

Heramba Chandra College & Sivanath Sastri College

Green Audit- Management Summary

Report
Assessment Services - General

ASOS

ASOS

Management System Certification

Assessment Services - General

2015-Oct-13 to 2015-Oct-13

Project Title Assessment of Environmental performance
as per ISO 14001:2015

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Project Scope

DNV GL has been engaged to conduct a green audit to evaluation present compliance status in line with ISO 14001:2015 system for Sivanath Sastri College (Morning) and Heramba Chandra College (Day). This assessment report will summarize the present status of institute in the following areas of the environmental management related to – Water management, Energy Conservation, Use of renewable Energy, Rain water harvesting, Efforts of carbon neutrality, Plantation, Solid & Hazardous Waste Management, E-waste Management. Additionally general evaluation in line with environmental management system requirements has been done to provide an overview of the present status of environmental performance of the institute.

Assessment Methodology

The assessment is done based on the framework prescribed in ISO 14001:2015. In order to collect factual data the assessment team has interacted with concerned management personnel, areas owners and visited different area of the institution namely common room, utility area, library, water storage underground and overhead, first aid facility, toilets, kitchen and canteens, waste storage areas, drainage system. To ensure comprehensive coverage the assessment has been categorized into six broad modules to facilitate a structured evaluation. The modules are as follows:-

1. Policy, Objectives & Programs
2. Environmental Compliance
3. Competence, Awareness & Communication
4. Operations Management and Performance Monitoring
5. Emergency Preparedness
6. Corrective Action & Improvement

The assessment observations are supported by few photographs which have been captured during the visit.

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Executive Summary

Positive indications

- A project on roof top rain water harvesting has been initiated and is under progress.
- Plantation inside the college premises is found well maintained.

Main areas for improvement

- Establishing an environmental policy statement indicating the commitment of the institute towards improving its environmental performance.
- Evaluation of compliance with respect to applicable legal requirement.
- Increase visible communication on environmental issues. Effective use of notice boards and signs.
- Improvement require with respect to awareness on environmental issues and concerns
- Baseline data generation for water, energy (in all forms electricity, fuel) and waste. Data management and analysis of trends with respect to energy consumption, water consumption, waste water generation, solid waste generation (stream wise).
- Establishing improvement objectives for reducing energy consumption, water consumption, and fuel consumption.
- Identification of improvement initiatives, prioritization and rollout of suitable projects
- Ensuring effective implementation of such projects to attain set environmental goals.

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Policy, Objectives & Programs - Module Summary

Existing Control

- Program on rain water harvesting has been taken up, the project is under progress.

Main areas for improvement

- Suitable institutional policy on environment, green procurement, may be developed to provide overall direction to the environmental improvement efforts.
- A mechanism needs to be developed to identify the various environmental aspects & the impact arising from the activities of the institute. This will enable the organization map its various resources usage and waste streams, in accordance with the same control measures can be developed and implemented.
- Organization needs to develop a monitoring & measurement program for resource (water, electricity, LPG & fuel) consumption efficiency by (a.) evaluating current consumptions, (b.) setting time based reduction targets (c.) action plan to achieve the same with defined responsibilities (d.) periodic review of effectiveness of actions implemented.

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Environmental Compliance - Module Summary

Existing Control

- E-waste generated from office and IT labs are handled through service provider.
- New generation of Air conditioners are observed. They are using the use new generation coolant HFC R401A which creates lead impact on the environment.

Main areas for improvement

- The organization is having one DG set. The DG set exhaust is not found to be channelized through stack of stipulated height as per requirement with The Air prevention and control of pollution Rules 1982. The emission level monitoring from the stack needs to be done to check compliance to national emission standard.
- The existing DG set is not equipped with acoustic enclosure as per requirement of the Environmental Protection rules 1986. The standby DG set is the source of both noise pollution & air pollution due to inadequate acoustics & improper exhaust system. DG is located just by the side of boundary wall enabling subsequent effect in surrounding outside area.
- There is no noise monitoring data available to check the compliance with the ambient noise norms as per noise pollution (Regulation and control) rules 2000.
- In DG room fuel storage is without any secondary containment, any spillage will go to ground & the storm water drain just outside the DG room.

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- Inventory details of e-waste generated & disposed needs to be maintained to monitor pattern.

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Competence, Awareness & Communication - Module Summary

Existing Control

- No visible efforts noted to educate students and stakeholders on environmental concerns of the institute.

Main areas for improvement

- Suitable communication by means of banner, posters, one point lesson can be displayed at vantage location to create awareness among all stakeholders. (Refer exhibit 8)
- The communication process for awareness in relation to energy conservation found inadequate. Electrical fans and lights found in use in the unoccupied classrooms and other areas during the day of assessment. (Refer exhibit 3)
- The cleanliness of the common room for students and some of the classrooms found inadequate. Some of the walls of the common room found in unhygienic condition. (Refer exhibit 2)
- The botany laboratory is using a number of hazardous chemicals (e.g. - mercuric chloride, formaldehyde, butyl alcohol etc.). The Departments needs to identify all the hazardous chemicals and necessary communication dos and don'ts to minimize environmental and health impact by the user from the MSDS.
- Participation and involvement of the students can be improved by organization event on pertinent days such as world environment day, earth day, World Water day etc.
- Students community may be involved in small groups for different environmental improvement project within the college as well outside the college boundary

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Operations Management and Performance Monitoring- Module Summary

Existing Control

- The organization is presently drawing treated drinking water from the Kolkata Municipal corporation supply.
- The organization has taken initiative for rain water harvesting. Presently rainwater from college roof is being collected in 2 no. of 2000 Lt. storage tank for using in gardening.
- Presently solid waste disposal process is done in unorganized basis. The collection of waste is done from the campus on as and when required basis and disposed to municipal vat.
- The organization has not yet taken any initiative for carbon accounting.
- Plantation programme has been initiated inside the campus

Main areas for improvement

- **Water Conservation**
- The organization has not yet introduced any water consumption monitoring within the college campus. The authority may install flow meter at the intake point and generate water consumption pattern.
- The detailed layout of water dispensing taps is not available presently.
- The organization may compare the water consumption from the measured data with WHO guideline, to chalk out water conservation measures for continual improvement.

