

ASSESSMENT OF WASTE GENERATION OF INDUSTRIES USING ENVIRONMENT AUDIT: A REVIEW

¹Divya Gadasiya,²Dr. Sanjay Sharma,³Jyoti,⁴Samridhi

¹M.E. Scholar,²Professor & Head of Civil Engineering Department,³Senior Lab Assistant,⁴M.E. Scholar
Civil Engineering Department,

¹National Institute of Teachers Training and Research, Chandigarh, India.

Abstract: For sometime, one of the biggest crises or environmental problem the earth is facing is environmental pollution through various means. But, industries and factories along with automobiles are the biggest factors contributing to environment pollution. Both, the rate of production and the rate of industrialization are increasing gradually. The waste generated by industries is disposed to environment in various ways such as in rivers, burning of waste etc. The most hazardous is chemical waste. The waste management and minimization of the industries are very important which is done by environment auditing. This report includes need and importance of environment auditing. This study is a review of practicing environment auditing to increase its efficiency in order to minimize the adverse effects of industries on the environment. The paper provides analysis of environment auditing done for various type of industries.

Key words- environment audit, pollution, waste minimization, air quality.

I. INTRODUCTION

Environmental audit is introduced the world to focus on the environmental management activities of industries and factories. It ensures the limited and precautionary production from industries. The waste generated by industries, when exposed or disposed to nature, has very devastating impact on environment. It developed in the early 1970s among the companies operating in environmental intensive sectors such as oil and chemicals. Its objective is to help safeguard the environment and minimize risks to life. Many researchers have published their data analysis of various industries focusing on its' production, use of natural resources and waste materials.

II. Literature Review

Matouq Mohammed[1] in 2000 investigated the ISO 14001 implementation process and its implications for Central Japan region. The results show that the main aims behind the adoption of ISO 14001 by firms in the Central region are to improve the environmental aspects within the enterprises and to enhance the employees' environmental awareness and capacity. The results have also shown that the ISO 14001-based EMS has had a great effect on a firm's environmental status as certified firms have claimed that natural resources such as fuel, water, and paper consumption have been more efficiently managed after adopting the system.

Ogbonnaya Chukwu et al [2]in 2007 audited two food processing industries of Nigeria. Author assessed the wind, temperature, humidity and air quality of the industry. The method adopted was the investigative survey research approach (ISRA). Major air pollutants evaluated were SO₂, CO₂ and NO₂. It was concluded that the food processing industries do have positive and negative impacts on their environments and recommendations towards alleviating negative impacts on the were made.

T.V. Ramachandra and Shruthi Bachamanda in [3]2007 done the environment audit of the municipal solid waste management for Bangalore city. Author concluded that Waste disposal needs immediate attention and strict monitoring and the number of treatment process plants has to be increased to manage total quantity of waste generated. The occupational and health and safety measures taken by the authorities were not sufficient.

P. Gonzalez et. al[4] in 2008 analyzed the existence of differences in the implementation of environmental practices between companies that possess some form of certified environmental management system (ISO 14001 or EMS) and those that do not have any such system. Author utilized survey data from automotive supplier organizations. A positive relation was found to exist between the possession of certified EMS, specifically ISO 14001 and eco-management and audit scheme, and the environmental demands that these organizations impose on their suppliers.

Manoj Arya and Rajput.S.P.S [5] in 2011 analyzed the indoor air quality at different heights in industrial room at Vikram cement Neemach(MP). Study found that higher indoor temperatures, even within the recommended thermal comfort range, affect the worker's performance and productivity of their work. The occurrence of symptoms increased much more with raised indoor temperatures in the winter than in the summer due to the larger difference created between indoor and outdoor temperatures. Author finally concluded that indoor and ambient air monitoring is necessary and should be done time to time for controlling pollutants.

Ana Alebić-Juretić [6]in 2011 studied a case on air pollution and its impacts in the city of Rijeka. Emissions of the air pollutants like sulphur di oxide and the nitrogen oxide were evaluated which were generating from different sources of the city. After calculating the magnitude of pollutants such as ammonia, lead, nitrogen oxide and sulphur

di oxide their effect on the materials were evaluated. Due to this work early identification of air pollutants has been done and a lot of work has been done for this problem.

Rao T. B. et. Al [7] in 2011 reviewed on Environment audit programme of a sugar cane factory of Kolhapur district of Maharashtra. Primarily in industry calculation of consumed water, raw materials and energy are done. This shows that quantity of waste water was very high in the sugarcane factory. Factory was provided effluent treatment plant to treat the waste water. Bio gas was produced from the spent wash and compost. It was the best output for resource conservation. This study concluded the need of further studies on Environment audit with reference to different types of industries.

S. M. Tafsirul islam et. al[8] in 2012 examined the value of management approaches of an organization through the environmental audit. This journal gives the benefits of environmental auditing on the considerable conservation to include natural heritage features and objectives. This study focus on the use of environmental auditing in business decision making. Author concentrate his study on the application of environmental auditing on land, water and air as well as on forests, sports, farms and other management units.

Fayza A. Nasr et. al [9]in 2012 presented the case study of waste water treatment technology of pasteurized liquid egg factory and wood furniture production factory. Industrial audit of these factories was done that includes plant activities, industrial processes, and environmental status. Separate composite water samples were collected and the analysis is done for water parameters such as Ph , chemical oxygen demand, biological oxygen demand, total solids ,oil& grease. Environmental status of the factories was evaluated by comparing water parameter with the prescribed limits. The results showed that the wastewater discharged from wood furniture production factory was highly contaminated with soluble organic pollutants.

Sangita Pradeep Ingole [10]in 2012 explained the need and benefits of the environment audit for sustainable development of the industries. Objective ,need and advantages of the environmental audit are focused in this paper. Author concluded that Environmental audit is carried out to provide an indication to company management about how the environmental Organization system and equipment's are performing.

