



**Full Length Research Article**

**PEOPLES' PERCEPTION ON POLLUTION AND ITS IMPACT ON PUBLIC HEALTH: AN EMPIRICAL STUDY IN ULUBERIA TOWN WITH PARTICULAR REFERENCE TO THE AIR POLLUTION CAUSED BY BONE CRUSHING UNITS**

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**ABSTRACT**

Uluberia is a small sub-divisional town in Haora district, situated at the west bank of Hooghly River. Nine Bone Mills are located in the southern part of the town. They are engaged in crushing up the dry animal bones and producing 'bone dusts' for various industrial usages. Ministry of Environment, Government of India, has categorized this kind of factories as 'ordinary red'. They can potentially harm public health and thus are 'officially' not allowed to operate in the vicinity of a residential area. Present study reveals that the people, residing near the bone mills, are suffering from acute nausea, loss of appetite, insomnia and several other diseases. Several conflicts between the mill owners and the local residents have already been taken place and the problem is fast escalating in magnitude.

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**INTRODUCTION**

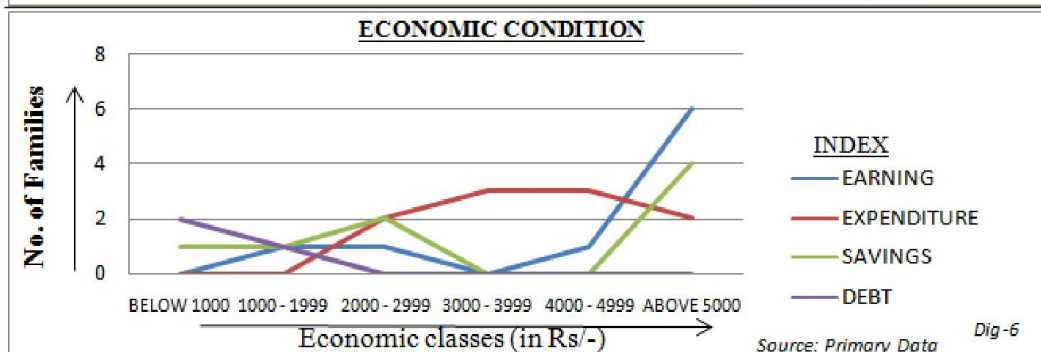
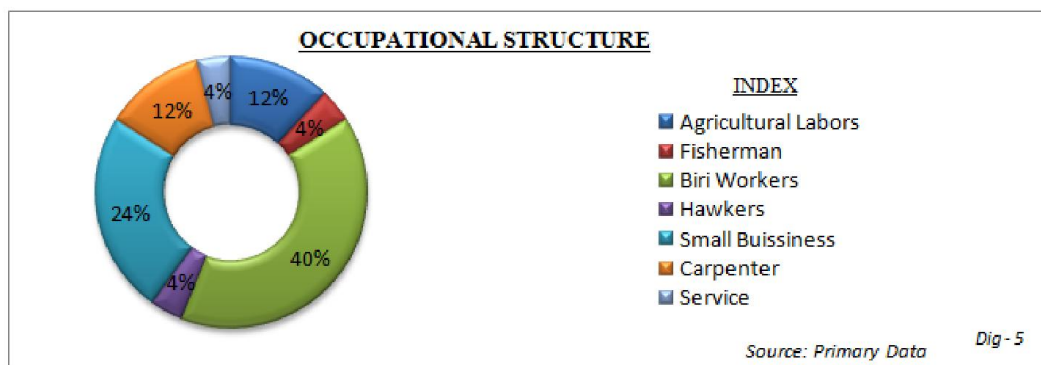
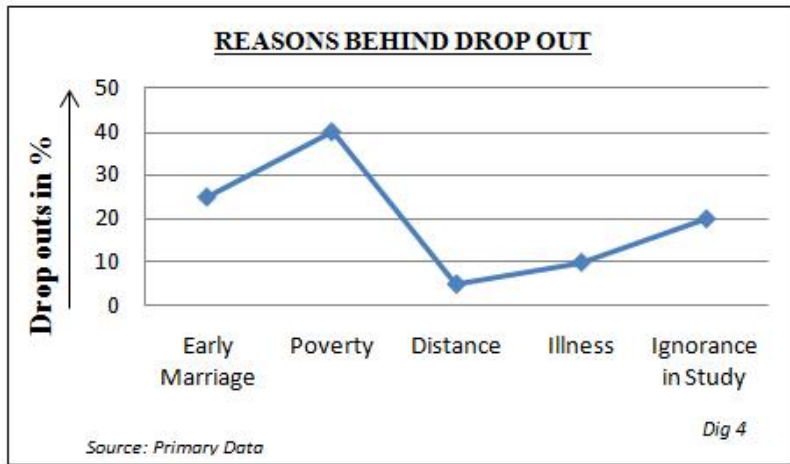
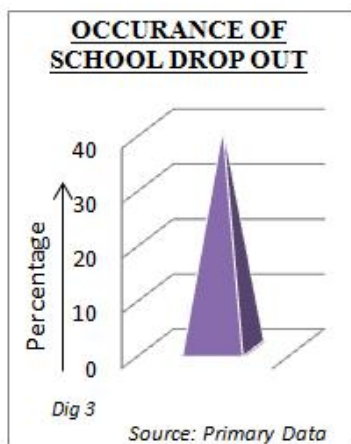
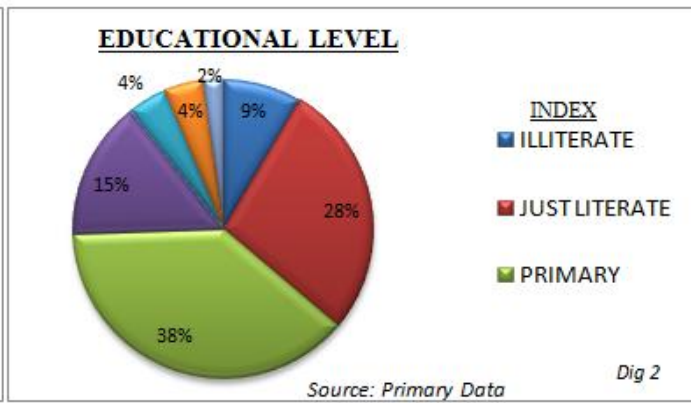
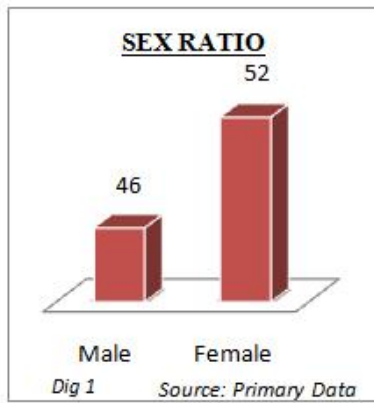
Environmental pollutions caused by the industries are matter of serious concern to the scientists, social workers and activists for last few decades. Industrialization and urbanization go hand by hand in post colonial India, bringing in the virtue of economic prosperity to social life as well as the vices of pollution that forced to rethink the very justification of the entire process. Not surprisingly the poorest and most deprived part of the society always remains at the receiving end and they suffer most from the industrial pollution. Present study deals with the sufferings of people living in the Uluberia Municipality in southern West Bengal in India from the pollution caused by some bone crushing factories located at the midst of dense residential part of the town.

