

VICTIMS' PERCEPTION ON ENVIRONMENTAL CRIME: AN EMPIRICAL STUDY ON THE INDUSTRIAL ZONE, SAVAR, DHAKA

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Abstract

The growth of urbanization and industrialization is spreading recently. Bangladesh is also in that flow and the growth of industrialization is increasing here on the basis of available worker, transport system, money to invest, low labor cost, neocolonialism, and other factors but as the unplanned industrialization is happening here so environmental crimes are rising as byproducts of industrialization. In commonsense, environmental crimes are treated victimless crimes as there are no direct victims of this crime but the harm of environmental crime is general and long term in nature. The study interest was to focus on the victims' perception on environmental crime. The study area is Ashulia Union of Savar Upazila of Dhaka district. The main aim of this study is to find out the sufferings faced by the victims due to industrial crime, the sufferings revealed from the study are air, water, soil and sound pollution, another focus of this study is to find out the factors like political, economical and legal factors behind the environmental crime. Another aim was hot spot analysis of the study area through GIS mapping. In this study it is revealed that the people of Savar area face diseases related to pollution largely than non-industrial zone.

Keywords: Environment, Environmental Crime, Industrialization, Pollution.

Introduction

Bangladesh is one of the most densely populated countries in the world with approximately 964/km² people per square kilometer, and a population of around 142.3 million by the year 2011(BBS Survey preliminary result, 2011). It is also one of the world's developing countries, with a per capita Gross National Product (GNP) of and Gross Domestic Products (GDP) of \$755 and in which approximately 31 percent of the population live below the poverty line (BBS pocket dictionary, 2011). The population remains largely rural with only around 20 percent living in urban areas (BBS, 2000; Abedin, 1997). The country still has a relatively small industrial sector contributing about 20 percent of the GDP from 1996 to 97 but it is growing rapidly. The manufacturing sub-sector accounts for about half of this and grew at a rate of five percent between 1972 and 1992 (Bhattacharya et al., 1995).

There are now over 24,000 registered small-scale industrial units in Bangladesh (SEHD, 1998) and it is generally accepted there are an equivalent number unregistered. The growth of small-scale industrial activities in Bangladesh has a positive development dynamic in macro-economic terms, for example the ready-made garment (RMG) sector accounts for 76 percent of national export earnings and 9.5 percent of GDP, providing

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US\$ 5 billion in revenue and employing around 10 million people, however industrialization has also brought with it a range of problems, including pollution of water resources. Many are highly polluting and as a consequence of their rapid and largely unregulated development, many ecosystems are now under threat and with them the livelihood systems of local people (Chadwick and Clemett, 2002). Consequently whilst Bangladesh is, in industrial terms, a relatively undeveloped country, “the problem of localized pollution is alarming” (SEHD, 1998). The study topic is to understand the Victims’ Perception on environmental crime: a study on the industrial zone of Savar, Dhaka. The study population is the entire households of Ashulia Union of Savar Upazila and the sample size is selected through a cluster and purposive sampling frame discussed further in the methodology section. Among the pollution that means environmental crime the air, water, soil and noise pollution are main. There is also a victim perception that most of the victims don’t even know the environmental pollution is a punishable offence! So this study is a small step to focus on the sector of environmental crime.

The situation of environmental crime in Bangladesh

As Bangladesh has a growing economy in developing world she facing a lot of problems yet. Due to developmental process and growing industrial sector some problems are rising as by-products. One of the most serious problems is pollution. Population growth and human activities have an impact on natural environment. Industrialization, overexploitation of natural resources, waste disposal, pollution of land, air and water, unplanned development of infrastructure, loss of biodiversity, all contribute to the deterioration of natural environment and resources in Bangladesh. (Chowdhury M. Hoq). Though in common sense pollution is not a crime but a problem but if the pollution is not derived from natural calamities or sources then it would be a crime. Crime is a variable and defined differently accordance with different laws of different countries. In Bangladesh crime or offense is defined as follows:

"Offence" means any act or omission made punishable by any law for the time being in force. (Section 4{1(o)} of The “Criminal Procedure Code, 1898”). So, any act or omission would be defined as offense or crime which is contradicted with the existing laws of Bangladesh. In case of environmental crime, the crimes and punishments are described in laws regulating environmental issues. Some important and leading environmental laws of Bangladesh are- Water Pollution Control Ordinance, 1970; Environmental Pollution Control Ordinance, 1977; Bangladesh Environment Policy, 1992; Bangladesh Environment Conservation Act, 1995; Bangladesh Environment Conservation Rules, 1997; Bangladesh Environment Management Act, 2001. Etc.

