ATENEO DE MANILA
UNIVERSITY

SUSTAINABILITY POLICIES
and
SPECIFIC GUIDELINES

June 2016

MESSAGE FROM THE UNIVERSITY PRESIDENT

I am pleased to present the Ateneo de Manila University Sustainability Guidelines, which is a concrete step in the execution of the university's third strategic thrust of Environment and Development.

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.

It is our hope that these guidelines will help each office and member of the community make daily and strategic choices that strengthen sustainability.

Let the Ignatian values of simplicity and freedom from disordered attachments inspire us to create and support a culture of sustainability in all facets of our university and personal life, ad majorem Dei gloriam.

Jose Ramon T Villarin SJ
President

TABLE OF CONTENTS

THE ATENEO DE MANILA UNIVERSITY SUSTAINABILITY POLICIES

1. General Policy Statement

1.1. The University seeks to preserve, extend, and communicate truth and apply it to human development and the preservation of the environment. Specifically, it seeks to

- Mainstream sustainable development, so that it is a major consideration in planning and decision-making in both the University and the larger society;
- Reduce disaster risk due to climate change and other geo-hazards, and in the process, build resilient communities and develop a responsive citizenry; and
- Build a sustainable campus and develop templates, which can be shared with other institutions and communities.

1.2. The University promotes the idea of sustainability in the context of a developing country, i.e., to manage current resources in such a way that future generations can meet their needs (WCED, 1987; Asheim, 1994), while emphasizing the need to reduce inequality and inequity (High Level Panel on Global Sustainability, 2012; Norton, 2012). This brand of sustainability recognizes the tension among social, environmental, and economic concerns and seeks to address them innovatively.

2. Policy Implementation

2.1. The Ateneo Sustainability Guidelines provide basic directions towards implementing the University thrust for environment and development. These guidelines highlight the interconnectedness of initiatives, the need for systems thinking as well as personal commitment, and internalization of good citizenship.

2.2. Implementing sustainability begins with planning for systems that promote efficiency, i.e., the optimization of the use of resources and the management of waste in any event, process, or structure.

2.2.1. There is usually a premium to be paid in the implementation of sustainability initiatives; however, the decision of management will also be informed by the considerations on the Return on Investment and optimization of benefits over time.

2.2.2. Aside from managing university operations, implementing sustainability involves the use of suppliers, contractors, and service providers whose organizations follow sustainable development principles, e.g., conform to sound and ethical labor and environmental practice, and undertake initiatives to lower their carbon footprint and disaster risk.

2.2.3. The preparation of the University's Sustainability Report will document the direction and effectiveness of various sustainable development efforts.

2.3. University efforts towards sustainability will also engage stakeholders by raising their awareness and by supporting programs that study clean, renewable, and/or resilient systems, bring about lifestyle change, and transfer technology to partner organizations and communities, among others.

3. Policy on Campus Sustainability and a Culture of Sustainability

3.1. On Green Spaces, Biodiversity and Mobility

The University is dedicated to maintaining a high degree of greenery and appropriate land use, guided by the Campus Master Plan. The University encourages walking and the use of sustainable modes of transportation and recognizes the need to balance the demands of pedestrians, cyclists, and motorists.

3.2. On a Culture of Sustainability

The University is committed to develop a culture of sustainability among its stakeholders. Various initiatives and innovations help develop a culture of sustainability, which is ideally characterized by critical thinking regarding lifestyle, adaptive capacity in addressing issues, and respect for different forms of Creation.

4. Policy on the Use and Conservation of Materials and Energy

4.1. The University is committed to the sustainable use of materials and energy from the acquisition of resources to the management of waste. It aims to:

- Optimize the efficiency of the existing built environment
- Reduce its energy consumption and undertake energy efficiency and conservation programs, and effectively reduce its carbon footprint
- Promote sustainable purchasing procedures
- Reduce material waste

To achieve these goals, the University will put in place the necessary programs to promote and implement energy conservation and efficiency, efficient use of materials, and waste reduction, by engaging all of its stakeholders.

4.2. On Built Environment

The University is committed to optimize the efficiency of the existing built environment by strictly following standards for energy efficient and ecologically designed buildings in a tropical environment. As the University continues to expand, appropriate design and construction of projects will have to consider energy cost, energy usage, and emissions. The University is also dedicated to balance the built environment with a high degree of greenery and seamlessly connected walkways.

4.3. On Utilities: Water, Electricity and Fuel

The University recognizes that fresh water, electricity, and fuel are resources that need to be conserved. The University undertakes programs to reduce water consumption through natural rainwater storage systems, suitable and less water-dependent plants, and water recycling programs. The University promotes energy-saving guidelines, use of the most energy-efficient lights and equipment available, as well as the use of renewable energy sources such as solar power and other innovative means. The University focuses on emission reduction and energy efficiency in the transport sector, laboratories, kitchens and power generators.

4.4. On Materials

The University is committed to minimizing the amount of waste generated on campus and continuously innovates and undertakes campus initiatives to reduce consumption,

initiate green purchasing procedures, and ensure that products are recyclable, safe and environment-friendly, including strictly complying with disposal guidelines.

