



Higher Education Practices for Boosting Social Innovation in Circular Economy



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1. Introduction to CIRCULAR

CIRCULAR seeks to boost the social innovation ecosystem in Malaysia, Cambodia and Laos by bringing together and reinforcing the links between Teaching, Research, Innovation and Society in order to collaboratively design and test innovative solutions to mitigate waste management problems, promote circular economy approaches and improve the quality of life of local communities.

It will pursue the following specific objectives:

- Design a new collaborative model for reinforcing HEIs' third mission and for enhancing effective and successful Knowledge Square cooperation for social innovation with a specific focus on the topic of circular economy.
- Enhance community-based participatory research and citizen science at the same time promoting a new pedagogical framework for embedding community engagement actions as part of Higher Education study programmes.
- Set-up Living Labs as open innovation ecosystems that integrate education, research, development and innovation, and regional development to help trigger the adoption of green and more sustainable practices and a more efficient use of resources.
- Build the capacities of academics to design, organise and implement collaborative social innovation programmes that promote students' active citizenship and simultaneously contribute to solve everyday sustainability and climate-change problems.
- Build the capacities of researchers on new methodologies and updated strategies to conduct community-based research activities on the topic of circular economy and waste management.
- Empower students and young people to become socially-engaged, climate-conscious and active citizens and raise the awareness of students, young people and members of local communities on the topic of circular economy and sustainable development, and promote alternative consumption habits and waste management practices underpinned by knowledge, research and innovation generated by Higher Education Institutions.

The CIRCULAR Consortium brings together nine multidisciplinary institutions from Malaysia, Cambodia, Laos, Spain and Portugal as follows.

Number	Role	Short name	Legal name	Country	PIC
1	COO	USM	Universiti Sains Malaysia	MY	997941627
2	BEN	UNIMAS	Universiti Malaysia Sarawak	MY	997587674
3	BEN	RUPP	Royal University of Phnom Penh	KH	999845543
4	BEN	SRU	Svay Rieng University	KH	948131545
5	BEN	NUOL	National University of Laos	LA	984078484
6	BEN	SKU	Savannakhet University	LA	923006411





7	BEN	UAL	Universidad de Almeria	ES	999884440
8	BEN	IPC	Instituto Politecnico de Coimbra	PT	972374658
9	BEN	INCOMA	International Consulting and Mobility Agency Sociedad de Responsabilidad Limitada	ES	950157487

This report is a component of WP2 – Collaborative Models for Social Innovation in Circular Economy, which is led by National University of Laos (NUOL). The report aims to present the results of desk and field researches. The description of these objectives is shown as follows:

Desk research (T2.2): Compiling existing practices and case studies on circular economy, community engagement, service-learning, education for sustainable development and environmental sustainability, and small-scale waste management projects.

Field research (T2.5): Presenting the result of interviews and consultations of stakeholders in SEA in order to obtain evidences and inputs, and gather a solid understanding of the assumptions and possible challenges for the implementation of social innovation projects through CIRCULAR Living Labs. There were sixty-three stakeholders from Cambodia (20), Laos (20) and Malaysia (23). The stakeholders were classified into five different categories, namely internal stakeholders (22), associated partners (10), public & private institutions (13), government body (12), and local community (6) .

2. Executive summary

This report first intends to show case studies and existing practices related to a circular economy in Malaysia, Cambodia, and Laos. Then, it presents the results of interviews and consultations with stakeholders in selected countries in Southeast Asia. The report includes parties at a university as internal stakeholders, the private sector, NGOs, non-NGOs, and local communities. The insightful interviews provide exciting information about the current state of waste management, the application of the 3R principle, waste-to-resource knowledge and practice, and stakeholders' understanding of social innovations. The consultation results showed that internal stakeholders, NGOs, non-NGOs, the private sector, and the local community are highly aware of waste management in their organizations and communities. The 3R principle is commonly implemented to reduce waste and use resources effectively. Some waste types are transformed into valuable resources, including containers and organic fertilizers for gardening. This practice not only brings stakeholders income but also saves their money from buying new staff. The interviews also exhibited that stakeholders' knowledge about social innovations is mixed. Students, academics, and administrators from selected universities in Malaysia understand the concept of social innovation well. This result implies that the concept of social innovation, to some extent, is disseminated or trained at the university. On the contrary, social innovation is not well understood among stakeholders in Cambodia and Laos.





3. Results from case studies

In this report, some case studies and existing practice in Germany, Italy, Spain and Lao PDR are reviewed, with the expectation that these case studies could shed the light for the establishment of the living lab (or circular model) for the project. Some background information and findings of these case studies are as followed.

3.1 Case study 1: Mondragon Unibertsitatea Campus Circular y Sostenible (MUCS)

Mondragon Unibertsitatea Campus Circular y Sostenible (MUCS) is a project implemented in Spain, running from 2020 to 2025. The project's goal is to design and implement a methodology for identifying, evaluating, prioritizing, deploying, and monitoring circular economy strategies. This will improve the efficiency of resource management (energy, water, materials) on the different campuses of Mondragon University and contribute to achieving the Sustainable Development Goals 2030. The project is currently ongoing.

Its focus areas are circular economy, waste management, education for sustainable development, community and circular economy, environment, social innovation, and sustainability. Funding for MUCS comes from Mondragon University.

All social actors at Mondragon University are stakeholders in the project, including administration personnel (PAS), teaching personnel (PDI), and students.

The project team includes the Circular Economy and Industrial Sustainability Group (ECSI) in collaboration with work teams from all university faculties. MUCS's main tasks involve evaluating technological and organizational strategies to reduce energy and material consumption, thereby mitigating the campuses' carbon footprint.

Specifically, MUCS aims to:

- Implement a common data collection system to quantify consumption and impacts, enabling subsequent evaluation of circular economy improvements.
- Develop a diagnosis of the current sustainability of the different campuses and faculties at Mondragon University to identify strategic areas for intervention.
- Define and begin analyzing and implementing a series of circular economy pilot projects to reduce the carbon footprint and contribute to the SDGs.

MUCS conducted a preliminary study at the Escuela Politécnica, estimating its carbon footprint and identifying the main sources of CO₂ emissions. They communicated the results with PDI and PAS staff through internal workshops, where they devised potential solutions in four areas:

- Purchasing: Develop a sustainable purchasing protocol.
- Energy: Switch to LED and use renewable energies.
- Mobility: Conduct surveys of students, workers, suppliers, and service companies.
- Waste: Reduce and separate waste.

This was a very enriching experience, and MUCS is currently replicating this initial diagnosis across the faculties of Business, Science, and Humanities. The project facilitators are therefore the ECSI group, collaborating with work teams from all faculties.





