

NCSU Initiatives for Faculty Participation in Sustainability Efforts

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Introduction:

In 1999, the NC State University Sustainability Task Force approved the Commitment to Environmental Sustainability – Guiding Principles, publicly declaring a commitment to protecting and enhancing the environment through both education and management of the physical NC State campus. Later in 2003, Campus Environmental Sustainability Team (CEST) was created to accomplish goals Task Force. At present continuing with the current Sustainability Council, it intends to advancement of sustainability, by conserving and more efficiently using resources, energy and by engaging institutional partners and the public. NC State University can lead by planning for sustainability and by engaging the university community that includes students, faculty members, and staff members for a new and sustainable future. Advancing sustainability has been achieved by establishing the campus sustainability program starting with creation of a 2011-2016 Sustainability Strategic Plan (SSP) and a charge of the Campus Environmental Sustainability Team (CEST).

The draft 2017-2022 Strategic Plan for NC State University led by Sustainability Council, identified the need to take action to advance sustainability, and sets a vision for growing the intellectual and scholastic scope of the university while using fewer resources. The SSP sought to develop a new campus culture where students, faculty members, staff members, and university partners work together, forming the foundations of a new community capable of advancing sustainability (NCSU Strategic Plan, 2011-2016). It is expected that in coming decades, the number of students and faculty will increase and sustainability will be part of the university's growth strategy. During the years 2009-10 and 2010-11, SSP integrated a full five-year plan, which

represented a full and open process, open to all students and members of the faculty and staff. The new culture, i.e. advancing sustainability described in the strategic plan, recognizes that although each group (student, faculty, staff) has different needs, responsibilities, interests, and values, it could also inspire students and faculty members to envision the issues of sustainability now, and in their activities after their time at the university (NCSU Strategic Plan, 2011-2016). The Strategic Plan anticipated that the role of faculty members will be to contribute to the sustainability discussions and to develop new research by being mindful for advancing sustainability.

In addition to faculty time and philosophical constraints, new sustainability efforts must also renew the scholarship of how they fit contemporary university and societal context. There was substantial growth and expansion of sustainability in the early 2005 to 2015. However, as the efforts have succeeded and matured well at the institutional and administrative level at universities including NCSU, the question now becomes how faculty can help lead and contribute new intellectual and pedagogical capital to campus sustainability. Also, how can faculty make meaningful new contributions in this new much more established discipline? And how has sustainability changed as the tension between growth, development, and the environment continues? These issues will affect what we do at NC State.

The research objective of this project was to identify key NC State sustainability components through a faculty survey. These components were considered based on four categories – (1) Faculty awareness about sustainability, (2) Do faculty value and prioritize sustainability? (3) Faculty actions and behavior with regard to sustainability and (4) What are the outcomes of this project and how university should change its

course of action based on recommendations? This will be useful to develop a process to improve the faculty involvement in coordinated sustainability efforts at NC State. Organizational factors to engage the campus basically depend on varying levels of importance, depending on campus vision, history, and level or stage of experience with engagement in sustainability. Many successful institutions with broad subject-matter experience, at some point in their development and currently, still are struggling with one or more of these issues, depending on the campus' core mission (Holland, 2001). No systematic research has been done to comprehensively study faculty involvement at the NCSU campus to date. The online survey of randomly selected 500 faculty was performed in order to assess their awareness and interest about NC State Sustainability efforts such as – Teaching, Research, Extension, High impact programs and the Sustainability council, Sustainability Strategic Plan etc.

Background

Experiences of universities around the world, some of which have been highlighted here, demonstrate that faculty are the most important and yet unrecognized champions of campus sustainability. Supporting their efforts is an essential part of achieving lasting progress towards sustainable universities (Brinkhurst, 2011). Several examples illustrate how faculty sustainability can occur. In one such example the University as Citizen Conference, hosted by the University of South Florida in February 2001, provided a rare opportunity for several hundred faculty and engagement scholars to focus completely on issues of institutional commitment to engagement, and the organizational changes and community partnerships necessary for success (Holland, 2001). Sustaining the programs and strategic efforts through major leadership

transitions were of special importance at Penn State University and University of Illinois at Chicago. The transition strategy depended largely on informal faculty leadership and leadership among deans and chairs. Moving beyond the early adopter faculty, which involved a number of dimensions, including encouraging other faculty to embrace an engagement agenda and recruiting new faculty as the founding faculty retire or lose their zeal and energy, was important to all selected cases (Holland, 2001).

An innovative approach was attempted at Liverpool John Moores University, which employs a "Curriculum Greening Officer," a faculty member coordinating campus-wide efforts to include sustainability principles in teaching (Clugston and Calder, 1999). An essential component for campus sustainability initiatives is the recognition and celebration of campus initiatives and other efforts. Acknowledgement helps garner support and credibility with leaders throughout a campus community. Moreover, celebrations help to communicate sustainability goals to the broader campus community. For example, the Sustainability Hero nominations and awards given to faculty and staff at George Mason University recognize change makers for having "furthered university sustainability efforts through their creativity, dedication and heart" (George Mason University, 2009). At the University of Indiana, an award program was designed specifically to encourage faculty to include sustainability principles in their course development (Indiana University, 2009).

Mary Walshok of University of California San Diego offers a simple and elegant strategy for having an impact on research-minded faculty: "We must create opportunities for faculty to discover for themselves the new sources of knowledge and expertise that exist in the community, to discover the current big issues in the region

with compelling intellectual interest. Engagement adds to research and teaching capacity by leveraging current capabilities through new organizing mechanisms that facilitate faculty-community dialogue. Smart people (i.e. faculty) want to put knowledge to work- our challenge is to remove the obstacles (Holland, 2001). Northern Arizona University (NAU) is a good example of an institution that is changing the organizational climate via the attainment of environmental literacy by faculty across the disciplines. It has the Ponderosa Group, an assemblage of faculty from academic disciplines across the university, that works towards the common goal “to increase the sustainability effort at NAU via an across the curricula approach (Rowe, 2002).

At the institutions that are attempting to integrate sustainability throughout the curricula, professional development opportunities for faculty seems to be a key component for success. Some institutions use strategies that encourage faculty to incorporate creativity in curriculum design, campus-wide coordination and promotion of sustainability in curricula and research, and the encouragement of research on the campus system and community (Brinkhurst, 2011). While at other institutions, neither the strategic planning process nor the general education revision process was used to create change. Faculty announced a series of meetings open to all educators who were interested in talking about how to include sustainability and environmental literacy in their courses, and interest built from there was used to gain resources for professional development (Rowe, 2002). The community-based teaching activities at many institutions, such as the University of Kentucky, the University of Scranton, Portland State University, and the University of Utah, are strengthened by a campus-wide center

for service or volunteerism that provided faculty development programs and other assistance to faculty and students.

The Association for the Advancement of Sustainability in Higher Education's (AASHE) Sustainability Tracking, Assessment, & Rating System (STARS) rates universities based on points achieved in the three main categories of: Education & Research, Operations & Planning, and Administration & Engagement. Universities are awarded a STARS rating, Participant, Bronze, Silver, Gold, or Platinum, based on their points. In a recent article about Canadian STARS rated campuses Lidstone (2015) found that 50% of plans had goals related to sustainability research providing or recruiting more funding for students and faculty to conduct sustainability research (student Teaching Assistant /Research Assistant positions/scholarships, funding for research projects, including sustainability in internal grant criteria, and attracting federal and provincial funding). Top-down and bottom-up campus sustainability efforts can both have strengths, but the greatest potential for long-term change comes from active "intrapreneurship" by faculty. Strategies will help to identify "middle" of top down and bottom up. In this way, the faculty experience helped to increase the internal political acceptance required to teach the sustainability paradigm in an across-the-curricula approach in some institutions. Also to complete the task, faculty supporting the addition of sustainability requirements had to attend the meetings in sufficient numbers to assure passage of the changes (Torres, 2000).

