

# Towards Greening Decisions on the University Campus: Initiatives, Importance and Barriers

Olaoluwa P. AASA<sup>1</sup>, Olalekan Aquila JESULEYE<sup>2</sup> and Modupe Olayinka AJAYI<sup>3</sup>

<sup>1</sup>Graduate Student, Department of Project Management Technology, Federal University of Technology, Akure, Ondo State, NIGERIA

<sup>2</sup>Senior Lecturer, Department of Project Management Technology, Federal University of Technology, Akure, Ondo State, NIGERIA

<sup>3</sup>Senior Lecturer, Department of Project Management Technology, Federal University of Technology, Akure, Ondo State, NIGERIA

<sup>1</sup>Corresponding Author: opaasa@futa.edu.ng

## ABSTRACT

Universities as ‘small worlds’ are veritable places for promoting environmental friendly activities; being breeding grounds for future decision makers. They are characterized by activities that negatively influence our environment which are in three areas which are: energy usage, waste generation and transportation. This study utilized both exploratory and survey designs to investigate the initiatives relating to training, research, campus operation and community service, their importance and barriers to effective implementation in The Federal University of Technology, Akure, Nigeria. The study found that implementing these initiatives has benefits associate with cost saving, employability, public image, quality assurance, and societal change. More than 70 percent of the respondents believed that implementing greening initiatives is very important. The study also revealed individual and institutional barriers in the achievement of this result. The most severe ones include: inadequate and sustainable awareness, ineffective policy, lack of knowledge and skills to handle relevant technology for greening. The study suggested that management should provide supports in the areas of policy-making and implementation, budgetary allocation and motivational structure to lead the way in the comity of universities.

**Keywords**— Greening Initiatives, University Stakeholders, Training, Research, Campus Operation, Community Services

## I. INTRODUCTION

Man’s activities relating to where he lives, works and his movement from place to place, consumption as well as the usage of technologies, all determines environmental impact in a city [1]. The protection of our environment against these factors is the duty for all. As the old generations are working unitedly to achieve sustaining ability of the earth, the succeeding ones should also supposed live responsibly. This is the “Principle of Intergenerational Equity” - hold the natural and cultural

environment of the earth in common both with present and future generations [2], [3]. It is for this reason that the United Nations (UN) observed the Decade of Education for Sustainable Development (ESD).

In the pursuance of this goal, [4] stated that educational institutions at all levels can shape the world of tomorrow, equipping individuals and societies with the skills, perspectives, knowledge and value to live and work in a sustainable manner. That is, seeking to balance human and economic well-being with cultural tradition and respect for the earth’s natural resources should be the focus of tertiary institutions for developing the required behavior towards sustaining ability of the earth. Educational institutions are instruments for bringing about a change. It is very important for any individual's success in life. It provides skills that prepare an individual physically, mentally and socially confident to solve many problems in the society [5]. ‘We need a major public education effort. Understanding of these challenges we face is alarmingly low. Corporations and consumers alike need to recognize that their choices can have significant consequences. Schools and civil society groups have a crucial role to play’ [6].

Greening of Higher Education according to [7] is “the process of reducing the multitude of on and off-site environmental impacts resulting from campus decisions and activities, as well as raising environmental awareness with human communities of college or university. By implementing greening initiatives, higher educational institutions can teach and demonstrate the principles of awareness and stewardship of the natural world, as well as increasing chances of clean and pleasant local and global environments for the future [8]. Therefore, it will not be out of place if the stakeholders are equipped to take up the challenge of protecting their future through learning within the four walls of their campus, creating awareness among themselves and implementing greening initiatives.

Greening initiatives is not completely alien to the university settings. They are usually part of staff, students

and support service providers' daily life, though many of them are not aware they can contribute to greening. There are a number of activities such as the use of energy saving bulb, solar street lighting and electronic test in place of paper test, etc. within a university campus, which are foundational for a widespread acceptability of more elaborate greening initiatives within the campus especially among staff and students. However, this has witnessed setbacks, which could be alluded to low awareness on environmental management issues. Reference [9] found in their study that there is relatively low level of awareness on greening among staff of educational organs. Reference [10] noted that attitudes are related to behavior, and actions. People who have environmental awareness are environmentally conscious and are the ones who carry out activities that reduce the incidence of negative results on the environment. There is paucity of research outputs on the identification of these initiatives especially on university campuses in Nigeria. It is therefore, imperative to identify existing greening initiatives with a view to instigating actions towards their implementation by stakeholders for improved environmental management.