This initiative implements a methodology for identifying, evaluating, prioritizing, deploying, and monitoring circular economy strategies to improve resource management efficiency and contribute to achieving the SDGs.

3.2 Case study 2: SERCampus-Environmental services evaluation of the green spaces of Cantoblanco Campus in the Autonomous University of Madrid

SERCampus-Environmental services evaluation of the green spaces of Cantoblanco Campus in the Autonomous University of Madrid is established in Spain. The project started in 2018 and will end at 2030. The main purpose of this project is to improve the knowledge of the environmental benefits that the green spaces of the Cantoblanco Campus of the Autonomous University of Madrid (UAM in Spanish) provide to the well-being of the university community. To this end, the project has established the following specific objectives:

- Identify, map and evaluate four regulation services: i) runoff and aquifer recharge; ii) carbon sequestration and storage, iii) local temperature regulation; and iv) air purification and pollutant removal.
- Carry out an estimate of the carbon footprint and the water footprint of the UAM.
- Identify, map and evaluate in a participatory and interactive way three cultural services: i) the aesthetic enjoyment of landscapes; ii) recreational and leisure activities; and iii) environmental education.
- Disseminate the main results of the project to the entire University Community.

The project's focused areas are circular economy, waste management, education for sustainable development, community and circular economy, environment, social innovation, social welfare and sustainability.

This project is funded by the Autonomous University of Madrid-UAM in Spain (no specific quantity). The stakeholders involved all the social actors which are part of the university community are the stakeholders of this project. Since they are likely to benefit from some of the cultural services provided by the green spaces of the UAM Campus; that is: undergraduate and postgraduate students, teaching and research staff, administration and services staff, technicians and researchers from one of the CSIC centers with a presence on the Cantoblanco Campus of the UAM, and external workers (gardening , cleaning, etc.). The project team include Socio-Ecosystems Laboratory of the Department of Ecology at the UAM. Researchers UAM: Mateo Aguado, Alberto González-García, Paula Solascasas, Carlos Montes, and Javier Benayas.

SERCampus is based on 13 tasks classified into 5 issues: Territory, Landscape and Biodiversity; City Model; Climate Change; Sustainable Management of Resources and Circular Economy; and Mobility and Transportation.

- 1) Territory, Landscape and Biodiversity
Proposal 1. Land and Urban Planning Plan of the UAM;
Proposal 2. Natural and Cultural Heritage Management Plan of the UAM; Proposal 3. Network Development Plan and the Connectivity of Green and Blue Infrastructures with the Natural Context of the UAM.
- 2) City Model





- Proposal 4. UAM Public Space Improvement Plan;
- Proposal 5. UAM Urban Environmental Quality Improvement Plan;
- Proposal 6. UAM Building Rehabilitation Plan
- 3) Climate Change
 - Proposal 7. Air Quality and evacuation Plan of the UAM
- 4) Sustainable Management of Resources and Circular Economy
 - Proposal 8. Action Plan for Sustainable Energy at UAM;
 - Proposal 9. Sustainable Water Management Plan of UAM;
 - Proposal 10. Urban Management Plan of UAM;
 - Proposal 11. Waste Management Plan of UAM.
- 5) Mobility and Transportation
 - Proposal 12. UAM Internal Transportation Plan to Work;
 - Proposal 13. UAM Sustainable Urban Mobility Plan.

These proposals are mainly focused on UAM students. However, it is important the participation of the entire university community with all its members: students, professors, researchers, and administrative staff who are environmentally sensitive and therefore signified with pro-environmental behaviors that motivate them to intervene in participatory actions of environmental education, environmental literacy, volunteering or research for sustainability. With the aim to individually and collectively carry out the projects and programs committed in each of the spheres that define the operational framework of the socio-ecosystems approach.

This project aims to achieve as a result the improvement of knowledge about the direct and indirect environmental benefits of the green spaces of the Cantoblanco Campus of the UAM. It gives the opportunity to promote an overall awareness about the well-being that these spaces contribute to the university community through the flow of environmental services that generate the bases for a new model of institutional governance and social leadership, focused on the integrated and unitary management of the entire university campus under the conceptual framework and operational of the socio-ecological systems and the roadmap of the 2030 Agenda and the Sustainable Development Goals. By means of a plural evaluation of the main environmental regulation and cultural services present in the green spaces of the campus, this project raises useful information that can help to design a healthier, more sustainable, and resilient university campus that, can provide different types of environmental services to contribute positively to the socio-ecological well-being of the university community. It is expected that this work will allow, with its proposals, to overcome the spatial dissymmetries of the UAM campus and continue advancing towards the design of a more holistic, multifunctional, sustainable and resilient university campus that optimizes the benefits provided by its green spaces, favoring connectivity, ecology and social cohesion of the socio-ecological system where it is located and looking beyond its administrative limits and always looking for the well-being of the UAM university community. To achieve these results, an evaluation of the environmental services of the campus will be made in a holistic way, measuring all the dimensions proposed by the project.

The UAM introduced, in a pioneering way, the concept-process of greening the university as a collaborative action strategy to forge a university community that develops pro-environmental and participatory behaviors to build a sustainable university beyond the technological improvements of the environmental management of the campuses. The growth and development of awareness in environmental and the participation of all the social actors of the university community is a cornerstone for the construction of environmentally sustainable





universities. Likewise, this project implements innovative elements in the different tasks, among which we highlight the following:

- o Establishment and control of environmental indicators that allow evaluating the environmental efficiency of college campuses and implementing corrective actions to improve efficiency. For example, the measurement of the carbon footprint and the water footprint, temperature control with dataloggers, or the measurement of carbon storage.

3.3 Case study 3: Social Cooperative Palm Work & Project Onlus: Palm Design - social innovation lab

Social Cooperative Palm Work & Project Onlus: Palm Design - social innovation lab was established in Italy. The Social Cooperative Palm Work & Project Onlus is a social cooperative whose mission is to create harmony between ecology and socio-economic systems. Following the criteria of eco-design, it has been promoting the work placement of young people with disabilities since 2003, always placing individuals and their potential at the centre of the production process. The raw material they use is wood from the waste of a company that has been producing pellets for over 40 years. Palm Design is the brand they have created since 2010, which, through an innovation and social carpentry lab, enhances a systemic approach to design and upcycling in the creation of eco-furniture for the home and community. It promotes an ethic of solidarity and sustainability. The aim is to become a point of reference for those who value ethical and sustainable craft production and for people who want to consume in a healthy and responsible way.

The project working areas include circular economy, service learning, education for sustainable development, community and circular economy, social innovation, sustainability, eco-design and green economy.

