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Framework for the implementation of ISO 14001 in educational campuses

Aleena Joy

joyale.ave@gmail.com

Mar Athanasius College of Engineering, Kothamangalam, Kerala

ABSTRACT

The present scenario, wherein India are ecologically deficit, demands for sustainable living. It has become a priceless need. Educational institutions, being the hub for moulding the future society, serve as the best place to create from it a sustainable society. The implementation of ISO 14001 followed by proper audit and documentation helps in keeping par with the above needs. This paper is an effort to formulate a framework for the implementation of ISO 14001 in campuses. A case study is carried out at the Mar Athanasius College of Engineering campus. The initial environmental review is conducted and the possibilities of environmental commitments are worked out. From this, a framework for the ISO 14001 in campuses is formulated.

Keywords— Sustainability, ISO 14001, Environmental management system, Construction waste, Framework

1. INTRODUCTION

Environmental concerns have gained momentum over the years. A sustainable world is the need of the hour. Educational institutions, being the hub of activity for innovation and ideas, are the perfect place for instilling the idea of sustainability in young minds and at the same time, creating societal awareness on how sustainability can be integrated into day-to-day life. Since the future of the society and thus the world is so much dependent on the educational institutions, they are the right place to integrate the lessons of sustainability in the society's chores. The ISO14000 series helps in setting out environmental quality assurance in organizations and hence following the guidelines would result in an environmentally oriented organization.

The ISO 14000 family includes most notably the ISO 14001 standard, which represents the core set of standards used by organizations for designing and implementing an effective environmental management system (EMS). Other standards in this series include ISO 14004, which gives additional guidelines for a good EMS, and more specialized standards dealing with specific aspects of environmental management. The major objective of the ISO 14000 series of norms is to provide "practical tools for companies and organizations of all kinds looking to manage their environmental responsibilities." The basic principles of ISO 14001 are based on the well-known Plan-Do-Check-Act (PDCA) cycle.

Scholtz et.al, comment that the implementation of an environmental management system helps the educational campuses to enhance their environmental sustainability. The sustainable campuses have an influence to the extent that they help regional or global societies to transition to a sustainable livelihood. Like any industry which has an input, processing and output, educational institutions also have an input, the students, processing, the teaching and research and output, the leaders, professionals, etc.

Jain S. and Pant P. propose an environmental management plan for TERI university campus. They learned about the environmental aspect through initial environmental review and SWOT analysis. Based on this analysis, a model is suggested for the university campus. From their review, it was concluded that the management plan is to be worked out under five main domains - energy, resources, waste (solid and hazardous), ambient/indoor air and landscaping. It has been observed that electricity consumption and waste management are the thrust areas that need to be addressed along with other activities within each domain.

2. INITIAL ENVIRONMENTAL REVIEW

The case study was conducted in Mar Athanasius College of Engineering campus. From literature and case study, the environmental review could be conducted on five main domains- energy consumption, wastewater management, solid waste management, air quality management, and construction waste management.

The problems found after the initial environmental review may be summarized as follows. The energy-related issues are increased bill rates and interruption in energy supply. The potential for wastewater is not properly exploited. The food, paper and plastic waste from the hostels are managed properly to extend. But these wastes from the college building are not properly disposed of. Since there is lack of parking space, the automobiles are parked inside the campus which causes interruption to the pedestrians, unwanted use inside the campus which ultimately leads to air pollution. The construction waste inside the campus as of now, the repair waste is disposed of in two ways – those which could be reused are stored for reuse and the rest was landfilled.

3. ENVIRONMENTAL MANAGEMENT PLAN

Based on the requirements of the college, an environmental policy is formulated. Further proceedings in the environmental management system are based on this policy.

3.2 Formulated environmental policy

Mar Athanasius College of Engineering, Kothamangalam recognizes commitment towards the environment as a key component of a responsible education system. We are committed to providing quality education to our students in a manner that provides safe and healthy teaching-learning ambience and minimizes impacts on the environment.

The institution is bound to:

- Integrate the consideration of environmental concerns and impacts into all of our decision making and activities and to promote environmental awareness among our employees and encourage them to work in an environmentally responsible manner.
- Reduce waste through re-use and recycling and by purchasing recycled, recyclable or re-furnished products and materials where these alternatives are available, economical and suitable
- Ensure efficient use of materials and resources by promoting proper water and wastewater treatment, use of renewable energy alternatives and eco-friendly practices.

