

Water Pollution: Causes, Consequences, Prevention Method and Role of WBPHEd with Special Reference from Murshidabad District

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Abstract- Water is life for all but this water is polluting day by day in severe condition. So it can be said that our life (water) is not safe now. We are in crisis period. Water pollution is a major serious problem for all over the world. It affects drinking water, rivers, lakes and oceans all over the world. It consequently harms the health and wellbeing of human life and the natural environment. The present study is tried to discuss basically what water pollution is and focused on different causes of water pollution, effects of this pollution on Earth, special reference from Murshidabad district and finding possible solutions and preventive methods of this problem, role of WBPHEd for quality treatment of water and supply. This study is based on secondary sources of data from different government reports, research articles, journals and books, internet sources and from the report of West Bengal state pollution control board (WSPCB). We can see the real picture when we see the map of Murshidabad district showing the Arsenic affected Blocks, location map of water testing laboratories (Arsenic, Fluoride, Iron, phvalue), Map of district central PWS scheme and ongoing PWS scheme. Researches proved that water pollution affects not only morbidity and mortality of human life but also the whole ecosystem. In the study area water pollution is mainly caused due to overpopulation, agricultural practices, soil erosion, industrialization and urbanization.

Index Terms- Wellbeing, Natural environment, WBPHEd, WSPCB, PWS scheme.

I. INTRODUCTION

Water is an important natural resource of all over the world. We live without food for few days but not without water. It is need for the survival of all organisms including human, food production and economic development. Two thirds of the earth surface is covered by water. Approximately 98% of the water is sea water and is unusable for drinking because the high concentration of salt. About 2% of planet water is fresh, but 1.6% is locked up in polar icecaps and glaciers. Another 0.36% is found underground in aquifers and wells. Therefore only about 0.036% of the planets water supply is accessible in lakes and rivers.

The environment, economic growth and development are all highly influenced by water its regional and seasonal availability and the quality of surface and ground water. The quality of water is affected by human activities and is declining

due to rise of population growth, urbanization, agricultural development and other factors.

Polluted water not only affects the life of present generation but it also affect the life of upcoming generations because its effect remains for long. If water is polluted in a area, then the all living creatures and people are faced to drink polluted water because they have no other option. It affects their bodies, skin, lungs, brain, liver and kidneys, caused cancers, birth defects and other diseases.

II. WATER POLLUTION

Water pollution may be defined as alteration in the physical, chemical and biological characteristics of water which may cause harmful effects on human and aquatic life.(Report,1965,restoring the quality of our Environment, president science committee, Washington USA)

Olaniran (1995) defined water pollution to be presence of excessive amounts of a hazard (pollutants) in water in such a way that it is no long suitable for drinking, bathing, cooking and other uses.

Water pollution is now a day's considered not only in terms of public health but also in term of conservation, aesthetics and preservation of natural beauty and resources.

III. HISTORICAL BACKGROUND

We know pollution is a human problem because it is a relatively recent development in the history; before the 19th century industrial revolution people lived in harmony with their immediate environment. As industrialization and population spread around the globe, so the problem of pollution is much smaller, no one believed pollution would ever present a serious problem. Today with around 7 billion people on the planet, it has became apparent that these are limits. Pollution is one of the signs that humans have exceeded those limits.

IV. SIGNIFICANCE OF THE STUDY

Everyone knows that to survive you need water. What everyone does not know is that what is being put into the water that we drink, we used for everyday activities has made it unsafe for everything that needs it to survive ,plants, animals and even human. Some states water is very unsafe to drink and has made a lot of people sick. as a example some district of west Bengal

,water is very unsafe to drink and caused water borne diseases like -----Blackfoot, Flurosis, Cholera, Jaundice, Diarrhea, Tuberculosis etc. Now the big question is Why are we polluted this natural resource which is very important to all living organisms and every section of our life. In this paper I plan to inform that some suggestive solution is help to prevent from this continuing issues and playing role of public health department, Govt of west Bengal for safe drinking water supply and treatment.

