Sustainability Practices in Higher Education

STAKEHOLDER ENGAGEMENT IN PROMOTING CAMPUS SUSTAINABILITY

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ABSTRACT

Universities have a role in changing mindsets toward sustainable development through education, research, and extension work. Despite the ongoing trend in favor of sustainability initiatives, however, they themselves struggle to transform organizational practices in their own contexts, especially when trying to get the administration's buy-in and establish stakeholder engagement. Ateneo de Manila University in particular used its response to the decrees of General Congregation 35 (Society of Jesus, 2008) of the Society of Jesus to serve as the foundation of its campus sustainability programs, especially with respect to its translation into policies that affect the university's ecological footprint and stakeholder engagement. These programs have led to the articulation of the university's sustainability policies, administrative structures that support sustainability, the publication of sustainability reports, and, more importantly, promoted changes in institutional and personal lifestyles.

KEYWORDS

stakeholder engagement; relationship with creation;
sustainable campus; organizational learning

Several articles have been written on the sustainability efforts of universities (e.g., Ferrer-Balas et al., 2008; Holmberg & Samuelsson, 2006; Hopkinson, 2010, among others). Ferrer-Balas et al. (2010) examined how sustainability is incorporated into university systems, particularly in education, research, outreach, and campus facilities management; Holmberg, Lundqvist, Svanström, and Arehag (2012) discussed challenges in transforming higher education for sustainable development.

Very little has been written, however, on the incorporation of sustainability in Southeast Asian institutions where perceptions and culture can make a difference in university efforts toward sustainable development. This article thus presents a case from an urban setting in the Philippines, namely, the Ateneo de Manila University, a private Jesuit university with three major campuses. Founded in 1859 as a liberal arts college and made a university in 1959, the Ateneo remains true to its roots through a core curriculum that has a strong liberal arts component. The university has over 130 graduate and undergraduate academic degree programs spanning the humanities, social and natural sciences, computer and electronic/ communication engineering, and management, areas also covered by various research programs (AIS, 2017: 6).

This article will focus on the Ateneo's 83-hectare Loyola Heights campus that is home to the humanities, management, science and engineering, and social sciences colleges (collectively known as the Loyola Schools), a primary and junior high school for boys, a coeducational senior high school, and several houses for Jesuit residences and programs. The population of this campus includes about 10,000 tertiary level students and approximately 3,000 personnel (AIS, 2017: 12).

It is important to note that private universities in the Philippines do not receive any support from the government. As such, 1,710 (88%) out of 1,943 higher education institutions in the country support their operations mainly from tuition revenue in general (Commission on Higher Education, 2017).

DEVELOPING A RIGHT RELATIONSHIP WITH CREATION

The Ateneo de Manila University has always focused on programs that promoted excellent education and service ever since its founding 160 years ago. Ignatian spirituality, service to communities and the nation, and environment

and development agendas were added later on, moreover, in response to changing contexts (AIS, 2014: 10–12).

Some of the university's outstanding initiatives that dealt with the environment include the first undergraduate environmental science degree in the Philippines, which was established in 1992, and Project Blue Sky (1998–2002) which required emissions testing for all vehicles being registered for campus access and ended only because the Philippine government itself began to require the same for all vehicles upon registration. Rooms were also repurposed in 2006–2007 for better energy efficiency—some old classrooms with high ceilings and good cross-ventilation which had become air-conditioned offices, for instance, were converted back to their original purpose without the need for air-conditioning while newer classrooms with lower ceilings and poor sound insulation were converted into offices.

It was not until early in 2008, however, that environment-related projects were put into systems that engaged the community even more. That year, a group of students, faculty, staff, and administrators of the Loyola Schools, the college unit of the university,[1] formed the Ateneo Environmental Management Coalition or AEMC (Lolarga, 2008a). Their goal was to address the environmental concerns of the Loyola Schools through four subgroups: Waste Audit, Research and Analysis, Advocacy, and Logistics and Implementation.