In Bangladesh context, the concept environmental crime is described as pollution and hazardous wastes describing in the Section 2 of the “Environmental Conservation Act, 1995” where some concepts are defined as follows: "Environment" means the inter-relationship existing between water, air, soil and physical property and their relationship with human beings, other animals, plants and micro-organisms. "Environment pollutant" means any solid, liquid or gaseous substance which causes harmful effect to the environment and also includes heat, sound and radiation. "Hazardous substance" means a substance, the chemical or biochemical properties of which are such that its manufacture, storage, discharge or unregulated transportation can be harmful to the environment. "pollution" means the contamination or alteration of the physical, chemical or biological properties of air, water or soil, including change in their temperature, taste, odor, density,

or any other characteristics, or such other activity which, by way of discharging any liquid, gaseous, solid, radioactive or other substances into air, water or soil or any component of the environment, destroys or causes injury or harm to public health or to domestic, commercial, industrial, agricultural, recreational or other useful activity, or which by such discharge destroys or causes injury or harm to air, water, soil, livestock, wild animal, bird, fish, plant or other forms of life. "Waste" means any solid, liquid, gaseous, radioactive substance, the discharge, disposal and dumping of which may cause harmful change to the environment.

In Kaliakoir, the number of textile related factories has increased from 20 in 2003 to 166 in late 2005, so overall the pollution problem is getting worse. This means that there has to be a massive increase in implementation of pollution mitigation measures if there is to be any meaningful reduction in pollution in the future. Current laws and regulations are evidently not being followed otherwise Bangladesh would not have to suffer from dead or anaerobic river stretches and wetlands that are rapidly dyeing (Chowdhury and Clemett 2006).

Industrialization has been rapid in Bangladesh during the last decade, particularly in the sectors of leather, pharmaceuticals and industrial chemicals. However, these industries are discharging and dumping their wastes and effluents without treatment into nearby water bodies. Tanning - one of the oldest industries in the country - contributes to a great extent. Most tanneries are in Dhaka, beside the River Buriganga into which they flush their waste water. Studies have found high levels of pollution at several points in the river. Macrophytes in the river absorb various amounts of nutrients and pollutants, but the macrophytes are then eaten by livestock or humans. Other studies have measured heavy metal species in soils and plants in the tannery areas that have been affected by tannery waste. In grasses, Cr accumulates to concentrations exceeding the limits set by health authorities, and the yields and performance of rice and wheat are reduced (Enamul Haque et al. 1997).

Industrial development is another major source of air pollution. Most of the industries in Bangladesh are situated in major urban areas. Food industry emits maximum amount of pollutants followed by cement, pulp and paper industry and textile. Among food industry, most of the pollutants come from the sugar mills. The study shows the top 5 industry that pollute the air most. The study shows that food industries emits 146356.06 tons/Year(38.7 percent); Cement/clay industries emits 62725.88 tons/Year(16.6 percent); Pulp and paper industries emits 51963.92 tons/Year (13.7 percent), Textile industries emits 39813.01 tons/Year (10.5 percent) and tobacco industries emits 16992.22 tons/Year(4.5 percent) (Islam, et. al., 2000)

A survey conducted by the DoE revealed that 14,000 tons of solid waste and 16,000 cubic metres of chemical waste are discharged by the industries every year into the rivers in Dhaka and its adjacent areas, while 12,000 industries around the country discharge 35,000 cubic metres of waste into the rivers every day. The major polluter industries include fertilizer, pulp and paper mills, pharmaceuticals, printing and finishing textiles, iron and steel mills, cement, pesticides and plastic factories, and distilleries and sugar mills. The water in the rivers adjacent to these industries is highly toxic, containing a high concentration of suspended and dissolved solids with high biological oxygen demand (BOD) loadings of 2,000-3,000 mg per liter. The consequences of this alarming pollution menace are horrifying. The process towards fishless lakes and streams, dying forests and barren crop fields has started.

