

**NDU Environmental Sustainability Task Force
Technical Committee (ESTF-TC)**

**Progress Report
FALL 2017**

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Executive Summary

Since its inception in October 2017, the technical subcommittee of the Environmental Sustainability Task Force (ESTF-TC) at NDU, in line with its mandate, has (1) developed a campus-wide action plan, reviewed by Dr. Victoria Charles, an international sustainability expert, (2) launched a “Towards No Waste Campus” campaign with the communication subcommittee, (3) met with a variety of campus stakeholders, (4) trained janitorial staff supervisors, (5) co-organized a high-level conference titled “Our Common Home: towards a green and clean campus”, (6) and developed a three-year strategy.

The details of each of these initiatives is elaborated in this report, the significant outcomes of which include: (1) the spread of awareness on the need for recycling and sorting and a positive evaluation of the “sort properly” campaign in focus groups, (2) the reduction of the waste sent to landfills, (3) the initiation of a mentality of green campus through the high level of attendance to the conference, and (4) the rallying of many faculty members interested in participating in NDU efforts towards environmental sustainability.

Next, the ESTF is suggesting a few steps to ensure its continuous progress by (1) collecting data and reviewing our garbage recycling efforts, (2) increase the involvement of students, and (3) establishing a variety of committees to involve the interested members in delivering on each focus axis in the university sustainability plan, within the framework of a clear goal-oriented three-year strategy.

A. Establishment of the ESTF and meetings summary

The environment sustainability task force was established by President Fr. Pierre Najem on Oct 12, 2017, as per the memo Pr.O/013/F17 in order to meet the environmental sustainability action plan. This committee was divided into a technical (ESTF-TC) and a communication subcommittees (ESTF-CC) (members listed in Appendix 1), and “tasked to finalize our environmental sustainability plan (in line with the Strategic Plan section 5.6.8 of Goal V), to monitor, review and evaluate any existing environmental initiative, be it academic or non-academic, to facilitate the creation of synchronized efforts towards the mentioned plan, to lead the way and support all entities as need arises a strategic plan for sustainability on campus and follow up on these actions”. The ESTF-TC is chaired by Dr. Sophia Ghanimeh and include Dr. Pauline Aad, Omar Sakr, Salim Iskandar, and Maher Ghostine.

Weekly meetings of the ESTF-TC resulted in the development of a comprehensive environmental sustainability action plan for NDU main campus (joined separately). Multiple meetings between the technical and the communication subcommittees resulted in the launch of the “Towards No Waste Campus” campaign in 2017. The campaign goal was to promote the idea of sorting properly for a cause. Further outcomes included the customization of the Christmas decoration and Christmas fiesta to fit sustainability goals where partner NGOs on the campaign were present and student clubs competed for prizes donated by Bank Audi and L’Ecoute Association.

On October 24, 2017, the ESTF technical committee met with the president in order to update him on the NDU campus sustainability plan and get directives on next steps. Following presentation of the plan, and updates on the “Towards No Waste Campus”, the president clarified that both the technical and communication subcommittees mandate is delegated for the first time and therefore this committee should answer directly to the president and should develop their own policies and procedures. The three-year sustainability summary plan was approved by the president (Appendix 2).

B. Feedback and support/training by sustainability expert

Due to her expertise in the field of sustainability, the ESTF invited Dr. Charles to discuss and comment on their environmental sustainability plan. Main suggestions included: (1) waste assessment in terms of components and generation rates, (2) the development of focus groups to evaluate the “Toward No Waste” campaign, (3) determine the barriers for proper sorting, (4) find non-divisible actions to target behavioral changes, and (5) try to eliminate single use plastic from campus.

Dr. Charles demonstrated the focus groups by visiting multiple classes where she lectured on sustainability and discussed our current campaign, with each class serving as a focus group to discuss the needed behavioral changes for the success of the campaign. These classes were selected from all faculties and included both LAC and major courses (ENS 205 A and B, ENL 230, BAD 431, BAD 421, CEN 362 and CEN 461 and PSL 217). In these focus groups, Dr. Charles helped the Sustainability Task Force summarize the barriers behind a successful “Sort Properly” from a student perspective, and guided them in prioritizing the barriers and developing effective strategies for student behavioral changes of a non-divisible action.

The top ten barriers include: Habits, Lack of confidence in the recycling system, Taking life for granted and not caring, Lack of consequence to behavior, Lack of awareness of environmental damage, Lack of awareness of how to sort, Not enough waste stations, Laziness, Not being able to recycle right (where to empty cans), and Lack of education at home.

Further barriers reported by students included: Lack of education on how to sort, Old habits/business as usual, Not enough caring, Lack of accountability, Lack of advertisement, Lack of bins in classrooms, Inconvenience, No incentives, Not trendy, No continuity of message between professors, No influencers, Lack of enforcement, Don’t know why we need to sort, Denial there is a problem, Why should we do it if nobody is doing it, Why change old habits, Not a social norm (consistency), Believe no positive impact if they individually sort, Lack of confidence in recycling in Lebanon, Somebody else will pick my responsibility.