The opportunity to launch such programs coincided with the 35th General Congregation (GC35) of the Society of Jesus, which articulated the need to respond to the changing context of the Jesuit mission (Society of Jesus, 2008). It talked about the challenge of "environmental justice" in the context of the "'frontier' of the earth, increasingly degraded and plundered" (Decree 2, no. 24), and of the need to "deepen our understanding of the call to serve faith, promote justice, and dialogue with culture and other religions in the light of the apostolic mandate to establish right relationships with God, with one another, and with creation" (Decree 3, no. 12). This provided a guidepost for stakeholders in supporting programs and plans for

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[1]The Ateneo de Manila University, like several Philippine universities, has both tertiary and basic education units. It also has, in addition to these, a separate Professional Schools unit which oversees the Graduate School of Business (that offers practitioner courses only), School of Law, School of Government, and School of Medicine and Public Health.

environmental initiatives which in turn grew with the participation of all those involved (Lolarga, 2008b).

The university, moreover, began consultations in 2011 on a new strategic plan that included a thrust for environment and development. A survey and several focus group discussions led to three strategic goals under this particular initiative: 1) make sustainable development more mainstream, 2) reduce disaster risk due to climate change and geohazards, and 3) build a sustainable campus. The new strategic plan was implemented in 2012, and the Ateneo Institute of Sustainability (AIS) was established in 2013 to serve as the university hub for environment and development.

SUSTAINABILITY STRATEGIES

Three main strategies were implemented to achieve these goals: deepening the competencies, culture, and commitment of university sectors toward sustainability and resilience; engaging internal and external stakeholders in achieving the goals; and sharing certain insights on sustainable development and disaster resilience to communities at the bottom of the pyramid, business partners, and global partners and networks. Many of the initiatives under these strategies were aimed at achieving several goals at once, and the institute tapped key individuals from various disciplines to design and implement sustainability programs and projects, including a minor program for undergraduates, a master's program, and interdisciplinary research projects.

The undergraduate Minor in Sustainability was launched in academic year 2014–2015 and includes courses on environmental management systems, systems modeling, and climate change and disaster risk as well as two elective courses that focus on areas such as business and the environment, sustainable development, environmental ethics, environmental economics, and cities and society. The program continues to draw interest from students in the colleges of humanities, management, science and engineering, and social sciences. The Master of Science in Sustainability Management, on the other hand, began in school year 2017–2018 and is the first degree program in the Philippines to combine competencies in sustainability and management. It is designed for students with a management background who now see management functions from a systems thinking and sustainability perspective.

AIS has also brought faculty members together to undertake interdisciplinary research, resulting in studies on humanitarian logistics, supply chain frameworks, environmentally responsible behavior among the youth, food waste, water access in resettlement communities, business continuity among micro-enterprises, and sustainability in social enterprises, among others. There are also continuing lecture series and talks involving local and international speakers that cover topics like greener transport policies, disaster mitigation literacy, sustainable structures, systems thinking for the environment, the analytics of human logistics, and the lifecycle evaluation of consumption, among others. 38 of these talks have been given so far to various groups that involve university community members as well as public school teachers and pupils.

With the help of partners and volunteers, the institute also held 59 workshops from 2013 to 2018 for internal and external groups, covering topics like solid waste management, disaster literacy, sustainable cities, business continuity for micro-enterprises, and sustainability strategies for businesses. There were also bigger events organized for the public: a conference with the theme "Toward a More Sustainable Society," which coincided with the launch of the university's first sustainability report, in July 2014; a forum on *Laudato Si'* featuring the Archbishop of Manila, Luis Antonio Cardinal Tagle, in August 2015; and a forum that featured the Chief Sustainability Officer of a top Philippine conglomerate, an impact investor, and a social entrepreneur who shared their sustainability journeys in answering the question, "Can you work toward SDGs and still make money?" in February 2018.

Nature walks, where participants get to observe resident birds and native trees, as well as social media like @theateneowild, where users can share photos of their experiences with nature, were also among other popular ways of increasing stakeholder engagement with the natural environment. Such activities also highlight the importance of green spaces especially in the urban setting.

AIS has since documented these goals and strategies in two sustainability reports (with a third currently in production) and two university manuals. As is the case with reports that follow GRI frameworks, there was stakeholder engagement throughout the entire process—from surveys of stakeholders to focus group discussions with unit administrators and risk assessment with the university president's council—that led to the construction of the materiality matrix.

