

# OHS PRACTICES IN FOOD INDUSTRY: A CASE STUDY FROM PAKISTAN

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## INTRODUCTION

Occupational Health and Safety is a precondition to protect the workers' health and help them to work in decent, safe and healthy way that the proprietors of corporations fulfill the main objectives of social responsibility. It's an irreversible trend to confirm the profits of corporations, employees, and environment organically, to fulfill people-oriented, nature-economy-community harmony and sustainable development (Yu, 2009). As the human factor has very imperative role in workplace accidents, it should be given due significance in accident prevention strategies. Occupational Health and Safety needs to be built-in in all the organizations' decisions and actions to achieve the goal of safe and conducive workplace (Fernández-Muñiz *et al.*, 2009). Due to the globalization of trade, several organizations are now involved in monitoring unfair labor practices and environmental health and safety conditions in industrial operations at the developing countries.

In current era, business's productivity, economic and financial results can be enhanced by integrating risk management within business's operations. It will cut down accident rates and create a positive effect on their reputation (O'Toole, 2002). Due to unsafe working environment, employees may lose motivation and ultimately leave the organization. It is often very difficult for the organization to replace such skilled and qualified employees because they possessed specific knowledge. Occasional or frequent workplace accidents can also destroy the organizations reputation and image in the market (Smallman and John, 2001). This will not only slow down production and delay delivery, also leads to the severe deterioration in the public relations of the organization. Therefore, preventing occupational accidents is a key factor in business management in compliance with essential strategic implications for the organization (Rikhardsson and Impgaard, 2004).

## OHS in Pakistan

Like environmental management, Occupational Health and Safety is hardly recognized as essential feature of industrial environment in Pakistan. In accordance with the WTO<sup>1</sup> requirements, foreign investors and importers would require compliance of the local industry with international standards, such as International Organization for

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<sup>1</sup> World Trade Organization, Geneva, Switzerland

Standardization (ISO)<sup>2</sup>. While several pieces of legislation touch OHS issues, there is hardly any concrete effort by government to develop a comprehensive environmental health and safety law. In 2001, the government announced a Labor Policy Initiative and proposed to create a National Occupational Safety and Health Council (NOSHC) to review and update the existing laws. However, none of that has materialized yet (Akram, 2004). Thus, Pakistan, at present, like many developing countries does not have comprehensive occupational health and safety legislation. The incidence of injuries and illnesses is probably very high in Pakistan because thousands of workers are routinely exposed to hazardous chemicals and harsh working conditions, however no reliable data is available to quantify this probability. The regulatory agencies do not have an effective enforcement policy or strict requirements for reporting workplace injuries and illnesses (Awan, 2001).

An overview of the existing laws/regulations partly related to occupational health and safety shows several pieces of legislation, such as Factories Act, 1934; Provincial Factories Rules; Hazardous Occupations Rules, 1963; Mines Act, 1923; West Pakistan Shops and Establishments Ordinance, 1969; Provincial Employees Social Security Ordinance, 1965; Workmen's Compensation Act, 1923 and Dock Laborers Act, 1934 relate to this issue (Shafi, 1986). The regulations are, however, fragmented and there is no single comprehensive piece of legislation dealing with occupational safety and health. The Factories Act, established in 1934 and amended in 1997, requires only a very basic level of safety and health measures. There are no guidelines for minimum qualifications or employment of health and safety professionals in the industry. Several important sectors, such as agriculture, construction and informal/self-employed are not even covered under any law (Awan, 2002).

Food industry is a vast industry that covers a wide scope. Owing to the very fact that food industry is one of the largest in a country, it is logical to assume that the potential of OHS incidents is also quite high. Figure 1 shows an international trend of injuries in various industrial sectors compared to that of Food and Drink industry internationally. The food and drink industries as described here include animal feed manufacture but exclude distribution, retail and catering.

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<sup>2</sup> International Organization of Standardization (ISO), Geneva, Switzerland