Participation in the process includes members of the Cooperative, young people with disabilities who participate in the carpentry laboratories and in job placement, Palm GreenPallet Spa which is the main supplier of waste materials from the production of pallets for wood carpentry, external collaborators (e.g. architects). In addition, depending on the project/activity, private companies, public authorities, schools, universities and non-profit organisations collaborate.

Eco-Furniture: design, hire and sale of custom-made eco-furniture, made from 100% local wood, in keeping with a choice of sustainability that dates back to the founding of the cooperative in 2003 and which includes the use of raw materials at km0. Furniture design and fittings for trade fairs, events, shops, offices or private homes. Upcycling, also known as 'creative reuse', reconverting by-products or waste materials from wood into new materials or products of better quality while also improving the environment (three product lines: wood & wine; home & decor; wood & food) The cooperative also promotes Environmental Education paths in collaboration with associations and schools in proposing playful paths on environmental education and biodiversity. Creative-manual labs are also organised with different training/educational, occupational/productive and social integration purposes. Traineeships aimed at job placement, vocational training and university courses are offered through carpentry labs. The cooperative includes a multifunctional and multidisciplinary space where, in addition to hosting the workshops and organised activities, it is possible to organise events, conferences and seminars for the community (schools, universities, private companies, public bodies and citizens), aimed at disseminating and sharing good practices and social and





environmental responsibility. The project team include Social Cooperative Onlus Palm W&P. The target audience of the project includes schools, universities, private companies and public bodies, it collaborates on sustainable ethics and social responsibility initiatives, setting up fairs, public spaces and locations for events such as World Fair Trade Week in Milan. It addresses the community with the aim of raising awareness of environmental sustainability and the circular economy and, on the other hand, the social inclusion of disadvantaged groups. Activity addressed to production companies that, in the creation of their products, obtain surpluses destined to become waste.

The results to be achieved in the project include job placement of people with disabilities through the carpentry laboratory. Transmission of ethical and ecological messages to the community in promoting the circular economy as social innovation, through awareness-raising campaigns, events, conferences and activities aimed at the citizenship. Establishment of relations between profit and non-profit enterprises that share the same values of cooperation: partnerships with 18 actors including universities, public bodies, private companies and non-profit associations. Strong territorial roots for the creation of a community that shares the values of the social cooperative, creating shared economic, social and environmental value. Example of a project in progress: Among the many jobs through which it generates employment for its members, in past years the cooperative has created tables benches and stools for the outdoor area of the UNIVERSITY OF GASTRONOMIC SCIENCES OF POLLENZO (UNISG). Years later, these furnishings have become worn and damaged. Together with UNISG they have decided, as common values, to regenerate tables, benches and stools, not to remake them new, with a view to a regenerative and non-dissipative circular economy. They are currently fundraising with companies sensitive to the issue.

3.4 Case study 4: Karlsruhe Transformation Center for Sustainability and Cultural Change (KAT)

Karlsruhe Transformation Center for Sustainability and Cultural Change (KAT) establishment project had been implemented in Germany, between 2018-2021. Although the project has ended, the center is still in operation.

The goal of the project was to create an institutionalised real-world lab, which conducts research in the framework of a real-world research infrastructure and allows for transformation at the same time. The lab is based on the structures and experiences of the numerous awarded KIT real-world lab complex "District Future - Urban Lab" and "Urban Transition Lab 131". The KAT wants to accompany and initiate transformation processes towards sustainable ways of life and sustainable business activities. Other goals include areas such as research (transformative sustainability research), experimental spaces (in form of a real-world lab), innovation & action (sustainable development in all areas of life), education about sustainable development at university, schools and public level as well as advice and consulting about sustainability, communication & networking with different stakeholders or companies and to establish a space for reflection and contemplation as well as a thinking space open for the community. Since the project itself has finished in 2021, the KAT still operates as an independent organisational unit with the same goals and objectives.

The project was funded by Ministry of Science, Research and Arts; Helmholtz association and KIT university. The stakeholders include Institute for Technology





Assessment and Systems Analysis (ITAS) of the Karlsruhe Institute of Technology (KIT) and other stakeholders of the public and private sector.

The main task of the project is to achieve their main goal, namely to connect science and society, companies and administration in such a way that joint change and lasting transformation towards a sustainable future becomes possible, the KAT implements various activities and projects. On the one hand, activities include presentations on climate change, sustainable food and lifestyle as well as initiatives such as plant exchange market, climate challenge workshop, walk through the city or Parking Day. On the other hand, the KAT does numerous research and real-world lab projects on topics such as sustainable climate protection, climate change, energy transition, urban transformation, new lifestyles, sustainability, sustainable culture and arts. The biggest project as part of the KAT is the real-world lab "District Future - Urban Lab". The Urban Lab wants to prepare city districts and its residents for the future respecting the question how one can live in a city while at the same time respecting the environment and the future. Together with the residents, the lab wants to find answers and not redo what is already there but transform it in cooperation with citizens, science, politics and the private sector. Working as an interface between science and citizenship, the Urban Lab offers seminars, workshops, lectures and exhibitions while functioning as a meeting place, place of encouragement as well as a room for exchange, reflection and discussion for active and sustainability-minded citizens.

The project team include project learders (Oliver Parodi and Andreas Seebacher). At the moment there are around 15 team members at the KAT. The KAT team is multidisciplinary broad, versatile and well-coordinated team of scientists and transformateurs with a good network and many years of experience in the field of transformative research and the design of sustainability processes as well as non-university expertise from the private and the public sector. The professional spectrum includes sustainability sciences, environmental sciences, geoecology, sociology, philosophy, education, psychology, geography, ethics, cultural studies, various engineering fields as well as technology assessment. Other competencies of team members include methods for designing participation processes, moderation, mediation, process consulting, environmental education as well as having a sustainable lifestyle.

The target audience are the general public, universities, schools, etc., including the whole society, citizens and the community of the city of Karlsruhe, Germany and its surroundings. The KAT targets other stakeholders, companies and politics.

The result of the project was the establishment of the KAT as a unit that operates independently since the end of the project in 2021. The KAT is one of the world's first real-world labs that was being institutionalised and made permanent and expanded by areas such as education, consulting and research in order to synergistically accompany processes of societal change in the long term. Sustainable development can thus be perceived and organised as a permanent and essential joint task of all social sectors. The KAT is a research, education and development facility which supports social change towards cultures of sustainability. It understands itself as an institution of change and offers ways out of unsustainable lifestyles and economies. It aims to support cities, municipalities, companies and organisations as well as individual citizens on their way to a sustainable and future-oriented way of life and economy. They strive for a world in





which cultures of sustainability are based on inter- and intra-generational justice, common good orientation, environmental friendliness, communality, tolerance, resonance, connectedness and peace. The KAT sees itself as non-partisan, inclusive, non-violent, integral and committed to a free democratic basic order and human rights. It creates places of sustainability and is an authentic role model and pioneer of a culture of sustainability in its working methods and self-image. The KAT is both a contact point and a home and partner for all those who really want to take the path to a sustainable future.

