



Science Shop 2.0 model in the Asian context

Milestone 11 wp 4

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SCIENCE SHOP 2.0 Model

In the Asian context

[Note: This milestone presents a framework for Science Shop's operational model. After realised survey (MS8), Open Science Forums (E1.11-E1.14) which will include an expert panel with Science Shop practitioners, our approach will evolve from a pure university-based model to a processbased framework of Science Shops work. It will suggest rethinking processes as experimentation on challenges involved in a changing political and institutional landscape – a call relevant to scholars concerned with public engagement and participatory mechanisms in science and technology, as well as to science shop practitioners (T6.2)]

Introduction

The concept of Science Shop (also known as Science Shop 1.0) originated in 1970s in the Netherlands as an approach by higher education institutions to collect and address questions posed by the citizens/ community/ society¹. While the Science Shop 1.0 became popular and gained traction as an approach towards using scientific research and practices to solve societal problems, it also suffered from various critical deficiencies – including the involvement of citizens/societal partners are passive beneficiaries. Hence, to offer a framework for meaningful, equitable and inclusive participation of citizens/societal partners in research practices to jointly address complex social issues - the science shop 2.0 model was developed². This model (see figure 1 below) was first developed in the InSPIRES project in 2020, and provides a more interactive and participatory form of engagement framework between higher education institutions (science) and citizens/ societal stakeholders (society)³.

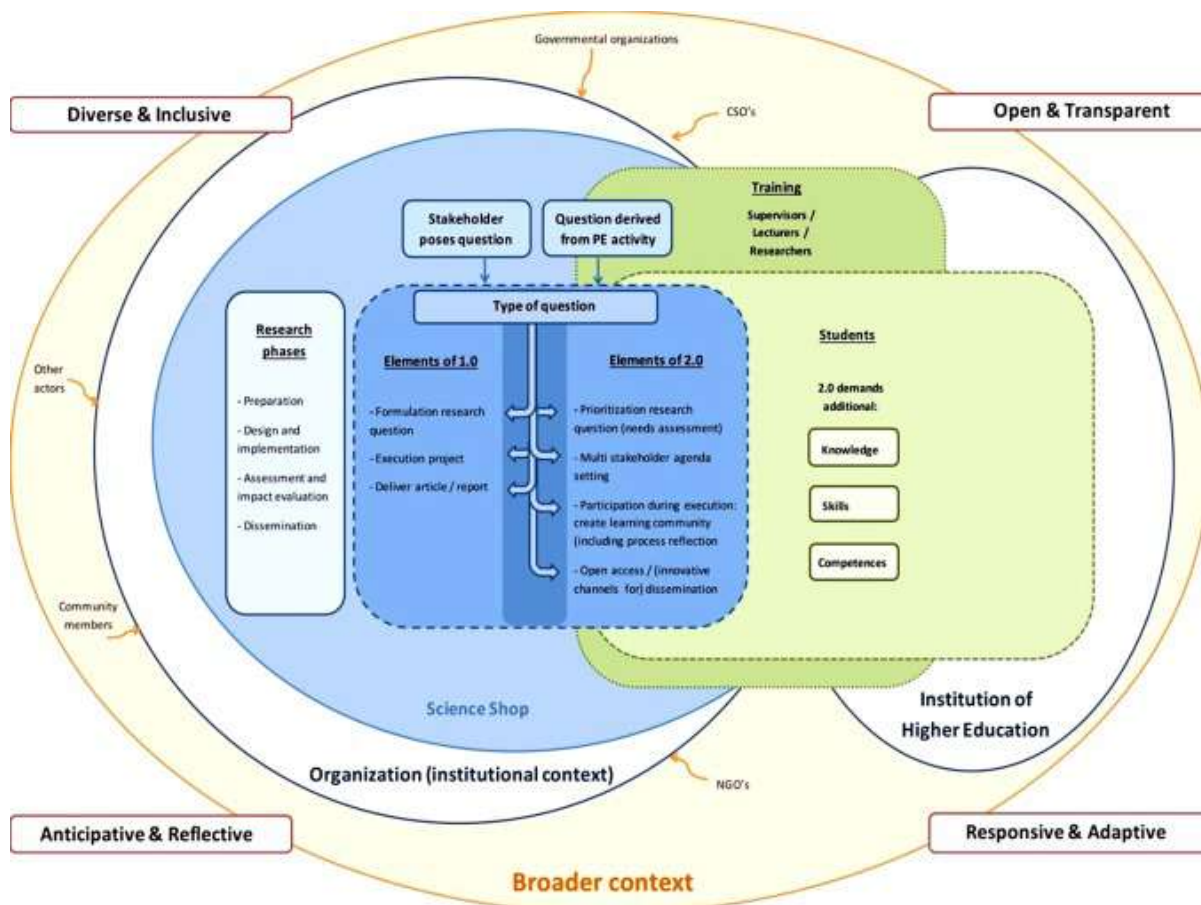


Figure 1. Science Shop 2.0 Framework (click to enlarge)

¹ Leydesdorff, L., Van Den Besselaar, P.: What we have learned from the Amsterdam science shop. In: Blume, S., Bunders, J., Leydesdorff, L., Whitley, R. (eds.) The Social Direction of the Public Sciences. SOSC, vol. 11, pp. 135–160. Springer, Dordrecht (1987). doi:10.1007/978-94-009-3755-0_6

² Pacini, G., Bagnoli, F. (2017). InSPIRES: Science Shops 2.0. In: Kompatsiaris, I., et al. Internet Science. INSCI 2017. Lecture Notes in Computer Science(), vol 10673. Springer, Cham. https://doi.org/10.1007/978-3-319-70284-1_6

³ Urias, E., Vogels, F., Yalcin, S., Malagrida, R., Steinhaus, N., & Zweekhorst, M. (2020). A framework for Science Shop processes: Results of a modified Delphi study. *Futures*, 123, 102613.

The Science shop 2.0 framework (figure 1) includes the following salient features:

1. Values: In line with the responsible research and innovation (RRI) and open science (OS) principles, the science shop 2.0 prioritizes the following four values for community/public engagement in higher education institutions – viz. open and transparent, diverse and inclusive, anticipative and reflective, and responsive and adaptive.
2. Involvement of actors: science shop 2.0 prioritizes meaningful engagement and participation of actors – that includes actors from academia (students, teachers/researchers), and society (citizens/social actors). It is also important that within this framework, societal stakeholders are engaged throughout different research phases (see point 3)
3. Research phases: science shop 2.0 conceptualizes the engagement process into four research phases, viz. Preparation, Design and implementation, Monitoring and evaluation, Dissemination. These phases provide opportunity for multistakeholder collaboration, co-creation, and knowledge co-production – which aims to address complex social problems.
4. Contexts, resources and infrastructure: science shop 2.0 uses an ecosystem perspective to ensure relevant infrastructure, resources and contexts are contingent to support its implementation. These range from institutional embedding, trainings/capacity building of staffs, awareness efforts, provision of support to staffs/implementers, etc.

In the Erasmus project Open Asia we inspired our partners to apply this model in their context. In this report we assess to what level this model needs further adaptation to the Asian context.

Though it is hard to come to one common terminology, we understand **public engagement projects** as a way to facilitate collaborative research projects addressing concerns from society. These concerns could be brought forward by Civil Society Organizations (CSOs) or local communities, students could also be included in this research. Public engagement projects should create synergies between social issues and scientific development, representing an innovative model that put an emphasis on the social responsibility of research and the benefit to local communities. As part of public engagement projects, community-based participatory research (CBPR) is often employed, but also various forms of citizen science. What is important, regardless of the terminology used, is that we aim to see (i) students engage with society during their studies, and / or (ii) researchers create partnerships with civil society groups and/or disadvantaged groups, and (iii) CSOs get into contact with formal academic institutions, universities or research centers.

We will discuss this following the four phases of the science shop 2.0 model i.e. Preparation, Design and implementation, Monitoring and evaluation, Dissemination. For each university we describe the engagement activities they conduct and address the four phases of these activities conducted. The topics we will discuss for each university is:

- The aim of the project (overall question) and how it is funded
- A description of the process of the engagement project
- Benefits for the actors (teachers, students, community partners)
- Insights into development of public engagement practices;

- preparation of the engagement activities,
- monitoring and evaluation of the project;
- stakeholders involved in the assessment
- Support and Institutionalisation of public engagement practices
 - Financial aspects
 - Involvement of different actors
 - Training and support
 - Wider support
- Success and challenges
- Future ambitions and the websites for more information.

In the next section we highlight the public/community engagement models in the partners Universities of the OPEN-ASIA consortium. These existing models will be used to develop and implement Science Shop 2.0 in each of the participating Universities.

Malaysian Partner Higher Education Institutions

1. University Malaya (UM).....5
2. University of Malaysia Sabah (UMS).....18
3. University of Malaysia Sarawak (UNIMAS).....32

Indian Partner Higher Education Institutions

1. Narsee Monjee Institute of Management Studies (NMIMS).....37
2. The Thapar Institute of Engineering and Technology (TIET).....45

University of Malaya (UM)

Universiti Malaya has a number of examples of Public Engagement projects, and for the purpose of this survey, we will highlight three important examples, which are initiatives undertaken by (1) UM Community Engagement Centre (UMCares) (2) UM Sustainable Development Centre (UMSDC) and (3) Services Learning Malaysia - University of Society (SULAM).

1. Public/Community Engagement Project(s) and their aims

a. UMCares

The Universiti Malaya (UM) funds for social engagement, also known as the Community Engagement Grant. The grant was established to provide opportunities for lecturers to transfer their skills and research findings for the betterment of the community. This is in line with the government's initiative to have universities function as a community centre to the local populace. Furthermore, this initiative is in line with current goals and objectives which require the university to increase its level of engagement and contributions to the society.

UM Community Engagement Grant funds action-oriented research that is conceptually applying multi / inter / trans-disciplinary research as analogous to other internal grants, i.e., UM Research Grant (UMRG), Impact Oriented Interdisciplinary Research Grant (IIRG), etc.

Source of this funding is from the government through grant allocation for research universities (abbreviated as PUP: Peruntukan Universiti Penyelidikan). This grant can be used to fund existing research to further test the application of their research's output to the community. For more information on the grant, visit <https://myumcares.um.edu.my/umcares-grant>

b. UMSDC

One example is the **Universiti Malaya Education for Sustainable Development (ESD) Mobility Program on Just Net Zero** hosted by UMSDC in partnership with International Students and Mobility Centre (ISC) and various strategic partners (internal and external). The project is mainly funded under the by British Council Malaysia (UK-Malaysia University Partnerships Catalyst Grant 2023/25) with both UM, Malaysia and Coventry University, United Kingdom as the awardees of the grant.

Brief Introduction on the project:

The "Just Net-Zero" program is a one-month initiative under the UM ESD Mobility Program 2024, focusing on exploring and promoting education and exposure on net-zero and sustainability initiatives. Participants will explore Sustainability@UM, the Regional Centre of Expertise on ESD, EcoCampus living labs, citizen science, and practical carbon neutrality interventions both from Universiti Malaya and its strategic sustainability partners. The program emphasizes the need to promote equitable and inclusive net-zero solutions, ensuring benefits for all communities.

This program aims to:

- Expose to Net-Zero Strategies: Enhance understanding of the principles and practices required to achieve net-zero carbon emissions, leveraging the experiences of Universiti Malaya.

- Foster Networking for Climate Action: Encourage collaboration among international participants and local communities to explore and deep dive on net-zero initiatives, exploring future engagement opportunities focused on climate action.
- Enhance Sustainability Knowledge with a Net-Zero Focus: Provide both theoretical and practical insights into achieving net-zero emissions through the lens of Education for Sustainable Development (ESD).
- Showcase Localized Net-Zero Practices: Highlight how net-zero strategies are adapted and implemented within Malaysia, emphasizing the unique approaches to achieving sustainability and carbon neutrality in the local context.

Website : <https://sites.google.com/um.edu.my/umesdmobilityprogram2024/home>

Full Report : [HERE](#)

c. **SULAM**

The Universiti Malaya Service Learning Malaysia-University for Society (SULAM) is an innovative idea to bring higher education students towards society and help improve their life in every aspect. It is a teaching and learning pedagogy, course-based, credit-bearing educational experience in which students participate in a structured service activity that meets identified community needs. Under SULAM, students reflect on the rendered service activities or experiences, leading to learning outcomes.

The overall objective of SULAM is to improve student learning by integrating theory with practice in the real world, increasing soft skills and civic engagement.

Universiti Malaya strengthens the impact of the SULAM initiative by offering free online educational resources through the SULAM Module, designed to assist both students and educators in implementing service learning practices. The resources are accessible here: <https://sulam.um.edu.my/reading-material>

Funding for the SULAM project is chargeable as part of student's tuition fee. However, it is also possible for the project to get additional funding from industry and local agency partners.

For more information on SULAM, visit <https://sulam.um.edu.my/introduction>

2. Process of the engagement project

a. **UMCares**

In the grant proposal, the applicant ie researcher needs to provide project background including problem statement, related references, and relevancy to Government Policy which covers the following;

Community-Centric: The question should address a pressing or emerging issue directly impacting the community involved. This fosters ownership and ensures the engagement resonates with participants.

Alignment with Policy or Research Goals: It should align with broader societal or institutional objectives, ensuring its outcomes contribute to meaningful change or advancement in the field.

