

Quality Of Drinking Water In Gaya Town

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ABSTRACT

Ground water is the most preferred source of water in various use sector in India on account of its near universal availability, dependability and low capital cost. Gaya town is situated beside the bank of Phalgu (Niranjana) river from the eastern side, it is a part of Genetic plains. Gaya is also surrounded by a ring of hill around it.

The present study mainly focus on the drinking water quality index of one of growing city of Bihar. Gaya the city has population 4,68,614 from 2011 census which mainly rely ground water for drinking majority of the Gaya town population is dependent on ground water for consumption. As we know that water quality index put the water into 'Good water' category non of the sample were found suitable because all the sample were found high concentration of fluoride and nitrate which is unsafe for drinking.

The condition of water used for drinking purposes by public is contaminated and is required processing before it can be sent to home. The health care department must ensure clean and proceed water for drinking. The state health department must give all support to concerned department. Serious steps were required to improve the quality of drinking water available to Gaya resident. CM Nitish Kumar has promised tap water one and all Gayaiter may not have to wait very long.

The present study base on fully secondary sources collected from ground water information Booklet, Gaya district, Bihar state, Swarth programme report times of India news paper report on date 08/3/2016 and census 2011,

keyword- drinking water, quality, treatment, ground water, sewage.

Introduction

Water quality refers to the chemical, physical, biological and radiological characteristics of water. It is measure of the condition of water relative to

the requirements of one or more biotic species and or to any one or more biotic species and or any to human need or purpose. It is most frequently used by reference to a set standards against which compliance, generally achieved through treatment of the water can be assessed. The most common standards used to assess quality relay to health of ecosystem safety of human contact and drinking water.

The present study mainly focus on the drinking water quality of Gaya town which is very poor. So it require processing before it can be uses as a drinking water.

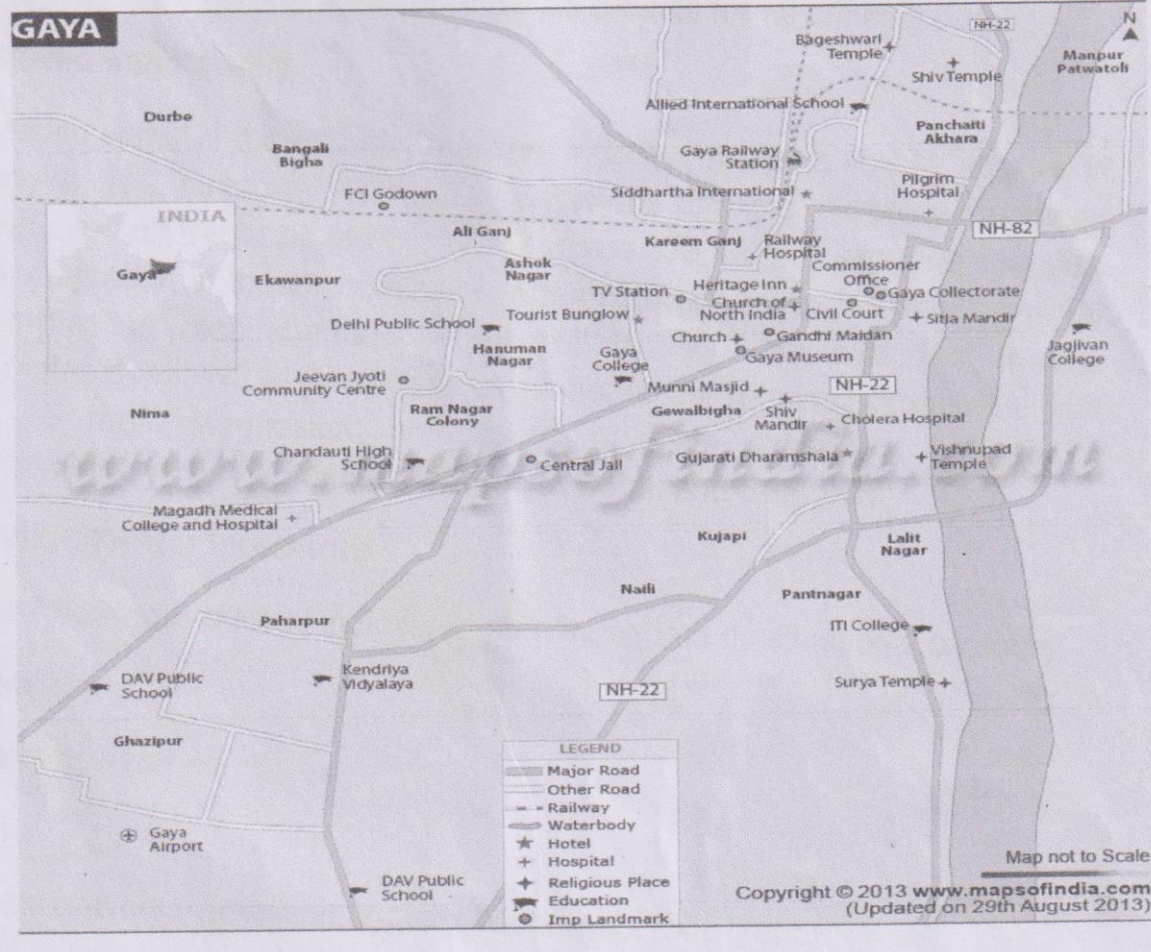
Study Area – Gaya is surrounded by a ring hills around it, the Ramshila hill on the north, katari hill on the west and Brahmyoni on the south and the south west of the city. River Falgu flows on the eastern side of the city Gaya is Geography located at latitude 24°. 79' 14" North of equator of the prime 85°. 00' 02" east of the prime meridian on the map of the world.