## II. REVIEW OF LITERATURE

### *Concept of Greening in the Context of University*

Greening of Higher Education, as defined in the introductory section, is the "process of reducing the multitude of on and off-site environmental impacts resulting from campus decisions and activities, as well as raising environmental awareness with human communities of college or university." A sustainable or green campus is hooked on the collaboration of campus users (students, employees and a lot of visitors.) who must be willing to change their behavior to achieve the goal of any institution in this area. At the same time, sustainable solutions on campus can influence the behavior of these users outside the campus – at home or at their other employer's offices – now and in the future [10].

Since sustainability or greening on university campus has mainly focused on environmental management of campuses, [11] observed that green universities among other things must:

- seeks to abate its consumption of resources by putting in place measures to conserve water, energy and paper, etc;
- cuts waste output through a process of reducing consumption and *reusing* materials via *recycling* where possible;
- makes purchasing decisions based on knowledge of the environmental and social impacts of the product, e.g. paper manufactured from sustainably managed forests;
- encourage environmentally preferred transport options such as car-pooling, bicycle facilities, public transport

facilities and staff incentives to discourage car-based travel engages staff and students and supports them to continually improve environmental practices and reduce their negative environmental impacts;

- ensures that any maintenance and construction is carried out to minimize environmental impacts and constantly improves the environmental performance of the university facilities; and
- makes decisions about financial investments and research with consideration given to the social and environmental implications of those decisions.

Universities are human capital development centres. They interact with the world around them in four major areas through which greening initiatives can be promoted. These include: learning/training, research and community engagement which are often referred to as traditional threefold mission while the fourth, campus operation provides support and enabling conditions for the others [13].

### *Institutional Approach to Environmental Management*

Institution theory was first alluded by Selznick in 1948 when he wrote on 'Foundations of the theory of organization' [14]. Reference [15] has explained institutional theory as a "theoretical framework for analyzing social (particularly organizational) phenomena, which views the social world as significantly comprised of institutions – enduring rules, practices, and structures that set conditions on action". Elucidating further, it was observed that *institutions* are basic to the explanation of the social world because they are built into the social order and direct the flow of social life. *Institutions* are rules – the preset patterns of conduct that are generally accepted by individuals in a society [16]. Rules can take informal form, that is, norms, habits and customs, or formal form, that is, written laws, regulations and standards. Whether informal or formal rules, stakeholders in organizations must act in tandem with the rules set out in institutions by devising strategies to survive or win in the society [17].

The theory focuses on the relationship between organizational behaviors and institutional pressures. Stakeholders play a critical role in this relation since they elevate concern about issues to a level at which organizations feel such pressures [18]. Timely response or conformance to institutional pressures to gain legitimacy may be a predicate for enhancing the organization's survival [18], [20]. Legitimacy here means the belief that certain behaviors or practices are something everyone in the environment should be involved [20]. Notwithstanding the pressure on the organizations, they must conform to norms of practices and policies that are *isomorphic* within the environment in which they operate. Isomorphism according to [20] can be explained as the process by which organizations begin to modify their organizational characteristics to conform with others to increase

compatibility with environmental characteristics. When organizations adopt practices that are legitimate to the environment, isomorphism is achieved and survival is often possible and they can compete with others in the industry. The following are different kinds or types of isomorphic drivers in institutional theory as highlighted in the literature [14]-[15], [21]-[22].

- a) Coercive isomorphism originates from the necessity of the organization to follow legal rules in order to achieve legitimacy.
- b) Mimetic isomorphism resulting from the phenomenon of the organizations copying each other because they have no means to cope with environmental uncertainty;
- c) Normative isomorphism resulting from an organization being obligated to adopt patterned behaviors institutionalized by the authorities.

Institutional theory has gained wide acceptance and usage in environmental practices research when considering cross-industry and cross-country comparisons. Reference [23] is of the view that the time when firms could solely base their organizational policy on economic criteria (or other specific course) in order to ensure their long-term existence is now of the past. Nowadays they face several pressures from their stakeholders (who are relevant to the organization’s existence) which include the environmental protection.

### III. METHODOLOGY

Observations and secondary sources are the exploratory tools used for identifying greening initiatives in the Federal University of Technology, Akure, Nigeria while the study also rely on survey design for collecting data on the importance of promoting these initiatives on the university campus and examining the barriers in their effective implementation. The population of the study include the major stakeholders on the campus, which include students, members of staff and commercial service providers. A sample size of 386 derived using [24] table and proportionately distributed among the respondents as shown in Table 1, were selected from a population of 21,512. The method of data collection and analysis are presented in Table II. The study relied on observations/personal log of the researchers and the opinion from three hundred and thirty (330) useful responses retrieved out of the expected 386. This represents 85.5 percent response rate.