3.5 Case study 5: Waste Management Project of Faculty of Environmental Sciences, National University of Laos

The FES Waste Management Project, established in 2017 by the Faculty of Environmental Sciences (FES) at NUOL, has played a crucial role in promoting sustainable waste management practices within the faculty. While the faculty itself was established in 2004, solid waste management initiatives had been sporadic and lacked a comprehensive approach. However, in 2017, NUOL's commitment to becoming a leading institution in environmental management led to a renewed focus on integrated waste management, particularly within FES and the Faculty of Forestry.

The project began with a modest budget of 2,000 USD, used to purchase waste bins and establish a basic waste management system. Its primary objective is to reduce, reuse, and recycle waste as much as possible, achieved through three key components:

1) *Waste Separation at Source*: This mandatory practice requires all faculty staff and students to segregate their waste using four designated bins:

- Plastics and papers: For recyclable materials like plastic bottles, containers, and paper products.
- Hazardous waste: For batteries, light bulbs, and other potentially harmful materials.
- Food and organic waste: For food scraps, yard trimmings, and other compostable materials.
- Other wastes: For non-recyclable and non-compostable materials.

2) *3Rs (Reduce, Reuse, Recycle)*: Waste volunteers actively promote the 3Rs principle within the faculty. This has resulted in a noticeable reduction in waste generation, with students opting for reusable alternatives like stainless steel or bamboo straws, refillable water bottles, and cotton shopping bags. Furthermore, reusable materials are directly repurposed whenever possible, and valuable waste like plastics and papers are sold to the project's waste bank. Food waste is composted to produce fertilizer, while organic waste is converted into bio-charcoal. Only hazardous waste and non-recyclable materials are ultimately sent to the landfill.

3) *Waste Recycle Bank*: Initially established to support waste separation within FES, the waste bank's popularity led to its expansion to serve external customers. Individuals can register, obtain a bank book, and deposit their segregated waste. Different types of waste have varying prices, and the deposited value is recorded in their account. Customers can withdraw accumulated funds once they reach a minimum balance (10 USD), while maintaining a minimum deposit. Collected plastics are sold to a partnered recycling company, and other valuable materials are sold to waste dealers. This system generates revenue, promoting the long-term sustainability of the waste-to-resource approach.

Stakeholders:





- Department of Environment (DOE) of Ministry of Natural Resource and Environment.
- Vientiane City Office of Management and Service (VCOMS).
- Green Environment Import-Export Co., Ltd. (plastic recycling company).
- Wongpanit Waste Collection Company.

4. Results from stakeholder consultations in SEA

The report mainly relies on information obtained from insightful interviews with relevant parties, including academics, students, and administrators at universities as information stakeholders, private sectors, NGOs, non-NGOs, and local communities of Cambodia, Lao PDR, Malaysia, and Viet Nam. The interviews were conducted by relying on a semi-structured questionnaire which intends to assess the current practice of waste management, stakeholders' knowledge and policy regarding to circular economy, 3R principle, and social innovation in waste management. Below are the results of stakeholder consultation.

4.1 Knowledge and policy related to circular economy

4.1.1 Internal stakeholders

Most internal stakeholders are familiar with the term – circular economy. The circular economy, while a familiar concept to academics and administrators, is less known among students. However, students unknowingly practise some of its principles, such as recycling and reusing products. For example, they repurpose plastic shopping bags as trash bin liners or packaging materials. Despite this, students reported a lack of specific promotions for the circular economy, with existing campaigns focusing more broadly on sustainability and waste management. Academics, understanding the circular economy as a system that optimises resource use and minimises waste, noted a similar lack of targeted campaigns within their institutions. Administrators, who also understand and apply the circular economy concept in their sectors, aim to reduce environmental impacts from production to waste disposal. They strive to maximise resource value through reuse, recycling, and recovery, such as creating useful products from recycled paper. However, they acknowledge the need for more policies and strategies to fully realise the potential of the circular economy.

Students: The concept of circular economy is unfamiliar to most students, but they practice some of its principles by recycling and reusing products. For instance, they find new uses for plastic shopping bags, such as trash bin liners or packaging materials. The students also reported that they did not see any promotion specifically designed for the circular economy. However, the existing promotion or campaign is related to sustainability and waste management, such as reusing plastic bottles and recycling solid waste.

Academics: The circular economy, a concept understood by academics, is a system that optimises resource use and minimises waste by reusing and transforming materials into new products. A prime example of this raised by the respondents is the recycling of plastic waste and reducing the consumption of new plastic bags, which can be repurposed for other uses. Despite their understanding, academics note a lack of campaigns promoting the circular economy within their institutions. They propose several strategies to address this issue. One approach is to offer financial incentives for recycling plastic or impose penalties for plastic usage, thereby motivating individuals to avoid single-use plastics and promote recycling. Another suggestion is to encourage participation in institutions that



educate and advocate for the circular economy, thereby raising awareness and inspiring action. The establishment of proper waste storage and recycling facilities is another viable strategy, as it would facilitate the recycling process and mitigate the environmental impact of plastic waste. Lastly, incorporating a course on circular economy in the university could engage students in the circular economy, teaching them to repurpose waste materials into new, marketable products. This would not only foster creativity and innovation among students but also demonstrate the potential of the circular economy.

Administrators: Most administrators understand the circular economy concept and apply it in their sectors. For them, circular economy means reducing the environmental effects of their work, from making products to disposing of waste. It is crucial to get the most out of the resources they use, by reusing, recycling, and recovering them. For instance, they make other useful products from recycled paper, such as packaging, stationery, or furniture. In terms of practices, some institutions have waste management plans for their faculty, staff, and students according to government rules. The institute also started a circular economy campaign to fight plastic pollution, with a no single-use plastic goal. For example, USM has encouraged a circular economy through co-curricular activities and putting recycling bins around the school. But more policies and strategies are needed.

4.1.2 NGO and non-NGO stakeholders

In Malaysia, various organisations and companies are actively implementing circular economy practices, recognising the importance of minimising waste and optimising resource utilization. While the government has not provided specific definitions or benchmarks, initiatives are being taken to promote sustainable consumption and production. Youth Organisations, private companies, NGOs, and non-NGOs are all involved in activities such as waste separation, recycling, and energy-saving. Stakeholder involvement is crucial for the success of circular economy practices. Challenges include limited consumer awareness and resistance to change from traditional linear economy practices.

