



External Evaluation ERASMUS Project “Sustainable solid waste management and policies, SWAP” (call 2020)

EVALUATION REPORT: MIDTERM EVALUATION

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1 Introduction

The ERASMUS project “Sustainable solid waste management and policies, SWAP” is implemented from Jan 2021 to December 2023 under the coordination of TU Hamburg. In autumn 2022, the Institute of Waste Management and Circularity, University of Natural Resources and Life Sciences Vienna was contacted and asked to serve as external evaluator for this project. After signing an agreement, on December 12, 2022 a quality workshop was held at the TU Hamburg, where all project partners were present. This report summarises the finding of the midterm evaluation, an external evaluation of the final results is planned for December 2023. The scope of the evaluation addresses the content and the management of the project and, no financial information was evaluated.

2 Project information

The following aims, activities and expected results are taken from the project proposal (following parts *in italics*).

2.1 Aims

Considered the common needs as well as the needs specific for each Partner Country within the Southeaster Asian region, the general aim of SWAP project is to contribute and support in building capacity at tertiary level and to support training addressed to the vulnerable group of informal waste practitioners.

In this sense, the project has the purpose of improving entrepreneurship as well as the employability of university graduates of the HEIs from Southeast Asia in the sector of sustainable solid waste management, thanks to a close cooperation among the actors of the quadruple-helix. Thanks to this holistic structure, SWAP Project will pave the way to support relevant policies, providing with high quality educational products and tools.

To pursue this general aim, the following specific objectives are to be achieved during the project’s lifetime:

- 1. Developing new training and teaching programmes addressing the issue of sustainable solid waste management and integrating technical education with training sessions addressing business start-up in the field of solid waste management.*
- 2. Implementing measures and inclusion policies for the informal sector, namely involving this target group to safer and healthier work practices and introducing them to newly developed TVET products.*
- 3. Setting up Training Hubs that can be used also beyond the project’s closure.*
- 4. Establishing the TVET products focused on sustainable solid waste management within the activities of newly established “Training Hubs for Sustainable Solid Waste Management and Policies”.*
- 5. Institute sustainable synergies and links with the stakeholders in the private sector in order to fulfil their need in specialised personnel handling post-consumer material, training needs and enhancing the employability of university graduates.*
- 6. Endorsing continuous cooperation, exchange of know-how and good practices between the Southeast Asian region between EU and Southeast Asian HEIs.*

7. Disseminating project results and sustainability concepts in the field of solid waste management to the general public and the society at large, involving in the dissemination process also school students and their relatives.

2.2 Activities

In order to fulfil the aim and the specific objectives set for the SWAP project, the working methodology is structured on four major blocks of activities:

Block A: complete the preparatory activities performed during the proposal preparation, closing the frame on the current situation of the higher education institutions in the sector of waste management, in terms of what is their educational offer, what is their relation with relevant detected need, with the local industries operating in the sector.

Block B: increase entrepreneurship and employability of the graduates in the sector by increasing the quality of educational products that they currently receive and complementing them with the topics of sustainability and business creation. An active involvement of stakeholders from private sector in shaping the educational products according to their specific needs is also beneficial to this end.

Block C: provide the HEIs with new tools, governance models and educational strategies and policies and push for modernisation in the management of learning systems.

Block D: coordinate the overall project to ensure its successful running and that the activities and results meet the quality standards set at the beginning of the project. Ensure that the results are further exploited and raise awareness in young generation of students.

In order to properly developing this methodology, the project will start with the completion of preparatory activities, performed in the proposal preparation stage with the development of a need analysis at the level of Partner Country, and at the level of each Partner Country Institution. WP1 will allow gathering all the information of the proposal preparation phase as well as completing the information related to the expectations of the industries operating in the waste management sector towards the graduates. WP1 will last for 4 months, as this is the envisaged time to fulfil at best the foreseen activities. The major milestone (M1.1) is the report "Solid Waste Management in Southeast Asia: What does the industry expect?". Measurable indicators: number of courses matching the needs coming from the waste management private sector.

Information gathered for WP1 will serve as a basis for the development phase of the project. The development WPs are composed of tasks and for each task more sub-tasks are specified. The Consortium chose to set this approach already at proposal stage, so that the activities to be implemented are clear and defined.

