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The Education University of Hong Kong

Pathways for greening TVET institutions

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UNEVOC Center (Hong Kong)

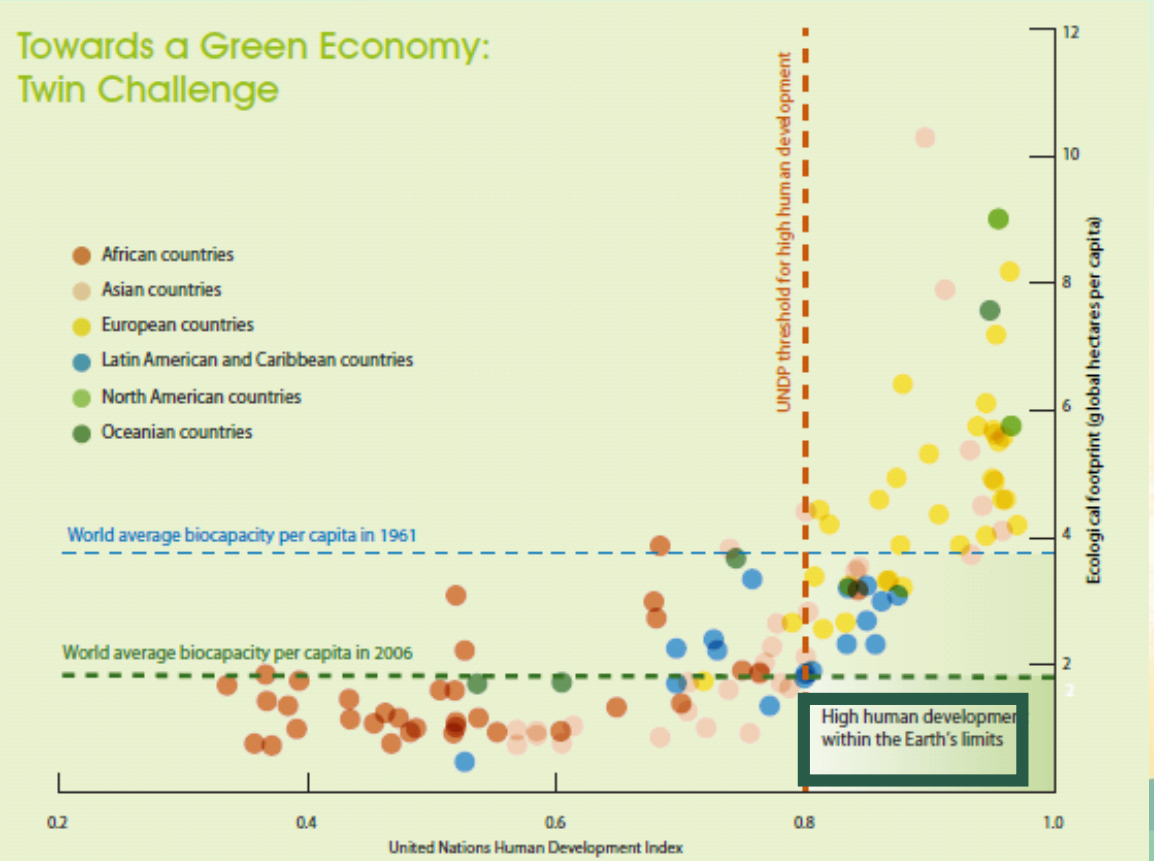
7 March 2024

Key Points

1. Green and just transition
2. UNESCO priorities for TVET
3. Greening institutions
4. Critical parameters to consider: top-down and bottom up approaches
5. How to measure the impact of greening TVET?
6. Summary points

Green and just transition

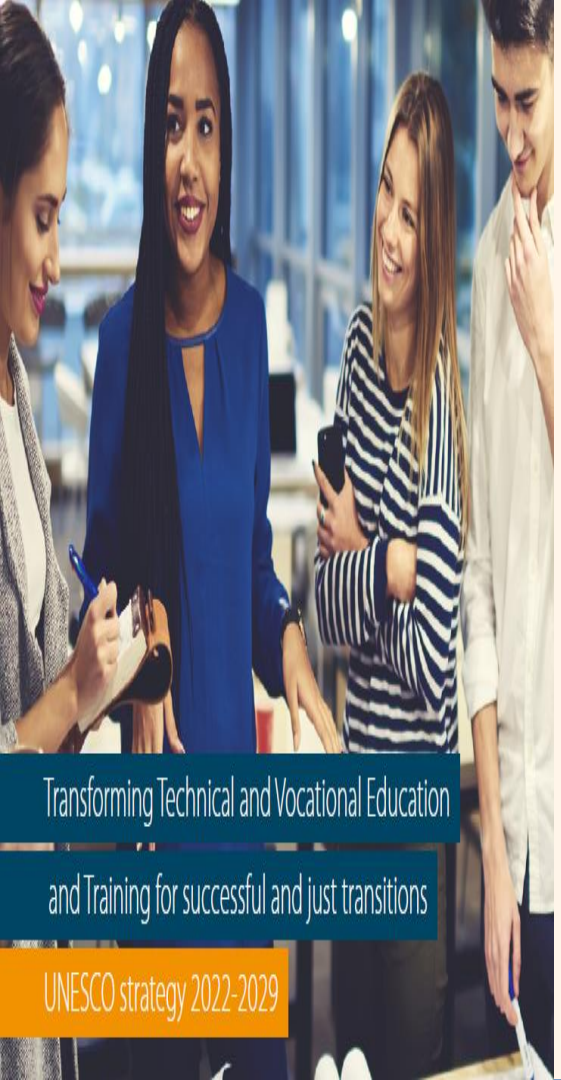
Pathway is a ‘way of achieving a specified result; a course of action’