The ESTF met thereafter with Dr. Charles on two occasions and discussed communication and technical strategies to overcome the barriers listed by the students one by one. Dr. Charles congratulated NDU on a very nicely thought out environmental sustainability plan and recycling campaign, and suggested having an environmental club where its members could go around classrooms and advertise personally for the need to sorting properly. Influencers and pressure on students to recycle can be excellent tools to overcome some barriers. A main suggestion was to pick a strategy and look at the tool to overcome the barrier. As an example of the first barrier of trust in the system, pictures and validations of the system should be presented to the NDU community and change sorting properly from an odd activity to a social norm.

Dr. Charles also alluded to the importance of having someone on campus be LEED certified in order to ensure Green Building code, enhance community service and awareness and catch on green opportunities. She presented to the committee the example of Santa Anna University as lead by Ferris Kavar and she discussed the impact that he had as a sustainability project manager, and suggested such a title might emphasize the efforts NDU is undergoing towards sustainability.

C. Meetings and trainings

Faculty of Architecture, Art and Design

Meetings were held with the Dean of FAAD to initiate a specific sorting project for their workshops and design rooms. Dr. Karen Abou Jaoudeh was appointed by the Dean to meet and follow up with the ESTF-TC. The chairpersons were asked to provide the required data as to the generation rates, composition, distribution and potential storage and reuse of the waste.

Computer center

A meeting was held with Dr. Fawzi Baroud and Mr. Ziad Azzi in order to assess the current practices in handling NDU's e-waste. Dr. Baroud's recommendations were taken into account in designing an e-waste collection scheme, to be adopted starting Spring 2018.

Laboratories

Several meetings and calls were held with the lab personnel at NDU to assess the expected types of hazardous wastes, including chemicals and biohazardous.

Dining services: Faqra

Ongoing efforts to estimate the volume of organic vs. non-organic waste is underway. Statistics on purchasing and switching the non-recycling material for recyclable ones need further evaluation and will require further discussion between the ESTF-TC and Faqra.

Cleaning services

ESTF-TC met with Mr. Gaby Khoury, owner of the janitorial services company and Mr. Joseph Bou Nassif, appointed by the physical plant to follow up on the sorting activities. The meeting outcomes included: (1) the need for training the supervisors, followed by training the janitorial staff, (2) develop a guiding table to be used in training including type of trash, frequency of collection and fate of collected trash, (3) and the need for an initiative by faculty, staff and/or other students to model how to sort properly to the NDU population.

In order to assess the success of the campaign, Key Performance Indicators are needed and therefore ways and means to weigh the quantities of sorted plastic, paper and aluminum are necessary. Mr. Khoury emphasized how challenging the current situation is if weighing is needed. At this time, only counting of bags and the estimation of weight is possible. He gracefully offered to purchase a compactor and a scale for up to a 1000 USD in value to contribute to NDU's efforts towards sustainability. Mr. Bou Nassif was asked about his assessment on the suitability of the twin bin system distribution across campus, their fullness and his assessment of the recycling efforts so far.

Training activity

Members of the ESTF-TC met on 27/11/2017 with the cleaning services supervisors in a round table setting and discussed the caveats of the campaign so far, their impressions, and their feedback. The members of ESTF-TC further administered a short training to standardize the cleaning service activities. The main purpose of this meeting was to emphasize the fact that the trust NDU's system of recycling relies enormously on how the janitorial services are treating the pre-sorted trash by the students.

Outcomes of the meeting were: (1) designating a color coding system for the trash generated at NDU where black is organic, yellow is paper and blue is all other, (2) a brief guiding table for collection of the waste (Appendix 3).

D. Closing the loop: Other types of waste

E-waste

NDU has established an MOU with Beeatona for the collection of electronic wastes. Following the discussion with Dr. Baroud, there is no possibility to collect e-waste at the computer center for lack of potential designated space, however Dr. Baroud pointed out that all the center e-waste is stored at the warehouse before disposal. Further, the faculty of engineering sometimes requests parts from this waste for projects and therefore disposes of its own e-waste.

The ESTF-TC is proposing two initiatives for e-waste management: (1) the establishment of a student accessible collection point for NDU community next to Librairie Antoine where we can Recycle/Upcycle an old cap plexi collector fort both e-waste and battery collection; and (2) storage of all of these electronics at the NDU warehouse until collection by Beeatouna.

This results in three collection points for e-waste: (1) NDU storage facility – whereby the computer center discards its non-used/no longer needed electronics, (2) the Faculty of Engineering labs – where e-waste from student projects is stored, and (3) a collection station next to campus bookstore – where students can drop their e-waste.