**Background of the study area**

Uluberia town is situated at the west bank of river Hooghly at 22°28'04''N, 88°05'50''E location and spread over 33.72 sq km. The town has a total population of 202135 persons, 105843 are male and 96292 are female and the population

density is 5995 persons per sq. k.m. (Govt. of India, 2011). Among the 29 wards of the municipality, ward no. 7 and 8 at the south-western part of the town are the places where bone mills are situated. Ward no. 7 has one bone mill active at present and ward no. 8 has six. Gangarampur locality in ward no. 8 is selected for the survey on perception of the residents on the impact of different kind of pollutions that they face every day just because of the vicinity of Bone Mills to their neighborhood. It is a densely populated area in the southern part of the Uluberia town where at least three bone crushing units are operating in the midst of residential area. The locality also possesses one primary and two higher secondary schools where more than 3000 students come every day for their studies. Residents of Gangarampur and its immediate surroundings are taken as the target group for perceptive study, as they supposed to be the worst affected lot from the pollution caused by bone mills. There are several colonies where displaced Bangladeshis had been accommodated by the West Bengal Government in recent past. Most of the respondents belong to these colonies. Majority of the respondents are female (dig 1). They are educationally backward, 28 percent are just literates and 38 percent of them have completed just primary level of education. Together with their illiterate counterparts, they comprise almost 70 percent of the total respondents (dig 2). Occurrence of school drop-out is high