Table 1: Population and sample size

Stakeholders	Population	Proportion	Sample Size
Students	19, 141	0.890	335
Staff (Academic Staff & Non-academic)	2,321	0.110	41

Commercial service providers	50	0.002	1 (10)
<b>Total</b>	21, 512	1.000	377 (386)

Table 2: Method of data collection and analysis

S/N	Objective	Method of data collection	Method of Analysis
1	Investigate greening initiatives on FUTA campus	Participant observations/ Personal log	Listing and Tabulation
2	Evaluate the importance of promoting greening on university campus; and	Close ended questions	Frequency and Percent distribution
3	Examine possible barriers to elaborate implementation of campus greening	Open ended questions	Quantitative data coding

### IV. RESULTS AND DISCUSSION

This section is devoted presenting results and discussion of findings in relation to the identification of greening initiatives on FUTA campus, highlight of importance of promoting greening on university campus and possible barriers to institution-wide implementation of campus greening.

#### Greening Practices on FUTA Campus

There are currently some activities on FUTA campus that shows some level of practices of greening. Though they may seem to be visible to an observer who is inclined to environmental protection, the level of commitment by the stakeholders show some laxity to indicate that individual or individuals involved are not probably aware of their contribution to greening and sometimes are not aware of the need to protect the environment.

Some practices within FUTA campus have been identified to contribute to reduction of environmental footprint. They have been classified based on functional areas of university system.

- a. *Training* – Introduction of courses that are environmental related (Ecotourism and Wildlife Management, Meteorology and Climate Science, Environmental Biology, etc.) Inclusion of Environmental Impact Analysis as part of programme content, Computer Based Test during semester tests and examinations and Post-UTME, Electronic Board and use of projector for teaching instead of printing

materials for students, sending of softcopy of teaching materials to students through electronic medium such as email, WhatsApp, and other social media, provision of internet facilities around the campus for easy access to internet materials which reduce visit to the University Library for consultation of books, soft copy submission of students thesis, etc.

- b. *Research* – Related initiatives include organizing of conferences and annual lectures with themes relating to greening, academia publications in the subject area, etc.
- c. *Campus operation* – internal communication among staff and student using electronic medium (email-every member of staff and student have institutionalized email accounts), inclusion of soft copy back-up of documents needed at school and university level, use of solar street lighting system, departmental/unit/directorate/centre use of stand-alone inverter as source of electricity, switching off of electrical and electronic appliances in offices, hostels and staff quarters when not in use, using of energy saving appliances like electric bulb, front and back printing when there is need to print, reprinting on used paper especially when document is to be used internally, etc.
- d. *Community services* – All the initiatives above are ways of contributing to the sustainability of the environment which communities around FUTA benefit from. However, members of larger community are also invited for programmes on campus such as annual conferences and lectures where issues on environment are discussed even as the institution has a radio station, FUTA FM located on 94.1 frequency where immediate and larger community can be engaged.

Table 3 summaries some greening initiatives with respect to waste management, efficient energy usage and eco-friendly commuting on the university campus. However, the initiatives in italics currently have limited usage.

Table 3: Greening initiatives on FUTA Campus

<b>Efficient Transport</b>	<b>Power/Energy saving</b>	<b>Resource saving or waste management</b>
<i>Carpooling or taking public or mass transit to/from FUTA campus</i>	Using energy saving bulb and other devices	<i>The use Internet/TV instead of purchase daily newspaper</i>
<i>Telecommuting or working from home as part of working day</i>	Switching off electronics and appliances when not in use	Repaired or reused of items or gadget instead of throwing them away

<i>Video and/or web conferencing</i>	<i>Turning off lights, electrical and electronics when not in use</i>	<i>Eating at fast-food restaurants or buying with personal plate rather than using take-away</i>
Walking within the campus especially short distances	<i>Using only essential electrical appliances when there is light</i>	Printing double-sided
		<i>Recycle or reuse of paper or any other materials</i>
		The use of soft copy documents rather printed copy when appropriate
		<i>Soft copy documentation</i>