The ILO (World Economic Forum, 2023) defines a just transition as “*greening the economy in a way that is as **fair and inclusive** as possible to everyone concerned, creating decent work opportunities and leaving no one behind*”.

https://www.shutterstock.com/image-vector/successful-business-man-standing-front-multiple-1646900488

UNESCO priority areas for TVET



Transforming Technical and Vocational Education and Training for successful and just transitions

UNESCO strategy 2022-2029

Develop skills for all individuals to learn, work and live

Supporting the development of policies and strategies for skilling, upskilling, and reskilling in particular those most in need

- Build flexible lifelong learning pathways
- Develop targeted measures for inclusion and gender equality

Develop skills for inclusive and sustainable economies

Supporting job growth, private sector participation and effective skills anticipation and development

- Identify skills for the transition to digital and green economies
- Address youth unemployment and meet demands for digital and green transitions
- Enhance STEM, entrepreneurial and 21st century skills
- Support TVET teachers and institutions to foster quality, innovation and excellence
- Reinforce governance and unlock investment

Develop skills for inclusive and peaceful societies

Teach youth and adults their rights and the rule of law, equip them with a strong ethical compass and empower them to become champions for justice in their workplaces and communities.

- Integrate rights-based education for global and participatory citizenship
- Promote TVET institutions as places for social integration, cohesion and green citizenship

Inclusive green TVET

Inclusive TVET is the one that ensures equal opportunities for all individuals to *access* and *benefit* from vocational education programs *within the context of greening*, regardless of their background, abilities, or circumstances.

It is important to establish and maintain inclusivity for several reasons:

- Promoting social inclusion
- Empowering disadvantaged groups
- Bridging the skills gap
- Fostering economic growth
- Enhancing social cohesion
- Reducing unemployment and inequality

Greening institutions

Four Steps to Greening Institutions

Understanding	*Planning*	*Implementing*	*Monitoring*
Clarifying the concept	Awareness raising	Delegation of who does what	Monitoring process
Defining the scope	Developing a vision	Deploying resources	Assessing results
Broad engagement	Assessing current realities	Institutionalize change	
	Developing a Plan of Action		

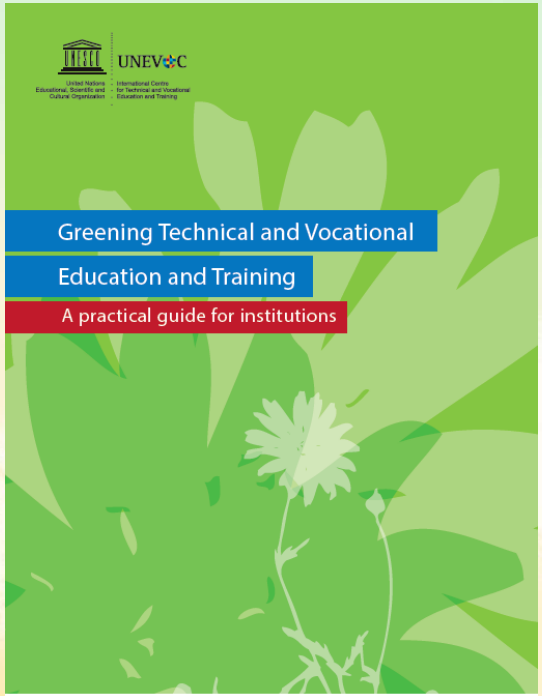
The UNEP Sustainable university framework

UNEP, 2021

Possible Actions

This is a practical tool for VET institutional leaders, administrators, managers and teaching personnel

- Whole-institutional approach
- Five approaches to sustainability
- Helpful tools, links, examples and resources
- Monitoring and assessment framework



Source: https://goo.gl/o7FR2b

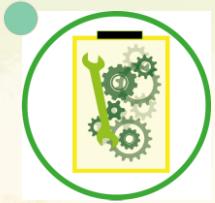
Greening VET at Institutional Level

Greening the campus

Managing campus to reduce the carbon footprint of the campus by deploying proper resources and sustainable principle

Greening the institutional culture

Promoting green values and attitudes in all aspects of the institution culture



Greening the curriculum and training

Integrating “sustainability” in the curriculum and training

Greening the workplace and community

Engaging enterprises and the wider community

Greening research

Applying sustainability in research philosophies, content, ethos and standards

Source: UNESCO-UNEVOC (2017).

Top down approach: structures and initiatives

The Education University of Hong Kong

EduHK –
top down approach

1)

Environment and climate

Energy efficiency
Sustainable buildings
Sustainable transportation
Waste management
Water conservation
Biodiversity and landscaping
Sustainable food practices

