Causes and Consequences of Open Defecation and Improper Sanitation: A Study in Polempur Village, Khandaghosh Block, Bardhaman

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ABSTRACT *Open air defecation and improper sanitation are the blazing issues of the present society. In India, sanitation is one of the most disregarded sections and because of this negligence people have to pay a massive cost in terms of life. Inadequate and improper sanitation imposes huge economic losses as well as causes various types of environmental pollution. The poor economic condition and lack of proper awareness are the main culprits of open defecation and improper sanitation. In this paper, an effort has been made to explore the causes and consequences of open defecation and improper sanitation in Polempur village of Khandaghosh block, Bardhaman, West Bengal. This study finds the relationship between open defecation and sanitation-related diseases occurrence with the socio-economic condition.*

Keywords: *Open air defecation, Improper Sanitation, Blazing issues, Disregarded sections.*

Introduction

Mahatma Gandhi, the father of our nation, said that 'sanitation in a community is more important than independence'. In this so-called modern society open defecation and improper sanitation are prevalent and it has a direct impact on human health and environmental degradation. The Human Development Report by UNDP indicates that exclusion from clean water and basic sanitation destroys more lives than any war or terrorist act. This unfortunate situation of water and sanitation deprivation inflicts a damage that is unable to be defined as justified (UNDP, 2006). A safe and sustainable water supply, basic sanitation and good hygiene are fundamental for a healthy, productive and dignified life. Many of the world's poor rural people lack access to an improved water supply (900 million) and improved sanitation facilities (2.5million) (WHO/JMPWS, 2008). For much of India, toilets are all about an issue of sanitation, health, privacy and gender rights. According to UNICEF factsheet, India with 626 million people who have practiced open air defecation has more than twice the number of the next 18 countries combined. Among 692 million populations, 90% people in the South Asia practiced open air defecation. 59% of the 1.1 billion people in the world who practice open air defecation live in India (Banerjee, A. B., Pasha, M. A. M., Fatima, A., & Isaac, E., 2013). In India, the problem of improper sanitation as well as open defecation is very much prevalent in the urban areas as well as in the rural areas and the intensity of the problem differs from place to place. In the rural region mainly the poverty and lack of knowledge are the reasons behind the problems of improper sanitation. As a consequence, a huge number of people in India be rural or urban suffer from various water-borne and waste-borne diseases.

The present study of mine has emphasized in the same issue in Polempur village which most of the rural India does. The people of Polempur also suffer from various diseases which are mainly caused due to open defecation and improper sanitation system.

Objectives

There are certain objectives behind the study of this area -

i. To observe the general sanitation condition of the household.
ii. To assess income wise household toilet usage.
iii. To examine the interrelationship between income level and occurrences of sanitation-related diseases.
iv. To assess the number of household practicing open defecation with affected people and vice-versa.

Materials and Methods

The data were collected mainly from both primary and secondary sources. This study is mainly based on primary sources of data which have been collected through field survey. The materials which I have used in this paper are Census Data 2011, Cadastral Map of Polempur (1953-64), Block Map of Khandaghosh (1935) and Google Earth Image (2014).

The methods which have been used to make this report work may be classified as follows:

i. Books, journals, research reports, census report and also very importantly web sources are studied in detail.
ii. Door to door survey for perception study of the resident and conversation with officials has been done through an interview with structured questionnaire.
iii. Collected information is quantified, analyzed, and represented with the help of Microsoft Word 2007, Microsoft Excel 2007, ArcGIS 10.2.2.
iv. Correlation-coefficient with 't' test was applied for showing relationships and testing the results.

Study Area

The area of my study is Polempur village which is under Shankari-1 Gram Panchayet of Khandaghosh block, Bardhaman district. Polempur (extended from 23º12´03″ N to 23º12´42″ N and 87º50´20″ E to 87º51´03″ E) is located just beside the bank of river Damodar. The river makes its northern boundary. This village is the eastern end of the block.

