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### RESEARCH ARTICLE

## PERFORMANCE EVALUATION OF EXISTING FACILITIES MANAGEMENT TO ADOPT SUSTAINABLE AND GREENER PRACTICES IN THE CAMPUS OF UNIVERSITY/INSTITUTE.

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### Abstract

Campus sustainability has become an international issue for university directors & administrators as result of the realization of the effects, the activities and operations of universities have on the environment. Over 300 university presidents and chancellors in over 40 countries have signed the declaration as a commitment to campus sustainability and a handful of them have took on projects and initiatives to include sustainability into their curriculum. But such initiatives are not made by Government of India as it spends huge money of Effective Teaching Learning process and Research in many universities and institutes. Few private and autonomous universities/institutes in India have followed Sustainable and greener practices at their campus as a part of Social Responsibility and beautification. But most of universities/institutes are not aware and motivated to implement effective Environmental Management System for making their campus sustainable and greener. Such scenarios can be seen in most of the institutes in India due to non availability of any guidelines or mandatory provisions by University Grants Commission, All India Council for Technical Education and other bodies of administrations under Ministry of Higher Education, Government of India. The present study was carried out during 2015-16 to evaluate the existing practices being followed by Universities/institutes in Pune, India as well as to conclude with suggestions and measures to implement effective and efficient Sustainable practices for making Greener Campus.

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### Introduction:-

Universities can nowadays be regarded as 'small cities' due to their large size, population, and the various complex activities taking place in campuses, which have some serious direct and indirect impacts on the environment. The environmental pollution and degradation caused by universities in form of energy and material consumption via activities and operations in teaching and research, provision of support services and in residential areas could be considerably reduced by an effective choice of organizational and technical measures. Although many environmental protection measures can be seen at some universities, but a more systematic and sustainable approach to reducing the negative impacts of those activities and making the campuses more sustainable, is generally lacking. Therefore, this project proposes a framework of a more suitable approach to achieving campus sustainability that could remedy the limitations of the current environmental management practices in universities and ensures more sustainability. The problem has also been intensified by the pressure from government environmental protection agencies, sustainability movements, university stakeholders as well as the momentum of other forces including student involvement and NGOs. In 1990, the Talloires Declaration which was an international conference held in France became the first official statement made by university administrators of a dedication to environmental

sustainability in higher education. The declaration is a ten-point action plan for incorporating sustainability and environmental awareness in teaching, research, operations and outreach at Institutes and universities. A sustainable university is defined as a higher educational institution, as a whole, that addresses, involves and promotes, on a regional or a global level, the minimization of negative environmental, economic, societal, and health effects generated in the use of their resources in order to fulfil its functions of teaching, research, outreach and partnership, and stewardship in ways to help society make the transition to sustainable lifestyles<sup>(1)</sup>. A sustainable campus community can be defined as the one that acts upon its local and global responsibilities to protect and enhance the health and well-being of humans and ecosystems. It actively engages the knowledge of the university community to address the ecological and social challenges that we face now and in the future<sup>(2)</sup>. One of the biggest challenges that the universities currently face is to get the society oriented towards the sustainable development through research, education and divulgation activities.<sup>(3)</sup> In order to achieve it is necessary that such institutions include sustainability as an integral part of the institutional frame, evaluating its developments and putting in practice the policies, plans and programs that let them advance in the transition towards sustainability<sup>(4)</sup>. For several decades, the Government of India has attempted to develop the Nation's economy and well-being through education and research and has signed many agreements in the International assemblies for the development of the country by adopting a new model of thinking and development since Post-Stockholm Conference (1972) called Sustainable Development (SD). The Indian government also adopted the sustainability measures in the Five Year plans after realizing the importance of it. Some institutes and Institutes which have adopted these measures are TERI University, IIT, Bombay, IIT, Ropar, NIT, Nagpur, Gandhigram Rural Institute Deemed University, IIT, Madras. IIIT, Hyderabad, IGNOU, IBS, Hyderabad, Visvesvaraya Technological University. In Pune, there are no institutes which have adopted the sustainability measures such as Energy Efficiency, Water Conservation, Waste Management, Renewable Energy, etc. Most of the institutes in Pune are lacking in adopting International Sustainability Practices or forthcoming Technical Education Quality Improvement Program Phase III Environmental Management Framework guidelines too to make their campus Sustainable and Greener.