Administration and governance

Green procurement
Monitoring and reporting
Green certification and recognition

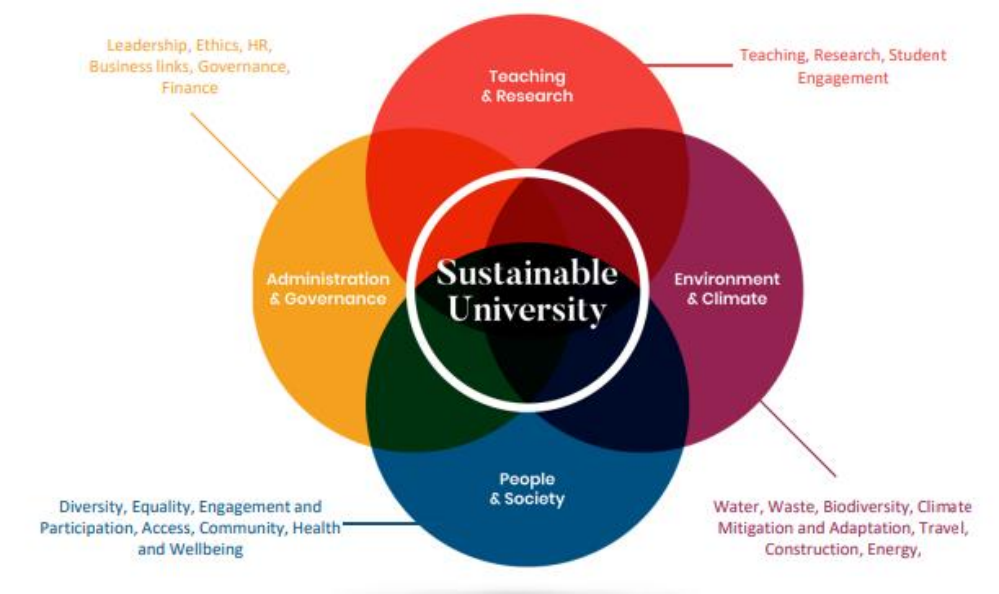
Teaching and Research

Environmental/ sustainable development education and outreach – integrate sustainability in curriculum
Academic research and development projects

People and society

Community engagement
SDG culture - Academic, Employee and student engagement

2)



Bottom-up approach: SDG culture and mindset

University for green and inclusive society: action-based campus for a sustainable future – a bottom-up approach

Specific Student Empowerment Work Scheme

- The project allows students to learn about and engage in design-based approach for project development and implementation, work with different stakeholders and organize on-campus event to raise awareness about sustainable development and green transition.

The activities they design and implement will allow to:

- make campus a better place to engage community and students
- engage EdUHK students in activities to support greening for SD
- engage elderly, youth from lower socio-economic background and ethnic minorities in on-campus activities
- raise the awareness and share possible actions for greening workplaces, campus, home

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UNIVERSITY FOR GREEN AND INCLUSIVE SOCIETY:
ACTION-BASED CAMPUS FOR A SUSTAINABLE FUTURE

THE GREEN PROJECT THING

Green and Inclusive Campus: Survey

Take this chance to know your sustainability awareness!

Contribute to both the environment and the society

Scan the QR code to take the survey!

Please use your EdUHK email to fill in the survey

Q18) Which of the waste-reduction practices below are you engaged in **at home**?

- ☐ Keep a reusable shopping bag in my purse
- ☐ Buy fair/trade labelled items
- ☐ Use refillable containers
- ☐ Repair damaged items
- ☐ Avoid buying environmentally harmful products
- ☐ Buy items that are made from recycled materials (e.g. recycled paper or jeans from recycled fabric)
- ☐ Buy second hand items
- ☐ Rent or borrow items instead of buying new or
- ☐ Make DIY products at home myself (such as n coffee grounds)
- ☐ Use recycling stations regularly to deal with wa
- ☐ Donate goods to those in need or to collecting Foundation HK)

Q7) Have you heard about:
(Can select more than one option)

- ☐ Green Transition
- ☐ Sustainability
- ☐ Net-Zero Carbon Economy

Q8) How do you define the above terms?

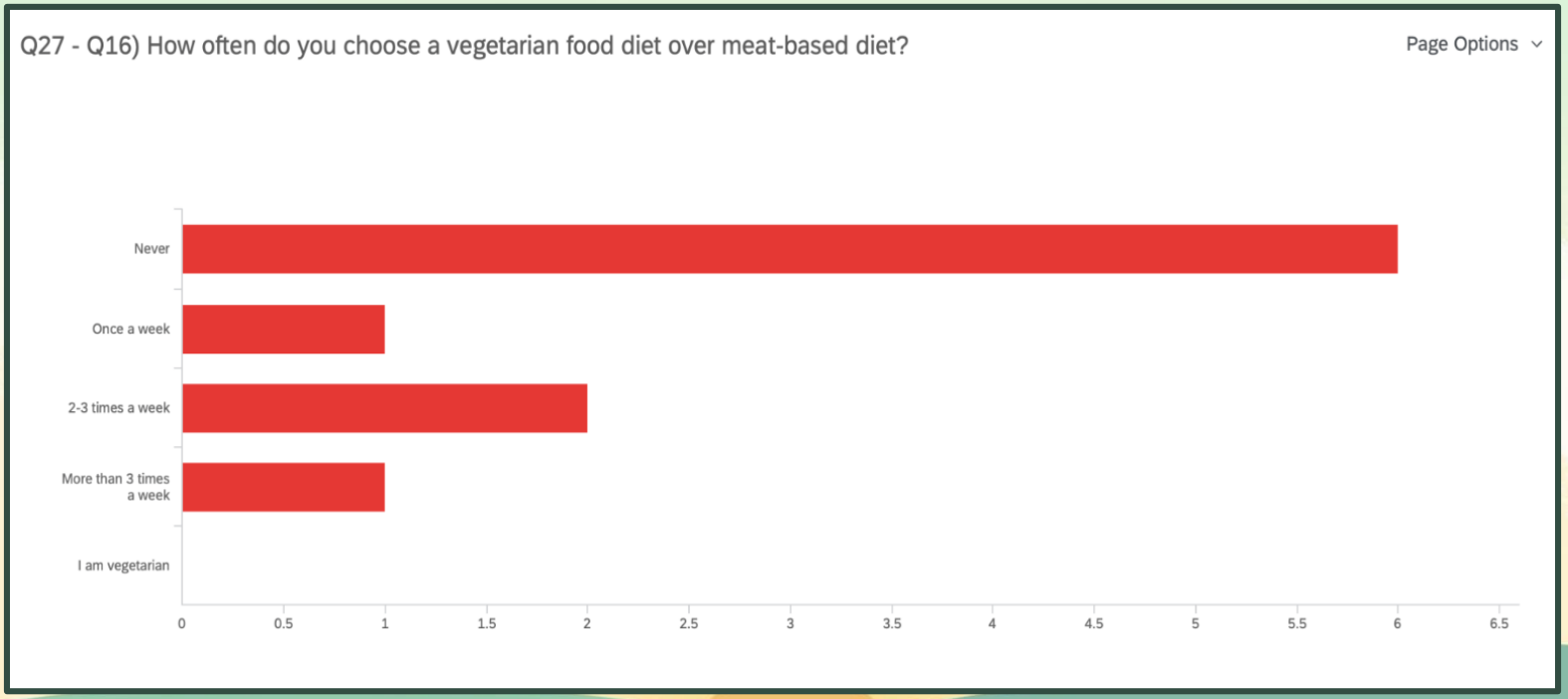
Q23) What should be done to raise awareness between students, staff, and other employees about sustainability?