**Importance of Universities Advancing Greening Society**

Given the environmental challenges, the respondents for the study were asked to rate the importance of implementing greening project. Their responses presented in Table 4 shows that more than 70 percent (71.2 percent) believed that, doing so is ‘very important’, 18.8 percent stated that, it is somewhat important while 2.7 percent and 0.9 percent indicated, ‘of little importance’ and ‘not important at all’ respectively though 6.7 percent were not sure of the importance. Researchers such as [13], [25]-[27] at different times have identified various reasons why institutions of learning should promote environmental management initiatives among which are:

- i. **Cost savings:** Cost reduction strategy in an era of low subvention from the government can be significant from implementing environmental measures such as policies or technologies;
- ii. **Employability:** Graduating students will have the sustainability knowledge, skills and confidence to utilize in their future employment, consumption decisions, lifestyle choices, thereby improving the communities in which they live;
- iii. **Moral obligation:** Giving credence to the historical role of higher education in the provision solution to societal issues, and serving as model of a larger world, they have the moral obligation to behave responsibly by implementing environmental measures which ensure that natural resources are used sustainably, thus minimizing its adverse environmental impacts;

- iv. Public Image: Enhancement of public image and attraction of students, faculty and sponsors especially in an International context;
- v. Quality assurance: Achievement of academic excellence through engagement is; by bridging the gap between sustainability theory and practice, students’ rate of learning increases and employee morale and productivity is enhanced. For instance, Psychologists say that students retain 80 % of what they do as opposed to 10-20 % of what they hear and read. Therefore, the process of education must emphasize active, experimental learning and real-world problem solving on the campus and in the larger community;
- vi. Regulatory framework and strategic policy implementation: By voluntarily adopting some form of greening strategy, the university will be working in accordance within the regulatory framework of the national government and also implementing university environmental management strategic policy;
- vii. Research funding: Increasingly funding agencies expect higher education to deal with sustainable development in their research; and
- viii. Societal change: It is a drive towards massive *societal change*; being an important leverage point for change, universities can be *model* for society how an organization committed to sustainability ought to operate [13], [26], [27].

Since the study is meant to motivate stakeholders to be part of environmental management, the interest of respondents was sought on their readiness to the part of the exercise. Many of the members of staff, students and commercial service providers (67.0 percent) showed interest in promoting greening initiatives on FUTA campus even as few of them (33.0 percent) seems not to be ready yet (Table 4). Since any initiatives that have been drawn in applying the greening practices must come with the management actions to make it a reality, [28] noted that the approach and instructions of top management in public agencies might have a significant influence on the compliance behavior of staff and other stakeholders.

**Promoting Greening Initiative on FUTA Campus**

Since the study is meant to motivate stakeholders to be part of promoting environmental management, the interest of respondents was sought on their readiness to the part of the exercise. Many of the members of staff, students and commercial service providers (67.0 percent) showed interest in promoting greening initiatives on FUTA campus even as few of them (33.0 percent) seems not to be ready yet (Table 4). Musa, Buniamin, Johari, Ahmad, Abdul Rauf and Abdul Rashid (2013) noted that since any initiatives that have been drawn in applying the greening practices must come with the management actions to make

it a reality, the approach and instructions of top management in public agencies might have a significant influence on the compliance behaviour of staff and other stakeholders.

Table 4: Implementing greening project

<b>Importance of importance of implementing greening project</b>		
Very important	235	71.2
Somewhat important	61	18.5
Neutral	22	6.7
Of little importance	9	2.7
Not important at all	3	.9
<b>Total</b>	<b>330</b>	<b>100.0</b>
<b>Promoting green initiative on FUTA campus</b>		
No, thanks	109	33.0
Yes, I can devote time	221	67.0
<b>Total</b>	<b>330</b>	<b>100.0</b>

**Barriers in the Implementation of Campus Greening**

This objective aimed at identifying barriers in the implementation of greening project in the study area. Respondents highlighted several barriers which has been classified under ten categories. The result presented in Table 5 shows that the most likely prevalent barrier is lack of adequate and sustainable awareness creation (35.4 percent). 20.8 percent of the respondents were also of the opinion that lack of proper education on the benefits of greening project/ effect of neglecting environmental protection can result into lack of success. However, lack of common ground of acceptability was noted by 10.4 percent just as 8.3 percent of respondents see high cost of putting necessary logistics in place as barrier. A popular axiom says that, “Failing to plan, will lead to planning for failure”. 8.3 percent of the respondent observed that inadequate planning and poor management skills will augur failure. If policy on greening is not very effective, greening of the campus can be a mirage. This was the opinion of 6.3 percent of the respondents. Other barriers noted by the respondents include: lack of skills to handle some technologies involved (4.2 percent), inadequate provision of infrastructures to encourage campus greening (e.g. workways) (2.1 percent), inappropriate application of knowledge and technology (both modern and efficient) (2.1 percent) and poor maintenance of existing infrastructure needed for the implementation (2.1 percent). This finding supports some existing literature. While [8] found budgetary constraints, lack of knowledge concerning how greening initiatives can save costs as well as an institutional reluctance to change, [29] foresee human behaviour, including politics to be a bigger stumbling block than a lack of technological advances.

