



Sustainability-led Institution: Case of Universiti Sains Malaysia, Penang

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ABSTRACT

DESCRIPTION

Universiti Sains Malaysia (USM), located in Penang Island, Malaysia was established in 1969. Situated in one of the most industrialised and urbanised regions of Malaysia, USM aspires to be a sustainability-led university and has gone from business-as-usual scenario to transforming higher education for sustainable tomorrow. Transformation must start from within and thus, the campus activities must reflect sustainable development concepts such as sustainable consumption, sustainable lifestyle, and sustainable transportation. This learning case is designed to encourage discussion and improve understanding among the administrative departments and campus community on the challenges of implementing sustainable consumption in an institution. Even though this case focuses on higher education institution, the challenges and learning experiences are comparable to other institutions and organisations.

Learning objectives:

- To improve stakeholders' knowledge and capacity on sustainable consumption.
- To identify resources used for operational activities which have high material/resources consumption.
- To determine framework for sustainable consumption of the institution.

Subjects covered:

Sustainability-led intervention; Sustainable consumption indicators; Stakeholder dialogue

Setting:

- Universiti Sains Malaysia, Penang

DISCLAIMER

This educational case was developed using publicly available information and also based on an unpublished report, training sessions and discussion.

UNIVERSITI SAINS MALAYSIA

Established as the second university in the country in 1969, Universiti Sains Malaysia (USM) was first known as the University of Penang. In 1971, the campus, which was originally planned to be situated in Sungai Ara, moved to its present site, Minden, a beautiful location with a land area of 253.98 hectares. The green and hilly scenery facing the sea is now the main campus of the Universiti Sains Malaysia. There are two USM branch campuses, one at Kubang Kerian in Kelantan (approximately 300km from the main campus) known as the Health Campus and the other at NibongTebal (approximately 50km from the main campus), known as the Engineering Campus.

Box 1 lists the institutional framework of USM which can be divided into five major divisions based on their core functions. Tables 1 and 2 provide the statistics on university community staff and students.

Box 1: Universiti Sains Malaysia Institutional Framework

1. Administrative centers
2. Centers of Excellence (research centers)
3. Teaching faculties
4. Service centers
5. Students hostels

Table 1. Number of staff in Universiti Sains Malaysia (Omar Osman 2013)

Staff	Campus			Total
	Main	Health	Engineering	
Academic	1149	563	236	1948
Management & Professional	583	397	87	1067
Support	2609	3573	526	6708
Total	4341	4533	849	9723

Table 2. Number of Students Enrolment in Universiti Sains Malaysia (Omar Osman 2013)

Students	Campus			Total
	Main	Health	Engineering	
Doctoral	3260	620	180	4060
Masters	4951	876	1458	7285
Postgraduate Diploma	350	0	0	350
Undergraduate (full time)	8611	2461	2117	13189
Undergraduate (distance education)	7109	0	0	7109
Diploma	0	254	0	254
Total	24281	4211	3755	32247

The journey to transform USM into a sustainability-led university began with the introduction of the *Kampus Sejahtera* (Sejahtera Campus) concept in 2000. A direct translation of the Malay word *sejahtera* means healthy and well-being. However, this translation does not reflect the true meaning of the word. As a matter of fact, *sejahtera* is defined as the optimal and harmonious balance across the spiritual, social, physical, intellectual, emotional, and environmental dimensions. Soon after, the University in the Garden concept was introduced in 2001. It focuses on the symbiotic co-existence of man and nature in the pursuit of knowledge. It was a fitting concept for an institution of higher learning since the university is also known as a garden of knowledge. These steps were the first of many that were introduced by the university's management at the time who realized that there was a need to transform the university's traditional role of manufacturing graduates in numbers to a more significant role of producing well-rounded human beings.

The catalyst for transformation came in the form of the APEX (Accelerated Programme for Excellence) programme introduced by the Malaysian Ministry of Higher Education in 2007. At the time, the ministry invited all local public and private institutions of higher learning to apply for the APEX program which was established to facilitate and support institutions of higher learning that were chosen to become world class institutions, as well as serving as a catalyst to help other institutions of higher learning move up to the level of excellence.