Q24) What can be done to make it easier for students to recycle, reduce, reuse, (etc.) on campus?

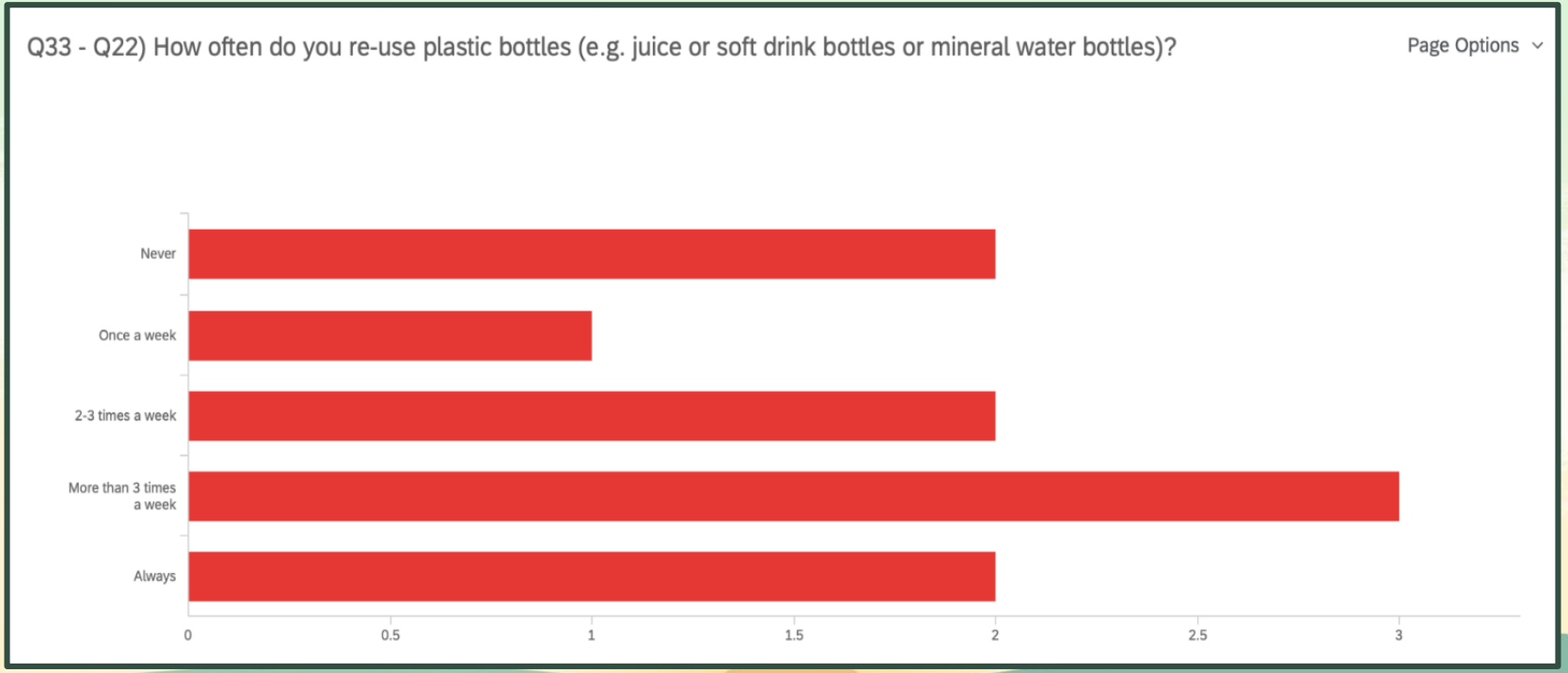
nk should be changed on campus to
n/sustainability?

/activities/campaigns would you like to
ampus?

What do we know now?



What do we know now?



What do we know now?

Q26) What workshops/activities/campaigns would you like to see be organised on campus? ⓘ
Teaching us how to make DIY recycling products
I would like to see workshops on sustainable living, recycling drives, and awareness campaigns on climate change and environmental conservation organized on campus.
Upcycling workshops
Changes in facilities
Green Campus

Hands-on workshops for waste management

The Sustainable & Green Candle Making Workshop (25/01/2024)

Hands-on workshops

Engagement of different stakeholders

A two-day symposium, organised by the UNEVOC center (Hong Kong) at EdUHK, and supported by the UNESCO Beijing office, attracted more than 50 participants and 11 speakers.

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BEST IDEA COMPETITION FOR SOCIAL ENTERPRISE

FREE ENTRY

SDGs

SCAN TO WIN !

UP TO USD$ 1000 FOR THE BEST IDEA

WHO CAN APPLY ?

- HK RESIDENTS
- 18 YEARS OLD OR OLDER

Up to ten shortlisted candidates will be invited to give a presentation at the UNESCO-UNEVOC event on Green Transition and Innovation. Three winners will be selected for awards.