Laboratory waste Management

Laboratory waste can be divided into 4 sections:

- a- Organic and tissue to be collected with the black bag
- b- Non-Biohazardous / non-organic waste including consumables such as gloves, plastic tubes, tips separated in blue bags. Cleaned chemical and pesticides bottles to be stored in lab and collected later.

- c- Biohazardous waste use the potential for NDU labs and existing double furnace in order to safely incinerate (no air contamination generated from this incinerator) and properly (zero biohazard left) burn biohazardous waste. This waste is mainly generated in FNAS which already burns its own waste and FNHS who currently stores its waste. There is a need to purchase a designated fridge/freezer to store this waste until enough volume for incineration is available to maximize efficiency. Proper procedure to be developed and costs to be discussed with concerned chairs/ deans/president.
- d- Chemical waste is currently generated by the chemistry lab, and studios. The disposal of these substances follows stringent regulations worldwide. The chemistry lab from the department of science has been abiding by the regulations by storing the hazardous waste and dumping the non-hazardous ones down the sink following proper dilution and handling. The studio generates some minor hazardous waste that is currently diluted down the drain. Therefore, proper disposal guidelines need to be developed in order to avoid the potential environmental impact of these substances. Given the small volume and the nature of our hazardous waste, there is a need for a central collection facility controlled by the physical plant / campus services with proper ventilation in line with international regulations, or an agreement with other local universities willing to take our trash for a fee. Efforts are undergoing to find the best possible solution for NDU

E. Our common home: towards a green and clean campus

The technical subcommittee collaborated with the Benedict's XVI endowed chair to organize a sustainability conference on November 2, 2017 (Appendix 4). The Benedicts XVI chair was hosting Dr. Victoria Charles, Professor of sustainability at Santa Monica College, USA for a week and invited her to be the keynote speaker at the conference. Members of the conference organizing committee were Edward Alam, Sophia Ghanimeh, Pauline Aad, Omar Sakr, Tanos Hage, Nisrine Sfeir and Honoree Eid.

The one day conference invited high-level panelists, local stakeholders, and NDU faculty and students to discuss "Our Common Home: towards a sustainable green clean campus". Dr. Victoria Charles gave an opening address at the "Our Common Home" conference and focused on the waste linear system and ways to break the cycle by switching to a closed loop system with no waste, and she specifically advocated the idea of banning single use plastics. The audience consisted of more than 200 including students, dignitaries and representatives from schools and NGOs interested in the NDU model of sustainable campus. Dr. Charles attended the conference and gave valuable feedback to students and faculty on their efforts towards sustainability of NDU, and was impressed with the on-going campaign and student interactions with the task force efforts.

F. Phase II:

Follow up on the “Toward No Waste” campaign

Both the ETSF subcommittees met on multiple occasions to discuss the effectiveness of the “Toward No Waste” campaign in view of the results of the student focus groups with Dr. Victoria Charles and to further address the behavioral changes needed by NDU. Both subcommittees decided on launching phase 2 of the “sort properly” campaign in Spring 2018 to reinforce the message, but also to have students, members of the AWMA society branch at NDU, present a five-minute talk to classrooms (TBA) in spring 2018 to teach them on how and why to sort properly.

Working groups

A working group shall be established for each of the seven focus axes of NDU Environmental Sustainability Plan. Each working group will be led by one or two members of the ESTF-TC and will report systematically to the technical committee.

Plan for Spring 2018

The working plan for Spring 2018 is attached in **Appendix 5**, along with the list of immediate actions and those that require approval of the president.

Appendix 1: President Memo



OFFICE OF THE
PRESIDENT

MEMORANDUM



To : All Deans and Heads of Departments
From : Fr. Pierre Najem, President
Date : October 12, 2017
Subject : Announcement of Environmental Sustainability Task Force
Ref : Pr.O/013/F17

"We are all responsible for the protection and care of the Environment. This responsibility knows no boundaries" *Pope Emeritus Benedict XVI*.

Indeed we are all responsible, and change starts from within. These words of Pope Benedict XVI were re-emphasized by Pope Francis who calls upon all of us to drive change and safeguard our "Common Home" in his encyclical on the environment *Laudato Si*.

I was committed as Vice President for Administration and am still committed, today, as President to this. NDU has started years ago environmental initiatives across its 3 campuses, these initiatives should become coordinated and serve one goal: the environmental sustainability action plan. For that, I am announcing the creation of the University "**Environmental Sustainability Task Force**" that I will chair personally with the support of professional and knowledgeable staff and faculty members who are all passionate about the Environment.

This University-wide Task Force committee will support all 3 campuses. Its main mandate is to finalize our environmental sustainability plan (in line with the Strategic Plan section 5.6.8 of Goal V), to monitor, review and evaluate any existing environmental initiative, be it academic or non-academic, to facilitate the creation of synchronized efforts towards the mentioned plan, to lead the way and support all entities as need arises.