These articles shed light on the challenges involved while implementing these strategies, because faculty are typically engaged in numerous research, teaching, and administrative roles which require travel, field and laboratory research as well as

collaborations. Sharp (2002) argues that the heavy workloads limit faculty member's capacity to address new problems – such as the “environmental imperative.” Faculty also may feel that they are already doing sustainability initiatives and do not need more work to distract from their current research and teaching. Staff members are also committed to requirements of their positions, and additional side projects may be impossible if sustainability initiatives are not explicitly supported by job descriptions and administrations.

Wright (2013) illustrates three barriers that are preventing faculty to involve in sustainability those were unclear priorities, decision-making and power. However, not all faculty members identify their academic fields as related to sustainability, and even if they do, rarely does this extend to investing in implementation or activist efforts at their own university. Hence, if a project is to command a serious investment of time and energy in academia, it must either align with academic interests or at least be something respected by other academic professionals (Brinkhurst, 2011). One of the most commonly cited obstacles to engagement, especially for larger public universities, is that faculty culture is dominated by research as the primary measure of performance. At liberal arts colleges, the primary measure may be teaching, which can also be an obstacle (Holland, 2011).

Methodology

No systematic research had been done to comprehensively study faculty involvement in sustainability at the NCSU campus as of spring 2016. Therefore little was known about the strategies or the program structures, methods, or success of the efforts at NC State University. To narrow these gaps, the main goal in this work is to

access the faculty awareness and interest in sustainability efforts. The principal method used in this project was a survey of faculty regarding their knowledge, opinions and suggestions for campus sustainability efforts.

a. Survey Research

In sociology, the word survey refers to the study of a population through observation of its members, as it has been carried out for ages in censuses. Surveys use a sample of members to measure population characteristics (Groves & et al, 2004): "The survey is a systematic method for gathering information from (a sample of) entities for the purpose of constructing quantitative descriptors of the attributes of the larger population of which the entities are members. Survey Research is one of the most important areas of measurement in Applied Social Research. The broad area of survey research encompasses any measurement procedures that involve asking questions of respondents.

b. Design

The Sustainability Strategic Plan (SSP) seeks to encourage college faculty to be active in campus sustainability efforts, in this efforts a questionnaire was developed. Then it was approved by NCSU Institutional Review Board (IRB) and was sent out to understand the current status quo at NC State and any interest or disinterest by faculty. It was anticipated that this survey could help identify several structural factors that are crucial to initiate faculty involvement into campus sustainability. These factors can be faculty awareness, interests, priorities, values, actions and behavior. Greater commitment and support from the faculty will be associated with greater success of campus sustainability.

c. Research Question

The purpose of this research is to address a single clear and explicit issue or question; conversely, the end product of a study that aims to answer a number of diverse questions is often weak. This project used a survey of one period with principal research question of “What are the components needed to develop a process for the improvement of the faculty involvement in coordinated sustainability efforts at NCSU and for the promotion of the faculty research/ teaching/ educational efforts in sustainable campus development?” In developing research question, the following aspects were considered in the survey with respect to suggested best research practices.

1. **Type of Survey** – The survey was mixed method multiple choice and short answers qualitative survey. A qualitative survey is the study of diversity (not distribution) in a population. This type of survey does not count the number of people with the same characteristic (value of variable) but it establishes the meaningful variation (relevant dimensions and values) within that population. A web based survey was used for this project because it was suitable to accommodate large respondent group, cost effective and convenient for data analysis. In the pre-structured case the diversity to be studied is defined beforehand and the aim of descriptive analysis is only to see which of the predefined characteristics exist empirically in the population under study (Stenius, et.al, 1972).

This survey was single with one survey at a point in time. In this type of qualitative research, both data collection and the research question develop in interaction with data analysis (Maxwell, 2005). A single survey involves only one

empirical cycle (research question—data collection—analysis—report) in parallel to the typical case of a statistical survey. Harris Jasen (2011) in his paper ‘The Logic of Qualitative Survey Research and its Position in the Field of Social Research Methods’ have described the steps involved in qualitative survey which were used in this work. They are described in **Table 1** below.

Steps	Qualitative Survey	Application
1. Defining Knowledge Aims		
Topic (material object)	Any topic	NCSU Initiatives for Faculty Participation in Sustainability Efforts
Aspect (formal object)	Diversity	Key components that will be useful to develop a process to improve the faculty involvement
2. Sampling		
Method of selection	Diversity; by purpose	Random full time NC State faculty
Criterion for size (N)	Saturation, coverage of population diversity	500 out of about 1,978*
3. Data Collection		
Measurement level	Any	Written comments
Method of collection	Any	Online survey
4. Data Analysis		
	Diversity analysis	
3rd-level analysis explanation	Deterministic explanation: combinatory analysis QCA, pattern analysis	Graphs (to study pattern), tables (to compare percentage), findings (to generate suggestions)

Table 1: The steps and logic of qualitative survey and its application (Courtesy: Harris, J., 2011). *This is the current data. Numbers pulled in the fall 2016 may differ by about 20.

2. Specifying the Knowledge Aim: In practice some researchers and research agencies transform any research question into a standardized questionnaire in order to measure frequencies and correlations. Others systematically opt for semi-structured interviews, translating every research question into a question about diversity in the

participants' meanings or practices. Logically speaking, however, only the translation of the research question into concrete knowledge aims (operationalization), may justify the choice for either the one or the other type of survey (or other designs) (Dul & Hak, 2008; Verschuren & Doorewaard, 1999). The knowledge aim first specifies the material object (i.e. the topic) to be studied. Analytical studies go beyond simple description; their intention is to illuminate a specific problem through focused data analysis, typically by looking at the effect of one set of variables upon another set. These are longitudinal studies, in which data are collected at more than one point in time with the aim of illuminating the direction of observed associations.

Data may be collected from the same sample on each occasion (cohort or panel studies) or from a different sample at each point in time (trend studies). The research question mentioned above guided development of mixed method survey instrumental with two types of survey questions: (1) some multiple choice questions about the about the respondents, and their opinions regarding sustainability at NCSU; and (2) some open ended set of survey questions that asked about interest in and suggestions for NCSU sustainability efforts. One of the objective questions also was the same as asked in a previous student survey, which will be discussed in later in this paper. This provided some limited basis for comparison with the faculty.

3. Sampling: A simple random sample of the faculty at NC State University is used in order to determine their knowledge and opinions of sustainability practices at the institution. The goal for any sampling is not to detail concepts exhaustively for a theoretical domain (i.e. to cover all theoretical possibilities), but to cover relevant (in terms of aims) diversity in an empirically defined population which may comprise only a

small number of units. The term 'survey' is used in a variety of ways, but generally refers to the selection of a relatively large sample of people from a pre-determined population (the 'population of interest'; this is the wider group of people in whom the researcher is interested in a particular study), followed by the collection of a relatively small amount of data from those individuals. The researcher therefore uses information from a sample of individuals to make some inference about the wider population.

4. IRB Approval – Federal law and University policy require that all research involving human subjects, conducted by NCSU researchers (faculty, staff or students) must be reviewed and approved by the NCSU Institutional Review Board (IRB) for the Use of Human Subjects in Research. These rules are in place to protect the human subjects, the researchers and the institution. Under this procedure, an informed consent must be obtained from the subject before participation. This consent must be in writing unless exempted by the committee. There are four components to a package to be submitted to the IRB at NCSU for review: the cover sheet, the preliminary questions sheet, the proposal narrative, and the informed consent form. IRB approved the survey method within three weeks. The Office of Institutional Research and Planning (OIRP) provided a list of randomly selected 500 full time faculty on NC State campus out of about 1978 (1,078 tenured, 324 pre-tenured, and 576 NTT). The survey was online from September 9th to October 15th 2016, approximately using the Dilmann design method for notifying participants and reminding them to reply periodically three times during the survey.