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(dig.- 3) and the reasons behind it varies from 'poverty' and 'illness' to 'ignorance in study'. Early marriage is one of the greatest reasons of school drop-out for the girls (dig 4). Preparing *Bidi* i.e. country made cigar, is the principal occupation of 40 percent respondents. A considerable 24 percent runs small business like *pan* shop, stationary shop, video library etc. only 4 percent are service holders in different government organizations (dig 5). Economically the respondents range between lower middle class to low income

group categories. There are families with more than 20,000 Rs/- income and more than 5000 Rs/- savings per month and at the same time there are families with below 1000 Rs/- income and 2000 Rs/- debt per month (dig 6).

**Objectives:** The prime objectives of this study are –

1. To bring out the perception of the people about the pollution caused by the bone mills in Uluberia town.

2. To identify the impact of pollution caused by the bone mills on public health as well as the social response to that.
3. To suggest the viable solutions.

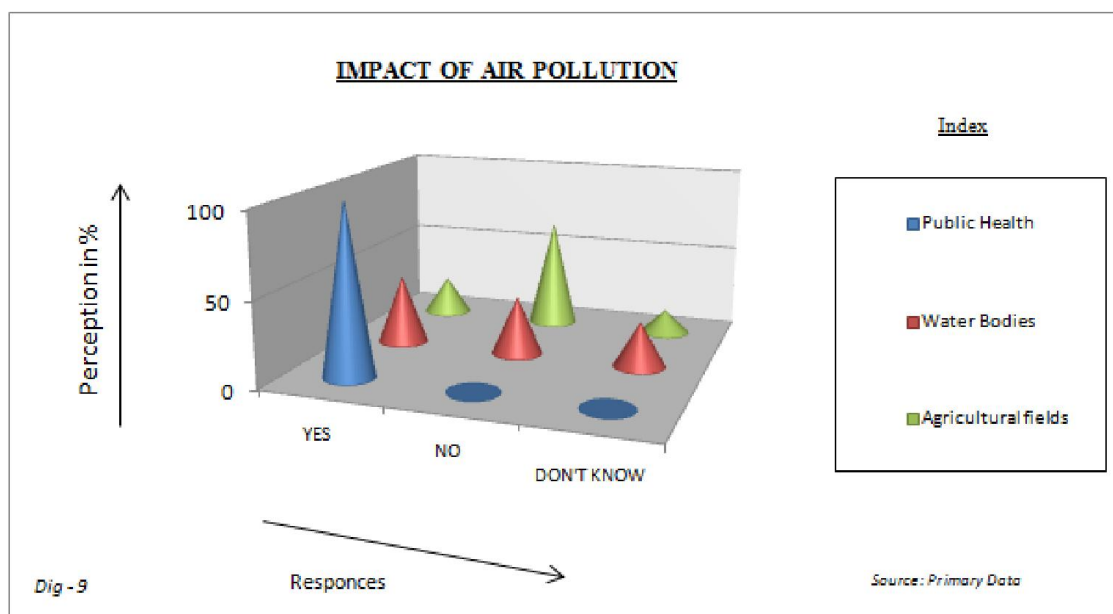
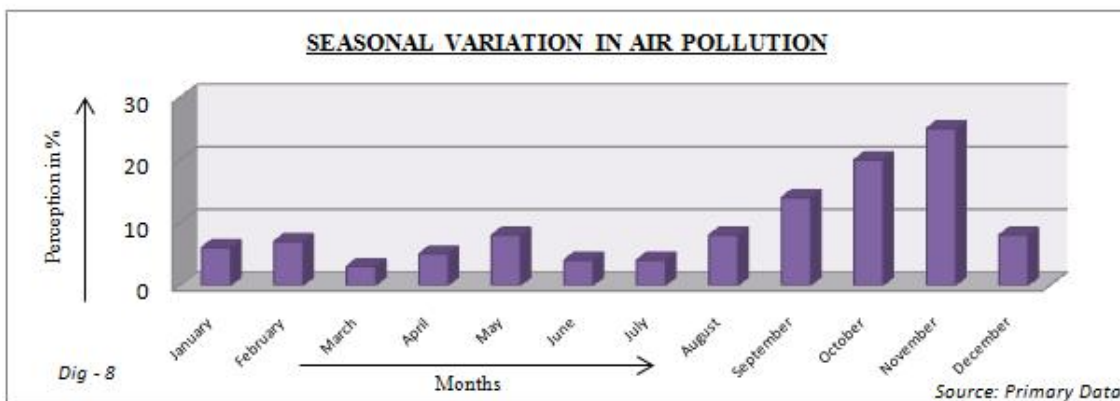
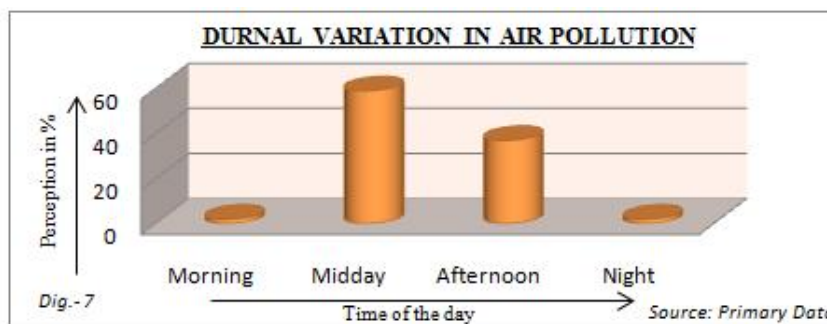
**MATERIALS AND METHODS**