5. Policy on Food Sustainability and Food Packaging

5.1. The University is committed to food sustainability and the use of sustainable food packaging materials. It aims to:

- Promote healthy and nutritious eating;
- Achieve high levels of sanitation, environmental sustainability, and efficiency in the operations of food outlets;
- Minimize food wastage; and
- Promote awareness of food consumption practices in the context of poverty and sustainable development.

To achieve these goals, the University will put in place the necessary programs to promote and implement healthy and nutritious food services, proper food handing and service practices, the use of environment-friendly food packaging, and food waste reduction, by engaging all of its stakeholders.

5.2. On Healthy and Nutritious Eating

The University is committed to promote the health and well-being of its community members by undertaking programs that will inform and educate stakeholders and promote healthy and nutritious food in the various food outlets in the campuses. The University will work towards an environment conducive to positive health choices. Part of this is ensuring that food outlets offer nutritious meals and follow proper food handling and service practices.

5.3. On Food Sustainability

The University recognizes that food and water security are among the biggest concerns of the global community, especially in the context of underprivileged communities. It is with this realization and in the spirit of addressing these concerns that the community is enjoined to minimize food waste and to avoid overconsumption. It is important to have information, education and communication (IEC) programs that focus on the impact of food production and transport on the users' carbon footprint.

5.4. On Food Packaging

The University is committed to use food packaging that will promote sustainability by using less packaging, reusable packaging, and/or renewable and recyclable packaging materials. Aside from minimizing the amount of waste generated on campus, these initiatives hope to increase awareness on sustainability and change institutional and personal lifestyles.

6. Policy on Disaster Risk Management and Emergency Response

6.1. The University is committed to developing resilient and responsive stakeholders who are prepared for natural hazards and can participate in disaster risk management. It aims to:

- Promote awareness and understanding of natural hazards like extreme weather and geo-hazards;

- Improve the competencies of stakeholders in recognizing potential risks in their environment and responding to disasters as responsible, responsive, and resilient citizens; and
- Train stakeholders on proper emergency responses to natural hazards, especially earthquakes, as well as to manmade hazards, such as fire and bomb threats.

To achieve these goals, the University will provide the necessary programs to promote and implement emergency protocols, training modules for disaster risk preparation, and proper administrative and technical support, and in the process, emphasize the roles of different stakeholders.

6.2. On Disaster Risk Awareness and Preparation

The University is committed to raise stakeholder awareness and understanding of natural hazards as well as improve stakeholder competencies to improve recognition of disaster risks and respond to them appropriately, responsibly, and consistently. This means incorporating IEC strategies into the academic curriculum, non-academic formation programs, fora, and training programs for various sectors. Competencies, which may include mapping, communication, first aid, and rescue, may be developed through training modules and drills.

6.3. On Disaster Risk Management

The University is committed to disaster risk management by putting in place systems for communication, evacuation, access to resources, first aid, and rescue. This also involves the participation of various stakeholders in ensuring the safety and security of members of the community.

Ateneo de Manila University
SPECIFIC SUSTAINABILITY GUIDELINES
(To be used in conjunction with the Ateneo Sustainability Policies)

A. ON CAMPUS SUSTAINABILITY AND SUSTAINABILITY AWARENESS

A1. Green Spaces, Biodiversity, and Mobility

1. To preserve and protect the University's green spaces, a Campus Grounds Advisory Committee will review and recommend action to the President regarding any proposal that may affect the Campus Master Plan. The Committee shall be composed of:
    - The Vice President for Administration or appointed representative, *ex-officio*
    - Director of Central Facilities Management Office (CFMO)
    - Director of Ateneo Institute of Sustainability (AIS)
    - Representative, Department of Biology
    - Representative, Department of Environmental Science
    - Head of the Basic Education Facilities Management and Security Office (FMSO)
    - Head of the Loyola Schools FMSO
    - Head of the Professional Schools FMSO
2. The University follows a system for planting, maintaining, and removing trees.
    a. When possible, endemic species are protected and propagated, taking into consideration the safety of the community:
        - Proper tree species are planted in the proper location, e.g., avoid mahogany in pedestrian and parking areas.
        - Tree species are chosen to complement the existing wildlife.
        - Trees can only be planted or removed with the approval of the CFMO Director, upon consultation with the Campus Grounds Advisory Committee.
    b. The CFMO, in collaboration with AIS, and the Departments of Biology and Environmental Science, shall create and maintain a Campus Tree Inventory, with regular updates to cover the addition/removal of trees, updating of tree locations.
    c. Tree donations, preferably of endemic species, are processed in consultation with Office of the Vice President for Administration (OVPA), CFMO, AIS, and tree experts, to preserve the balance between biodiversity and the Campus Master Plan.
        - Donors should take into consideration the required space per tree, relation to the existing flora and fauna, as well as the maintenance of trees until it reaches a stage when it can survive on its own.
    d. Trimming/pruning of trees is done in anticipation of monsoon rains and tropical storms.
    e. Should trees be downed by extreme weather, every effort is taken to restore the tree, when possible.
    f. Trees on campus may not be used in any way that may negatively impact their health and growth, for example, nailing of signs, hanging of art work and banner announcements, or installing permanent electrical fixtures. Christmas lights and the like may be installed as long as they are not nailed into the tree or kept open overnight.
    g. Should the University need to remove particular trees, especially endemic species, balling is preferred over cutting.

