

HAZARD RELATED ISSUES FROM TANNING INDUSTRY IN KOLKATA, WEST BENGAL

***ATASHI JANA**

**Research scholar in Geography, 132/1A, Sarat Ghosh Garden Road, kol-31*

ABSTRACT

There are different household industries in Kolkata one of them is leather and rubber goods manufacturing and processing industry. The industry is mainly concentrated in the Eastern and mid-eastern part of Kolkata. The workers of tanning industry belong to weaker section of the society and it is mainly vulnerable to female and child workers. Workers of the tanneries face many health problems. The gaseous effluent from tanneries also causes air and water pollution. The Kolkata tanneries are surrounded by densely populated areas. So the environment problem have serious issues due to waste water and solid waste management system. Bad odour is emitted from tanning industry which is very unhygienic to health. So some sustainable approach and proper remedies are urgent necessity to solve their vulnerable condition.

Key words- tanneries, vulnerable, hygiene, sustainable, solid waste management.

INTRODUCTION-

In kolkata there are 538 tanneries in which Tangra has a production capacity of 31 million m² leather per year and production capacity of Topsia is 14 million m² leather per year. The industry is surrounded by densely populated residential areas. There are different steps for leather processing- 1) unhairing and liming 2) delimiting 3) pickling 4) finishing operation. For these leather processing steps various chemicals are used which is causing air, water pollution and health hazards. The various chemicals used in tanning are lime, sodium carbonate, common salt, sodium sulphate, sodium bicarbonate, chrome sulphate, fat, vegetable oils, liquors dyes etc. The major polluting material in tanning industry is common salt (NaCl). So it is very important to know environmental degradation and health problem of the workers and nearby residents and search the essential remedies to overcome such problems.

OBJECTIVE-

The main objectives of my study are:

- To study the environmental impact of the tanneries
- To assess the health problem of the workers
- To assess the impact of tannery related pollution on the residents of the area
- To search proper remedies for the safety of workers
- To search sustainable approach to reduce environmental degradation caused by tanneries

MATERIAL AND METHODS-

The methods of my study is based on secondary data. For the purpose of my study I have collected information from different journals, articles, website, newspapers. Maps and pictures are collected from different websites. After collecting the information I have analyzed and reproduced it for the purpose of my study.

Area and location- The majority of tanneries is already shifted to Calcutta leather complex which is situated at Bantala in east Kolkata. It is located 14 km from CBD of Kolkata and has any area of 4.5 sq km. This is mainly conducted in Tangra, Topsia and Tiljala. These areas are responsible for solid waste, air and water pollution and health problem.

Steps of leather processing-

- Raw hide skin
- Soaking
- Unhairing and liming
- Fleshing
- Deliming
- Bating
- Pickling
- Chrome



➤ **Sammying, splitting and shaving**

- Retanning , dying and fat liquoring
- Setting out
- Vaccum drying
- Drying
- Vibrating staking
- Buffing and de-dusting
- Finishing

CAUSES OF POLLUTION FROM TANNERIES-

- Waste water from tanneries causes water pollution. The polluted water penetrate vertically down and causes pollution in ground water
- Salts, lime, sludge , spent bark, liquor sludge, fat, primary and biological sludges , pig bristles , tail and body, tanned trimming and shavings are main solid wastes from tanneries which causes environmental pollution mainly land and water pollution



- Chromium is used for dyes in tannery industry which is caused for ground water pollution



- Exposure of Hydrogen sulphide gas during cleaning of tanning pits causes air pollution
- Liquid wastes from tanneries have high PH and alkanity with toxic chemicals like chromium, arsenic and lime which is toxic to aquatic life
- Noise pollution is caused by mechanical equipments (particularly drums, reverse settling machines, through feed staking machines)
- Large quantities of dust produced in buffing operations causes air pollution
- Odour pollution causes from decomposing solid waste or stagnate waste liquors due to poor house keeping