The manual on Sustainability Policies and Specific Guidelines covers materials procurement, energy conservation, food sustainability and packaging, and disaster risk production and management. The university president's message therein highlighted the foundations and approach of such initiatives:

> The result of much research, consultation and reflection, this document is both a symbol of our commitment to build sustainable campuses and a practical guide for our institutional and personal lifestyle and decision-making.
>
> As persons, we recognize the ethical imperative to care for each other and for creation. As believers, we who are in a Catholic and Jesuit institution see this imperative through the lens of faith in our Lord who calls us to be actively engaged in the co-creation of the world. (AIS, 2016b)

The Campus Emergency Management Plan details the protocols and structures for managing a range of emergencies, including natural disasters such as earthquakes, typhoons, and floods; human-induced crises such as explosions, fires, and exposures to hazardous materials; and health-related situations such as medical emergencies and outbreaks of communicable diseases. Here the university president's message once again underscores the long consultative process and stakeholder engagement:

> I am pleased to present the University Emergency Plan, which is the result of many years of drills, workshops and stakeholder discussion sessions. This document is an expression of our commitment to protect the welfare of everyone in our community, and of our desire for all of us to work together to make the university safe and resilient. (AIS, 2016a)

SUSTAINABLE CAMPUS

Making the campus sustainable is the environmental goal of these strategies, one that is possible only with the contribution of all sectors in the university. Multiple studies have shown, moreover, that sustainability initiatives have the potential to cultivate learning toward sustainability (Albrecht, Burandt, & Schaltegger, 2007; Ferrer-Balas, Lozano, Huisingh, Buckland, Ysern, & Zilahy, 2010; Ceulemans, Molderez, & Van Liedekerke, 2015). The campus as such is used as a living laboratory, a space in which to learn about and love the natural environment, probe and understand systems, and create and test solutions for sustainable development.

Waste Audit

When AEMC was established in 2008, its first activity was to collect baseline data on waste management and energy consumption on campus. The electricity audit was met with challenges in data collection; the rapid waste audit, however, resulted in actionable points. With the participation of cafeteria and maintenance personnel along with student, faculty, and administrator volunteers, the waste audit showed that 54% (by weight) of the waste generated by the university was biodegradable, including kitchen and yard waste, and that 64% (by volume) was the plastics fraction, of which 67% was polystyrene. This data was the basis for prohibiting single-use plastic containers and redesigning the waste segregation scheme with the goal in mind of minimizing residual waste headed for the landfill.

Removing Single-use Food Packaging

With the help of AEMC, the administration looked into the costs related to prohibiting single-use food packaging as well as alternative systems for take-away food and beverages. Consultations with food concessionaires and student organizations were held to surface concerns: Would this result in increased workload for cafeteria staff due to the higher volumes of tableware that need to be washed? How would the dispensation of reusable tableware be monitored to avoid losses?

The administration eventually provided logistical support, e.g., a mechanized and centralized dishwashing machine for reusable tableware and dishwashing areas for those bringing their own containers. The food concessionaires also contributed solutions, such as putting together deposit schemes for reusable containers and tumblers to address the need for take-away food packaging and also for tableware being used outside the usual dining area to address the potential for losses. A major concessionaire offered to rent out plates, utensils, glasses, cups, and saucers for events and office gatherings. A major advocacy campaign, launched in academic year 2008–2009 with the help of student organizations, encouraged everyone to "Bring Your Own *Baunan* [food container]" (or BYOB) and "Clean As You Go" (or CLAYGO, in line with the waste segregation initiative).

Such practices have now been embedded in the organization's lifestyle a decade after they were instituted. The removal of single-use food packaging, moreover, has reduced the volume of the Loyola Schools' waste by as much as 40%.

Waste Segregation

Education about segregation and the practice thereof were promoted at first by student organizations when these programs began in 2008; these have since been continued by the administrators and staff of offices responsible for the maintenance of the grounds and facilities. Waste was segregated as follows: recyclables (bottles, cans), compostables (food, kitchen, and yard waste), dry paper, other waste (laminates, plastic wrappers), and e-waste (batteries).