DEADLINE TO APPLY: 15 FEBRUARY 2024

For inquiries, contact Aysuhan Tuba SARAL ✆ 2948 8426 or atsaral@eduhk.hk

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Photo Contest

Details

SDGs

The uploaded photo **must**

- be taken at the EdUHK campus
- capture a problematic issue that relates to sustainability and needs to be solved
- have a title
- include a description of the situation in one paragraph
- indicate which SDG is addressed after the issue is solved
- provide the name or nickname of the photographer to-be-acknowledged in publications

Free to enter and open to public!

Deadline for photo entry

15 February 2024

Registration

ENROL NOW

Faculty of Education and Human Development
教育及人文發展學院

國際教育學系
International Education

Submissions

Green Campus Model

STAY IN CHECK WITH A LIST

Building an environmentally sustainable campus involves greening the infrastructure and operations of the institute, instilling a culture of sustainability amongst students, and supporting sustainability research.

- ☐ **Energy Efficiency**
- ☐ **Green procurement**
- ☐ **Sustainable Buildings**
- ☐ **Biodiversity and Landscaping**
- ☐ **Sustainable Transportation**
- ☐ **Sustainable Food Practices**
- ☐ **Waste Management**
- ☐ **Environmental/ Sustainable Development Education and Outreach**
- ☐ **Water Conservation**
- ☐ **Community Engagement**

- ☐ **Monitoring and Reporting**
- ☐ **Green Certification and Recognition**
- ☐ **SDG Culture – Academic, Employee and Student Engagement**
- ☐ **Academic Research and Development Projects**

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1st place: Sensor corridors lights in dorms

The problem here is a **constant (24h) lighting** in student halls (even during the day). To improve energy efficiency **motion sensors** can be installed to tackle this problem.

2nd place: Sustainable buildings for Green campus

1. **Material Waste in Construction**:
    1. **Automation in construction**: Create templates and mass produce them at factory using advanced construction techniques such as 3d printing and assemble them at site.
    2. **Prefabrication**: Use prefabricated components to minimize on-site construction waste. These components are manufactured off-site and assembled efficiently.
    3. **Design for Deconstruction**: Plan buildings with disassembly in mind. This allows for easier material recovery during future renovations or demolition.

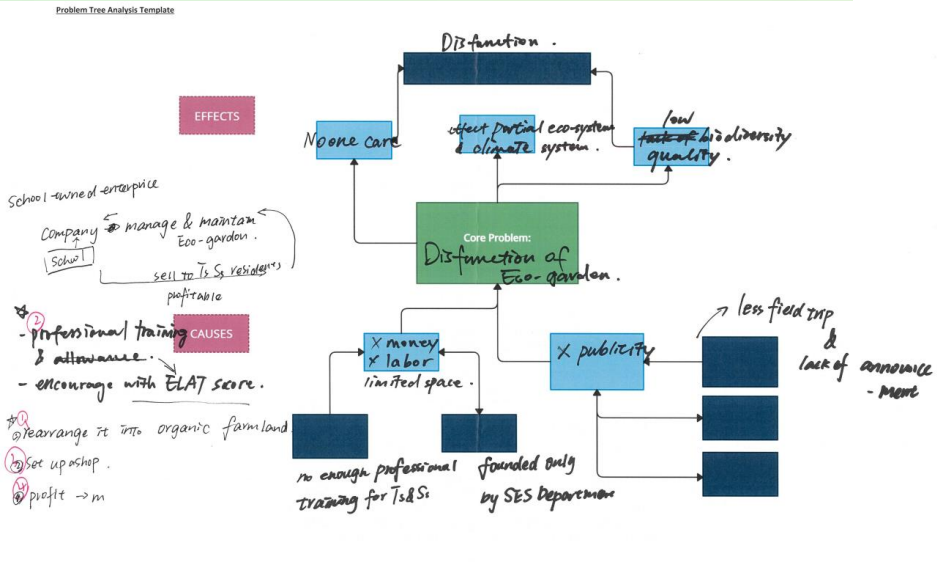
2. **Efficient HVAC Systems**:
    1. **Heat Pumps**: Consider incorporating heat pumps into HVAC systems. They efficiently transfer heat between indoor and outdoor spaces, reducing energy consumption.
    2. **Energy Recovery Ventilation (ERV)**: ERV systems recover heat or coolness from exhaust air and transfer it to incoming fresh air. This improves indoor air quality while minimizing energy use. **Natural Ventilation in Building Design**:
    3. **Orientation and Layout**: Position buildings to maximize natural airflow. Orient structures to capture prevailing winds and create cross-ventilation.
    4. **Operable Windows**: Design windows that can be opened to allow fresh air circulation. Use window placement strategically for effective cross-ventilation.
    5. **Atriums and Courtyards**: Integrate atriums or courtyards within buildings to facilitate natural ventilation and daylight penetration.

3. **Energy Systems**:
    1. **Renewable Energy Sources**: Install solar panels, wind turbines, or geothermal systems to generate clean energy on-site. These reduce reliance on non-renewable sources.
    2. **Energy-Efficient Lighting**: Use LED or CFL bulbs and incorporate daylighting strategies to minimize electricity consumption.
    3. **Smart Building Controls**: Implement smart sensors and automation to optimize energy usage based on occupancy

3nd place: Community eco-gardens on campus

To establish community gardens. Space can be **allocated on campus** and students can **grow their own organic fruits, vegetables, and herbs**. This promotes sustainability, encourages healthy eating habits, and fosters a sense of community.

To transform challenges and solutions identified into green SE



Yesterday Name : Aquaponic Group.

raiSE SINGAPORE **SOCIAL ENTERPRISE MODEL CANVAS**

Name of Social Enterprise / Idea: Organic Group

How will you go about achieving your North Star?