V. AIMS AND OBJECTIVES

1. To explain and represent water pollution condition and causes of the study area.
2. To discuss how it effects on human being as well as all the living organisms and natural environment.
3. Point out method and prospects of this major problem applied in the study Area.
4. Draw playing role of agencies like WBPHEd for safe drinking water supply and treatment and secure drinking water for future.

VI. HYPOTHESIS FORMULATION

The work has been done with these hypotheses. These are—

- ❖ What is water pollution and main causes of that kind of pollution
- ❖ Water Pollution related consequences and prevention method
- ❖ Role of WBPHEd as a supplier of safe drinking water in Rural and Urban areas

VII. REVIEW OF LITERATURE

Place and warfare (1993) argued that the most important and immediate consequence of environmental degradation in the developing world take the form of damage to human health.

According to Chapman (1996) pollution of the aquatic environment refers to the introduction by man directly and

indirectly and it effects as harm to living resources, hazards to human health, hindrance to aquatic activities including fishing, impairment of water quality with respect to its use in agricultural, industrial and often economic activities and reduction of amenities.

Haque et al (1998) in the study “surface water pollution concern in public health perspectives of Bangladesh.” Discuss the sources and impact of water pollution in Bangladesh.

According to Wolf (1999), when significant improvements in the quality and quantity of water are made in less developed countries, the world be about 2 million fewer deaths from Diarrhea among children.

Down to Earth magazine reveals that pollution level are rising in the river Lidder ,Pahelgam, the base camp of pilgrims going to Amarnath cave in Jammu and Kashmir .Pilgrims are the major polluters of the river and they were generating tones of waste everyday and also sewage everyday and open drains are responsible for water pollution in Lidder river.

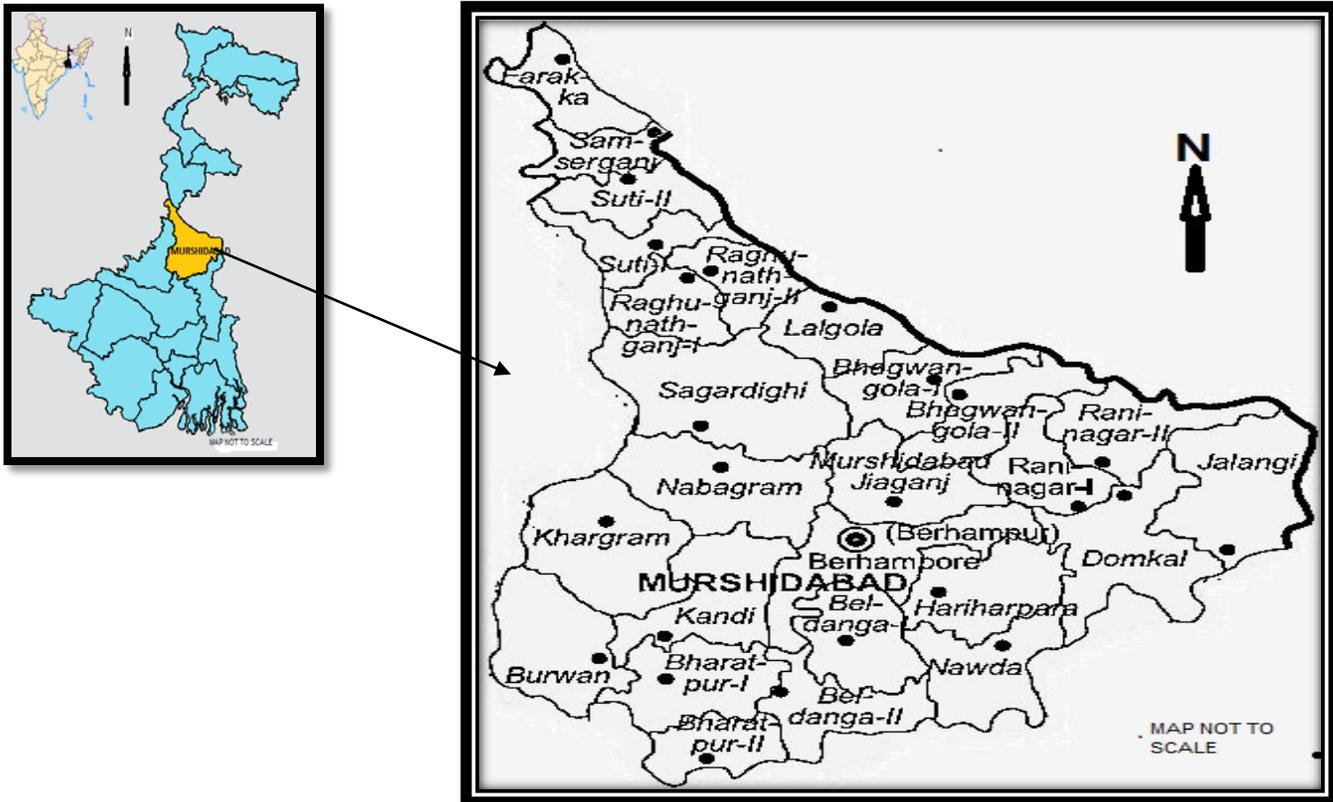
Totalada (2001),in the study “the Chapala lake in Mexico “ reveals the major sources of water pollution in Mexico, major pollutants of the lake are municipal ,industrial and agricultural runoff.