USM proposed to become a world class sustainability-led university that utilizes higher education as a platform to mainstream sustainability into all aspects of the university, which includes teaching, research, community engagement, and institutional arrangements. Based on the proposal, USM was awarded with Accelerated Programme for Excellence (APEX) status in 2008 by the Ministry of Higher Education, Malaysia. The selection of USM into the APEX programme was based on its state of readiness, transformation plan, and preparedness for change. The APEX award was an acknowledgement of the university agenda towards sustainability. A two-pronged strategy was developed to align all initiatives towards the university's vision and mission (see Box 2). The strategies are to be 'World renowned sustainability-led university' and 'World Class University for Sustainability'.

Box 2: Universiti Sains Malaysia's Vision and Mission Statements

Universiti Sains Malaysia's vision:
"Transforming Higher Education for Sustainable Tomorrow"

Mission statement:
"USM is a pioneering, trans-disciplinary research intensive university that empowers future talents and enables the bottom billions to transform their socio-economic well-being".

A SUSTAINABILITY-LED UNIVERSITY

In its journey towards becoming a sustainability-led university, USM has undergone a lot of transformational changes. USM’s teaching and learning programmes, research and development activities, community engagement activities, and its institutional framework have been infused with the principles and practice of sustainable development.

In 2009, USM developed a sustainability roadmap (CGSS 2009) for capacity building at individual, institutional, and systemic levels, to produce graduates who are equipped to address the sustainability challenges facing their communities and the world at large. The roadmap focuses primarily on the United Nations publicized WEHAB sectors of water, energy, health, agriculture and biodiversity. In addition, three very closely-related cross-sector issues are also given careful consideration: climate change and disaster risk management, population and poverty, and production and consumption issues.

The integration of sustainability into the core of a university’s business requires a whole system enterprise that links major sustainability challenges on one hand, with different educational approaches on the other.

USM’s roadmap for sustainability mainstreaming across its entire range of operations is based on the following generic model (see Figure 1). It factors the major sustainability challenges that span across the three pillars of sustainability – economy, environment, and society into the university’s mission activities in the three pillar areas of education – teaching, research, and community engagement. This provides for various combinations of engagement for any given sustainability issue through a variety of educational approaches. Also, this model allows an entry point for all sections of both academic and non-academic staff to be involved in sustainability activities, regardless of the section of the university for which they work (Osman 2013).

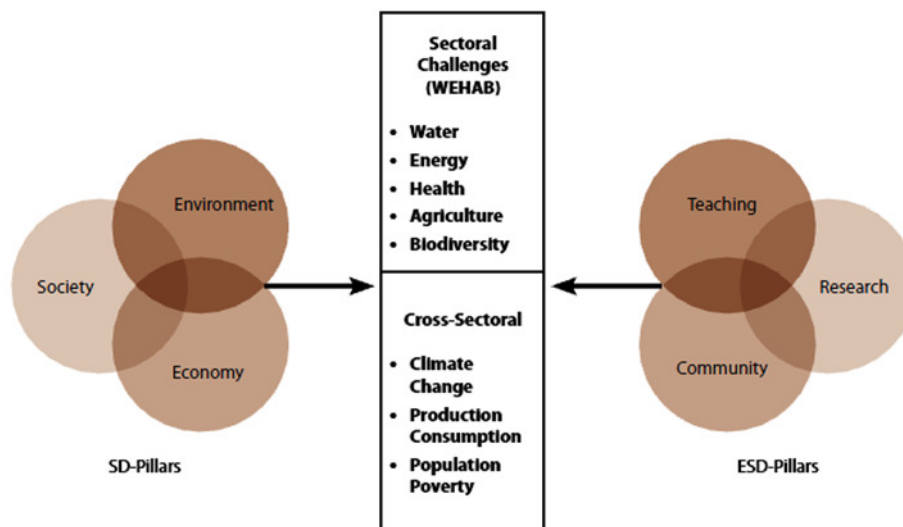


Figure 1. USM’s model for sustainability mainstreaming (CGSS 2009)



Units in a division (refer to Box 1) are assumed to have similar activities (see Appendix A). The whole-systems approach means that the entity of a university is composed of interdependent units that actually depict a complex ecosystem. The units under the divisions exist as individual ecosystems and at the same time also interact with other units in the university vertically and horizontally (with various hierarchies of power). To evolve successfully in a sustainable manner, all the functioning units and linkages within the whole system must be considered (Koester et al. 2006). Therefore, it is important to consider the interactions and dynamics of the social structure and of the agents and thus, allow for the inclusion of culture in the analysis.

