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To,  
Shoolini University,  
Bhajol (Solan)  
Himachal Pradesh,  
Pin - 173223,

Green Audit has been conducted by University in which we have found that University is taking appropriate measures in different fields for maintaining the ecological balance.

It was also found that University is initiating in Recycling of waste water, solar energy system, rain water harvesting system, waste management system, Water purification, noise level.

Detail Report of the University system is attached.

  
For J.A.S. & Associates  
Prop.  
(Ar. Jatinder Singh)

## INTRODUCTION:

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of various establishments. It aims to analyze environmental practices within and outside of the concerned sites, which will have an impact on the eco-friendly ambience. Green audit can be a useful tool for a college to determine how and where they are using the most energy or water or resources; the college can then consider how to implement changes and make savings. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. It can create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of Green impact on campus. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent. The rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institutes which will lead for sustainable development and at the same time reduce a sizable amount of atmospheric CO<sub>2</sub> from the environment.

## OBJECTIVES:

In recent time, the Green Audit of an institution has been becoming a paramount important for self-assessment of the institution which reflects the role of the institution in mitigating the present environmental problems. The university has been putting efforts to keep our environment clean since its inception. Therefore, the purpose of the present green audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards.

## METHODOLOGY:

The purpose of the green audit of Shoolini University is to ensure that the practices followed in the campus are in accordance with the Green Policy of the country. The methodology includes: collection of data, physical inspection of the campus, observation and review of the documentation and data analysis.

## Water Quality Assessment:

To cater the water requirement for the campus, seven bore wells and IPH water supply are used for the activities. However, in summer, to cater the additional shortage of water, a tanker from outside are hired to satisfy the needs of campus activities. The total quantity of water required for drinking is assessed for a population of 5000 students is assessed as 25000 liters per day. For hygienic drinking water, RO plants are installed in each block. In order to provide portable drinking water there are 60 RO's at various locations in the campus. Department of Estate tests the water every month. Once in six months the water is tested by Eco Laboratories & Consultants Pvt. Ltd. (An ISO 9001-2015 14001



&45001: 2018 certified & approved by MOEF, PPCB). The committee inspects the working of filters monthly and the quality of water is verify for suitability once in three months.

### **Recycling of waste water:**

The wastewater developed in university campus is treated in campus and is used for watering of garden. The institute is having Sewage Treatment Plant (STP) with the capacity 400Kld which treats 300000 liters capacity of water per day.

### **WATER ANALYSIS REPORT OF Shoolini University:**

Water quality testing is important because it identifies contaminants and prevents water-borne diseases. Drinking or using contaminated water can result in severe illness or death. That is why it is important to ensure that drinking water is safe, clean and free from bacteria and disease. The parameters for water quality are determined by the intended use. Work in the area of water quality tends to be focused on water that is treated for human consumption, or in the environment.

### **Drinking water indicators:**

The following is a list of indicators often measured by situational category:

- Color of water
- Alkalinity
- pH value
- Taste and odor (geosmin, 2-Methylisoborneol (MIB), etc.)
- Dissolved metals and salts (sodium, chloride, potassium, calcium, manganese, magnesium)
- Microorganisms such as fecal coliform bacteria (*Escherichia coli*), *Cryptosporidium* and *Giardia lamblia*; see Bacteriological water analysis
- Dissolved metals and metalloids (lead, mercury, arsenic, etc.)
- Dissolved organics: colored dissolved organic matter (CDOM), dissolved organic carbon (DOC)
- Heavy metals

### **Air Quality & Noise Quality Monitoring:**

Since air quality plays a vital role for good health. Air Quality monitoring instrument is used to monitor quarterly the criteria pollutants. The most important air quality parameters, which are measured, are NO<sub>2</sub>, SO<sub>2</sub> & PM<sub>10</sub>. The other criteria pollutants such as Ozone, Carbon Monoxide and Lead are not measured because there are no nearby Industries located near the institute, which are emitting these pollutants. Noise equally plays a vital role in the environment, hence noise measurement is also done at the institute quarterly.

*Jatinder Singh*  
07/11/2018  
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ARCHITECT

## **NOISE LEVEL IN THE SURROUNDING OF SHOOLINI UNIVERSITY:**

The human ear is constantly being assailed by man-made sounds from all sides, and there remain few places in populous areas where relative quiet prevails. There are two basic properties of sound, (1) loudness and (2) frequency. Loudness is the strength of sensation of sound perceived by the individual. It is measured in terms of Decibels. Just audible sound is about 10 dB, a whisper about 20 dB, library place 30 dB, normal conversation about 35-60 dB, heavy street traffic 60 dB, boiler factories 120 dB, jet planes during take-off is about 150 dB, rocket engine about 180 dB. The loudest sound a person can stand without much discomfort is about 80 dB. Sounds beyond 80 dB can be safely regarded as Pollutant as it harms hearing system. The WHO has fixed 45 dB as the safe noise level for a city. For international standards, a noise level up to 65 dB is considered tolerate. Loudness is also expelling. One some equals the loudness of 40 dB sound pressure at 1000 Hz. Frequency is defined as the number of vibrations per second. It is denoted as Hertz (Hz).

## **ELECTRICAL POWER CONSUMPTION AT SHOOLINI UNIVERSITY:**

Shoolini university being one of the largest campus in H.P, consumes on an average 450.67 kW- hr (units) of electricity which turns out to be 3947869.2 kW-hr per year only to maintain its volumetric activities throughout the year. The authority keeps on replacing the old filament bulbs, CFL bulbs and tube lights by low energy consuming LED bulbs and LED tubes and bulky high-power consuming fans by energy efficient fans in order to keep the electricity consumption of the university as low as possible. In addition to making Environmental Studies a very vital subject in our syllabus, Shoolini University has gone a step further by putting that theory into practice. The university has installed twelve (12) sets of solar panels, two on girl hostel, two over parking area, two on the roof of G & H block, two on admin block, two on boys hostel Arya Bhatt, one on F- block and one near STP The energy from this solar installation is helping offset the institute's daytime peak electricity demand from the grid. Shoolini university with the installation of 391 KW solar rooftop plant in collaboration with M/s Cambridge Energy Pvt Ltd, was able to offset 60% of its energy usage from the state grid thus moving towards a more reliable and greener option and reducing its carbon footprint.

## **Percentage of annual power requirement of the Institution met by the renewable energy sources**

Response: 60%

Annual power requirement met by the renewable energy sources (in KWH)

Response: 754471

Total annual power requirement (in KWH)

Response: 3947869.2