Rohini Pande and Anjani Datla [11] in 2016 examined the conflict of interest that arises when auditors are hired and paid by the organizations whose operations depend on positive audit reports. They stated that the Pollution Control Board in the Indian state of Gujarat faced a difficult path ahead. The agency charged with monitoring and enforcing pollution regulations in the heavily industrialized state had a problematic environment audit system on its hands. For more than a decade, industrial plants were required to submit an annual environmental audit, which was conducted by a third-party auditor, and paid for by the plant. But from the pollution control board's point of view, many of the audit reports were perfunctory, without useful recommendations, and gave officials little basis for enforcement action. Participants will explore the role of accurate information in good policy. By closely analyzing the competing incentives at play for regulators, firms, and auditors, a deeper understanding of how regulations in a wide range of sectors, including the environment and finance, can be made more effective.

Dr. Priyanka Arora[12] in 2017 studied the concept of environmental audit its importance and its position in India. The study was primarily based on industrial development and the effect of industries on the environment. Many of the problems then investigated due to industries waste and activities. These problems were barrier to sustainable development and economic growth. Suggestions were given to the focus on sustainable development and go for constructive criticism for their work. This can be achieved by Environmental audit. Need of the environmental audit and its usage in different area of the industries were explained.

III. Conclusion

This paper reviews the concept of environment auditing for sustainable development. Most of the literature examined above show that environment auditing is an effective tool to evaluate industries' environmental performance such as solid waste generation, indoor air quality, waste water generation . This study helps to know the efficiency of environment auditing of different industries to reduce the waste generation and its management.

REFERENCES

- [1] MOHAMMED MATOUQ, "THE ISO 14001 EMS IMPLEMENTATION PROCESS AND ITS IMPLICATIONS: A CASE STUDY OF CENTRAL JAPAN" ENVIRONMENTAL MANAGEMENT VOL. 25, NO. 2, 2000.
- [2]CHUKWU OGBONNAYA,AJISEGIRI EMMANUEL SUNDAY AKIN, ONIFADE KOLAWOLE RASHEED AND JIMOH ONEMAYIN DAVID, "ENVIRONMENTAL IMPACT AUDITING OF FOOD PROCESSING INDUSTRY IN NIGERIA: THE CASE OF CLIMATE AND AIR QUALITY" AU J.T. 11(2): 77-85 OCT. 2007.
- [3] RAMACHANDRA T.V. AND BACHAMANDA SHRUTI, "ENVIRONMENTAL AUDIT OF MUNICIPAL SOLID WASTE MANAGEMENT" NT. J. ENVIRONMENTAL TECHNOLOGY AND MANAGEMENT, VOL. 7, NOS. 3/4, 2007
- [4]GONZALEZ P, SARKIS J., AND ADENSO-DI'AZ B., "ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATION AND ITS INFLUENCE ON CORPORATE PRACTICES" INTERNATIONAL JOURNAL OF OPERATIONS & PRODUCTION MANAGEMENT VOL. 28 NO. 11, 2008.

- [5]ARYA MANOJ AND RAJPUT S.P.S., “MONITORING AND ANALYSIS OF INDOOR AIR QUALITY AT DIFFERENT HEIGHTS IN INDUSTRIAL ROOM BY USING CFD” INTERNATIONAL JOURNAL OF ENVIRONMENTAL SCIENCES VOLUME 1, NO 6, 2011.
- [6]ANA ALEBIĆ-JURETIĆ , “AIR POLLUTION AND ITS IMPACTS –THE CITY OF RIJEKA CASE STUDY” ADVANCED TOPICS IN ENVIRONMENTAL HEALTH AND AIR POLLUTION CASE STUDIES , AUGUST 2011.
- [7]RAO T. B., CHONDE S. G., BHOSALE P. R., JADHAV A. S. AND RAUT P. D. ,“ENVIRONMENTAL AUDIT OF SUGAR FACTORY: A CASE STUDY OF KUMBHI KASARI SUGAR FACTORY, KUDITRE, KOLHAPUR” UNIVERSAL JOURNAL OF ENVIRONMENTAL RESEARCH AND TECHNOLOGY, VOL 1 51-57 2011.
- [8]ISLAM S. M. TAFSIRUL, S.M. ASGER ALI, “REVIEW ON ENVIRONMENTAL AUDITING” URBAN AND RURAL PLANNING DISCIPLINE, KHULNA UNIVERSITY, ARTICLE DECEMBER 2012.
- [9]FAYZA A. NASR, HALA S. DOMA, SABER A. EL-SHAFI AND ENAS ABOU TALEB, “MANAGEMENT OF INDUSTRIAL WASTEWATER (CASE STUDY)” JOURNAL OF APPLIED SCIENCES RESEARCH, 8(6): 3004-3011, 2012.
- [10]SANGITA PRADEEP INGOLE, “ENVIRONMENTAL AUDITING: ITS BENEFITS AND COUNTERANCE” INTERNATIONAL JOURNAL OF SCIENCE INNOVATIONS AND DISCOVERIES, VOLUME 2, ISSUE 5, SEPTEMBER-OCTOBER 2012.
- [11]ROHINI PANDE AND ANJANI DATLA, “FIGHTING POLLUTION WITH DATA: ENVIRONMENTAL AUDITS AND THE GUJARAT POLLUTION CONTROL BOARD” HKS CASE PROGRAM 2016.
- [12] DR. PRIYANKA ARORA,“ENVIRONMENTAL AUDIT – NEED OF THE HOUR” INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN ENGINEERING & MANAGEMENT (IJAREM) , VOL. 03 , ISSUE 04 , 2017.