Stakeholder Input: Engaging the public, academics, policymakers, and other stakeholders in the question formulation ensures the issue is multi-dimensional and addresses diverse perspectives.

Practicality and Feasibility: The question should lead to actionable insights or solutions that can be implemented or tested. Consideration of available resources, expertise, and timelines ensures the question is achievable.

The flow of the process in community grant projects under UMCares are as below:



b. UMSDC

Examples of how questions are addressed from this project via several means

- Direct community projects: hands-on activities like clean-up, guided study tour
- Sharing session between participants and subject matter expert (SME) such as government agencies, academia, industries, and NGO.

In this program, students (international and local), staff and even strategic partners are actively involved in the process of dialogues, debates and discussions in addressing various thematic areas and questions related to Just Net Zero (in this case: energy, mobility, facilities, water, biodiversity, value chain, waste minimization and recycling, and beyond campus operations).

c. SULAM

SULAM has four different approaches, which are (1) Direct SULAM, (2) Indirect SULAM, (3) Advocacy SULAM and (IV) Research-based SULAM. Following are the details of the approaches:

I. Direct SULAM: Person-to-person, face-to-face service projects: Students come to the community and consult the community when conceiving project ideas.

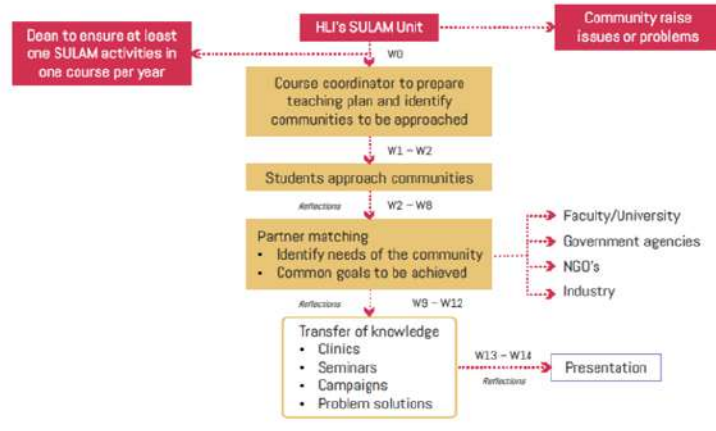
II. Indirect SULAM: Working on broad issues, environmental projects: Students from different faculties and disciplines working on a specific project, in which the project is adopted by the University,

III. Advocacy SULAM: Educating others about topics of public interest. Students come up with promotional materials to raise awareness. Very popular in certain faculties such as Language Faculty, Law Faculty etc.

IV. Research-based SULAM: Gathering and presenting information on areas of interest and need. Student meet the community and identify the community needs.

The flow of the process of projects under SULAM are as below:

Flowchart to Develop Project/Program



3. Benefits for the actors

a. UMCares

For each project, it is expected for the recipient/ researcher to report number of beneficiaries by category group (kid/ youth/ adult/ elderly/etc) and its impact based on the change in community;

i. Change of Community Knowledge, Attitude, Skills, and Aspirations

ii. Change in The Community Practice

iii. Community Empowerment / Ability to do the Change Alone

b. UMSDC

- Benefit of the community: Targeted community involved in this project, directly or indirectly, are made aware of and sensitized to the project's aims and aspirations.
- Benefit to the students: Well-equipped with the necessary knowledge and experience in Just Net Zero
- Benefit for the teachers: Part of the professional services and contribution in knowledge transfer and capacity building of the targeted group.

c. SULAM

- Benefit of the community Through SULAM projects, targeted communities will be able to participate in student learning and have access to higher learning institution resources.
- Benefit for the teachers: For the teachers / lecturers, the SULAM project provided exposure to the lecturers in new ways of teaching with the element of interaction with community, blended in the teaching method. This approach has a direct impact on teaching in the community, and also provided new opportunities for research ideas.
- Benefit to the students: For students, the SULAM project offered opportunities for deep learning, civic engagement, as well as developing personal and interpersonal skills and tolerance of diversity

Insights into development of public engagement practices

4. Preparation of the public engagement projects

a. UMCares

The grant recipient/ researcher as the Project Leader will be fully responsible for the preparation and implementation of project activities. They are expected to conduct the project activities as proposed in the proposal and report the progress every 6 months.

b. UMSDC

UM ESD Mobility Program on Just Net Zero are designed by Universiti Malaya team with the involvement of a team comprising academician, executive and support staff. The team is strongly supported by a team of both UM Global Buddies (trained by International Students and Mobility Centre) and Sustainability Volunteers (students and staff, trained by UMSDC).

There are several elements of public engagement in this project which covers both academic oriented and community-based activity:

In-Depth Exploration of Sustainable Initiatives in Malaysia: Understanding ESG Practices from InvestKL

Orientation: theory and hands-on oriented to academic and corporate

This engagement between participants (students) with the public (corporate sector) aims to make them gain knowledge about how Environmental, Social, and Governance (ESG) principles are integrated into business operations to promote long-term sustainability.

An introductory session to Just Net Zero and ESG was held in the early part of the program to prepare students on how it relates to one another, from both Malaysia and UK perspectives. This session was conducted by subject matter expert from UM which include UMSDC Director on introduction to Sustainability@UM, UMSDC Research Coordinator on GreenHouse Gases Calculation and Planetary Health, Faculty of Built Environment on Green Buildings, UMSDC Officers on Sustainability Policy Mapping Exercise.

Comprehensive River Conservation and Sustainability Educational Trip: Exploring Environmental Stewardship at Sungai Klang in collaboration with Selangor Maritime Gateway Project

Orientation: theory and hands-on oriented to local community activity

Participants visited Sungai Klang in Klang as part of a River Educational-Trip Package under the Selangor Maritime Gateway Project. They explore the complexity of river conservation and sustainability endeavors, learning about the ecological importance of rivers and issues like pollution and habitat destruction. This public engagement emphasizes the need for healthy river ecosystems. Through hands-on activities and discussions which include community clean-up, participants learn about conservation techniques and sustainable practices to protect environments.

A guided boat tour along the river and briefing was coordinated by our strategic sustainability partner; Selangor Maritime Gateway prior to the in-situ community engagement project (clean-up) on the do's and don'ts which include topics on the safety measures, socio-economic and cultural elements of the respective community.

c. SULAM

Universiti Malaya established a SULAM unit/committee, led by a coordinator at each Faculty, and supported by a finance officer, an admin officer at institutional level. The University also established a one

stop centre for community and industry to provide SULAM projects. There is a form “Community partner information form” to be filled in by the community partner.

The information will be provided by the One Stop Centre to SULAM unit/committee and the committee will then facilitate course coordinators to plan for SULAM projects.

Under the SULAM project, students will enroll in the course and throughout the project, students will engage with community and industry with the guidance of the SULAM unit. Implementation of the SULAM project will be conducted with targeted community and at the end of the SULAM project, evaluation will be conducted with students and community.

5. Monitoring and evaluation of the project

a. UMCares

Each project will be evaluated by the appointed Panellists and rated by the star rating for community engagement projects - <https://myumcares.um.edu.my/community-at-faculty>

b. UMSDC

This mobility program is designed to also assess the understanding of participants via online feedback form prepared by the host (UMSDC and ISC). The feedback form covers questions for students to assess the program on trainers/speakers, materials, topic, venue, content, hospitality, time management, food and beverages, logistics, accommodation, and cultural immersion.

The feedback form is also supported by a designated activity called Reflection Session via Padlet on which all participants are required to complete by the end of the project, which follows a reflection sharing session in the closing ceremony hosted in UM.

The reflection via Padlet is chosen as the preferable means to gain interactive insights based on creativity of participants to recap and encapsulate what they have learned throughout a one (1) month mobility program with the theme Just Net Zero.

Result of the Feedback Form (page 105) & Compilation of the reflection (page 86 -104): [HERE](#)

c. SULAM

The evaluation of the students’ assessment will be carried out at the end of the semester through students’ report and presentation. Students are required to submit the report that has been signed by the respective lecturer to CCSL. The community partner is also expected to provide feedback and participate in the evaluation process.

6. Stakeholders are involved in the assessment

UMCares

Invited Panellist among the stakeholders will be invited to evaluate and provide comments on each project. Outcomes and impacts of the supported projects will be shared through the UM Community Engagement Centre (UMCares) website and social media platform/

a. UMSDC

The results of the assessment are made publicly available via special report: UM ESD Mobility Program on Just Net Zero 2024 Special Report.

As mentioned previously, reflection sharing sessions by participants are directly presented to the host and strategic partners who attended the closing ceremony of the program. This allows participants to share their insights directly with the experts and partners.

Other than that, due to the manner of which this project is funded by the British Council Malaysia, all outputs which include the special report are submitted to the funder as part of the required progress monitoring mechanism.

Similar to all other sustainability endeavours hosted by UMSDC and partners, all activities are reported in various means for dissemination such as sustainability website, sustainability report, and social media pages.

b. SULAM

The SULAM course can be assessed in two perspectives, which are student achievement as it relates to the service experience and instructor's overall evaluation of the program itself. The community partner also will provide feedback and participate in the evaluation. The outcomes and impacts of the conducted projects will be shared through the SULAM UM website and social media platforms.

Support and Institutionalisation of public engagement practices

7. Involvement of different actors

a. UMCares

The community grant is expected to involve researchers from different backgrounds, experts and faculties. Involvement of non-academic staff and students are also encouraged as a platform for volunteerism and to serve the community.

b. UMSDC

The program itself is designed to promote multi and interdisciplinary engagement and partnerships within UM and with external strategic partners, addressing various sustainability and net zero topics based on the social, economic, and environmental pillars.

All partners are invited officially by UMSDC as a host, and they must accept or decline the invitation prior to becoming our program partners. External partners involved in this project include existing and newly established partners:

- All-Party Parliamentary Group Malaysia- SDG (APPGM-SDG)
- EcoKnights
- HaraMakers
- Putrajaya Corporation
- Fasiliti Inovasi Kitar Semula (FIKS)
- Prasarana Malaysia Berhad
- InvestKL
- Kuala Selangor Nature Park
- Inspirasi Kawa
- Selangor Maritime Gateway (SMG) Project @ Sungai Klang

Partnership with UM is formalized by various means: network platform, MOU/MOA, event partner, research collaborators, and many others.

c. SULAM

SULAM course is a part of the curriculum of a program that is intentionally designed to achieve certain learning outcomes. The projects under SULAM involve students, course instructors, and community partners. It also can be shared by other disciplines to achieve the same outcomes without compromising each discipline's content (inter/multi/transdisciplinary project).

In SULAM, students from same or different faculties can come together to work on the same project, each applying their expertise to solve a community problem. For instance, in an indirect SULAM initiative, students might engage with a townside or village to conduct a needs analysis, identifying the issues that need to be addressed. Once the project is defined, students from engineering faculty handle the technical aspects, such as installing the piping systems. Meanwhile, students from the educational faculty focus on raising awareness about hygiene by educating the children and the community on best practices whereas the medical students contribute by performing health diagnostics to the villagers.

The required components to develop a SULAM course is as follows:

REQUIRED COMPONENTS IN DEVELOPING SULAM COURSE

MINISTRY OF EDUCATION
MALAYSIA JPT DEPARTMENT
OF HIGHER
EDUCATION



8. Training and Support offered

a. UMCares

The UM Community Engagement Centre (UMCares) as the central office for community related activities provided training in terms of grant execution and impact planning. Sharing session from external stakeholders which involved in community engagement projects were also conducted

b. UMSDC

Capacity building and training program related to the program is coordinated by UMSDC to both staff and students throughout the year. For instance, sustainability volunteers trained by UMSDC comprises both staff and students, passionate and sharing similar interests to make the campus sustainable. Training sessions (both face to face and virtual) are tailored to different needs/skills required of the program.

c. SULAM

The UM Service Learning Malaysia – University for society (SULAM) provided support by establishing the pre-planning activities including:

- identifying each partner's skills and assets,
- identifying roles of partnership members,
- foster leadership and skill development among partners,
- Identifying resources, and
- Develop a partnership agreement or memorandum

For students, the course instructor will support them by being responsive to students' questions and concerns, and ongoing supervision and constructive feedback. Students can also access learning resources online on the SULAM website. The resources are as follow, and can be accessed here: <https://sulam.um.edu.my/reading-material>

- SULAM Module Chapter 1: SULAM As Community Engaged Pedagogy
- SULAM Module Chapter 2: SULAM Course Development
- SULAM Module Chapter 3: SULAM Community Partner Matching
- SULAM Playbook Service Learning Malaysia - University for Society
- Pengenalan Dan Sejarah Permulaan SULAM Perkongsian oleh Dr. Farrah Dina (Ahli Jawatankuasa Strategik, Jabatan Pengajian Tinggi)

9. Wider support

a. UMCares

UMCares received support from government in terms of:

- **Funding and Grants:** Providing financial support for public engagement initiatives through research grants, community outreach funds, and public-private partnerships.
- **Capacity Building:** Supporting training programs and workshops to enhance skills in public engagement practices.
- **Recognition and Incentives:** Offering awards and career advancement opportunities to incentivize public engagement activities.

b. UMSDC

From the point of view of this Mobility Program, the Government via its agencies such as Putrajaya Corporation and All-Party Parliamentary Group Malaysia- SDG (APPGM-SDG), show a positive and strong support to the program. Support comes in various means such as expert involvement as speakers/trainers, venue & logistic partner (free of charge of the venue and complimentary refreshments), educational materials provided to the participants, and cross posting of activity on social media/website.

c. SULAM

SULAM is one of the nationwide initiatives under the purview of Malaysia's Ministry of Higher Education (MoHE) aimed towards producing graduates who are holistic, balanced, and with an entrepreneurial mindset. SULAM is also one of the elements that characterizes High Impact Educational Practices within the curriculum of academic programme, a practice introduced by the Ministry of Higher Education (MoHE) in 2016. The Ministry has also published a playbook on SULAM project and is accessible here: https://sulam.um.edu.my/sulam/Reading%20Materials/Service_Learning%20Malaysia-University_for_Society.pdf

10. Success and Challenges

a. UMCares

Community engagement is successful when it:

1. **Builds Trust and Collaboration:** Partnerships that value mutual respect and shared decision-making are more impactful.
2. **Delivers Tangible Benefits:** Initiatives that address real community needs, such as improved services or capacity building, are seen as successful.
3. **Ensures Inclusivity:** Engaging diverse groups ensures representation and equity.