In essence, everyone on the campus including academics, students, administrative staff, and support staff (stakeholders) must work together and advocate for the sustainability agenda of USM. Some of the major challenges faced by USM are to identify, train, and nurture champions (agents of change) and to reach out to the campus community.

SUSTAINABILITY-LED INTERVENTIONS

The concept of sustainable consumption and production is one of the requirements for sustainable development to foster economic and social development. It was recognized that fundamental changes in the way societies produce and consume are indispensable for achieving global sustainable development (United Nations nd). Sustainable consumption initiatives are widely used by many institutions and organizations to reduce their carbon footprint. USM aims to promote sustainable consumption by focusing on usage of materials in the daily operational activities on campus.

As a higher education institution, USM's operational activities are focused on teaching, research, community engagement and other related institutional activities. In general, all these activities directly and indirectly consume common resources such as electricity, water, paper, and stationery. In addition, science based teaching faculties and centres of excellence are commonly associated with experimental activities and therefore, are more research material-intensive. In contrast, economics, social sciences, and education do not require machinery or livestock, and hence, are characterized as less research material intensive.

Transforming the campus into a sustainability-focused institution requires involvement of all the stakeholders. It is worth noting that the goals and motivations of different agents of change have to be consolidated if change and optimization in the material consumption and reduction are to be achieved. The consolidation process for these agents can be realized through stakeholder dialogues and focus group discussions. Stakeholder dialogues bring different perspectives together, and enable stakeholders to seek solutions together. This process explores the capacity for identifying innovative solutions for sustainable development (Künkel, 2011). Therefore, stakeholder dialogue and focus group discussion are essential to capture strengths, weaknesses, opportunities, and threats of institutionalising sustainable consumption initiatives at USM.

The first step of this capacity building is to identify the relevant stakeholders. The university stakeholders can be categorized according to the five major divisions (see Box 1). There are similarities and differences of stakeholders in the divisions as depicted in Table 3.

Table 3. List categories of stakeholders according to divisions [(authors 2013)]

	Administrative Centres	Centres of Excellence	Teaching Faculties	Service Centres	Student Hostels
Administrative Officers	✓	✓	✓	✓	✓
Research Officers		✓	✓		
Science Officers		✓	✓		
Technicians	✓	✓	✓	✓	✓
Laboratory Assistant		✓	✓		
Clerks	✓	✓	✓	✓	✓
General workers	✓	✓	✓	✓	✓
Drivers	✓	✓	✓	✓	
Lecturers		✓	✓		
Postgraduate Students		✓	✓		
Undergraduate Students			✓		

In order to track the consumption of resources, stakeholders from the different divisions will need to identify the types of materials used. It would be helpful if stakeholders are able to quantify the volume of material. This can act as a baseline to determine current material consumption and practices.

Stakeholders have a role to play in changing the way decisions are made for successful intervention strategies and actions. Effective decision making requires stakeholders to undergo transformative learning through capacity building which includes improving and sharpening knowledge about consumption issues, skills required for execution of strategies and actions, and the inter-related perspectives on the processes and dynamics of the whole system. Awareness programmes (such as introduction to sustainable development, perspectives, and challenges) are fundamental for stakeholders to make informed, appropriate decisions to achieve sustainable consumption.

Conducting a monitoring and evaluation exercise is considered good practice in managing an intervention. Monitoring of strategies and actions taken allows stakeholders to track progress and identify consumption issues during the initial phase of the intervention strategy and actions, thus providing an opportunity to take corrective action or make proactive improvements as required. The evaluation of strategies and actions provide an indication of the level of achievements. It also allows stakeholders to repeat activities that have been demonstrated to work, and improve on or discontinue activities that do not work.

THE CHALLENGE AHEAD

“Walking the Talk” is the main challenge in USM’s mission to become a sustainability-led institution. Even though sustainability practices have been adopted by the management, a huge challenge still awaits in the form of operationalisation. The existing mode of operation needs to change and mostly, require a change in work culture, habits and lifestyle. Champions (agents of change) who are able to advocate sustainability consumption initiatives and lead the changes required in the beginning of the programme, are imperative. However, acknowledgement and strong support by the university’s top management and involvement of all of the campus community are essential elements for effective and



successful implementation of sustainable consumption initiatives which aid in moving towards realizing a sustainability-led institution.

Working Session 1: Identifying resources

Working Session 1 aims to identify types and volumes of resources used by different divisions, and the nature and volume of material/resources consumed in operational activities.

