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Awareness about green campus opportunities amongst the educational institutions of north Karnataka

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Abstract
We are in the era of sustainable development and application of green concept in all most all facets of management and life, e.g Green banking, Green Marketing, Green Building, Green hospitals and so on and so forth. Now focus is on green campuses. Institutions have long been agents of change – catalysts for social and political action as well as centres of learning. Institutions not only educate most of the leaders, decision-makers, teachers and advance the but as major employers and consumers of goods and services. They play a significant economic role nationally and globally. Education has been described as humanity's best hope and most effective means in the quest to achieve sustainable development. In this context, Institutions have a special responsibility to help define and also to *exemplify* best practice. The government of India is promoting green campus concept in education sector through its new policy via UGC.
The University Grants Commission (UGC) has asked all educational institutions to develop green campuses in a bid to promote the idea. As per a circular dated March 10, the UGC has asked Institution officials to send proposals under the Development of Solar Cities programme. The project, under the ministry of new and renewable energy, aims at a minimum reduction of at least 10% in the projected demand for conventional energy at the end of five years, read the circular. This will be done once colleges are shortlisted following which energy efficient measures will be implemented on the campus (1). As per the plan, measures such as an energy-efficient street lighting system with proper control, low-energy fixtures, energy-efficient pumping system, energy-efficient motors and use of star-rated equipment will be implemented at the institutes included in the list of green campuses. Whereas implementation of this new scheme or an attempt to go green is not that simple to accomplish. The conversion poses lot of challenges and issues. Few of them being, water, waste, transportation, building and infrastructure etc. each of which are discussed in this paper with an objective to identify the allied opportunities and challenges for green campuses.

Keywords: green, sustainability, campus

Introduction
We are in the era of sustainable development and application of green concept in all most all facets of management and life, e.g. Green banking, Green Marketing, Green Building, Green hospitals and so on and so forth. Now focus is on green campuses. The steady growth of higher education in both the developed and the developing world has created a surge of competing priorities, of which sustainability is one of the more recent. The most successful green campus initiatives are those which acknowledge these shifting priorities and welcome the emerging opportunities which growth and development can generate. Education has been described as humanity's best hope and most effective means in the quest to achieve sustainable development. In this context, Institutions have a special responsibility to help define and also to exemplify green campuses.

What is green Campus?
There are several principles that frequently reoccur in definitions of Green campus such as protecting the environment, lowering operating costs, improving the health and quality of the learning environment, and integrating learning opportunities with the built environment. Necessarily an ideal green campus would aim at achieving the following standards.

Energy Efficiency
With considerable reduction in operational cost and reduction of environmental impact, energy efficiency should be the first consideration for any Green Institution.

Promoting Environmental
By engaging and educating students and employees about conserving natural resources and reducing wastage, environmental promotion has to be achieved

Financial
A green Institution (depending on the green features pursued) can add 5% to 10% to the initial cost. This scale of incremental cost can be quickly recovered from lower operating costs that will continue over the life of the building.

Demonstrating Environmental
Through building Green campuses for Institutions is a tangible way for the education sector to show what can and is being done with respect to: Energy conservation, Reducing greenhouse gas and smog emissions, reducing water use and improving water quality, diverting material from landfill, saving topsoil and native species habitat, and promoting active transportation.

Supporting Student
Green Institution can support student achievement in three ways:
1. They can save money from operations that can be redirected to the classroom.

2. They can provide teaching environment that are more conducive to learning through improvements in acoustics, lighting, temperature, and air quality.
3. They can engage and inspire students by demonstrating both simple and complex ways to bring about innovation and change. Going green not only needs investment in terms of money and as well as a strong will from the management, employees and the beneficiaries.

In an effort to promote the green campus concept in the Institutions across the country, the Institution Grants Commission (UGC) has asked all the educational institutions to develop green campuses. In a circular on March 10, it has asked Institution officials to send the required proposals under the Development of Solar cities program (2). The project under the ministry of new and renewable energy aims at minimum 10% reduction in projected demand of conventional energy at the end of five years, said the circular. This will be done once colleges are shortlisted following which energy efficient measures will be implemented on the campus.

According to the circular, as per the plan, measures such as energy-efficient street lighting system with proper control, low-energy fixtures, energy-efficient pumping system, energy-efficient motors and use of energy star rating equipment will be carried out on the educational institutes campuses to be included in the list of green campus.

Urbanization and economic development are leading to a rapid rise in energy demand in urban areas of our country leading to enhanced Green House Gas (GHG) emissions. Many cities around the world are setting targets and introducing polices to promote renewable energy and reducing GHG emissions. Accordingly, the Central ministry of new and renewable energy (MNRE) has taken initiatives to develop green campuses under Development of Solar Cities programme which aims at minimum 10% reduction in projected demand of conventional energy at the end of five years, read the circular. The circular has asked all vice-chancellors to become partners in the noble cause and send in their proposals as per the guidelines of the programme mentioned in the MNRE. Additionally, an awareness workshop will also be organized on the campus regarding renewable energy applications and initiating suitable measures for energy conservation and energy efficiency, it said.