WP2 and WP3 will run in parallel but their development will be similar. These two WPs aim at fulfilling the Block B identified above.

Specifically, WP2 deals with the development of educational products for academia. Workshops and study visits will contribute to this end as well as academic staff training sessions. After development of the educational products, it is foreseen that the latter will also be implemented and monitored during a pilot period. Further improvement and eventual

accreditation are also an important activity of this WP. The major milestones for WP2 are: (M2.1) delivery of the teaching material, (M2.2) seminar for academic staff training, (M2.3) successful pilot semester, (M2.4) successful accreditation process. Measurable indicators: number of education products developed for academia in the field of SWM; number of seminars for academic staff training; number of University courses successfully implemented and accredited.

WP3 deals with the development of TVET educational products. Workshops and study visits will contribute to this end as well as train-the-trainers sessions. After development of the educational products it is foreseen that the latter will be addressed to local trainers, so that they can implement these products. The developed products will also be adapted to meet the needs of target groups at different educational levels. The main beneficiaries of this activity will be representatives of the informal sector working with waste. All developed products will be monitored during a pilot period, further improved and eventually accredited. The major milestones for WP3 are: (M3.1) delivery of the training, (M3.2) train-the-trainers sessions, (M3.3, M3.4) successful pilot courses targeted to both trainees and informal sector representatives. Measurable indicators: number of training courses for TVET; number of trained trainers; number of pilot courses targeted to trainees and informal sector representatives.

WP4 will cover the activities in Block C. Educational strategies and tools will be developed. Specifically, within WP4:

- an open online platform will be implemented that will be used as learning management system, i.e., a sharing platform and a database for and of experts in the waste management sector;
- Training hubs will be implemented. First, all design requirement will be developed (quality standards, goals, tasks, governance schemes, business plans), and then the physical set-up of the hubs will take place;
- Multi-stakeholders governance teams representing all typologies of stakeholders involved will be established to monitor functioning and results of the Training Hubs.

Major milestones of WP4 are the (M4.1) successful implementation and running of OOLMS, (M4.2) Feasibility studies for the training hubs and (M4.3) multi-stakeholder governance teams.

Measurable indicators: number of hours of use of the open online platform; number of training hubs.

Three horizontal activities frame the project in its whole duration: Quality Plan related activities (WP5), dissemination and exploitation activities (WP6) and project's management (WP7).

Activities foreseen in WP5 aim at ensuring the quality of the project's implementation and results, based on quality standards and indicators that will be set in the quality control plan. Milestone in WP5 are the results from (M5.1) internal and (M5.2) external monitoring.

WP6 is crucial for the broad dissemination and exploitation of the project's results, targeting actions to different stakeholders. An important approach foreseen in WP6 is the implementation of activities for raising awareness on young generation of students, highlighting the importance of sustainable SWM and offering them an overview on the educational opportunities (at academic and TVET level) they have if they are willing to continue with their studies. A Dissemination Plan will be then set at the start of the Project, so as to detail all dissemination activities, relevant timelines, measurable indicators.

WP7 deals with the overall project management and coordination.

2.3 Expected results

Partner Country: VIETNAM

- *n.1 report on current education on solid waste management in Vietnam*
- *n.4 academic staff for each HEI involved in two study visits in EU universities*
- *n.2 new innovative courses developed (20-50 students benefit per semester)*
- *n.4 existing courses updated (150-170 students benefit per semester)*
- *Workshops on educational products in sustainable solid waste management (SSWM)*
- *Recommend reform policies in SSWM*
- *Open Online Learning Management System (OOLMS) and its handbook and the database of experts*
- *Multi-stakeholders governance teams*
- *High quality training courses*
- *Training Hubs dedicated to sustainability in waste management, that will encounter big interest in the students and in the companies in the sector. The Training Hubs would be used for future new training courses as well.*

Partner Country: CAMBODIA

- *n.1 report on current education on solid waste management in Cambodia*
- *n.4 academic staff for each HEI involved in two study visits in EU universities*
- *at least n.3 new high quality and officially accredited training and/or teaching courses on sustainability in waste management (20-40 students benefitting)*
- *training products and tools addressed to informal workers*
- *Market based curriculum and courses relating to waste management will be implemented in HEIs*
- *Establishment of Waste management units in the University departments*
- *Interest increase from the companies in the sector (increasing number of MoUs signed between HEI and industrial partners)*
- *The OOLMS and its handbook and the database of experts*
- *Recommend reform policies in solid waste management*
- *Multi-stakeholder governance teams*
- *Students and teachers utilize and share obtained knowledge and skill in the field of solid waste management with communities and relevant parties*
- *Vocational Training Hub on Waste Management Centre to be established.*
- *Course designer handbook.*