- Toxic water contaminates soil and causes soil pollution and soil infertility

IMPACT OF POLLUTION FROM TANNERIES ON ENVIRONMENT

- Ecosystem is damaged due to untreated effluents from tannery industry
- Groundwater from shallow dug wells causes foul smell and the colour is dark because waste water from tanneries are mixed
- Solid waste from tanneries causes of land fertility
- Nuisance odour from decomposing solid waste or stagnate waste liquors causes growth of bacteria, fungus, parasites, virus
- Waste water from tanneries causes contamination of ground water
- High salt content in the effluents make water and land very saline and it makes the land infertile
- Domestic animals are suffered due to drinking of polluted water from tanneries

HEALTH HAZARD OF WORKERS OF TANNERIES

The workers of the tanneries is suffered from gastrointestinal, Dermatological and other diseases. The health problems of the workers are discussed below-

➤ Health hazard due to dust

- Dusts occurred around rotating drums at shaving and buffing machines causes chronic bronchitis, lungs cancer, larynx, buccal cavity, pharynx

- Lime dust may causes corneal ulceration, opacity and symblephron of eyes
- Hydrogen sulphide gas emitting from cleaning out of tanning pits causes watering of eyes, sneezing, sore throat, headache, giddiness and loss of energy
- At 1000 PPM the Hydrogen sulphide gas produces asphyxia and the exposed person drops dead like a hot potato
- Risk of anthrax a disease caused by biological agents bacillus anthracis caused during operations such as handling ,transferring, curing, soaking, trimming and weighing of infected hides and skins
- Pulmonary anthrax is caused by inhaling dust containing anthrax organism

➤ Skin problems

- Chrome ulceration is a skin problem caused by direct contact with Trivalent or Hexavalent chromium compounds. It is painless and causes multiple ulser or holes on skin especially hands



and feet

- Different types of chemicals are used in tanneries as lime, disinfectants, bleaching agents and dyes. It causes dermatitis among the workers
- Callosities is a skin disease that thickens the skin at pressure points specially on shoulder or palm due to repeated pressure and motion effects while hides and skins are handled and transported manually
- Leucoderma is a white patch on skin caused by wearing rubber gloves and boots containing monobenzene as anti-oxidant
- Finger injuries are very common during fleshing and dehairing operations which are carried on using sharp long knives

- Female workers of tannery industry are suffered from gynecological problems such as menstrual disorders, premature deaths still birth and prolapsed of the uterus

Other health problem of the workers are back pain, finger pain ,elbow pain, neck pain, nausea, headache etc. Many workers died from cancer caused by exposure to toxic and chemicals.

➤ **Problem of residents**

Local people of the area are suffered from solid waste pollution and emission of polluted gas. Solid wastes like untreated skins or hides are dumped at road sides, open grounds or vats. It causes bad odour in the whole locality. Waste water from tanneries make drains and water body polluted with bad smell. If these water bodies are used by people they will be effected by skin problems.

➤ **Social hazards**

There is a record of dropout from schools of students from class v-viii for earning money. The education level is very low among them. 59% female worker and 56% male worker are illiterate.(Begum,R.2016). Child labour in tanneries is a serious problem. Almost every children are engaged as a child labour which deprives their childhood. The income level of both male and female workers is very low. The average income of a female worker is below Rs 700/month. The female workers work for a long time with a little



money to support their family.