Working in small groups, (assuming that your group members are stakeholders of the selected unit) conduct a stakeholder dialogue to analyse current scenarios of consumption in the different units and divisions (refer to Box 1 and Appendix 1 for examples of divisions and units). Focus on the estimates of the types and volumes of resources used in the operational activities. Then, identify the operational activities which have high material/resources consumption and high possibility for reduction.

Discussion Questions

1. What are the activities of the units? What and how much resources are used on a daily/weekly/monthly basis, in the present work culture?
2. Which activity could reduce its material/resource consumption without affecting the efficiency of the operations?

Working Session 2: Sustainable consumption framework

Working session 2 aims to determine framework for sustainable consumption of the units in a division.

Working in small groups, assume that your group is a committee responsible for making recommendations that should be used by the unit/division for “sustainable consumption” initiatives. The discussion need to determine sustainable consumption goals, targets, strategies and actions, responsibilities, and indicators for the activities which have high material/ resources consumption (identified in Working Session 1).

Discussion Questions

1. What is the unit’s sustainable consumption goal and targets to meet the university’s vision to be a sustainability-led institution?
2. What is your group’s recommendations in terms of how to monitor the activities outcomes have been achieved and the outputs have been delivered, in terms of quality, quantity, and time?

Worksheet 1: Stakeholders and Activities

Name of the Unit/ Division:			
List of stakeholders:			
Activities related to resource consumption		Determining high resource consumption	
Type of activity	Specifics/Details of activity	Volume of resources used	Ranking high resource consumption
1.			
2.			
3			
4.			
5.			



Worksheet 2: Sustainable Consumption Framework

Activity	SCP Goal (Impact)	Target (Outcome)	Intervention (strategies and actions) (Output)	Indicator	Responsibility and Sources

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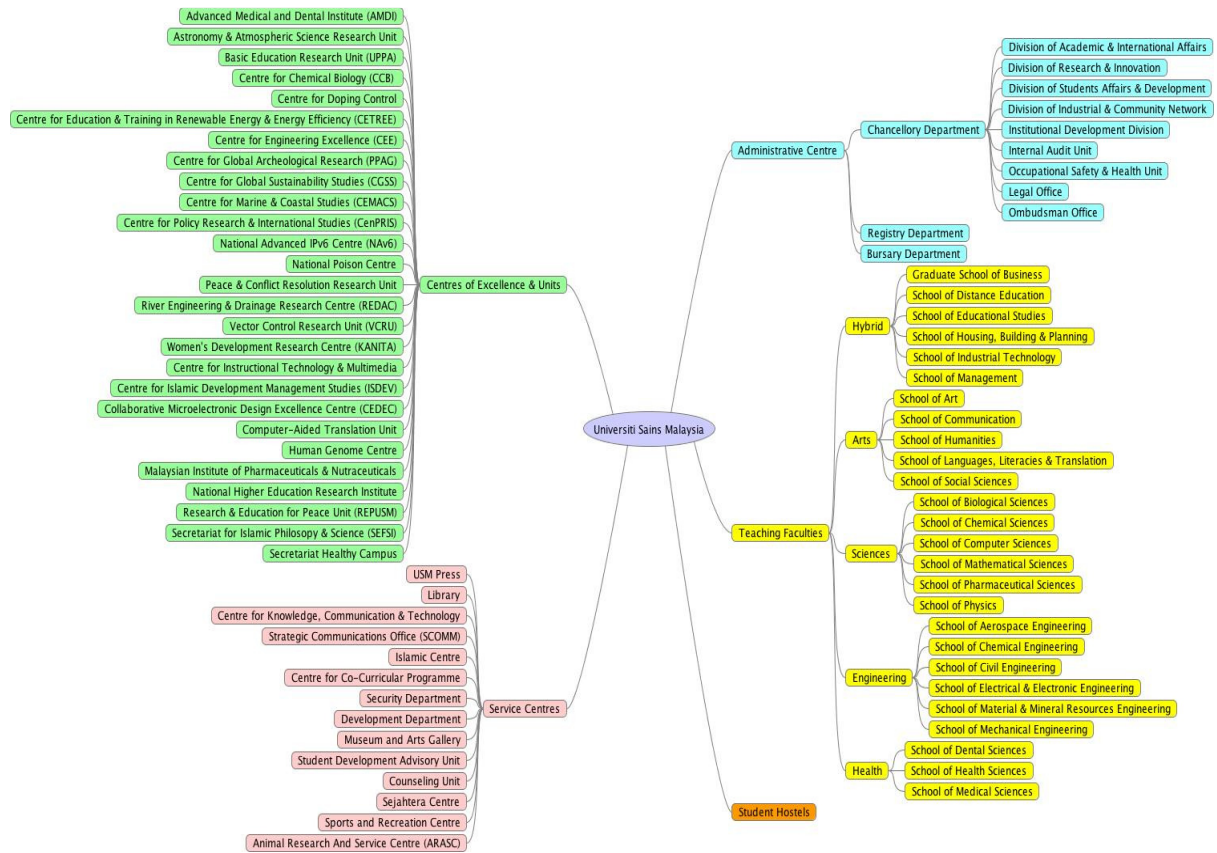
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APPENDIX A: Diagram showing the five major divisions in Universiti Sains Malaysia