Recyclable waste was kept in a Materials Recovery Facility (MRF) managed by maintenance personnel until such was sold to junk shops. Weekly income from the MRF (approx. US$60 per week) went into a fund for the use of said personnel. Faculty members from the Departments of Biology and Environmental Science, on the other hand, helped look for ways to process food and kitchen waste. After a number of discussions, AEMC requested for the construction of a vermicomposting facility where African night crawler worms could be used to convert organic waste to vermicast, which was to be used as an organic fertilizer for campus landscaping. From an initial set of two vermicomposting beds, the facility now has 18.

After the implementation of these waste segregation programs, data showed that vermicomposting and the Materials Recovery Facility could take care of as much as 50% (by weight) and 30% (by volume), respectively, of solid waste. The waste diverted through the MRF was composed of the following (by weight): PET bottles, about 29%; aluminum cans, 3%; white paper, 8%; newspaper, 3%; cartons, 26%; and assorted waste, 31%.

Wastewater Treatment Systems

The Clean Water Act of 2004 requires wastewater discharge permits for facilities to be obtained from the Department of Environment and Natural Resources (Congress of the Philippines, 2004: Article 2, Section 14). Several experts were thus invited to discuss various approaches to wastewater treatment. University administrators and technical staff had extensive conversations to weigh the advantages and disadvantages of constructing either a Sewage Treatment Plant (STP) that required more materials, energy, and trained personnel or a semi-natural wastewater treatment system that would have lower maintenance requirements and a better environmental footprint. Such discussions were also complicated by a water

company's offer to shoulder the costs of building an STP on university grounds as long as the university also serviced the neighboring community. In the end, the university opted for a decentralized, semi-natural wastewater treatment approach where wastewater effluent could be recycled for irrigation purposes.

The Building Wastewater Treatment System (BWATS), which started out as a thesis on an Integrated Sustainable Irrigation System (Granada, 2012), looked into the treatment of the septic tank effluent of a building through a constructed wetland, the use of solar power for the pump and UV disinfection system, and connection of the treatment system to the drip irrigation for an adjoining garden (Figure 1). The entire system required minimal energy, resources, and skilled labor, which was consistent with other studies of constructed wetlands (Neralla, Weaver, Lesikar, & Persyn, 2000; Solano, Soriano, & Ciria, 2004).
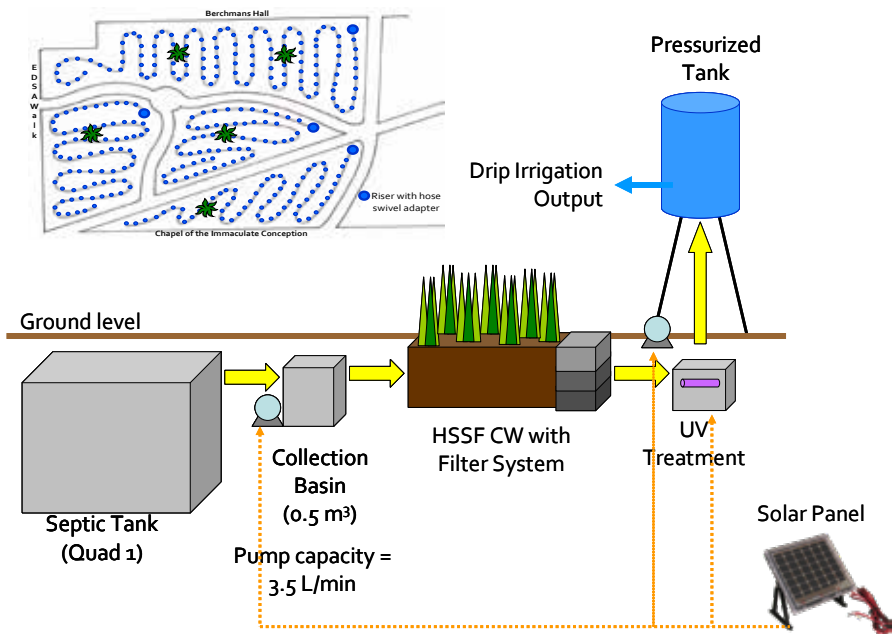

Figure 1: Schematic Diagram of the Integrated Sustainable Irrigation System (Granada, 2012) which became the basis for the Building Wastewater Treatment System