Why and for Whom

Such engagement benefits (1) Communities: By addressing their needs and fostering empowerment and (2) Institutions: Through enhanced reputation, research impact, and policy influence.

Institutional Support

Our institution supports community engagement by, (1) Providing Funding: Dedicated grants for outreach projects, (2) Encouraging Collaboration: Platforms for academic-community partnerships, (3) Recognition: Awards and incentives for impactful initiatives.

Main Challenges include (1) Sustaining Engagement: Ensuring long-term commitment from stakeholders, (2) Resource Constraints: Limited funding and manpower for large-scale projects and (3) Institutional Silos: Lack of coordination across departments. Addressing these challenges requires stronger cross-sector collaboration, enhanced funding mechanisms, and continuous capacity building.

b. UMSDC

The program overall has successfully fulfilled its main objectives to promote better understanding and hands-on experience on just net zero and sustainability through the vehicle of Education for Sustainable Development (ESD) and mobility program. This program has benefited participants, organizers, and partners while inspiring others to emulate the program to a wider audience based on their respective capacities.

Universiti Malaya has supported the program through the collaboration of two centers from two different portfolios to work together until the completion of this program, and all venues and facilities involved in hosting this program in Universiti Malaya are waived free of charge.

Main challenges of this program include financial constraint and sustainability of the program due to limited human resources at UMSDC, while finding strategic partners who share similar aspirations and willingness to give support in various means throughout the program.

c. SULAM

The SULAM project is successful when students can greatly assist any community in serving their constituency and working towards their goals. This approach not only enhances students' knowledge, problem-solving abilities, and scientific skills, but also fosters the development of ethics and professionalism. By actively engaging with real-world issues, students gain valuable hands-on experience that complements their academic learning. At the same time, the community partner benefits from the collaborative effort to address and resolve pressing issues they face. Furthermore, the SULAM project positively impacts the institution by strengthening its reputation as a leader in community engagement and social responsibility.

Universiti Malaya strengthened the impact of the SULAM initiative by offering free online educational resources through the SULAM Module, designed to assist both students and educators in implementing service learning practices. The resources are accessible here: <https://sulam.um.edu.my/reading-material>

Among key challenges for SULAM project include:

1. Fundings: Limited funding and financial support
2. Instructors: Difficulties to provide experienced instructor, certain faculties are concerned that incorporating service-learning into the curriculum will diminish the academic content covered in the course and time constraint for project implementation
3. Community: They do not know where to seek for help in the aspect of service learning context, they no longer proactive or interested to participate in SULAM projects and the sustainability of community project.

11. Future ambitions

a. UMCares

We aim to enhance the **depth and inclusivity of stakeholder participation** in public engagement projects, focusing on fostering meaningful collaborations, building trust, and ensuring sustainable impact.

Main obstacles:

1. **Limited Resources:** Insufficient funding, experienced/ trained staff, and infrastructure for comprehensive engagement efforts.
2. **Stakeholder Buy-In:** Challenges in gaining active participation and trust from diverse community groups or policymakers.
3. **Knowledge Gaps:** Lack of expertise in effective engagement strategies.
4. **Sustainability Issues:** Difficulty in maintaining long-term engagement or translating outcomes into actionable results.

Needs to overcome obstacles:

- **Increased Funding:** Secure grants or partnerships to support project resources.
- **Capacity Building:** Provide training for staff and researchers on best practices in public engagement.
- **Stakeholder Engagement Strategies:** Develop tailored approaches to build trust and ensure inclusivity.
- **Clear Frameworks and Metrics:** Establish structured plans and evaluation tools to monitor and sustain impact over time.

b. UMSDC

From the point of view of UMSDC, transformation of higher education institutions (HEI) towards sustainability and net zero requires a whole campus approach. This entails participation and support of both internal and external stakeholders such as students, staff, researchers, and community partners, to address sustainability challenges and achieve net-zero goals. We strive to enhance interdisciplinary efforts and establish long-term, impactful partnerships that align with the pillars of social, economic, and environmental sustainability.

Expected obstacles include:

- Limited funding to sustain and expand initiatives.
- Insufficient staff and volunteer capacity to manage and execute large-scale programs effectively.
- Difficulty in identifying and engaging strategic partners with shared aspirations and long-term commitment.
- Challenges in ensuring consistent and meaningful participation from the community and external stakeholders.
- Resistance to adopting new frameworks or expanding beyond traditional practices or lifestyle/culture.

To overcome these obstacles, we need to strategize on how best to:

- Securing more financial support through various means such as grants, government partnerships, and private sponsorships.

- Training and equipping staff, students, and volunteers with the necessary skills to execute programs effectively.
- Cultivating relationships with organizations and institutions that share similar sustainability goals.
- Advocating for policies that encourage interdisciplinary collaboration and prioritize sustainability within higher education institutions.
- Enhancing communication strategies to promote the benefits of public engagement projects and attract more participants.

By addressing these challenges strategically, UMSDC envisions a strengthened framework for impactful public engagement that benefits communities, academia, and the broader society.

c. SULAM

SULAM operates using a Quadruple Helix Model, where the university's internal stakeholders—including lecturers, students, and the institution itself—work together on the SULAM project. Externally, the community plays a key role by raising issues and challenges that students can help address. Additionally, NGOs and industries contribute to the efforts. In SULAM, students are encouraged to think about how to make their community service projects sustainable. This includes applying for grants and crowdfunding to secure long-term support. For example, a group from China was able to secure funding from a Lions Club in China, thanks to their established connections. This is a great example of how projects can be sustained beyond the initial phase.

The main obstacles that might arise in a project like SULAM's Quadruple Helix Model could include:

- 1. Coordination Between Stakeholders:** With so many different parties involved—students, lecturers, the university, the community, NGOs, and industries—keeping everyone aligned on goals and processes can be challenging. Miscommunication or differing priorities might slow progress.
- 2. Sustainability of Projects:** While students may have great ideas, securing long-term funding and ensuring the sustainability of projects can be difficult, especially if the initial funding or support is limited.
- 3. Engaging the Community:** Sometimes, communities may be hesitant to get involved or may not fully understand the benefits of collaboration with students or external organizations. This can lead to a lack of participation or interest.

To overcome these obstacles:

1. Clear communication channels and regular meetings between all stakeholders are crucial. Establishing a shared vision and clear roles for everyone can help manage expectations and streamline collaboration.
3. Educating students on fundraising strategies, networking with potential donors, and fostering relationships with industries and NGOs can be effective. Additionally, embedding sustainability into the project's design from the start—such as creating scalable models or securing ongoing partnerships—can increase long-term success.
4. Building trust with the community through consistent outreach and involvement in the early stages of the project is important. Involving community leaders or influencers can also help gain buy-in and increase engagement.

12. websites

a. UMCares

for more information, please visit our website <https://myumcares.um.edu.my/> and follow our social media



Facebook: <https://www.facebook.com/myumcares/>

Instagram: https://www.instagram.com/accounts/login/?next=%2Fmyumcares%2F&source=omni_redirect

YouTube: <https://www.youtube.com/c/myumcares>

b. UMSDC

umsdc@um.edu.my

Universiti Malaya Sustainable Development Centre (UMSDC)

<https://sustainability.um.edu.my>

c. SULAM

<https://sulam.um.edu.my/index>

University of Malaysia Sabah (UMS)

University of Malaysia Sabah (UMS) has a number of examples of Public Engagement projects, and for the purpose of this survey, we will highlight two important examples, which are initiatives called (1) Rakan Akuakultur UMS (UMS Aquaculture Partner) (2) Program Perkongsian Universiti Keluarga (PuPUK).

1. Public/Community Engagement Project(s) and their aims

(i) **Rakan Akuakultur UMS** (UMS Aquaculture Partner) under the Borneo Marine Research Institute (BMRI) of Universiti Malaysia Sabah (UMS). BMRI has been working with the local communities through training, dialogue and stock enhancement of fisheries resources. The positive feedbacks they have been receiving motivated the institute to develop a platform that they have termed as **Rakan Akuakultur UMS**. The establishment of **Rakan Akuakultur UMS** under the BMRI was officially launched on 15 June 2015. The exchange of knowledge that takes place through this sustained program of interaction helps BMRI to better understand the practical problems, limitations of traditional knowledge and relevance of scientific knowledge. It shapes the nature of research which is of direct benefit to the fish farming community.

The institute has received millions of fundings, from state government, national and international grants which facilitate the sustainability of the program. In the year 2023, BMRI has received the highest acknowledgement from the Ministry of Higher Education (MOHE) as a HICoE (Higher Institute Centre of Excellence) in the niche of food sustainability through the breeding of hybrid grouper and wrasse with a 3-year grant in a total of RM 6.75 million. In addition, the program is now under the consideration as one of the Recognized Living Laboratories in UMS.

The website for direct access to **Rakan Akuakultur UMS** is accessible through this link:

<https://www.ums.edu.my/ipmbv2/en/2-uncategorised/87-rakan-akuakultur>

The website for home access to BMRI is accessible through this link:

<https://www.ums.edu.my/ipmbv2/en>

(ii) **Program Perkongsian Universiti Keluarga (PuPUK)** (Family University Partnership Program) under the Faculty of Medicine & Health Sciences (FMHS) of Universiti Malaysia Sabah (UMS).

PuPUK is an acronym for “Program Perkongsian Universiti Keluarga” or University-Family Partnership in Community Wellness Program launched since 1998. In this program, medical and nursing students will have a family based medico-social learning experience. Each student is engaged, throughout the 5 years medical

course, with a foster family. It is incorporated as part of the medical and nursing program at the FMHS, UMS. The project takes place in the rural region of Kudat on the Northern tip of Borneo. The foster families are selected by community leaders in Kudat. The students are exposed to a wide range of problems, unmet needs within a family and services available in the community. The students are required to see the families three times a year and during this time they assess their health related behaviours. The students are given a selection of questionnaires which they can administer to the family, in order to understand them better.

The main objectives are students to appreciate the structure and functions of a family as an important unit in determining and influencing wellness and illnesses, as well as understanding the family dynamics in

facing life events related to medicine. As a compulsory module to be completed in the medical and nursing courses, the faculty received continuous budget allocations from the university to ensure the program is running smoothly as stipulated. In addition, the researchers involved in the program coordination receives project grants for community-based health promotions from both local and international resources.

The website for direct access to **PuPUK UMS** is accessible through this link:

<https://www.ums.edu.my/fpsk/index.php/collaboration/communities/pupuk>

The website for home access to FMHS is accessible through this link:

<https://www.ums.edu.my/fpsk/index.php>

2. Process of the engagement project

i. *Rakan Akuakultur UMS*

a. **Initiation and Launch:** The establishment of Rakan Akuakultur UMS under the BMRI was officially launched on June 15, 2015, by Datuk Seri Panglima Yahya Hussin, the Deputy Chief Minister and Sabah Ministry of Agriculture and Food Industry representative. This launch was not only a ceremonial acknowledgment but also a strategic alignment with national educational goals, specifically those outlined in the National Education Blueprint 2013- 2025, which emphasizes the empowerment of community knowledge.

b. **Identification of Community Needs:** The process of identifying the questions and areas of focus for the public engagement project begins with a thorough understanding of community needs. This is achieved through a structured engagement with various stakeholders, including local government bodies, NGOs, and community leaders involved in the agriculture and food industry sectors. These engagements are designed to gather insights directly from the stakeholders who are intimately aware of the challenges and opportunities within their communities.

c. **Engagement Activities:** To facilitate these engagements, BMRI organizes a series of public activities such as workshops, seminars, and field visits. These events serve as platforms for direct interaction between researchers, students, and community members. They are essential for exchanging information, discussing community issues, and exploring viable scientific solutions. For example, a workshop might focus on sustainable fish farming techniques, where community feedback directly influences the research focus areas and educational content delivered by the BMRI.

d. **Role of Researchers and Students:** Researchers and students from BMRI are deeply involved in these activities, not just as participants but as active contributors to the knowledge exchange process. They bring the latest scientific research and technological advancements to the community, while also learning from the traditional practices and unique challenges faced by the local stakeholders. This two-way learning process enriches the students' academic experience and enhances the practical impact of research by tailoring it to meet specific local needs.

ii. **PuPUK UMS**

a. **Needs Assessment:** The initial step in formulating the question addressed by PuPUK UMS involves a thorough needs assessment. This is typically conducted by FMHS researchers in collaboration with local healthcare providers and community leaders. The needs assessment includes surveys, focus groups, and community health data analysis to identify pressing health issues or gaps in service that the medical and nursing programs can address. For example, if there is a high incidence of diabetes in the community, the program might focus on diabetes awareness and management.

b. **Stakeholder Engagement:** Key to the program's success is the early and ongoing engagement of a wide range of stakeholders. This includes local government bodies, health care professionals, community leaders, and the families themselves. These stakeholders are often involved in collaborative meetings and workshops to refine the focus of the program and ensure it aligns with community needs and priorities. For instance, an NGO specializing in elderly care might collaborate with FMHS to focus student learning and community service on geriatric health issues.

c. **Development of MoU:** A formal MoU is often established between the FMHS and local health departments or other key partners. This MoU outlines the roles and responsibilities of each party, the objectives of the partnership, and the mechanisms for oversight and evaluation. It serves as a foundational document that guides all activities within the program, ensuring alignment and commitment from all involved parties.

d. **Integration into Curriculum:** Questions and activities identified through stakeholder engagement are then integrated into the medical and nursing curriculum. This integration ensures that students' fieldwork directly contributes to their academic learning while addressing real community needs. Faculty members and curriculum developers work together to embed these practical engagements in a manner that complements theoretical learning, such as through case studies or problem-based learning scenarios.

e. **Example:** An example of this process in action could be seen in the development of a community-based intervention for hypertension management. After identifying hypertension as a critical health issue during the needs assessment phase, FMHS could work with local health clinics and community leaders to develop educational materials and screening programs. Students would then be tasked with delivering these resources and conducting health screenings, providing both practical experience and direct community benefit.