Partner Country: THAILAND

- *Interest increase from the companies in the sector (increasing number of MoUs signed between HEI and industrial partners)*
- *Building up of the Sustainable Solid Waste Management Training Hubs*
- *Training course on sustainable solid Waste Management for enterprise, community, and school to strengthen enterprises and community capacity by using provided knowledge and technical support services*
- *The industry or community has proper solid waste treatment policies and management to reduce carbon in environment*
- *Constructive relationship with relevant private and public sectors, e.g. private landfill owners, municipalities, etc.*
- *Role of involved HEIs as the leading institutes in sustainable solid waste management in the country and in the whole Southeast Asian region.*

In general, the following non tangible results are also expected to be achieved in all the Partner Countries involved in the SWAP Project:

- Growth in the academic level of University staff and relevant quality of the courses offered by the Country Universities;*
- Growth in knowledge, competence and skills of university students/new graduates;*
- Improvement in the entrepreneurship and employability of graduates;*
- Growth in knowledge, competence and skills of Vocational and Educational Trainers, VET trainees, informal workers;*
- Growth in the capacity of the waste practitioners and companies to address the technical, environmental and socio-economic issues connected to solid waste management and valorization;*
- Increase in the capacity of the industrial system to exploit the competitive advantage connected to the sound management and valorization of solid waste;*
- Awareness-raising by the whole socio-economic system, including National/local Governance/Public Authorities, profit/no-profit associations, civil society at large.*

3 External evaluation procedure

The external evaluation was undertaken in the fields of relevance, project implementation and partnership and collaboration. Aims were to

- Identify the understanding of the project partners of the relevance of the topics
- Measure the progress in the project implementation
- Check the quality of the outcomes
- Proof the sustainability of the teaching and training approach
- Identify the manner in which the transnational collaboration is performed

Evaluation methods

- Review of project outputs (deliverables, teaching materials, dissemination materials, other)
- Quality workshop with a general discussion, (Dec 12th, morning) and interviews with representatives of the Asian partner Universities (Dec 12th, afternoon).

4 Midterm evaluation - results

4.1 Relevance

To identify the relevance of the project, in the general discussion of the evaluation workshop (Dec 12, 2022) questions were asked about the most urgent needs of waste management in South-East Asia, and about educational needs at Universities and for vocational training. The summary of this discussion (Table 1) shows, that the participants are aware of the needs in the region and prepare the integration of relevant topics into their teaching programme, both at academia and for vocational training.

What are the most urgent needs of waste management in South East Asia?

- In terms of waste streams, the following were mentioned: Food waste, plastic waste (marine litter, lack in source separation); industrial waste, e-waste, agricultural waste
- In terms of processes, collection and transportation as well as disposal (open dumping, open burning, especially in rural areas) were named
- Other needs are financing Waste Management, public awareness and a lack of human resources.

Which topics should be emphasized in education at Universities?

- Treatment technologies like recycling or anaerobic digestion; bioremediation of soil and water; awareness raising
- Circular economy (with EPR, 3R concept), business opportunities and innovation, planning and stakeholder analysis, carbon footprint

Which know-how is needed in vocational education & training?

- Composting, recycling technologies, waste utilization, OHAS in the WM sector

Table 1: Summary of the general discussion

Further questions addressed the tasks of the project partners.

For most partners, the tasks and responsibilities in the project are quite clear, only one partner rated this lower (Figure 1).

For the suitability of the tasks it was mentioned, that one University has a more specific focus (and faces some difficulties with other topics) while one partner is a relatively new University. The other partners named the tasks as suitable (Figure 2).