A bigger Decentralized Wastewater Treatment System (DEWATS), with a treatment capacity of 110 cubic meters of wastewater from seven buildings, was

then inaugurated in 2013 (Evangelista, 2013). It treats wastewater through a series of settling tanks, underground aerobic and anaerobic reactors, a polishing gravel filter, and a solar disinfection pond (see Figure 2) before using it to irrigate the nearby football and baseball fields (see Figure 3) (AIS, 2014, 2017). Just like the BWATS, moreover, this facility needs less resources, energy, and maintenance, requiring only periodic cleaning of the chambers and the gravel filter.
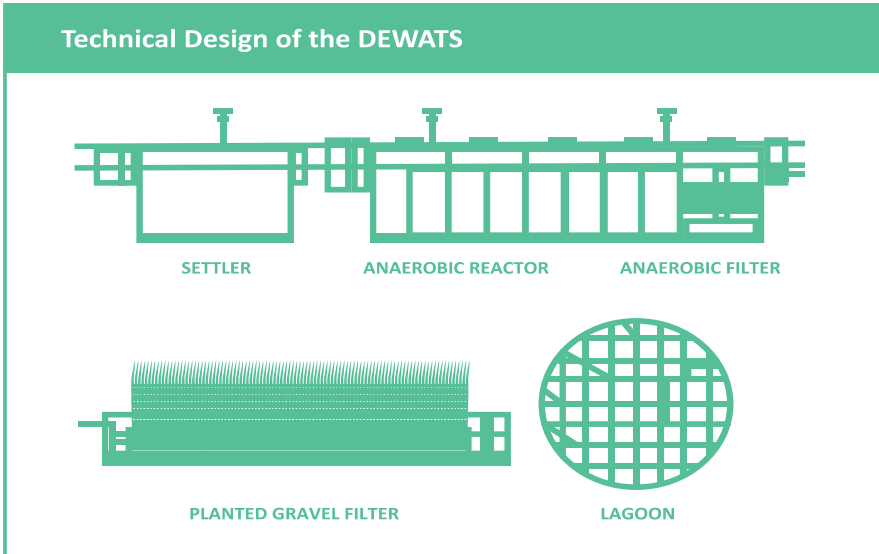

Figure 2: Schematic Diagram of the Decentralized Wastewater System (AIS, 2014)

Figure 3: Treated Wastewater Storage for Football Field Irrigation (photo credit: Abigail Favis)

Rainwater Harvesting

When the university planned the construction of a new library in 2008, representatives from the Rizal Library, offices for facilities and maintenance, and Loyola Schools administration were consulted regarding the functions and design of the new building. In the process, it was decided that green building elements would be incorporated, such as designs for optimized light, efficient ventilation, and a rainwater harvesting facility combined with a dual water pipe system that would allow for the flushing of toilets using harvested rainwater. The slanted roof was thus designed to direct rainwater to an underground catchment cistern which had a capacity of 138.5 cubic meters and was equipped with filtration and chlorination systems that produced water suitable for flushing toilets (AIS, 2014).

Rainwater has also been harvested through several catchment ponds for use in cleaning walkways and irrigation. These ponds, moreover, also help control the massive flow of water coming from the ridge of the university down to the housing communities in the adjacent valley.

Energy Consumption

The Loyola Heights campus consumes about 22,374,000 megajoules of energy annually or about 1,865 megajoules per person per year. This translates to 4,548 metric tons of CO_2e (carbon dioxide equivalent) emissions for the campus per year or 0.2580 metric tons per person per year (AIS, 2017). Data from the World Bank, in comparison, show that the Philippines's emissions per capita was 1.051 metric tons of CO_2 in 2014 (World Bank, n.d.).

There already were initiatives to conserve electricity, however, apart from such specific data on energy consumption, especially since the latter constitutes the fifth largest expenditure of the university (AIS, 2017). Sub-metering systems, for instance, have helped identify sources of energy inefficiencies and possible leaks. Most lighting systems have already shifted to LED since 2013, reducing the university's footprint by at least 60.21 metric tons of CO_2e, and air-conditioning units are gradually being shifted to inverter-type technology (though actual savings have yet to be reported). Stakeholders have also participated in energy conservation efforts by ensuring that lights, fans, gadgets, and air-conditioners are turned off while rooms are not in use.

