Assessments of environment and safety in small and micro-enterprise: Furniture factory

Pradeep Kumar Poddar¹ and Omprakash Sahu²*

¹ Department of Chemical and Natural Resources Engineering, University Malaysia Pahang, Kauntan, Malaysia
² Department of Chemical Engineering, KIOT, Wollo University (SW), Ethiopia

The dynamic role of micro and small enterprises in developing countries as engines through which the growth objectives of developing countries can be achieved has long been recognized. Furniture Factory has its own impact and issue on the society and environment. Wood furniture manufacturing process uses many chemicals and natural resources. It generates considerable amounts of waste materials as well. The operations activities include drying, sawing, waxing, sanding, and finishing, all of which may release pollutants into the air and may contribute to health concerns in the operation and in the community. In most developing countries, small and micro industry faces constraints both at start up phases and after their establishment. The objective of this study has been developed to discover how to improve work environment and worker safety and to comply with the standards. Moreover, to further minimize impacts on human health and the environment.

Keywords: Chemical, environment, health's, waste, recycle

INTRODUCTION

The establishment of the small and micro enterprise furniture factory producer’s organization tries to solve the problem of unemployment and provide quality products for the society, which simplify the task of government (Rami and Ahmed, 2007). However, there are different chemicals, dusts and solid wastes produced during production process by cutting, splitting to lumber size, surface coating, preserving of wood by chemicals, sanding with the combination of chemicals after coating and applied to increase the attractiveness of the appearance (Paul and Rahel, 2010). At the end of production process, these wastes would be released in the form of gases and solid wastes to the environmental. Finishing chemicals also released from coated surface in to the air, which may contribute to health concerns in the operation and in the community (Dereje, 2008). Moreover wood furniture manufacturing facilities deal with many things that can affect the environment (Martin, 2010). Materials such as paints, wood treatments, stains, varnishes, polishes, and adhesives can harm the environment and people if they are not properly managed. If the current situation continuous in this trend, the problem will not remain in local rather worse or aggravates at the national level which directly affected social economic development of the country (John et al., 2007).

*Correspondence author: Omprakash Sahu, Department of Chemical Engineering, KIOT, Wollo University, Kombolcha (SW), Ethiopia. Email: ops0121@gmail.com; Tel: +251933520653
It is definite that substantial amount of investment has to be incurred to replaced old machines by technologically advanced machines and equipment so as to reduce its environmental problem is the current issues on every parts of the world. Economic growth is the major cause for existing environmental degradation. The company that we have focused in our study is one of the economic developments in the current Ethiopia renaissance development, but it results to environmental degradation (FDRE, 2007; 2010). The study would benefit those people who conduct a similar study on the impact that furniture production brings to the environment as a base line or starting point and primarily dedicated micro-enterprise furniture at which this study was conducted and even for the same organization who are also engaged in the furniture production too (Agyapong, 2010). The study again also contributes for similar furniture industries to fulfil all the necessary requirements in waste management, and get control over pollutions that may be emerged while doing with furniture making process (Mulugeta, 2007). Generally, the need for the accomplishment of this study is to create more attention on the environmental impacts of industrial growth related to furniture producing sector and forwarding recommendation points on how to minimize, if possible eliminate its total impact on the environment in order to recognize just inability natural resource and save the life on human beings (Enock, 2010). If the current situation continuous in this trend, the problem will not remain in local rather worse or aggravates at the national level which directly affected social economic development of the country. It is definite that substantial amount of investment has to be incurred to replaced old machines by technologically advanced machines and equipment so as to reduce its harmful discharges that directly gave the welfare of external environment future sustainable development. Generally, this is the major problem that initiates and pushes the researchers to conduct the study under the situation. This study has been developed to improve work environment and worker safety and to comply with the standards while manufacturing furniture even while using them. Moreover, the objective is to further minimizing impacts on human health and the environment. Suggestions for changes in workplace practices and behaviours are provided that can be implemented to improve a furniture production environmental and economic performance. Generally, the major objective of the study is to assessing the impacts of furniture industries on the environment.

**MATERIAL AND METHOD**

**Method of Data Collection**

The primary data was collected from the organization called Micro-Enterprise Furniture Factory located in Addis Ababa industrial zone at Adama (Ethiopia) Africa. Questionnaires and observation methods were used to collecting the data in the study. The questionnaire was distributed through judgments sampling method. Out of the total number of 42 workers 20 of them were selected to collecting the data. The selection criterion for the sample was based on their skills.

**Method of Data Analysis**

The method of data analysis for this study is a descriptive type. This type of analysis is preferred because of unavailability of the numerical data on the some aspects of the organization. Primary data is the bases for the study. Information and data from different sources are also used. The gathered information and data are presented in tabular, graphic and theoretical form (Richter and Steiner, 2008).