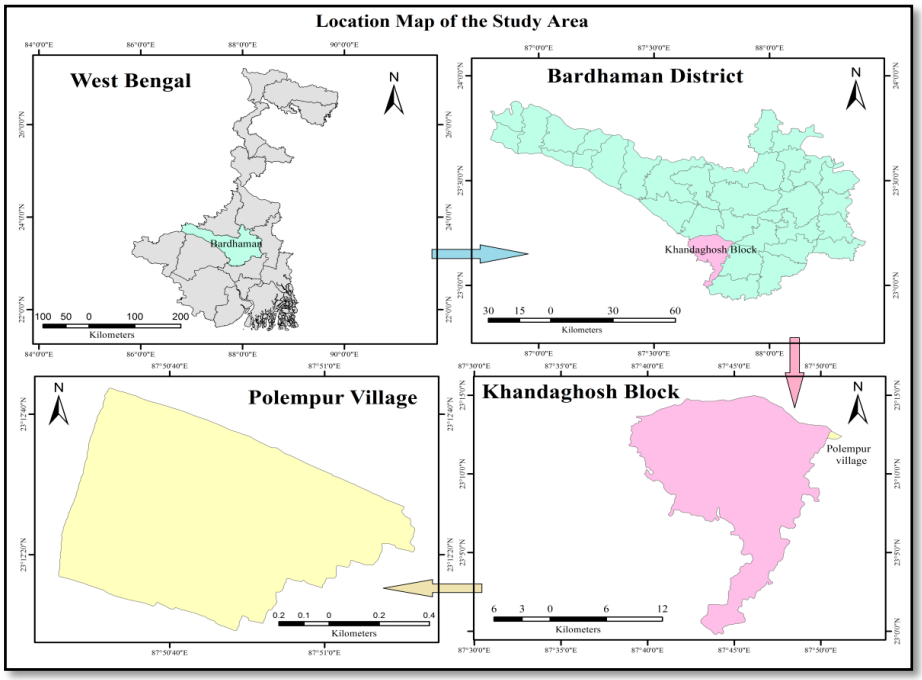

Figure-1

Results and Findings on General Sanitation Condition

1. Households Water Supply

Tubewell and tap water is the main source of water supply for the villagers of Polempur. About 37% of households have private tube well and 47% of households use public tube well and tap water which is generally set up by the government. Rest 16 % of household uses *Sajaldhara* tap water for their drinking and other hygiene purposes.

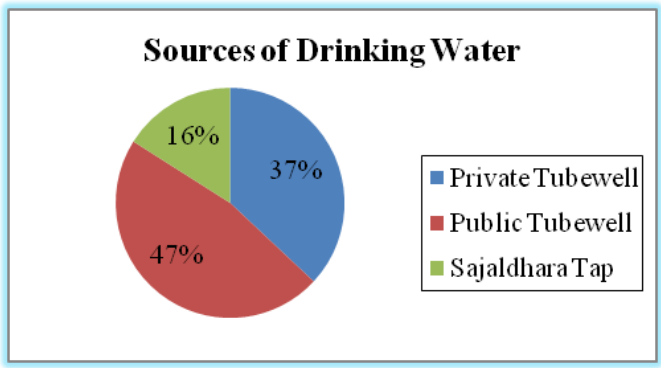

Figure-2 Source: Field Survey

2. Household Hygiene Practices

There are three hygiene practices have been identified. These are as follows.

2.1. Hand Washing Practice after Visiting Toilet

Members in almost all households practiced hand washing practice after visiting the toilet. However the use of soap in hand washing practice is not practiced by 50% of households in the village. About 40% of households use only water and 10% of households use mud and ash for washing hand after visiting the toilet.

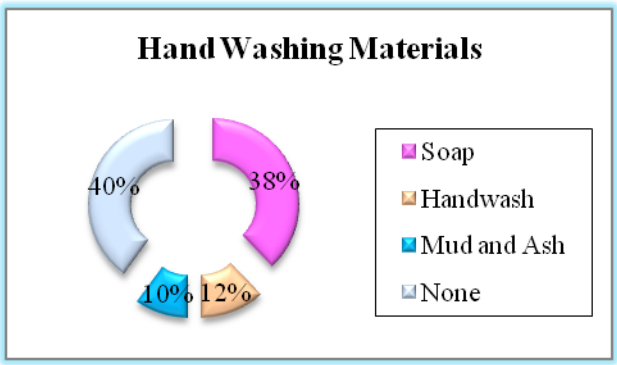

Figure-3 Source: Field Survey

2.2. Covering of Water and Food Container and Washing Hand before Eating

Apart from hand washing after toilet visit other time of hand washing includes before eating which are done by 85% of households' members and rest amount households said that sometimes they forget to wash hand. In case of covering water and food container, about 75% of households answered that they always covered water and food container and rest are not always do this.