3. The University promotes programs to study and appreciate biodiversity.
    - University activities and operations (e.g., construction, traffic flow, assembly sites) minimize their impact on the existing urban wildlife sanctuaries on campus.
    - The University supports research on urban biodiversity on campus.
4. The University follows protocols for dealing with stray animals
    - The University makes the effort to work with animal welfare groups to come up with the best solutions for stray animals, while balancing the health and safety concerns of its students and personnel.
    - For stray cats, the University considers the following, upon the suggestion of the Philippine Animal Welfare Society (PAWS):
        - Trap-neuter-return (TNR) strategy
        - Managing the "holding capacity", i.e., managing the feeding time to be done once a day for a maximum of 15 minutes, away from a public site and with minimal people are around. No additional food is added to available leftovers.
        - The community should be informed and educated about the strategies, including the "no-taming" policy of stray cats.
    - For other stray animals, the University coordinates with appropriate agencies to provide the animals with a proper habitat.
5. The University takes a strategic approach to balance the demands of pedestrians, cyclists, and motorists.
    - The University undertakes consultation with stakeholders to get various perspectives.
    - The University promotes walking through the construction of walkways, and the use of sustainable modes of transportation such as the use of vehicles that do not directly use fossil fuel (bicycle, e-vehicle), ridesharing, and other innovations in mobility.

A2. Culture of Sustainability

1. The University includes sustainability principles, initiatives, and innovations in its academic programs and research agenda, in collaboration with the academic units.
2. Stakeholders are engaged through various activities that promote sustainability:
    - Fora, such as lectures, seminars, workshops, and conferences
    - Service learning of students
    - Projects, such as business models, technology innovations, and communication and advocacy
3. Administrative and technical support for various sustainable initiatives and innovations enable changes in institutional lifestyle and increase sustainability awareness.
4. Campus sustainability initiatives are an indirect way to reduce disaster risk because these initiatives contribute to the reduction of carbon and water footprints, as well as to the increase of urban biodiversity, both of which may have some impact on climate change, no matter how small.

B. ON THE USE AND CONSERVATION OF MATERIALS AND ENERGY

Focus Areas	Procurement / Purchasing	Usage/Maintenance	Waste Disposal
B1. BUILT ENVIRONMENT			
1. Structures	New buildings/ structures should incorporate Green Tropical Built Environment Principles: • Rainwater harvesting for dual-pipe systems or pico-hydroelectric systems • Roof orientation, roof design, and structural load to accommodate photovoltaic systems • Double envelope systems for improved insulation • Better window design for improved natural lighting and ventilation • Efficient control and design of lighting, incl. switches/bulb placement • Use of LED in external/ grounds lighting • Aerators for water taps • Septic tank effluent to have or be connected to sustainable wastewater treatment systems, such as the Integrated Sustainable Irrigation Systems (ISIS) and Decentralized Wastewater Treatment System (DEWATS) • Innovative, clean, and/or renewable technology to improve efficiency of energy, water, and material use Old buildings should be retrofitted according to these principles, when possible.	Spaces are properly utilized based on • Needs • Functions (inter-relationship) • Orientation • Ventilation • Acoustics • Mobility • Safety and security • Cost implications	Waste materials should be disposed after considering reuse, reduction, and recycling of materials, including those from demolished structures. The health and safety of stakeholders should be considered in waste management schemes. Different units are responsible for the disposal of their respectively-generated waste: • Disposal of waste generated in the area of another unit • Regular disposal of hazardous waste (c/o CFMO) • Construction waste (c/o contractors, upon approval of CFMO) • Recycling of usable fixtures and furniture through different offices and units
2. Open grounds and roadways (mobility & transport)	Grounds and pathways should incorporate sustainable design principles that encourage walkability:	Grounds and pathways are used more efficiently, when the following are considered:	Road debris, yard waste, and tree maintenance are properly managed for better mobility:

Focus Areas	Procurement / Purchasing	Usage/Maintenance	Waste Disposal
	• Permeable pathways to allow water percolation • Perforated parking pavers and green parking lots • Ease and safety of navigation • Heavy duty roads	• Conduciveness to walking, cycling, and shared transport • Regular maintenance of grounds and roadways • Smooth flow of traffic • Control of noise and air pollution	• Various forms of composting for biodegradable waste • Reuse of road debris for backfill and grounds improvement
B2. UTILITIES			
1. Water	Water use is properly monitored through: • Sub-meters • Regular data collection and feedback to units Water supply is complimented by treated wastewater and harvested rainwater for other purposes, such as irrigation and flushing. There should be systems for • Rainwater harvesting • Storm water management • Wastewater treatment • Dual flush systems for toilets • Accessible potable water	Water can be optimally used and reused, when the following are considered • Information, education, and communication (IEC) programs for stakeholders • Administrative support • Direction from the leadership • Inter-unit communication	Rainwater is allowed to percolate to the water table instead of being channeled directly to the sewage system: • Design of grounds and landscape for maximum surface absorption • Use of permeable pavers Wastewater is first treated and possibly reused before release into the public sewage systems: • Use of treated wastewater for irrigation • Use of harvested rainwater for flushing or irrigation
2. Electricity	Electricity use is properly monitored through: • Sub-meters • Regular data collection and feedback to units Electricity is conserved through: • Installation of energy-efficient lights (e.g., LED) and equipment (e.g., alternative cooling systems, inverter technology, building management systems) • Expansion of sources of energy to include clean and/or renewable energy (e.g., natural gas, solar/wind power) • Adoption of students' projects on innovative sources of energy	Stakeholders are properly informed of energy-saving guidelines through standard protocols. Whenever possible, gadgets and equipment are chosen for their efficiency and are operated efficiently. Efficient Use of Air-conditioning Units: • Thermostat controls are set at 21-23°C • Turn on/off the air-con/s 30 min before start/end of scheduled room use. • Turn on air-con/s only as needed and on staggered basis to prevent power surge.	The waste resulting from the use of electricity is heat. The University looks out for innovative designs to manage the heat dissipated from equipment, such as air-conditioners, e.g., • Use of vertical gardens to absorb heat from compressors and provide insulation • Designs that reuse heat for other purposes

Focus Areas	Procurement / Purchasing	Usage/Maintenance	Waste Disposal
	The University should move into setting up Building Management Systems.	Lights & Equipment • Turn off lights during break time and at the end of the day. • Unplug equipment after use, when applicable	
3. Fuel	The University promotes the use of clean and renewable energy through: • Use of e-vehicles • Use of fuel-efficient and low-emission vehicles and equipment • Use of non-motorized transport such as bicycles for in-campus logistics • Centralized and secure LPG systems for laboratories (when applicable) and cafeteria	Stakeholders are encouraged to use the framework of "avoid/ share/ improve" transport through standard protocols. Walking and carpooling are preferred modes of mobility.	Fuel emissions from vehicles are monitored: • Random tests of emissions • Sanctions on smoke-belching vehicles, operation of engines while parked
B3. MATERIALS			
1. Office / Lab/ Kitchen Equipment	Priority is given to the procurement and use of the following • Low-wattage CFC-free equipment • Low-wattage; higher EER (energy efficiency ratio) • Longer life-span Equipment that can perform the same functions with lower wattage and lower emissions are preferred. Unless otherwise justified, computers, printers, and other IT office equipment must meet standard specifications set by Central Purchasing Office (CPO), in consultation with Information Technology Resource Management Office (ITRMO) and the units.	Users are informed of the proper use of such equipment through standard protocols. Units are responsible for the regular check-up and preventive maintenance of such equipment, including scheduled replacement based on the item's lifespan.	Fuel emissions are monitored, when possible. All equipment are disposed of properly, considering the following: • Possible recycling and reuse of the equipment or its parts • Proper disposal of bulbs and other electronic/hazardous waste

Focus Areas	Procurement / Purchasing	Usage/Maintenance	Waste Disposal
2. Vehicles	Priority is given to the procurement and use of fuel-efficient and low-emission vehicles.	Users are informed of the proper use & maintenance of vehicles through standard protocols. Units are responsible for the regular check-up and preventive maintenance of vehicles following the University guidelines pertaining to Preventive Maintenance Vehicle Checklist Standards	There should be a replacement program for school-owned vehicles within reasonable timeframes.
3. Generators and Grounds Equipment	Generator sets with high efficiency and minimal noise are preferred. Criteria for the selection of contractors/ suppliers/ service providers include: • Use of energy-efficient and environment-friendly equipment • Fair labor and environment-friendly practices	Generator sets are regularly tested. All equipment are subjected to regular preventive check-up and maintenance.	Equipment emissions are monitored.
4. Supplies a. Paper	The University encourages the coordination of the units with CPO in the procurement of paper in standard sizes and in bulk orders. There is preference for paper produced using clean technology, fair trade, and with a low carbon footprint. All offices are enjoined to use A4 and legal sizes only, using Substance 20 for general use, and Substance 24 for special letterheads.	Users are informed of environment-friendly practices through standard protocols, e.g., • Paperless transactions/e-systems • Double-sided printing • Reuse of envelopes, folders and other similar stationeries • Use old newspapers for wrapping purposes, when possible • Use of appropriate paper quality for different purposes	Units are encouraged to • Store used paper in dry state • Hold periodic Waste Trade Market to sell used paper