**Organization of the Study**

This research paper is organized in the form of section, the section describing the main the present conditions. Out of 100 samples size, only 20 persons are selected from different area of professions and work experience within the organization. Based on those professions and work experience samples questions and respondent answers are presented in the form of graphs respectively. The descriptions of the respondent age and the work experience also included under the topic. In addition to the reader can understand that from what type of individuals the data are collected.

**Site description**

The name of the organization known as Small and Micro-enterprise furniture factory, which is located “Industrial Zone” in the northwest kebele 05 Adama Town with 99 km distance from Addis Ababa in Oromia region-Ethiopia.

**RESULTS AND DISCUSSION**

**Employees’ age group**

The employment of age group is shown in Fig. 1. It was found that the age composition of the respondents within the organizations employees. Here, among these respondents 4(20%) of them were found between the age of 18 to 25,5 (25%) were ranged between 26 to 35,9 (45%) of them were between 36 to 45,2(10%)were also between 46 to 55, and finally, as it is depicted on the above table, there was no age group above 56 years
from all the respondents. The results showed that most of the respondents were ranged in the age between 36 to 45 and 45% of the total sample respondents within the organization. From this information, we confidentially conclude that almost all the researchers’ data for this paper are collected from the matured individuals found in the research area (Bidzakin, 2009).

**Respondent experience**

The organization respondent experiences are depicted in Fig. 2. The respondents work experiences by emanating on the duration of the respondents have stayed within the organization. Among these respondents, 4 (20%) of them were less than one year work duration; hence they were not much experienced. On the other hand, 7 (35%) of them were found between 1 to 3 years experienced and 45% of the respondents were found between 4 to 6 years. As can be plainly seen in Fig. 2, the majority of the respondents 45% and 35% of the total sample size were work experienced individuals. Therefore, most of the research data survey was generally based on the well
The background of the environmental conditions is shown in Fig. 3. The background of surrounding environmental condition before the organization was established in the area to provide a deepest knowledge of the past when compared to today’s situation. Hence, out of the total of 20 respondents, about 2(10%) of the respondents, replied that the environmental condition before was that much; which means there is a change in the environmental condition before, but that changes was not in an immense way of degradation. Also, 3(15%) of them replied nothing, which belongs to the idea of there is no significant change they were ever considered and those respondents may be new employees to the organization who may not well experienced the past environmental situation of the area. On the other hand, 6(30%) of them replied there were a good environmental condition before and finally, 8(40%) of respondents replied that very good and excellent environmental condition were identified before the establishment of the organization. From this data the researcher can understand the environmental condition before the establishment of the organization.
was very good. This result indicates that the establishment of the organization has a negative impact on the environment (Mulugeta, 2010).

Environmental protection by government

The environmental protection by the government is shown in Fig. 4. Recognizes the level of environmental protection by the government and the respondent’s view of ideas were depicted thoroughly. This is useful in knowing how the government has contributed for the social and environmental well-being and useful also in predicting the future outcome and results obtained. Here above, it was clearly indicated that 8(40%) of respondents replied that the government environmental protection is enough which is contradicted to the idea of many environmental group. Conversely, 12(60%) of them replied that the environmental protection by the government is not enough still and further considerations were expected which was replied by the majority of the total respondents. This indicates that the researchers understand the environmental protection by the government is still too low that means a great deal of attention is needed about the environmental protection. Totally, the issue of the environment is not only the concern of government, but also the social should stand all together with the government to ensure and create a better harmony in decreasing and minimizing this tremendous toll (Katwalo and Madichie, 2008).

Contribution of organization

The awareness of the organization for the environmental law is presented in Fig. 5. The organization perception and awareness in promoting environmental law identified by the government. Thus, among the total sample 2(10%) of them replied nothing; which means that the organization doesn’t care about the environment. Also, 4(20%) of them replied that a very good awareness of the environment were in practice by the organization. Similarly, 5(25%) of them replied good, and finally 9(45%) of the respondents replied the awareness of the organization for the environment is that much which means there is no considerable level of awareness and, as a result, it needs further demonstration to be undertaken by the organization. As can be drawn from this result, the majority of the respondents (45%) of the total sample size responses the awareness of the organization for the environment is that much. This indicates that the organization still not engaged in the environmental protection. Therefore, the manager of the organization should make a brief plan in understanding and practicing awareness of the environment (Carrier, 2008).