3. Benefits for the actors

i. *Rakan Akuakultur UMS*

a. **Benefit to the Community:** The collaborative efforts between scientists and farmers enhance local agricultural practices through the integration of advanced, knowledge-based methodologies. This collaboration focuses on elevating the scale of fish farming operations, moving them from small to medium-scale enterprises, thereby fostering economic growth within the community. As these enterprises grow, they generate more employment opportunities, enhance food security, and contribute to a more robust local economy. Additionally, the community benefits from a sustainable approach to farming that respects ecological balances, ensuring that natural resources are preserved for future generations, thus supporting long-term prosperity and wellness.

b. **Benefit to the Students:** By participating in this initiative, students act as conduits for the transfer of contemporary scientific knowledge and new technologies into the community, directly impacting local

industries. They learn to navigate the unique challenges of rural settings while applying their academic knowledge in practical, impactful ways. This engagement not only sharpens their technical skills but also fosters soft skills such as communication, problem-solving, and leadership as they work alongside community members. The experience prepares them to be proactive, innovative agents of change in their future careers, capable of leading advancements in the field of sustainable agriculture and community health.

c. Benefit to the Teachers: Academicians and researchers from the BMRI who engage in this initiative gain invaluable insights into the intersection of traditional agricultural practices and modern scientific methods. This dual exposure allows them to evaluate the effectiveness, sustainability, and environmental compatibility of traditional practices, enriching their research and teaching. By integrating these findings into their academic programs, they can offer a more rounded and grounded education to their students, emphasizing the importance of sustainability and cultural respect in scientific endeavors. This not only enhances the curriculum but also prepares future graduates to consider holistic and environmentally friendly approaches in their professional lives.

ii. PuPUK UMS

a. Benefit to the Community: This partnership serves as a vital bridge between academic knowledge and community health needs. By integrating medical and nursing students into family units, the program allows for a tailored approach to address health disparities and unmet needs within rural families. The ongoing engagement helps in not only monitoring health-related behaviors but also in providing consistent, actionable feedback that can improve the overall wellness of these communities. This initiative fosters a stronger sense of community and can lead to more sustainable health outcomes as families become more informed and involved in managing their health.

b. Benefit to the Students: Students benefit immensely from real-world learning experiences that extend beyond traditional classroom settings. By working closely with foster families throughout their medical education, students develop a deep understanding of the socio-economic and cultural factors that influence health. This hands-on exposure equips them with the skills to practice holistic and empathetic medicine, making them wellrounded healthcare professionals who can address a wide range of challenges in any setting.

c. Benefit to the Teachers: Academics and instructors involved in the program gain unique insights into the actual health dynamics within rural communities. This exposure allows them to refine the curriculum to better align with real-world challenges, integrating community-derived knowledge and practices into academic instruction. This not only enhances the educational content but also ensures that teaching remains relevant, practical, and impactful, bridging the gap between theory and practice in medical and nursing education.

4.Preparation of the public engagement projects

i. *Rakan Akuakultur UMS*

a. Preparation Phase:

i. Curriculum Development and Integration: Faculty members at the BMRI incorporate specific aquaculture-related content into the curriculum, particularly in programs related to marine biology,

environmental science, and agricultural technology. This integration is designed to ensure that students receive both theoretical knowledge and practical skills relevant to modern aquaculture practices.

ii. **Training and Orientation:** Before engaging with the community, students undergo extensive training and orientation sessions. These sessions are prepared by faculty members and focus on various aspects of aquaculture, including sustainable practices, environmental impact assessments, and the economic aspects of fish farming. Training often includes workshops led by experienced aquaculturists and scientists, providing students with up-to-date industry knowledge.

iii. **Stakeholder Engagement:** Early in the project, key stakeholders—including local fish farmers, industry experts, and representatives from the Sabah Ministry of Agriculture and Food Industry—are consulted to align the project's objectives with community needs and industry standards. This engagement ensures that the program addresses real-world challenges and leverages local expertise.

b. Implementation Phase:

i. **Community Partnerships:** Partnerships are formed with local fish farms where students can apply their learning in practical settings. These farms serve as field sites for students to conduct research, apply sustainable practices, and directly engage with ongoing aquaculture operations. Community partners provide mentorship

and firsthand insight into the daily challenges and opportunities within the industry.

ii. **Role of Teachers and Faculty:** Teachers and faculty members serve as mentors and supervisors throughout the engagement process. They prepare students for field activities by providing guidance on research methodologies, data collection techniques, and ethical considerations in community engagement. Faculty members also facilitate connections between students and community partners, ensuring that each student's project aligns with both educational objectives and community needs.

iii. **Student Roles and Responsibilities:** Students are actively involved in the research and application of sustainable aquaculture techniques. They work on specific projects, such as breeding programs, water quality management, or disease control, which are designed to contribute directly to the improvement of local

aquaculture practices. Through these projects, students gain practical experience and contribute to the community by introducing innovative, sustainable solutions.

iv. **Example:** A specific example could be a student project focused on improving water recycling systems on a local fish farm. The students, under the guidance of BMRI faculty, could research and design a more efficient filtration system that reduces water use and improves the overall health of the fish population. They would work directly on-site, engaging with the farm operators to understand current systems and integrate new technologies. This project not only enhances the student's learning experience but also provides tangible benefits to the farm in terms of sustainability and operational efficiency.

ii. PuPUK UMS

a. Preparation Phase:

i. **Curriculum Integration:** Teachers and faculty members play a crucial role in integrating community engagement projects into the medical and nursing curriculum. This often involves designing specific modules or courses that include community-based activities as core components. For example, a module might be developed on community health assessments where students learn both in the classroom about various health assessment techniques and then apply these methods in a real-world setting with their assigned families.

ii. **Training and Orientation:** Prior to engaging with the community, students undergo a series of training sessions and orientations. These sessions are prepared and conducted by teachers with input from community partners. They cover topics such as cultural competence, ethical considerations in community health, communication skills, and specific health issues prevalent in the community. This training ensures

that students are well-prepared and sensitive to the needs and dynamics of the communities they will serve.

iii. **Partner Collaboration:** Community partners, including local healthcare providers, NGOs, and community leaders, are involved in the planning stage to align the program's objectives with community needs. These partners help in identifying appropriate families for the program, setting realistic goals for student engagement, and providing local knowledge and resources necessary for the success of the projects.

b. Implementation Phase:

i. **Student Engagement:** Students are assigned to foster families in the community, with whom they engage throughout their medical or nursing course. They visit these families three times a year to assess health-related behaviors and needs. During these visits, students apply their academic knowledge and the skills they have acquired from their training to provide health education, conduct screenings, and gather data through administered questionnaires.

ii. **Faculty Supervision and Support:** Throughout the implementation phase, faculty members supervise the students' activities, providing guidance and support as needed. This might include accompanying students on their visits, offering advice on handling complex health or social issues, and providing feedback on their interactions and findings.

iii. **Community Feedback:** Regular feedback sessions with community members and partners are conducted to evaluate the effectiveness of the engagement and the impact on the community's health. This feedback is crucial for making adjustments to the program and ensuring that the activities remain beneficial to both the community and the students.

iv. **Example:** For instance, in a project focusing on diabetes management, students might be tasked with organizing diabetes screening camps in collaboration with local health clinics. Prior to the camp, students would receive specific training from their teachers on how to conduct blood sugar tests, educate the community about diabetes management, and handle sensitive health information. During the camp, students would work under the supervision of faculty and in partnership with clinic staff to provide these services, while also gathering data for their coursework.

5. Monitoring and evaluation of the project

i. *Rakan Akuakultur UMS:*

a. Evaluation of Student Competencies:

i. **Technical Skills:** Students are assessed on their practical skills related to aquaculture, such as water quality management, fish health monitoring, and sustainable farming practices.

ii. **Research and Innovation:** The quality and impact of student-led projects on enhancing aquaculture practices are evaluated. This includes assessing how well students integrate scientific research with practical applications.

iii. **Professional Development:** Evaluations consider how students' experiences within the program prepare them for careers in aquaculture or related fields, focusing on industry-specific skills and knowledge.

b. Impact on the Community:

i. **Economic Impact:** The program assesses its impact on local aquaculture businesses, such as increases in productivity, adoption of sustainable practices, or economic growth of small-scale farms.

ii. **Environmental Sustainability:** Changes in environmental management practices at local farms and their outcomes are monitored, evaluating the adoption of technologies or methods introduced by the students.

iii. **Partner Feedback:** Regular feedback from industry and community partners assesses the relevance and utility of the research and innovations developed through the program.

c. Program and Academic Enhancement:

- i. **Curriculum Relevance:** The applicability and relevance of the academic content to current industry needs are reviewed and updated based on project outcomes and partner feedback.
- ii. **Academic-Community Linkages:** The strength and productivity of the partnerships between the university and community stakeholders are evaluated to ensure that they remain robust and mutually beneficial.

ii. PuPUK UMS:

a. Evaluation of Student Competencies:

- i. **Clinical Skills and Knowledge:** Students are assessed on their ability to apply medical and nursing knowledge in real-world settings, particularly in how they assess, diagnose, and manage health issues within their foster families.
- ii. **Soft Skills Development:** Evaluations focus on communication, empathy, problem-solving, and cultural sensitivity, as these are essential for effective interaction with community members.
- iii. **Reflective Practice:** Students are encouraged to reflect on their experiences, and these reflections are used as part of the assessment to gauge their professional growth and understanding of community health issues.

b. Impact on the Community:

- i. **Health Outcomes:** The program measures changes in health behaviors and outcomes among the foster families, such as improvements in managing chronic diseases or increased health awareness.
- ii. **Community Feedback:** Surveys and interviews are conducted with community members to assess their satisfaction with the interactions and support provided by the students.
- iii. **Long-term Engagement:** The sustainability of health improvements and ongoing engagement between the students and community are monitored as indicators of the program's success.

c. Faculty and Program Improvement:

- i. **Curriculum Impact:** Feedback from students and community stakeholders is used to continually refine and improve the curriculum and training components.
- ii. **Faculty Development:** The experiences gained from supervising and mentoring students in this real-world context are evaluated to enhance faculty teaching strategies and clinical supervision skills.

6. Stakeholders involved in the assessment

i. Rakan Akuakultur UMS:

a. Assessment Stakeholders:

- **Students** are involved as primary participants, providing direct feedback on their learning experience and the applicability of their knowledge in real-world settings.
- **Teachers** evaluate student performance and project outcomes, assessing both academic progress and practical skills development.
- **Community Partners**, including local aquaculture businesses and industry experts, provide external assessments of the program's impact on the community and industry. They offer insights into the practical benefits of the research and innovations introduced by the students.

b. Dissemination of Outcomes:

- **Academic Conferences:** Students and faculty present research findings and project outcomes at relevant academic and industry conferences, engaging with other researchers and practitioners in the field.
 - **Industry Workshops:** Practical workshops are conducted where students and faculty share their innovations and findings with local aquaculturists, promoting best practices and sustainable techniques.
 - **Publications:** Research articles and case studies are published in academic journals and industry newsletters, disseminating findings to a broader audience.
 - **Community Meetings:** Regular meetings with community partners ensure ongoing dialogue and feedback, keeping the community informed of project results and developments.
- Examples:** A student-led project on improving water filtration systems in aquaculture farms could be presented at an environmental science conference, published in a journal, and directly implemented in workshops for local farmers.

ii. PuPUK UMS:

a. Assessment Stakeholders:

- **Students** provide self-assessments and reflections on their experiences and the skills they have developed.
- **Teachers** oversee and evaluate the students' interactions with families and the community, focusing on clinical and communication skills.
- **Community Members**, particularly the families involved in the program, offer feedback on the effectiveness and impact of the health interventions and student interactions.
- **Healthcare Professionals** in the community, including local clinics and health departments, assess the broader health impacts of the program on the community.

b. Dissemination of Outcomes:

- **Community Health Reports:** Findings on community health improvements are compiled into reports shared with local health authorities and community leaders.
 - **Educational Seminars:** Students and faculty host seminars where they discuss their experiences, methodologies, and outcomes with other students and healthcare professionals.
 - **Publications:** Outcomes are also documented in case studies and research papers in healthcare and educational journals.
 - **Public Health Forums:** The program's results are presented at public health forums, engaging a broader audience and encouraging public discourse on community health issues.
- Examples:** Following a series of student visits and health interventions in a community, an increase in diabetes management efficacy might be documented and shared through a detailed report to the local health department and later presented at a public health conference.