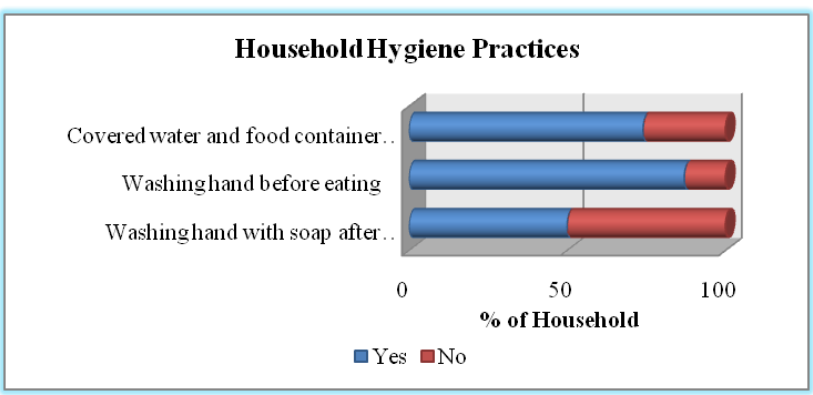

Figure-4 Source: Field Survey

2.3. Household Cloth Wash and Bathing Place

Most of the households have no separate bathroom. Separate bathroom is found mainly some high economic class households. About 41.46% of households take bath and wash their cloth in their own house and rest of households use river water (28.46%), pond (1.63%) and public tube well (28.46%) for the same purposes.

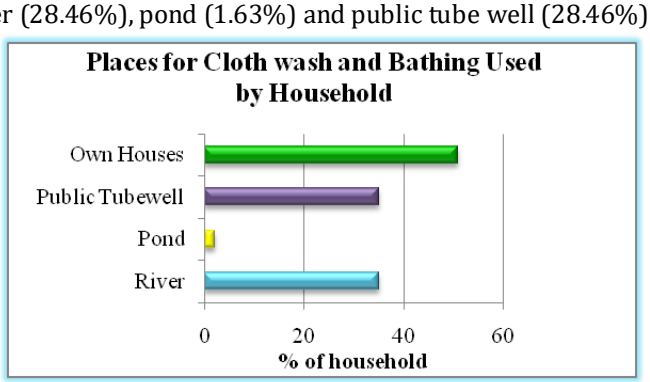

Figure-5 Source: Field Survey

3. Household Accessibility of Toilet Facilities

Most of the households of Polempur have no toilet and some of the households use public toilets. About 17% of households have only modern toilets and 33% of households have traditional toilets which indicate latrine with wall and roof and also simple pit latrine. There are 50% of households who have no latrine.

The household who have no toilet generally defecating in open places like Riversides, Field and other places (near bushes and *Banstala*). About 33% of households defecate in Riverside.

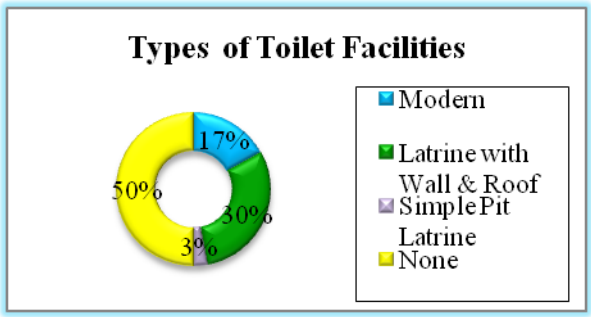

Figure-6 Source: Field Survey

4. Household Draining Of Waste Water

Wastewater disposal facilities for the household in Polempur are very poor. Drains are mainly found along the concretized roads of the village. So, the houses which are situated beside roads have use drain for disposal of waste water. Only 34 households use drain and about 14 households emit their wastewater into the pond. Some households deposit their wastewater into small *doba* in front of their yard.

5.5. Household Waste Management

Disposal of waste material and garbage is also very poor in this village. They do not have proper waste management. Households in the village do not dispose their garbage and waste into safe and hygiene place rather they throw these to various places. About 47% of households throw their waste material to Riverside, 32% households throw these besides their houses and rest of households use the field (10%) and other places (11%) for doing this job.

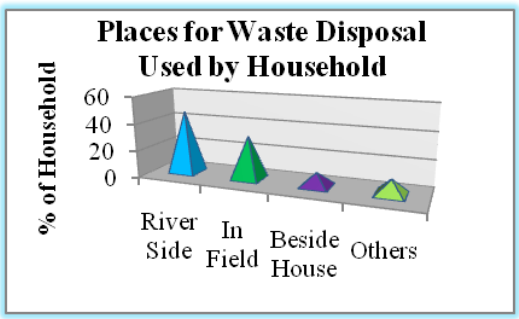

Figure-7 Source: Field Survey

Empirical Study

The empirical study discusses on the factors of open defecation and improper sanitation and its impact on human health as well as the environment of Polempur village. The overall environment of Polempur looks very charming and beautiful, but if we go down to earth of the village then we will see that the environment of this village is totally disturbed by open defecation and unauthorized waste disposal. Polempur exhibits a very poor sanitation status which often creates health problem for the local people. Most of the village members' have no access to any toilet and they mainly habituated to go to Riverside or any open field space or any bushes. In rainy season their condition is more vulnerable.