5. Random Sampling- To be useful, a sample should be representative, meaning that characteristics of interest in the population can be estimated from the sample with a known degree of accuracy. To achieve these goals 500 individuals for the sample were

selected at random. The process involved sending questionnaires to the relatively large sample of people covering a wide range of academic disciplines and faculty ranks. Postal or email questionnaires are usually received 'cold', without any previous contact between researcher and respondent. The response rate for this type of method is usually low, ~20%, depending on the content and length of the questionnaire. As response rates are low, a large sample is required when using postal questionnaires, for two main reasons: first, to ensure that the demographic profile of survey respondents reflects that of the survey population; and secondly, to provide a sufficiently large data set for analysis.

6. Data Collection: The data collection method is not limited by the study design in itself, nor is the type of data to be collected. The qualitative survey may collect data by questioning people- which is the most common type of survey. Data are collected in a standardized form. Surveys are designed to provide a 'snapshot of how things are at a specific time' (Denscombe, 1998). There is no attempt to control conditions or manipulate variables; surveys do not allocate participants into groups or vary the treatment they receive. Surveys are well suited to descriptive studies, but can also be used to explore aspects of a situation, or to seek explanation and provide data for testing hypotheses. In this project, data collection was carried out by sending 12 questions via email to randomly selected faculty (See appendix A). The questions were structured and had the following characteristics:

a. A series of closed and open ended questions were based on the topic areas of interest. Closed questions were phrased in order that a limited range of responses may be given - i.e. 'Do you agree, disagree or neither'

- b. All the respondents were asked the same questions with the same way.
- c. A tightly structured schedule was used. The survey was sent out on September 8th, 2016 and was available online until October 15th, 2016 with three reminder emails during the period.
- e. Before sending to faculties the questions were reviewed by NC State University Sustainability office.

7. Data Analysis Plan: Mixed method objective and qualitative surveys help researchers learn more about the sample and the larger population being surveyed. A data analysis plan was developed as a roadmap for how to organize and analyze the survey data that simply sought to: 1) Answer the key research questions with multiple choice answers, 2) Use specific open ended survey questions to better understand faculty's answers and 3) As part of the survey, we purposefully chose not to define sustainability, but rather let respondents use their own judgment about such a definition. This approach was selected to encourage more depth to the responses. A few faculty sampled did reply and ask for a definition, and we then provided the standard Brundtland definition that is "It is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

Survey Analysis

The best and easiest way to start your data analysis is to look at the raw number of responses for any given question— a count of all of the people who checked any given response. As discussed in the methodology survey questions were sent to 500 faculty

through Qualtrics via email from September 8th, 2016 to October 15th, 2016. The analysis of the responses was performed to understand the reasons prompting or discouraging faculty involvement in the sustainability efforts. Following are the answers to the questions and discussions to imply the problem statement.

- **Who took the survey?**

Findings: The first few questions were asked in order to understand the diversity of population taking this survey. There are currently 1,978 faculty (1,078 tenured, 324 pre-tenured, and 576 NTT) and the survey was sent to 500 (n) faculty on NC state’s campus and 126 responded which is almost 25% of the sampled population. As seen in the table 2, 3, 4 below, out of 126, 46% were tenured (Table 2), 28.5% were professor (Table 3) and 48.4 % have been employed at NC State for more than 10 years (Table 4). About 6% (n) of the total NCSU faculty (N) then took the survey. The non-tenure track (NTT) faculty had the greatest percentage of all faculty who responded, although the tenured professors had the highest response rate in the sample. Overall, respondents were fairly evenly distributed among faculty ranks.

#	Status	Total Population (N)	sampled population (n)	No. of Replies (x)	% (x /126)	% (x/N)
1	Tenured	1,078	500 (Random Selection)	58	46.03%	5.3%
2	Not tenured but on the tenure track	324		19	15.08%	5.8%
3	Not on tenure track (NTT)	576		49	38.89%	8.5%
	Total	1978	500	126	100%	6.3%

Table-2. Responses for ‘Select your tenure status.’

#	Years	No. of reply (x)	% (x/126)
1	Less than a year	6	4.76%
2	1-5 years	33	26.19%
3	6-10 years	26	20.63%
4	more than 10 years	61	48.41%
	Total	126	100%

Table-3. Responses for 'Years you have been employed at NC State.'

#	Rank/position	No. of reply (x)	% (x /126)
1	Professor (including titles such as Research Professor, Teaching Professor, etc.)	36	28.57%
2	Associate Professor (including titles such as Research Associate Professor, Teaching Associate Professor, etc.)	32	25.39%
3	Assistant Professor (including titles such as Research Assistant Professor, Teaching Assistant Professor, etc.)	28	22.22%
4	Instructor/Lecturer	15	11.90%

Table-4. Responses for 'Select your rank/position.'

- **I am aware of the following NC State sustainability efforts (check all that apply).**

Findings: The question was formed to understand how many surveyed faculty are aware of the sustainability efforts (Figure -1). NC state sustainability focuses on teaching, research, high impacts programs, sustainability strategic plan, Sustainability Council etc. Findings showed that 75% respondents were aware of teaching and research efforts while 60% were aware of high impact programs, which include service learning, study abroad, living and learning villages, undergraduate research, co-op and internships. However, along with these areas the fewer faculty were aware of the Sustainability Strategic Plan (33%) and also in the Sustainability Council (27%), which has working groups that are directly involved in the sustainability efforts. Thirteen percent of the respondents selected 'Others' option, which include efforts such as Leadership in Energy and Environmental Design (LEED) building, recycling, earth week etc.

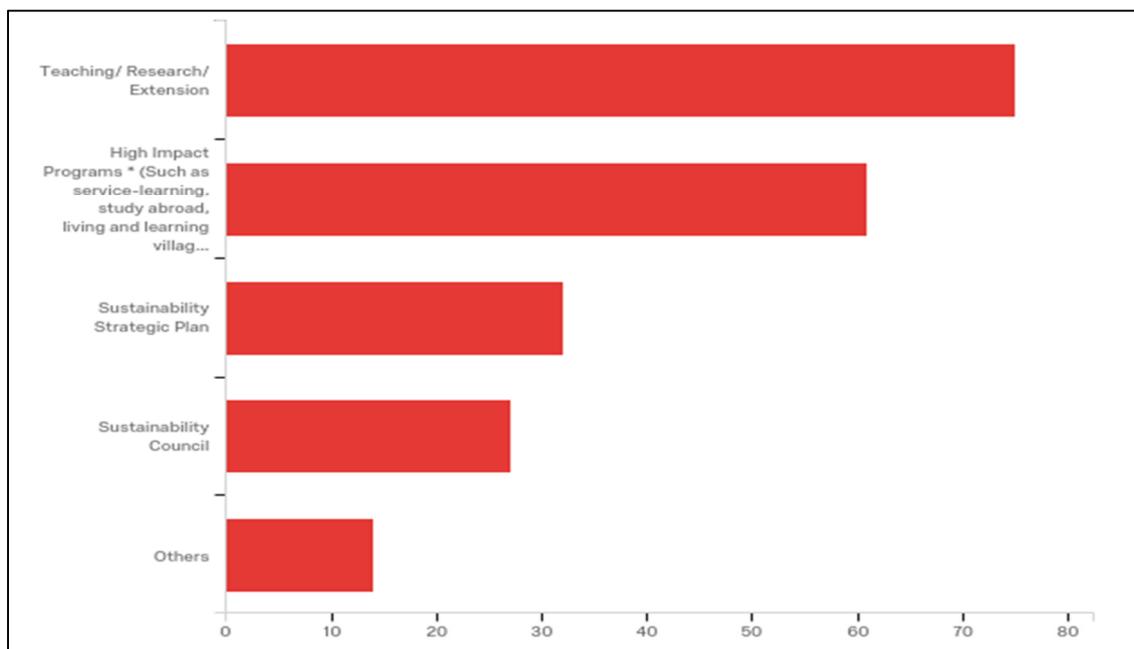


Figure -1. Responses I am aware of the following NC State sustainability efforts.' Scale: x = %).