### **Materials & methods:-**

The study was incorporated with the help of a Questionnaire prepared on the points which are Energy Consumption, Water Conservation, Waste Management, Renewable Energy, GHG Emission, Green Supply Chain and Ventilation. The meeting with the Principals and Directors of the institutes in University campus as well as its stakeholders was carried out in the earlier stage of the present study during 2015-16. The meetings were mainly aimed to seek feedback and assess the implementation issues in terms of Energy Efficiency, Water Conservation, Waste Management, GHG Emission, Renewable Energy, Material Conservation Recycling & Recyclables, Green Supply Chain & Ventilation issues faced by the different stakeholders. The feedback obtained from the various institutes were collected and organized to study & assess the present situations and practices followed by various institutes. All the data obtained about the consumption was tabulated to get an idea about the situation and to find out how it can be improved.

### **Results & discussions:-**

The authorities may be said to be sufficiently aware about energy efficiency and measures currently being followed in the rest of world but no such practice for efficient use of energy and self-reliance is being followed in the campus except the street light in the campus which were replaced by Light Emitting Diodes leading to a little energy conservation. Rest all the campus classrooms, labs and offices are fitted with high energy consuming electrical appliances, instruments and machines. There are no such measures or practices being taken for the generation of Renewable Energy. The whole campus runs on conventional source of energy i.e. Maharashtra State Electricity Board. The areas of the rooftops of all the institutes are not utilized for the purpose of installation of Solar Panels. The water is used for purposes such as drinking, sanitation and gardening purposes. The University authorities are sufficiently aware about the Water conservation measures but no such measures are incorporated in the daily routine of the stakeholders. During the surveys of the Institutes in the university, it was found that there were leaking taps leading to wastage of water. The situation of Waste Management of the whole campus is questionable. The generation of Paper waste in the campus is quite high due to all the assignment and project works, and all the institutes follow the policy of reusing of the paper i.e. usage of backside of a paper for inward circulation. The Sustainable practices such as minimization of waste at source, segregation of waste at source & reducing usage of plastics are not that effectively adopted in the campus. After carrying out the survey, it may be said that the institutes in the campus are not aware about the concept of Green Supply Chain but they showed a positive attitude towards implementation of such practices in the future foresight. GHG Emissions in the campus comprises of Carbon

Dioxide gas coming out of vehicles and that exhaled by stakeholders, and some other gases produced by the Workshops. There is no measure taken to restrict the entry of vehicles at the entrance of the campus that will minimize the Carbon Dioxide concentration in the air around the campus. There are no scrubbers or wet packs installed in the stack or exhausts of the workshops to prevent the harmful gases from disposal into the campus.

### **Conclusions:-**

It can be concluded that the awareness among the administrators of Universities/Institutes as well as stakeholders is low about the Environment & Sustainable Practices. The people using the services belonging to the university are less aware and thus leading to reckless usage of resources. Less awareness also leads to increase in Energy Consumption, water consumption and improper Waste Management. Due to less awareness, the resources are utilized for unnecessary purposes like People tend to leave appliances like fans and tube lights switched on when not in use, if they have a proper awareness about its effects such as increase in energy consumption and also an increase in Carbon Footprint, it will lead to a sustainable practice. During the survey program, it was noticed that the trees plantation was done with respect to the aspect point of view i.e. increasing the beauty of the campus rather than strategically planting them according to the requirement which can be calculated by observing the number of stakeholders to be present in the vicinity & by studying the Wind Rose Diagram, which will lead to a drop in the temperatures within the buildings and ultimately leading to usage of mechanical means for ventilation purposes. It can also be concluded that the resources which are available in hand are not that well utilized such as the area available on the rooftops can be utilized for the generation of solar energy or the Rain water harvesting purpose. The Organic waste produced is not utilized for the generation of Methane gas by establishing of a centralized Bio Gas Plant. It was noticed that there is no proper set of guidelines established for the effective implementation of Sustainable Practices. There is no Centralized Team or Club to handle or the environment related practices or works. During discussions with the stakeholders of the colleges, it is observed that central administration of the university/institute were less motivated to take any initiative to set the guidelines of implementing Environmental Management Framework, which is to be followed by all the stakeholders in turn help in making the campus a Greener and sustainable.

CII, New Delhi has already launched Green Rating systems for Industries and Corporates which has received overwhelming response. Almost all Fortune 500 MNC's have registered under such initiatives and enjoying the fruits of such rating systems. Technical Education Quality Improvement Program Phase III gives emphasis on Environmental Management Framework to be implemented in all the universities/institutes in India but it is in the process of implementation. Hence, it is recommended to Educational Program Accreditation agencies in India like National Board of Accreditation, National Accreditation and Assessment Committee to make mandatory provisions in their guidelines for implementing Environmental Management Systems leading the universities to achieve Sustainable, Greener, Safe and Healthy environment for the students and its stakeholders too.

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