Positive change is sometimes difficult to implement, especially when human beings are involved due

to their resistance to change. This is also applicable to the implementation of green initiatives in a setting where such is alien. The time required to set goals, plan, train and keep people who are of different opinions and backgrounds informed is complex and time consuming. Other barriers identified by [8], [13] are as follows:

- a) Disciplinary organizational structure hindering integrative thinking and interdisciplinary cooperation and learning is perceived as an “add-on”, not a built-in aspect of higher education.
- b) Lack of vision and prioritization/leadership of SD among higher education leaders.
- c) Perceived lack of scientific basis of sustainability
- d) Broadness of scope
- e) Lack of coordination and vision to change sustainability policies and education at government level
- f) Overcrowded curricula-Sustainability is considered to have little or no relevance to the discipline, its courses and research
- g) Financial – the lack of financial resources to acquire new technologies, and new ways of doing things.
- h) Cultural – a non-environmental attitude prevailing at campus.

Table 5: Barriers to campus greening

Barriers	Frequency	Percentage
Lack of adequate and sustainable awareness creation	17	35.4
Lack of proper education on the benefits of greening project/ effect of neglecting environmental protection	10	20.8
Lack of common ground of acceptability	5	10.4
High cost of implementation	4	8.3
Inadequate planning and poor management skills	4	8.3
Absence of effective policy	3	6.3
Lack of skills to handle some technologies involved	2	4.2
Inadequate provision of infrastructures to encourage campus greening (e.g. workways)	1	2.1
Inappropriate application of knowledge and	1	2.1

technology (both modern and efficient)		
Poor maintenance of existing infrastructure needed for the implementation	1	2.1
N	48	100.0

## V. CONCLUSION

The institution under study has greening initiatives relating to training, research, campus operation and community service in place. They are associated with efficient transport, power/energy saving and resource saving/waste management. These can be strengthened by the management supports in the areas of policy making and implementation, budgetary allocation and motivational structure to lead the way in the comity of universities and reap the identified benefits in the study. As a starting point, there must be awareness creation to develop a reservoir of knowledge on what greening is, its benefits to individuals and the institution. This is required for acceptance by all stakeholders.

## REFERENCES

- [1] Olaleye, D. O. (2013). Community greening in pre and post climate change knowledge era in third world cities: Case study of Lagos, Nigeria. *Civil and Environmental Research*, 3(7), 1-10.
- [2] Weiss, E. B. (1992). *Intergenerational equity: A legal framework for global environmental change*. Chapter 12 in Environmental change and international law: New challenges and dimensions, Edited by Edith Brown Weiss. Tokyo: United Nations University Press.
- [3] Spijkers, O. (2018). Intergenerational equity and the Sustainable Development Goals. *Sustainability*, 10, 3836. DOI: 10.3390/su10113836, 2018.
- [4] Palmer, F. M. (2013). Education for sustainable development: The role of tertiary institutions in Nigeria. *Academic Journal of Interdisciplinary Studies*, 2(3), 303-306.
- [5] Jadhav, A. S. Jadhav, V. V., & Raut, P. D. (2014). Role of higher education institutions in environmental conservation and sustainable development: A case study of Shivaji University, Maharashtra, India. *Journal of Environment and Earth Science*, 4(5), 30-34.
- [6] Annan, K. (2000, June 2). *Remarks on the occasion of World Environment Day*. New York.
- [7] Creighton, S. H. (2000). Greening the Ivory tower: Improving the environmental track record of universities, colleges and other institutions. *Interdisciplinary Studies in Literature and Environment*, 7(1), 240-241.

