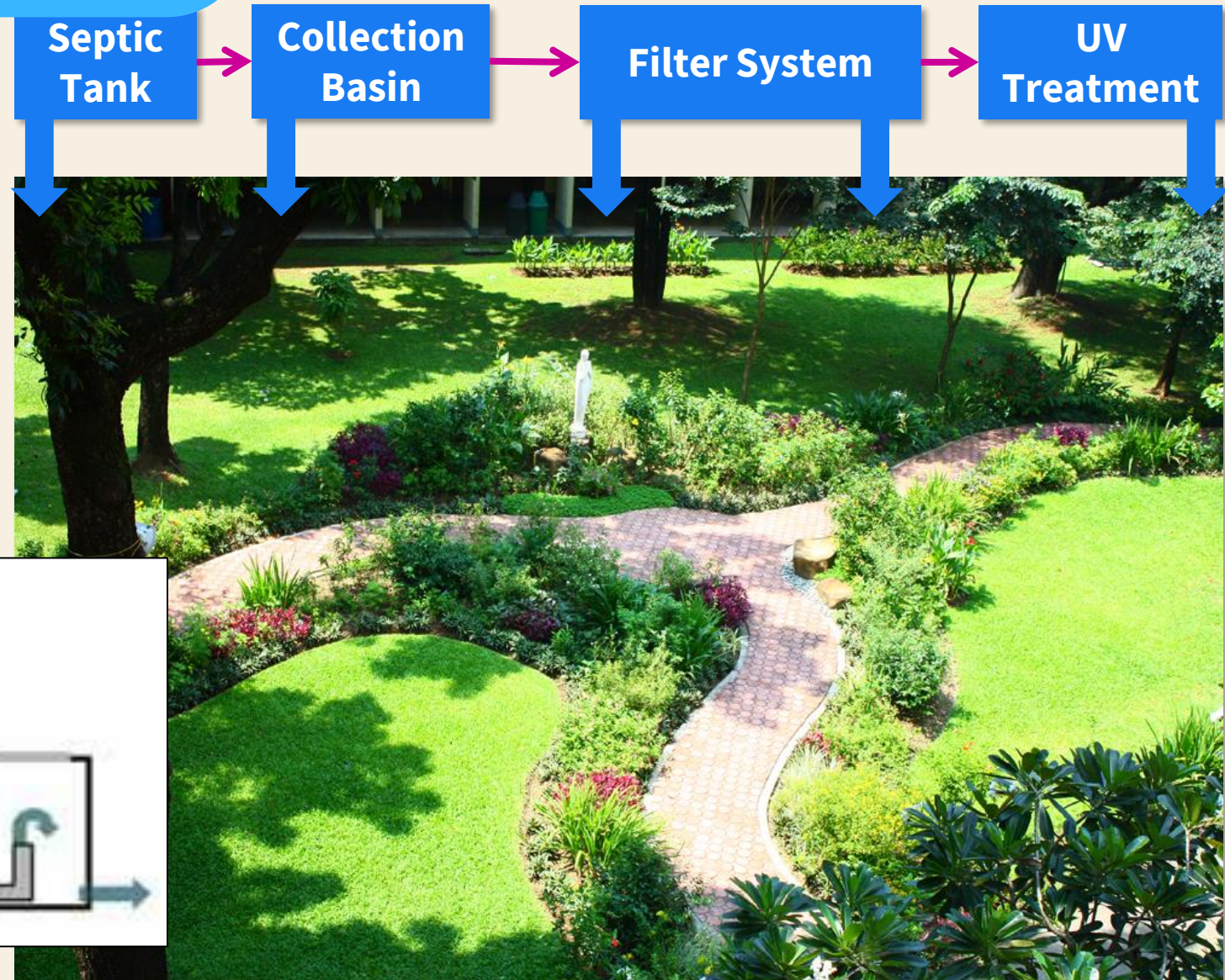
## Rainwater collection and reuse





# Water management

Building wastewater treatment system (BWATS)





# Water management

## Decentralized wastewater treatment system (DEWATS)





# Waste management

Building a culture of circularity in waste management




**THE NEW WAY TO SEGREGATE**

The guide shows five categories of waste segregation, each with a recycling symbol and a list of items:

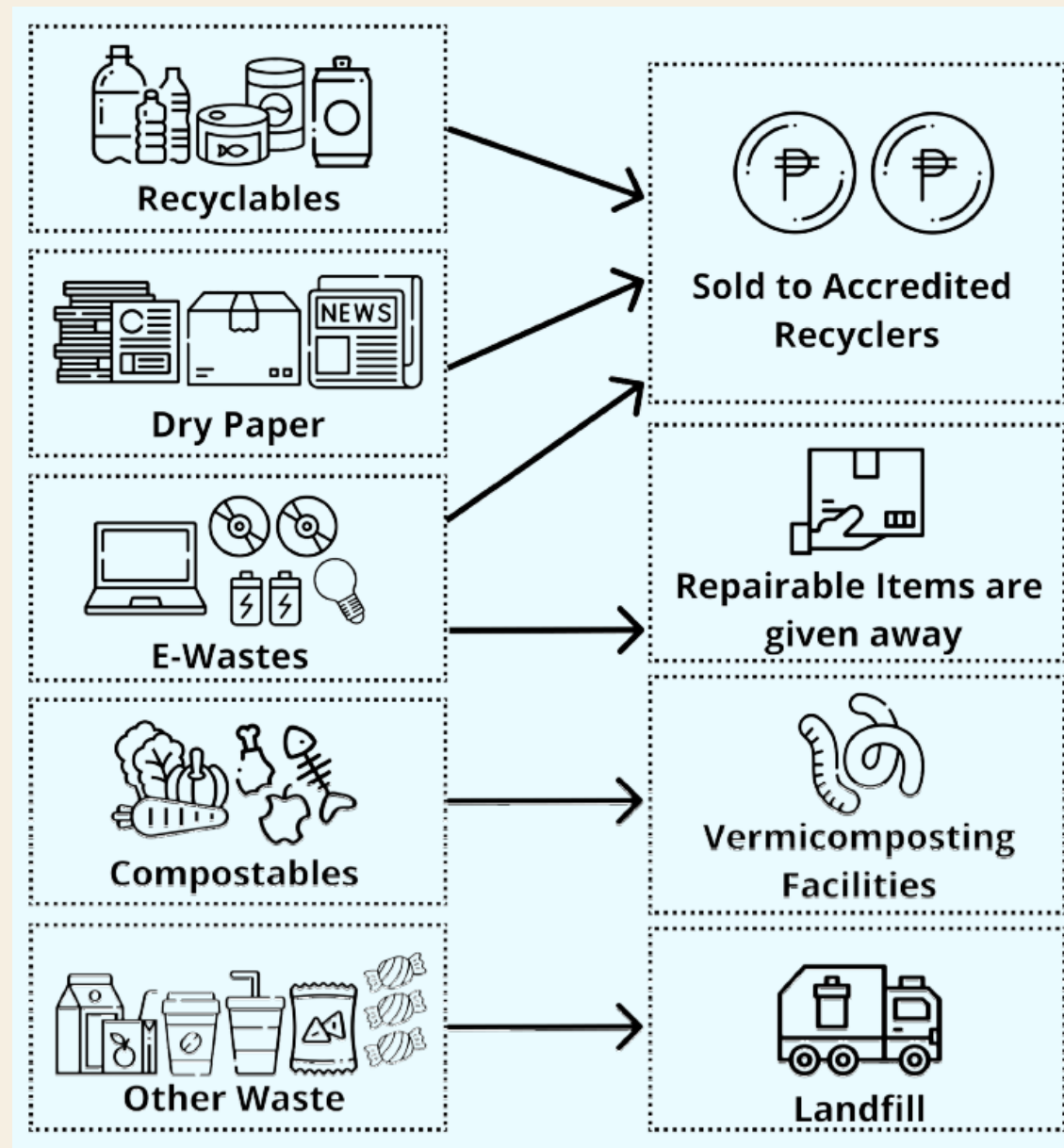
- RECYCLABLES** (Blue): PET Bottles, Aluminum Cans, Glass Bottles.
- COMPOSTABLES** (Green): Food Waste, Wet Paper, Tissue.
- DRY PAPER** (White): White & Colored Paper, Newsprint, Cardboard.
- OTHER WASTE** (Red): (No specific items listed).
- eWASTE** (Grey): Electronic Waste, Batteries, Earphones.

Each category includes the text "The Ateneo Recycles" and a recycling symbol.

**ateneo environmental management coalition**

# Waste management

Building a culture of circularity  
in waste management



# Waste management

## Single-use food containers:

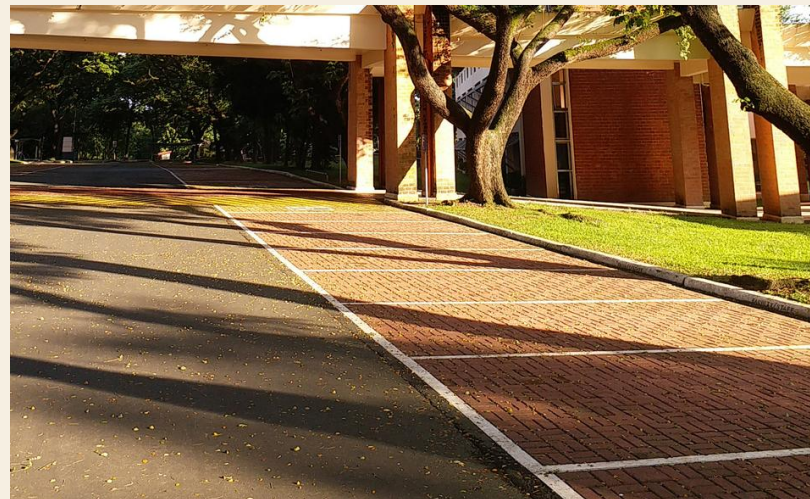
Shift to reusables and ban of single-use containers





# Biodiversity management

## Reconciliation with nature





**We use the campus as a living lab –**

*for our stakeholders to appreciate the  
ecology in our neighborhood*

*and to advance our mission as a higher  
education institution*



# Ateneo as a living lab for sustainability

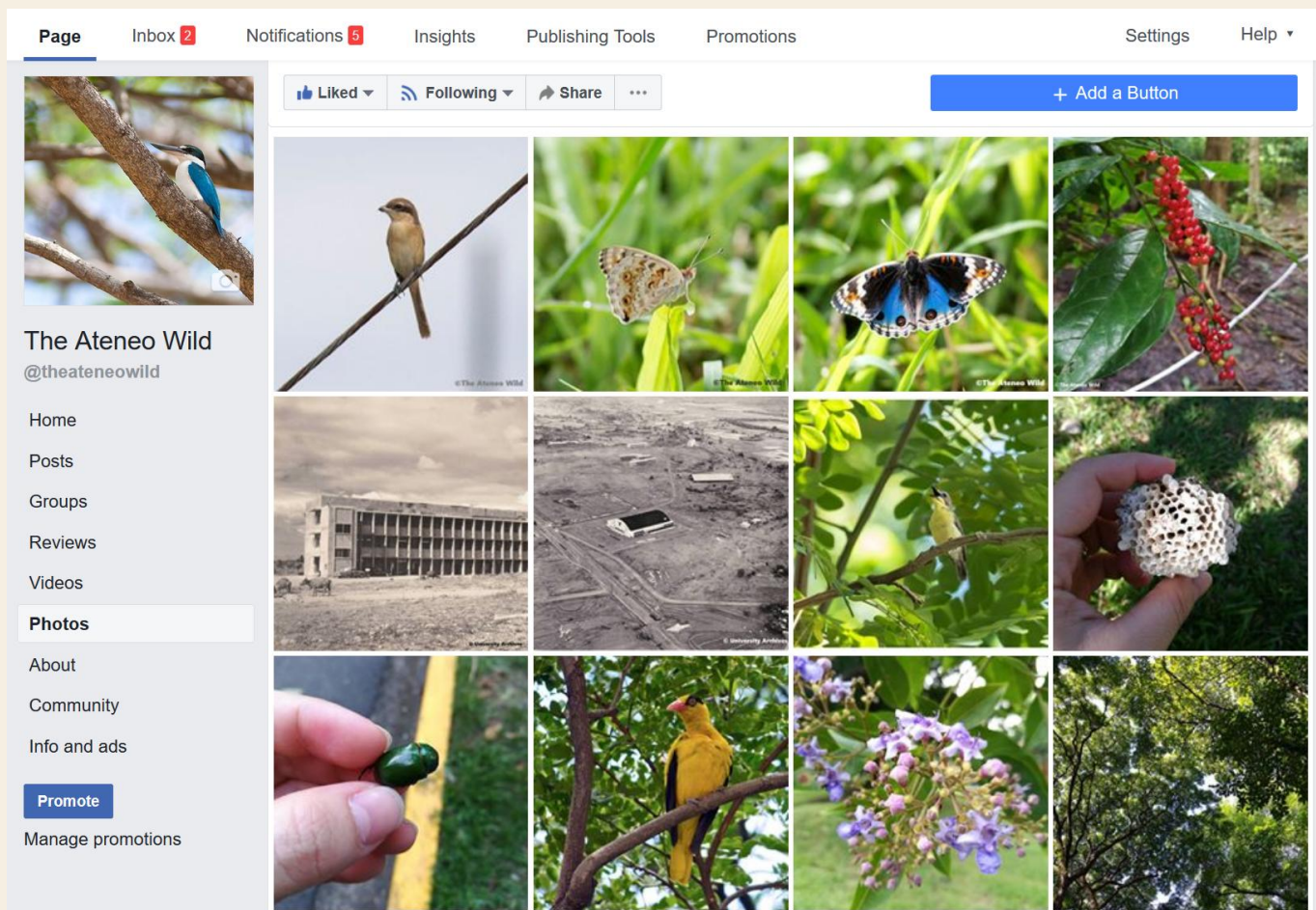
Signages, toolkits, mobile games, and instructional materials to promote campus sustainability





# Ateneo as a living lab for sustainability

## Engaging the community in nature-based activities



**THE ATENEO WILD**  
@theateneowild

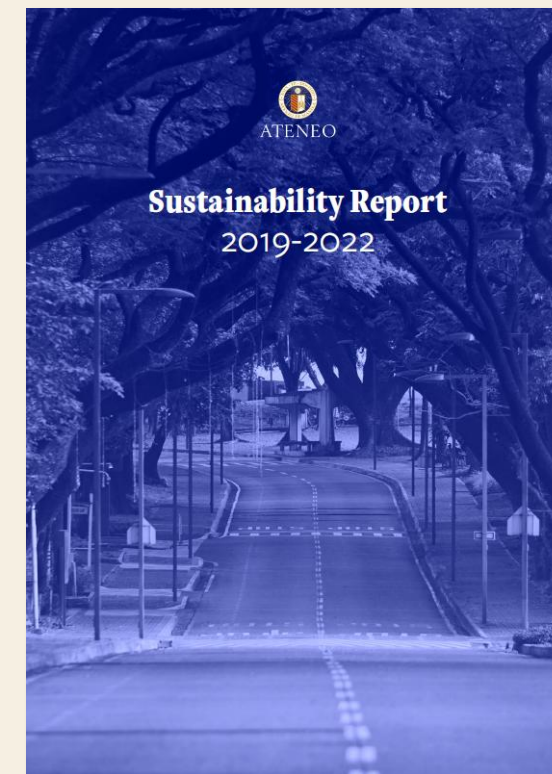
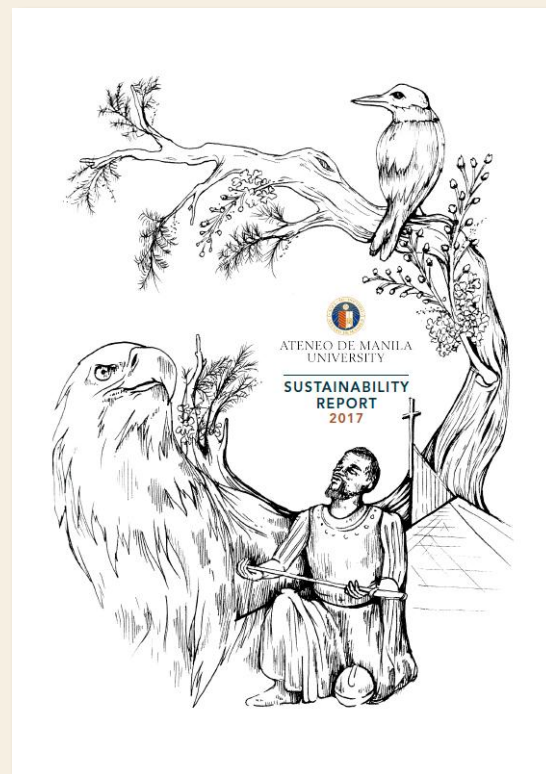
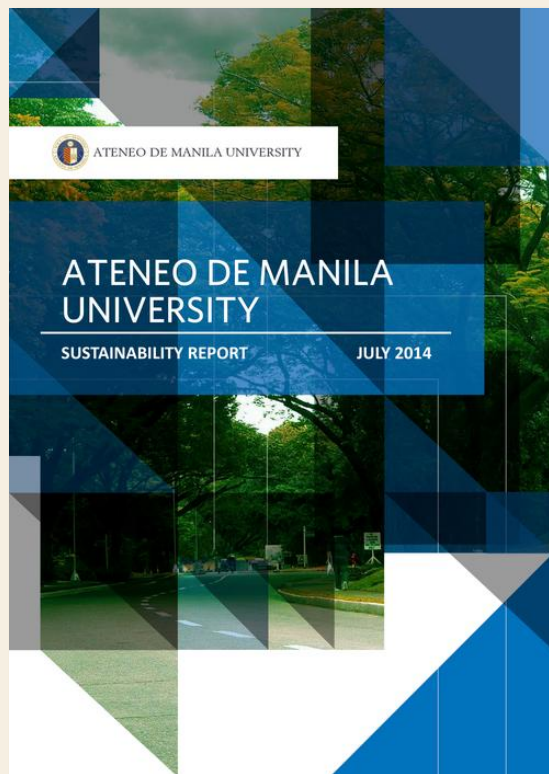