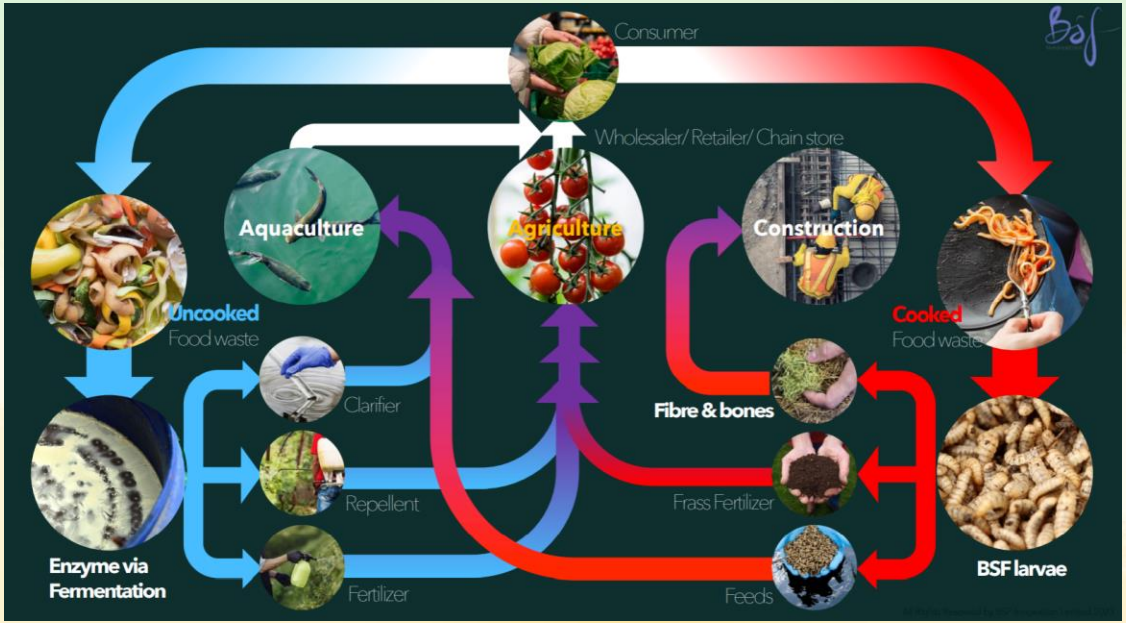
STRATEGY	**PROBLEMS & OPPORTUNITIES** Social Needs: - Organic food Business/Industry: School-owned enterprise (Professional skills training)	**THE IDEA** Transfore the Eco-garden into profitable organic farmland (Self-sufficiency)	**SEGMENTS** Beneficiary: School, students, Teachers, Resident nearby	**VALUE PROPOSITION** Social Value Proposition: Sustainability,
		KEY OFFERINGS - training & organic food	Customer: Ts, Ss, Ras	Business Value Proposition: Self-sufficiency
OPERATIONS	**KEY ACTIVITIES & PROCESSES** ① Rearrange the Eco-garden into organic farm land ② Set up a shop ③ Professional training ④ Profit → maintenance	**KEY RELATIONSHIPS & CHANNELS** Retail (in campus & residential buildings)	**FINANCIAL MODEL** Revenue: Self-sufficiency Circular economy.	Costs: Training, support & participation costs, assessment costs
	KEY RESOURCES - School findings - student as helper - land - Professional trainers	**KEY PARTNERS** SES Department	**SOCIAL VALUE INDICATORS** Student participation, profit gain. Customer satifaction.	

statement :

Our (core) problem is the disfunction of Eco-garden, which is caused by the lack of money / labor & limited space & less publicity. The causes lead to the effects of low biodiversity quality of the Eco-garden, and bad impact on the partial Eco & climate system.

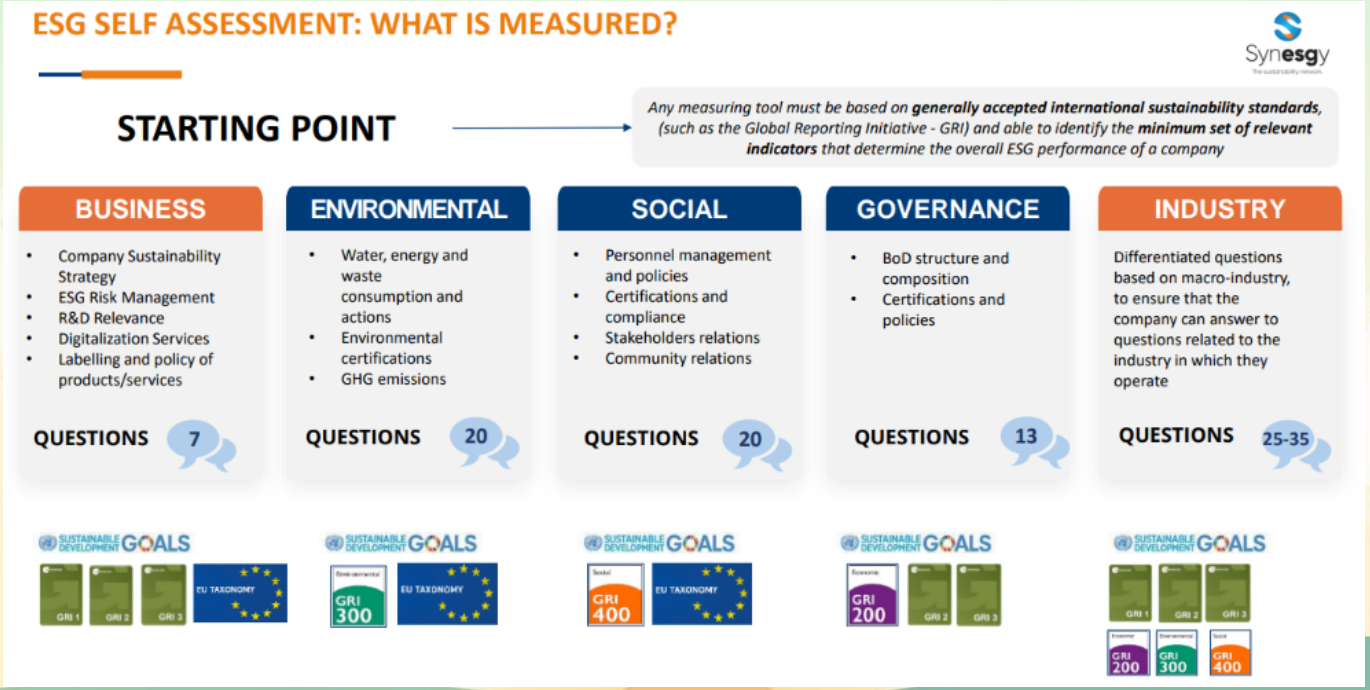
Our solution is to setup a school-owned enterprise, to empower students with professional skills to develop the Eco-garden into an organic farmland. Then, sell the organic product to Ts & Ss & Residences to make profit for maintaining the Eco-garden.