- **I am engaged in the following sustainability areas (check all that apply).**

Findings: Awareness about sustainability is different from being engaged in the sustainability efforts (Figure 2). Results showed that 75% respondents were involved through teaching and research but only 3% are involved in sustainability strategic planning (SSP) and Sustainability Council. The campus sustainability office, Sustainability Council and campus leaders are seeking more faculty involvement in Sustainability Strategic Plan and the sustainability council. Category 'Others' includes others include -LEED, recycling, Earth Week etc.

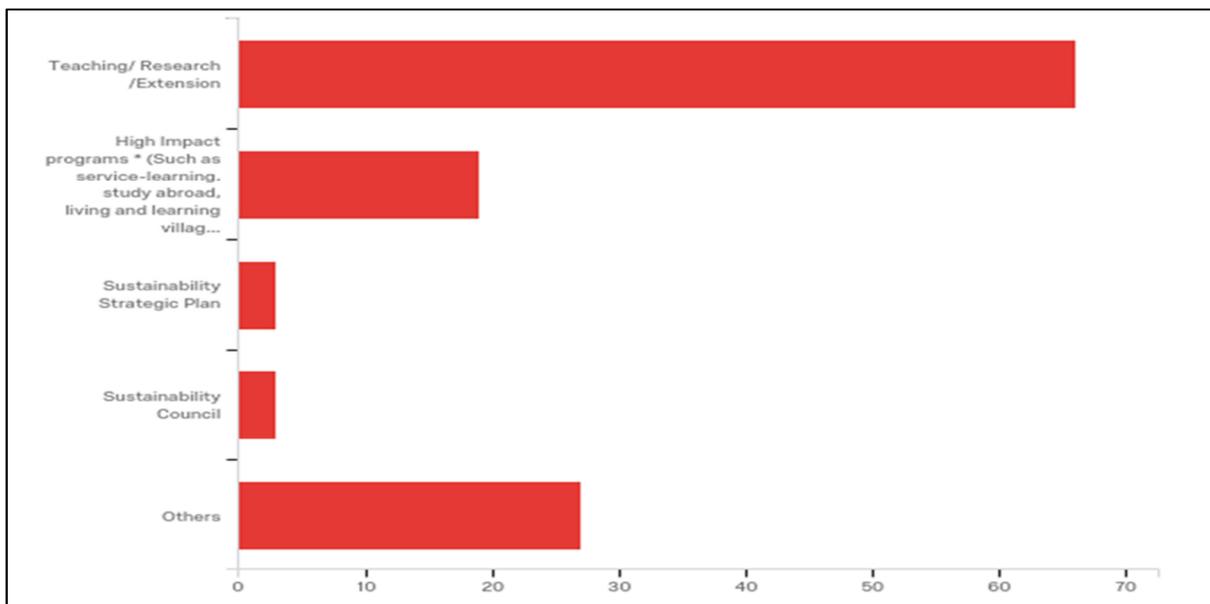


Figure -2. Responses for 'I am engaged in the following sustainability areas.' (Scale: x= %)

- **My work is specifically related to sustainability.**

Findings: The result showed that 28% respondents agreed, 35% neither agreed nor disagreed and 34% disagreed that their work is specifically related to sustainability (Figure -3). It showed that fewer people that work specifically on sustainability than those who do not work in that area. It is concerning that about 70% did not think that their work is related to sustainability*. (Self-defined sustainability).



Figure -3. Responses for 'my work specifically related to sustainability.'

- **How important do you think it is for NC State to be a leader in sustainability?**

Finding: It is important to get faculty opinion about how important it is for NC State to be the leader in sustainability. Faculty's co-ordination with university-wide sustainability efforts can be useful and can lead NC State (Figure -4). In contrast to the previous question, responses showed that 25% and 51% faculty think that leadership in sustainability is critically important and important respectively. Nineteen percent thought it is somewhat important.

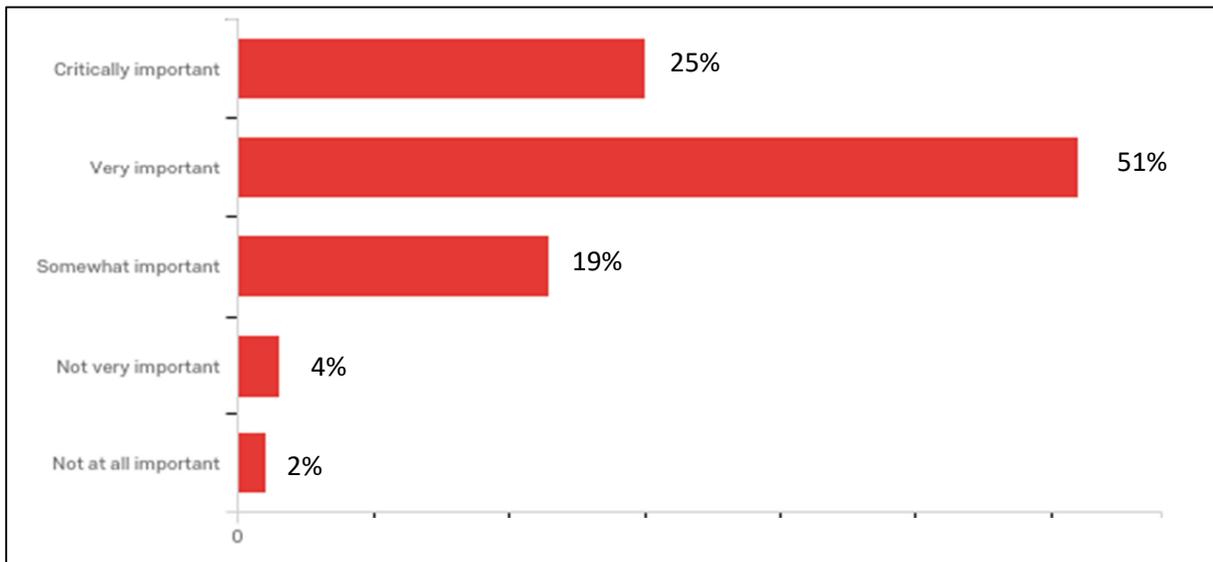
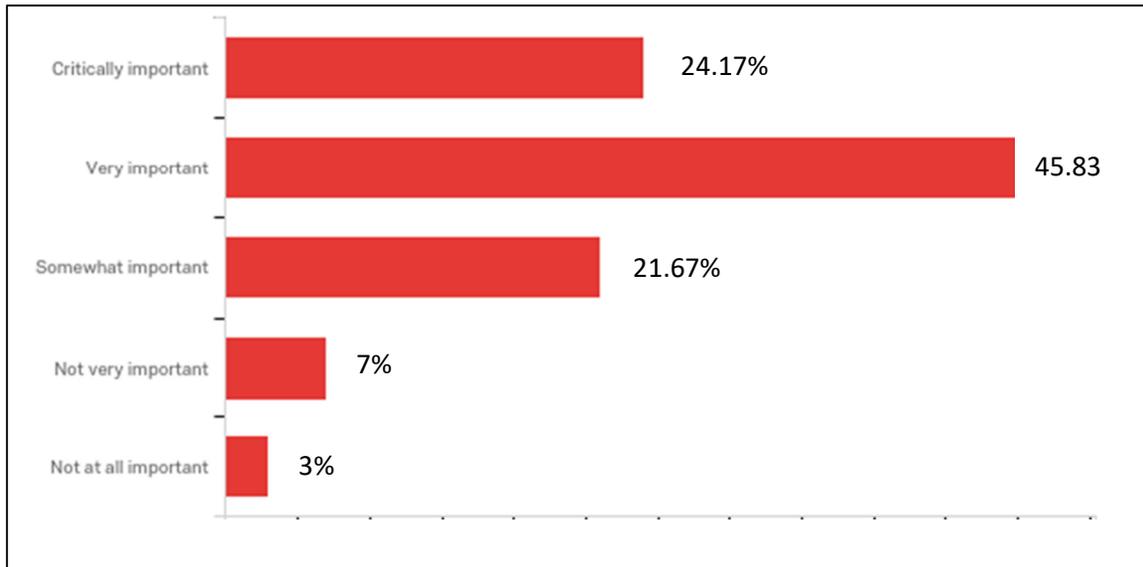