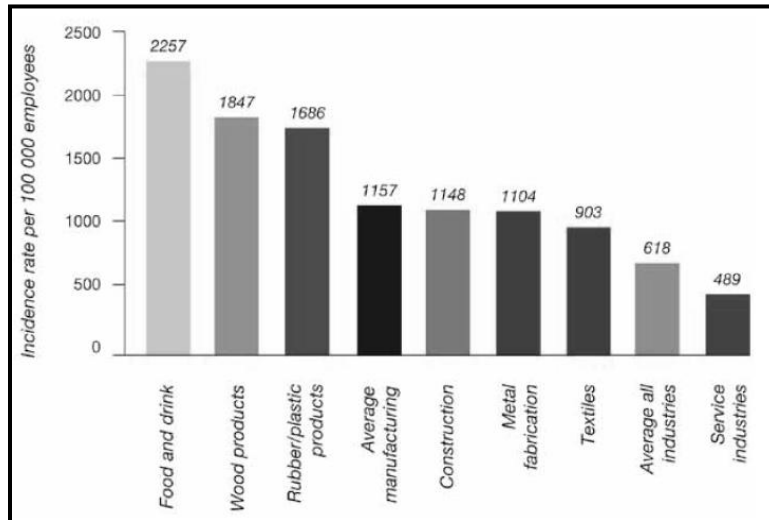


Figure 1: Reported injury incidence rates in the food and drink manufacturing industries compared with other industries in year 2002/03 (HSE, 2005)

In developed world, where appropriate sops, manuals and guidelines for OHS practices in food industry have been developed, the scenario is still not encouraging in developing countries.

Generally, the steps involved in food industry can be phased out as following.

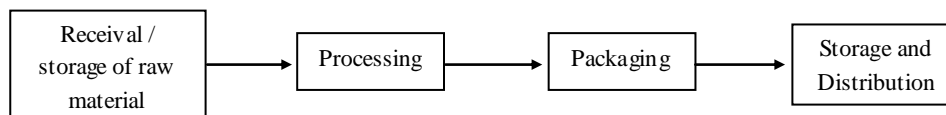


Figure 2: Generalized phases of biscuit / candy manufacturing industry

### Standard process

Various steps involved in Biscuit manufacturing are given hereunder. The process for candy making is almost similar with the difference of raw materials.

**Mixing:** this is a process where all ingredients are put together in right proportion for dough formation. These ingredients are then fed into mixers where mixing is done and dough is prepared for molding.

**Molding:** in this section, dough is laminated into sheets which then pass down to gauge rollers and appropriate sheet thickness is achieved for cutting. A cutter or a molder is present as per the variety where the various shapes and sizes of biscuits are done.

**Baking:** this is the area where the molded wet biscuits are passed into a baking oven. The biscuits are baked at desired temperatures. Various types of ovens are available nowadays as per the convenience and cost.

**Cooling:** these baked biscuits are then passed on to cooling conveyors for natural cooling prior to packing. The temperatures are brought down to room temperatures.

**Packing:** These biscuits are then stacked and packed. Different packing material may be used for packing of these biscuits. These packs are then put into secondary packaging like cartons to be transported to retailers.

### **The case study**

For this specific study Silver Lake Foods was selected. Silver Lake Foods is a medium size industry manufacturing a variety of confectionery products e.g. biscuits, toffees, chewing gums, chocolates, candies etc, under the brand name *Kims*. Established in 1995 as a small business, it turned into a full fledged industry under the leadership of its owner Mr. Qadir Mehmood. The company operates its factory in Hattar Industrial Estate, located 50 kms north of Islamabad. It complies with environmental standards of ISO 14000, quality standards ISO 9001/2000 and HACCP food safety requirements. In addition to covering all large cities of Pakistan, it is currently exporting its products to 25 different countries, mainly in the west e.g. USA, UK, Australia, Canada, Sri Lanka and Afghanistan.

Through its quality assurance function, the organization has instituted a system of awards and incentive for the human resource. On achievement of targets, cash prizes are given. Best Performance Certificates are given on annual basis. To enhance motivation and interaction amongst the staff, frequent cake parties are organized. A training policy has been defined and regular training programs are organized for all levels of employees.

### **METHODOLOGY**

The whole study was divided into two phases: Desktop Study followed by Field Survey. These two phases have been elaborated in subsequent sections.

#### **Desktop study**

As a first step, desktop study was carried out that involved literature survey to have an upright idea of international best practices and regulations related to Environmental Health and Safety (EHS) and to set a benchmark. The literature was reviewed from various sources including books as well as internet. EHS standards and regulations developed by various international organizations as well as the practices carried out in food industry worldwide were also reviewed for benchmarking. The standard documents reviewed included:

- OHSAS 18001-1999
- OHSAS 18002-2000
- IFC (The World Bank) Environmental Health and Safety General Guidelines (IFC, 2007)
- OHS Induction Kit for the NSW Food Industry, Australia (NSWFITC, 2003)

After the desktop study, a checklist was prepared listing all the parameters of Health and Safety. This checklist was used as a basic tool to gather information about ongoing OHS practices at Silver Lake Foods. It covered the following specific areas:

- Policy and commitment
- Risks and their controls
- Training, Communication & Consultation
- Documentation & Records
- Operational Controls
- Emergency Preparedness
- Accident & Incident Investigation Protocols, Corrective & Preventive Action etc.