Greening campus: Ideas from industry



Kelvin Wong, 'BSF- the Regenerative circular economy', Feb 2024

Ideas from industry: supply chain



Federico Fontolan, February 2024

Community engagement: ethnic minorities and refugees

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Green Skills and Social Entrepreneurship Development

FREE

Project aim: To support non-Chinese permanent residents* of Hong Kong to develop generic green skills and establish a social enterprise to generate income.

Method: The main part of the project are interactive workshops that are designed to address two important focuses:

***Focus 1* is on developing awareness about sustainability related issues (generic green skills).**

Focus 1: Generic Green Skills

Dates	Name of the concept	Case study	Activities related to concept/case study	Hands-on*** activity (5Rs)
Week 1 6/Jan/2024 Saturday 14:00 - 17:00	Sustainable Consumption	Wood-based fibers could lead to sustainable fashion	• Matching labels with different types of sustainable products and services; • Group discussion on the reasons to consider, or not consider, sustainable consumption and how our consumption habits influence our and others' wellbeing.	Making a body and face scrub from leftover coffee
Week 2 13/Jan/2024 Saturday 14:00 - 17:00	Waste Management	Hong Kong's awareness about waste management	• Trash sorting based on colors • Discussion about how the selected environmental problems influence their lives in Hong Kong.	• Recycling soap • Recycling cooking oil to make candles
Week 3 20/Jan/2024 Saturday 14:00 - 17:00	Closed-loop economy	How sustainable fashion contributes to the closed-loop economy	• Sharing of the interview results with a clothing store owner concerning the waste management problem in apparel industry and what they do to solve it • Group discussion on what can be done to solve the problem.	Vase cover, toys, wallets made from leftover fabric

Venue: Khalsa Diwan Sikh Temple
371 Queen's Road East, Wan Chai

Note: Please note that this project has a research focus to understand the impact of these trainings in participants' lives and how to best involve them in the greening efforts of the city. Therefore, there will be surveys and interviews before and after the workshops. Consent forms will be collected at the first workshop.

Generic green skills raise awareness, ethics, and sensitive behaviour towards the natural environment and resources, and when combined with ***entrepreneurial competencies*** (also developed through this project) will help participants to establish 'green' social enterprises that will bring personal benefits and contribute towards the sustainable urban development of Hong Kong, including development of positive values among the community members of the city.

This project addresses the achievement of the following sustainable development goals: SDG11 – Sustainable cities and communities; SDG12 – Sustainable consumption and production; and SDG4 – Quality education.

***Focus 2* is on developing entrepreneurial competencies.**

For this to be achieved, local NGOs, a pro-bono finance group, mentors and student helpers will be involved.

Focus 2: Entrepreneurial competencies

Dates	Focus Area	Activity
Week 4 27/Jan/2024 Saturday From 08:30 until 17:30 **Week 5** 3/Feb/2024 Saturday From 08:30 until 17:30	• Connection between Sustainability and Social Enterprises • Rules and regulations concerning social enterprises in Hong Kong • Introduction to business models • Funds that can be applied • Experience sharing	**Group Work:** Development of business plan and identification of funds to apply – **Feedback by mentors**

The anticipated number of participants = 60 over the life of the project, with each group of 30 participants max**.

Project Deliverables:

In addition to presentations and publications that advocate for the inclusion of EM in green agenda,

- Guidelines and materials that can be used by NGOs to train EM.
- We tentatively plan to organize a public event on EdUHK campus for participating EM where they can promote their products and business plans.