There are some socio-economic factors which emphasize the impact of open defecation in Polempur. These are as follows-

i. The economic condition of most of the household is very poor and they do not have enough money to build toilet.
ii. To make the village open defecation free, Panchayet had given sanitary plates to poor families who do not access to toilet (under TSP). But there are other costs also to make a latrine with proper

shape and orientation. The villagers could not make a latrine for lack of enough money, though sanitary plates were provided to them.

iii. There is also the problem of awareness about open defecation in the village. The people, who are not very poor, are actually unaware about the effects of open defecation upon their health and environment.

1. Relation between Income and Open Defecation Practices

Income plays an important role in determining open defecation practices in this village. About 45% of surveyed households belong to the less than Rs. 4000 income group. They generally cannot make latrine and defecate in the open places.

Table 1: Household Income Level and Household Having Toilet

Income level (in Rs.)	Household having toilet (%)
<4000	20
4000-8000	50
8001-12000	61
12001-16000	100
>16000	100

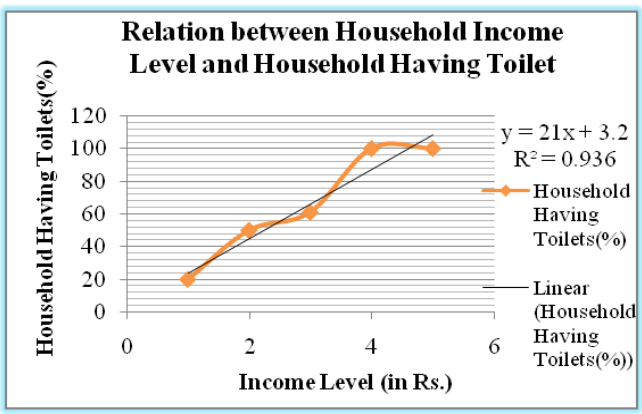

Figure-8 Source: Field Survey

The above diagram shows the correlation between the income level and percentage of households' access or having toilet. From this analysis, it is being found that there is a very strong correlation between them and the co-efficient value is 0.96. So it can be said that income plays an important role in open defecation practices. The percentage of households' access to toilets increases with increasing the income level of the households. So it can be said in another way that with the increase in household income level, the open defecation practices decreases.

From the 't' test the calculated t value is found 6.85. The critical 't' value at 1% and 5% significance level with 1 degree of freedom are 4.60 and 2.78 respectively. Therefore, it is observed that the calculated 't' value is higher than the critical 't' value of both 1% and 5% level of significance. So, the co-efficient value is significant.

2. Relation between Income Level and Sanitation Related Diseases Occurrences

Income has a direct concern for both environment and diseases, whereas poor environmental conditions may also lead to various diseases. Income also determines the occurrences of sanitation-related diseases. The income and disease indication will have variant shapes in various environmental circumstances.

Table 2: Household Income Level and Numbers of Disease Affected People

Income level (in Rs.)	Numbers of Affected People
<4000	92
4000-8000	36
8001-12000	16
12001-16000	5
>16000	4

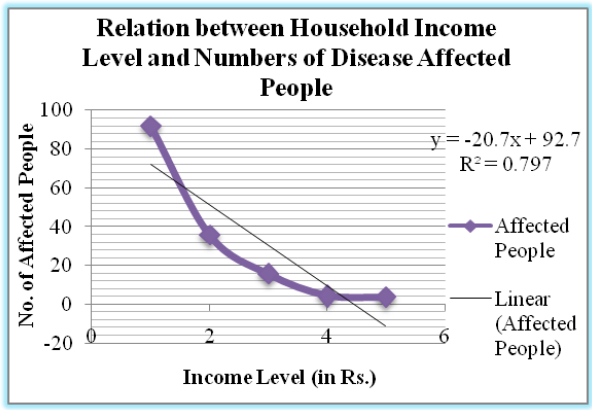

Figure-9 Source: Field Survey

The correlation between income level and the numbers of affected people from sanitation-related diseases has been shown in the above diagram. From the above analysis, it is found that there is a negatively strong relation between them and the co-efficient value is 0.89. It is can also be said that the low-income group people who do not have access to proper sanitation are much affected than the higher income group of people. With the increase in income level, the numbers of disease affected people decreases. This diagram also tells us that the lower income group people of this village who do not have money to build their own toilets, generally practice open defecation and affected by various diseases.