Focus Areas	Procurement / Purchasing	Usage/Maintenance	Waste Disposal
b. Cleaning products	Priority is given to • Bulk procurement • Use of environment-friendly chemicals	Users are informed of environment-friendly practices through standard protocols, including: • Proper use – only as needed and in recommended amount/ dilution • Follow safety procedures	Units are encouraged to • Strictly comply with guidelines/regulations on proper disposal of chemicals • Properly store such within premises for safety compliance
c. Paint	Criteria for the selection of contractors/ suppliers/ service providers include: • Use of environment-friendly products (e.g., KNOxOUT for exterior surfaces) • Accredited suppliers with fair labor and environment-friendly practices	Units are encouraged to plan a schedule of building repainting (e.g., 8-year cycle for all LS buildings).	Units ensure that contractors and in-house users strictly comply with rules on disposal of (excess) materials.
d. Construction Materials (cement etc.)	Criteria for the selection of contractors/ suppliers/ service providers include: • Use of environment-friendly products, with labels attesting high standards • Accredited suppliers with fair labor and environment-friendly practices	Units should strictly oversee the work of contractors on the following: • Strict compliance with recommended mixing ratios (e.g., cement-sand-gravel mix) and processes • Proper use of materials as required and in proper amounts to avoid wastage	Units should ensure that contractors and in-house users strictly comply with rules on disposal of (excess) materials: • Enforce contractor's disposal guidelines • Reuse excess materials within campus (i.e., by units, departments, and offices), when possible.
e. Other materials	Laboratory chemicals are procured with the proper permits and stored in appropriate conditions. LPG systems consider the safety of stakeholders. Procurement of kitchen supplies considers the carbon footprint of the manufacture and transport of the supplies.	Users are informed of safety concerns and environment-friendly practices through standard protocols.	Units should ensure proper disposal of wastes: • Recoverable and recyclable wastes are processed • Hazardous wastes follow recommended protocols (e.g., Freon from air-conditioners, mercury in fluorescent lights)

These specific guidelines are implemented by the CFMO, CPO, and the academic units, in collaboration with the AIS and OVPA.

B4. Adoption of New Technologies

1. Units are encouraged to adopt new technologies, some of which are mentioned above, to improve their carbon footprint, increase savings from utilities, and/or educate stakeholders on sustainable technologies.
2. The adoption of new technologies should balance the cost of the technology with the benefits to the community and the environment. If a new technology has clear environmental advantages, such as lowering the carbon footprint, this should be balanced with the cost of technology, especially in view of the rate with which this technology is changing costs
3. To assess whether the adoption of the new technology is reasonable, the following should be considered:
    a. The old technology has been used beyond its payback period or ROI.
    b. The payback period of the new technology should be shorter than its replacement period. (Please refer to the sample computations in Annex 1)
    c. The calculation of the payback period should include incidental costs like installation of the new technology and waste disposal of the old technology.
    d. If there are significant effects on the environment, this should be factored into the calculation of the payback period.

C. ON FOOD SUSTAINABILITY AND FOOD PACKAGING

The academic units and OVPA implement the following guidelines and ensure that these are communicated to cafeteria management and concessionaires in all campuses.

C1. Health and Nutrition

1. The Offices of Food Safety and Quality Assurance (OFSQA) Heads (University and the different units) shall, through age-appropriate IEC programs, promote awareness about healthy lifestyles, which include eating nutritious food, complemented by sports/activities.

2. The same Offices will oversee food handling and service practices of food operators, including but not limited to the following:

Focus Areas	Transport	Handling	Service
a. Food Service			
1. Food	Clean and covered vans are used for food transport. The use of tricycles/sidecars for food delivery is discouraged. Food is properly packed to ensure high quality upon service. If necessary, refrigerated containers should be used to prevent spoilage.	Food is handled with high levels of sanitation and efficiency: • Minimal human contact with food, (e.g., gloves/ utensils are used in handling food during preparation) • Caterers/ food concessionaires have no access to kitchens on campus; ingredients are prepared offsite (i.e., washing, sorting, cutting, skewering, pre-cooking) and brought to the event location, following transport guidelines. • Food should be kept at proper holding temperatures. • All meat/ poultry/ seafood dishes are served within 4 hours from the time of cooking. Avoid dishes with highly perishable ingredients; batch cooking and delivery is encouraged for events lasting more than 4 hours.	All catering personnel (e.g., food preparers and servers) are expected to: • Have good grooming (clean, short, unpolished nails; hair under net/cap; clean, simple, proper shoes and clothes). • Be in complete uniform, specified with hairnets or caps. • Display the authorized I.D. from the event organizers. • Wash and dry hands before and after work; there is no contact with possible sources of contaminants. • Behave appropriately (no sleeping, chatting and loitering). • Display the health certificate IDs on the upper left front portions of uniforms.

Focus Areas	Transport	Handling	Service
2. Kitchen utensils, tableware, equipment	Serving spoons, kitchen utensils, and food containers are in good condition and have been previously sterilized and stored properly. These are transported in sterile covered containers.	Kitchen utensils and tableware are handled so that these are not exposed to contaminants. Food containers, utensils and tableware on stand-by are shelved on portable merchandisers. No food item, kitchen utensil or tableware comes in contact with the ground.	Packaging materials follow the guidelines on Food Packaging. All service and buffet tables should be covered with tablecloth. Chafing dishes with alcohol-lit lamp/wax must be used for cooked meals and dishes in order to retain food temperature. LPG tanks and Gas Grillers are not allowed. Wax/Alcohol Lamps, or Bain Marie, will only be allowed for 2-4 Hour events; otherwise, only electrical equipment is allowed.
b. Beverage Service			
1. Beverages	Clean and covered vans are used for beverage transport. Prepared beverages and water are stored in properly-sealed containers for transport. The use of tricycles/sidecars for prepared beverages and their containers is highly discouraged.	Beverages are handled with high levels of sanitation and efficiency: • There is minimal human contact in the preparation and service of beverages (e.g., gloves and utensils are used)	All catering personnel (e.g., food preparers and servers) are expected to follow the same guidelines for service of food indicated above.
2. Glasses, cups, beverage containers	Glasses, cups, beverage containers are in good condition and have been previously sterilized and stored properly. These are transported in sterile covered containers.	Glasses, cups, beverage containers are handled so that these are not exposed to contaminants. Cold beverages are prepared using purified ice and water acquired from reputable suppliers. Hot beverages are prepared onsite using electrical equipment.	Disposable glasses and cups are not used in serving beverages.