To satisfy the aforesaid objectives the following methods have been adopted –

- Information from different secondary sources has been collected at the pre-field stage to build the hypotheses.
- Extensive field work has been conducted by the help of a pre-fabricated questionnaire to bring out the people’s perception about the pollution caused by the bone mills.
- Post field phase consists of array and analysis of the collected data, their statistical and cartographic representation and interpretation. Thus the hypotheses are tested and conclusion is drawn.

**Pollution from Bone Mills**

Bone mills are one of the most polluting small scale industries that possess potential threat to surrounding environment. People working in the bone mills and those who live in the closest vicinity of these factories are vulnerable to several health hazards (Govt. of W.B, 2002). Thus the bone mills are marked as ‘ordinary red’ category industries by the pollution control board of West Bengal (ibid). Bone mills of Uluberia are quite old. Two of them were established during the colonial period while the most others are at least 35 years old. Only one bone mill is established in 1997. All of the units are registered under Small Scale industry Board of state government and most ridiculously all of them possess ‘certificate of operation’ from the West Bengal Pollution Control Board. They do not pay any tax to the municipality as the authorities never asked them to pay it. All of the factories



claim to have pollution control measures but in reality they either failed to show it or refused to do so. The factories use dry bones of the bovine animals e.g. cow and buffalo, as their raw materials. Raw materials mainly come from the neighboring districts of North and South 24 paraganas. Only at the time of scarcity of raw materials e.g. the rainy season, they avail the supply from Bihar and Uttar Pradesh. At first, dry bones are sorted according to their size and quality and then they are placed in crushers of different diameters to produce different category bone dusts. Three types of bone dusts are usually produced i.e. 'fine' with granular length of 0.40cm or less, 'medium' ranges within 0.60 to 0.80 cm length and the 'coarse' granules are above 1cm. length. These bone dusts are used by several other industries as raw material to produce gelatins, glue, organic fertilizers and poultry feed etc. Bone dusts produced from the factories in Uluberia are generally transported to Madhya Pradesh, Andhra Pradesh, Tamil Nadu and several other southern states of India. People residing near the bone mills reported massive pollution from the bone mills. Most of them complained against the intolerable stench coming out of the piles of animal bones inside the factories.