VIII. STUDY AREA

Murshidabad district is northern most district of the presidency division of west Bengal. It lies centrally in the lower Ganga valley.The geographical extension of the district is 24⁰50` 20”-23⁰43`30”N and 88⁰46`00”- 87⁰49`17” E. With the area of 5324 sq.km. The district is separated from Malda by the river Ganga on its north. The pear shaped district looked like an triangle with Farakka block in the north west framing apex. On the west by the district of Birbhum, on the south by Burdwan and Nadia and on the East by Bangladesh.

Water pollution is one of the major problems of Murshidabad. Murshidabad district has worst affected by Arsenic. Most of the Block of Murshidabad district had high amount of Arsenic (Suti-1, suti-2, Domkal, Raghunathganj and Harihrpara). Only name of the block Bharatpur- II is safe from Arsenic

LOCATION MAP OF THE STUDY AREA: MURSHIDABAD



IX. DATABASE AND METHODOLOGY

The research work is descriptive and analytical in nature. This study is based on mainly secondary sources of data. Secondary data are collected from different government reports, research articles, journals and books, internet sources and from the report of WSPCB (West Bengal state pollution control board). Using map of Murshidabad districts arsenic affected blocks, showing location map of water testing laboratories and map of central water supply scheme and ongoing PWS scheme in Murshidabad district managed by PHED.

X. CAUSES OF WATER POLLUTION

Pollution of water are the results of various causes. There are three major sources of pollutants of water-Home, Agriculture, Industry. In the study area water pollution caused mainly from home and agriculture rather than industry.

- *high population density (According to 2011 census the district has a population density of 1334 inhabitants per square kilometer)
- *Pollution of ground water through drilling activities
- *Industrial waste dumped into water (industrial waste is extremely harmful to both people and environment)
- *Sewage leakages
- *Flooding during rainy season which carries waste deposits into water (It happen mainly river Ganga in the study area)
- *Heavy metal
- *Toxic waste disposal at river

- *Soil digging inside river area (that is the major point of the study area for water pollution)
- *Eroded sediments
- *Deforestation
- *Littering
- *Pesticides
- *Herbicides and fertilizer
- *Using HYV seed
- *Eutrophication (Eutrophication is an increased level of nutrients in water bodies. This results in bloom of Algae in Water. It also depletes the oxygen in water, which negatively affects fish and other aquatic animal population)
- *Failing septic system
- *Household chemicals (Dishwashing waste, laundry waste)
- *Animal waste
- *Heat(Industrial areas hot water mixed into cold water and polluted...example, saw it at Farakka thermal power project areas hot water mixed into Fider canal water)