- [8] Dahle, M. & Neumayer, E. (2001). Overcoming barriers to campus greening: A survey among higher educational institutions in London, UK. *International Journal of Sustainability in Higher Education*, 2(2), 139-160.
- [9] Oyelude, A. A. & Alabi, A. O. (2013). Greening: pluses and minuses of Nigerian libraries in promoting environmental sustainability. *IFLA WLIC*. Available at: <http://creativecommons.org/licenses/by/3.0/>.
- [10] Raderbauer, M. (2011). *The importance of sustainable business practices in the Viennese*. Published Master's Thesis. University of Exeter.
- [11] Heijer, A. Teeuw, P., & Aalbers, K. (2010). Towards a sustainable campus visions for the future of higher education. In *Proceedings of Knowledge Collaboration & Learning for Sustainable Innovation ERSCP-EMSU Conference, Delft, The Netherlands*, October 25-29.
- [12] Ian, T. (2006). Education for sustainability – Sustainability and universities. In *Encyclopedia of Life Support Systems (EOLSS)*. Available at: <http://www.eolss.net/Eolss-sampleAllChapter.aspx>.
- [13] Waas, T. Hugé, J. Ceulemans, K. Lambrechts, W. Vandenebeele, J. Lozano, R., & Wright, T. (2012). *Sustainable higher education – Understanding and moving forward*. Flemish Government – Environment, Nature and Energy Department, Brussels.
- [14] Chen, L. (2015). *Sustainability and company performance: Evidence from the manufacturing industry*. (Published PhD. Dissertation). Linköping Studies in Science and Technology, Dissertations, No. 1698. Linköping, Sweden: LiU-Tryck.
- [15] Lawrence, T. B. & Shadnam, M. (2008). Institutional theory. In *International Encyclopedia of Communication*. (5<sup>th</sup> ed.). W. Donsbach, pp. 2288-2292.
- [16] Rutherford, M. (1996). *Institutions in economics: The old and the new institutionalism*. Available at: <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-6435.1997.tb02807.x>.
- [17] Rowe, A. L. & Wehrmeyer, W. (2001). Why does the talk of positive environmental values not match the walk of environmental accountability in Shanghai? In *Proceedings of The Third Asian Pacific Interdisciplinary Research in Accounting Conference, Adelaide*, July, 15-17.
- [18] Greening, D. & Gray, B. (1994). Testing a model of organizational response to social and political issues. *Academy of Management Journal*, 37(3), 467–498.
- [19] Meyer, J. W. & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83, 340–363.
- [20] Chai, H. L., Nabsiah, A. W., & Yen, N. G. (2013). Perceived drivers of green practices adoption: a conceptual framework. *The Journal of Applied Business Research*, 29(2), 351-360.
- [21] Ricardo, C. G. & Luciana de Oliveira, M. G. (2007). *Proposing a theoretical framework to investigate the relationships between an organization and its environment*. Available at: <https://www.scielo.br/pdf/rac/v11n1/a04v11n1.pdf>.
- [22] Qi, D. & Ji, S. (2015). Organizational green IT adoption: Concept and evidence. *Sustainability*, 7, 16737–16755.
- [23] Lopez, R. S. (2006). *The reasons and means for implementing green marketing strategies: A theoretical approach*. Available at: [http://ibdigital.uib.cat/greenstone/collect/memoriesUIB/index/assoc/Lopez\\_Ro.dir/Lopez\\_Rodriguez\\_Sofia.pdf](http://ibdigital.uib.cat/greenstone/collect/memoriesUIB/index/assoc/Lopez_Ro.dir/Lopez_Rodriguez_Sofia.pdf).
- [24] Krejcie R. V. & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*. 30, 607-610.
- [25] Sahoo, M. M. & Mishra, S. K. (2013). Green Campus - A Competitive advantage and sustainability for management institutions. *Driems Business Review*, 1(1), 74-80.
- [26] Togo, M. & Lotz-Sisitka, H. (2009). *Unit based sustainability assessment tool*. A resource book to complement the UNEP Mainstreaming Environment and Sustainability in African Universities Partnership. Howick, Share-Net.
- [27] Mruszczuk, A. Polido, F., Rey López, Skelton, J. A. K. Virta, A., & Wagner, F. (2009). *Towards a sustainable university green paper for the University of Jyväskylä*. (Project work). University of Jyväskylä, Finland.
- [28] Musa, N. D. Buniamim, S. Johari, N. H., Ahmad, N. Abdul Rauf, F. H., & Abdul Rashid, A. (2013). Key indicators towards the implementation of green government procurement in Malaysia. In *Proceedings Book of ICEFMO, 2013, Malaysia Handbook on the Economic, Finance and Management*, pp. 643-652.
- [29] Ramesh, K. (2017). Awareness about green campus opportunities amongst the educational institutions of north Karnataka. *International Journal of Commerce and Management Research*, 3(3), 79-82.