Figure -4. Responses for 'How important do you think it is for NC State to be a leader in sustainability.'

- **How important do you think it is for faculty to be involved in NCSU sustainability efforts? If you are interested in the NCSU sustainability efforts, how would you like to participate?**



Figure– 5 Responses for ‘How important do you think it is for faculty to be involved in NCSU sustainability efforts?’

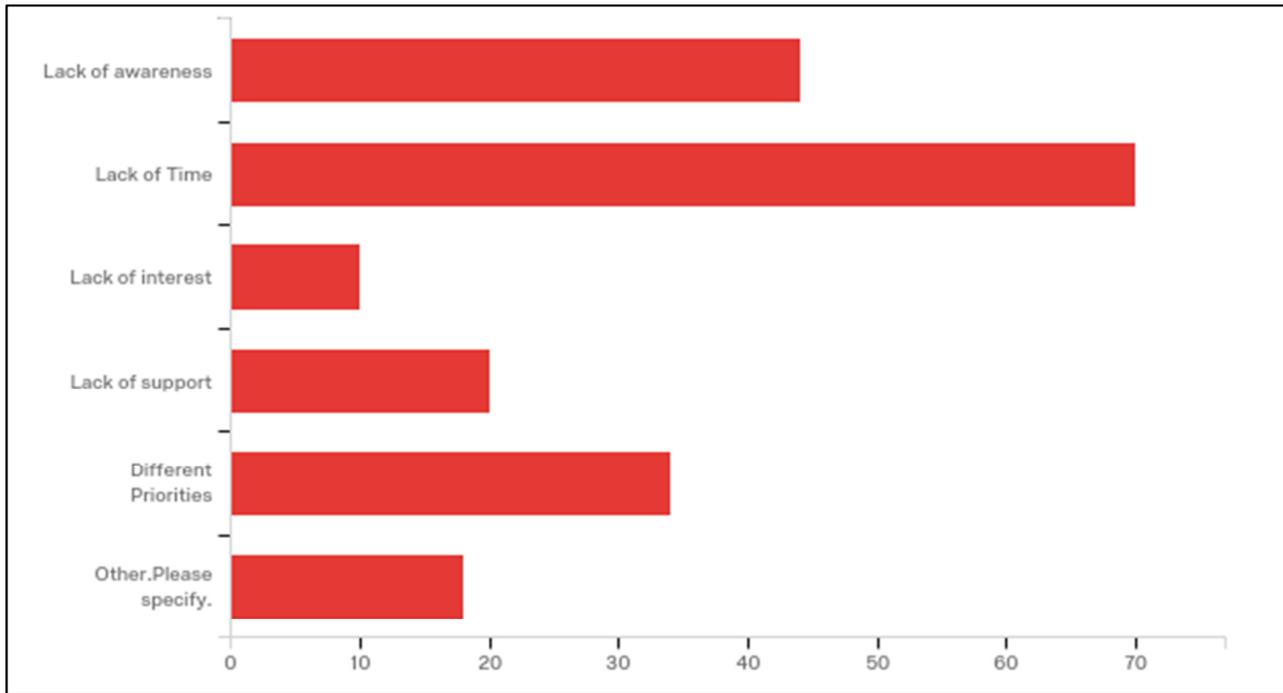
Finding: This question was divided into two questions. For the first part of the question (figure -5) results showed that approximately 90% of the respondents thought it was important that the faculty should get involved in sustainability efforts (Critically important- 24.17%, Very important- 45.83%, somewhat important- 21.67%). For the second part of the question refer to table 5 below. For the faculty who thought involvement was important, diverse responses were received which have been divided below into three categories.

Table – 5 Responses for ‘If you are interested in the NCSU sustainability efforts, how would you like to participate?’

Negative Responses	Positive responses	Suggestions
I know nothing about what "NCSU sustainability efforts" are.	Learn more and then decide where I might contribute.	Updating a current course involving sustainability to discuss new and emerging topics.
Hard to answer without knowing the options of how my participation is needed.	I need to know more about possibilities.	I'd like to see a group of campus communicators make best practices for our roles to make the best use of resources.
Too broad topic to answer	Would like to hear more as I am new.	Sustainability council could have more rotating faculty positions to engage more.
I am not sure.	I'm happy to receive emails regarding sustainability.	Furthering the discussion of what is meant by sustainability and how the university can/should contribute to discussion/efforts more broadly.
Not interested.	I would like to, first, know more about these efforts.	Increase student awareness (teaching) and involvement (activities, projects, etc.)
I don't know.		Review, input and database cataloging.

***Note-** This is a summary of some selected responses. For complete responses check Appendix II.

- **Pick the top two barriers that are preventing you from engaging in sustainability.**



Figure– 6. Responses for ‘Pick the top two barriers that are preventing you from engaging in sustainability’ (Scale: x= %).

Finding: It is important to understand what the actual barriers were for faculty engaging in NCSU sustainability efforts. The participants were provided with options which were brain-stormed with the NC State Sustainability office and deemed appropriate to ask (Figure- 6). Most of the respondents chose ‘Lack of Awareness’ (39%) and ‘Lack of Time’ (62%) as the top two barriers. This was followed by ‘Different Priorities’ (30%). In the ‘Others’ category responses such as ‘Lack of understanding of the opportunity; we aren't told of any campus efforts; lack of info on how to connect with NCSU sustainability initiatives: council, high impact programs; etc.’

- **Please offer suggestions on how faculty interest in sustainability at NC State can be strengthened.**

Finding: A wide variety of responses were obtained in the survey regarding how faculty interest in sustainability could be increased. Some of key responses are shown below. For detail responses check Appendix III.

Communicate & educate people; increase awareness, give examples of how faculties are involved, impact on students and environment, etc.
I would happily invite someone to talk about this at a staff meeting in my area.
Email about opportunities and outreach in the form of seminars.
Potentially have some type of incentives to work in the area.
I would happily invite someone to talk about this at a staff meeting in my area.
Increase public visibility- Organizing/advertising talks.
Presentation at departmental meetings to educate faculty. This will inform how best individuals can best participate to be involved.
Come and give a seminar in our department! Most faculty do not know much about sustainability efforts sadly.
Funds for undergrad research and extension and teaching assistance; high profile seminar series; annual or more frequent workshops for faculty and graduate students; funds and services support for grant seeking re sustainability topics; university wide curriculum on sustainability.
1. Define sustainability. 2. Help interpret it in the contexts of various research/teaching/extension domains 3. Provide incentives to foster interest/activities in sustainability: explicit role in reappointment/promotion/tenure, and financial support: grants.