Methodology

This Study is based on empirical data which are from both quantitative and qualitative research methods. This research is exploratory in nature. The Study area is the Savar. Savar is an Upazila of Dhaka District in the Division of Dhaka, Bangladesh. Savar has 12 Unions/Wards, 350 Mauzas/Mahallas which are Shimulia, Dhamshona, Ashulia, Pathalia, Yearpur, Birulia, Savar Paurashava, Banagram, Kaundia, Tetuljhora, Bhakurta, and Aminbazar. Ashulia Union is the surveyed union selected by a cluster sampling process. The study area is being selected for the purpose of availability of data other than different industrial zone. The size of the population is 11102 units of household. (BBS Preliminary Report, 2011)

The sample was selected with non-probability purposive sampling. In this study purposive sampling is being applied because respondents, who were admitted that they are somehow affected by the industrial pollution that means the environmental crimes due to pollution, have been surveyed because they are treated as victims of environmental crime. 185 respondents are being surveyed purposively to conduct this study. The data collection methods are survey method with a survey questionnaire. Ethical Issues such as the confidentiality and privacy of the respondents are maintained properly. Data that collected from the data collection methods is analyzed using both descriptive and inferential statistics done by a computer based software program called SPSS.

Findings of the Study

Socio-demographic characters of the respondents

Socio-Demographics are the statistical characteristics of a population. In this study socio-demographic characters of the respondents include age, Sex, marital status, religion, educational qualification, family type, no. of family members, occupation, monthly income etc. It is revealed from the study that the total number of respondents is 185. It is found from the study that that about 25.95 percent of the respondents belong to the age group of (30-35). The respondents' average age is 26 years. It is found from the study that 59.46 percent of the respondents are male and 40.54 percent of the respondents are female which quite balanced counts of the respondents. It is also revealed that most respondents, 51.35 percent are married then followed by 37.84 percent unmarried, 5.95 percent divorced. The study presents that most of the respondents are Muslims (88.65 percent) followed by Hindus (10.81 percent). It is also found that most of the respondents, 30.81 percent have only the primary level education because the study area has the residents who are the workers of the industries has the low level of educational qualification. The study reveals that most respondents are businessman (30.27 percent) and Workers (25.41 percent) which indicated that the study area is a commercial area.

It is found from the study that 25.41 percent of the respondents' monthly income belongs to 15100-20000 which indicates the business or service holders on the other hand 28.86 percent respondents' monthly income is less than 5000 which indicates the monthly income of the workers of industries and low labor costs of the industries. It has revealed from the study that most of the families are single families (65.94 percent) which indicate the result of industrialization and urbanization and changing social structure of the Bangladesh society. This study also reflects the information of growing single families due to industrialization and urbanization. Most (43.24 percent) family's have family members from 3 to 5. About 63.24 percent residents are permanent residents and 36.76

percent respondents are not permanent resident of the study area. This study reveals that the duration of residing by the victims in the study area are on one side are less than 5 years(20.54 percent) who are not the permanent residents of this area and on another side 30.27 percent are resident for more than 17 years .

Environmental crimes due to industrialization: Consciousness of pollution as 'crime'

It is found from the study that most of the victims (71.35 percent) are not concerned about being victims of crime due to industrial pollution at all; this reflects the reason why 'Environmental crime is considered to be victimless crime. The general people even do not know the legal boundaries behind the environmental conservation.

Nature of Consciousness of pollution as 'crime'

As it is found earlier most victims are not concerned at all some are concerned about being victimized but most of them are little concerned (16.22 percent) followed by the moderately concerned people (10.81 percent).