APPENDIX B: Universiti Sains Malaysia Profile¹

Background of Institution

Established as the second university in the country in 1969, Universiti Sains Malaysia (USM) was first known as Universiti Pulau Pinang. In 1971, USM moved from its temporary premises at the Malayan Teachers' Training College, Bukit Gelugor to the present 416.6 hectare site at Minden, approximately 9.7 km from Georgetown.

USM offers courses ranging from Natural Sciences, Applied Sciences, Medical and Health Sciences, Pharmaceutical Sciences to Building Science and Technology, Social Sciences, Humanities, and Education. These are available at undergraduate and postgraduate levels to approximately 30,000 students at its 17 Academic Schools on the main campus in the island of Penang; 6 Schools at the Engineering Campus in Nibong Tebal (approximately 50km from the main campus); and 3 at the Health Campus in Kubang Kerian, Kelantan (approximately 300km from the main campus).

USM also has 17 dedicated research centres for a wide range of specialisations which include archaeology, medicine and dentistry, molecular medicine, science and technology, Islamic development and management studies, and policy research and international studies. It also provides consultancy, testing, and advisory services to the industry under the ambit of USAINS Holdings Sdn Bhd, the University's commercial arm.

Since the beginning, USM has adopted the School system rather than the traditional Faculty system to ensure that its students are multi-disciplined from their exposure to other areas of study by other Schools. It also encourages students to be active in extra-curricular activities given the myriad of clubs and societies available.

As a Research Intensive University recognised by the Ministry of Higher Education Malaysia (MOHE) in 2007, USM offers educational and research opportunities to students and staff. In 2008, USM also became the first university in the country to be selected by the Malaysian government to participate in the Accelerated Programme for Excellence (APEX), a fast-track programme that helps tertiary institutions achieve world-class status.

¹ Universiti Sains Malaysia Profile was retrieved from: <http://www.usm.my/index.php/en/about-us/usm-profile>

Academic Facilities & Resources

The facilities that USM provides for its students are delineated below:

- Warm and cosy cafeterias, as well as well-designed pavilions
- An impressive Museum filled with world-class displays & a state-of-the-art Art Gallery with fine art pieces.
- Lecture theatre and halls to facilitate classroom learning and teaching.
- Banks, a bookshop, a pharmacy, a post office, and a retail outlet to cater to the needs of students
- An outstanding research library of over one million items and an extensive network of electronic databases and internet access.
- Student residences that accommodate their stay on campus.
- A Sport Centre that is equipped with indoor and outdoor facilities that cater to students' sporting events and games.

Students Support Services & Students Development Activities

USM provides various services for its students such as hostel accommodation, counselling/motivational guidance, sport and recreational amenities like soccer fields, an 8-lane synthetic running track, an AstroTurf hockey stadium and an Olympic-sized swimming pool. Cultural events/activities are organised at the Cultural Hall to foster closer ties among students. There are also various clubs and societies that cater to a wide array of interests. These include the Political Science Society, Computer Science Club, Indian Cultural Club, Navigator Society, Astronomy Club, Debating & Public Speaking Club, and Mass Communication Club to name a few. The Counselling Unit at USM offers support services to help develop students' potential and capabilities.

Besides contributing to the national research effort and advancement of knowledge in general, the University has also taken steps to identify and periodically assess areas of research which are deserving of special support in order to compete more effectively for external funds. In USM's bid to provide better incentives for the development of new products and processes by its staff, it has recently drawn up specific rules governing the patenting and commercialization of research results.