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- The organization may analyse the rainwater harvesting potential from the historic meteorological data and surface area of roofs of the building for detailed planning of aquifer recharge.
- Organization needs to evaluate its' water consumption efficiency by suitable monitoring of (a.) input from KMC (b.) Quantity of water supplemented by rain water harvesting which is under implementation (c.) operational control to reduce wastage in toilets & canteens , (d.) identification & stoppage of leakages in pipelines. Float valve operated auto shut off switch may be installed for pump sets used for overhead tank filling. (Refer exhibit 5)
- Washing waste water from canteen & kitchens needs to be suitably controlled to prevent residual food waste contaminating the storm water drains.
- **Solid Waste Management**
- The organization does not having a waste collection system with proper segregation. The organization may introduce waste collection bins with different colour code for biodegradable and non-biodegradable waste for source segregation with adequate signage
- Adequate awareness program amongst students and other stakeholders (faculty, other staffs, service providers etc.) needs to be organized for proper solid waste disposal.
- The organization may start proper communication with the local Municipal Corporation for regular collection of solid waste from the campus. (Refer exhibit 4)

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- Various wastages like used tube lights, plastic bottles were observed on ground behind the common room. Organization needs to prepare & implement a waste handling & disposal procedure with clear identification for different type of wastes. Disposal area for different types of waste needs to be earmarked.
- **Hazardous Waste**
- Handling of reso machine master film disposal containing ink residue needs to be suitably controlled to prevent land contamination.
- **Energy Conservation & Efforts on Carbon Neutrality**
- Floor wise master list connected electrical equipment with type and energy rating (e.g. - lights, fans, air conditioner, photocopier etc.) is not available for assessment of electrical load.
- Single line diagram could not be evidenced to assess connected load against approved amount by CESC & floor wise load distribution. This will enable floor wise monitoring of load.
- The organization may assess the equipment rating to have the baseline data for assessing energy consumption pattern.
- Maximum number of electrical fans found of older generation non energy efficient. The organization may develop

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a phase out plan of the same by replacing with new energy efficient fans.

- High energy consuming Incandescent lights and fluorescent lights are found in use. The organization may plan for long term phase out plan of the same with less energy consuming LED or CFL lights.
- Organization needs to evaluate power usage efficiency by suitable measurement & monitoring of (a.) total connected load segregated in lighting, AC, fans & other utilities (b.) developing operational controls to switch off lights, fans & ACs when rooms / classrooms are unoccupied. Many classrooms found unoccupied while fans & lights operational. Automation / time control mechanism may be explored.
- **Renewable Energy**
- The organization is having considerable area in the roof top, a cost benefit analysis may be done for installation of solar panel to reduce carbon footprint.
- The organization may account the carbon foot print from per capita energy consumption and other means of GHG emission. Based the baseline data the organization may set target and programmed to reduce carbon foot print

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Emergency Preparedness - Module Summary

Existing Control

- At present suitable measures are not established.

Main areas for improvement

- Organization needs to develop an emergency preparedness plan.
- Signages indication emergency evacuation layouts, routes and assembly area are not implemented.
- Stakeholder awareness on emergency preparedness needs to be improved.
- Infrastructure for fire fighting needs to be reviewed.
- First aid room is not maintained in proper condition. (Ref exhibit 7)
- Unwanted stock of inflammable materials needs to be disposed off (Refer exhibit 6)

Corrective Action & Improvement - Module Summary

Existing Control

- Action against deviation are taken based on report by administration personnel
- A structure improvement plan or roadmap to improve the institute's environmental performance is not established.

Main areas for improvement

- A structured inspection mechanism of the facility has not been established to monitor deviation leading to loss of resources.
- Organization needs to explore the usage of renewable energy sources like solar panels for lighting & water heating.
- Waste Water reuse and recycle opportunities have not been explored.
- **Plantation**
- The organization may take initiative for community plantation programme by involving students to offset the GHG emission.

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Site Visit Photographs -Positive



Rainwater harvesting project



Covered underwater storage tank



Greenery in the institute courtyard



Use of new generation Air conditions with HFC R401A coolant

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Site Visit Photographs – Areas for Improvement



Exhibit 1 - Improper damaged tube light storage facility



Exhibit 2 - Unhygienic condition in common student room



Exhibit 3 - Energy loss (Fan & lights running in empty room)



Exhibit 4 - Ineffective solid waste management

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Site Visit Photographs – Areas for Improvement



Exhibit 5 - Roof top water tank overflow spillage



Exhibit 6 - Old stock of unused books inside classroom thereby increasing fire load



Exhibit 7 - Improper maintenance of first aid room



Exhibit 8 - Notice board can be effectively used to create awareness

Statement of confidentiality

The contents of this Report, including any notes and checklists completed during the Assessment will be treated in strictest confidence, and will not be disclosed to any third party without the written consent of the customer, except as required by the appropriate Accreditation Authorities.

Disclaimer

This assessment is based on verification of a sample of available information. Consequently there is an element of uncertainty reflected in the findings. Also if no non-conformities were identified this do not mean that they do not exist in audited and/or other areas. Prior to release this report is also subject to an independent DNV GL internal review which may affect the report content and conclusions.

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