# Ateneo as a living lab for sustainability

Sustainability reports as a chronicle of our collective journey *and* educational tool



Read our latest  
Sustainability  
Report here



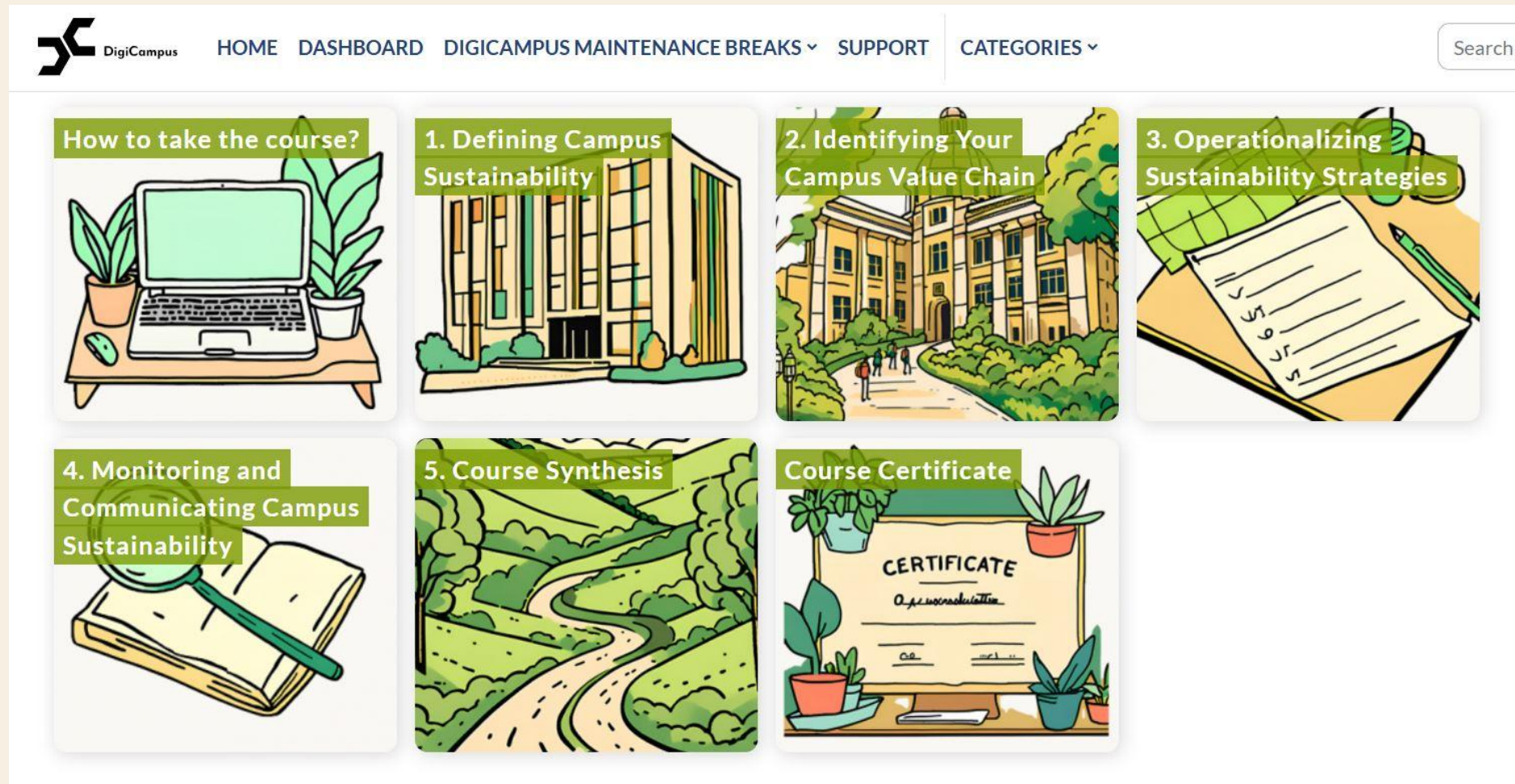


# Sharing the journey to others

## MOOC for Sustainability: Empowering Global Campuses: <https://digicampus.fi>

or search “MOOC for Sustainability” on LinkedIn

Posio & Delocado (2025) on MOOCs and sustainability leadership



The screenshot displays the DigiCampus website interface. At the top, the navigation bar includes the DigiCampus logo, a search bar, and links for HOME, DASHBOARD, DIGICAMPUS MAINTENANCE BREAKS, SUPPORT, and CATEGORIES. The main content area features a grid of course modules, each with a title and an illustration:

- How to take the course?**: Illustration of a laptop on a desk with a plant.
- 1. Defining Campus Sustainability**: Illustration of a modern building.
- 2. Identifying Your Campus Value Chain**: Illustration of a large, classical building.
- 3. Operationalizing Sustainability Strategies**: Illustration of a notepad with a checklist and a pen.
- 4. Monitoring and Communicating Campus Sustainability**: Illustration of a magnifying glass over an open book.
- 5. Course Synthesis**: Illustration of a winding path through a green landscape.
- Course Certificate**: Illustration of a certificate titled 'CERTIFICATE' with a signature line.

# Circularity in the operations of Ateneo de Manila entails *deliberate design* and well *discerned decision*

Ateneo de Manila seeks the  
community **to appreciate** the efficient  
and intelligible use of campus space  
amidst a bustling city, and **to engage**  
the community to use the space to  
advance our mission



# AIS



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[ateneo.edu/ais](https://ateneo.edu/ais)



[ADMU.AIS](https://www.facebook.com/ADMU.AIS)



[aisustainability](https://www.instagram.com/aisustainability)



[Ateneo Institute of Sustainability](https://www.linkedin.com/company/ateneo-institute-of-sustainability)



# Thank You!



**Emmanuel D. Delocado, PhD**  
Director, AIS  
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[ADMU.AIS](https://www.facebook.com/ADMU.AIS)



[ateneo.edu/ais](https://ateneo.edu/ais)



[aisustainability](https://www.instagram.com/aisustainability)



[Ateneo Institute of Sustainability](https://www.linkedin.com/company/ateneo-institute-of-sustainability)



Year-end Magazine  
SY2024-2025



Sustainability Report  
2019-2022



# Green Education: Development and Practices in China

**Ms. Jin Yuting**

Deputy Director,  
Education section of Centre for Environmental Education  
and Communications of the Ministry of Economy and  
Environment, Beijing, PR China

**On behalf of Dr. Zhu Zhenxu**

Director,  
Centre for Environmental Education and Communication  
(CEEC) of the Ministry of Ecology and Environment,  
Beijing, PR China



# 中国绿色教育发展和实践

## Green Education: Development and Practices in China

金玉婷 JIN Yuting

生态环境部宣传教育中心

Center for Environmental Education and Communications of the  
Ministry of Ecology and Environment, China



# 一、机构简介 About CEE

成立于 1996 年 Founded in 1996

- 生态环境部直属技术支撑单位

Subordinate unit , technical support for Ministry of Ecology and Environment

- 组织开展六五环境日、国际生物多样性日、全国低碳日等重大社会宣传活动

Organize important events e.g. World Environment Day, International Day for Biological Diversity, National Low-Carbon Day

- 公众参与生态环境保护、青少年生态环境教育等相关研究与实践

Public engagement and environmental education research and practices

- 中日韩环境教育合作网络

Tripartite Environmental Education Network

- 斯德哥尔摩国际青少年水奖中国地区赛事组织方

National organizer of the Stockholm International Youth Water Award







## 二、绿色教育的顶层设计与战略部署

## Top-level Design and Strategic Deployment of Green Education

### 1. 政策体系 The Policies

- 《关于进一步加强生态文化建设的指导意见》（2025年）：  
Guidelines on Further Strengthening Ecological Culture Construction (2025):
- “美丽中国，我是行动者”提升公民生态文明意识行动计划：  
Action Plan to Enhance Citizens' Awareness of Ecological Civilisation: “Beautiful China, I Am an Actor” :
- 《关于建设美丽中国先行区的实施意见》（2025年）：  
Implementation Opinions on Building a Pilot Zone for a Beautiful China (2025):

### 2. 核心目标 Core Objectives

- 短期（2025年）：绿色低碳理念全面融入大中小学课程，公民生态环境行为规范普及率显著提升。  
Short term(2025): Green and low-carbon concepts are fully integrated into primary, secondary, and higher education curricula, and the publicity of citizens' ecological and environmental behaviour norms is significantly improved.
- 中长期（2030/2035年）：形成全民绿色生活方式（2030年），生态文明国际影响力显著提升（2035年）。  
Medium to long-term (2030/2035): A nationwide green lifestyle is established (2030), and the international influence of ecological civilisation is significantly enhanced (2035)



### 三、多维度教育实施路径

## Multi-dimensional education implementation pathways

1. 国民教育体系融合 Integration into the national education system
  - 基础教育  
Basic education:
  - 高等教育与职教  
Higher education and vocational education
2. 特色载体与行动 . Specialized Platforms and Actions
  - 环境教育基地  
Environmental Education Bases
  - 数字化赋能:  
Digital Empowerment: AI-interactive courses, Online ecological education platform
  - 校园绿色转型：建设生态学校、气候智慧学校，绿色学校、无废校园  
Campus Green Transformation: Eco-school, Green school, Climate Smart School, No-waste campus





## 四、全民行动体系 Joint by All

### 1. 主体责任细化 Detailed Responsibilities

- 政府 Government
- 企业 Enterprises
- 家庭 Families

### 2. 多元参与机制 Diverse Participation Mechanisms

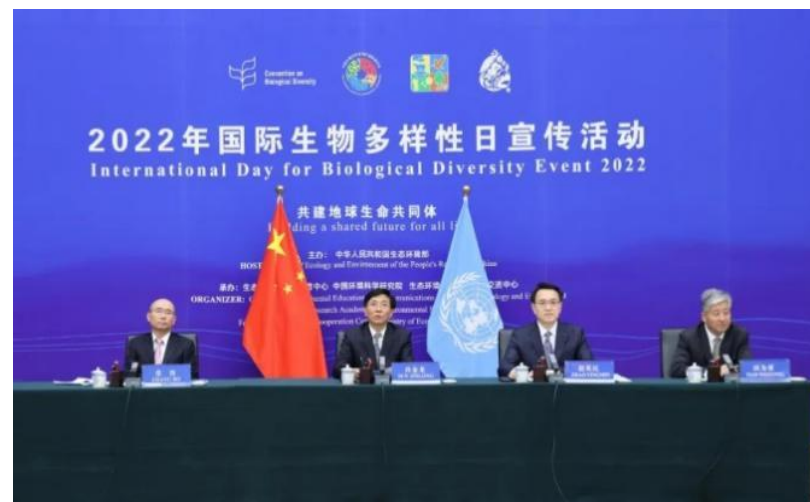
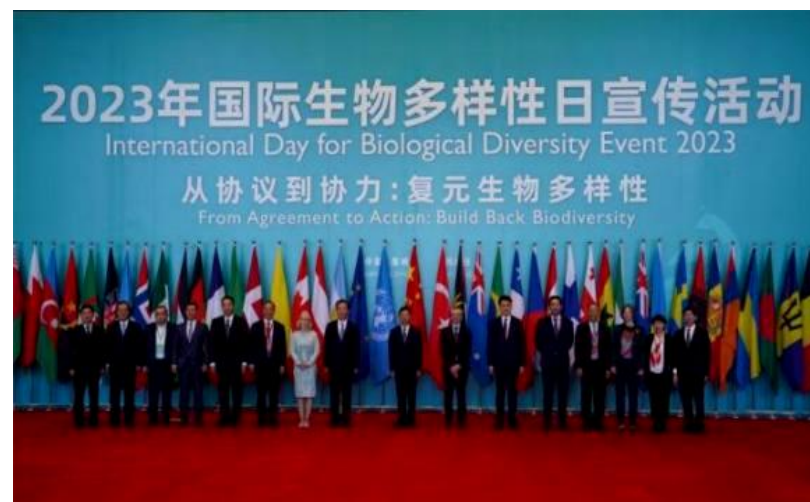
- 公众参与 Public Participation  
六五环境日 (World Environment Day) , 生物多样性日 (International Day for Biological Diversity) , etc.
- 市场化激励 Market-Based Incentives:

### 3. 保障措施 Support Measures

- 资金保障: Financial Support
- 评估试点: Pilot Assessments



## 五、生态环境部宣教中心相关工作 Related work of CEECE



**六五环境日国家主场活动**  
National Home Events of World  
Environment Day

**国际生物多样性日宣传活动**  
International Day for Biological  
Diversity events

**全国低碳日国家主场活动**  
National Home Events of Low  
Carbon Day



# 环境教育实践 Environmental Education Practices



**青少年生态环境教育示范课进校园**  
**Youth Env. Education in Schools**  
(2014-2023, 200所学校/200schools,  
20万师生/200,000 teachers&students)



**全国中学生水科技发明比赛**  
**National High School Water Science and  
Technology Invention Competition**



**无废校园**  
**Zero-waste campus**



**生态环境职业教育教学指导委员会**  
**National Ecological Environment  
Vocational Education Teaching  
Guidance Committee**



**30省市106所自然学校2000万人次**  
**106 Nature school in 30 provinces with 20  
million participants in nature education**



**全国自然笔记征集,6年3000多家机构参加**  
**Nature Journal events with 3000 participating**

# 案例1：国际环境教育基金会合作项目

## Case1: CEEC & Denmark: Foundation for Environment Education (FEE)



### FEE中国唯一会员单位

Exclusive FEE member in China



**环境小记者**  
**Young Reporters**  
(5年, 300000余学生参加  
300000 students in 5 years)



**国际生态学校 Int.Eco-school**  
(气候变化, 能源专题 theme of  
Climate change, energy)  
(13年, 28省, 592/4000余所学校  
592 Eco-schools in 28 provinces)



**蓝旗海洋生态环境保护**  
**Blue Flag**  
(beach, marina, tourist boats)  
  
搭建国家评委会national jury  
组织开展试点 pilot



## 案例2：气候智慧学校项目

### Case 2: Climate Change Education -- Climate Smart Schools Project



合作单位  
Partner:



《学校气候变化教育现状调研分析报告》  
Investigation report



碳排放计算工具  
Carbon emission calculators



《气候智慧学校建设指南》  
气候教育教学材料  
CC Guidance, curriculum



山东、四川、浙江、湖北等  
Pilot schools in Shandong, Sichuan, Zhejiang, Hubei, etc.