7. Involvement of different actors

i. Rakan Akuakultur UMS:

a. Interdisciplinarity:

- **Faculty of Science and Natural Resources:** Focuses on environmental aspects and sustainable practices in aquaculture.
- **Biotechnology Research Institute:** Addresses health and safety concerns in aquaculture environments.
- **Faculty of Business, Economics and Accounting:** Provides insights into the economic aspects of aquaculture, helping to optimize business practices and economic viability.

b. Community Connections:

- **Local Government Departments:** Such as the Sabah Ministry of Agriculture and Food Industry, which helps in aligning the program with regional development goals and provides regulatory support and guidance.
- **Aquaculture Associations and Cooperatives:** These entities serve as direct links to the fish farming communities and facilitate the implementation of sustainable practices advised by the university.
- c. **Collaborations:** involve joint research projects, community training sessions, and development programs aimed at enhancing productivity and sustainability. For instance, university experts might collaborate with government officials to provide technical training to local farmers, or with local NGOs to address specific environmental issues related to aquaculture.

ii. PuPUK UMS:

a. Interdisciplinarity:

- **Faculty of Computing and Informatics:** Provides the medical and nursing expertise necessary for addressing health-related issues within the community through data analytics.
- **Faculty of Psychology and Social Works:** Offers support in understanding and managing the psychological aspects of health care and patient interaction.
- **Biotechnology Research Institute:** Facilitates laboratory environments for pharmacological developments.

b. Community Connections:

- **Local Health Clinics and Hospitals:** These serve as practical sites for student placements and are essential for integrating clinical practice with community engagement.
- **NGOs:** Particularly those focused on health and community development, which help in identifying families in need of health interventions and support the logistical aspects of implementing these interventions.
- **Collaborations:** often involve multi-faceted approaches to community health, such as joint health campaigns, educational seminars, and preventive health screenings. These activities are supported by a combination of university resources, local health services, and community organizations. An example might be a collaborative health fair where students, under the supervision of faculty from different disciplines, provide various health services and education sessions to the community.

8. Training and Support offered

i. Rakan Akuakultur UMS: Training and Support Provided:

a. For Supervisors, Lecturers, and Researchers:

- **Training:** Specialized training sessions are organized to keep academic staff up-to-date with the latest technologies and methodologies in aquaculture. These sessions might cover topics such as sustainable aquaculture practices, new research methodologies, or advancements in aquaculture technology.
- **Support:** Ongoing research support is provided in terms of access to research funding, laboratory facilities, and field sites. This support helps in conducting cutting-edge research that can be directly applied to improve local aquaculture practices.
- **Organizers:** The Faculty of Science and Natural Resources typically organizes these training and support mechanisms, often in collaboration with the Research and Innovation Center at UMS.

b. For Students:

- **Training:** Students receive both theoretical and practical training as part of their curriculum, which includes hands-on fieldwork in aquaculture sites, workshops on sustainable farming practices, and seminars by industry experts.
- **Support:** Academic advising and career counseling are offered to help students navigate their educational paths and prepare for future careers in aquaculture or related fields.

- **Organizers:** Training and support for students are organized by their respective academic departments, with additional workshops and seminars often coordinated through the university's career services office.

c. For the Community:

- **Training:** Community training sessions are conducted to educate local farmers about sustainable practices, environmental management, and efficient business operations. These might include demonstrations of new farming equipment or techniques that reduce environmental impact.
- **Support:** Regular follow-up visits and consultations are provided to ensure that the community can successfully implement and maintain the practices taught during training sessions.
- **Organizers:** The engagement office at UMS, in collaboration with local government agencies and industry partners, typically organizes these community support initiatives.
- Examples:** A recent initiative involved a series of workshops for local aquaculture farmers on integrating automated feeding systems to improve efficiency and reduce labor costs. These workshops were led by faculty from the School of Engineering, demonstrating the interdisciplinary support within the university.

ii. PuPUK UMS: Training and Support Provided:

a. For Supervisors, Lecturers, and Researchers:

- **Training:** Training sessions are provided focusing on community health engagement, cultural competence, and effective communication strategies to enhance the effectiveness of health interventions.
- **Support:** Faculty members receive support in terms of collaboration opportunities with healthcare institutions and community organizations, enhancing the practical impact of their research and teaching.
- **Organizers:** The Faculty of Medicine and Health Sciences, particularly the Department of Community Medicine, organizes these training sessions.

b. For Students:

- **Training:** Extensive preparatory training includes modules on patient interaction, health assessment techniques, and handling sensitive health information ethically and effectively.
- **Support:** Students are provided with supervision during their field visits and access to health facilities for practical training. Peer mentoring and academic tutoring are also available.
- **Organizers:** The student affairs division and the academic departments within the Faculty of Medicine and Health Sciences organize this student support.

c. For the Community:

- **Training:** Health education sessions are conducted for community members, focusing on disease prevention, health maintenance, and nutrition.
- **Support:** Continuous health monitoring and follow-up care are provided to the community, ensuring long-term health benefits from the program.
- **Organizers:** The community outreach office at UMS, in cooperation with local health clinics and NGOs, is responsible for organizing and delivering community training and support.
- Examples:** An example from PuPUK UMS includes a community seminar series on managing chronic illnesses like diabetes and hypertension, which was developed and delivered by students under the guidance of faculty from the Department of Nursing. This series helped improve local understanding and management of these conditions.

9. Wider support

i. Rakan Akuakultur UMS:

a. **Financial Support:** The governments often provides grants and subsidies specifically aimed at sustainable aquaculture projects. These funds help to cover research expenses, purchase equipment, and support community training programs. Examples include funding from the MOHE and Sabah Fisheries Board.

b. **Regulatory and Logistical Support:** Government agencies assist in streamlining regulatory processes that facilitate field research and the implementation of new aquaculture technologies. They also provide logistical support in terms of access to government-owned aquaculture facilities for practical training and research.

c. **Policy-Making Involvement:** Researchers from the BMRI are often invited to participate in policy-making discussions to help shape national aquaculture strategies that reflect the latest research and industry needs.

Examples and Documents: Government reports on aquaculture development often include contributions from university researchers, highlighting collaborative efforts. Specific policy documents or funding agreement copies could be requested from the university's office of research and development for detailed insight.

ii. PuPUK UMS:

a. **Financial Support:** Local health departments provide some contributions that helps support the operational costs of community engagement activities such as health screenings and educational workshops. There may also be specific grants aimed at projects that integrate educational programs with community health services, particularly those targeting underserved or rural populations.

b. **Collaborative Support:** Local health clinics and hospitals, often governmentoperated, partner with the university to provide venues and resources for student training and community health services. These partnerships also facilitate internships and practical training opportunities for students within government health facilities.

c. **Policy Support and Engagement:** Government bodies frequently involve university faculty and students in health policy development, especially policies aimed at improving community health and integrating preventive care into primary health services.

Examples and Documents: Collaborative agreements between UMS and local health departments can serve as evidence of governmental support. These documents outline the roles and responsibilities of each party and are typically available through the university's community engagement or public relations office.

10. Success and Challenges

i. Reflection on Rakan Akuakultur UMS:

What is Successful and Why: The Rakan Akuakultur UMS program has achieved considerable success in integrating academic research with practical aquaculture industry needs. This success is largely due to its effective partnership models with local aquaculture communities and its focus on sustainable practices that are economically viable and environmentally friendly.

For Whom: The success is multifaceted:

- **Students** gain hands-on experience and practical skills that enhance their employability and expertise in aquaculture.
- **Local Farmers** benefit from access to the latest research and technologies that can improve their productivity and sustainability.
- **Academic Staff** have opportunities for applied research and real-world impact, enhancing their professional development and academic profiles.

Institutional Support: The BMRI has received significant institutional support, being recognized as a Higher Institute Centre of Excellence (HICoE) by the Ministry of Higher Education (MOHE) with funding of MYR 6.75 million. This funding supports:

- Research projects aimed at enhancing aquaculture practices.
- Infrastructure improvements for research and training.
- Community outreach and engagement activities.

Main Challenges:

- **Sustainability of Funding:** Ensuring that funding continues beyond the initial grant period to sustain the improvements and expansions of the program.
- **Technology Transfer:** Bridging the gap between research findings and their practical application on a wider scale across the aquaculture industry.
- **Engagement Consistency:** Maintaining consistent and productive engagement with community partners, especially in remote areas where resources are limited.

ii. Reflection on PuPUK UMS:

What is Successful and Why: PuPUK UMS has been successful in enhancing community health through its comprehensive approach to medical and nursing education that integrates community engagement with clinical practice.

For Whom:

- **Students** benefit by gaining a deeper understanding of community health issues and developing strong clinical and interpersonal skills.
- **Community Members** in Sabah benefit from improved health services, awareness, and direct interventions, particularly in areas with high malaria prevalence.
- **Faculty Members** are recognized for their contributions to global health, particularly malaria research, enhancing the university's reputation and academic contributions.

Institutional Support: The faculty's designation as one of the WHO Collaborating Centres for Malaria Research underlines its global importance and the critical nature of its work. This recognition supports:

- Increased funding and resources for malaria research.
- Enhanced collaborations with global health bodies.
- Strengthened capacity for public health initiatives and research in Sabah.

Main Challenges:

- **Resource Allocation:** Ensuring adequate resources are allocated to meet both educational and community service goals effectively.
 - **Geographical Barriers:** Dealing with the logistical challenges of reaching and consistently engaging with remote communities in Sabah.
 - **Disease Dynamics:** Keeping up with the evolving nature of malaria and other local health issues, requiring continuous updates to training and community intervention strategies.
- In both programs, the success is driven by their alignment with both local needs and broader academic goals, supported by institutional recognition and funding. However, challenges such as sustainability of funding, technology transfer, and resource allocation require ongoing attention to ensure these programs continue to thrive and expand their impact.

11. Future ambitions

In both programs, strengthening the living laboratory approach and integrating open science principles are seen as pivotal strategies for enhancing sustainable community-university engagement.

Rakan Akuakultur UMS:

Strengthening Objectives: Rakan Akuakultur UMS aims to further strengthen the living laboratory approach to facilitate sustainable community-university engagement. This approach allows for real-world testing of aquaculture innovations and the direct involvement of the community in research that affects their livelihoods. This method not only enhances learning outcomes for students but also drives community development through science-based solutions.

- **Enhanced Collaboration:** Building stronger, more effective collaborations with aquaculture communities to co-create knowledge and share resources.
- **Open Science:** Implementing open science principles to make research data and findings accessible, thereby empowering the community to utilize scientific data for improving practices and decision-making.

Main Obstacles:

- **Cultural and Communication Barriers:** Effectively communicating complex scientific data in a way that is understandable and usable for local aquaculture practitioners.
- **Data Management:** Establishing robust systems for data sharing that ensure ease of access while protecting sensitive information.
- **Sustaining Engagement:** Maintaining continuous engagement with community partners, especially in remote or underserved areas where logistical challenges are significant.

Overcoming Obstacles:

- **Capacity Building:** Training for both university and community stakeholders on the benefits and practices of open science.
- **Infrastructure Development:** Investing in the necessary technological infrastructure to support data sharing and collaborative research.
- **Regular Feedback and Adaptation:** Implementing mechanisms for regular feedback from community partners to continuously adapt strategies to better meet community needs.

PuPUK UMS

Strengthening Objectives: PuPUK UMS is focused on advancing the living laboratory approach as a key strategy to enhance sustainable community-university engagement within healthcare. This approach involves students and faculty working directly within communities to apply learning, conduct research, and implement health interventions in real-world settings.

- **Community-Centric Solutions:** Deepening the integration of community feedback into the research and intervention processes to tailor solutions that are culturally and contextually appropriate.
- **Open Science:** Promoting open science to increase transparency and accessibility of research outcomes, enabling broader community usage of health data and findings.

Main Obstacles:

- **Resource Allocation:** Balancing resource needs between educational objectives and community service requirements.
- **Privacy Concerns:** Managing health data sensitively in accordance with privacy laws and ethical standards, particularly when sharing data openly.
- **Integration of Feedback:** Incorporating community feedback into academic research and course development continuously and effectively.

Overcoming Obstacles:

- **Enhanced Training and Support:** Providing additional training for faculty and students on ethical issues and data management related to open science.
- **Technology Investment:** Developing a robust digital platform for data sharing that meets ethical and legal standards.
- **Community Engagement Programs:** Establishing regular community engagement events that facilitate open dialogue and build trust between the university and community stakeholders.