Table – 6. Responses for ‘Please offer suggestions on how faculty interest in sustainability at NC State can be strengthened.’ *Note- This is a summary of some selected responses.

Discussion

a. Survey results

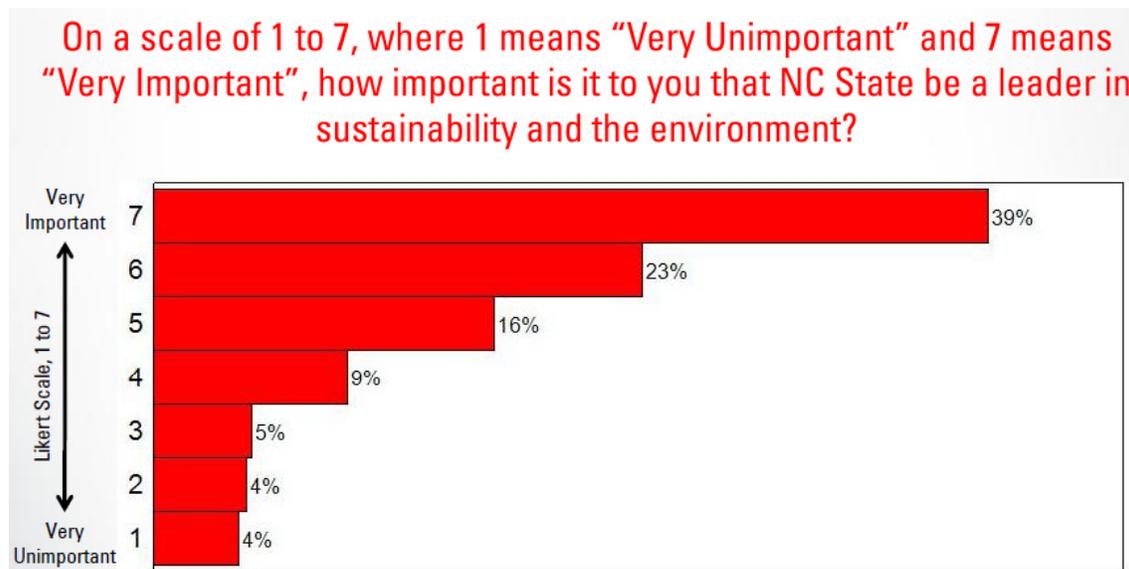
The research objective in this project was to identify the key components that will be useful to develop a process to improve the faculty involvement in coordinated sustainability efforts at NC State. No systematic research has been done to comprehensively study the faculty involvement at NCSU campus to date. The analysis helped identify what faculty think about sustainability, how much they know, how they want to get involved and what are their expectations as a faculty member, from the NC State Sustainability Office and Sustainability Council. Though the survey responses were mixed with wide range of interests and disinterests, it was essential to consolidate the interesting and thoughtful responses for further data analysis. Most of the faculty are either unaware of the sustainability efforts on campus. If they were aware, they were interested to know more. Almost 90% respondents thought that it is important that NC State should be the leader in sustainability.

One of the important identified components through survey is unawareness among the faculty. Finding smart, effective and efficient communication ways to reach to the campus faculty is essential step that needs to be addressed. More awareness can be brought via sending out periodic emails only to the NC State Faculty about opportunities and information to participate specially in Sustainability Strategic Plan, advertisements with catchy headlines, initiative programs etc. Another way to deal with unawareness could be involving faculty by arranging presentations, seminars or outreach program in each departments to educate the faculty. In order to encourage

faculty to participate in respective departmental as well as the Sustainability Council activities can provide incentives or recognition related to their job function.

b. Comparing faculty survey with student survey

In February, 2012, Energy Management and Sustainability Office conducted a student survey (The survey data has been collected from Sustainability Office) that measured student's attitudes and behaviors regarding sustainability while some questions focused on energy, transportation, waste reduction and recycling. An on-line questionnaire was sent to 5,000 randomly selected enrolled NC State students, undergraduates and graduates, who live on and off campus, on Oct 19, 2011. The questionnaire was closed on Nov 11, 2011. At that time 827 students completed the questionnaire; thus, the survey had a 17% response rate. The one question in the student survey can be compared to faculty survey. The question was "How important is it to you that NC State be a leader in sustainability and the environment?"



Source : NC State sustainability office

The findings showed that about 78% of respondents think that it is important for NC State to be a leader in sustainability and environment. While the faculty survey showed that about 95% faculty think it is important to be a leader. In last couple of years the NC State sustainability office has experienced increased student participation one of them is called 'The NC State Steward'. These are sustainability student leaders, helping move NC State to "a brighter, stronger and more sustainable future". NC State Stewards promote sustainable practices among their peers and the community through workshops, presentations and campus events.

c. What NC State is doing to encourage faculty participation?

As discussed in the literature review, the University of Indiana has award program designed specifically to encourage faculty to include sustainability principles in their course development. Similarly NC State has a "Green Brick Award" for faculty member's outstanding achievement in sustainability that exposes students to the sustainability through courses. Also, faculty are encouraged to do sustainability research. According to The Sustainability Tracking, Assessment & Rating System (STARS), there are 396 of the institution's faculty and/or staff engaged in sustainability research and 54 academic departments (or the equivalent) out of 65 have at least one faculty or staff member that conducts sustainability research (NC State Sustainability website).

The Sustainability Council always encourages sustainability coordination, collaboration and communication across NC State and bringing together NC State's sustainability leaders. To do so, five working groups have been developed one of which

is Academic working group. This group aims to enhance faculty participation in decision-making and involvement in sustainability planning and activities. The current Sustainability Strategic Plan (Fiscal year 2017 - 2022) encourages extensive involvement from the university community. The plan put forth five main goals. Two of the main goals are academics (integrating sustainability into education, experiences and research) and communication (propel awareness and sustainability at beyond NC State) which identify some important strategies and objectives that can support the objective of this project .They are as follows –

- Support and reward the faculty in development of multidisciplinary scholarship and research by faculty focused on sustainability across departments and colleges
- Engage faculty from across the university with real-world, community-identified projects to meet the partnering community's sustainability priorities
- Develop a network of communications professionals, a messaging strategy and framework for how to communicate about sustainability across campus to encourage two-way communications

The Sustainability Council at NC State recognizes the challenges of the faculty, student and staff participation. On 27th January, 2017, the Sustainability Council conducted a meeting for all five working groups. In the meeting everyone was asked to give their suggestions on one question “How can we, the Sustainability Council, build momentum and ensure the Sustainability Strategic Plan becomes reality?” This was mainly to expand the campus community (student, faculty and staff) participation.

Below are the suggestions for the faculty participation that can be linked to this project* (*these notes are obtained from Tracy Dixon, Director of University Sustainability Office). The suggestions included to use social media/blogs to highlight current & past sustainability efforts to current students/faculty/staff to engage in on-going sharing of ideas and conversation. Specific comments included:

- Engage frequently & participate in existing events like faculty/staff appreciation day. Visual sustainability branding on all initiatives.
- Incentives and accountability for faculty engagement.
- Accountability - make sustainability part of everyone's work-plan or on-boarding (faculty/staff/student).
- Create Watch Dog Groups- a team of faculty, staff and students to yearly review of goals and check if we are meeting strategic goals.

d. Limitation

This survey provides useful information for the faculty initiative on campus sustainability efforts. It is a modest first step, and may be subject to some self-selection bias (e.g., respondents with an interest in sustainability were more likely to notice the call for participation). While, the questionnaire results may have some limitations, the survey sample of one-quarter of the faculty, and the 25% response rate, should at least provide some insights. The percentage distributions to the objective multiple choice questions and the detailed short answers to the open ended questions are informative and could plan some opportunities in the future for faculty involvement.