This initiative from UGC has opened up a huge opportunity for all the educational institutions coming under UGC of the state and country to adopt to green campus concept become green campuses, utilising the grant from UGC through proper applications

Few of the renowned Institutions in the country being, AIMS and Ettimadai campus, JNTU College OF Engineering, Hyderabad, Goa University, Sobhasaria Group of Institutions, Rajasthan, National Institute of Technical Teachers Training and Research, Bhopal, Punjabi University, Patiala, Nilachal Polytechnic, Bhubaneswar, IIT, Madras, IBS, OU etc have already established green campuses.

Objectives of the study

Having this background, need is felt to study the green initiation with the following objectives

- To study the level of awareness about Green campus amon Green Campus the Management members of Higher educational Institutions
- To study the level of awareness about Green campus amongst the people working with Higher educational Institutions

Having these objectives an attempt is made here to identify the level of awareness about green campus in Indian context with a focus on institutions of North Karnataka. The following paragraphs summarises the study.

Methodology

Descriptive data analysis techniques are employed to analyse the data collected from the primary sources by doing a sample survey of Institutes in the town.

Instrument

A questionnaire is designed having 20 questions exploring the awareness about the Green Campus concepts among the educational institutes under study. Then the questionnaires were filled by the researcher through a close interaction with the Management members, Principals and teachers of the institutes

Sample

A sample of 40 Colleges has been chosen from the Districts of North Karnataka. The questionnaire was instrumented on a sample of 40 imparting education in the cities of North Karnataka by adopting convenient sampling method.

Analysis

The responses are further captured into printed questionnaires and the required primary data has been extracted from it using coding and tabulation techniques. The quantitative data analysis has been done using SPSS package is applied to explore and identify the awareness and preparedness about Green campuses, the perception of Institutes towards the new infrastructure. Further data analysis tools like averages, percentages, graphs such as bar, pie-charts and Chisqare are worked out to assess the awareness about green campus.

Analysis and Findings

An elementary descriptive analysis is made here to assess and explore the factors restricting the online buying decision of students. The analysis of the data flows into two parts, in the first exploring the demographic information of the Institutes and in the second part the awareness about the GREEN CAMPUS among the Institutes will be analysed using descriptive analysis. Table-1 is prepared to describe demographic information of the respondents. The respondents under study were chosen from North Karnataka on convenience sampling basis. Care has been taken to identify the educational Institutes for the study. The questionnaire was self-administered by the researcher by a closed interaction with the Institutes under study.

From Table-1 it is clear that, 65% of the Institutes are aware of green campus and hence the status of green campus is showing fair percentage awareness about green campus among the Institutes. Thus our first objective is fulfilled to verify whether the Institutes are aware of this new tax reforms.

In the second part of analysis the Table-2 given below summarises various sources identified in the study through which the respondents have got awareness about the new tax.

Table 1: Demographic information of Respondents

Demographic items		No of Respondents				Percentage
No of Respondents		40				
Sex	Male	32				80
	Female	08				20
		Fully Aware	**Partially Aware**	**Not Aware**	**Total**	
Student Strength	Upto 200	2	1	3	6	15
	200-500	2	0	2	4	10
	500-1000	3	5	3	11	27
	1000-2000	1	6	6	13	33
	2000 and above	0	4	2	6	15
	Total	8	16	16	40	
Type of Course	PU	9	1	0	10	25
	UG	3	8	7	18	45
	PG	1	7	2	10	25
	Res	0	1	1	2	5
	Total	13	17	10	40	
Discipline	General	6	8	6	20	50
	Engineering & Medical	1	3	2	6	15
	Job Oriented	1	0	2	4	10
	Management	3	2	1	8	20
	Others	0	0	2	2	5
	Total	08	16	16	40	

***Source*:** Authors own findings

Table 2: Awareness about UGC funding for the development of Green Campus

	Management Members				Teachers			
Institutes	**Not Aware**	**Partially Aware**	**Fully Aware**	**Total**	**Not Aware**	**Partially Aware**	**Fully Aware**	**Total**
General Degree	13	06	01	20	01	06	13	20
Engineering & Medical	01	00	05	06	01	00	05	06
Management	02	02	04	08	02	02	04	08
Job Oriented	04	00	00	04	00	00	04	04
Others	02	00	00	02	00	00	02	02
Total	22	08	10	40	4	08	28	40

***Source*:** Authors own findings

Table 3: Awareness about Green Campus concepts among the respondents

Green Concepts	Not Aware	Partially Aware	Fully Aware	Total	Chi-square	p-vlue
Recycling of Water	13 (32.5%)	09 (22.5%)	18 (45%)	40	3.050	0.218
Rain Water Harvesting	13 (32.5%)	21 (52.5%)	06 (15%)	40	3.050	0.218
Renewable Energy	13 (32.5%)	17 (22.5%)	10 (25%)	40	1.850	0.397
Green Building:	11 (27.5%)	06 (15%)	23 (57.5%)	40	9.80	0.007
Paperless Office:	13 (32.5%)	15 (42.5%)	12 (30%)	40	0.350	0.839
Wifi Campus	12 (30%)	06 (15%)	22 (55%)	40	8.050	0.015
Waste Management	05 (12.5%)	15 (42.5%)	20 (50%)	40	0.50	0.975