Type environmental crimes in study area

It is found from the study that the main types of crimes occurring in the industrial zone are disposing industrial wastes (62.7 percent). Disposing industrial waste means the dumping of toxic liquids and concretes which includes the residues after the manufacture of any industrial products, the industrial wastes also includes textile wastes. The disposing industrial wastes followed by extracting toxic gases(16.75 percent) which include carbon monoxide, Nitrogen per oxide, sulfur dioxide etc which are so much harmful for the environment, another type of environmental crimes occurring in study area polluting agricultural lands (15.14 percent) and extracting excessive or irritating sounds(5.41 percent).

Type of pollution in the study area

It is found from the study that the main types of pollution are water pollution (39.46 percent). Water pollution is the contamination of water bodies (e.g. lakes, rivers, oceans and groundwater). Water pollution occurs when pollutants are discharged directly or indirectly into water bodies without adequate treatment to remove harmful compounds. As the study area industries doing the main type of crimes is dumping wastes into the reservoirs. Water pollution is followed by air pollution (36.22 percent), Air pollution is the introduction of chemicals, particulate matter, or biological materials that cause harm or discomfort to humans or other living organisms, or cause damage to the natural environment or built environment, into the atmosphere. And another type of pollution soil pollution (20 percent), Soil contamination or soil pollution is caused by the presence of xenobiotic (human-made) chemicals or other alteration in the natural soil environment and sound pollution (4.32 percent), Sound Pollution is excessive, displeasing human, animal or machine-created environmental noise that disrupts the activity or balance of human or animal life. As the water pollution is visible by the victims so it is found the main type.

Ignorance of environmental crime

The study reveals that the main type of ignorance of the people that leads to environmental crime is unknowing the law of Environment (55.14 percent) which

indicates that general people are not concerned about being victimized and it is a failure of the Department of Environment to make general people conscious. Another factor of unconsciousness of the general people is lack of solidarity among the people (25.4 percent).

Economic factors of environmental crime

It is found from the study that most victims think the main economic factor behind the environmental crime is to avoid the cost of waste management (53.42 percent). The waste management plant is a very costly process there is hardly any loan for the waste management plant in Bangladesh so avoid the cost of waste management plant and in wanting of more profit (22.7 percent) and to limit the working cost (17.3 percent) are the economic factors behind that leads to environmental crime. To limit the cost of workers is a economic factor because the industrialists have to ensure the environment which is suitable for the workers so it is also costly. This finding resembles with the findings of key informant interviews.

Political factors of environmental crime

It is found from the study that most victims think the main political factor behind the environmental crime is the corruption of the politicians (47.03 percent). Corruption is the dishonest or fraudulent conduct by those in power, typically involving bribery. Another political factor which leads to environmental crime is ineffectiveness of the organs of the state that is the department of Environment (17.83 percent). These finding resembles with the findings of key informant interviews.

Legal factors of environmental crime

According to the victims perceptions most of the victims think that the main legal factor behind the environmental crime is the lack of implementation of laws (36.22 percent) There are many Acts like The Bangladesh Environment Conservation Act, 1995; The Environment Court Act, 2000; The Building Construction Act, 1952; The Bangladesh Environment Conservation Rules, 1997; The Environment Pollution Control Ordinance, 1977; The Water Pollution Control Ordinance, 1970; Wildlife (Preservation) order, 1973 etc which are quite sufficient for Bangladesh scenario but there are lack of implementation of the laws and the corruption of the law enforcement agencies (24.32 percent).

Environmental crimes and industrialization

Problems of pollution

It is found from the study that most of the victims suffered from several types of diseases due to pollution (40.54 percent) followed by decreasing productivity (36.22 percent), the main diseases due to pollution are skin diseases, pneumonia, bronchial diseases, Heart diseases, liver and kidney diseases, Hepatitis, viral fever etc . Decrease productivity means the decline of agricultural productivity. Agricultural productivity is measured as the ratio of agricultural outputs to agricultural inputs.

Problems of air pollution

It is found from the study that most victims suffered problems due to air pollution are malodor or bad smell (70.27 percent) and increased temperature (16.76 percent) which is

easily found by observing the study area and it was found the researcher as well (Appendix A:Table 4.23). The source of malodor is mainly the waste dumping in the water reservoirs and the polluters' emission from the industries. The temperature increases depends on various factors like decrease oxygen in the air, increase of carbon dioxide and decrease of trees which are some results of industrialization as well.