12. Websites

The website for direct access to **PuPUK UMS** is accessible through this link:

<https://www.ums.edu.my/fpsk/index.php/collaboration/communities/pupuk>

The website for home access to FMHS is accessible through this link:

<https://www.ums.edu.my/fpsk/index.php>

University of Malaysia Sarawak (UNIMAS)

University of Malaysia Sarawak (UNIMAS) has a number of examples of Public Engagement projects, and for the purpose of this survey, we will highlight two important examples, which are initiatives called (1) Community Based Tourism Research (2) Promoting Entrepreneurship.

1. Public/Community Engagement Project(s) and their aims

i. Community Based Tourism Research

The Rural Development National Key Result Areas directly supports the goal of becoming a high-income nation by transforming rural areas (approximately 35% of population) into vibrant economic centres. The lack of basic facilities, economic opportunities and infrastructure are the key factors of outward migration in rural areas. However, the vast segment of the population would continue to live there, provided more economic opportunities were available. Nonetheless, the development programmes involving Information and Communication Technologies (ICTs) in rural areas have been actively carried out by the government and industry but lacks an overall effective strategy. Development projects are often designed and implemented in which indigenous people have minimal voice in policy and management of it. Rural development projects which just transplant urban investment and enterprises do little to improve communities' incomes. As a result, many indigenous people rightly feel that some rural developments have disregarded their legitimate interests and rights, but profiting from their cultural knowledge and heritage. In view of the above mentioned problems, it is imperative that the development of any rural population should be implemented in line with a tested model or framework which maximises the competency of the said rural areas. The said model would be multi-dimensional from various disciplines with the involvement of different stakeholder groups. Therefore, partnerships between the industry, government agencies and the local communities are needed in which local populations are able to articulate their initial concerns, wants and needs in relation to any development.

The project is funded by Malaysia Federal Funding, Fund: RM9.62mil.

ii. Promoting Entrepreneurship

Entrepreneurship is one of the National Key Economic Areas (NKEA) under the Tenth Malaysia Plan and the Economic Transformation Programme (ETP), whereby promoting entrepreneurship serves as supporting a risk-taking culture, eliminating the stigma of failure and allowing high calibre and credible entrepreneurs who had failed to be active again. The purpose of this research is to provide internal and external indicators which are the criteria to determine the characteristics of critical success factors in implementing changes among entrepreneurs in Malaysia. These transformation processes are complex, multi-dimensional, and dynamic, comprise of socio-economic (exogenous) factors, organizational (endogenous) factors, as well as individual factors (employees), to determine the critical success factors and the level of successfulness of the entrepreneurs in Malaysia. A list of hard and soft success indicators will be generated based on the above holistic examination of internal and external factors in view that change forces are interdependent and interrelated, and when it is examining from holistic point

of view, a balanced result for all stakeholders can be achieved in a given competitive business environment. It is believed that through the optimal structure of economics and human capital factors, with the external values examined, the critical success factors can be determined and scores will be generated to determine the successful level of the entrepreneurs. The outcome from this research will be the list of critical success factors which can be utilised by the entrepreneurs to evaluate themselves in the process of value creation and to ensure the organizations' sustainable growth can be achieved to become better business players locally and internationally. This study perhaps is the first that has systematically attempted to integrate all parties that are involved directly and indirectly in small and medium enterprises (SMEs) development. Ultimately, an automated web based system framework and system will be developed for an integrated Critical Success Performance Competencies Index in Small Medium Enterprise in Malaysia. ERGS grant, Fund: RM300k

2. Process of the engagement project

The Questions are as followed:

What are the successful telecentre models and initiatives which have brought about socio-economic development to remote and rural communities in Malaysia? How do we leverage on existing infrastructure, and develop new technologies to allow access and provide services to these remote and communities? What are the further needs and opportunities within such communities that can be satisfied by the innovative use of contemporary ICTs? How do we measure the impact of the telecentres and ICT interventions?

The stakeholders involved included three (3) main components namely local communities' attitudes, external customers satisfaction and internal customers (industry players' perception of ecotourism management) satisfaction. This study attempts to measure:

- i. internal customers' (workers of tourism industry) satisfaction and perceptions of service quality management (training, business environment, attitudes toward quality and infrastructure quality),
- ii. external customers' satisfaction level i.e. tourists (through the quality of service provided by industry players), and
- iii. perception of local communities (on economic, environment, social and cultural impacts) in sustaining rural tourism development.

It is the aim of this study to highlight and to investigate the indigenous components of local communities' capacity development through a focus on this project with local collaboration and cooperation. The ultimate goal of this research is for stakeholders to collaborate to ensure sustainability of rural tourism development in Malaysia.

3. Benefits for the actors

Micro perspectives: For communities at the rural tourism destination/s

The success of a rural tourism destination is derived from visitors' return visits and word of mouth recommendations, and, at the same time, long-term destination sustainability in the form of careful and well-managed resources (natural and cultural). With the highlighting of the strengths, weaknesses and economic opportunities of the destinations under study, this research seeks to provide useful information to tourism/destination planners and community residents for effective and expedient policy change or action rectification in the case of identified weaknesses, and for the full utilisation of identified economic opportunities in a sustainable manner.

Macro perspectives: For external and internal stakeholders such as students and teachers

The increase in tourist arrivals will result in enhanced employment opportunities, which further translates to increase in revenue for the communities in the rural destination. Also, more youths and their families will be willing to make a living in rural destinations by operating homestay lodges and other tourism related activities. In addition, it will help to reduce rural-urban migration and to increase the number of visitors, enhance service quality and this will ultimately generate more repeat businesses. The bigger objective is to improve the livelihood and increase the quality of lives of the community. This can be largely achieved among those involved in tourism-related industries.

4. Preparation of the public engagement projects

The project adopts a methodological position reflecting pragmatist assumptions and uses a sequential, exploratory, mixed methods design strategy. Such a methodology is consistent with a number of studies from the tourism literature focusing on destination competitiveness models, which involved teachers, students, partners and communities.

In the qualitative first phase of the design, in-depth interviews are conducted with the communities and partners such as the tourism stakeholders, who are selected via strategic purposive sampling, and include local government officers, planners, tourism service providers (accommodation, food and beverage, activities), residents and tourists. 4 rural tourism sites are selected for study: Kg. Buayan and Pulau Larapan in Sabah and Sarasok and Long Lamai in Sarawak. A theoretical sampling approach is used whereby samples/interviews will be obtained/conducted until saturation point is reached, i.e. no additional information emerged from further interviews. Hence, numbers of respondents cannot be determined at the outset of the research. However, should the number of respondents be few in number, as perhaps in the case of local government officers, the theoretical sampling approach will not be used.

The outcomes from the in-depth interviews with tourism stakeholders is the confirmation, or amendment, or augmentation (with additional indicators/factors) of the proposed rural destination competency model/index. A peripheral outcome, as we perform research study at the various selected rural destinations, would be the highlighting of the strengths, weaknesses and economic opportunities of the said destinations.

In the second phase, survey research, via a standardized questionnaire, is applied in order to validate the model/index and to rank the indicators within the said model/index.

As the aim of this research is to study the perspectives of various stakeholders and their perceptions towards the proposed rural destination competency model, the unit of analysis is at the individual level that is the individuals that make up the internal (e.g., communities, industry players) - external (tourists) dyads. Teachers, students, and all stakeholders are involved in the process.

5. Monitoring and evaluation of the project

Evaluation and assessments are done in phases which involved the students in analyses, interviews and data collection. More details are as follow:

1. Targeted visitors who are visiting and have visited rural destinations. For the external customers' perspectives, the study is designed to cover three phases in the tourists' experience, which are before the experience, during the experience, and after returning home. In the first phase, the study will be looking at the customers' expectation before their visits to the rural destinations. The second phase will be conducted through face-to-face interviews during the tourists' stay in the rural destinations, where their impression about the place is still fresh, and the third phase is after the visitors had returned home. It is important for service providers to understand that there are different categories of customer needs and expectations and hence it should be identified and managed tactfully.
2. Employees, entrepreneurs, owners of homestays and trekking guides through interview and questionnaires method.
3. Local communities, through interviews. It is believed that the local champions are a key component in ensuring the success sustainability of the rural destination project. These local champions are ideally members of the community and are passionate about helping their community to improve. These local champions act as catalysts and motivators to the project, and they persevere through any set-backs.

To assess the competencies of students, communities and stakeholders, SmartPLS 2.0 (M3) which is based path modelling and then the bootstrapping and structural equation modelling (SEM) are used to assess the data collected. In order to assess the measurement model, a confirmatory factor analysis (CFA) to assess reliability, convergent validity, and discriminant validity of the scales will be conducted. Subsequently, Global fit measure (GoF) assessment for PLS path modelling which is defined as geometric mean of the average communality and average R² will be used to observe the cut-off values for global validation of PLS models as it provides adequate support to validate the PLS model globally.

6. Stakeholders involved in the assessment

Direct stakeholders and indirect stakeholders such as the teachers, students, partners, community, government agencies and involved in the assessment. The questionnaires were distributed based on random sampling. The outcomes are shared with government agencies, communities and published in journal papers.

7. Involvement of different actors

The project involves different faculties from the Sciences, Information Technology, Business and management. The connections with the communities are based on the research projects and sites that have been selected such as Bako National Park, Gunung Mulu National Park, Niah National Park,

Bario Highlands, Batang Ai National Park, Kinabalu National Park & Poring Hot Spring, Sepilok Orang Utan Sanctuary, Sipadan Island, Tunku Abdul Rahman Park, Kampung BukitBangkong, Kampung Hulu Chuchuh, Kampung Hulu Teris, Ujung Bukit Village, Padang Lebar, Kuala Pilah, Mengkuang Titi Homestay

Anjung Bonda, Kg. Pasir Raja, Kg. Rhu 10, Kg. Teluk Ketapang, Kg. Pulau Duyong, Tanjung Piai, Endau-Rompin Johor National Park, Mount Lambak Recreational Forest. Those people involved are the local champion, head of villagers, teachers, students, local communities.

8. Training and Support offered

Yes trainings are provided, through the training and support from the university, with the involvement of various faculty in this project.

9. Wider support

Public engagement initiatives are made possible through financial support from federal and state governments, various government agencies, and community contributions. Universities play a critical role in this process by offering strategic guidance, designing structured activities, and facilitating forums that foster meaningful dialogue. By actively engaging with diverse stakeholders, universities help bridge gaps in knowledge, policy, and practice, ensuring that collaborative efforts lead to impactful and sustainable outcomes for society.

10. Success and Challenges

The key determinant of success lies in the people involved. The ability to unite diverse stakeholders through both top-down and bottom-up approaches is essential in fostering collaboration and driving meaningful outcomes. By facilitating open discussions and structured brainstorming sessions, various complex issues can be effectively addressed and resolved. However, significant challenges remain, particularly in securing the active participation of relevant agencies and institutions. Additionally, some communities tend to be conservative and hesitant to share their perspectives, which can hinder progress. Overcoming these barriers requires trust-building efforts, inclusive engagement strategies, and sustained dialogue to ensure that all voices are heard and valued in the decision-making process.

11. Future ambitions

At Universiti Malaysia Sarawak (UNIMAS), we are committed to fostering continuous engagement among researchers, students, and management to facilitate knowledge sharing. This engagement is not merely a one-time initiative but a sustained, periodic effort to ensure long-term impact and sustainability. However, one of the primary challenges we face is securing adequate funding. Sustainable financial support is crucial to maintaining these initiatives over time. To address this challenge, we actively seek funding opportunities from various agencies and work towards establishing consistent financial backing. Additionally, ongoing collaboration with stakeholders is essential to reinforcing the continuity and effectiveness of these efforts.

12. Websites

Community engagement in UNIMAS: [Community Engagement](#)

Narsee Monjee Institute of Management Studies (NMIMS)

Narsee Monjee Institute of Management Studies (NMIMS) has a number of examples of Public Engagement projects, and for the purpose of this survey, we will the following relevant public engagement initiatives.

1. Public/Community Engagement Project(s) and their aims

Various schools of NMIMS University are conducting activities that involve public engagement practices. Some of these schools include the School of Technology Management & Engineering, the School of Law, the School of Business Management, and the School of Mathematics.

Some of the Public Engagement practices at NMIMS University are:

- i) Community Service: Engineering School has introduced a compulsory non-credit course on community service. In this course students are provided with an opportunity to volunteer services to Government, Non-government agencies, Hospitals, Schools, and the Community. during the summer vacation. Students are able to understand critical issues, the society is facing and to explore all aspects of giving back to society.
- ii) Enactus: It is a network of leaders committed to using business as a catalyst for positive social and environmental impact. The organization educates, inspires, and supports young people to use innovation and entrepreneurship to solve the world's biggest problems. Enactus is working for 10 years and have transformed lives of many beneficiaries as well provided learning opportunities to its student members. In 10 years, it has created positive impact in lives of many through various project ventures (Zeen, Vishudh, Shilpkar and Rupaantar) generating revenue of around 45 lakhs and also contributing to different sustainable development goals (SDGs).
- iii) Social Impact Cell: The social impact cell has been instrumental in sensitizing students toward the societal challenges and motivating them to contribute to the upliftment of the downtrodden. It's a group of passionate individuals, united under a single banner, striving tirelessly to eradicate the pressing issues that ail our society. From championing female health and sanitation to emphasizing the paramount importance of mental well-being, the social impact cell has marched forward, knowing that every small gesture counts. The objective of social impact cell is "Great things are done by a series of small things brought together". It serves as the guiding light to the student members keeping them committed for the wellbeing of the society. The social impact cell runs various initiatives like Social Conclave, Serve out smiles, blood donation drives, helping in natural calamities and serving the needy. All the initiative of the social impact cell are in accordance with the various sustainable development goals (SDGs).
- iv) EPICS (Engineering Projects in Community Service): Established in October 2024 in collaboration with Purdue University, USA. Various problem statements are taken from Community Partners like NGOs and Industry engaged in community service work. Free of cost service is provided by the faculty mentors and the student group.
- v) One ongoing project on "Afforestation template generation using GIS and ML algorithms for sustainable forest growth" with community Partner, BALIPARA FOUNDATION is funded by the community partner.

vi) WE Care: Established in 2004 for Civic Engagement Internship for MBA students. Objectives of the initiative are:

- a. To foster analytical skills among students to analyze the root causes of social issues and examine the cascading impacts of social problems on society.
- b. To create abilities to be socially sensitive and inclusive.
- c. To apply management logic and use critical thinking skills in proposing innovative solutions to address social issues

vii) Beach Clean Up: Aim is to clean Juhu Beach, Mumbai, India after festival to promote environmental responsibility. Activity is conducted in collaboration with the NGO Association of Social Beyond Boundaries and School of Mathematics.

viii) Visit to the Old Age Home: To bring joy to senior citizens by engaging them with various fun games at Age Nurture Nest Foundation in Mumbai.

ix) Orphanage Visit: To bring joy and positivity to children at St. Catherine's Orphanage, Mumbai

x) Provision of legal Aid and support to the community at large.