## 六、建议与展望

### 1. 完善顶层设计，强化法治保障

Improve top-level design and strengthen law guarantee

### 2. 生态文明教育纳入教育体系

Incorporating ecological civilization education into the education system

### 3. 聚焦区域协调发展

Focus on regional coordinated development

### 4. 推动技术创新与科技成果转化

Promote technological innovation and transformation of scientific and technological achievements

### 5. 深化全球责任担当

Global Responsibility



谢谢  
Thank you!

Email: [jinyuting@ceec.cn](mailto:jinyuting@ceec.cn)



# Greening Higher Education to prepare graduates for jobs of the future

**Dr. Subarna Sivapalan**

Associate Professor of Education / Associate Dean,  
Research and Knowledge Exchange, Faculty of Arts and  
Social Sciences, University of Nottingham Malaysia, Co-  
Chair, UNESCO Chair in International Education and  
Development, Malaysia





University of  
Nottingham

UK | CHINA | MALAYSIA

# Greening Higher Education to prepare graduates for jobs of the future

Associate Professor Dr Subarna Sivapalan FRSA, SFHEA

Associate Dean, Research and Knowledge Exchange, Faculty of Arts and Social Sciences  
UNESCO Chair in International Education and Development Malaysia Office





# Quality Higher Education Amidst an Increasingly Complex Future Workplace



<https://www.nottingham.edu.my/CurrentStudents/StudentRegistry/Graduation.aspx>

**Point to Ponder**

To what extent is the global higher education sector preparing its graduates for JOBS OF THE FUTURE ?

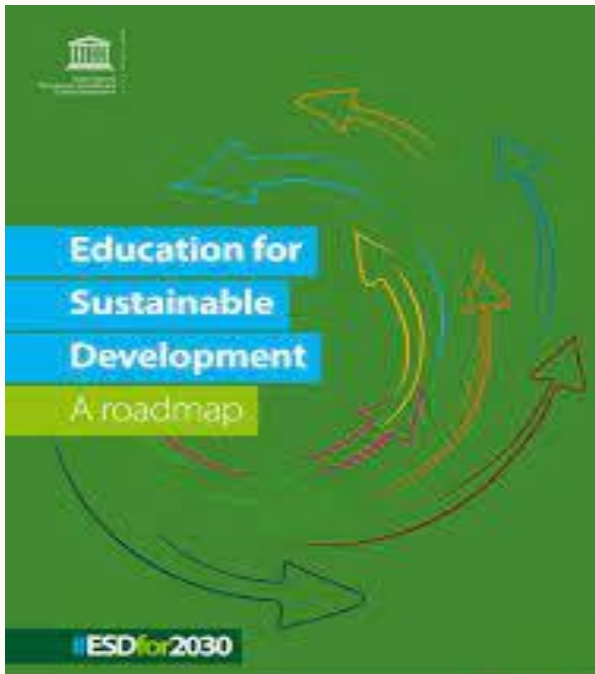






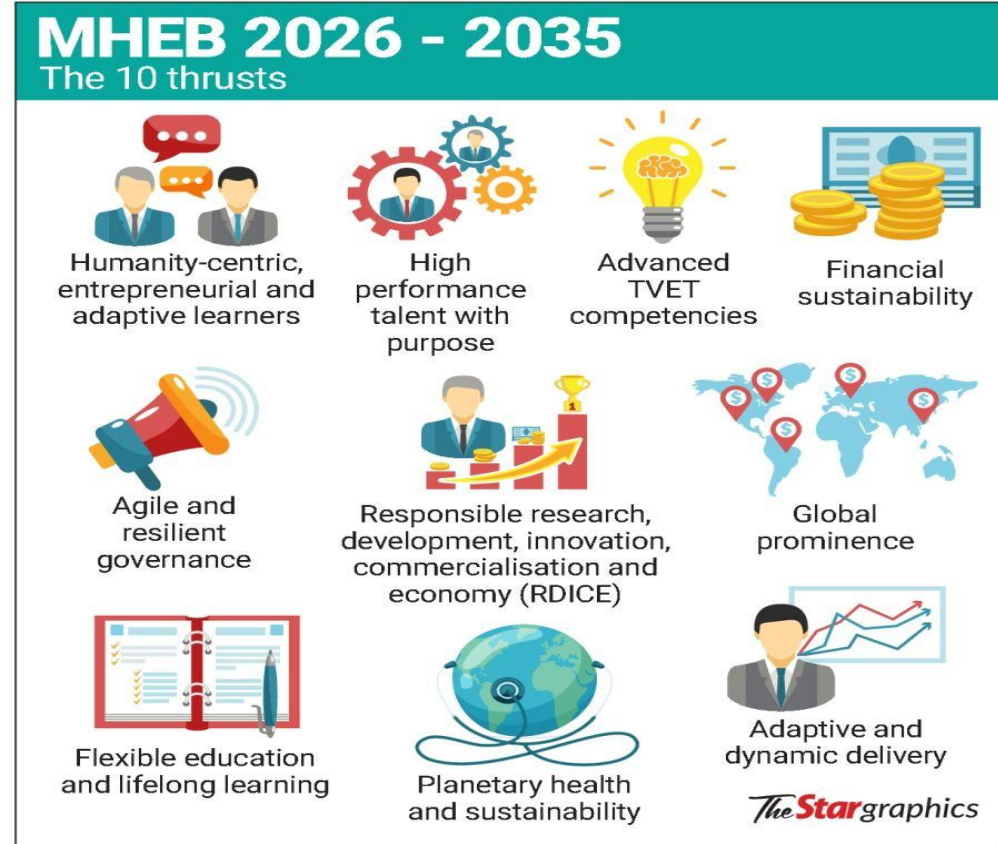
# SDG4 targets / ESD2030 roadmap / GEP and the HE sector

**Target 4.7** - By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.





# Setting the Policy Context: Sustainability and planetary health in the Malaysian HE blueprint – 2015/2025 vs 2025/2035



<https://www.thestar.com.my/news/education/2024/11/17/producing-grads-with-life-skills>







# ESD and MQF Malaysia

Emphasis on Values-Based Education (VBE) in the Malaysian Qualifications Framework (MQF), which was mandated under the Malaysian Qualifications Agency (MQA) Act 2007

## MQF's definition of ESD is guided by:

“ESD embodies the acquisition of knowledge, skills, values and empowerment for learners of all ages to address interconnected global challenges, such as climate change, biodiversity loss, resource depletion and social inequality. It also requires participatory teaching methods that inspire and enable learners to transform their behaviour and actively engage in actions promoting sustainable development. This educational approach fosters essential competencies, including critical thinking, envisioning future scenarios and collaborative decision-making.” (UNESCO, 2017)





# University of Nottingham Strategic Plan 2022-2027

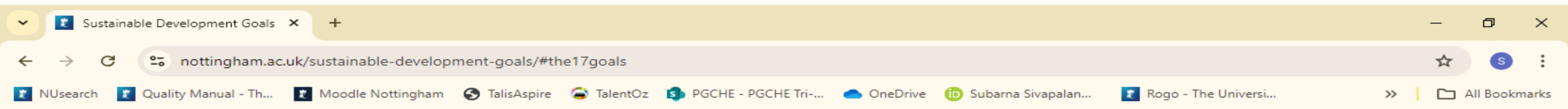
***We will make an outstanding contribution to supporting the United Nations Sustainable Development Goals (SDGs) through our research and education, our engagement with partners and our behaviour on campus and in our communities. We will place a special emphasis on environmental sustainability, supporting the City of Nottingham's desire to be a net zero carbon city by 2028 and working with partners in China and Malaysia to improve sustainability within their regions.***





# Our commitment to the SDGs – 36 in the world

## 2025 QS World University Rankings: Sustainability



### Our commitment to the goals

At the University of Nottingham, we take sustainability seriously.

We actively address the complex challenges facing our planet and are committed to making significant contributions to the United Nations Sustainable Development Goals (SDGs). We're proud to be recognised among the world's top higher education institutions for our efforts, ranking in the Top 200 in the Times Higher Education Impact Rankings 2024. These global rankings evaluate more than 2,000 universities from 125 countries based on their performance against the United Nations' 17 Sustainable Development Goals, which set out a blueprint for creating a more sustainable future.

Our world-leading research places us within the world's Top 100 for a number of individual SDG goals:







# Teachers of the Future: Driving Sustainability

*Teachers stand at the forefront of localized change, introducing students to the knowledge, skills, values and abilities to act sustainably, live together peacefully and build a more just society*

(UNESCO, 2021)





# School of Education UNM

The School of Education embodies a philosophy that is **humanistic, transformational, holistic, sustainable and inclusive** aimed at achieving high standards and improving life chances of individuals and communities.





# Sustainability at the School of Education

## **Sustainability and Transformational Education Research Cluster (STERC):**

The School of Education's Sustainability and Transformational Education Research Cluster (STERC) aspires to be a leader for research in education within the Asia Pacific region, with a broad commitment to investigating issues within formal, informal and community education contexts and its interlinkages. Our commitment in STERC responds to the School's humanistic, transformational, holistic, sustainable and inclusive philosophy, which is aimed at improving life chances of individuals and communities. Leveraging on this philosophy, we strive to contribute to SDG 4 (Quality Education), 10 (Reduced Inequalities), 11 (Sustainable Cities and Communities), 13 (Climate Action) and 17 (Partnerships for the Goals), in tandem with the sustainability aspirations of the university.

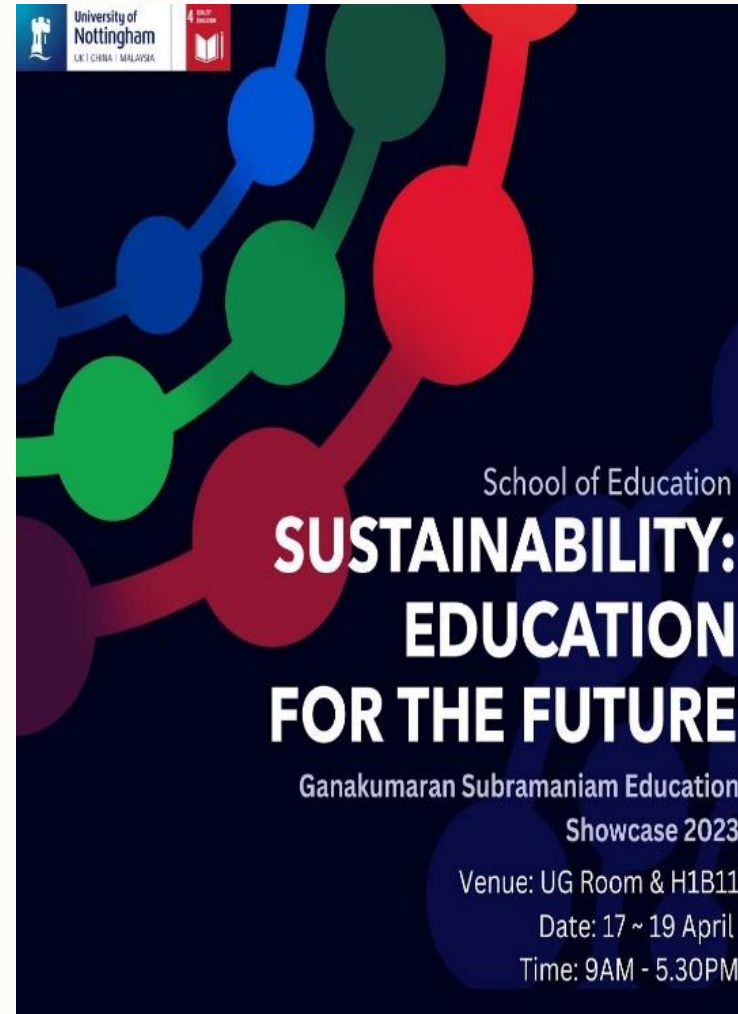
## **UNESCO Chair in International Education and Development Malaysia Office**







# Sustainability at the School of Education



The School of Education organizes an annual Education Showcase event for its students and staff. The showcase is also open to the campus community. The showcase is centered around the theme of curriculum greening and sustainability education. In the year 2023 the showcase was themed Sustainability: Education for All and in 2024, the showcase was themed Greening Education: Advancing Quality Education and Research for Sustainable Futures.





# Greening Communities beyond HE

## Project Asli at UNM: Supports the UN SDGs

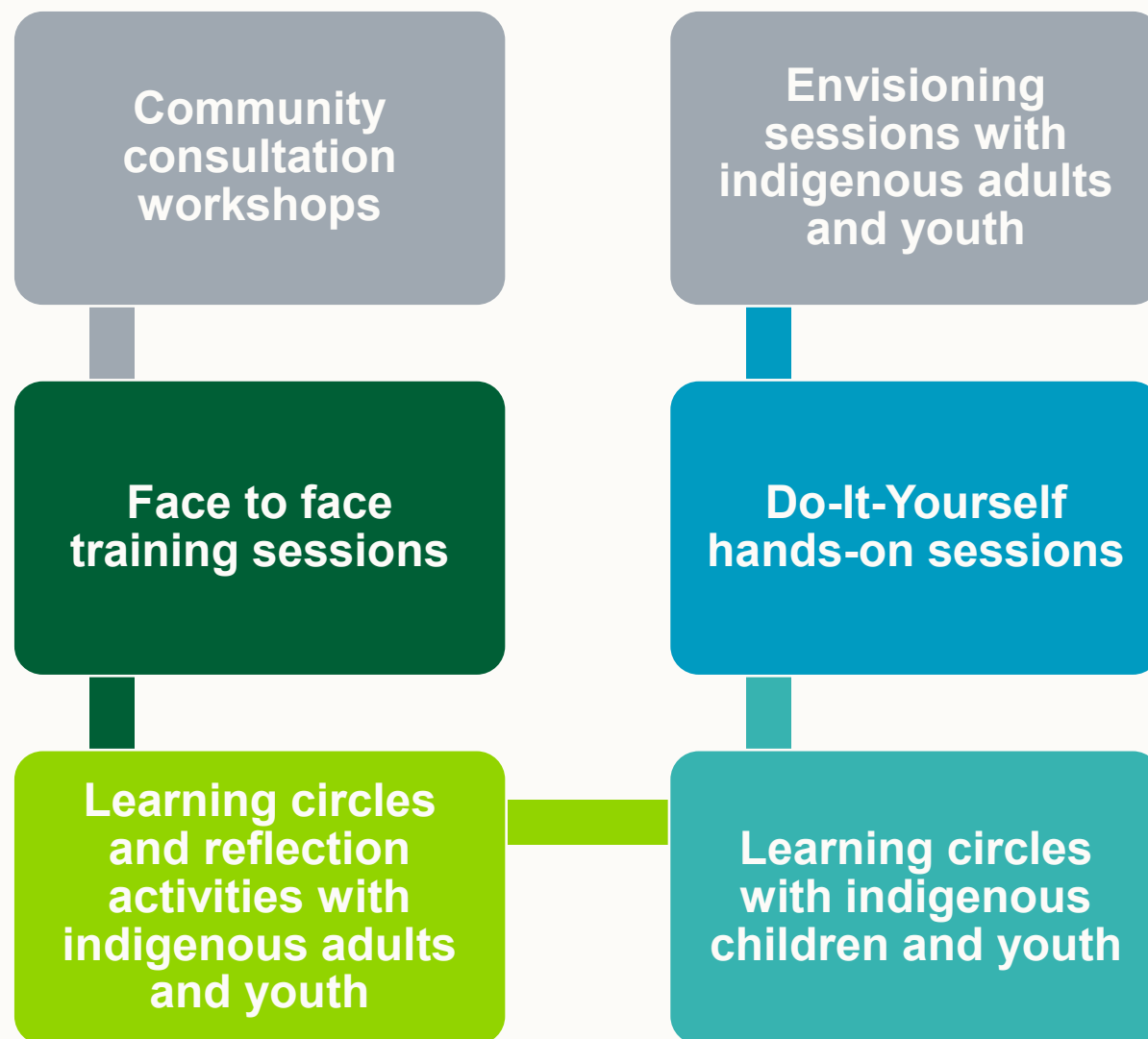


**SUSTAINABLE  
DEVELOPMENT GOALS**





# Project Asli's Educational Approach is underpinned by Education for Sustainable Development (ESD)







# Project Asli in Perak : Where it all began



**Harnessing the Power of Partnerships – Accelerating SDG17 for Indigenous Community Well-Being**

Image Source: Subarna Sivapalan





# Project Asli in Perak



**Project Asli - Co-creating knowledge and social impact** via rural electrification, rural sanitation, indigenous entrepreneurship and indigenous women and youth empowerment initiatives