Problems of water pollution

It is found from the study that most victims think the main problem due to water pollution is intoxication of the reservoirs of water (52.97 percent) followed by destroying fisheries (30.81 percent) and water-borne diseases (10.27 percent). (Appendix A: Table 4.24). As the reservoirs are the sources of fishes and if the reservoirs are being polluted with the industrial wastes and intoxicated with the industrial wastes then the fisheries sector would be destroyed and in the study area many reservoirs had already lost its biodiversity which includes the fisheries.

Problems of sound pollution

Another problem that is raised from industrial crime is sound pollution. Sound or noise pollution is excessive, displeasing human, animal or machine-created environmental noise that disrupts the activity or balance of human or animal life.

The study reveals that most of the victims faced problem due to sound pollution is headache (39.45 percent) followed by inattentiveness (30.81 percent) due to industrial pollution.

Causal effects of environmental crime

From this study it is revealed that there are four main types of pollutions, which are air pollution, water pollution, soil pollution and sound pollution. And there are some factors behind these pollutions which are economic factors, political factors, and legal factors. Among the economic factors, to avoid the cost of waste management is the most influencing factor behind air pollution (58.2 percent), water pollution (53.4 percent), soil pollution (35.1 percent) and sound pollution (75 percent); among the political factors, corruption of the politicians is the main influencing factor behind air pollution (50.7 percent), water pollution (50.7 percent), soil pollution (40.5 percent) and sound pollution (12.5 percent); among the legal factors, lack of implementation of laws is the main influencing factor behind air pollution (38.8 percent), water pollution (35.6 percent), soil pollution (24.3 percent) and sound pollution (75 percent).

Comparison of control group and experiment group

The study reveals the comparison between two groups, one is control group which is the peoples who are suffers from various diseases in the non-industrial zone and this data is collected from the outdoor patient files of Tangail General Hospital, Tangail and the Study group data is collected from the Savar Hospital. The two sets of data show the comparison between the diseases which are mainly due to air and water pollution such as Diarrhoea, Dysentery, Worm infestation, Stomach pain, Tuberculosis, General cough and fever, Pneumonia, Skin disease, Malnutrition, Asthma, Eyesight Ear diseases and High blood pressure. The time limit of data was over 2010.

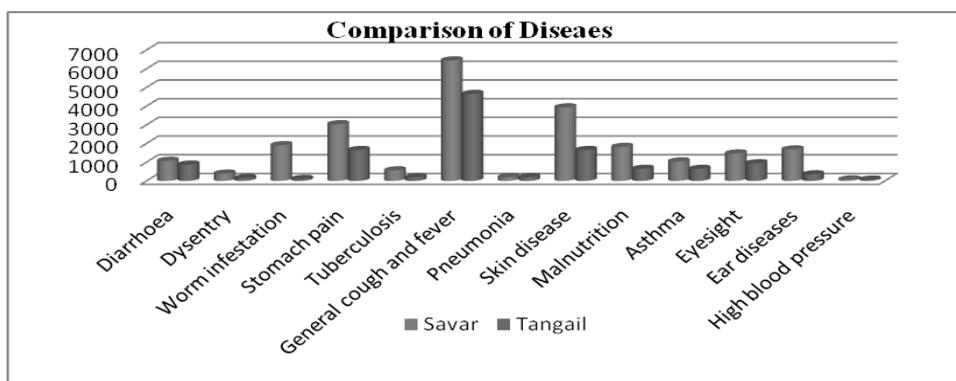


Fig. 1. The comparison between experimental group and control group

The data from the two groups are being collected and then compared. To compare the difference between the two groups, tests like mean, variance, Coefficient of variance and simple t test are being done. It is found from the study that the mean of control group (Tangail) is much lower than that of the experimental group (Savar). This indicates that the average number of diseases related to pollution is lower (average 933.92) than the average of the number of diseases related to pollution in the experimental zone (average 1818.62). Then variance and coefficient of variance are being measured for the better understanding of the data quality of the two groups. It is found that the data of experimental group is more consistent to the mean of its own because the coefficient of variance is lower than that of the control group. So the number of diseases in Savar is also showing high than that of the control group. Another test to measure the average of these two groups is being used, which is t-test. Here t-test is being used because the sample size here is only 13 which is less than 30 and the two group are independent so unpaired t-test is being used where it is found that the average of diseases related to pollution is higher than that of control zone.