2. Process of the engagement project

For community service, the students provide their voluntary services to the Non-governmental/ Governmental organization. They carry out tasks and activities provided by the organizations. There is a faculty mentor allocated to a group of students who along with the organization mentor make sure that the students carry out all activities as per the need of the organization.

For Enactus, the student committee brainstorms and come out with a project idea which has to be implemented in collaboration with a community partner or beneficiary. The faculty mentor facilitates, supervises and guides the student committee at stage of project. The student committee takes efforts to bring the project to a self-sustainable level after which the community organization.

The Social Impact cell tie up with various NGOs and offer students an opportunity to work with those NGOs for a stipulated time. It also organizes National level, annual student conference "Social Conclave" in which the participating delegates are exposed to various societal challenges, provided the real-life exposure on these issues and instructed to suggest solutions for these challenges. It is Endorsed by the United Nations (UN).

For EPICS, all possible problem statements are deliberated upon between these two stakeholders. The best suited faculty expertise is pulled from the academia bank of the institute and connected with the partner to brainstorm about the possible solution tracks. Once the project flowchart is identified, the idea is floated amongst the student community and they are at liberty to choose the option that is best suited to their interests.

The EPICS programme chair and associate programme chair approached Bombay Natural History Society (BNHS) for their problems. They presented a study related to leopard census in Sanjay Gandhi National Park, Mumbai, India. BNHS offered to share camera trapping images over several years. The EPICS group is working on it. Community partner officials, EPICS management, faculty mentors and students are the stakeholders in this equation.

The three-week program, 'We Care: Civic Engagement' internship is scheduled in the third trimester of the MBA program. Students are placed in social sector organizations at the pan-India level for 150 man-hours over three

weeks. To strengthen the service delivery system of the organizations, students work on projects such as developing management plans, systems, digitization, resource mobilization, research, etc, and align their work to relevant SDGs.

The internship process includes onboarding 250-300 social sector organizations needing management interns, profiling students, sharing their CVs, and finding a strategic fit between students' aspirations and skill sets with the organization's requirements. To familiarize students with the internship requirements capacity-building workshops are held, students are encouraged to go for pre-internship visits. Organizational and faculty mentors are appointed to mentor students. To integrate experiential learning with academics, each faculty member mentors 12-15 students.

Beach cleaning drive is aimed to address environmental concerns following a major festival. The collaboration with NGOs ensured relevance and effectiveness. Students, teachers, NGOs, and the local community participated actively in these initiatives are stakeholders of this initiative. Visit to old age home is focused on reducing loneliness among seniors. Visit to orphanage addresses the emotional needs of children, identified through general outreach practices.

Engagement projects for legal aid and support are conducted by a committee of students led by Faculty Conveners. Some of the projects are done in collaboration with an NGO or governmental bodies like District Legal Services Authority. In October 2024, faculty collaborated with the Gram Panchayat and visited a village in India. They conducted awareness drives pertaining to rights of women, children and minority community.

3. Benefits for the actors

Engagement in public engagement projects with a selected community organization results in a mutually beneficial relationship based on a spirit of giving and collaboration.

Benefits to the Community: The community organizations benefit in terms of services and technological solutions provided by the young energetic students. The students provide innovative solution for the problems of the community using their creative mind which can create a positive impact. Because the technical knowhow of the faculty mentor and the service done by the students is offered to the community partner at no cost, the community partner gets access to a genuine and updated scientific approach with substantial research without any investment. Most of these projects are over two years. There is enough time to complete the work with credible outcomes. In conclusion, outreach activities support and empowers community and community enjoys, happiness, attention, support.

Benefits to Students: Student's participation in these initiatives not only makes a difference to the organization and people being served but also makes a difference to student's outlook and help in his/her holistic development. It helps to improve their networking, interpersonal communication, leadership, organizational and project management skills. It provides students an opportunity to better understand the urban-rural divide, problems faced by the underprivileged sections of society and motivate them to use their technological skills for providing solutions to various societal challenges.

Students are exposed to real life problems where they can understand the importance of working on live projects and being in a position to offer technical advice and innovation based on what they have learnt in their curriculum. This helps them to stay focused and careful of what they suggest as solutions. This experience helps them to get a better idea of their own capabilities.

Besides social sensitivity, students developed critical thinking and problem-solving skills. One team shared, "We are happy that our financial literacy module helped adolescent entrepreneurs. Subsequent class discussions



unfolded how managers can create value for all in society." Experiential learning has augmented the intellectual capital of students and faculty publications (research/case studies) around the SDGs.

"Students have novel ideas and skills in executing the tasks," shared one organizational mentor. 50 % of our students offered support in digitalizing processes, technology transfer, augmenting plans, and impacting the organization's service delivery systems and reach. Over 1/5th of the students enhanced the digital presence, impacting the organization's brand visibility and funding support.

Recruitment firms feel that social engagement has influenced students to be inclusive. We have received several accolades for our experiential learning model. The validation has aided in scaling the internship to Campuses/Schools of NMIMS. 40 % of our alumni members are actively volunteering, and few have become social entrepreneurs. Our mission of creating socially adept managers and transformational leaders to create shared value has gained momentum. It exposes and sensitizes them to on ground challenges which nuances their perspective on Law and the society.

Benefits to Teachers: Using such initiatives the teachers can provide students with real-life hands-on experience in the community and sensitize them towards the challenges and critical issues facing society. The teachers also get an opportunity to contribute positively for the community. They get to wield their interests and expertise in the said problem statement, work with students and give back to the community in a way where the outcome is measurable and visible, thereby providing a sense of satisfaction in having done the work well. It exposes them to challenges and realities and shapes their perspective. This enables them to teach various courses.

4.Preparation of the public engagement projects

The teachers are involved since the beginning of public engagement activities and acts as link between the community organization and students. When a project is taken up, it may not necessarily be of the domain of the faculty or the student. So initial preparation is necessary to align both faculty and students towards the actual project problem statement. The first step is then to carry out a review research on the topic so that all possible available solutions are understood well to be able to introduce innovation into the solutions. For example, in my Balipara Project, I downloaded a host of research papers on the subject and allocated a number of them to each student. They were asked to study these papers and prepare synoptic documents. This allowed them to understand the new concepts and refresh the older concepts too.

The internship process includes onboarding 250-300 social sector organizations needing management interns, profiling students, sharing their CVs, and finding a strategic fit between students' aspirations and skill sets with the organization's requirements. To familiarize students with the internship requirements capacity-building workshops are held, students are encouraged to go for pre-internship visits. Organizational and faculty mentors are appointed to mentor students. To integrate experiential learning with academics, each faculty member mentors 12-15 students. In the first week of the internship, post-induction students brainstorm with the staff to finalize their proposed action plan. The next ten days are allotted to project execution. In the last three days, students draft and present their reports. Faculty mentors use weekly reports and a 'Rubric' to assess students. Class discussions, We Care poster presentations, competitions on We Care documentaries, photo stories, and We Innovate B-plans further strengthen the sustainability dimension. Formal feedback from students, organizations, and faculty mentors helps review and revise the internship components. Experiential learning is also captured in the Annual We Care Anthology.

It is a mutually collaborative process. The faculty and the students at the start of the year chalk out a plan which entails what are the nature of activities the committee wants to undertake. That gives us a blueprint of the activities we will be planning. After that we make smaller groups dedicated for each project decided. We allocate tasks basis the role of the students and conduct weekly meetings to update each other on the progress.

For beach cleaning drive requires coordinated efforts with an NGO and trained participants on waste disposal. Students with the help of faculty pre-arranged games and refreshments before the visit to old age home and orphanage.

5.Monitoring and evaluation of the project

For community service course, the evaluation is carried out based on presentation and report submitted by students on their community projects. The assessment rubrics is designed to carry out the evaluation.

EPICS projects are also credit based. Students earn credits in each semester. They can continue with the same project for up to three semesters and earn 5 credits during this time.

For internship, faculty and community partners evaluate separately and collate the points. Students keep records on what they have learnt every week and also their personal reflections. These are evaluated quantitatively. The student's competence, the effect on the community and the satisfaction of the community partner is taken into account. Research publications based on the work is also evaluated. Between 2011-12 to 2023-2024, 8510 students have interned across 25 States/5 Union territories in over 300 organizations and six international countries. Over 65 % of our students interned with child welfare and community development organizations. Majority of students' projects were aligned with SDG 4 (65%), SDG 3 (32 %) & SDG 8 (31 %). 98 % of students had a great learning experience. 90 % of organizations were highly satisfied with our students. Other assessment areas are community impact in terms of happiness, cleaner environments and student skills in terms of Communication and leadership. Methods used are feedback from participants, self-assessment among students, and visual outcomes.

6. Stakeholders are involved in the assessment

For community service and EPIC, a panel of faculty panel review the reports submitted by the students. Reports show the outcomes of such projects. For internship, Faculty mentors and community partner officials are the stakeholders in this evaluation exercise. The NGO mentors evaluate the quality of deliverables delivered by the students. Faculty Mentors evaluate the academic learning gained through the experiential learning. The We Care Poster Presentation is assessed by Social Sector Professionals. The We Care Competitions like Documentary Making, Photography and We Innovate-B-Plan is evaluated by Subject Matter Experts. In conclusion, feedback of stakeholders is given throughout the process of evaluation.

7. Involvement of different actors

Community service is a compulsory course for all the first-year students so faculties from different disciplines are involved for smoothly carrying out various activities related to the course. The overall in-charge and faculty coordinators of the Community Service establishes connect with various NGOs and Governmental organization after thoroughly checking their particulars. The collaborations are established through formal official mail communication and informal telephonic discussions. Most of the projects floated are interdisciplinary in nature. Faculty mentors can be from multiple branches and programmes. Students may be from different domains as well.

To further strengthen our commitment to sustainability, NMIMS University has instituted the Jasani Centre for Social Entrepreneurship & Sustainability Management in 2010. The Centre focusses on creating socially adept managers and transformational leaders by formally engaging them in designing creative solutions to the social agenda. This is driven by the belief that such exposure will be instrumental in developing values of inclusion, compassion, and resilience and inspire them to create an inclusive and sustainable world. Schools have developed partnerships with over 1000 NGOs across India in the last fourteen years. They have also developed network with Corporate Social Responsibility departments and government departments (Health, Women and Child Welfare, Rural Development etc). Partnerships is developed with NGOs (e.g., Association of Social Beyond Boundaries) and local institutions like orphanages and old age homes. Schools are collaborating with Governmental Authorities like District Legal Services Authority and Gram Panchayat.

8. Training and Support offered

Most of the schools do not provide formal Training. The complete process is explained through formal meetings and orientation to the faculty mentors and students. Faculty development programmes are provided to the faculty mentors so that they are able to take on their duties with confidence. Periodically meetings are conducted to review status of the projects. Partners are also invited to the meetings so that they may have a platform to air their views. Laboratory facilities are given for all experimental work to be done. Training is provided to students. Teachers mentor the students on organizing activities, communicating effectively, and respecting cultural sensitivities.

9. Wider support

Government is very supportive of Citizen Science activities. There are dedicated forums established by the Government to strengthen community engagement activities and financial grants are also on offer by Government and regulating bodies like All India Council of Technical Education, Department of Science and Technology, Ministry of Environment, Forest and Climate Change, Ministry of Earth Sciences have grant cycles that support projects.

Schools have been placing students with CHILDLINE India Foundation (CIF) which is the nodal agency of the Union Ministry of Women and Child Development, India. Many NGOs in India partner with the government and our students have to work in Municipal Schools/Hospitals. One of the initiatives is 'Swachh Bharat' through the Beach Cleanup. School to hosting a PARALEGAL Volunteer in the month of January in collaboration with District legal Services Authority which shall be funded and supported by the Government Authority.