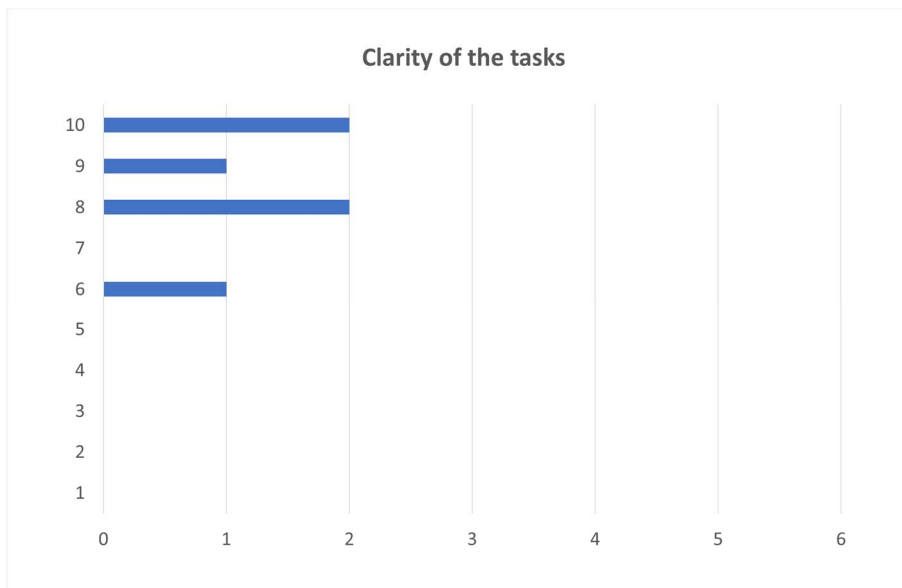


Figure 1: Responses to question: How clear are your tasks and responsibilities as a project partner, on a scale of 1 (none) to 10 (full)?

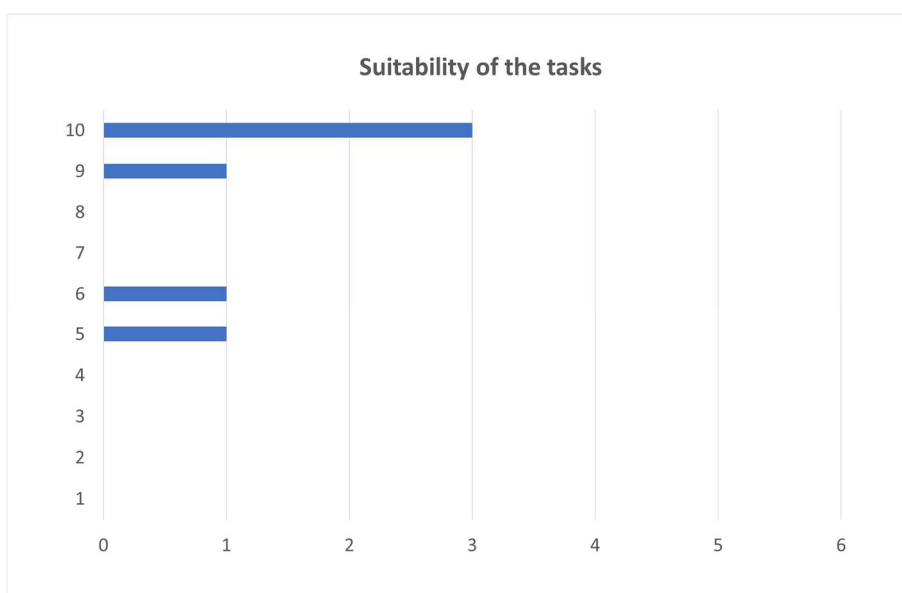


Figure 2: Responses to question: How suitable is the tasks assigned for your organisation, on a scale of 1 (not suitable at all) to 10 (fully suitable)?

4.2 Project implementation

The list of deliverables from the project proposal was compared to the documents available (by Dec 12, 2022). For WP1 all deliverables are available. Both for WP2 and WP3, the documents are partly incomplete or missing. For WP4, the D4.1 is missing, while D4.2 to D4.4 are available. For WP5 and WP6 the deliverables due until Dec 2022 have been completed. For WP7, the deliverables due until Dec 2022 have been completed.