The task force will require support from everyone: faculty, staff and students. It is, as of today, your official reference in all matters related to sustainability and will be accountable to leading NDU towards meeting sustainability goals addressing:

- Waste Management
- Water Conservation
- Carbon footprint reduction
- Land use and ecosystem preservation
- Sustainable procurement
- Environmental outreach and service to the community

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Appendix 2: Three-Year Strategy (2018-2020)

	Campus	Year 1 2018	Year 2 2019	Year 3 2020
Solid Waste	All	Implement	Follow up	Follow up
Wastewater	Main	Assess/Design	Fund seeking	Initiating
Water conservation	All	Monitor Reduce	Design	Implementing
Renewable energy	Main	Assess/Design	Fund seeking	Initiating
Carbon footprint	All	Reduce	Reduce/mitigate	
Landscape management	All	Implementing	Implementing	Implementing
Green areas	Main	Assess/Design	Fund raising	Initiating
Procurement	All	Assessment	Design	Initiating
Community Service	All	Ongoing	Ongoing	Ongoing
Monitoring & Review	All	Ongoing	Ongoing	Ongoing
Communication		Ongoing project collating	Webpage	

Appendix 3: Training table for janitorial services

Location		BAG COLOR	Frequency	Measure	Other
Cafeteria & Across Campus	Twin Bins	Black	Once a day	Food, tissues, dirty paper	Keep Blue and Black Separate at all times
		Blue	As needed	Anything other than food, tissues, & dirty papers	
	Blue Paper Bin	White	Once a day	Paper only	Take with blue bags to sorting station
	Red Bin and Liquid dispenser	Liquid Dispenser	As needed	Drain	
		Blue	As needed	Only plastic bottles and cans	Place with other blue bags
Offices	Cardboard boxes	No bag	Once a week or as requested	Paper and Books Only	A white bag is needed to collect from offices
	Trash bin	Black	as usual	Black Bag	Merge with other Black Bag Trash
Toilets		Black	as usual	Collect all in black	Send with black bags for disposal

Appendix 4: Invite to the co-organized conference



“ Our common home is like a sister with whom we share our life and a beautiful mother who opens her arms to embrace us. ”

POPE FRANCIS's *Laudato Si*

The Benedict XVI Endowed Chair of Religious, Cultural, and Philosophical Studies - Faculty of Humanities at Notre Dame University-Louaize

cordially invites you to a conference titled

OUR COMMON HOME: Sustaining a Green and “Clean” Campus

This conference aims to introduce an innovative environmental sustainability model that brings together national and international partnerships and initiatives in the light of Pope Francis's Encyclical Letter: *Laudato Si*.

**Thursday, November 2, 2017
9:00 a.m. till 4:00 p.m.
Friends' Hall**



TOWARDS
NO
WASTE
CAMPUS

Appendix 5: Working plan for Spring 2018

1. Forming a working team for each Focus axis

Focus axis	Champions	Team	Tasks for Spring 2018 M (main campus); N (North Lebanon campus); S (Shouf campus)
I. Waste	Sophia & Salim	TBA	Increase the efficiency of sorting (M) Design & guidelines for e-waste, hazardous, FAAD waste (M) Collection of metrics (M)
I.a. Solid waste		TBA	Assess current status (M)
I.b. Wastewater	Pauline	TBA	Monitor water consumption (M) Design a strategy for water reduction (M)
II-Water	Salim & Sayed	TBA	Initiate assessment of current status (M) Draft a TO DO list of short-term behavioral changes (M, N, S)
III-Carbon	Maher	TBA	Assess current status (M, N, S) Increase % green area (M) Implement water conservation (M, N, S) Design an Integrated Pest Management Plan (M)
IV-Land use	Omar	Faqra Procurement office Others TBA	Draft a TO DO list of short-term behavioral changes (M, N, S) Initiate assessment of current status (M)
V-Procurement	Pauline & Omar	SAO/CSR Others TBA	Collate previous & current projects Plan for an impactful outreach project for Fall 2018
VI-Outreach	Sophia	TBA	Develop Key Performance Indicators for solid waste, wastewater, water, and procurement Develop a systematic monitoring process for solid waste Develop a website/webpage
V-Monitoring			

2. List of needed president approvals:

- Spring plan & working teams
- Job description for Joseph
- Class presentations
- Buying scales
- Branding the e-waste plexi-glass container
- Adoption of blue/black bag coding
- Design & print stickers for available bins (for lounges, dorms, parking, etc.) to fill the gap
- Website
- LEED certification – Salim

3. Immediate actions (first week: 8-12 Jan)

- Training for Faqra
- Collecting required data on shipment of chemical waste
- Finalizing the student presentation