From the 't' test the calculated t value is found 3.90.The critical 't' value at 5% significance level with 1 degree of freedom is 2.78. Therefore, it is observed that the calculated 't' value is higher than the critical 't' value at 5% level of significance. So, the co-efficient value is significant.

3. Consequences of Open Defecation and Improper Sanitation upon Human Health and Environment of Polempur Village

Most of the people of this village have to do not access to improved sanitation facilities and also defecate in the open environment. The practice of open defecation generates large numbers of flies, which act as the carriers and spread several types of infectious diseases to the human being. Defecating and urination in open places also cause kidney and bladder infections, as well as hookworm infection.

3.1. Diseases due to Improper Sanitation, Suffered by the Villagers of Polempur

A large portion of the villagers suffer due to various diseases like- Diarrhoea, Cholera, Dysentery, Anemia, Typhoid, Urinary Tract Infection etc.. Of them dysentery is most common among the villagers. About 50% of people of the village suffer from it. Some people were also suffered from diarrhoea (20%) as well as cholera (3%) and typhoid (2.6%).

Hookworm infection is also found among some children in this village. Urinary tract infection is found in many villagers of this village. Women are more vulnerable to affecting this kind of disease. It occurs because of practicing open defecation and urination in the river due to lack of access to toilet. At the same time, they do not avail toilet in the time of their monthly bleeding. But the fact that some of them are not aware of this condition and don't take it seriously. Some of them are also replied that they have nothing to do because of their poor economic condition.

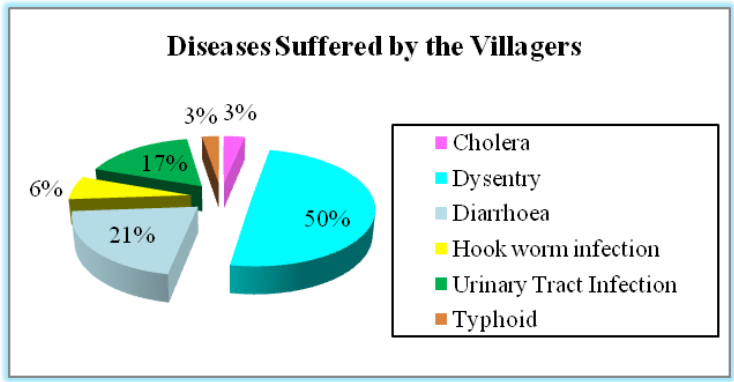

Figure-10 Source: Field Survey

3.2. Impact on Environment

Open defecation and improper sanitation condition in Polempur also put some bad impression on the environment. Due to defecate in the Riverside it pollutes the river water as well as causes groundwater and surface water contamination. The human excreta in open spaces generally penetrate into the water and contaminated the groundwater. The water of the tube well, situated near river side has very badly in test and these are also first layered. As this village has no proper waste management, so the waste disposal in Riverside and open defecation and urination spread foul smell and also causes some sort of pollution.

Conclusion and Suggestions

It seems clear from the above discussion that improper sanitation and open air defecation are the basic problems which cause environmental degradation and several health problems of the villagers in Polempur. Many people in the village suffer from the water-borne and sanitation-related diseases which are mainly caused by the aforesaid problems. But it is also the fact that the sanitation-related problems of Polempur can be mitigated and tackled if the village people become more conscious about the adverse effect of open defecation and improper sanitation.

i. Actually, most of the people in Polempur are completely unaware of the danger and health threat caused by open defecation and poor sanitation. First of all, they should have to be aware of all these facts. People must have to understand the usefulness of the usage of toilets and also washing hands properly. Women should also take care of herself from these fatal diseases and also to their children.

ii. Panchayet also should have to take the initiative to mitigate this problem. They should have to give not only the sanitary plates but also the minimum required money to build toilet which is said by the many people of this village.

iii. Govt. can build the sanitary complexes for the poor villagers under the Total Sanitation Programme. But it is not possible for the Govt. to do it alone unless the villagers and also the community people come forward and take the responsibility to maintain and clean their own toilet and stop the practice of open defecation.

This is a very serious issue of the present day. If we all fight against it then we can remove this problem. The Government already has taken some initiative against it. But it is not possible to mitigate in one day or one month. This action must have to take time. But if the Panchayet, as well as the local people, earnestly do it in the proper way, the problem of improper sanitation, open defecation, and poor water conditions will surely be removed from the village.

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