



FIREWORKS INDUSTRY AND WOMEN HEALTH

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Abstract

Crackers are widely used in India. It is used in large quantities in various types of pujas, festivals, weddings, etc. Sivakasi in Tamil Nadu is a notable place in India for making Crackers. This is called fireworks industry. Hence this place is also called 'mini Japan'. India ranks second in the world in terms of production of fireworks. There are more than 700 factories in Sivakasi. It does a business of about \$360 million every year. However, due to the production of fireworks in this industry, various types of pollution are created. Like air pollution, water pollution, noise pollution etc. Moreover, various problems are seen among the women laborers and child laborers who work here. About 8 lakh workers work directly and indirectly in this industry. Various books, magazines, websites, articles have been used to collect all this information. Women who work here earn about half the salary of men. Notable among the tasks that women usually do is - Chemical filling, Assembling, Labeling, Packing, Binding, etc. as most of these work has to be done manually. Therefore, their harmful components cause various types of damage to the body of women and children. Such as --Chronic headache, Dizziness, Ulcer, Irregular and heavy periods, Miscarriage, Respiratory illness, Chronic cough, Asthma, Chronic obstructive pulmonary disease, Allergic rhinitis, Lower respiratory tract infection and Lung cancer. It is said to give some facilities to workers especially women. But in actual cases these rules are not applied in Fireworks industry. Several irregularities are also seen in the field of management, salary, compensation, working hours, etc. Various types of accidents often occur due to all these reasons. To prevent this, some organizations like CSIR, CEERI etc. have developed various types of less polluting fireworks. Through which the amount of pollution has been reduced a lot. Moreover, the levels of chemical compounds mixed in these crackers have also been determined. The amount of noise producing material has been reduced substantially to reduce noise pollution. Instead of these green crackers are being used more. Which is less harmful to the environment. So women should be aware of all these things. Everyone should know about their protection and safety.

Keywords- *Fireworks, Women health problems, Solutions*

Introduction --

India is the second most populous country in the world(According to 2011 census). India has a large population as well as a lot of diversity. Here are 'thirteen Parvans in twelve months' And whenever a puja-parvan is held, crackers are used.



Cracking bets is a common practise in any puja in India. The beautiful scenery of this cracker attracts everyone very much. At this time, the sky becomes illuminated with different colors. Crackers is most commonly used in our country on the occasion of Diwali, Durga Puja, Ganesh Puja, Kali Puja, and other events.

However, due to the use and production of these crackers, various problems are created. such as - Air pollution, Noise pollution, the intrusion of harmful substances into the bodies of workers, and accidents. Because of all of these things, India has put a lot of rules on how fireworks can be made and used. Today our topic is to discuss how women are affected by working in fireworks industry and how to safeguard them. The first fireworks factory in our country was established in the 19th century in Calcutta, and after independence, a fireworks hub was established at Sivakasi in Tamil Nadu, India. Shivkashi is also known as "Mini Japan." India ranks second in the world in terms of production of fireworks. China is in first place. More than 700 factories have been set up in Sivakasi, Tamil Nadu. Which does a business of about 360 million dollars every year.

Women and children are mainly employed in fireworks industry in our country. Because the wages of women and children are much lower than others. There are about 1070 medium and small scale factories in Tamil Nadu. Where approximately 8 lakh people are employed directly or indirectly Furthermore, approximately 6.5 lakh people are employed in the fireworks industry.

Objectives of the study

1. To inform about the health of the women who work here.
2. To educate women on the various problems and to explain how to solve the problems.
3. To inform about the rules and regulations related to women's work.
4. To inform the workers how they can be protected from the harmful effects of different types of chemical composition.

According to National Child Labor Project of 1986 about 14121 child labourers work in the matchmaking industry in Sivakasi, out of whom about 80% are SC. Apart from Tamil Nadu, other states in India where child labour is employed in the fireworks industry are Uttar Pradesh, Andhra Pradesh, Orissa, Chhattisgarh, Rajasthan, etc. Women and child labourers are paid very little in some places in India. Women often get half of what a male worker earns per day. A female labourer is paid Rs 300-500 per day. which depends on their production. The more production they can do per day, the higher their remuneration will be. That is, they have no fixed remuneration. Their remuneration is mostly based on production. In Tamil Nadu, the level of female labour participation is 30 percent, while India's level is only 19 percent.

Health related problems in women --

Different types of health related problems are seen in all the regions of India where the fireworks industry is developed. There are several major causes of this type of problem, including the fact that safety laws are not always followed, the number of workers is excessive, and the chemicals used are at higher levels than permitted. 90% of the work in the fireworks industry is done manually, such as



Chemical filling, Assembling, Labeling, Packing crackers, Binding, and so on, and all of these tasks are primarily performed by women. Because, in comparison, their pay is nearly half that of men.