Other details of food and beverage handling and service practices are detailed in the guidelines of the different academic units.

3. The OFSQA in the different units work with AIS in doing research towards health and nutrition of stakeholders.

C2. Food Sustainability

1. The OFSQA in the different units work with AIS in developing age-appropriate IEC programs that focus on the impact on natural cycles and users' carbon footprint of 1) food production and transport; 2) food packaging; and 3) food consumption practices.
2. Programs are promoted in different units to reduce food wastage.
   a. Address practices, like getting portions much more than can be finished.
   b. Except for breakfast or lunch meetings or in special cases, only beverages will be served during meetings.
3. Wastes are segregated, put in garbage bags, tied up, and disposed in proper dumping stations. When possible, kitchen and food wastes are mixed with yard waste for composting.

C3. Food Packaging

1. The most eco-friendly food containers are those that are reusable. Thus, reusable tableware is preferred when serving food. Patrons may bring their own reusable *baunans* (food containers) for take-out or borrow them through the deposit scheme.
2. Materials used for food packaging or which come into contact with food are of food-grade quality and are approved by a government regulatory body. Only approved wrapping and packaging materials are used (ref. DOH Sanitation Code of the Philippines).
3. Food products use packaging materials that are environmentally sustainable. This means that the packaging material
   - Is manufactured with minimum demand on energy and natural resources
   - Uses processes and have products/by-products that generate minimum waste and have minimum impact on the environment.
4. Because they promote a lifestyle that involves high consumption of resources and waste generation, disposable food packaging materials should generally be avoided, unless they can be degraded and renewed naturally.
5. Whenever possible, individual packaging should be avoided. For example, dispensed drinks (i.e. those poured out of pitchers into reusable glasses, cups or tumblers) are preferred over single-serve water PET bottles.
6. All reusable materials must be washed and sanitized immediately after use and must be kept in a clean storage area. (Please refer to the procedures on dishwashing of utensils, as provided by the OFSQA Guidelines or by the supplier of the dishwashing unit).
7. The following are acceptable forms of packaging:
   - All natural forms of packaging (i.e. those that did not go through mechanical or chemical processing, such as banana leaves or bowls from coconut shells)
   - All naturally degradable and renewable packaging (i.e. those that are partly processed but can be degraded by nature and can easily be grown and harvested, such as wooden chopsticks, *bilao*, or biodegradable plates from corn/starch)
   - All engineered forms of packaging that are designed to be reusable (i.e. those that went through mechanical or chemical processing and are washable and durable, such as ceramic ware, melamine ware, metal cutlery, durable plastic tumblers, food baskets)
   - Disposable packaging materials that can be applied to the present waste

management practices of the University (i.e. those that can undergo vermicomposting, such as banana or coconut leaves; those that can be collected under the materials recovery facility, such as aluminum cans, glass bottles, and plastic bottles)

8. The following are not acceptable forms of packaging:
   - All disposable polystyrene and similar plastic packaging (such as Styrofoam food containers, plastic cups, plastic spoons/ forks) that do not fall under 7a and 7b
   - All disposable composite packaging (i.e. materials that are made of two or more different materials laminated or fused together to form a single entity or material, such as tetra packs, foil packs, laminated plastic/paper cups used in vending drinks and beverages)

9. For all plastic disposable packaging, the preference as to the choice of the material is determined by the resin identification code/plastics recycling code, set by the Society of the Plastics Industry, Inc. (SPI). These codes determine the ease of recycling of the plastic product labeled, 1 being the easiest to recycle and 7 being the hardest to recycle. Please refer to Table 1 below.

Table 1. Resin identification code.

Code		Polymer	Examples
PETE or PET		Polyethylene terephthalate	Plastic bottles for water and soda
HDPE		High density polyethylene	Plastic bottles for milk, shampoo, medicine
PVC or V		Polyvinyl chloride	Blister packs, water pipes, tubing, plastic book cover
LDPE		Low density polyethylene	Some plastic sandwich and garbage bags
PP		Polypropylene	Containers for ice cream, yogurt, margarine
PS		Polystyrene	Foamed: food trays/containers Non-foamed: spoons/forks, plastic cups
OTHER		Other plastics (acrylic, fiberglass, nylon, polycarbonate, polylactic acid)	Reusable water bottles

Please note that not all plastic products are suitable for food applications. For example, PVC (polyvinyl chloride) is not suitable for food packaging applications.