In Cambodia, there is a range of understanding and implementation of the circular economy among different organisations. Some organisations are actively engaged in waste reduction, recycling, and innovative waste management, while others are not familiar with the concept. Youth Organisations recognise the benefits of the circular economy and are involved in waste reduction and recycling activities. Public sector representatives and private companies have different interpretations of the circular economy, while NGOs emphasise waste reduction and recycling through partnerships and innovation, non-NGOs also recognise the importance of the circular economy and encourage engagement with it. Monitoring and evaluation mechanisms vary, but there is a need for more specific indicators and statistics.

Organisations in Laos have various levels of understanding and application of the circular economy. Some organisations are actively engaged in waste segregation, recycling, and resource efficiency, while others are not. Youth Organisations recognise trash separation and recycling as essential components of the circular economy. Representatives from the public sector equate it with sustainable development and green growth. Private corporations have varying levels of understanding, whereas NGOs have developed waste management projects. Monitoring and assessment procedures vary, but exact measures and





statistics are few. Stakeholder participation and raising awareness are success factors, but knowledge and resources are restrictions.

4.2 Waste management and practices

4.2.1 Internal stakeholders

Waste management was widely perceived among internal stakeholders, as a practice of waste segregation and promotion of reducing plastic use. These are deemed critical for promoting a more sustainable environment. However, the current state of waste management on campuses is not satisfactory. Despite institutional announcements about cleaning activities and the presence of trash cans, waste management practices are not yet fully implemented, as evidenced by litter scattered throughout the campus. Universities face challenges in implementing waste segregation, especially for dry waste and food waste, necessitating cooperation from municipal councils and universities. Students at NUOL, for example, have participated in various programs to raise awareness about waste separation and compete for the best recycling performance. However, not all students and visitors follow the waste separation guidelines, resulting in rubbish bins mixed with wet and dry waste.

Students: Many students understand waste management as separating different types of waste. They also recognize the importance of reducing plastic consumption for a more sustainable environment. Yet, the current state of waste management on campus leaves much to be desired. Although the institution has made efforts to foster cleaning activities and provide trash bins, the implementation of waste management is still inadequate. This is clearly seen in the trash that is spread around the campus.

Academics: Waste management was mostly perceived as “*waste segregation*”. Still, they pointed out that some people may not be aware of the benefits of separating waste before disposal, such as reducing environmental impact and saving resources. However, universities also face challenges in implementing waste segregation, especially for dry waste and food waste. Therefore, we need the cooperation of the municipal council and USM to promote and practise waste segregation.

Administrators: Waste separation is a crucial practice to reduce the environmental impact of waste and to promote its reuse and recycling. For example, it was noted that administrators and students at NUOL have participated in various programs to raise awareness about this issue and to compete for the best recycling performance. However, not all students and administrators are following the waste separation guidelines, and some rubbish bins are mixed with wet and dry waste.

Internal stakeholders noted that the campus has implemented various measures to improve waste management, such as installing bins for different waste categories and collaborating with service providers who collect and dispose of the waste. The campus also recycles and reuses some materials, such as bottles and cans, which are washed before being thrown away. They believed that recycling and reusing plastic bags is one of the possible solutions to the environmental issue of plastic waste. However, some waste still ends up in public spaces. Some participants noted that their universities do not have a systematic and widespread approach to this. One participant said that his university does not sort the waste, but just dumps it in the trash bin. To make waste segregation



effective, we need a proper collection system and the support of the top management, who can lead by example and promote sustainability actions among the faculty and staff.

Students: Placing bins for different types of waste in front of classrooms and partnering with collection service companies are commonly found on the campus to manage waste better. But some solid waste still ends up in public areas. The campus also recycles and reuses waste materials. For example, bottles or cans are cleaned before throwing them away, making them ready for recycling.

Academics: One way to address the environmental problem of plastic waste is to recycle and reuse plastic bags as much as possible. Some types of waste can also be converted into fuel, which can be a valuable resource for energy production. However, some respondents observed that their universities have done it systematically and widely. As one respondent explained, his institution does not practise waste sorting, just throwing garbage into the trash can.

Administrators: Waste segregation is an important practice that can help reduce the environmental impact of our daily activities. Recycling the used paper can save trees and energy, and prevent landfills from overflowing. However, paper is not the only material that can be recycled. Plastic products can also be reused or sold, and other waste can be used for composting. This way, we can minimise the amount of waste that goes to the dump site or the landfill, which are often managed by private firms. To implement waste segregation effectively, we need to have a proper collection system and the support of the top management, who can set an example and encourage sustainability actions among the faculty and staff.

4.2.2 NGO and non-NGO stakeholders

In Malaysia, the surveyed organisations have varying levels of awareness and activities related to waste management. Youth Organisations are involved in composting food waste and selling old paper, while private companies practise waste collection, separation, and recycling. Some organisations emphasise the importance of awareness and proper waste segregation, while others collaborate with NGOs and conduct training programs for employees. Guidelines and policies related to waste management vary among organisations, with some having specific guidelines and others not. Activities to support waste management include waste separation, donation, and upcycling. However, specific activities are not mentioned by all organisations. Measuring the success of waste management activities is not commonly done, with only a few organisations reporting activities or measuring success based on awareness. Success factors identified include awareness, collaboration, proper waste segregation, and a cleaner environment. Weaknesses mentioned include poor awareness and resistance to change.

In Cambodia, the surveyed organisations have various levels of waste management awareness and activity. The public sector recognises a lack of waste management skills, whereas private enterprises practise trash separation and even use waste materials into their design process. Some organisations indicate following government policies and implementing waste management efforts, while others provide mixed comments or have minimal awareness. Waste management rules and regulations vary by organisation, with some adopting Ministry of Education and Environment norms. Reducing trash, incorporating it into design and building projects, raising awareness, providing waste bins, and encouraging reusable waste are all examples of waste management activities. It





is uncommon to measure the success of waste management efforts, however some organisations estimate success based on observations or reports from schools and communities. Awareness, stakeholder participation, understanding of the benefits of waste management, and collaboration with government agencies and the corporate sector have all been recognised as success factors. Lack of involvement, resources, finance, and human resources have all been identified as weaknesses. Policy design, capacity building, dissemination, training, and technical assistance are thought to be feasible.