Since women do all these tasks manually, they are easily harmed. Most of the compounds used in fireworks industry are harmful. Sulfur dioxide, Nitrogen oxide, CO_2 , Ozone, Potassium nitrate, Sodium chloride, Barium nitrate, and other chemicals are now widely used in the production of various types of colourful fireworks. They are not only used for festivals or pujas. They are also widely used in weddings, cricket matches, football matches, etc. Different types of chemical companies are used to make different types of fireworks and add colour effects to them, which are very harmful to the human body, like—

1. Glittering green-- Barium Nitrate.
2. Blues --Copper Compound.
3. Glitter Effects--Antimony Sulphide.
4. Brilliant White--Aluminium .
5. Purple --Copper Compound.
6. KNO_3 , S --Star Eliminates.

Various types of physical problems are seen in women due to the use of various types of harmful chemical elements. Women who are exposed to a high level of manganese frequently experience Chronic headaches, Dizziness, and Ulcers, etc. Since the women here do most of their work manually, and in many cases they work without masks or gloves, So they affected very quickly, such as the tendency toward cancer due to the use of Chromium, Manganese, and Lead. The majority of women experience painful irregular and heavy periods as a result of their work in contact with extreme heat and hazardous chemicals.

All the women who work here are advised to do regular health checkup and eat different types of fruits and jaggery. But due to low income, it is not possible for them to bear this cost. Working in a toxic and smoky environment in these places causes various problems among women, such as Miscarriage, Stunted child growth, Respiratory illness, etc.

Potential impact of fireworks on respiratory health, in India. According to a 2014 study by a peer-reviewed journal of the Indian Chest Society, it is known that those who work in this type of toxic environment most often suffer from Chronic cough, Breathlessness, Asthma, Chronic obstructive pulmonary disease, Allergic rhinitis, and disorders of the lower respiratory tract. Infections and Lung cancer are frequently observed. The poisonous smoke emitted from crackers causes Miscarriage, effects on the growth of children, Increased respiratory illness, etc.

NASA, the US space agency, released a satellite image of deadly dust clouds over northern India in October. Problems such as respiratory disorders, Hormonal imbalances, Increased anxiety levels, Sleep loss, Hyperventilation, etc. are seen in women. A study by the Chest Research Foundation (CRF) in 2017 revealed that the amount of PM 2.5 matter increases manifold in India due to the burning of certain types of items such as phuljhadi, chakri, string-shaped sparklers, snakes, and flower pots. According to Greenpeace, air pollution killed 1,20,000 people in



India in just 2020. The prevalence of Asthma, Eye contamination, TB, etc. increases among those women who work with black powder filling in fireworks.

Below is a description of the deterioration of certain physical conditions due to certain chemical compounds—

1. Sulphur Dioxide-- Acid Rain.
2. Mercury-- Toxic Heavy Metal, Bioaccumulation.
3. Ammonium -- Contaminate Groundwater.
4. Ozone -- Greenhouse Gas.
5. Strontium Compounds-- Replace Calcium In Body.

Rules and regulations---

There are different types of rules and regulations regarding the setting up, management, wages, compensation, etc. of the fireworks industry. According to the Indian Fireworks Manufacturers Association, most of the fireworks industry does not follow rules and regulations, which often leads to accidents and loss of life. According to guidelines, the level of Sulphur is 20 percent, the level of Nitrates is 57 percent, and the level of Aluminium powder cannot be more than 24 percent. Scientists at the CSIR lab, Nagpur have developed crackers with 30% lower emission and a noise level reduced from 160 dB to 125 dB. In places where this is done, four people are allowed to work in a shed, but in most cases, this is not adhered to.

According to Petroleum and Explosives Safety Organization (PESO) rules, cracker shops cannot be opened near schools and hospitals. The distance between cracker shops and the protected work spot should be 15 meters. A fireworks shop needs to have three metres of open space on all four sides. According to the PESO Act 2008, cracker shops must have emergency exits. Workers need to wear hand gloves, glasses, etc. as safety equipment during work.

Accidents --

In May 2021, a total of 2174 fire related incidents occurred in Delhi, in May 2019, 3297 incidents occurred. On October 23, 2018, a man was killed in an illegal firecracker manufacturing unit. On September 5, 2012, 40 people died and 70 were injured in the Om Sakthi Fireworks industry, Sivakasi. On July 2, 2005, 12 people died and 22 were injured. On March 22, 2011, a cracker worth 1 lakh rupees was destroyed. On August 6, 2011, six women workers died in Shivkashi.

Solutions --

CSIR - CEERI has developed some pollution free crackers to reduce air pollution. Which will reduce the level of environmental pollution. Accidents can be reduced if the owners of the cracker industry obtain approval from the fire department when constructing the factory. The CSIR has developed less polluting crackers. Which are cheaper in cost and will reduce the amount of air pollution. They should be used in large quantities. Moreover, using more green crackers will reduce air pollution. Women who work in factories need to be trained in the proper use of safety equipment. There is a need to educate people about awareness so that they can be protected from various types of harm.



Conclusions --

Women need to be aware of themselves to avoid various problems. They must be aware of various rules and regulations in order to obtain their rights. Moreover, if these factories follow their rules and regulations, people and the environment will be protected from various types of damage.

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