Image Source: Subarna Sivapalan





# Project Asli in Perak

Impactful partnerships **empower communities**



Image Source: Subarna Sivapalan





# Project Asli Perak in UNESCO Global Research Project

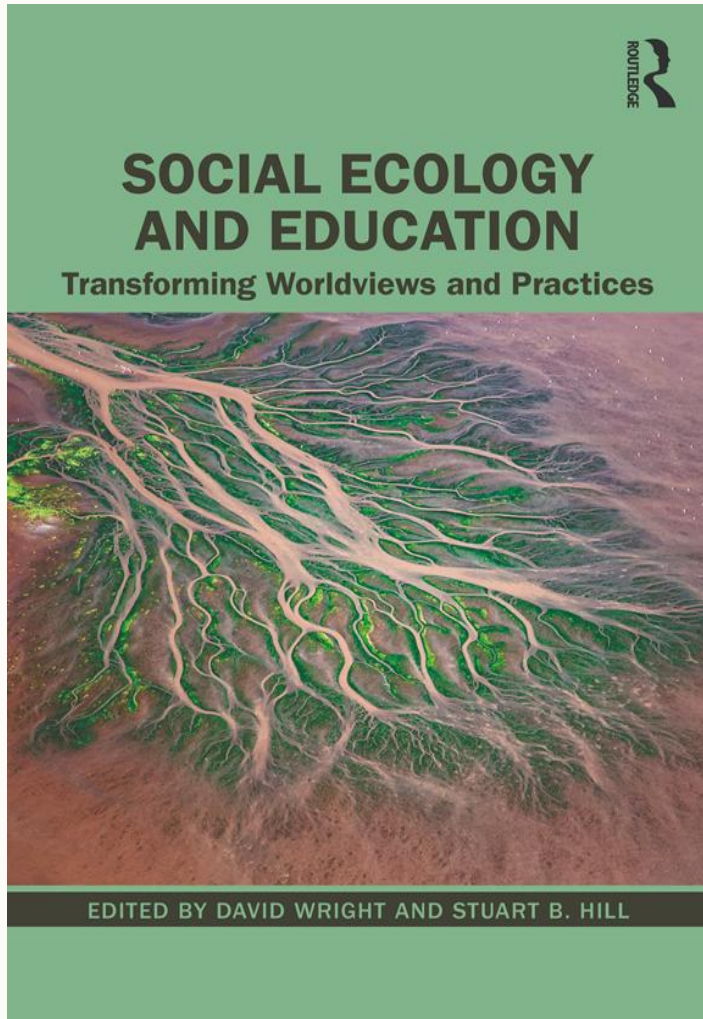
## #IndigenousESD

*Reorienting education and training systems to improve the lives of Indigenous youth : The case of the Orang Asli community*





# Project Asli Perak Routledge publication



Collaborative dialogue and collective decision-making, facilitated via a community education and partnerships for sustainability approach, is the approach we are proposing to address the need for greater multi-stakeholder participation in environmentally, socially and economically uplifting the Indigenous of Asia so that they are not left behind. Partnerships are key to effective community education for sustainable development, particularly when the scale of the proposed solutions requires multi-stakeholder interventions. The notions of community, community education and partnerships discussed above collectively form the theoretical basis of the work documented here. The challenges faced in implementing community education and partnerships for sustainability within the Orang Asli of Peninsula Malaysia, and insights into ways in which these challenges can be collectively addressed through Indigenous community-academia-industry-government-NGO partnerships, are discussed.

**Book Chapter: *Community education and partnerships for sustainable development: A way forward for Indigenous Asia* Sivapalan, S & Subramaniam, G (2020)**





# Sustainability beyond the formal curriculum



University of  
Nottingham  
UK | CHINA | MALAYSIA

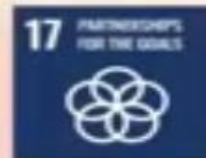
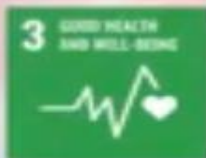


EDU22 PRESENTS:

## A.S.L.I. Project

Aspire to **Share** & **Learn** with the Indigenous people

### THE GLOBAL GOALS







# Collaborating across Faculties



## EYE CHECK-UP CLINIC 2024

A School of Education EDU22 event in collaboration with the **Biomedical Science Society (BMed Society)**, **KL City Lions Club** and **OA community of Kampung Kachau Dalam** to provide free community eye check-up sessions.



**21st April, 2024**  
9.00 a.m. – 1.00 p.m.



**Kampung Orang Asli Kachau  
Dalam, Semenyih**

In collaboration with:



THIS PROJECT IS FUNDED BY THE MAD (MAKE A DIFFERENCE) MONEY FUND





# Project ASLI Impact

Project Asli replicated in 3 villages in Perak and scaled to Selangor

Community ESD as alternative to formal education

Close to 450 Orang Asli community members impacted

Capacity building for close to 50 indigenous youth and women folk in Perak

Close to 100 university students experienced ESD and the SDGs in action via real world learning



Alleviation of the community's socio-economic well-being by educating the community on best practices to independently source solutions for obtaining alternative income, i.e., solar farms have enabled cost saving of RM5 per household per day (RM150 per month) that could be channelled for other crucial expenses

Provision of alternatives to formal education for youths via rural electrification maintenance training, which act as an alternative source of income for the community

Development of indigenous environmental entrepreneurship programmes and skills amongst indigenous women and youth through community recycling, handicrafts and hydroponics cultivation



Empowerment of indigenous community leaders and youths as sustainability champions

Co-creation of knowledge between the community and stakeholders to develop sustainable short, mid and long term action plans

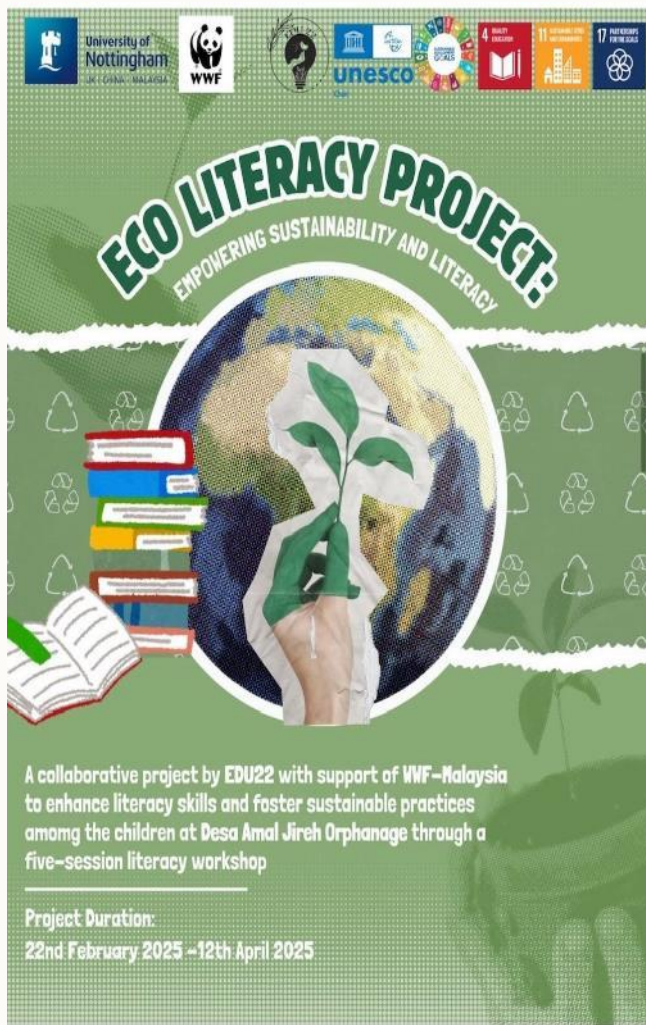
Recognition of the potential of community education and multi stakeholder partnerships between community-academia-industry-NGO-government in paving the way for indigenous communities, particularly those in Malaysia, to systemically address issues of poverty and socio-economic development affecting their community





# Collaborating with Conservation Organizations

## – 3Rs concept



**ECO LITERACY PROJECT:**  
EMPOWERING SUSTAINABILITY AND LITERACY

A collaborative project by EDU22 with support of WWF-Malaysia to enhance literacy skills and foster sustainable practices among the children at Desa Amal Jireh Orphanage through a five-session literacy workshop

**Project Duration:**  
22nd February 2025 – 12th April 2025

Logos: University of Nottingham, WWF, UNESCO, and various UN Sustainable Development Goals.



**EDU22 - ECO LITERACY PROJECT:**  
EMPOWERING SUSTAINABILITY AND LITERACY

**REDUCE, REUSE, RECYCLE**

**SESSION 3: THE 3R'S IN ACTION**

**15TH MARCH 2025** | **9:00AM - 12:00PM** | **DESA AMAL JIREH**

**ECO LITERACY PROJECT: EMBRACING THE 3 R'S**

IN THIS SESSION, STUDENTS WILL:

- STRENGTHEN THEIR READING, WRITING, AND SPEAKING SKILLS THROUGH INTERACTIVE LEARNING.
- EXPLORE THE 3 R'S—REDUCE, REUSE, AND RECYCLE—WITH FUN AND ENGAGING ACTIVITIES.
- LEARN ABOUT SENTENCE STRUCTURES WHILE DISCUSSING PRACTICAL WAYS TO HELP THE ENVIRONMENT.
- DEVELOP A DEEPER UNDERSTANDING OF SUSTAINABLE LIVING AND HOW SMALL ACTIONS CAN MAKE A BIG IMPACT.

Logos: University of Nottingham, WWF, UNESCO, and various UN Sustainable Development Goals.







# Larger Impact for Greening HE

T&L in HE to impact  
real world local  
community  
problems

Opportunity for  
interdisciplinary  
learning – engineering  
and social sciences  
coming together –  
employability skills

Multistakeholder  
approach to  
delivery – academia,  
community, industry &  
NGOs – emulating  
work based  
experiences

Academics and  
students as social  
Intrapreneurs –  
alternative  
employment  
opportunity

Local and  
international ranking  
of institution





University of  
Nottingham

UK | CHINA | MALAYSIA

# Thank you

To collaborate, contact Assoc Prof Dr Subarna Sivapalan  
[Subarna.Sivapalan@nottingham.edu.my](mailto:Subarna.Sivapalan@nottingham.edu.my)





## Connecting Research and Industry for a systemic approach to circular economy: The case of Circular Economy Research Network of the Asia-Pacific (CERN-APAC)

**Dr. Usha Iyer-Raniga**

Professor, Sustainable Built Environment, RMIT University, Australia and Co-lead of the Circular Built Environment group, GlobalABC hosted by UNEP, Australia





**CERN APAC**

Circular Economy Research  
Network Asia-Pacific



**RMIT**  
UNIVERSITY

## **20th ICWMT Conference**

**Usha Iyer-Raniga**

*Professor, Sustainable Built Environment,  
RMIT University*

*Co-Lead Circular Built Environment,  
GlobalABC, hosted by UNEP*

*Founder and leader, CERN APAC*

**July 07, 2025**

# Why was CERN APAC formed ?

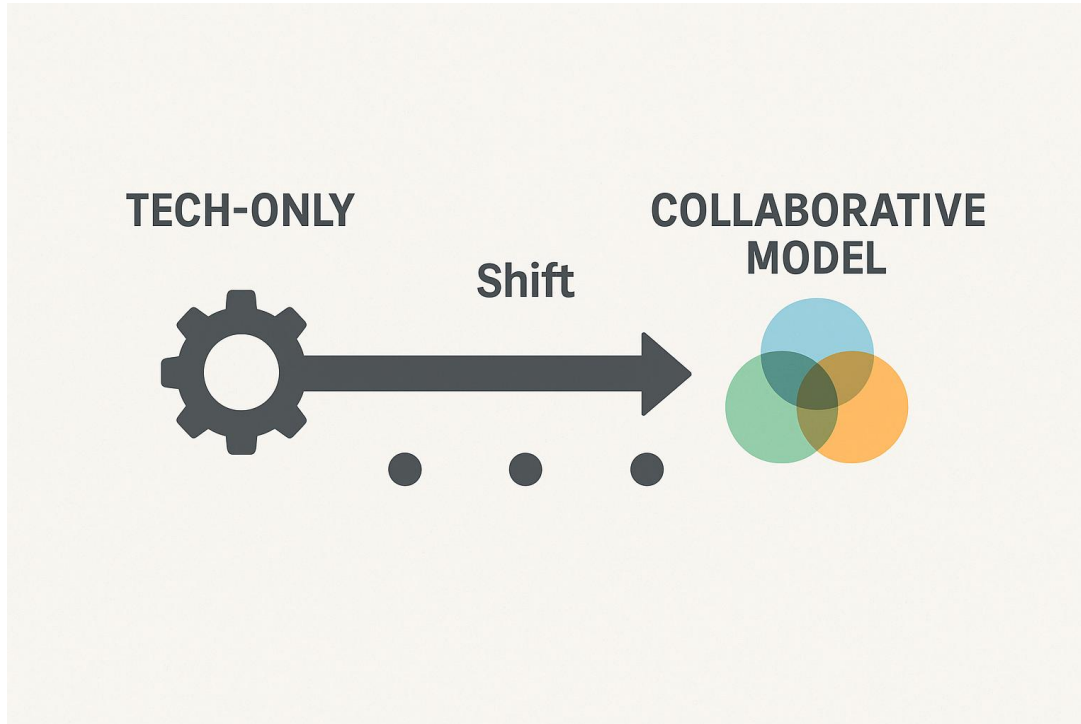
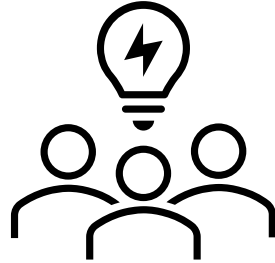


Fig: Shift from technical to collaborative model  
(Source: AI generated)

*“Current circular economy discourses within academia, politics, and relevant institutions predominantly focus on avoiding negative environmental impacts of supply chains through changes within the economic system, while **overemphasizing technological solutions**”<sup>1</sup>*

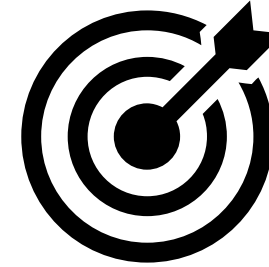
*“While the economic and environmental potentials of the transition are explicitly reflected in such notions, its relationship with **the social dimension has been inadequately explored** both theoretically and practically”<sup>2</sup>*

# What is CERN APAC ?



## VISION

An Asia-Pacific economy that is decoupled from resource extraction and waste, where resources already in the system are used efficiently, retained at peak value, and continuously cycled—while regenerating the wider systems it depends on.



## MISSION

Our mission is to foster the undertaking of rigorous research that accelerates the adoption of impactful circular economy policy, strategies, and practices in the Asia-Pacific region.