XI. EFFECTS OF WATER POLLUTION

Water pollution adversely affects the health and life of man, animals and plants. Polluted water is also harmful for agriculture as it adversely affects the crops and the soil fertility

- ** Health aspects of water quality (Spread of disease: Cholera, Typhoid, Diarrhea, Jaundice and Tuberculosis)
- **Affect body organs: injury to the heart and kidneys

** Effects of nutrients on water quality (Harms the food chain: polluted water can harm aquatic organisms thus breaking a link of food chain)

** Effect of organic pollution on water quality-(Causes Algae in water: algae grow according to how much waste in a water source .Bacteria feed off the algae, decreasing the amount of oxygen in water and this incident harm organisms)

**Flooding

**Harms animal

**Harms all leaving organisms

**Effect of High Dissolved Solids (TDS) in water quality (hamper aquatic ecosystem)

** Thermal discharges on water quality (physiologically stress for organisms)

XII. STEPS TO PREVENT WATER POLLUTION

Water pollution has a huge impact in our lives. With knowledge consideration and preparation, water pollution can be decreased. It does not take much effort-just a little thought.

- Use fewer chemicals to clean your home(EPA-provides a list of cleaning products)
- Dispose of waste properly
- Don't flush medication
- Don't flush trash
- Conserve as much water as possible
- Avoid using plastic
- Recycling and Reuse of water
- Don't use pesticides and herbicides
- Removed concrete surfaces and replace them with ground cover
- Prevent soil erosion from occurring
- Clean up waterways
- Inspects your septic system every 3-5 years
- Don't wash paint brushes in the sink
- Get involved at school and work
- Help clean up litter in water filled areas
- Speak up about water issues that affect your community
- Making **Swachh Bharat Abhiyan** a success
- Finally **Enforcing Laws** to prevent water pollution

XIII. THE WATER CONTROL OF POLLUTION ACT

The water (prevention and control of pollution) Act was enacted in 1974 to provide for the prevention and control of

Water pollution, and for the maintaining or restoring of Wholesomeness of water in the country. The act was amended in 1988. In India CPCB (central pollution control board) play an important role for prevention of water and control of pollution).

XIV. ROLE OF WBPHEd

Public Health Engineering Department Government of West Bengal, their vision to provide safe, sustainable and adequate water supply to all human and livestock in west Bengal in between 2020.PHEd first established and began their work in 1987.Their objectives are-

- (i) To ensure safe and permanent drinking water security
- (ii) To supply water door to door (rural area also) through PWS-pipeline water supply scheme
- (iii) Also aware people about conjunctive use of ground water, surface water and rain water harvesting
- (iv) Check standarity of water at both the supply and consumption points.

XV. WORKPLAN OF WBPHEd

1. Resource creation: i. using subsurface flow of a river, ii. Using ground water, iii. Flood water diversion and storage, iv. Rejuvenation of ponds and development of watershed, v. Developing cheaper solution for treatment of water, rooftop rain water harvesting.

2. .Action plan to use renewable energy for running water supply scheme

3...Action on management of waste water treatment plant

4. Water quality monitoring and surveillance programme

5...Peoples participation: (work 2 organization, SWSSO-state water and sanitation support organization, SWSM-state water and sanitation mission).

XVI. WBPHEd: WATER TESTING LABRATORY

Water quality is very poor in some blocks of Murshidabad. Most of the water polluted by Arsenic. Some water testing laboratories are situated in Murshidabad district managed by PHED and their treatment parameters are Arsenic, Iron and Fluoride.