We will strive to continually improve our environmental performance by periodically reviewing our environmental policy in light of our current and planned future activities.

The environmental management plan for the college is worked out based on this policy, under the five domains. To meet the energy requirements of the college, solar panels are suggested. Sewage treatment plant along with biogas treatment plant is proposed for treating the wastewater. The treated water could be reused for flushing purposes. The incinerator is proposed for paper waste processing, thumbmuzhy model for food waste processing and the plastic waste is shredded. Parking spaces are enhanced by allotting more spaces in the premises and the concrete cubes and cylinders from the concrete slab may be used for making the platform. Construction waste may be handled through the waste hierarchy – reduce, reuse, recycle, incinerate, landfill.

4. THE FORMULATED FRAMEWORK

The ISO 14000 helps in achieving environmental quality by means of the plan – do – check - act cycle. The ISO 14001 gives the necessary guidelines so as to establish an environmental management system so that conforming to it would help the institution or organization achieve ISO certification. From ISO 14001, the framework explained in the following section is formulated.

4.1 Plan

The plan-do-check-act cycle (given in figure 1) would go in a loop resulting in continual improvement. In the planning stage, the most important and crucial stage is the management decided to implement the ISO certification in the campus. Once the management takes the decision, the top management commitment is an inevitable part. Successful implementation of EMS and hence the ISO 14001 is not possible without the top management commitment. The next step is to appoint the key personnel who would take responsibility for the whole process. The key personnel, along with a team should first of all come up with an environmental policy for the organization. The environmental policy is based on the environmental aspects prevailing and the type of ambience present there. To identify this, an initial environmental review or SWOT analysis or by means of interview or questionnaire may be adopted. It should cover aspects like air, water and land quality, raw materials used, by-products, etc. They must also look into the legal aspects that should be satisfied by the organization. Once the environmental policy is formulated, the various objectives and targets to be achieved are set.

4.2 Do

An environmental management system is then formulated for the organization. The main aim should be the prevention of pollution and continual improvement. The various roles and responsibilities of each of the person involved in the institution are then defined. All of them are given awareness and training so as to create a commitment from the part of each member. This may be accomplished by means of conducting seminars, workshops, awareness classes, or the people part of NSS or organizations of such kind may take special commitment towards building a sustainable culture in the institutions. All the initiatives must be properly communicated to concerned people through proper media. Media like posters, information cards etc. may be used for this purpose.

Documentation is an inevitable part of any system. The policy statement, the scope of the environmental policy, information regarding various environmental aspects discussed earlier and other documents that are required to ensure consistency.

4.3 Check

Proper monitoring is the only way to assure that the proposed model is executed well. The key personnel along with a committee consisting of three staff members and student representatives would be assigned this duty. They should also assure that all the documents are proper. They must have control over the records maintained. Every year, an internal audit is to be carried out to ensure proper monitoring.