Conclusion

The NC State Sustainability Council has sought to advance sustainability by engaging students, faculty and staff. The previous Sustainability Strategic Plan (2011-2016) wanted to involve faculty members in sustainability discussions and new research development, but did not make any formal efforts. However, no research has been conducted to understand the faculty involvement in sustainability efforts on NC State campus. This project focused on identifying the key sustainability components that may be useful to enhance faculty involvement. It was based on four components: (1) Faculty awareness about sustainability; (2) Do faculty value and prioritize sustainability? (3) Faculty actions and behavior with regards to sustainability; and (4) What can the university do to improve its programs based on the recommendations?

An online 12 question mixed method survey was conducted from September 9th to October 15th 2016, after review and approval by the NC State University IRB. This survey aimed at collecting data regarding faculty knowledge, opinions, and suggestions for campus sustainability efforts. These variables guided the development of the survey instrument with two types of survey questions: (1) some multiple-choice questions about the respondents, and their opinions regarding the sustainability efforts at NC State; and (2) some open-ended survey questions that asked about participants' interest in and suggestions towards the NC State sustainability efforts.

A random sample of 500 faculty was selected to collect data and make inferences about the wider population of 1,978 total faculty on NC State campus. Questions asked in the survey mainly focused on if the faculty is aware and involved in sustainability

efforts such as high impact programs, teaching, research extension, Sustainability Council, Sustainability Strategic Plan etc. The questions asked the faculty their opinions about significance of NC State to be the leader in sustainability. The survey results indicated that a high percentage of faculty is involved in sustainability through teaching, research or extension, while a similar percentage is not aware of other sustainability efforts such as Sustainability Council, Sustainability Strategic Plan etc. These are the two areas where sustainability office is seeking participation from the faculty. There is Another question in the survey asked faculty to pick the barriers that are preventing them from engaging in the sustainability efforts. Results showed that the top three barriers were lack of time, lack of awareness, and different priorities. Also, descriptive answers showed that some faculty felt that they are already working on sustainability initiatives and they did not need more work to distract from their current research and teaching. Therefore, it is important to consider how to deal with these barriers in strategic planning. For example, if awareness about sustainability efforts is increased then faculty may show improved interest to participate in these efforts. As their interest is increased this might result in increased participation by providing motivation to change their priorities. However, it is never easy to change faculty values, behavior and actions, since most of the time spent by them on campus is in research and teaching.

A variety of faculty opinions and suggestions were obtained through the survey which can be useful to the Sustainability Council. They can be used to plan out strategies and ways to reach out to the campus faculty. Although some respondents showed disinterest or lack of knowledge about sustainability efforts, others were optimistic with wide range of suggestions. When asked about ways to participate in

sustainability, answers included letting faculty know about opportunities to participate in sustainability efforts by giving presentations or conducting seminars in various departments; updating on new emerging topics in sustainability and carrying out the discussions more broadly; and creating campus communicators who can help faculty explore best practices for their role with the use of proper resources. A question on how to increase the faculty participation in sustainability efforts received answers such as communicating and educating faculty through seminars; emailing about opportunities and outreach that are very public and easy to participate; providing more funding, and grants and incentives to encourage sustainability research.

A literature review provided more insights about what other universities are doing to encourage faculty involvement in the campus sustainability. Some of these approaches included hiring a faculty member as a “Curriculum Greening Officer” by Liverpool John Moores University at London to include sustainability principles in teaching; the Sustainability Hero nominations and awards given to faculty and staff at George Mason University at Virginia; and Ponderosa Group created at Northern Arizona University (NAU) is an assemblage of faculty that works towards the common goal- “to increase the sustainability effort at NAU via an across the curricula approach”.

Recommendations

For advancement in sustainable development, an organizing strategy or mechanism and systematic assessment are essential for every institution. Therefore through this project we highlight purposeful efforts to the increasing interest of the faculty in the

sustainability efforts over time. Below are the recommendations based on faculty survey responses and literature review discussed in this paper.

- It is disconcerting that although faculty thought sustainability is important, not all of the responding faculty were aware of all the sustainability efforts on NC State campus. Sustainability Council should find out ways to reach out to more and more faculty to communicate new knowledge and resources in sustainability efforts with regards to their interests. This can be done by sending out periodic emails only to faculty while focusing on why their participation is important and how they can get involved.
- It is not easy to determine whether faculty value sustainability enough for it to supplant their desired objectives and activities. Arranging presentations and seminars in various departments can give the sustainability office an opportunity to interact with faculty in person. These seminars would be most effective if they were sponsored at the College or Department level.
- NC State is making fast progress in achieving the campus sustainability goals. Academic working groups that seek more participation from the faculty can be one method to encourage faculty involvement. Within this existing group a subgroup of “campus communicators” could be formed to connect with other faculty members (specifically in their own department) and inform them about existing opportunities to engage in the sustainability efforts.
- Rotating faculty in the position of “campus communicator” could help faculty balance out their many priorities and involve more faculty in the efforts over time.

- There is a need to incorporate more sustainability courses in curriculum with help of faculty co-ordination. In this way faculty will promote the discussion of what is meant by sustainability through teaching, research, and extension.
- NC State is providing incentives for faculty that include sustainability principles in their course through Green Brick Award and also encouraging faculty research in sustainability through STARS. To keep the survey from getting too long, we did not include questions focused on whether faculty are aware of this awards and the participation tool. More promotion of these programs might encourage more faculty involvement.
- The survey showed that there is not much awareness about two key NCSU sustainability efforts: (1) the Sustainability Council, and (2) the Sustainability Strategic Plan (Academic group). More focus can be put on how to involve more faculty in these areas by providing them incentives or awards like the Green Brick Award for outstanding engagement in Sustainability Council or academic working group.
- Of course, the best way to encourage faculty involvement would be through a well-funded research, teaching, and extension grants program. Many faculty mentioned this prospect in their written comments. Having such a program encourage grants across all three teaching, research, and extension components, and having multiple PIs and linked to staff or student efforts could build better integrated sustainability on campus.

This project is an initial step to enhance the faculty involvement and to measure their interest and actions regarding sustainability. Faculty were generally supportive of sustainability efforts on the campus at NC State University, but of course pressed for time and resources. More engagement could be obtained via promotion of sustainability efforts; faculty networking and seminars; and of course funding. The results from this survey can be used by the Sustainability Office and the interested faculty to further promote and encourage efforts in sustainability at NC State University.

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Appendix I

Survey on 'NCSU Initiative for faculty participation in sustainability efforts'

This survey is to understand the extent of NC State faculty involvement in sustainability. The information gained will be used by NC State's Sustainability Office to further inform the Sustainability Strategic Planning process, currently underway. Your participation is voluntary, and you may stop taking the survey at any point in the process. By proceeding forward with the survey you are providing your consent to participate.

Q1 Please select your tenure status.

- Tenured (1)
- Not tenured but on the tenure track (2)
- Not on tenure track (3)

Q2 Please select your rank/position.

- Professor (including titles such as Research Professor, Teaching Professor, etc.) (1)
- Associate Professor (including titles such as Research Associate Professor, Teaching Associate Professor, etc.) (2)
- Assistant Professor (including titles such as Research Assistant Professor, Teaching Assistant Professor, etc.) (3)
- Instructor/Lecturer (4)
- Other (5) _____

Q3 Which Department (s) are you associated ?

Q4 How many years you have been employed at NC State ?