10. Food delivered from external sources should follow the packaging guidelines of the University.

11. Corporate franchises, food sponsors and caterers are asked to meet the guidelines of the University. Initial approval of all packaging materials for use within the University are given by the following:

Sector	Coordinator
Unit's cafeteria & its concessionaires	Respective cafeteria management
JSEC	Coordinator, Student Entrepreneurial Initiatives
Student Activities	Director, OSA; APSA; AHSA
Others	FQA Supervisor for the unit

The OFSQA Head gives final approval.

D. ON DISASTER RISK REDUCTION AND MANAGEMENT

D1. Disaster Risk Awareness and Preparation

1. Campus sustainability initiatives are an indirect way to reduce disaster risk because these initiatives contribute to the reduction of carbon and water footprints, as well as to the increase of urban biodiversity, both of which may have some impact on climate change, no matter how small.

2. The AIS and the various academic units work together to develop and implement training modules for faculty, staff and administrators who can be engaged in informing, educating, and forming students and other stakeholders towards being resilient, responsive, and responsible during disasters. Disaster Risk Awareness and Preparation modules include:
   - The science of natural disasters, such as extreme weather and earthquakes;
   - Mapping and recognizing disaster risks;
   - Drills: responses before, during and after events (including evacuation protocols and exit strategies);
   - Communication systems; and
   - First aid and rescue.

3. Various points in the academic curricula provide opportunities for deeper understanding of event-related science and a more thorough discussion of proper responses and responsibilities.

4. Common general protocols are made available to stakeholders, with hazard-specific guidelines, e.g., for earthquakes and extreme weather events as well as for anthropogenic or human-made hazards.

D2. Disaster Risk Management

1. The OVPA and the Campus Safety and Mobility Office (CSMO) under the former spearhead efforts in institutionalizing systems for communication, evacuation, and access to resources, first aid, and rescue during disasters, as well as psychosocial support after disaster-related events. The Ateneo de Manila University Emergency Management Plan contains the overall plan, leadership, and structures for emergency response, including protocols for various emergency situations.

2. Pre-emergency protocols include raising the awareness of community members through workshops and regular reminders. Some reminders are found under Part II of this Manual.

3. Research and studies, in coordination with AIS, inform plans and protocols before, during, and after the emergence of hazards. These studies include mapping and analysis of GIS layers, and will be material for continuously updating response by the community.

4. Partnerships with other institutions, such as the Red Cross, Japanese institutions, and the QC Fire Department, are valuable in developing Disaster Risk Reduction Management programs and should be explored if not entered into.

References

Asheim, Geir B. 1994, "Sustainability: Ethical Foundations and Economic Properties", Policy Research Working Paper 1302, The World Bank Policy Research Department, Public Economics Division, May 1994.

High Level Panel on Global Sustainability, 2012, *Resilient People, Resilient Planet: A Future Worth Choosing*, NY: United Nations.

Norton, Andrew, 2012,"The Challenge of, and opportunities for, inclusive and sustainable development", *Inclusive and Sustainable Development: Challenges, Opportunities, Policies, and* Partnerships, Overseas Development Institute & Danida.

World Commission on Environment and Development, 1987, *Our Common Future*, Oxford: Oxford University Press.

AIS Committee Members

Use and Conservation of Materials and Energy	Food Sustainability and Food Packaging	Disaster Risk Management
Ma Victoria P Dimalanta (Coordinator) Michael M Canlas Marie Danielle V Guillen Mart Andrew S Maravillas Czarina Saloma-Akpedonu Resource Persons: Josephy F Almosera Angelina M Conel Abigail Marie T Favis Regidor B Macaraig Ronald S Santos	Jay B Gregorio (Coordinator) Marcelino A Arabit Emilyn Q Espiritu Elirozz Carlie D Labaria Resource Persons: Shella Ef-Em Corpuz-Montinola Abigail Marie T Favis	Maria Elizabeth B Bermio John Gabriel T Bilog Thelma G Padero Gemma Teresa T Narisma Resource Persons: Ma Antonia Y Loyzaga Philippine Red Cross Marie Joy R Salita Additional material: *Ateneo de Manila University Emergency Management Manual* (Office of the VP for Administration)

ANNEX 1 Sample Assessment of New Technologies

Comparison of T8, T5, and LED lights

The adoption of LED lights is a new technology that dramatically lowers electricity consumption, and thus the carbon footprint as well. Although it has lower electricity consumption costs, the capital investment is was much higher, for example in 2009. However, with time, the cost of LED lights has gone down. The sample computation below shows the comparison with T8, which is closer to the fluorescent tube and has mercury vapor; T5, which is thinner and more efficient than the fluorescent tube but still has mercury vapor; and LED, which uses the light-emitting diode arranged to simulate the electrical configuration of the fluorescent tube, and has no mercury content. The comparison does not include the compact fluorescent light (CFL) because this involves rewiring systems.