### **Field survey**

The second phase was to undertake survey of the industry to have an insight of the practices. For this purpose, the officials were contacted and a visit of Silver Lake Food industry was carried out. The checklist prepared was filled out. Workers were also interviewed during the visit and photographs were taken wherever possible and allowed. After the survey, results were compiled, gap analysis was conducted and subsequently recommendations were prepared for the underprovided areas.

### **RESULTS AND DISCUSSION**

First section of the discussion will focus upon the international practices, laws and guidelines for OHS in general and in Food Industry in particular. The second section will highlight gaps identified in various processes / sections of the industry under review.

In developed countries, there exist well defined laws and guidelines for OHS practices in the manufacturing industry in general and for other industries such as Construction, Food, Cement, Steel etc. in particular. In Australia, the Occupational Health and Safety Act (2000) and Occupational Health and Safety Regulation (2001) set it mandatory on the industry to comply with certain bindings to ensure the safety and welfare of workers. For the Food Industry, Worksafe Australia (Government of Australia, 2006) identifies various areas to be addressed in staff induction and training including Manual Handling, Use of electrical equipment, sharp tools, heat, hot liquids; noise, cleaning and maintenance of surfaces; hazardous materials; disposal of waste; equipment use, safety and storage; personal protective equipment and safe work procedures.

While large industries can withstand cost of OHS practices, small businesses have limited resources. Some of the reasons leading to avoidance of OHS practices have been pointed out by Mayhew (2002). Economic pressure encourages both long hours

and work intensification (Mayhew, Quinlan and Bennett, 1996). Cut throat competition for work is common amongst those paid on the basis of output. Those who do the OHS 'right thing' can lose tenders if their prices are higher than those who ignore OHS. In smaller workplaces there are fewer OHS resources e.g. in-depth OHS knowledge. Regulations designed with permanent employees in larger workplaces in mind (e.g. 'top down' strategies) are inappropriate for small sites. Inspectorates may have insufficient resources to cope with the proliferation of small workplaces (Mayhew and Quinlan, 2000).

The gaps identified in the following discussion are on the basis of the standards and best practices that the industries have adopted and the frequency of accidents, injuries and illnesses related to OHS issues have been curtailed to a significant degree.

## **Environmental survey**

### **a. Air quality**

Air quality in various sections of the industry was considerably bad. In order of survey, the sections are discussed as under:

In the printing section, a considerable concentration of printing chemicals, dyes and ink was in the air. Insufficient ventilation of the area resulting in suffocation and heavy breathing as well as irritation in the nose could be felt by anyone.

In the candy making section, temperature and humidity were poorly controlled; ventilation of the section was also not proper.

Thirdly, in the biscuit making section, there was a pungent smell that according to the workers was due to Ammonium Bicarbonate that is being used for puffing of dough.

### **b. Solid waste**

Generally speaking, waste management practices in the industry were reasonably well catered. The solid waste of Silver Lake Foods mainly consists of candy and biscuit wrappers and cartons. In July 2005, the industry officials decided to conduct a "Productivity Improvement Plan (PIP)" with the objectives of Wastages Reduction and Productivity Enhancement. As a result of execution of PIP, the wastages were reduced to 0% in biscuit product line and to less than 1% in candy product line. So, solid waste is reduced to a maximum already. They have also devised an in-house system so as to recycle the wrappers and glazed printed paper. These wrappers serve as a raw material when introduced in the hopper of machine and are melted down as a result of heating. The molten and somewhat semi-solidified product comes out of the other end. This is further cooled down till it is completely solidified and is sold to various vendors who use it for street furniture making. Figure 3 shows the schematic diagram of the whole process.

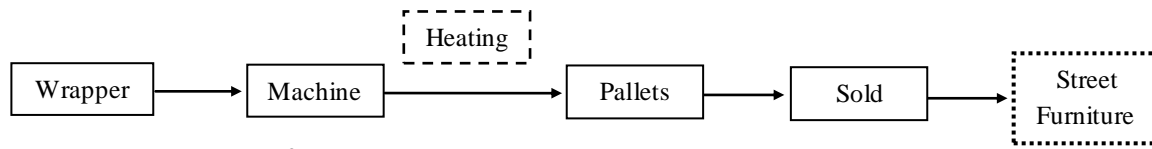


Figure 3: Process of waste recycling

## OHS issues

The Occupational Health and Safety issues were studied throughout the industry. The major OHS issues identified were related to noise, temperature and ventilation, use of PPE, ergonomics and fire safety. These are discussed in detail hereunder.