10. Success and Challenges

In the last three years, around 4400 students of five school have rendered voluntary community services to various organizations located in India. Students at such large numbers performed community service. The student's engagement in the service activities benefited to both the organizations and students. The students also came up with unique solutions for the problems faced by the society. They contributed for the environmental, medical, teaching, skill development, livelihood, animal rescue, rehabilitation, emergency response, women empowerment, addiction prevention, inclusion of differently abled persons, poverty alleviation, hygiene enhancement activities run by Government/ Non-Government and Municipal organizations. These activities are directly linked to sustainability development goals (SDGs). The major challenge faced is finding out a suitable organization near the native areas of the students as the service need to be completed in limited time.

One of the EPICS projects is based on afforestation using Geographic Information System and Machine learning algorithms, in areas that need to be rewilded in the northeastern part of India. Remotely working on the project has been easy. Four students from Engineering school and four others from Purdue University are engaged in mapping the territory. Cloud use of geospatial data and analyses has been successful for the stakeholders.

The recognition that ethical crises and environmental problems located in a single nation are magnified in a global society has led to a greater emphasis on the moral leadership of business leaders. We Care Civic engagement internships have encouraged students to think beyond personal gain and contribute to the betterment of their communities. They provide a opportunity to apply classroom learning to real-world situations. Students can see how policy decisions, social issues, and community needs play out on the ground. While technical skills are important, employers increasingly value transferable skills like communication, collaboration, critical thinking, and problem-solving. Civic engagement internships offer a fertile ground to develop these skills through working with diverse stakeholders, managing projects, and advocating for change.

For NGOs, MBA students bring a unique blend of analytical, strategic, and problem-solving skills developed through their coursework. This allows NGOs to tackle complex challenges, such as developing new fundraising strategies, improving operational efficiency, digitization or conducting market research for specific programs. MBA interns help NGO staff to develop proposals and present them to funders. Through social engagement, business school is able to develop a sense of civic responsibility among future business leaders. It has helped faculty to develop well-rounded graduates who are equipped to make a positive impact on society.

Business school has received several accolades for our experiential learning model. The latest being the Social Innovation Award- (Innovations That Inspire) conferred by Association to Advance Collegiate Schools of Business (AACSB) in 2023. The main challenge in We Care project in the initial stages is dealing with anxiety of the students to work with social sector organizations. This is dealt through organizing workshops, inviting senior students and alumni to talk to students. Many NGOs in India are not able to optimally use Management students as interns. Faculty has to help them to get a strategic fit between the interest and skills of the students and align it with organizational requirements. Time constraints, logistical coordination, safety of students, logistics and limited funding contribute to challenges.

The institute provides complete support for carrying out various activities in community service and allow regular field work in the area. School extends very good support in executing the internship. All Faculty members take responsibility to mentor the students.

11. Future ambitions

NMIMS is very keen in engaging students in public projects. Through various initiatives, the organization motivates students to contribute positively for the community. The major challenge is embedding such initiatives in the formal curriculum and at our institute lot of efforts are taken to include such public engagement projects.

Organization wishes to maintain high research and service ethics when working with the community partner so that what is given back to the community will have high value and engage both faculty and students in offering the service. Over a period of 14 years we have gathered rich data on our Civic engagement internship.

Additionally, we would like to expand our public outreach network and have our Pro Bono Clinic that provides free legal aid to the community at large. The main obstacle might be networking with lawyers. Organization intends to enter into a collaboration with District legal services Authority to facilitate this process.

To reach high levels of finesse projects involve some amount of expenditure for managing pro bono work, field work and experimentation. We need researchers who can undertake research in this area and of course the funding support is required for the research. Thus, financial backing, stronger NGO partnerships could be main obstacles in future. Sometimes credibility of community partners may also be dubious. Hence identifying genuine partners is a careful exercise that must be done with caution at all times. Legalities and Intellectual property rights have to be ethically allocated according to the work done.

12. Websites

We care: [We Care : Civic Engagement Internship](#)

Thapar Institute of Engineering and Technology (TIET)

The Thapar Institute of Engineering and Technology (TIET) has a number of examples of Public Engagement projects, and for the purpose of this survey, we will highlight the following:

1. Public/Community Engagement Project(s) and their aims

Thapar Institute of Engineering & Technology (TIET) demonstrates Science Shop 2.0 practices through **both student-led and faculty-led public engagement projects**, addressing societal challenges in **accessibility, environmental sustainability, and public health**.

Few representative examples are highlighted:

(i) Smart AI Device for Visually Impaired (CPG-21)

This undergraduate capstone project aims to develop a portable, AI-enabled assistive device to support visually impaired individuals through real-time obstacle detection, scene understanding, and text-to-speech capabilities. The project seeks to enhance independent mobility, safety, and social inclusion, particularly for users with limited access to expensive assistive technologies.

(ii) Community Participation Project – Rural Wastewater Treatment and Reuse (ADH)

This long-term **community-based participatory research (CBPR)** initiative addresses environmental and public health risks associated with untreated domestic wastewater in rural Punjab. Commonly known as the “**Thapar Model**”, the project focuses on **decentralised wastewater treatment, reuse for irrigation, groundwater conservation, and farmer participation**, and has been implemented across nearly 1,200 villages.

Together, these projects demonstrate how TIET interacts with society at multiple scales, ranging from vulnerable user groups to entire rural communities.

<https://dwsspunjab.wordpress.com/2021/03/20/gurdaspur-treats-wastewater-using-thapar-technology/>

iii) Youth United: Thapar Chapter

The objective of Youth United is to encourage development of society as a whole through its activities like publishing periodicals on social issues, organize community service events & visits. Youth United organizes painting competition among small children, visits institutions like Pingalwara, Old age homes, School for Deaf and Dumb etc. It also organizes ‘The joy of giving week’ as a part of its initiative to inculcate cultural and social values amongst the residents of the Thapar Technology campus.

iv) Pratigya Society

PRATIGYA, a society, is working, consistently for social welfare. This society develops teams of student volunteers from the undergraduate, post-graduate and Management programs, who teach the underprivileged kids from classes I to XII. These kids include children of class four employees of Thapar Institute as well as kids residing outside Thapar.

<https://sites.google.com/view/pratigyasociety>

<https://www.instagram.com/pratigyaabhiyan/?hl=en>

<https://www.facebook.com/people/Pratigya-Society-Thapar-University/100077594732299/>

2. Process of the engagement project

The **research questions originate directly from societal needs**, reflecting a core Science Shop 2.0 principle.

In **CPG-21**, the problem statement emerged through **direct interaction with visually impaired users**, teachers from special-education schools, and disability-support NGOs. Students conducted field visits and structured discussions to identify challenges related to navigation, accessibility of information, and affordability of assistive devices. Faculty mentors supported the translation of these lived experiences into a technically feasible research question.

In the **wastewater project**, the research question was initiated by the **Department of Rural Development and Panchayats, Government of Punjab**, in response to widespread environmental degradation and health risks from village ponds. TIET researchers collaborated with village panchayats, farmers, and government officials to co-design solutions, ensuring relevance and scalability.

Research & Development: Undergraduate capstone project focusing on developing a portable, AI-enabled assistive device (real-time obstacle detection, scene understanding, text-to-speech) for a vulnerable user group.

Community-Based Participatory Research (CBPR): Long-term, decentralised approach. Process involved identifying the problem (health risk/dirty pond), guided community engagement, securing funding (MGNREGA/Panchayat), constructing the treatment plant, and ensuring water reuse for irrigation.

Community Service & Education: **Youth United** organizes community service events, visits to institutions, and awareness activities. **Pratigya recruits** student volunteers to teach underprivileged children from classes I to XII and diploma classes.

3. Benefits for the actors

Community Benefits

- Improved autonomy, safety, and confidence for visually impaired users (CPG-21).
- Reduced groundwater extraction, improved sanitation, and lower irrigation costs for rural communities (wastewater project).
- Enhanced awareness and empowerment through active participation in decision-making.

Student Benefits

- Hands-on experience with community-based participatory research.
- Development of technical, ethical, communication, and interdisciplinary skills.
- Exposure to real-world societal challenges beyond classroom settings.

Teacher / Researcher Benefits

- Opportunities to supervise socially impactful research.
- Strengthened collaborations with NGOs, government bodies, and communities.
- Generation of policy-relevant research outputs and case studies.

Visually Impaired: Enhanced independent mobility, safety, and social inclusion by providing an affordable technology alternative.

Rural Communities/Public Health: Reduced environmental and public health risks (e.g., bad odor, mosquito breeding), and groundwater conservation. Farmers: Access to treated wastewater for irrigation (e.g., irrigating 18 acres/month).

Education for underprivileged kids, cultural and social value inculcation for campus residents, and support for vulnerable groups (Pingalwara, old age homes).

4.Preparation of the public engagement projects

TIET's experience demonstrates that effective public engagement in the Indian context necessitates trust-building, iterative co-design, and a sustained presence in the field. Student projects benefit from structured ethical preparation, while large-scale CBPR initiatives require sustained institutional and governmental collaboration.

For **student-led projects**, faculty members conduct orientation sessions on ethics, consent, disability sensitivity, and responsible community interaction. Technical workshops and literature reviews precede field engagement. Structured as an **undergraduate capstone project**, integrating curriculum with societal needs.

For **faculty-led CBPR projects**, preparation includes repeated field visits, baseline surveys, stakeholder meetings with panchayats and farmers, and training of students in participatory methods and data handling. Initial setup secured **funding** from Govt. (MGNREGA/Panchayat funds) and required technical design/implementation based on Thapar technology, following **guidance from the district administration**.

Societal Structuring: Pratigya actively develops and coordinates teams of student volunteers (UG, PG, Management). **Institutional Support:** TIET provides generous infrastructural, financial, administrative, and advisory support (guided by a faculty advisor).

5. Monitoring and evaluation of the project

Evaluation is conducted at multiple levels:

- **Technical performance** (device accuracy, treatment efficiency).
- **Community impact** (behavioural change, acceptance, environmental improvement).
- **Student learning outcomes** (skills, engagement, professionalism).

Both quantitative indicators and qualitative feedback are used to assess impact.

Implied: Assessment would be part of the capstone project evaluation, likely based on technical performance and user testing.

Outcome-Based: Success is evidenced by the clearness of the water, absence of smell, transformation into a community park, and the capacity of the treated water to replace the need for separate tube wells for irrigation.

6. Stakeholders are involved in the assessment

Stakeholders include faculty members, students, community participants (visually impaired users, farmers, panchayats), NGOs, and government departments. In the wastewater project, government agencies also assess scalability and policy relevance.

- Visually impaired individuals/users (beneficiaries).
- Rural communities/residents, farmers, local governance (Panchayat), District Administration, and TIET.
- Student volunteers, faculty advisors, underprivileged children/their parents, and beneficiary institutions (e.g., Pingalwara).

7. Involvement of different actors

All engagements are interdisciplinary:

- Engineering, computer science, environmental sciences, agriculture, and social sciences contribute expertise.
- Community connections are facilitated via NGOs, village panchayats, and government departments.
- Collaboration structures range from informal engagement (student projects) to formal MoUs (CBPR initiatives).

Student researchers/developers are the primary actors, with focus on serving vulnerable user groups.

High Community Involvement: Defined as **CBPR**, emphasizing **farmer participation**. Local governance (Panchayat, District Administration) and funding bodies (MGNREGA) are heavily involved in implementation, maintenance, and funding.

Student-led: **UG, PG, and Management students** lead the activities as volunteers (teachers/organizers). **Institutional Partnership:** The Institute provides crucial resources and guidance.

8. Training and Support offered

At Thapar Institute of Engineering & Technology (TIET), training and support for public engagement projects are provided through **faculty-led mentoring, preparatory orientations, and field-based learning**.

For **student-led initiatives** such as the *Smart AI Device for Visually Impaired (CPG-21)*, students receive training in **ethical engagement, informed consent, disability sensitivity, and human-centred design**, along with technical support in AI, embedded systems, and prototyping. Faculty mentors provide continuous supervision during development and user testing to ensure safety and relevance.

For **faculty-led CBPR projects**, such as the Community Participation Project on Rural Wastewater, students and researchers are trained in participatory survey methods, field data collection, and stakeholder interaction. Community partners are supported through **awareness sessions and on-site demonstrations**. Institutional support includes access to laboratories, computing facilities, and logistical assistance for fieldwork.

9. Wider support

TIET supports public engagement through capstone frameworks, research centres of excellence, faculty mentorship, and access to laboratories and field infrastructure. While not branded as a formal “Science Shop,” these practices collectively function as a **distributed Science Shop 2.0 model** within the institution.

High replicability: Known as the “**Thapar Model**” and has been implemented across nearly **1,200 villages**. Supported by government schemes (MGNREGA).

Pratigya is noted as one of the **biggest and most active societies in TIET**, signifying strong internal support and sustained engagement

10. Success and Challenges

Successes include high community acceptance, tangible societal impact, strong student learning outcomes, and scalable solutions (e.g., the Thapar Model).

Challenges include sustaining long-term funding, balancing academic timelines with community needs, ethical considerations, and scaling prototypes into deployable solutions.



11. Future ambitions

TIET aims to **strengthen institutional structures for public engagement**, expand interdisciplinary participation, and formalise Science Shop 2.0 practices across curricula and research programmes.

12. Websites

<https://dwsspunjab.wordpress.com/2021/03/20/gurdaspur-treats-wastewater-using-thapar-technology/>

<https://sites.google.com/view/pratigyasociety>

<https://www.instagram.com/pratigyaabhiyan/?hl=en>

<https://www.facebook.com/people/Pratigya-Society-Thapar-University/100077594732299/>