Table 1. Statistical measures to compare control group and experimental group

Statistical Measures	For control group (Tangail)	For experimental group (Savar)
Mean, $\mu = \Sigma X / N$, Where, X = individual data points, μ = mean of the population, N = Total number of population	933.92	1818.62
Variance, $\sigma^2 = \frac{\Sigma(x - \mu)^2}{N}$ Where, σ^2 = variance, $\Sigma (X - \mu)^2$ = The sum of $(X - \mu)^2$ for all data points, X = individual data points, μ = mean of the population, N = Total number of population	2916828.85	1422872.38
Coefficient of variance(C.V.), $(\sigma / \mu) \times 100$	127.72	93.91
Simple T test At 12 df	2.724	3.689

Hot spot analysis of the study area

A crime hot spot is generally defined as an area containing dense clusters of criminal incidents. As in this study environmental crime is the criminal incident and the crimes are caused by industries so it is tried to make a map on the base of density of industries

which make a place more vulnerable to be crime prone. The first known instance in which mapping was used to analyze crime distributions was conducted by the French lawyer Andre-Michael Guerry (1833).

Maps are often thought of solely as display tools. In fact, maps have a wide-ranging role in the process of research, analysis, and presentation.

The map is used to generate ideas and hypotheses about the problem under investigation. By inspecting a map, it can be notice a relationship, or correlation, between environmental factors that otherwise might have gone unnoticed. This correlation may be that seen connections between different phenomena, such as crimes, land uses, crime location and demographics.

GIS plays an important role in crime mapping and analysis. GIS software helps coordinate vast amounts of location-based data from multiple sources. It enables the user to layer the data and view the data most critical to the particular issue or mission. In this Study the GIS is being used for showing the geographical placement and statistical boundaries of the Mauzas (clusters) of the study area that means the mauzas of Ashulia Union of Savar Upazilla. The map is made based on the number of industries located in the study area. The number and area, their geographic information are being collected from the Ashulia Union Porishad Office. The land area, the GIS position, Mauza name and the number of industries are different and used in making the map.

From the study it is found that there are 21 different clusters of Ashulia Union, These are; 1. Belma 2. Aukpara 3. Bashaid 4. Gauripur 5. Bara Rangamati 6. Srikhandia 7. Bara Ashulia 8. Sadhupur 9. Sujabad 10. Chandgaon 11. Mirer Chandgaon 12. Binodpur 13. Rustampur 14. Bara Paragaon 15. Atichandgaon 16. Chak Basaid 17. Chota Kakur 18. Dananjoypur 19. Dhalpur 20. Kuturia and 21. Purba Sadarpur.