- Less than a year (1)
- 1-5 years (2)
- 6-10 years (3)
- more than 10 years (4)

Q5 I am aware of the following NC State sustainability efforts (check all that apply).

- Teaching/ Research/ Extension (1)
- High Impact Programs * (Such as service-learning, study abroad, living and learning villages, undergraduate research, co-op and internships) (2)
- Sustainability Strategic Plan (3)
- Sustainability Council (4)
- Others (5) _____

Q6 I am engaged in the following sustainability areas (check all that apply).

- Teaching/ Research /Extension (1)
- High Impact programs * (Such as service-learning, study abroad, living and learning villages, undergraduate research, co-op and internships) (2)
- Sustainability Strategic Plan (3)
- Sustainability Council (4)
- Others (5) _____

Q7 My work is specifically related to sustainability.

- Agree (26)
- Neither agree nor disagree (27)
- Disagree (28)

Display This Question:

If My work is specifically related to sustainability. Agree Is Selected

Q7 a In your response above you indicated that your work is related to sustainability. Please briefly explain how.

Q8 How important do you think it is for NC State to be a leader in sustainability?

- Critically important (1)
- Very important (2)
- Somewhat important (3)
- Not very important (4)
- Not at all important (5)

Q9 How important do you think it is for faculty to be involved in NCSU sustainability efforts?

- Critically important (1)
- Very important (2)
- Somewhat important (3)
- Not very important (4)
- Not at all important (5)

Q10 Pick the top two barriers that are preventing you from engaging in sustainability.

- Lack of awareness (1)
- Lack of Time (2)
- Lack of interest (3)
- Lack of support (4)
- Different Priorities (5)
- Other. Please specify. (6) _____

Q11 If you are interested in the NCSU sustainability efforts, how would you like to participate ?

Q12 Please offer suggestions on how faculty interest in sustainability at NC State can be strengthened.

APPENDIX II

If you are interested in the NCSU sustainability efforts, how would you like to participate?

See above: I know nothing about what "NCSU sustainability efforts" are.

Research and training

Updating a current course involving sustainability to discuss new and emerging topics.

not sure

learn more and then decide where I might contribute

OK with current priorities.

TEACHING/EXTENSION/RESEARCH

n/a

Unknown

Yes, when appropriate

I'd like to see a group of campus communicators make best practices for our roles to make the best use of resources.

already am

Hard to answer without knowing the options of how my participation is needed.

not sure the options

Being aware of programs available for faculty involvement

I already do.

Hard to answer without knowing the options of how my participation is needed.

I need to learn more

sustainability council could have more rotating faculty positions to engage more

From what perspective?

I need to know more about possibilities.

I am not sure

Will be leaving university in 2017, perhaps not a good choice for the survey

This is too broad. What sustainability?

Inter-departmental

Incorporating topics into my teaching, other campus activities

Contribute a holistic economics perspective to design and conduct of programs.

Not interested

would like to hear more as I am new

I'm happy to receive emails regarding sustainability.

Not sure what the needs are

Through existing projects.

Furthering the discussion of what is meant by sustainability and how the university can/should contribute to discussion/efforts more broadly

once I learn more about existing opportunities I will be able to answer

I don't know.

Contributing to initiatives. Engaging students.

Increase student awareness (teaching) and involvement (activities, projects, etc)

No

Mentioning sustainability in classes; using examples of sustainable science, improving sustainability efforts in our program///

I am already participating to the degree I am able!

Biofuels

I already am...

research

Research opportunities

retire and quit burning so much fossil fuel to get to an office

Service Learning

volunteering, university committees

Volunteer opportunities

I would like to, first, know more about these efforts.

See Q10 answer

I would like to learn more about it and how it contributes to my SME/Annual evaluations

As I already do.

review, input and database cataloging

would like to do things that don't take meetings.

Depends what it is

Attend workshops

Not at this time

Center

TBD

Working group

more funds

Have a campus working group on sustainability - talks, meetings, activities

APPENDIX III

Please offer suggestions on how faculty interest in sustainability at NC St...

Communicate & educate people -- surely I'm not the only one who has no idea what this is?

I would happily invite someone to talk about this at a staff meeting in my area.

email about opportunities and outreach in form of seminars

Potentially have some type of incentives to work in the area.

not sure

Better awareness of initiatives

understanding what the University is doing comprehensively and how my program fits into that

Integrate into our daily routines in teaching research and service.

Seems like there is already a good level of interest.

INCREASING PUBLIC VISIBILITY - ORGANIZING/ADVERTISING TALKS

It would be nice if somebody would empty the trash and recycling containers in our office sometimes. Do we have LED lights? Not sure. No instructions on how to reduce A/C - I could save enormous costs but when I try to turn thermostat warmer it goes back to freezing.

Regular information

Need to show it as an opportunity for innovation not just as a preservation topic

Have specific initiatives that are very public and easy to participate in.

put an economic value on it

Awareness!

info

NA

Need to learn more to answer. How do you define sustainability?

more presence on campus

Presentation at departmental meetings to educate faculty. This will inform how best individuals can best participative

come and give a seminar in our department! Most faculty do not know much about sustainability efforts sadly.

provide money for research

What you have listed as "sustainability" is not what I was thinking when I began this survey. For that reason I think communication about efforts and how faculty get involved would be helpful. (Though I'm sure this exists, but some may not be aware.)

More information about ways to participate

More expressed emphasis and University level

Again sustainability is really a broad term. In terms of research? Energy saving on campus? or what?

Allow for faculty input

More visibility, maybe visiting fac/staff meetings and organizing campaigns and other events involving faculty

Funds for undergrad research and extension and teaching assistance; high profile seminar series; annual or more frequent workshops for faculty and graduate students; funds and services support for grant seeking re sustainability topics; university wide curriculum on sustainability;

No suggestions

awareness; recognition related to job function

A better explanation of what sustainability means would help

Not sure

I think this survey implies that NCSU is not interested in sustainability, and probably that one of our core mission areas (agriculture) is inherently not sustainable. I disagree. Good agricultural practice and sustainability go hand in hand and those of us who work in this area are very aware of this. Apparently, one area that needs strengthening at NCSU is getting this message out.

How are you defining sustainability in this survey?

more information about existing efforts/programs

I don't really know, this doesn't seem like it is part of my day to day job

Increase awareness, give examples of how faculty are involved, impact on students and environment, etc...

no suggestions - not important

for teaching faculty: small implementation grants and opportunities

Faculty need to know more about it.

I already find it very high.

Facult-based activities without heavy-handed administrative control

no insights

I think debunking the myths about nuclear energy would be a very good start, too many

people fear it needlessly

grants and other incentives

have colleges actually try to manage land sustainably and fund themselves off of the return

Invitations to events, such as a "fair" for faculty

more awareness

No suggestions: this initiative is NOT the job of faculty.

Provide a clear, not loaded with buzz words, definition with illustrations, of what you mean by sustainability at NCSU. Many people like concrete definitions and examples for making decisions

make it part of annual report

1. Define sustainability. 2. Help interpret it in the contexts of various research/teaching/extension domains 3. Provide incentives to foster interest/activities in sustainability: explicit role in reappointment/promotion/tenure, and financial support: grants.

list serve or equivalent, success stories, Admin buy-in and support.

Seminars with strategies presented to key faculty. Engaging on campus centers to help with messaging

reduce various admin duties and redirect them towards sustainability efforts

Make it practical and concrete actions, not pointless meetings about initiatives and branding and strategic planning

provide funding for research projects

engaging seminars on interesting/relevant topics - grad student funding focused on sustainability

provide webinars and workshops

Sustainability has many faces and outcomes...many of them are not sustainable, but use the term to gain access or notice

add extension

Cash

Sustainability Center

time

Funded Faculty Center for Sustainability