No	deliverable	due date	status
D1.1	Education on Solid Waste Management. The cases of Vietnam, Cambodia and Thailand	Apr 21	completed
D1.2	Solid Waste Management in Southeast Asia: What does the industry expect?	Apr 21	completed
D2.1	Modules to be developed for academia	Aug 21	completed
D2.2	Teaching material on Sustainable Solid Waste Management for academia	Mar 22	incomplete
D2.3	Improvement of the developed academic educational products	Dez 22	missing
D3.1	Courses to be developed for TVET	Aug 21	incomplete
D3.2	Training material on Sustainable Solid Waste Management for TVET	Mar 22	incomplete
D3.3	Educational products for informal workers	Okt 22	completed
D3.4	Improvement of the developed training products	Dez 22	missing
D4.1	Open On-line Learning Management System	Nov 21	missing
D4.2	User handbook	Feb 22	completed
D4.3	Course designer handbook	Apr 22	completed
D4.4	Training Hubs Feasibility studies	Aug 22	completed
D4.5	Guidelines for management of multi-stakeholder governance teams	Feb 23	
D4.6	Report on implementation and functioning of training hubs	Dez 23	
D5.1	Definition, sharing and implementation of the quality plan	Mar 21	completed
D5.2	Risk management and mitigation	Apr 21	completed
D5.3	Quality Assurance Committee Meetings	Mai 23	
D5.4	External evaluator report	Dez 23	
D6.1	Dissemination plan	Apr 21	completed
D6.2	SWAP website	Dez 23	
D6.3	SWAP dissemination portfolio	Dez 23	
D6.4	Sustainability and exploitation plan	Sep 23	
D7.1	Partnership Agreement	Mar 21	completed
D7.2	Management Manual	Jun 23	
D7.3	Financial management handbook	Apr 21	completed
D7.4	Financial management seminars and consultation (event – minutes)	Mar 21	completed
D7.5	Internal Communication Plan	Apr 21	completed
D7.6	Final financial and content reports to the EACEA	Dez 23	

4.3 Partnership and cooperation

In terms of partnership and cooperation, the project partners were asked about the relevance of the project for their organisation. The results (Figure 3) show that all partner institution attribute high relevance to the project.



Figure 3: Responses to question: How important is the SWAP project for the development of your University? On a scale of 1 (not relevant) to 10 (very relevant)

The partner Universities were asked about the positive aspects of the project as well as challenges.

Positive aspects

- Raises the relevance of policies for WM
- Updated teaching materials
- Involvement of stakeholders
- New equipment
- Networking and International cooperation

Challenges

- Stakeholder involvement takes long time
- Language issues
- To match teaching materials with the local situation
- Administrative issues: purchase of equipment is challenging
- Different background and working culture of partners
- Team members change frequently

4.4 Impact

A crucial point for the implementation and sustainability of the project is the internal approval of the new teaching. To get more impression on this, the partner Universities were asked about the status of the implementation.

Implementation of academic courses

At the partner Universities in Vietnam, implementation has started, next steps to follow. At the partner Universities in Cambodia most steps have been taken. At the partner Universities in Thailand the new courses already have been implemented.

TVET courses – how will the long-term function of the training be ensured?

At the partner Universities in Vietnam, business plan in preparation, funding for the future not secured. At the partner Universities in Cambodia funding from the government, from tuition fees and from internal sources is expected; no clear business plan is available at the moment. At the partner Universities in Thailand business plans have been elaborated, funding is in preparation.

4.5 Summary

The external midterm evaluation was undertaken on the basis of a review of project outputs (deliverables, teaching materials, dissemination materials, other) and a Quality workshop with a general discussion, (Dec 12th, morning) as well as interviews with representatives of the Asian partner Universities (Dec 12th, afternoon).

- The **project outputs**, due until December 2022 are mostly available, some deliverables are not yet available or are incomplete and need refinement.
- In terms of **relevance**, the discussion showed, that the participants are aware of the needs in the region and prepare relevant topics into their teaching programme, both at academia and for vocational training. For most partners, the tasks and responsibilities in the project are quite clear, and the tasks are mostly suitable.
- In terms of **partnership and cooperation**, the project partners attribute high relevance to the project. Apart of a number of positive aspects, like updated teaching materials, equipment and improved cooperation challenges were named, such as differences in working culture, language issues as well as administrative issues.
- In terms of **impact**, the implementation of the new teaching and training was analysed. At academic level, the implementation is ongoing. For the TVET courses not all partner Universities have a clear plan, how to secure the sustainability of the training beyond the project end.