Some assumptions in the assessment of this technology (Tables 1 and 2) are:

1. Wattage, Cost/unit, and Indicative lifespan are data from the product manufacturer.
2. The useful lifespan is assumed to be 80% of indicative lifespan.
3. Disposal cost is applicable only to those with mercury content.
4. Conversion factor of kWh to kg CO2=0.523, taken from DECC's "Tool for calculation of CO_2 emissions from organizations" available at http://www.decc.gov.uk/en/content/cms/statistics/indicators/ni185/ni185.aspx
5. Cost per tonne CO2$20 - Forbes, EU
6. Exchange rate at PhP43=$1 (2013-2014)
7. The calculations of the different tables assume an average daily period:
    - Monday to Friday - x hours/day; Saturday – 0.75x hours/day → 5.75 days/week
    - 50 weeks of work (less two weeks of Christmas break) → 288 days/year

The formulas used in Tables 1 and 2 are the following:

1. Equivalent years of use (years) = Indicative lifespan/average daily use/288 days per year
2. Annual cost per unit (PhP) = Cost per unit/useful lifespan
3. Annual electricity consumption (kWh per year) = (wattage/1000) x average daily use x 288 days per year
4. Annual cost-electricity consumption (PhP) = Annual electricity consumption x PhP per kWh
5. Annual kg CO2 = Annual electricity consumption x 0.523 (see Assumption #4)
6. Cost of Carbon Footprint ($) = Annual kg CO2 x $20 (see Assumption #5)
7. Cost of Carbon Footprint (PhP) = Cost of Carbon Footprint ($) x exchange rate (PhP43=$1 in example)
8. Cost per year, without Carbon Footprint = Annual cost per unit (F2) + Annual cost-electricity consumption (F4) + Disposal cost (A4)
9. Cost per year, with Carbon Footprint = Annual cost per unit (F2) + Annual cost-electricity consumption (F4) + Disposal cost (A4) + Cost of Carbon Footprint (PhP)

Table 1. Comparison of Costs for T8, T5, and LED lights for average daily use of 10 hours/day, 288 days (Note the decreasing price of the technology with the time, usually associated with improved production systems and increasing adoption rate.)

TYPE	Wattage	Indicative Lifespan	Equiv. years of use	Useful Lifespan= 80%	Cost/unit	Year of Price	Annual cost/unit (PhP)	Annual electricity consmptn	Annual Cost-electricity consmptn	Annual kg CO2	Cost of carbon footprint	Cost of carbon footprint	Disposal Cost per unit	Cost/yr w/o C footprint*	Cost/yr incl C footprint*
	(watts)	(hours)	(yrs)	(yrs)	(PhP)			(kWh)	(PhP)	(kg)	($)	(PhP)	(PhP)		
T8	36	8,000	2.78	2.22	95.00	2014	42.75	103.68	1,140.48	54.22	1.08	46.63	15	1,198.23	1,244.86
T5	28	15,000	5.21	4.17	350.00	2014	84.00	80.64	887.04	42.17	0.84	36.27	15	986.04	1,022.31
LED	18	35,000	12.15	9.72	3,960.00	2009	407.31	51.84	570.24	27.11	0.54	23.32	0	977.55	1,000.87
LED	18	35,000	12.15	9.72	2,760.00	2011	283.89	51.84	570.24	27.11	0.54	23.32	0	854.13	877.44
LED	18	35,000	12.15	9.72	2,300.00	2013	236.57	51.84	570.24	27.11	0.54	23.32	0	806.81	830.13
LED	18	35,000	12.15	9.72	1,200.00	2014	123.43	51.84	570.24	27.11	0.54	23.32	0	693.67	716.99

To get the savings, get the difference between the Cost/yr of T8 and Cost/yr of T5 (PhP 222.55) or the difference between the Cost/yr of T8 and Cost/yr of LED 2014 (PhP 527.88). Multiply this by the total number of units for total savings per year over the bulbs' useful lifespan.

Table 2. Comparison of Costs for 2HP window and split type air-conditioning units for average daily use of 10 hours/day, 288 days

TYPE	Wattage	Indicative Lifespan	Useful Lifespan =80%	Cost/unit	Year of Price	Annual cost/unit (PhP)	Annual electricity consmptn	Annual Cost-electricity consmptn	Annual kg CO2	Cost of carbon footprint	Cost of carbon footprint	Disposal Cost per unit	Cost/yr w/o C footprint*	Cost/yr incl C footprint*
	(kW)	(years)	(yrs)	(PhP)			(kWh)	(PhP)	(kg)	($)	(PhP)	(PhP)		
Window-type	1.80	8	6.40	22000.00	2014	3,438	5184.00	57,024.00	2,711.23	54.22	2,331.66	50	60,511.5	62,843.16
Split reg	1.66	8	6.40	35000.00	2014	5,469	4780.80	52,588.80	2,500.36	50.01	2,150.31	50	58,107.6	60,257.86
Split inverter	1.55	8	6.40	44000.00	2014	6,875	4464.00	49,104.00	2,334.67	46.69	2,007.82	50	56,029.0	58,036.82

To get the savings for inverter technology, get the difference between the Cost/yr of Split-regular and Cost/yr of Split-inverter (PhP 2,221.04). Multiply this by the total number of units for total savings per year over the ACUs' useful lifespan.

Other examples of technologies that could be considered are the inverter technology for air-conditioning units, wastewater treatment systems and rainwater harvesting. These require higher capital expenditures, but depending on the situation, it may be cost-effective in the long-term or it may simply a worthwhile investment for the environment.