In Laos, the surveyed organisations also have different levels of awareness and activities related to waste management. Youth Organisations practise waste segregation, reuse, recycling, and reduction based on the 3R principle. The public sector takes personal actions such as using their own bags when going to the market. Private companies express a lack of awareness, while NGOs are aware of waste management problems. Awareness-raising activities include compulsory education on environmental protection and reducing the use of plastic bottles. However, specific guidelines related to waste management are not mentioned by the organisations. Existing activities specifically focused on waste management are limited, with one private company searching for information and collaborating with a waste management centre. Measurements or statistics demonstrating the success of waste management activities are limited. Monitoring and evaluation mechanisms are not commonly mentioned. Success factors identified include education, culture, employee awareness, direct benefits, good planning, clear communication, and community behaviour. Weaknesses mentioned include poor employee awareness and the lack of monitoring and evaluation mechanisms. Collaborations are mentioned by some organisations, but not all have collaborations in place. Feasibility is believed to be possible with separate bin boxes, interesting policies, and important information announcements. However, one organisation mentions that it would take time for staff to adjust.

4.2.3 Local community

This section focuses on evaluating the awareness and understanding of villagers regarding waste management. The survey was conducted in six provinces across three countries, including Vientiane Capital and Savannakhet in Laos, Phnom Penh and Svay Rieng in Cambodia, SMK Lingga and North East of Penang in Malaysia. The informants in the part are local community leaders whose ages vary, with an average age of around 45 years old. The oldest informant is 59 years old, and the youngest is only 19 years old. The survey results showed that most informants are well aware of waste management. Five out of six informants said that they understand the meaning of waste management, while only one informant said that he did not understand it clearly. However, he was able to correctly identify the activities that are related to waste management.

Waste management awareness among local community residents varies across countries. Based on the observations of informants, residents and community leaders in Vientiane Capital, Phnom Penh, and SMK Lingga have shown to have a high level of awareness regarding waste management practices. However, the residents' awareness of waste management in Savannakhet and Svay Rieng is relatively low. The head of the community sample in Penang stated that the knowledge of waste management in his community is moderate. It seems that the residents' knowledge of waste management is related to the awareness-raising activities implemented in their respective communities. For instance, community leaders in Vientiane Capital employ various strategies to increase their





community's understanding and awareness of waste management, such as launching awareness campaigns, sharing information about waste management, and engaging households in waste management through agreements. Similarly, in Phnom Penh, community training sessions are conducted to educate the residents about proper waste management. In SMK Lingga, residents are regularly encouraged to use less paper and plastic bags through awareness campaigns. On the other hand, the lack of active cooperation between government, non-governmental organisations, and private sectors may lead to low awareness levels. The heads of communities in Savannakhet and Svay Rieng provinces stated that they did not collaborate with these sectors in waste management, which resulted in relatively poor knowledge of waste management among the residents. In contrast, households residing in the surveyed communities of Vientiane Capital, Penang, and SMK Lingga provinces have a strong collaboration with the government, non-governmental organisations, and private sectors regarding waste management.

Informants' perceptions of the quality of waste management in their community are mixed. Most informants thought that waste management in their communities has been improved compared to five years ago. The head of a sample community in Vientiane Capital said that waste management in his community is much better. This is partly because of improved infrastructure and continuous work in waste management. Moreover, community leaders reflected that community residents' awareness significantly increased. They actively participate in waste management activities such as cleaning, separating waste, and disposing of waste in appropriate places within the time manner. In contrast, an informant in Penang said that current waste management in his community is worse than five years ago. He clarified that the disposal area used to be close to his community. Due to the expansion of the community, the disposal area was moved away, and it takes them more time to get to the place. The current survey found that although most informants said that waste management in their community has been improved, they are not satisfied with the current state. Only the head of the community sample in Vientiane Capital thinks they are doing well in waste management. The remaining informants in Savannakhet, Phnom Penh, Svay Rieng, and Penang said that waste management in their community is still poor.

4.3 Waste to resources

4.3.1 Internal stakeholders

The consultation of internal stakeholders (students, academics, administrators) in Southeast Asia revealed a consensus that waste can be converted into valuable resources for product development and income generation. Some waste materials, such as paper, glass, plastic and food waste, are reusable and recyclable. Recycling can enhance the value of the products and reduce the use of natural resources and environmental impact. For example, on campus, universities have waste collectors and utilise them for various purposes, such as reusing, recycling into useful products, or recovering solid waste for decoration and ornamental purposes. One way to reduce plastic waste is to create bottle caps from melted plastic and add unique patterns to them. These bottle caps can be used as souvenirs or sold to customers. Another way is to collect and reshape low-value or non-recyclable plastics into boards for various uses, as done in Sihanoukville, Cambodia, where a market for low-value or non-recyclable plastics has emerged. However, waste recycling is a complex process that requires extensive research and investment. As educational institutions, we can collaborate with students or community members





to create something beneficial for daily use or income generation from these reused resources. This can also improve the economy and decrease pollution.

Students: Transforming waste into valuable products can reduce the amount of waste and generate income. For instance, reduce plastic waste by creating bottle caps from melted plastic and adding unique patterns to them. These bottle caps could be used as souvenirs or sold to customers. Another example is to reuse waste materials such as mineral bottles, car tires, paper, etc. to make creative products such as vases, origami, bookmarks, boxes, furniture, etc. These products can also be used for personal use or sold to others. Therefore, waste can be regenerated into valuable products that can benefit both the environment and society.

Academics: Most academics agreed that waste could be reused as valuable resources to make other products. For instance, organic waste can be composted into crop fertilizer, while plastic waste can be converted into construction materials. In Sihanoukville, Cambodia, a market for low-value or non-recyclable plastics has emerged. These plastics are collected and reshaped into boards for various uses. Some waste can also be transformed into fuel, like biodiesel or biogas. However, waste recycling is a complex process requiring extensive research and investment. In short, waste recycling benefits the environment, economy, and society by creating new products and generating income.

Administrators: Administrators mostly agreed that waste could be transformed into valuable resources. Some types of waste, such as paper, glass, plastic and food waste, can be reused and recycled. Recycling can increase the value of the products and reduce the consumption of natural resources and protect the environment. It was noted that on campus, universities have waste collectors and we use them for various purposes, such as reusing, recycling into useful products, or recovering solid waste for decoration and ornamental purposes. For research and commercial purposes, as an educational institution, we can take initiative with students or community members by creating something beneficial for daily use or generating income from these reused resources. At the same time, we can improve the economy and decrease pollution.