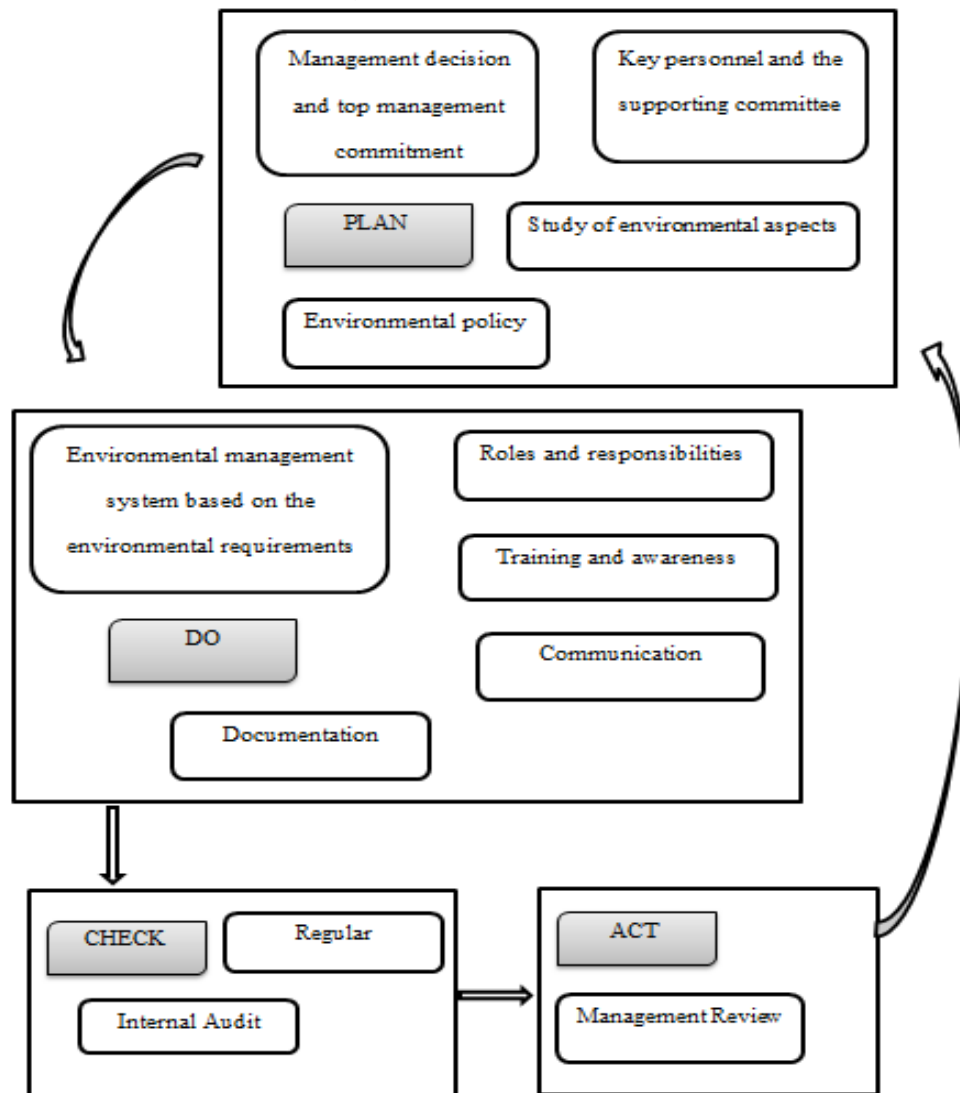


Fig. 1: Framework for the implementation of ISO 14000 in educational campuses

4.4 Act

The report after the internal audit is reviewed by the management and proper revisions are considered to the environmental policy, its scope or any other particular area if need be. The various aspects to be revised, when sorted out is discussed and improvements are adopted. These are then implemented and the system is regularly monitored. Thus the organization undergoes continual improvement.

5. CONCLUSIONS

The environmental commitment of any organization is an inevitable need in the current era. By a sustainable living, it is possible to judiciously use the available resources and conserve it for future generations. Educational institutions play a major role in inculcating a sustainable living in the society. Hence every educational institution must take a deliberate step towards this concern. From the framework, it is very well understood that implementation of ISO 14000 in educational campuses is not a tedious process. With systematic planning and execution, the MACE campus also would enhance its environmental commitments and move towards an ISO 14000 certified campus.

6. REFERENCES

- [1] Brenda Scholtz, Andre' P. Calitz, and Blessing Jonamu, (2016), "A framework for the implementation of environmental management information system in higher education", Information Technology in Environmental Engineering, Springer Proceedings in Business and Economics, DOI 10.1007/978-3-319-25153-0_3
- [2] Chantal St-Pierre & Soumaya Yacout (2002), "A Framework for the Development of an Environmental Management System: A Case Study in a Thermal Power Plant", Quality Engineering, 15:1, 49-65, DOI: 10.1081/QEN-120006710
- [3] Jain, Dr Suresh & Pant, Pallavi. (2010), "Environmental management systems for educational institutions: A case study of TERI University, New Delhi", International Journal of Sustainability in Higher Education, 11. 236-249. 10.1108/14676371011058532
- [4] Šelih J., "Environmental management systems and construction SMEs: a case study for slovenia", Journal of civil engineering and management.