WATER TESTING LABRATORIES LOCATION

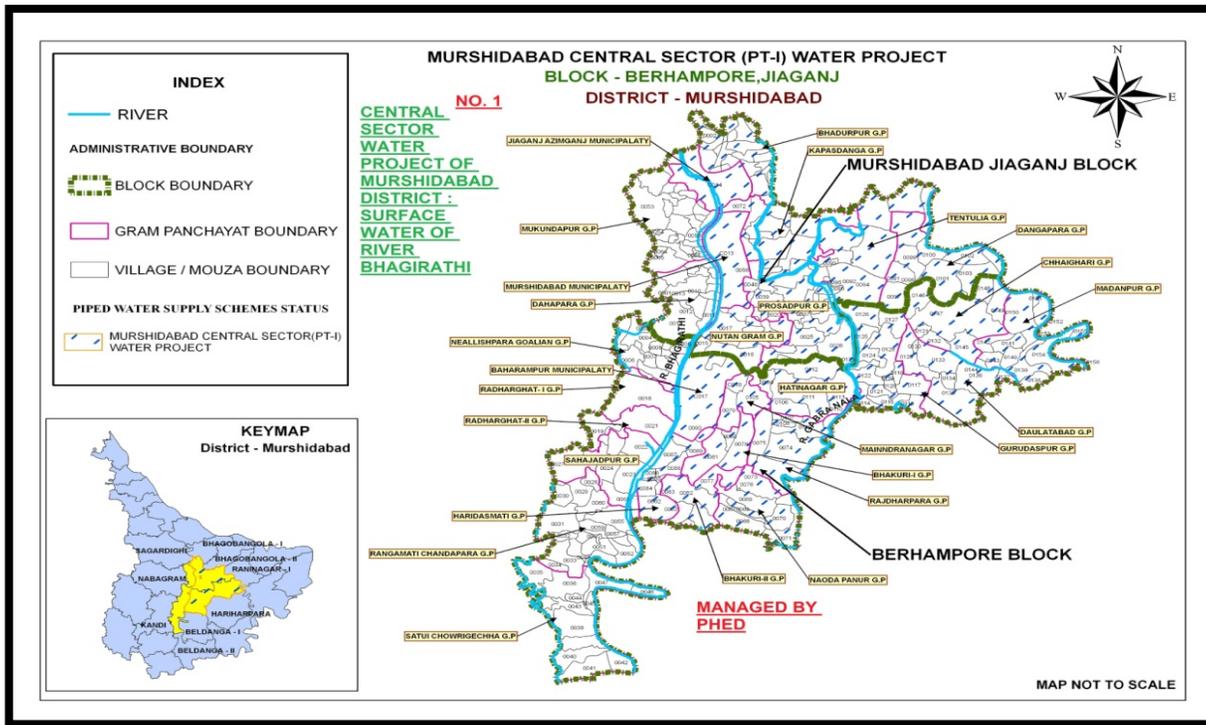


MAP: 1
 SOURCE: WBPHEd

XVII. NAME SOME LABRATORIES

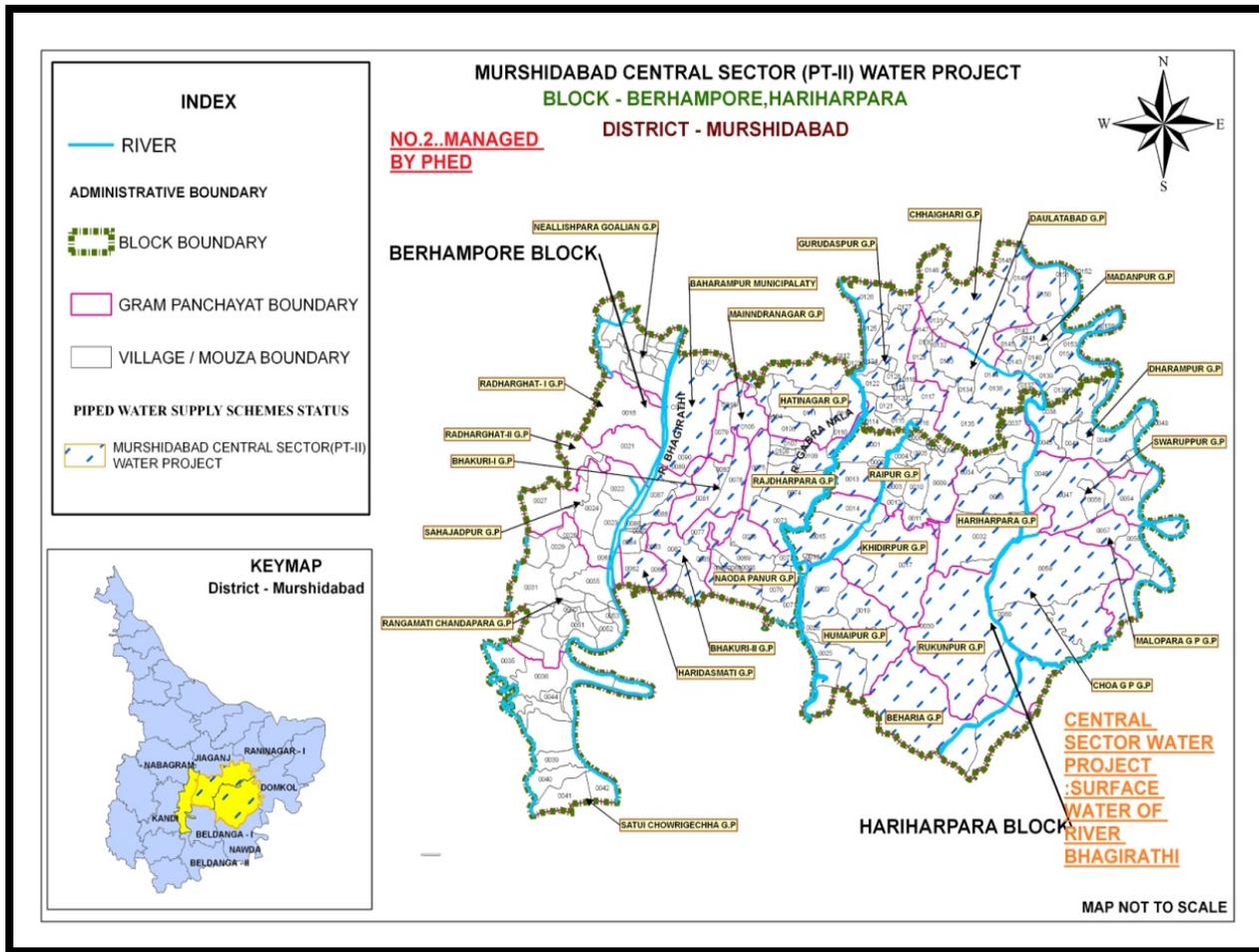
- (1) Baharampur municipal division (2) Jagatai W/S scheme (3) Hariharpara W/S scheme (4) Islampur sub division office (5) Jalangi W/S scheme (6) Jangipur WTP Site (7) Joykrishnapur W/ S scheme (8) Lalbagh sub division office (9) Mahyampur WTP site (10) Murshidabad district lab (11) Rejinagar W/S scheme (12) Sagardighi W/S scheme (13) Salar W/S scheme.