4.3.2 NGO and non-NGO stakeholders

In Malaysia, the surveyed organisations have participated in a variety of waste to resource activities, including food bank programs, school recycling projects, and upcycling projects. Some organisations have refused to participate in waste to resource efforts. Most organisations and businesses do not have a developed waste to resources policy; however, several have acknowledged the idea of working on one in the future. Waste to resource programs are promoted, with examples including recycling plastics, paper, and coconut shells, as well as using food scraps and yard trimmings as plant fertilizers. Most organisations and businesses lack explicit guidelines about waste to resources. Some groups mentioned collaborations with government agencies and municipal administrations. The viability of applying the waste to resources concept differed by company, with some saying it was possible but difficult. One Youth Organisation indicated having a waste management policy to assist waste to resources operations, while others did not respond clearly.

In Cambodia, there is a range of involvement in waste to resource activities among organisations. Some organisations collaborated with local businesses to reuse materials and promote waste reduction. While some organisations and





companies do not have established policies, they anticipate the development of new policies or strategies in the near future. Knowledge about waste to resources is present, with examples including transforming plastic waste into products and treating wastewater for conservation. Guidelines specifically related to waste to resources vary among organisations. Collaborations with government departments were mentioned by one organisation. The feasibility of implementing waste to resource concepts varied among organisations, with some believing it was feasible but emphasising the need for coordination and collaboration. Some organisations have policies that support waste to resource activities, while others do not.

The extent of involvement in waste to resource initiatives varies by organisation and company in Laos. Some Youth Organisations encouraged waste to resource initiatives through exhibitions and the production of waste derived bio-products. Some organisations chose not to engage in waste to resource programs. While some organisations and businesses have waste management and recycling policies and practices in place, others do not. Composting is one of the wastes to resource activities that some organisations are actively involved in. The organisations and businesses polled had varied levels of comprehension and involvement in waste to resources. Among the surveyed organisations and businesses, there is a shortage of guidelines specifically connected to resource waste. Collaborations mentioned include training and financial assistance. Opinions on the feasibility of implementing the waste to resources concept varied among the surveyed organisations. Some believed it was achievable given adequate resources and stakeholder participation, while others expressed doubt or the need for additional research. In terms of waste to resource policy, some organisations identified specific procedures, while others did not have explicit rules in place.

4.3.3 Local community

Waste-to-resources is a critical component of the circular economy. In Vientiane Capital, the community treats waste as a resource and has transformed wet waste into organic fertilizers for plants. Additionally, paper, plastic bottles, glass bottles, and metal containers can be recycled, providing an opportunity for the community to earn money by selling the waste. Similarly, the community in Phnom Penh has invented garbage baskets made from plastic bottles, while community leaders in Penang have encouraged residents to reduce their use of plastic items and create new things from plastic waste. By adopting these innovative waste management practices, these communities are contributing to a more sustainable future. Many products have been created from waste, such as pencil containers made from plastic bottles and gardening pots created from used tires. Out of the six community samples, two revealed that they worked alongside relevant government and non-government organisations to turn waste into resources. The Vientiane Capital community collaborated with JICA and private companies. They had plans to construct a solid waste bank and a small-scale plant that transforms wet waste into organic fertilizer. Unfortunately, the plan was postponed due to the COVID-19 pandemic. However, the community and JICA are resuming and implementing the plan in 2024. The community sample in Penang also closely worked with government organisations and resident associations in waste-to-resource practices.





4.4 The implementation of 3R principle in waste management

4.4.1 Internal stakeholders

The data analysis revealed that all the internal stakeholders had a good understanding of the 3R principle (Reuse, Reduce, Recycle) and practised household waste management daily to minimise environmental impact. The prevalent method was waste segregation before disposing. For example, one administrator shared that her family split waste into wet and dry waste. She utilised the wet waste as organic fertilizer for crops and cleaned and dried the plastic bags to reuse them. She also stores glass items separately for proper disposal. For this group of stakeholders, by sorting our waste, we can help contribute to cleaning, protecting the environment, and saving resources.

Students: Common way to manage household waste is to sort it into different categories, such as dry, wet, or broken items. This can help reduce the amount of waste that goes to landfills and increase the recycling rate. Some types of waste, such as plastic, aluminium, or water, can be sold or donated to organisations that reuse them. Other types of waste, such as glass or plastic bottles, should be cleaned and disposed of properly or burned in a safe manner. By separating waste, we can contribute to a cleaner and greener environment.

Academics: It was noted that all academics practised waste management daily in order to reduce environmental impact. One academic, for instance, uses kitchen waste as fertilizer for plants and pet bottles for other purposes. However, they commented that it was hard to find places to drop off recyclable materials, such as in Phnom Penh, indicating the government waste management system is not very effective. In addition, they also practise waste separation before disposing of the waste and separate the residual waste and put it in a large bin for the company that handles it.

Administrators: Most administrators have practiced waste segregation. One way to reduce the environmental impact of waste is to sort it into different categories and reuse or recycle what we can. For example, one administrator said her family divided their waste into wet and dry waste. They use the wet waste as organic fertilizer for their crops, and wash and dry the plastic bags to use them again. We also store glass items separately for proper disposal. Another method is to separate the waste into degradable and non-degradable materials. We can also identify the materials that can be recycled, such as cans, plastic bottles, newspapers, and books, which can be sold to the recycling centre or donated to others who need them. By sorting our waste, we can help protect the environment and save resources.

4.4.2 NGO and non-NGO stakeholders

The survey results in Malaysia indicate a mixed approach to promoting the 3Rs (Reduce, Reuse, Recycle) among organisations. While some Youth Organisations and private companies have policies and initiatives in place, others lack specific guidelines or projects related to the 3Rs. An NGO shows a commitment to sustainable waste management practices, but a non-NGO seems less engaged. Monitoring and assessment practices are limited, with few organisations having dedicated task forces for this purpose.

The responses in Cambodia also show a varied approach to promoting the application of 3R principle. Some organisations, such as the public sector and





certain private companies, follow government policies and have specific plans. However, others lack policies or projects related to the 3R principle. Monitoring and assessment practices vary, with some organisations having dedicated task forces while others do not.

In Laos, there is a general lack of focus on waste management and the promotion of the 3Rs across organisations. Only a few organisations have specific policies or initiatives related to the 3Rs, and monitoring practices are limited.

4.4.3 Local community

Implementing the 3R principle does not only help to reduce waste but also to cut down on household expenses. Communities in Vientiane Capital, Savannakhet, Phnom Penh, and SMK Lingga have successfully implemented the 3R principle to tackle their community waste problems. For instance, the community in Vientiane Capital has launched a campaign to cut down on waste generation and promote the reuse of plastic bottles. Similarly, households in Savannakhet have adopted the habit of reusing plastic bags. However, some communities, such as those in Svay Rieng and Penang, do not regularly follow the 3R principle in their waste management practices.