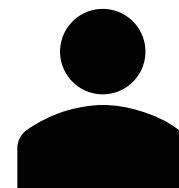




*Partner organisations*

**10** leaders

**22** stream  
leaders



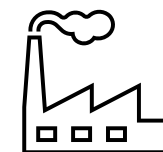
**400 +**  
members and  
growing – from  
across the globe



Academia



Policymakers



Industry



NGOs



**Textiles stream** – 22<sup>nd</sup> April  
& 27<sup>th</sup> May 2025\*

*Led by Alice Payne, Colleen  
MacMillan and Saniyat Islam*



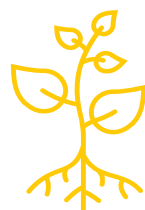
**Plastics and Packaging  
Stream** – 29<sup>th</sup> July 2025\*

*Led by Olamide Shittu and  
Kate Arnautovic*



**Water Stream** – 26<sup>th</sup>  
August 2025\*

*Led by Reba Paul and  
Harpreet Singh Kandra*



**Food and Organics Stream** –  
16<sup>th</sup> September 2025\*

*Led by Amrik Sohal and  
Himanshu Shee*



**Closing Session** –  
28<sup>th</sup> October 2025

## Panelists



**Prof. Lynette Cheah**  
**University of**  
**Sunshine Coast**



**Assoc. Prof.**  
**Hong-Quan Nguyen**  
**Vietnam National University**



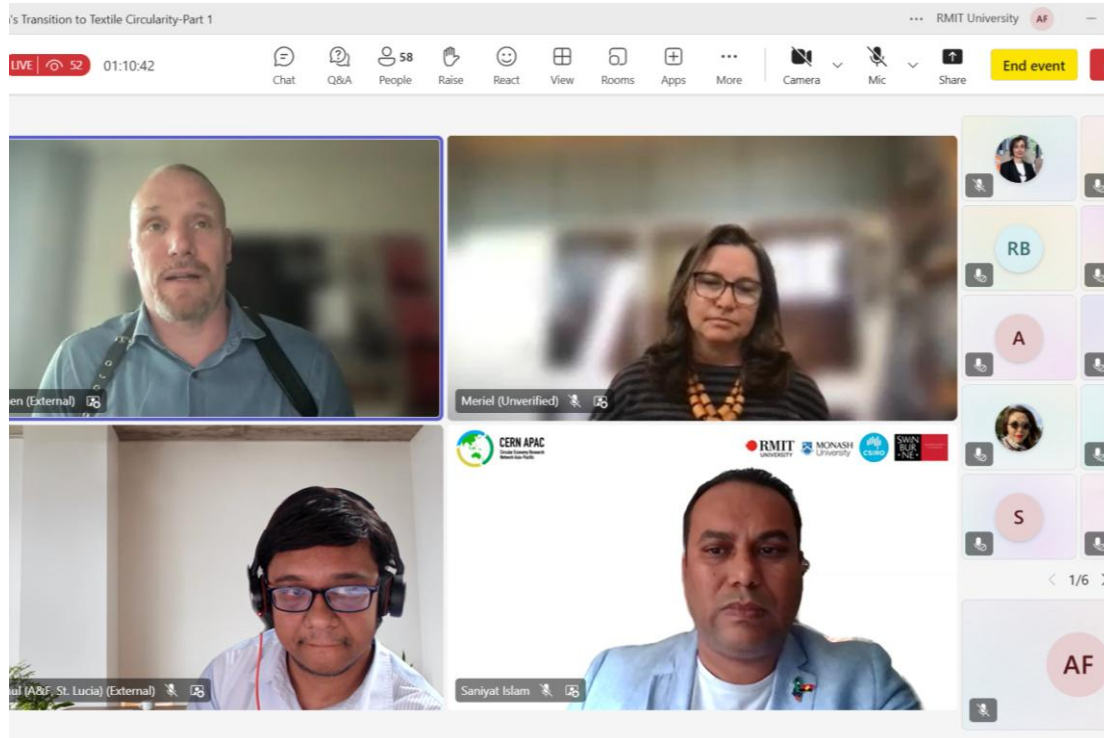
**Tania Hyde**  
**Beca**



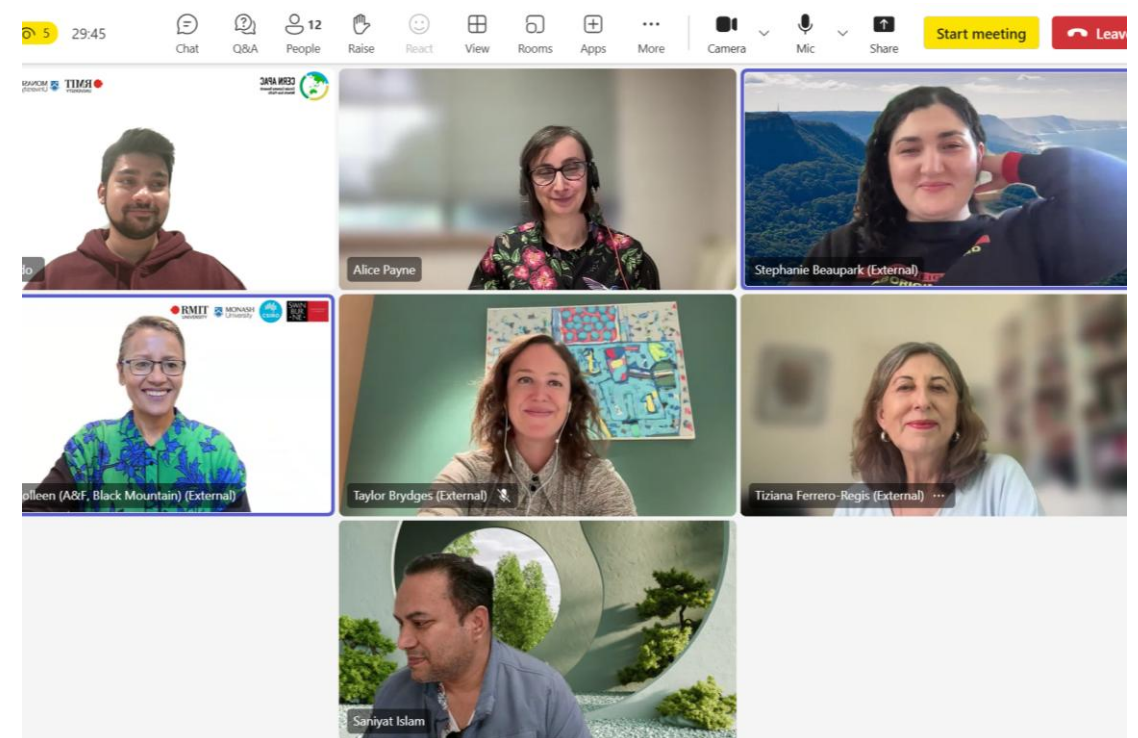
**Assoc. Prof. Junming Zhu**  
**Tsinghua University**



# Our recent CERN APAC conference session



**CERN APAC Textiles Stream (Part One)**

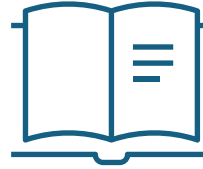


**CERN APAC Textiles Stream (Part Two)**



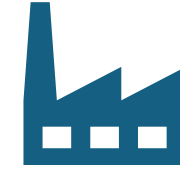
## **Construction and the built environment**

*Led by Usha Iyer – Raniga and Malindu Sandanayake*



## **Education**

*Led by Glen Croy and Ayon Chakraborty*



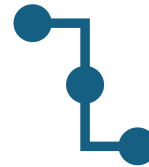
## **Manufacturing**

*Led by Roberto Chavez*



## **Governance, Policy and Resource stream**

*Led by Roelof Vogel, Akvan Gajanayake and Martin Geissdoerfer*



## **Supply Chain**

*Led by Mohsin Malik*

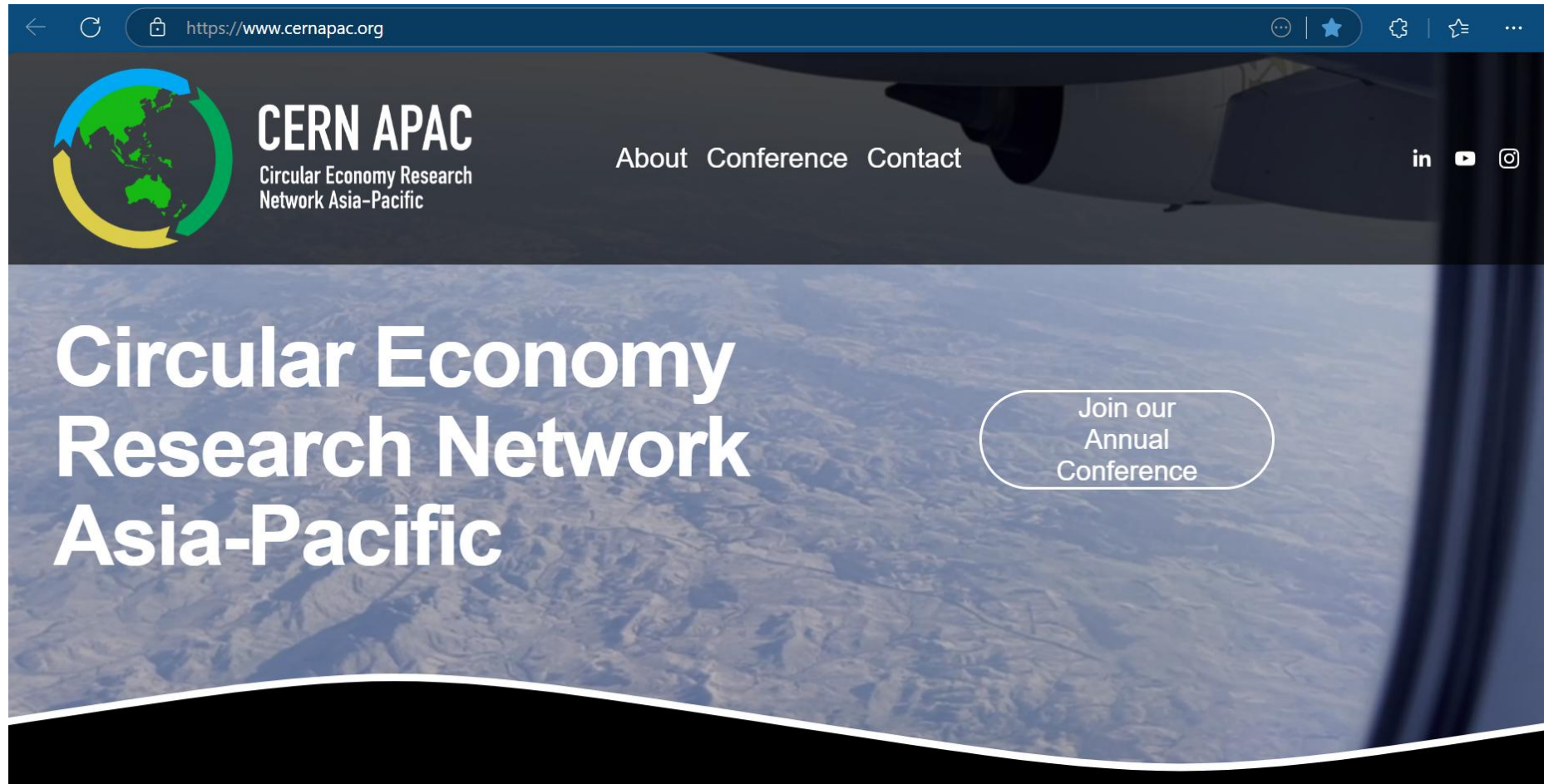


## **Early Career Academic and Higher Degree Research Forum**

*Led by Mohana Motiei, Robert Haigh, Reba Paul and Chamari Badathuruge*

# The CERN APAC Website

<https://www.cernapac.org/>





# What's next for CERN APAC?

Organise upcoming **2025 stream sessions**  
Support **PhD candidates and early career researchers**



 **Strategic Planning**  
**Medium term (mid to late 2025)**

**Establish CERN APAC** as a widely recognized hub for circular economy research  
Deliver **practical, scalable solutions** for industry



**Short term (early 2025)**

 **Build Momentum**



**Long term (>2026)**  
 **Systemic Impact**

**Set 2026 session timelines**

**Refine long-term strategy:**

- Membership models
- Deepened collaboration
- Wider outreach

# Get involved with CERN APAC

*Join a global network shaping the future of the circular economy in the Asia-Pacific.*



## Contact Points

**Prof. Usha Iyer–Raniga**

[usha.iyer-raniga@rmit.edu.au](mailto:usha.iyer-raniga@rmit.edu.au)

**Alston Furtado**

[alston.furtado@rmit.edu.au](mailto:alston.furtado@rmit.edu.au)



## Connect with Us Online



<sup>1</sup> Gözet, B, Opstal, W.V., Sebis, G., Günther, J. and Old, R. (2025) 'A Just Transition to Circular Economy: Exploring current and potential social implications exemplary for the value chains batteries, plastics, and textiles' use. ETCoCear, Europe, 10.5281/zenodo.15494624

<sup>2</sup> Liu K (2024) 'Circular economy and the separated yet inseparable social dimension: Views from European circular city experts', *Sustainable production and consumption*, 51:474-483, doi:10.1016/j.spc.2024.09.016.








# WSBE26

World Sustainable Built  
Environment Conference

10-12 June 2026  
MCEC Melbourne VIC

BEYOND THE SUSTAINABLE DEVELOPMENT GOALS: WHO, WHAT AND HOW?

MELBOURNE  
CONVENTION  
EXHIBITION  
CENTRE

-  Embrace the vision of a sustainable built environment
-  Dive deep into discussions on innovation and green practices.
-  Let your voice be heard

## ABSTRACTS SUBMISSIONS OPEN NOW!

### DEADLINE 20 AUGUST 2025



WSBE26.ORG

STAY UP TO DATE AND  
SIGN UP FOR THE MAILING LIST!





# Eco-clubs as cornerstone of environmental education, sustainability and eco-conscious living

**Dr. Kulbir Singh Bath**

Joint Director, Punjab State Council for Science and Technology, RCE Chandigarh, India

# Eco-Clubs : Cornerstones of Environment Education, Sustainability & Eco-Conscious Living



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**Dr. K.S. Bath**

Joint Director, Punjab State Council for Science & Technology

-cum-

Coordinator, RCE Chandigarh, India



# About Eco - Clubs



- Eco-Clubs are student-led groups promoting environmental awareness & action.
- They serve as platforms to educate, engage and empower youth in sustainability.
- Aligned with national and global goals like Mission LiFE, SDGs & NEP 2020.



## Objectives

- Fostering environmental awareness through education and outreach.
- Encouraging active participation in sustainable practices.
- Developing a sense of eco-responsibility and leadership in youth.
- Promoting green lifestyles and behavioral change.



**Green Pledge by Eco-Warriors**

# Eco-Clubs & Sustainability in Environment Education

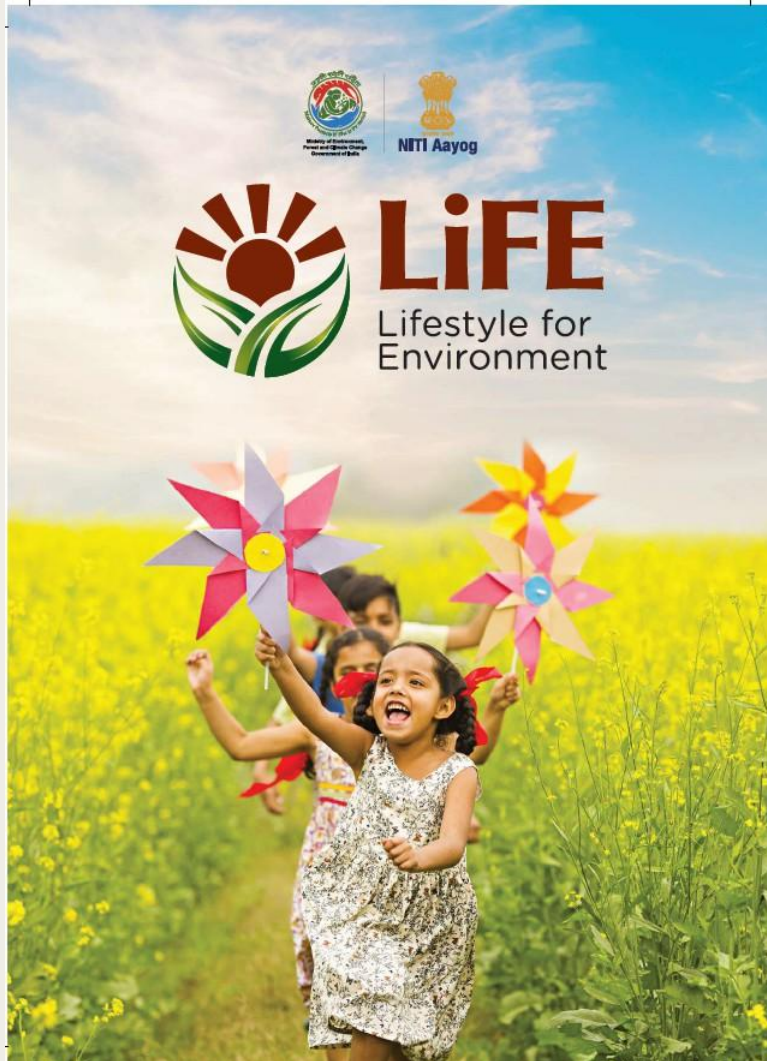


- Creating awareness on environment & climate change issues.
- Promoting Mission LiFE practices.
- Action Oriented Learning - Clean-Up Drives, Waste Management, Plantations, Auditing etc.
- Leadership & Participation - Teamwork, Green Leadership, Planning & Implementation.
- Community Outreach - Collaborate with other organizations / local bodies on Eco-Projects.
- Celebrating global environment days.
- Integrating sustainability in education.
- Promoting field based & experiential learning.