***Source*:** Authors own findings

Water Management

From the table 3 above about 67.5% of the respondents opine that they have full awareness about the recycling of water and rain water harvesting concepts. Which resolve water scarcity problems and increases sustainability towards water supply. Water management is quite essential and requires attention for both rain water harvesting and recycling of used water. Thus it is a major issue which all institutions aspiring for green campus should focus on top priority. Depending on location and climate, availability and conservation of adequate supplies of clean drinking water may be the most critical sustainability issue for an Institution. Effective water management can be done by installing sewage water treatment plants, drip pipe lines, recycling of drainage water units, rain water harvesting etc.

Waste Management

From the table 3 above about 50% of the respondents opine that they have awareness about the waste management. The study reveals that, though waste management is well known to the institutions, they have not been able to plan for its disposal. Also, teachers and Management members of the institute opine that, there must be infrastructural development in this regard, to convert the waste into renewable energy by installing bio-energy producing units to improve the sustainaibility of the Institutions. Having a Bio-Gas generating unit will be most ideal as it produces both power and cooking fuel

Renewable Energy

The study reveals that, there is a clear awareness amongst the faculty and management of the educational institutions. Around 70 % of the respondents are aware about renewable

energy. In their interaction they say that, Institutions must possess solar power generating arrangements and co-generation arrangements such as waste to energy converters to be installed in the campus. But due to the cost of procurement almost all the institutions opined that they are not been able to implement such a machinery which would fetch them power. Also aroung 68% of the respondents opined that, power saving electrical equipments must be installed to save power. Around 32% of the institutions expressed that their buildings are old and electrification is also not scientific. They demand rewiring of their electrification and installation of power saving bulbs and equipments.

Green Building

From table-3 it is worth noticeable that, people are aware of the sustainability concepts and Green concepts. Around 74% of the respondents are aware of Green Building concepts. Of course the respondents being educators, opine that the existing infrastructure must be renovated to best suit for a green campus. For all this the main source of funding is management of the educational institutes and which are seldom bothered for such innovations. UGC funding for green campus is a welcome scheme for colleges to apply is the opinion of a majority of teachers interviewed.

Paperless Office

Around 70 % of the respondents are backing for paperless office. In their interaction they say that, Institutions must convert their office procedures and transactions to online and computerised offices to save paper and natural resources. Institutions are largely office-based institutions, and Green Office programs / action plans deal with the sustainability transformation of office practices. The Green Office "mandate" or terms of reference cross over into energy, water, waste, procurement and IT services. The focus is typically on education, training and awareness; the methods may include seminars and online discussion groups, websites, social media, newsletters and other promotion material, events and competitions. Green Offices can be achieved by strict implementation of paperless transactions in the institute. Managements should have will to invariably go for web based admissions, fees, examinations, assessment, results and communication. Which will reduce enormous amount of paper consumption and in turn reduces deforestation? This is a most challenging task. Further specific actions – switching off appliances when not in use, turning off lights in vacant rooms, default double-siding for printing and copying, etc., when implemented Institution-wide may represent considerable monetary savings as well as a significant cumulative reduction in environmental impacts.

Wi-Fi Campus

Around 70 % of the respondents are aware about the advantages of Wi-Fi campus. Today it is IT and internet era. Having WIFI around will help the people to surf net for internet based transactions, payments and ultimately communication. Therefore they advocate that Institutions must possess a Wi-Fi campus. In their interaction they say that, Institutions must convert their campuses to Wi-Fi campuses and transactions to online and computerised offices to save paper and natural resources.

Scope for further Research

Since the study is focuses on exploring the awareness level about the green campus concepts amongst the management and teachers of the educational institutions, it does not cover the investigations such as factors responsible for such an awareness and their interrelations. Also, the sample collection is restricted to only North Karnataka state and the data collected may not be fully representing the institutions of the country. Therefore it necessitates or opens up scope for further research in the area of green campuses.

Conclusion

In the era of globalisation, IT and sustainability, it is evident that, educational institutions have higher responsibility in implementing green concepts. Starting from educating its people, they need to venture into establishing green campuses on top priority. While the opportunities to explore such green possibilities are evident, some questions remain whether the conversion from old conventional campuses to a new green campus is easily accomplished? Institutions face challenges in managing water resources, waste management, Energy, conservation of natural resources, eco-friendly building, reducing carbon monoxide, recycling of bio waste, reduction of paper usage, etc. It is anticipated that human behaviour, including politics, may prove to be a bigger stumbling block than a lack of technological advances. Colleges with a substantial push from their students are anticipated to continue reporting an increased focus on sustainability. Institutions have long been agents of change catalysts for social and political action as well as centres of learning. Institutions not only educate most of the world's leaders, decision makers and teachers and advance the boundaries of knowledge, but as major employers and consumers of goods and services, they play a significant economic role.

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