REMEDIES-

- Suitable training of workers in recognising and mitigating risks
- Workers who are allergic to biological agents are not working with these substances
- Use of proper techniques for ventilation and to minimize air pollution
- Use of automatic system for dosing and transferring chemicals
- Development of environment management system to control the intensity of pollution
- Skill up the workers to improve their salary
- Medical screening during pre-employment and periodical medical check up
- Information, education and communication for workers for adopting preventive health measures like use of gears, gadgets, face mask, protective eye glasses, special boots, shoes, gloves head cover etc for their safety
- Developing future research especially the health condition of leather tannery workers and their work environment
- Treating the polluted water from tanneries using sunlight in combination with Titanium Dioxide. Use of polypropylene to treat chromium pollution
- Transportation of sludge and disposal in landfill site
- Inspection and investigation of solid waste related pollution problem
- Workers should come under life insurance policy and mediclaim
- All tanneries should come under EIA
- Shifting of tanneries to nearby SEZ to reduce death caused by water and air pollution
- Steps should be taken for providing enough medical facilities for the workers
- Establishment of new government hospital in the tannery area
- Efficient ventilation should be provided for dust generation
- Raw hides and skins should be disinfected using proper disinfectants
- Application of creams and lotions for the exposed part of the body to prevent dermatitis and chrome ulceration
- To avoid direct contact of chemicals use of long gloves, sleeves, aprons and boots are necessary
- Prohibition of eating in the work room
- Washing hands before eating
- Training for first aid for injuries
- Emergency care of eye problem
- Adequate lighting is necessary to reduce accidental hazards

- Proper treatment of tannery waste before being discharged in drain
- Bleach and strong alkali soaps not to be used for removing dyes
- Majority of workers are suffered from breathing problem. So pollution control board should take necessary steps to reduce air and water pollution.
- Proper management should be taken for the disposal of wastes
- Adaptation of water harvesting technologies in tannery polluted region

CONCLUSION-

Kolkata has had a glorious episode of leather manufacturing. Kolkata is also the premier of chrome tanning. It became an important port for leather export long ago. From 1820's leather trade has been in effect between Kolkata and Europe and America. Tangra, Topsia, Tiljala of east Kolkata are renowned for leather business. There are about 500 tanning units in Kolkata which have more than 15000 workers. Beside the glorious episode it has also a dark side. The workers of tannery are in vulnerable condition and it also causes environmental pollution. Different types of chemicals, animal bristles, tail and body cause land and water pollution. Hydrogen sulphide gas from tanning pits causes air pollution. Beside environmental hazard it causes health hazards to the workers as chronic bronchitis, lungs cancer, larynx, buccal cavity, corneal ulcer, skin ulcer, leucoderma etc. It also has a bad social impact because children are engaged themselves as a child labour for earning money. They lack school education. So some remedies and sustainable approach are necessary to overcome this hazard. Workers must use boots, long gloves, aprons, head cover, face mask to minimise health hazard. Proper management of waste disposal is urgent necessary to stop the vulnerable environmental conditions. But the hell like state of tanneries or job in tanneries is only way of livelihood of many people. They have nothing to do but to work at hell like environment of tanneries with a minimum wage. So government should take different steps to increase the salary of the workers and enhance the better condition of tanneries with introduction of modern technologies. Pollution control board should take proper step to minimise the pollution occurred by tanneries.

REFERENCES-

1. Arjuman, C. A study on tannery workers health problem in erode district. IOSR journal of Humanities and social sciences.1-5
2. Begum, R.(2016).Understanding the vulnerability of weaker section of leather goods manufacturing workers of Kolkata.Acad.J.Aurole 6.7(1). 105-110
3. Daun,A.,Bane,R.(2016). A profile of industrialpollution in kolkata municipal Corporationarea: the case of tanneries. Trans.Inst.Indian Geographers. 38(1).79-88.

4. Goaswami,S.,Mazumdar,D.(2013).Treatment of chrome tannery waste water by biological process- a mini review.International journal of environmental and ecological engineering.7(11).795-803
5. Goswami,S., Majumder,D.(2014).Scope of biological treatment for composite tannery waste water. International journal of environmental sciences.5(3).607-622
6. Kumar,J.V.,Rita,S.,Rajan,D.(2014). Socio economic condition of scheduled caste workers working in leather tanneries in Vellore district of Tamilnadu. IJER.11(3).797-811
7. Md,A.H.,Md,S.A.,Jor,A.(2015).Gaseous air pollutants and its environmental effect emitted from the tanning industry at Hazaribagh, Bangladesh.American journal of engineering research.4(5).138-144.
8. Mondal,N.C.(2010). Need of groundwater management in tannery belt:a scenario about dindjgul town, Tamilnadu. Jour.Geol.Soc.India.76.303-309