# Mission LIFE (Lifestyle for Environment)



## ALIGNMENT WITH MISSION LIFE



An India-led global mass movement to nudge individual and community action to protect and preserve the environment



# Networking of Eco - Clubs in Punjab



Districts in Punjab

23



No. of registered Eco-Clubs

8,207



- **Eco-Clubs** conduct a variety of environment education activities
- **Promote hands-on-learning & fostering environmental responsibility**



**Sustainable Lifestyle Workshops | Projects | Exhibitions | Competitions  
| Campaigns | Nature Camps | Summer Vacation Camps**



# Unique Initiatives by Eco - Clubs



Gainful Utilization of Water Hyacinth



Waste Collection & Segregation



Bird Nest Making



Seed Ball Activity



Zoo Leaf



Eco-Fashion Show



# Unique Initiatives by Eco - Clubs



Awareness through Rally



Community Wetland Awareness



Eco-Models



Eco-Crusader



Poster - Competition



Nature Study Camp



Nature Camp



Waste to Wealth<sup>88</sup>





## Student led action project to reduce Carbon Footprint

- A team of six Grade 9 students formed as Climate Action Leaders to promote climate awareness.
- They conducted Nukkad Natak during morning assembly and created a climate bulletin board highlighting facts and individual actions.
- To assess their school's carbon footprint, the team surveyed electricity use, transport, water consumption and waste generation.
- Based on the survey findings and project feasibility, they chose to focus their efforts on waste management initiatives.



# Turning Waste into Worth



- The team with support from teachers, initiated wet & dry waste segregation and learned vermicomposting from a local farmer using dry leaves from 150 school trees to produce manure for gardening.
- For plastic waste management, students partnered with a local recycler & collected 35 kg of plastic waste.
- After participating in GenCAN, students' improved awareness and behavior led to a reduction of plastic waste by 20 kg.
- Inspired by the students, 3 teachers also began carpooling to reduce daily CO<sub>2</sub> emissions, as shared by mentor teacher Ms. Amarjeet Kaur



# Tide Turners Plastic Challenge

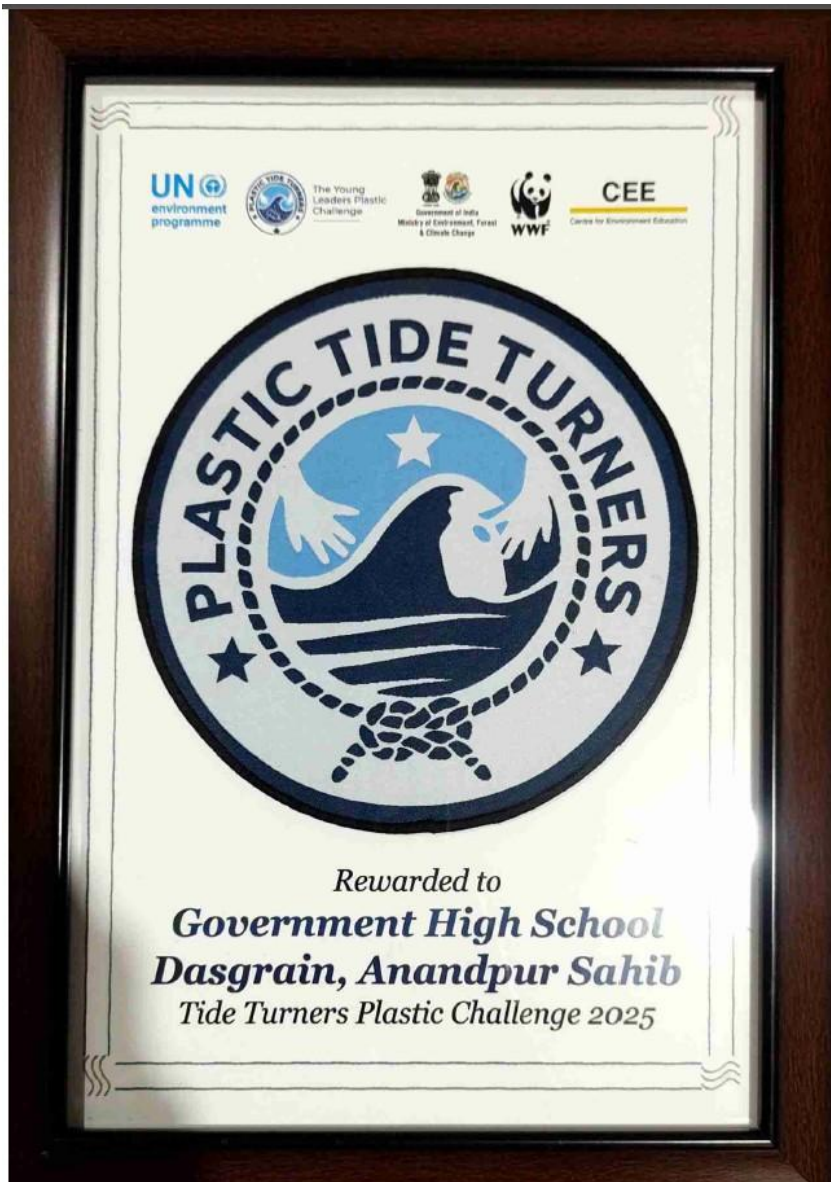


- **Tide Turners Plastic Challenge** is UNEP initiative to promote Waste Segregation & Plastic Reduction.
- The school participated in the challenge through student-led action project.
- 208 eco-warriors actively engaged in various awareness & action-driven activities such as waste segregation drives; street plays on plastic pollution; rallies, debates & media write-ups.
- Students segregated biodegradable & non-biodegradable waste and collected >30 kg of plastic waste which was handed over to the Indian Pollution Control Association for recycling.





# UNEP Recognition to Eco-Club



**Govt. High School, Dasgrain honored with Tide Turners Plastic Challenge Award- 2025**

**Mr. Shombi Sharp** (UN India Resident Coordinator); **Ms. Dia Mirza** (UN Environment Goodwill Ambassador for India); **Ms. Rebecca Picard** (Deputy High Commissioner, UN India) presenting award for school's innovative approaches to minimize plastic waste



The Eco-Club Govt. High School, Malkon in remote area of district Mansa has demonstrated model of sustainable practices in the school campus.

- The school adopted a strict plastic-free policy & ensure the use of LPG for cooking mid-day meals.
- To encourage eco-friendly practices, cloth bags and plant saplings are gifted to students during birthdays and Parent- Teacher Meetings.
- Initiatives like sock pit composting, use of RO waste water for watering plants and bicycle commuting aim to reduce the school's carbon footprint.
- The school undertakes extensive plantation drives, including the creation of **‘Nanak Bagichi’** with **40 varieties of native and medicinal trees**.
- School has installed solar power system to save energy & undertakes regular activities like workshops, campaigns & celebration of key environment days to foster a culture of sustainability.
- The school has been rated as Green School for two years in running.



# State Level Honour for Environmental Leadership



Eco-Club Govt. High School, Malkon (Mansa) conferred with Shaheed Bhagat Singh Punjab State Environment Award- 2025 on the occasion of State Level Function of World Environment Day-2025

# Eco Creativity & Innovation Hackathon



Eco-Clubs actively participate in various competitions and innovation hackathons which provide a platform to showcase their creativity and propose sustainable solutions to pressing environmental challenges.





# Innovations for a Greener Tomorrow



Asees Singh from DAV Public School, Pakhowal (Ludhiana) developed an innovative project titled 'Chimney Smoke to Useful Products' aimed at reducing air pollution. His model captured smoke from automobile exhaust and converted it into valuable items such as black ink, paint, wax crayons & shoe polish. This innovative project highlighted waste-to-resource conversion for a cleaner environment



Abhishek Dhanda from BCM Arya Model Senior Secondary School, Ludhiana through his project titled, 'The Vermi Kendra - Automated Vermi-composting Centre' pioneered an automated unit using smart technology to optimize conditions for vermicomposting & making the conventional waste system more sustainable



# Young Minds, Big Impact



Charan Katyal from Pathseekers, Beas, Amritsar in his project titled, 'RO Waste Water for Hydroponics' offered a practical solution to reuse of RO waste water for hydroponic farming by utilizing nutrient-rich reject water from RO systems to grow plants in soil less conditions, conserving both water and resources.



Muskan from Government High Smart School, Jhanduwal (Ferozepur) in her project titled, 'Innovative Bio-Enzyme Solution' prepared a bioenzyme using stubble waste, citrus peels, jaggery and an extract of the Dhatura plant (*Datura stramonium*). The result was a multipurpose solution that worked both as an effective cleaning agent and a natural bio-pesticide.

# Cultivating Sustainability through Environmental Auditing

Encouraging schools to conduct rigorous environment audits.

Transform school campuses into models of sustainability.

Evaluate resource use & identifying areas for improvement across six key domains. Submit audit reports for evaluation at the national level.

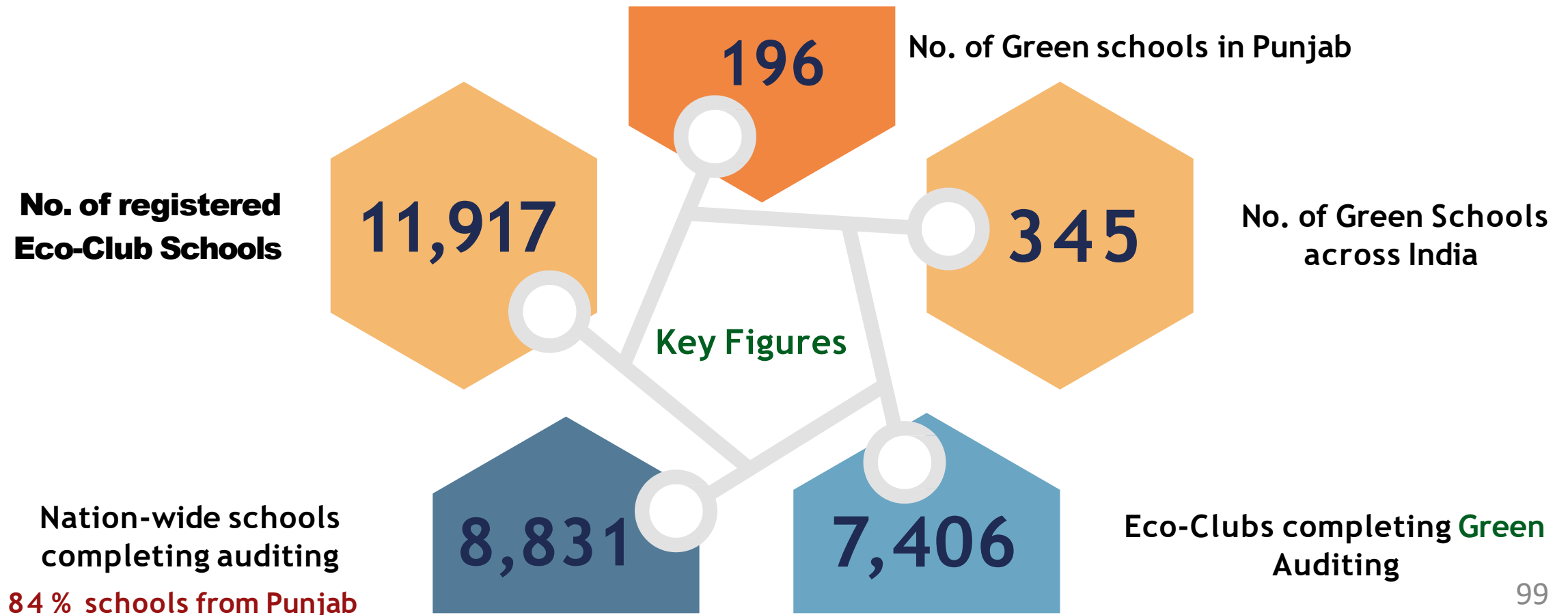




# Sustainability through Green Auditing



- PSCST played a pivotal role in transformation of state's schools through green auditing.
- Green auditing showcased Punjab's unwavering commitment to sustainability.



The Green Schools Awards 2025

## BEST STATE



### PUNJAB

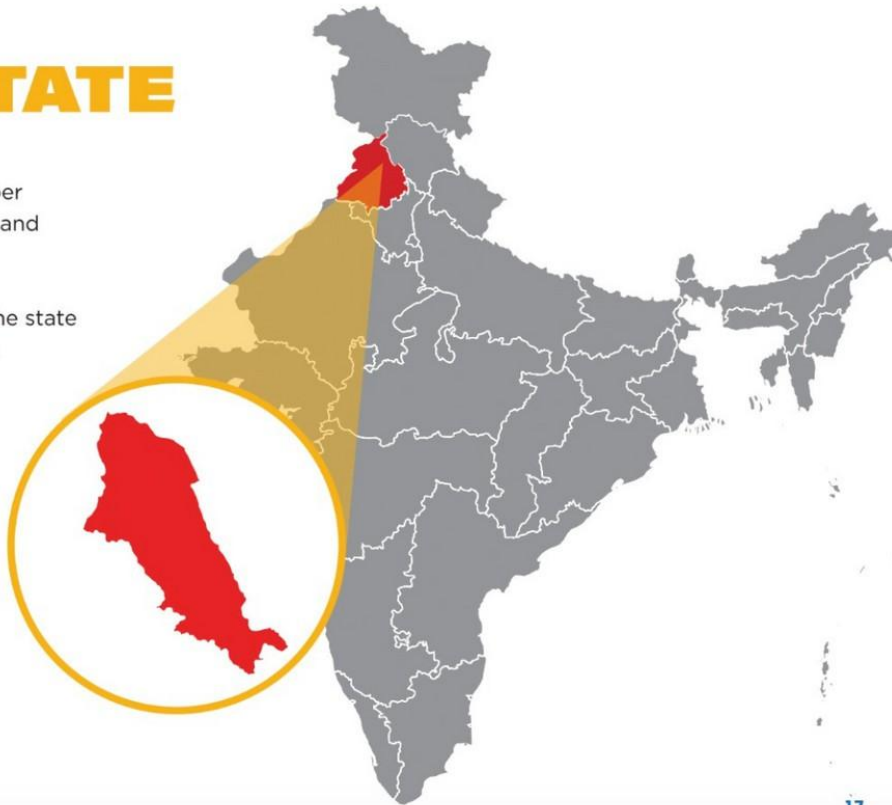
For the highest number of audit registrations and report submissions.

7,406 schools from the state submitted the report;  
196 rated green.

### BEST DISTRICT

#### Hoshiarpur, Punjab

1,945 submissions



17



## GREEN SCHOOLS PROGRAMME

[ABOUT CSE](#) [FAQS](#) [CONTACT US](#)[GSP AUDIT REGISTRATION](#)[GSP AUDIT LOGIN](#)[Is your school green?](#)[REPORTS AND CERTIFICATES](#)[GSP AUDIT@HOME](#)[SCHOOLS](#)[STUDENTS](#)[TEACHERS](#)[KNOWLEDGE BANK](#)

Best Green State: Punjab

**PUNJAB** won Best State & **HOSHIARPUR** Best District Awards from Centre for Science & Environment for two consecutive years



# Wipro Earthian Educators Programme



- One of India's largest school programs aimed at promoting excellence in sustainability thinking and action.
- PSCST partners with Wipro Foundation to organize the programme in Punjab.
- Students engage in projects on key themes like **Water, Waste & Biodiversity** and submit detailed reports for national-level evaluation by Wipro.





# From Local Roots to National Recognition

Eco-Club schools have undertaken innovative environmental projects & consistently earned recognition at the national platforms.