CENTRAL SECTOR WATER PROJECT 1 - MURSHIDABAD



MAP-2
SOURCE: WBPHEd

CENTRAL SECTOR WATER PROJECT 2- MURSHIDABAD



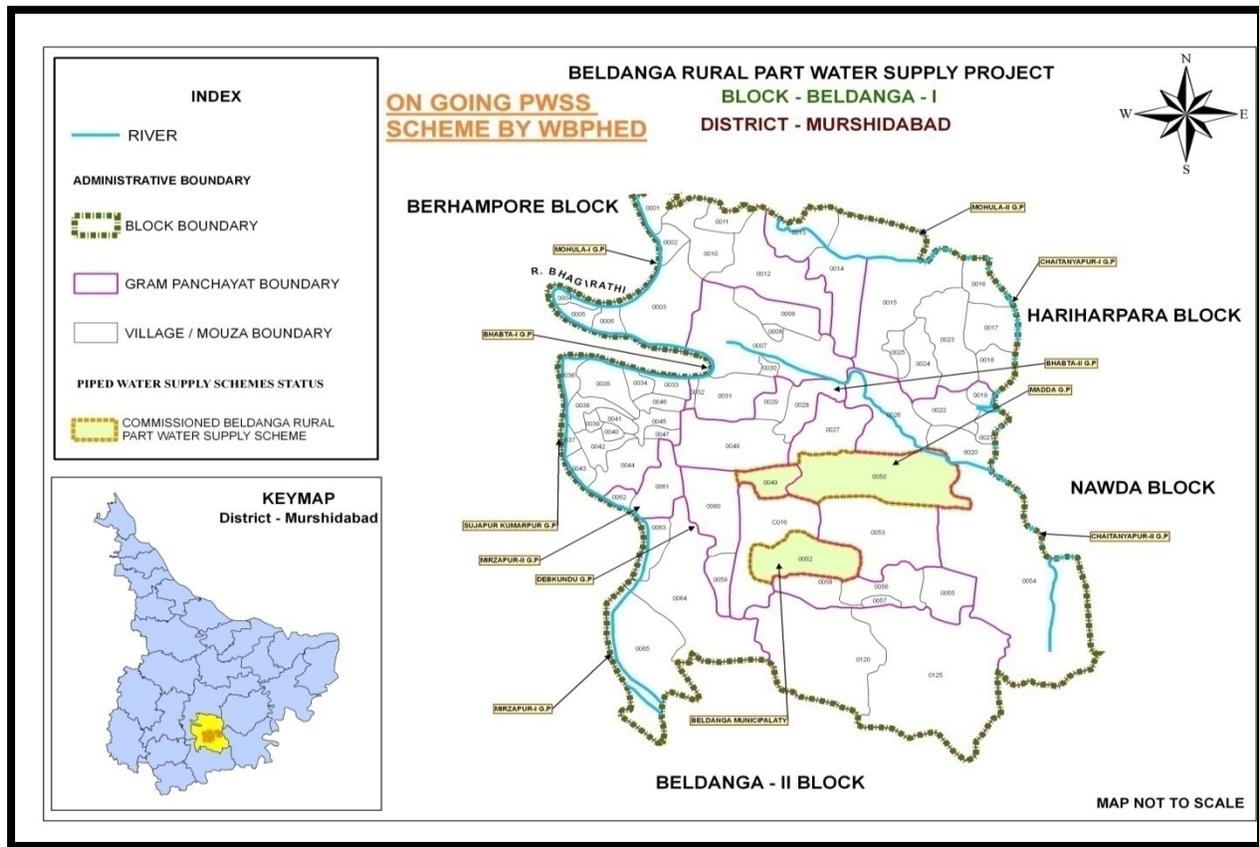
MAP-3
SOURCE: WBPHEd

Murshidabad central sector water project are two numbers, managed by PHED. One is –sector pt 1, developed with Murshidabad, Jiaganj and Berhampur by surface water of river Bhagirathi, covered 135 villages and benefited people 379692. Another one is –sector pt 2, developed with Hariharpara and Berhampore by surface water of river Bhagirathi, covered 105 villages and benefited people 659684.

XVIII. ONGOING PWSS SCHEME BY PHED

Ongoing PWS (pipeline water supply scheme) scheme is developed in Beldanga by surface water of river Bhagirathi, covered 58 villages, and benefited people 754451.

BELDANGA PWS SCHEME



MAP: 4
SOURCE: WBPHEd

XIX. CONCLUSION

From the above discussion we have concluded that due to increase in population and agricultural practice and also industrialization ,water quality of drinking water is decrease and there a need to proper treatment of water and some prevention method to reduce water pollution and manage to supply safe drinking water. And there is a big hope in Murshidabad districts to supply safe drinking water , door to door in rural areas by PWS/WS scheme which managed by WBPHEd. At the same time government introduce Environmental Education in school syllabus, which raise awareness and government of west Bengal made the subject compulsory in school and college level. Finally we can say” SAFE WATER, SAVE LIFE.”

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