Sources of waste

The main source of waste generation is presented in Fig. 6. The source of waste generation in the organization was identified in the furniture production process. Hence, this sub discussion generalize the major key environmental pollution arises from the very beginning of using the prepared raw material up to the final production of units operation of furniture production. The result shows that 1(5%) of sample respondents replied that the main source of the waste generation in the organization is from wooden material, 4(20%) of them replied that the main source of waste in the organization is from other sources, 6(30%) of them replied that glue used is the main source of the waste generation, and finally, 9(45%)
of them replied that waste generation relies on the painting materials (Tegegne and Meheret, 2010). This implies that the painting materials (45%) and wooden adhesives (20%) are the most and the main source of the total waste generation in the organization, respectively. From this data, the researchers concluded that those individual are victim of the respiratory disease caused form the emission of solvents to the atmosphere during finishing and assembling of furniture (Adil, 2007).

Waste disposal

The location of the waste disposal is shown in Fig. 7. It is depicted that none of the respondents replied “I don’t know” where the waste is disposed. Hence, all of them knows where those wastes are disposed, and 5(25%) of the employees witnessed that the location of waste disposal is far from the organization, 6(30%) of them responded that waste is disposed near the organization, and finally 9(45%) of the respondents replied that waste is disposed around the organization (Bulti, 2008). Here, 9(45%) and 6(30%) replied that the location of the waste disposal is around and near the organization, respectively. Therefore, it can be concluded that the society was prone from waste disposed the organization. Severe damage to the society around the organization and they are suffer from this cause of waste disposed. From this point of view, it can be maintained that the
organization should use the correct waste disposal methods properly. The government should also motivate them to ensure that they will be willingness for the future environmental protection (Vandenberg, 2006).

**Smokes emission**

The chemical and smoke emission from the organization is presented in Fig.8. The level in which chemicals and smokes emission from the organization are responded as 2(10%), 4(20%), 6(30%), and 8(40%) of them responded that there is nothing, somewhat, very high, and high chemical and smokes emission in the organization respectively. As it can be seen from the above figure there is high value from 8(40%) respondent of the chemicals and smoke emission in the organization. The employees should use general safety materials properly and continuous health treatment (Sievers and Vandenberg, 2007).

**Waste disposal**

The waste disposal is shown in Fig.9. From this point of view the researcher indicate that the most waste disposal methods are land filling (30%) and incineration (50%) used in the organization commonly (Tilahun, 2007).
Those will be the source of different type chemicals and smoke emissions generate in to the underground water and air respectively without the application of recycling waste disposal mechanism. In the mechanism of waste disposal, it is clearly shown that 4(20%) of the respondents replied “other” waste disposal methods, 6(30%) of them replied land filling waste disposal method, and also 10(50%) of the respondent said that the use of incineration waste disposal methods are common within the organization (Debissa, 2006).

**Employees problem**

The problem of the employees is depicted in Fig.10. The employee’s related problem shown in figure, it’s indicate that 1(5%) is the result of Adhesive emission, 4(20%) of them are Sound noise, 5(25%) of the others are emission of finishing material, and 10(50%) of the rests were an emission of exposure from dusts occur in the organization (Wubalem et al, 2007). Therefore, the researcher can easily understand the emission was released from the finishing material and other emission of exposure from dusts occurs in the organization. The dust exposure is higher agent among others. To reduce the level of impact, the employees should use musk as safety material. Therefore, to reduce suchlike of problem in the organization, we recommend uses some advanced technological techniques in the production process by using dust collector, well ventilator finishing room. Therefore, the establishment of this organization has a negative impact on the environment. But, in the production of timber furniture, it has been found that the use of even small amounts of other materials (such as metal or plastic trim, glues and varnishes) drastically increases the environmental impact of the furniture.

**CONCLUSION**

It is concluding that the environmental condition before the establishment of the organization was very good. The manager of the organization and government should make a brief plan in understanding and practicing awareness of the environment. The main source of the total waste generation in the organization is from paintings and adhesive materials. The most waste disposal methods are land filling and incineration commonly used in the organization. Those will be the source of different type chemicals and smoke emissions generate in to the underground water and air respectively without the application of recycling waste disposal mechanism. Therefore, the researcher can easily understand the emission was released from the finishing material and other emission of exposure from dusts occur in the organization. The dust exposure is higher agent among others. To reduce the level of impact, the employees should use musk as safety material. Therefore, to reduce suchlike of problem in the organization, we recommend uses some advanced technological techniques in the production process by using dust collector, well ventilator finishing room. Therefore, the establishment of this organization has a negative impact on the environment. But, in the production of timber furniture, it has been found that the use of even small amounts of other materials (such as metal or plastic trim, glues and varnishes) drastically increases the environmental impact of the furniture.

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