2022  
GHS, Dasgrain, Rupnagar  
Waste



2023  
GSSSS Model Town, Patiala  
Waste



2024  
GSSSS, Kot Khalsa, Amritsar  
Waste



# Community Outreach by Eco-Clubs

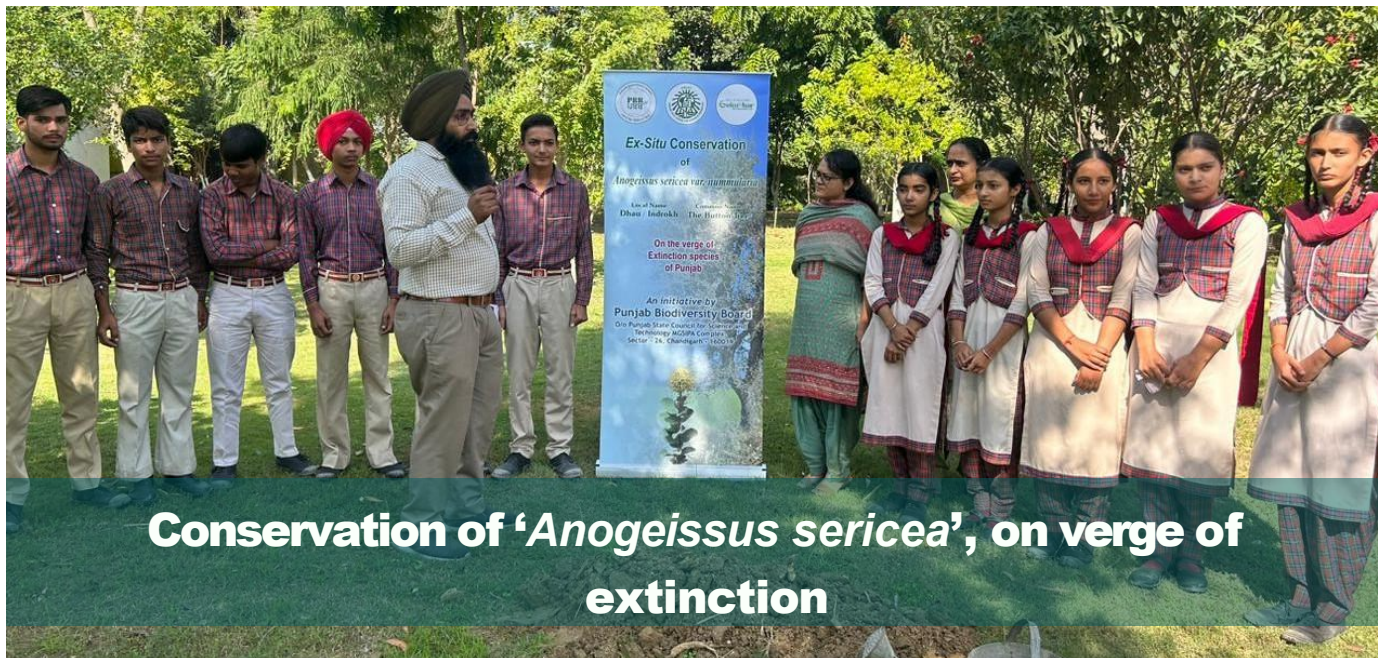


Eco-Club students actively engage in impactful initiatives such as *nukkad nataks*, rallies, awareness campaigns & community dialogues and shed light on pressing environmental issues like water scarcity, waste management & stubble burning. These young leaders are not only spreading awareness but also emerging as inspiring change-makers within their schools and communities.





Massive participation in impactful Campaigns like *Ek Ped Maa Ke Naam* (#Plant4Mother); *Nanak Bagichi* (Miyawaki); *Poshan Pakhwada* (Nutrition Awareness Campaign); *Swachhta Pakhwada*; *Jal Pakhwada*, #PhirSeChipko & celebration of Environment days.



Plantation of around 20 lakh saplings by Eco-Clubs in 2024-25

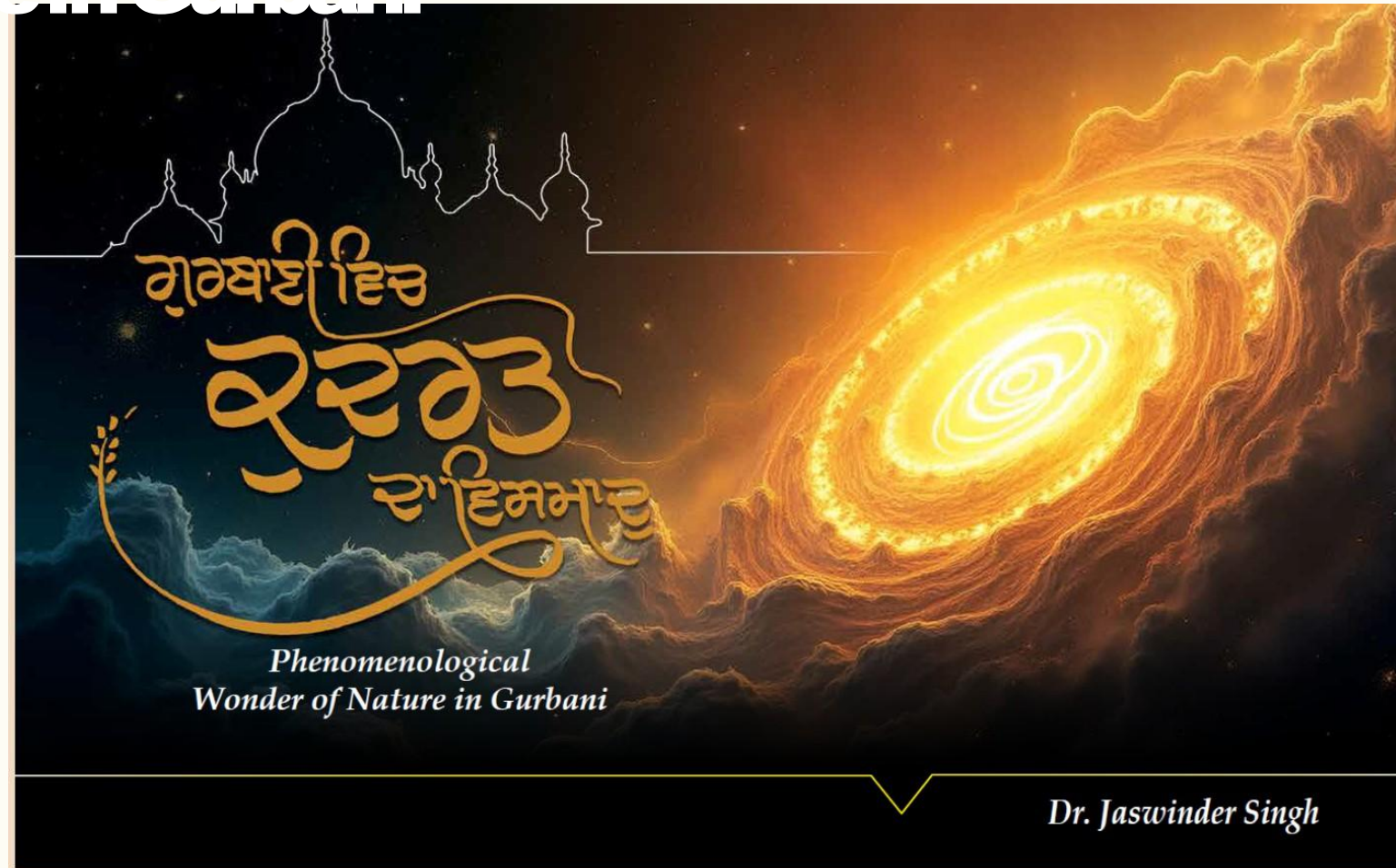
Outreach of >10,00,000 students, youth & teachers per year in Eco-Club activities



# PSCSTs Green Initiatives Earn National Recognition



# Phenomenological Wonder of Nature in Gurbani



**‘Phenomenological Wonder of Nature in Gurbani’ beautifully weaves sacred verses to illuminate the deep bond between humanity & nature, echoing a timeless call for its reverence & protection**



# Thank You!





# Introductory changes to curricula in the Kyrgyz Republic

**Associate Professor**

Arabaev Kyrgyz State University (AKSU), RCE Kyrgyzstan

# Hybrid Session of ProSPER.NET and UNU-IAS on Greening Education: Transforming Circular Economy Education for Future Generations 07.07.2025

AKSU/RCE Kyrgyzstan

“Introductory changes to curricula in the Kyrgyz Republic”



Prepared by  
Dr. Sadykova Chinara

## Arabaev Kyrgyz State University (AKSU)    RCE Kyrgyzstan

AKSU mission is the training and retraining of teachers/educators for schools and universities.

Students                      17 211

Teaching staff 966:

Doctor of Science            57

Candidate of Science        268

PhDs                            5

There are:

Institutions                    11

Faculty's                        4

College                         1

Acknowledged in 31 of May 2007 by UNU/IAS (Tokyo, Japan).

RCE KG are aimed at raising awareness on ESD among educators and SH, reparation of manuals and conducting trainings, round tables and conferences, development of information materials and curricula/ implementing SDGs and achieving Agenda 2030.

- Implemented capacity building projects

Conducted international conferences:

- 13 AP RCE meeting in 2020-2021

on-line

- 16 AP RC meeting in 2024 in Bishkek Kyrgyzstan



# Circular Economy Integration for Sustainable Built Environment Education Prosperity: Circular Economy, joined ProSper.net project 2023

Participating institutions and leads:

1. Project Lead by RMIT University, Prof Usha Iyer-Raniga
2. Peradeniya University, Ms Kamani Sylva
3. TERI School of Advanced Studies, Dr Aviruch Bhatia
4. AIT, Dr Inderjit Pal
5. Arabaev Kyrgyz State University, Dr Sadykova Chinara

# Project objectives

1. Review the impact and contribution of case studies to teaching and learning
2. Develop a repository of case studies (at least 2 per institution)
3. Integrate into the curriculum and where possible identify areas for restructure
4. Changes to curricular architecture to drawn in industry and community
5. Update case studies



# Introducing in curricula CE & Relevant SDGs

## CE indicators

- Waste management (waste reuse, waste collection,
- Adaptation of low cost technology
- Reduce pollution (air, water, land)
- Conservation of biodiversity

## Social impacts

- Recovering traditional knowledge's
- Use safety materials
- Reduce impact from environment
- Share experience and best practices



## Project outputs

- Reviewed the impact and contribution of case studies to teaching and learning
- Developed a repository of case studies (at least two per institution)
- Integrated all case studies into the curricula of bachelor's and master's programs
- Participated in and present at webinars
- Prepared and published two scientific articles
- Promoted behavior change among teachers and students toward a greener lifestyle

From 2024 AKSU with other 11 Universities implementing "Digital and Green Universities for Sustainable Development of the Kyrgyz Republic" project

### Project goals:

1. **Sustainable Development:** Promoting green technologies and practices in universities.
2. **Digitalization:** Enhancing education quality through digital tools for green development.
3. **Awareness:** Educating students and staff on sustainability and green economy.





# AKSU created Center for Green Technologies and Natural Resource Management

With the aim of building capacity for secondary school and higher education institution educators:

- Conduct Training of Trainers (ToT)
- Develop programs and curricula, and create materials on the green economy and circular economy (CE)
- Introduce a new curriculum in bachelor's programs across all AKSU institutions and faculties
- Create Green Campus



# Curriculum implementation

- In 2024-2025, the course was added to the second-semester curriculum for Geography, Biology, Chemistry, Ecology, Tourism, and Theology students.
- As part of the “Global Challenges and Sustainable Development” program for master’s and distance learners.
- Curriculum a teaching lectures and methodological package prepared based on materials developed with GOPA AFC, GIZ, and donors like the EU and SDG.



# Activities

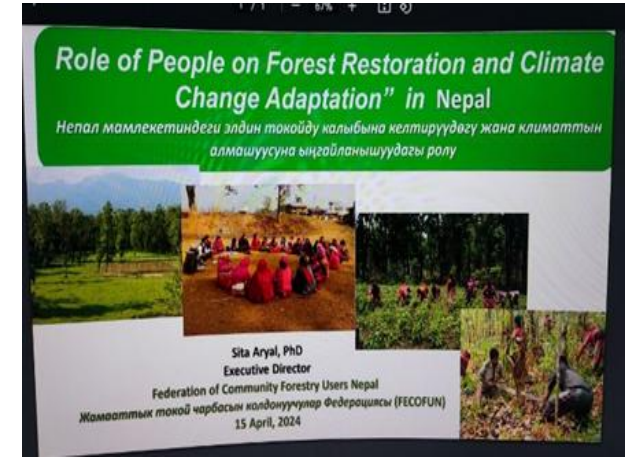
- From February to June, two-week online courses on the green economy and green skills were held in partnership with the Ministry of Education's training institute, GOPA AFC, and GIZ.
- Over 500 teachers were trained and certified. Introductory lectures were also held for ministry staff, educators, farmers, and other stakeholders.





# Cooperation

- Thirteen online lectures were held with professors from universities in Nepal, Europe, Ethiopia, Tajikistan, and Kyrgyzstan, as well as experts from organizations such as UNISON, GIZ, GOPA AFC, CAMP Ala-Too, and others.
- Since November 2024, eighteen additional applied lectures have been conducted with both local and international speakers.



# Lessons learned

- Share international knowledge and experience
- Create cooperation among Asia-Pacific universities
- Continue collaboration
- Involve experts for lecturing
- Use practical methods and a scientific, holistic approach
- Develop new joint activities
- There was positive feedback from students on the lectures delivered

# Thank you for attention!







# Construction waste as a circular economic business model

**Ms. Kamani Sylva**

Senior Lecturer, Faculty of  
Engineering, University of Peradeniya, Sri Lanka

# ***Construction waste as a circular economic business model: The Changing Perspectives***

**Greening education: Transforming circular economy education for future generations**

The 20th International Conference on Waste Management and Technology  
(20th ICWMT 2025/ 2025 Waste Global Forum)

## **Ms. Kamani Sylva**

Senior Lecturer, Dept. of Engineering Management / Deputy  
Director (Research and Environmental Management)  
Center for Environmental Sustainability (CES)  
University of Peradeniya (UOP), Sri Lanka



## *Introduction to the Business Model*

### *The Change in Concepts*

### *Construction Waste as a Circular Economic Business Model*

### *Challenges in Lower Order Circular Economic Business Models for Construction Waste*

### *Changes Needed in Education – Higher Order Thinking in Construction Waste Management*

The transition to a **circular economy** requires transformative changes in business models

The regular business model concepts, **value creation, value delivery and value capture**, are changing

Unlike traditional linear models that follow a “**take, make, dispose**” approach, a circular economy focuses on **resource efficiency, waste minimization**, and **value retention** throughout product lifecycles