According to Suklal Biswas, a resident of Ward no. 8 and a *pan* shop owner at Gangarampur, it is like a "thick layer of odor that blows on our noses and derail our minds every night and day". Some of the respondents living just aside the bone mills complained that the water coming out of the factories made the water bodies so polluted that they are now unusable for domestic purposes. Even the agricultural fields suffer a lot from the dusts coming out of the bone mills. Fields near the factories are covered by a thin layer of whitish bone dust that has decreased the yield rate in comparison to their counterparts at distant locations. Temporal analysis reveals that the stench reaches its peak at midday and sometimes lasts till afternoon. Morning is the only time when the residents of Gangarampur can breathe pure air (dig. 7). Within a year span, most of the respondents marked October and November as the months they suffers most from the polluted air (dig. 8). Residents of ward no. 8 in general and that of Gangarampur in particular, suffer most from the air pollution coming out of the bone mills due to their geographical location. Not only that the locality has several bone mills in close proximity, the factories are situated in North and South of Gangarampur. In summer, the southern breeze drives the stench coming out of the southern factories to Gangarampur and in the winter the north wind does the same things for the factories situated north to the area. Considering the circular impact area of air pollution of each factory, based on the people's perception, it can be stated that Gangarampur is situated at the place where most of the impact areas overlap. That means the area have to suffer from air pollution round the year (dig. 9).

### Impact

Pollution, particularly one coming from the air, has a clinically detectable impact on the public health of the residents of ward no. 7 and 8 of Uluberia municipality. It has also a visible social impact in form of factory owner vs. local people conflict. Several meetings have already taken place in administrative levels with no immediate effects.

### Impact on public health

Residents of Gangarampur admitted several physical and mental ailments they thought as the impact of pollution from bone mills –

- Most of the respondents reported nausea as the immediate effect of the stench. It is acute in children and ladies.
- Loss of appetite and unwillingness in taking food are common in all age groups.
- Chronic headache is reported among adult males.
- Insomnia is common in aged persons and ladies.
- Many of the aged persons suffer from allergic asthma that intensifies with the stench.
- Many of the respondents confessed that the living in a polluted environment has made them grumpy and affected their personal life adversely.
- A behavioral change in children has been noticed as they behave rough and rude unusually and their parent blames the stench for that but it has to be proved yet.

### Impact on society

The pollution from the bone mills has instigated serious conflicts between residents and the mill owners. Several clashes have been reported in last five years. The suffered lot has called for *Uluberia bandh* twice in last year to attract the glance of the world but it did not yielded anything better than the assurances from the police and the municipal body to take action against the defaulters. Thus an agitation against the administration is brewing inside the hearts of the residents of ward no. 7 and 8.

### Suggestions

Considering the above facts some suggestions are prescribed below

- a) The bone mills should not be allowed to continue their work within the residential area. Being a red category industry it is illegal to carry on production in a densely populated area.
- b) The best option is the relocation of these factories in a planned industrial park any where beside the NH-6, where ample lands are lying vacant.
- c) All of the bone mills should be compelled to run proper and effective pollution control measures.
- d) Raw materials used by the bone mills should be treated with chemicals to reduce the stench and it should not be piled in open places.
- e) Municipal authorities should impose taxes on the bone mills and offer services like garbage disposal etc. in exchange.
- f) The residents suffering from physical and mental ailment due to pollution should be given clinical assistance immediately.
- g) Special care should be given to the children suffering from syndrome of abnormal behavior.
- h) Nexus between the mill owners and the administration, if any, should be busted immediately.

### Conclusion

People of Uluberia town have suffered enough from the unhealthy fumes of bone mills and they now want some action against the pollution, not the mills. On the other hand, the mills owners are in no mood to change their way of action. They have the rational that their mills are older than the residences that immediately surround their factories and actually their factories were built up on non residential open

lands that had been encroached by people in later times. Even if the truth in their point is accepted, it cannot justify the sufferings of the victims of pollution caused by their factories. So a firm governmental action is needed here to reduce the pollution as well as the sufferings of general people of Uluberia town.

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