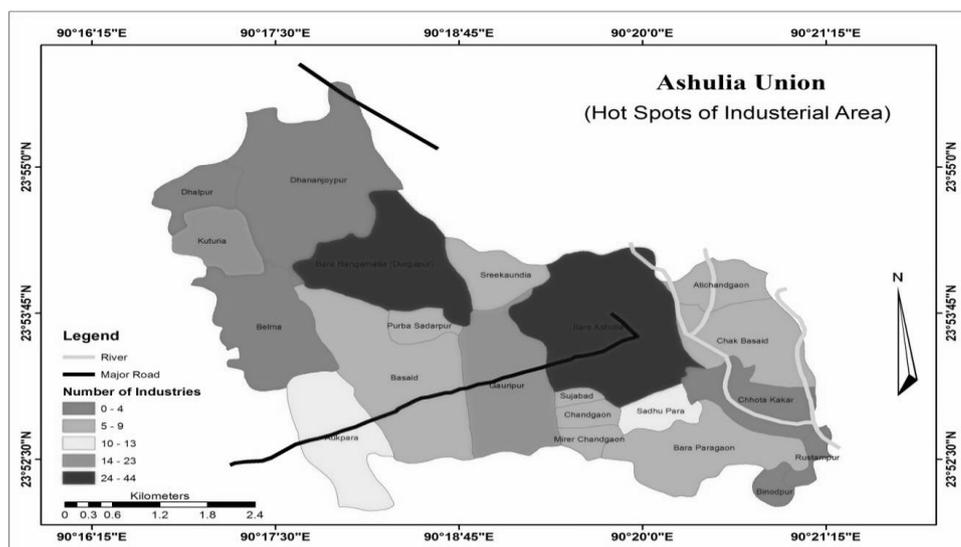


Fig. 2. Hot spot analysis of the study area

To make the crime map based on the number of industries. The number of (0-4) industries is presented with green color, industries from 5-9 is presented with blue,

industries from 10-13 is presented with yellow, industries number from 14-23 is presented with pink and the large number of industries that means from 24-44 is presented with red color. From the map of hot spots of industrial zone it is found that Bara Ashulia and Bara Rangamati are the places where most of the industries are located of the study area for this reason these two areas are the most vulnerable places where the environmental crime are likely to be occurred. Other two areas are Gauripur and Kuturia which are also very crime prone of environmental crime then Aukpara and Sadhupara. The least crime prone zone is Dhananjoypur. The map also shows the main roads and rivers of the study area. The study area consist the river Turag which is shown in the map and the area where most industries are situated that is Bara Ashulia has the river on it and the zone is vulnerable for water and soil pollution (Figure: hotspot analysis of the study area).

Conclusion

At present, Bangladesh has no significant constituency for environmental issues. Though for development industrialization is necessary for a country but appropriate and eco-friendly industries should be introduce for avoiding various pollutions which are punishable under different Acts of Bangladesh and that's why the significance of the study on Environmental Crime is the demand of the time. This study paper is a little effort to this field to know about the perception of the victims of environmental crime and its influential factors of the industrial zone of Savar upazila of Dhaka district, Bangladesh.

Environmental crime is not treated as violent crime in Bangladesh but extend and impact of environmental crime is general and long-term impact on the general people which could be understand from the review of related literature. The purpose of this study is to focus on the victims of environmental crime by assembling a literature-derived 'stock-take' on the nature, impacts and factors behind environmental crime due to industrialization in Bangladesh and describe Victims' Perception on environmental crime. The major findings of this paper are the factor that means the social, economic, political and legal factors that lead to environmental crime. This could also provide the information from the victims about their problems faced due to the environmental crime.

The aim of the study is to make a little concern on the victims of environmental crime. It is a new concept to look forward and further studies could be conducted on this topic. The findings of this study could provide materials of thinking for thinkers and policy makers.

Recommendations

Though crime in nature and extend of crime is varies from incident to incident so the preventive measures would be as well as different. As regulatory agencies have made a conceptual shift towards prevention that means after occurring a crime and when the crime raises in an alarming situation but the prevention strategy should be specific and appropriate for each type of crimes with the help of experts. White (2008) points out, the design and implementation of preventative strategies is complicated because of the nature of environmental crimes.

Some questions raised by White (2008):

- When do we address environmental crimes as mandated in statutes and when do we consider environmental harm that is still 'legally condoned'.
- Under what circumstances does the precautionary principle need to be applied and how do we evaluate what those circumstances might be.
- What is the best way to address the different harms individual crimes produce and the differential range in scale, motivation and technique environmental crimes are characterized by.
- When should prevention refer to minimization and when to eradication.

To develop the environmental crime prevention needs to consider these questions, as well as being mindful that the 'specificity of the harm should (always) drive the type of intervention' created (White 2008). It is found from the study that most victims suggested to increase public consciousness (24.86 percent) followed by implementation of law (19.46 percent), introducing up-to-date laws (15.14 percent), minimize political influences (14.05 percent) and separate industrial zone (10.81 percent) to minimize the environmental crime. So from the above discussion, from the findings of this study it could be stated that the co-operation between government, general people and industrialists, awareness building, implementation of existing legal procedures, introduction of new technologies would be applied in minimizing the seriousness of Environmental crime.

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