4.5 Social innovations and current practices

4.5.1 Internal stakeholders

The internal stakeholders perceived social innovation as creative actions that address social issues and bring positive changes to the community, as well as to protect resources. In their opinion, social innovation is important for society and helps to protect resources. One way to achieve this is by managing waste materials well and encouraging the reuse of reusable materials. Academics and administrators had some experience joining social innovation projects, such as asking students to produce a new product and resell it, like the mineral bottle. However, this is a good concept but difficult to implement, especially in rural or lower-income areas where people may not care about environmental issues. Therefore, a financial incentive is needed to co-operate with this initiative. However, it was suggested that social innovation could be initiated in the educational institution. For example, USM in Malaysia suggested inventing an automatic recycle bin that can sort the waste by material, developing a module of Green Office that promotes sustainable practices in the workplace, and offering a compulsory course to students on 3Rs (reduce, reuse, recycle) initiatives.

Students: Social innovation is perceived as creative actions that address social issues and bring positive changes to the community.

Academics: Social innovation is important for society and helps to protect resources. One way to achieve this is by managing waste materials well and encouraging the reuse of reusable materials. However, this is a good concept but difficult to implement, especially in rural or lower-income areas where people may not care about environmental issues. Therefore, a financial incentive is needed to co-operate with this initiative. Another way to foster innovation is to develop a system that can help entrepreneurs take out loans easily, such as Tekun Nasional in Malaysia. This can stimulate economic growth and create more opportunities for innovation.





Administrators: One of the challenges of waste management is to find ways to reuse or recycle materials such as plastic and water. Some platforms, such as YouTube and Facebook, can be used to raise awareness and educate people about the benefits of recycling and reusing. However, not all facilities have the capacity or technology to process different types of waste efficiently. For example, in Malaysia, there is a lack of social innovation and government support for recycling initiatives. Therefore, some possible solutions are to create an automatic recycle bin that can sort the waste by material, to develop a module of Green Office that promotes sustainable practices in the workplace, and to offer a compulsory course to students on 3Rs (reduce, reuse, recycle) initiatives.

4.5.2 NGO and non-NGO stakeholders

Based on the survey responses from organisations in Malaysia, Cambodia, and Laos, there is a varied understanding and perspective on social innovation. Youth Organisations see social innovation as a means to benefit the community, while private companies focus on reducing environmental impact. An NGO highlights the importance of social innovation in waste management. However, not all organisations have participated in social innovation projects, indicating a potential gap in engagement. The approaches to implementing social innovation also vary among organisations.

In Cambodia, organisations have different views on social innovation, with some focusing on improving welfare and others on creating a sustainable society. NGOs see social innovation as a way to address social and environmental issues. However, none of the organisations have participated in or implemented social innovation projects, suggesting a need for more engagement. The approaches to implementing social innovation also vary among organisations.

There is limited understanding of social innovation among Youth Organisations in Laos, indicating a need for more awareness and education. However, one organisation shows promising understanding. Only one NGO has implemented a social innovation project, while other organisations have not participated in such initiatives. The approaches to implementing social innovation also vary among organisations.

5. Conclusion

This report first compiles case studies and existing practices related to circular economy. Secondly, it reports the results of interviews and consultations with stakeholders in Malaysia, Cambodia, and Laos.

For the case studies, some interesting cases relating to living lab or circular model from the universities of countries such as two cases from Spain, a case from Italy, a case from Germany, and a case from Lao PDR have been reviewed. One of the living labs in Spain is Mondragon Unibertsitatea Campus Circular y Sostenible (MUCS). The project's goal is to design and implement a methodology for identifying, evaluating, prioritizing, deploying, and monitoring circular economy strategies, which will improve the efficiency of resource management (energy, water, materials) on the different campuses of Mondragon University and contribute to achieving the Sustainable Development Goals 2030. Another case in Spain is SERCampus-Environmental services evaluation of the green spaces of Cantoblanco Campus in the Autonomous University of Madrid. The main purpose of this project is to improve the knowledge of the environmental benefits that the





green spaces of the Cantoblanco Campus of the Autonomous University of Madrid (UAM in Spanish) provide to improve the well-being of the university community. The project in Italy is the Social Cooperative Palm Work & Project Onlus, which is a social cooperative whose mission is to create harmony between ecology and socio-economic systems. Following the criteria of eco-design, it has been promoting the work placement of young people with disabilities. Through an innovation and social carpentry lab, the project enhances a systemic approach to design and upcycling in the creation of eco-furniture for the home and community. The project in Germany is Karlsruhe Transformation Center for Sustainability and Cultural Change (KAT) establishment project, which had been implemented in Germany, between 2018-2021. Although the project ended, the center is still in operation. The KAT wants to accompany and initiate transformation processes towards sustainable ways of life and sustainable business activities. Other goals include areas such as research (transformative sustainability research), experimental spaces (in form of a real-world lab), innovation & action (sustainable development in all areas of life), education about sustainable development at university, schools and public level as well as advice and consulting about sustainability, communication & networking with different stakeholders or companies and to establish a space for reflection and contemplation as well as a thinking space open for the community. The case study in Laos is the Waste Management Project of Faculty of Environmental Sciences, National University of Laos. It aims at practicing waste separation at source, promoting the application of 3Rs principle, and introducing Refund-Deposit Scheme (RDS) called waste recycle bank. Waste recycle bank aims at increasing students' awareness of the value of waste

The survey includes students, academics, and administrators at the universities or educational institutes, NGOs, non-NGOs, private sector and local communities. The results showed that internal stakeholders, NGOs, non-NGOs, private sectors and local communities are aware of waste management. They have been implementing various measures, including the 3R principle, in waste management. Waste is transformed to valuable resources, such as organic fertilizers from wet waste, gardening containers from plastic bottles, etc. By doing so, it does not only manage waste in the universities, institutes, and local community effectively, but also generates income opportunity. Social innovation is known as an important tool for addressing the existing problems and bringing positive changes to the community. While students, academics and administrators at the university know the concept of social innovation well in Malaysia, there is limited understanding of social innovation in Laos and Cambodia, indicating a need for more awareness and education.

Designing a circular model that is tailored to the specific context of selected countries in Southeast Asia poses a significant challenge. However, this report offers valuable lessons learned from case studies and practical experience, which can be utilized to formulate an effective circular model. The results of stakeholder consultations provide a shared foundation for establishing the connections between teaching, research, innovation, and society, with a view to promoting social innovation in the circular economy. Furthermore, this approach can enhance community-based participatory research while also advocating for a new pedagogical framework that integrates practical projects, experiential learning activities, and community engagement actions into curricula.