**Education in Sustainability needs to be aware of the changes in business models**

Applies to Waste Management and Technology



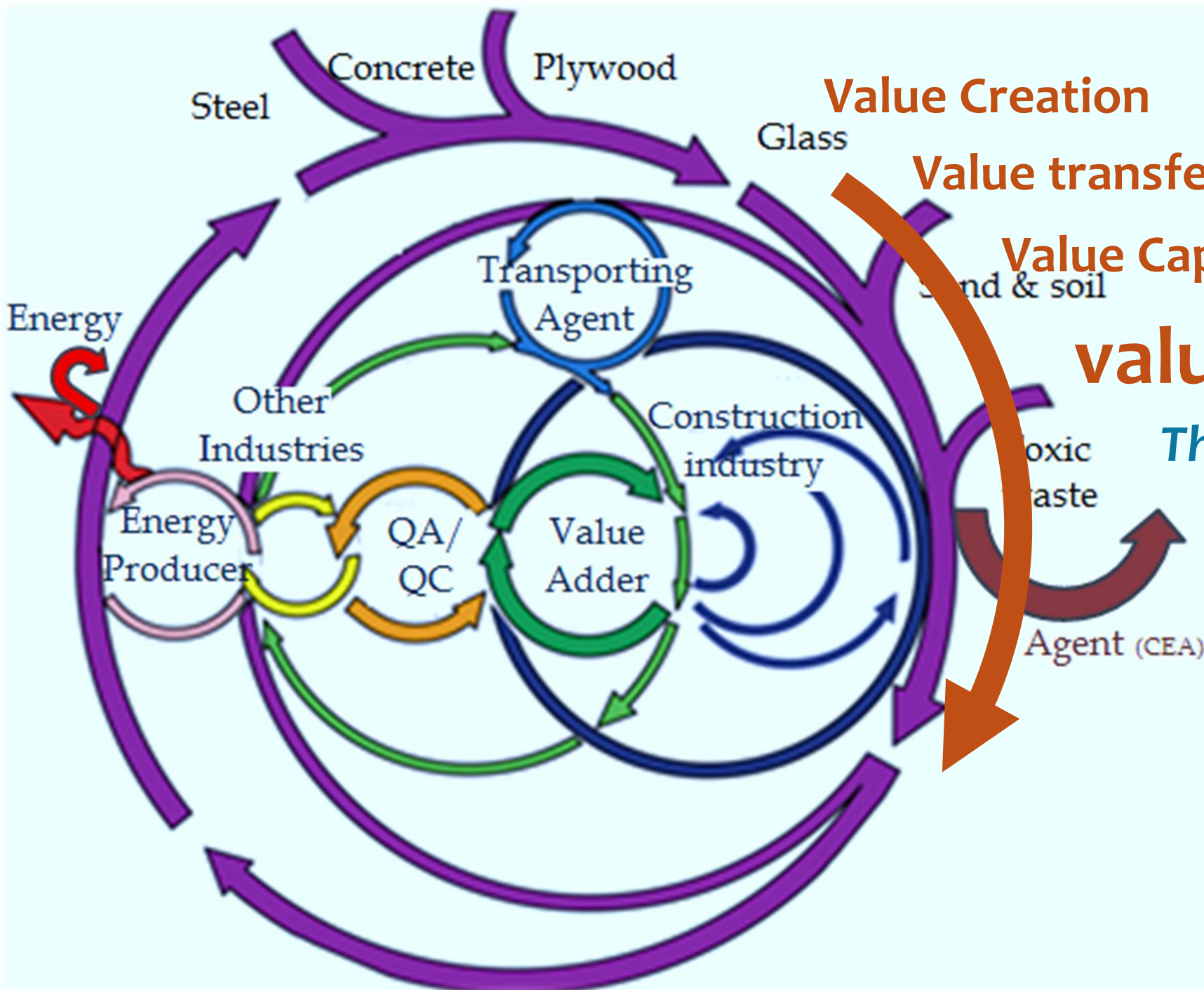
# *Introduction to the Business Model*

A business model is a simple plan that shows:

- What value you promise to customers (value proposition)
- How you create that value (value creation)
- How you give it to customers (value delivery)
- How you earn from it (value capture)

*The Change in Business Models with introduction of sustainability concepts*

- value creation
- value transfer/sharing
- value capture
  
- value retention



**Construction Waste**  
*as a Circular Economic  
Business Model*

**Value Creation**  
**Value transfer**  
**Value Capture**  
**value retention**  
*Throughout the lifecycle*

Figure 1: The Circular Economic Model for Construction Waste Management

Thennakoon, T.M.C.Y., Nawarathna, N. M. H. B. and Sylva, K. K. K., 2017. A circular economic model for construction industry waste management. In: 8th International Conference on Structural Engineering and Construction Management, Kandy, Sri Lanka, December 7 – 10, 2017.

# **Challenges for Lower Order Circular Economic Business Models of Construction Waste**

Technical

Economic

Policy & Regulation

Organizational Culture

Logistics & Infrastructure

Knowledge & Awareness

Environmental & Social

- Waste heterogeneity, low-quality recycles, lack of standards
- High costs, weak markets, low profitability
- Weak enforcement, poor incentives, restrictive codes
- Resistance to change, fragmented supply chain
- Poor reverse logistics, limited on-site resources
- Data gaps, weak collaboration, consumer skepticism
- Emission trade-offs, health concerns, social resistance

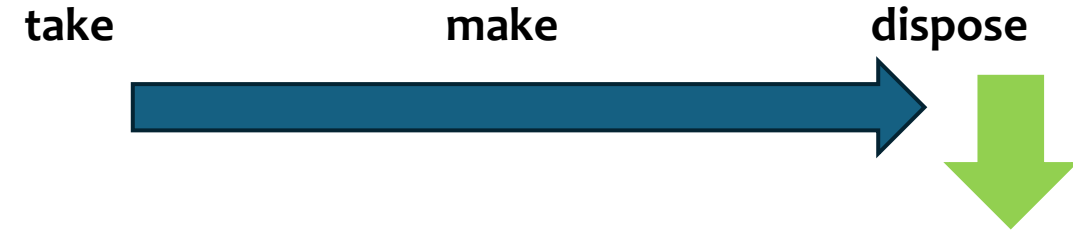
**Each challenge is an opportunity for innovation, policy reform, and smarter design.**



# Changes Needed in Education – Higher Order Thinking in Construction Waste Management

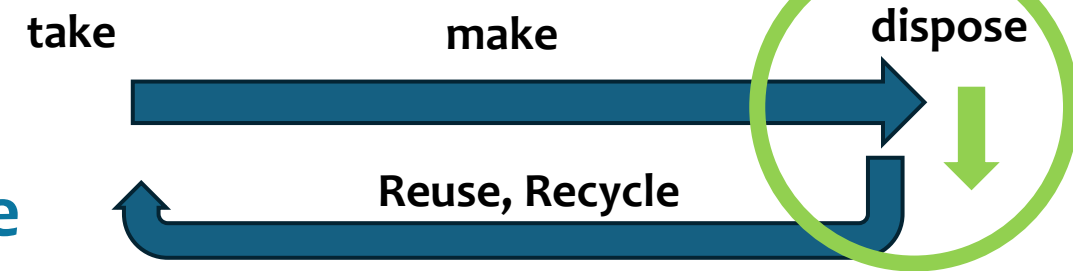
value delivery

## Linear Economy



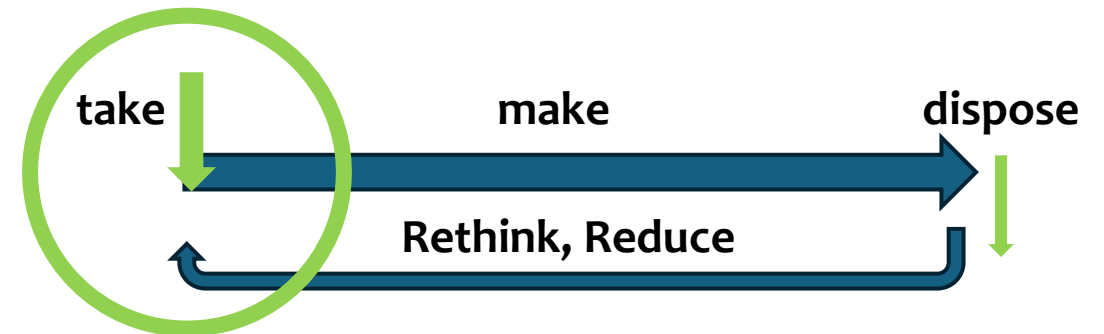
value transfer/share

## Circular Economy



Change in total  
value

Direct + Indirect



## Example: Modular Constructions

*Innovation in Higher  
Order Circular  
economic  
applications in  
construction industry*



**Rethink, Reuse, Reduce**

↓

**Create   Transfer   Capture**

Case Study developed through ProSPER.Net funding  
Palukadawala, A.M.U.D., Dissanayaka, S.M. (2023) **Applications of circular economy in road construction projects in Sri Lanka**, The 14th International Conference on Sustainable Built Environment. 15 – 17 December 2023, Kandy, Sri Lanka, pp.35

*Greening Education  
should focus on  
construction waste  
reduction*

*Pay attention to  
Higher-Order Circular  
Economic Strategies*

*Zero Waste  
Business Models*

*Construction Waste as a Circular  
Economic Business Model:  
The Changing Perspectives*

**Value retention  
throughout the life cycle!**

**Thank You!**





# The Role of Thai Higher Education in Promoting Circular Economy

**Ms. Nuntinee Malanon**

Deputy Director Centre for SDG Research and Support,  
Thammasat University, Bangkok, Country Manager, SDSN,  
Thailand



# The Role of Thai Higher Education in Promoting Circular Economy

7 June 2025

**Nuntinee Malanon**

The Centre for SDG Research and Support  
Thammasat University

# Circular Economy

Climate change exacerbates environmental degradation and resource scarcity, leading to a range of challenges like decreased water availability, reduced agricultural yields, and intensified competition for resources. This can lead to increased vulnerability of ecosystems and human populations, especially those in already water-stressed regions.





# Circular Economy



The concept of a circular economy (CE) has emerged as a critical model for achieving sustainable development. In Thailand, this model has been recognized and embedded within national strategic frameworks.

# National Strategies for Circular Economy

- Thailand's 20-year National Strategy (2018–2037) includes sustainable development goals in economy, society, and environment.
- Emphasizes good governance and partnerships, domestically and internationally
- 13th National Economic and Social Development Plan (2023–2027) focuses on efficient use of resources and sustainable natural resource management
- Promotes a low-carbon, sustainable society.
- Implements BCG (Bio-Circular-Green) Economy Model.

# Waste Management Challenges in Thailand

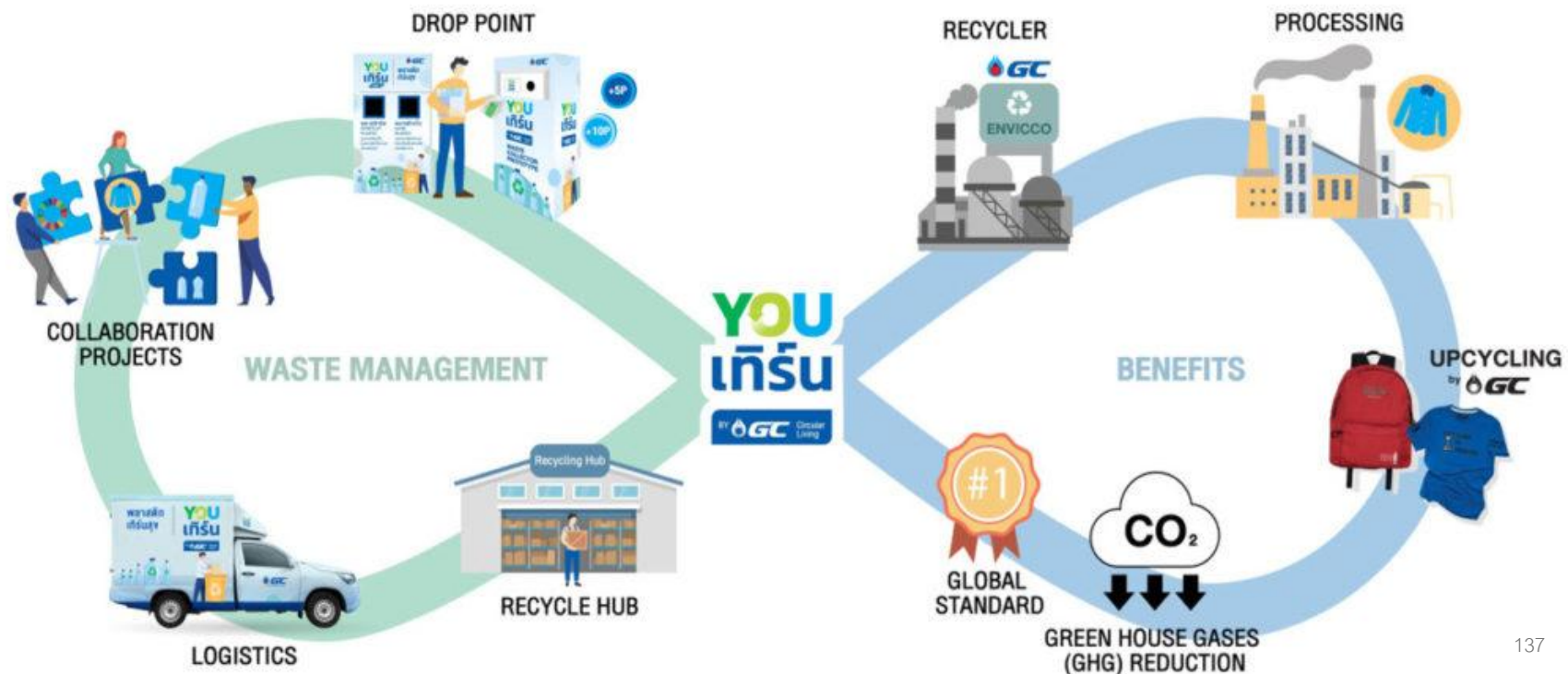
- ★ **Plastic** packaging dominates waste; only **17.6%** of plastic resin recycled.
- ★ **87%** loss in material value
- ★ **64%** of municipal solid waste is organic; only **43%** properly managed.





# Universities as Living Laboratories for Circular Economy

Thai higher education institutions are increasingly playing a transformative role in advancing the circular economy through education, innovation, campus initiatives, and partnerships. They are becoming living laboratories where circular practices are tested, taught, and scaled.



# Thammasat University Urban Rooftop Farm



1. Combines traditional rice terrace farming + **modern green roof** tech.
2. Demonstrates **closed-loop systems** with rainwater use, composting, and solar power.
3. Functions as an **outdoor classroom** on sustainable agriculture.



# Chula Zero Waste Program



1. Emphasizes **Reduce, Reuse, Recycle**.

2. **My Bottle & My Cup** campaigns promote reusable containers.

3. **Green Office** Policy includes sorting bins for hazardous & electronic waste.



# Innovation, Curriculum, and Talent Development

Thai universities are also cultivating the next generation of circular economy leaders by embedding CE concepts into **teaching, research, and innovation ecosystems.**



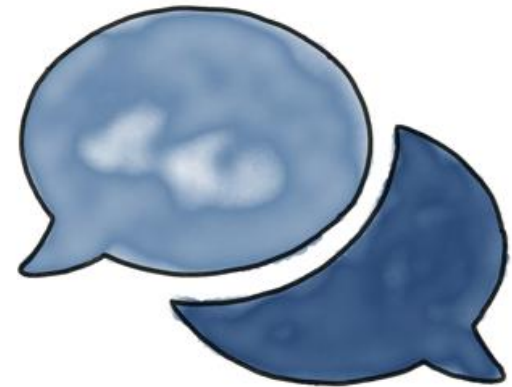
**Initiative**



**Planning**



**Creativity**



**Communication**

# Innovation Mechanisms in Universities

- ★ **Thammasat University's** Hub of Talents fosters sustainable material innovation.
- ★ **University of the Thai Chamber of Commerce's** Circular Economy Academy builds knowledge and networks among entrepreneurs and consumers.



# Circular Economy in Curriculum and Research



- ★ **Kasetsart University's 'Circular Lifestyle'** course integrates life cycle and participatory analysis.
- ★ **Thammasat's Circular Innovation Challenge** engages youth in CE innovation.





# University-Industry Partnerships

- ★ **Rajabhat Rajanagarindra University and Dow Thailand:** joint certificate program in circular economy.
- ★ Industry experts contribute to curriculum and training.



# Opportunities for Thai Universities

- 1. Innovation and Research Hubs** - Universities can become **living labs** for circular economy practices.
- 2. Education and Mindset Shift** - Embedding circular economy topics in curricula
- 3. Public-Private Collaboration** - Partnerships can lead to real-world impact and shared resources
- 4. Policy Advocacy and Pilot Projects** - Advocating for better policy frameworks and pilot circular systems



[www.sdgmovement.com](http://www.sdgmovement.com)



[www.sdsnthailand.com](http://www.sdsnthailand.com)



## Panelists

Chair By:



**Anupam**



**Daniela**



**Jatinder**



**Zhu**



**Usha**



**Subarna**

# Panel Discussion Questions

- 1) In what ways can universities collaborate with external stakeholders (industry, government, NGOs) to create and implement circular business models in their operations, and what benefits can be observed from these practices?
- 2) Learning from regional capacity building activities in the region of the Western Balkans. What needs to be considered when students/life-long learners are equipped with circular economy skills during non-formal learning settings?
- 3) The role of research is to solve problems and improve lives and wellbeing. How can collaborative practices such as CERN APAC assist in broadening and deepening research impact?
- 4) What strategies can universities employ to foster interdisciplinary collaboration across faculties, ensuring a comprehensive approach to circular economy education that reflects real-world complexity?
- 5) How can higher education institutions effectively integrate circular economy principles into their existing business curricula to prepare students for future challenges in sustainability?

**Open Q&A**



## Closing Remarks

**Prof. Prabhat Verma**  
The University of Osaka, Japan



# *Thank you!*

## *Acknowledgement of our supporting team:*



**Mr. Avelino Jr. Mejia**  
**UNU-IAS**

***Ave***

**BCRC China team**