*** The eligibility for participation is to be a permanent resident in HK and 18 years or above.**

**** There will be two rounds of training. Dates are for the first round. We allow a maximum of five participants with a local Chinese background in each round.**

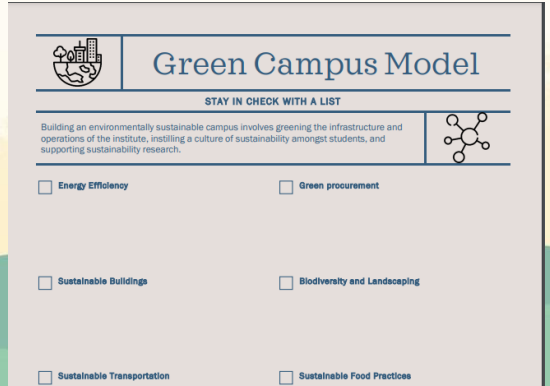
***** Participants will take all the products they make home. Those who participate in 80% of the training will receive a UNESCO-UNEVOC certificate at the end of the training.**

Scan to register

How to measure impact

Points to consider

- Behaviour change – observations, surveys
- Increased awareness – results of competitions (e.g. more complex solutions, more people interested); addressing SDGs in assessment; number of awareness campaign on campus, students activism
- Established targets and indicators using green campus model



Greening TVET guide

UNESCO-UNEVOC, 2017

1 GREENING THE CAMPUS	DEGREE OF IMPLEMENTATION			
Desired Outcomes	BEGINNING	SOME PROGRESS	SATISFACTORY PROGRESS	STABLE AND EMBEDDED CHANGE
1.1 FACILITIES				
Sustainability principles are applied to the design, construction and renewal of institution buildings, including innovative financial models.	There is a little focus on sustainable practices. Sites for renewed or new buildings have sustainable principles discussed as an option.	Sustainable practices are often incorporated in the site. However, there are no specific criteria to guide the development of sites for renewed or new buildings.	All departments are asked to incorporate and report on sustainable practices in their sites. Each renewal or new building site is asked to address sustainability principles.	All departments report on sustainable practices. They are supported with documents and PD. Staff and students are involved in promoting sustainable practices. Promising practices are celebrated. All renewal or new buildings include sustainability principles.
1.2 LEARNING IN AND FROM GREENING THE SITE				
Institution structures and outdoor spaces are seen as 'facilities' that teach sustainability practices.	Teaching sustainability practices only occurs in classrooms.	Sustainability practices occur in other teaching and training facilities (laboratories/workshops). Teachers/trainers motivate students to develop their own sustainable practices.	Sustainability practices occur in other teaching and training facilities. Students create sustainable practice plans and routines (e.g. disposing of workshop wastes).	There is a system policy and financing scheme to support appropriate practices developed by students to apply sustainability concepts and practices and engage the community.

1. CAMPUS	BEGINNING	SOME PROGRESS	SATISFACTORY PROGRESS	STABLE AND EMBEDDED CHANGE
1.3 GREENING THE PHYSICAL SITE				
Sustainability practices address enhancing green spaces through habitat restoration and aesthetics.	Existing green spaces are conserved and protected from other uses. Garbage bins are deployed to keep the institution clean.	Green spaces are expanded and carefully maintained for aesthetic and leisure purposes. Garbage is categorized.	Green spaces are created and maintained to combine the purposes of education, research, leisure and aesthetics. Waste recycling and reuse are encouraged.	The IGP has habitat protection and enhancement in policy, which is enforced.
1.4 OPERATIONS				
Sustainability principles apply to all aspects of institution management, procurement and resource use.	Specific criteria or requirements for incorporating sustainability in procurement or institution management are rare.	Institutions and departments are encouraged to incorporate sustainability principles in procurement, institution management and resource use.	Individual departments have requirements for sustainability principles in procurement, institution management and resource use.	Policy and criteria for procurement, institution management and resource use are enforced. Sustainability practices, PD and fiscal support are provided to assist.
1.5 TRANSPORT SERVICES				
Sustainability principles are incorporated in transportation decisions.	Protocols are seen as an asset to be put in place to address sustainability.	Efficiencies are incorporated in transportation routes.	Protocols are in place to address efficiencies with respect to transportation routes and fuel-saving vehicles.	Protocols, measuring and monitoring are in place to address efficiencies with respect to routes and fuel-efficient vehicles.
1.6 AUDIT/TRACKING				
Audit tools are used to assess impacts and improve efficiencies as a result of sustainable practices.	Formal audits are in the planning stage.	Some areas of facilities have audit tools and assess the efficiencies of their practices.	Audit tools are in place to assess sustainable practices in all aspects of facilities.	Every institution conducts an annual audit and reports results to a central department.
1.7 WHOLE-COST ACCOUNTING				
Audit tools address commonly measured workplace issues, such as water, waste and energy management, but also address the underlying reasons beyond cost such as carbon and ecological footprints.	Plans and strategies are made to audit and track whole-cost accounting.	Events or awareness campaigns on energy, water and waste management are held periodically and these become test audits. Carbon offsetting mechanisms are used to reduce the carbon footprint in a cost-effective way	Records are kept and management of these issues is incorporated into some whole-cost accounting. Using carbon offsetting mechanisms is only used as a last resort after looking at energy saving and use of renewable energy.	The overall rationale for reducing carbon and ecological footprints is understood. Audits and savings are reported and celebrated. Student skills in auditing are documented and certificated.

Summary points

In EU – Green Education

Embodying sustainability values	Embracing complexity in sustainability	Envisioning sustainable futures	Acting for sustainability
• Valuing sustainability • Supporting fairness • Promoting nature	• Systems thinking • Critical thinking • Problem framing	• Political agency • Collective action • Individual initiative	• Futures literacy • Adaptability • Exploratory thinking

Source: GreenComp, European sustainability competence framework, 2022
JRC Publications Repository - GreenComp The European sustainability competence framework (europa.eu)

How to start

- To start the process of change you need to agree on definitions, identify vision and objectives and evaluate status quo.
- Apply a holistic approach based on analysis of several frameworks and your realities.
- Engage students to generate energies and raise on-campus awareness
- **Decide what competencies to develop by changing/greening curriculum (next session)**
- **Design topics to introduce 'green concepts' and pedagogical approaches/the ways to teach (next session)**
- Launch awareness campaign to academic and non-academic staff, university leaders/managers and students.
- Start working with external stakeholders.

In the following up session

- Discussion of the above points
- Brief introduction to Greening curriculum

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