Mobility

Mobility continues to be a challenge for stakeholder engagement as today it involves not only students and employees but also parents and other non-university partners with whom the campus is shared. The location of the campus itself, in fact, has become a major connector road with significant traffic and mobility challenges. A massive consultation on improving campus mobility was thus undertaken in coordination with the Ateneo Traffic Group, an ad hoc team formed by university leadership and composed of academics (with expertise in mobility modeling, social behavior, and environmental impact), parents and alumni (with connections to the community outside the university and government agencies involved in traffic operations), administrators, and other volunteers. This eventually led to one-way traffic schemes, the use of electric shuttles for internal campus routes, the improvement of walkways, and the installation of bicycle parking stations.

STAKEHOLDER ENGAGEMENT

The previous sections have made it clear that stakeholder engagement made various initiatives possible. Indeed, the role of stakeholders cannot be emphasized enough considering that AIS has only one full-time office staff and three faculty members detailed as administrators on a part-time basis. Faculty members have played their part in research, teaching, and service; students have contributed to research, service, and advocacies; and non-teaching staff and administrators have taken part in campus sustainability projects.

The stakeholder perspective helped the university in addressing the issues—in the sustainability surveys for the construction of the materiality matrix for each of the university's sustainability reports (2014, 2017, 2019), for instance, the cost-efficient use of resources, water quality, solid waste management, training and skills advancement, and health and safety were among the top concerns. These were addressed by various initiatives, with community involvement even at the earlier stages of the programs. Students led advocacy campaigns for reusable tableware and waste segregation, parents helped in both advocacy and feedback for campus mobility, and maintenance personnel actively assisted administrators in the support systems.

It is important to note, however, that stakeholder involvement, as crucial as it is, will happen only when the leadership and top management recognize the importance of feedback and respect the processes in the organization. Their guidance and support at all levels of involvement remain an important factor for the success of the programs. For instance, the choice of champions for change is key; in the examples above, it meant choosing individuals (who Ferrer-Balas et al. [2010] referred to as "connectors") who could connect and involve various stakeholders while having the authority and ability to put support structures and processes together. Leaders also empowered certain offices to look for innovations to existing structures, such as the incorporation of green elements in buildings and design of wastewater treatment systems.

There was also a deeper impact on community culture as seen in various lifestyle changes. Faculty, staff, administrators, and students, for example, bring their own food containers for take-away orders in the cafeterias. There is improved waste segregation, and offices and faculty have limited the printing of materials or shifted to paperless transactions entirely whenever possible.

ORGANIZATIONAL LEARNING

Knowledge of the university's performance in sustainability highlights successful initiatives as well as areas for improvement. The preparation of the Sustainability Reports (2014, 2017) communicated to both internal and external groups the extent to which strategies have been implemented as well as the seriousness of the university in its environment-development thrust. These reports also demonstrated an organizational learning process, described as "the collection, interpretation and distribution of information with relevance to all organization members (and further external stakeholders) and the importance of communication processes" (Albrecht et al., 2007).

The process of sustainability reporting captures what are referred to as "essential building blocks of a culture that transforms" (Watkins & O'Neil, 2013: 135, referring to Watkins & Marsick, 1993). From data collection and analysis and consultation with stakeholders and management to the writing itself, there were opportunities to learn more about the organization's culture and values, technologies and solutions,

and systems that were in place or needed. Teams had to find ways to put systems in place and be connected to the bigger context, and there were occasions for dialogue, collaboration, and the development of a shared vision.

Watkins and Marsick's last building block, that which "connect[s] the organization to its environment" (Watkins & O'Neil, 2013: 135), ultimately brings the sustainability journey of the university back to its starting point, which was to develop a "right relationship with Creation." The process of undertaking these initiatives and reporting about them has allowed stakeholders to question the priorities and assumptions of both institutional and personal lifestyles. Dialogue and engagement among stakeholders thus continue as the university tries to balance the demands of personal convenience with the need to reduce its ecological footprint, or weigh limited resources against investments in cleaner but more expensive technology.

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