### a. Noise

There was also high level of noise arising from machines in the printing section; same was the case with candy making section. Workers were not wearing earmuffs or any aid against hearing impairment.

### b. Temperature and ventilation

The baking sections were too hot; no insulation or cooling devices were in place making it difficult to work. Ventilation of the industry was generally in poor condition being one of the major contributors in high temperature of the workplace.

### c. Use of PPE

No Personal Protection Equipment was observed in printing, manufacturing and processing as well as packaging sections. Employees did not use face masks or respirators to avoid the fumes and air-borne chemicals in the printing section. According to them, they were not comfortable with them. Similarly, no gloves or ear plugs were being used in processing section.

### d. Ergonomics

Ergonomic hazards were mainly identified in the packaging section due to the tedious nature of job. There was excessive repetitive motion of hands in the packaging job that included packing of candies / biscuits into card boxes and closing them. This may be a precursor to the Carpal Tunnel Syndrome (Silverstein *et al.*, 2007). Another issue identified in the packaging section was that there is no job rotation for the workers and they have to perform same duties throughout the shift. Whereas, there should be a 15 minutes break after two to three hours of standing job. The packaging jobs are standing jobs; no stool / bench has been provided to the workers to take a break during shift. This type of practice may lead to the development of back illnesses and Work Related Musculoskeletal Disorders (Faucett and Rempel, 1994).

## **e. Fire Safety System**

The fire safety system though in place, revealed many flaws regarding engineering as well as administrative controls. The fire safety system at Silver Lake Foods includes fire extinguishers and alarms; exit doors and routes although present, are poorly marked. There is much congestion in the candy processing sections that even if the fire safety system is perfectly maintained, workers will not be able to get out in the open.

Fire sprinklers were not there; though recommended for printing section especially where there are a lot of volatile chemicals. A fire incident in the printing section has also been reported a couple of years back that caused injuries as well as loss to property.

The SOP for fire safety displayed in the molding section was in English while most of the workers are educated from middle to matric level and are not able to read and comprehend English.

### **General OHS issues**

- The industry is too crowded on the whole, whereas the standard as defined by the Factories Act (1934) is 500 cubic feet space per worker.
- The floor of these sections was not properly cleaned and gave a sticky feeling while walking on it. It felt like raw material and the under process products have been deposited on the floor over time.
- The workers were handling the processed candies with bare hands without using any gloves. This is a potential hygiene related issue.
- There was no safeguard on the machine for packing candies into plastic bags that is a potential hazard for the worker especially in terms of hand or arm injury.
- The lathe machines in maintenance section had no safeguard; this practice is a potential hazard for the workers.

### **RECOMMENDATIONS**

After studying the OHS practices in Silver Lake Food Industry, it has been inferred that there are some areas requiring special attention so as to avoid any accidents and injuries in future that might lead to loss of human health and ultimately production and company repute. Following are some of the recommendations that might be helpful in improving the overall Occupational Health and Safety of employees.

- ▶ Ventilation conditions of industry in general and in printing, processing sections in particular should be improved.
- ▶ Adequate PPE – meant for the specific job – have to be provided to the workers that do not hinder in their job, rather protect them from the potential hazards.
- ▶ The use of appropriate PPE – i.e. for eyes, hands, ears, feet and respiratory system protection – in every section has to be set obligatory.



- ▶ Artificial illumination is to be improved in working areas.
- ▶ There should be job rotations and / or breaks in the jobs that involve repetitive movements.
- ▶ All types of machines should be adequately safeguarded to avoid any loss.
- ▶ In the candy processing sections particularly, measures should be taken to minimize congestion and over-crowding. It may include relocating the machines in other areas or better distribution of employees over the space.
- ▶ General maintenance should be improved that includes walls, walkways, floors and electric fixtures etc.
- ▶ Fire safety system should be improved by clearly marking the walkways and most importantly making the walkways clear so that in case of emergency, there are no hindrances. Sprinklers may also be added to the system.
- ▶ First aid kit, although present, should be available in other sections as well apart from the maintenance section only and workers should be trained as to how to use the kit.

## **ACKNOWLEDGMENTS**

The author is thankful to Silver Lake Foods Company for generously providing the opportunity to study their system and practices as well as IESE, NUST for the administrative and logistic support.

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