Method

We understand the method through following points :-

- (i) We collect information from study Area Data collected from Internet, Newspaper, Book and Magazine.
- (ii) We went to study area to know fact about quality of water.
- (iii) To know about previous condition of quality of water as well as current condition of quality of water.
- (iv) We prepare this paper from secondary source, we use map, internet and various issues obtained through swasth programme report. Times of India News paper report on Date 08/3/2016 and census 2011.

Location and extent of study area



Purpose

- (i) To present poor quality of water in Gaya town.
- (ii) To concentrate mind set up toward poor quality (Contamination) of water.
- (iii) To analyses present and previous condition of quality of water in Gaya town.
- (iv) How to processing water purpose before use for as drinking purpose. Ground water quality.

Ground water in the phreatic aquifers in Gaya district is slightly alkaline in nature. The suitability of ground water for drinking purpose has been evaluated on the basis of P.H. Total harness, Ca, Mg, Cl, etc. The chemical concentration of these constituent, when compared with the drinking water specification recommended by IS 10500, 1991 indicates that in one samples from HNS at Wazirganj Ca exceeded the required permissible limit of 75 mg/l. Magnesium was found to have exceeded the require permissible limit of 30mg/l at Bodhgaya, Dobhi and Sheghati.

Drinking water indicators

The following is a list of indicators often measured by situational category :

.Alkalinity

.Color of Water

.PH

.Taste and odor (geosmin, 2-Methylisoborneol (MIB), etc.)

. Dissolved metals and salts (Sodium, Chloride, Potassium, Calcium, Magnee, Magnesium)

.Microorgaism such as fecal coli form bacteria (Escherichia coil)

.Cryptosporidium, and Giardia lambia ; see Bacteriological water analysis.

.Dissolved metals and metalloids (lead, mercury, arsenic, etc.)

.Dissolved organics : Colored dissolved organic matter (CDOM),
dissolved organic carbon (DOC)

.Heavy metals

.Pharmaceuticals

.Hormone analogs

Physical indicators

.Water temperature

Total dissolved solids (TDS)

.Specific conductance or electrical

.Odour of water

.Conductance (EC) or conductivity

.Color of water

.Total suspended solids (TSS)

.Taste of water

.Transparency or turbidity

Chemical indicators

.PH

.Heavy metals

.Biochemical oxygen demand (BOD)

.Nitrate

.Dissolved oxygen demand (COD)

.Orthophosphates

.Dissolved oxygen (DO)

.Pesticides

.Total hardness (TH)

.Surfactants

Biological indicators

.Ephemeroptera

.Escherichia coli (E.Coli)

. Plecoptera

.Coliform bacteria

.Mollusca

.Trichoptera

Water Treatment Methods

We will present only a brief, general accounts of typical four series steps.

(i) **Sedimentation**

If the water source is highly turbid the raw water is pumped into lagoons and allowed to stand for several hours. Silt and other materials sink to the bottom, and certain flocculating chemicals are added to contamination water to precipitate and absorb finer particles.

(ii) **Filtration**

The water pumped from the setting areas into tanks that equipped with sand filters. The water is cleared from the most remaining impurities, including numerous bacteria and other microorganism.

(iii) **Aeration**

If the water contains large quantities of organic material, it may be sprayed into the air or allowed to flow over a series of shallow waterfalls to increase the availability of oxygen to microorganism capable of oxidizing organic compounds.

(iv) **Chlorination**

Either chlorine gas or certain chlorine compounds are added to water to complete the purification process. Extremely small amounts of chlorine, about 0.3 parts per million, are usually adequate to kill almost all the microorganism (certainly all the pathogens) remaining in the water. At the same time, chlorine neutralizes many odors and tastes in the water. The final product is then ready to be distributed to public (Salgado et al., 2015 Speich et al., 2015). As we have indicated, there are many variations of these procedures. At one extreme water that are so pure that they require only chlorination or no treatment whatsoever, at the other extreme water that contain so many impurities that they must receive more elaborate treatment. For example, some waters contain large amount of calcium, magnesium, or iron salts that must be removed by special chemical procedures to “Soften” the water. Regardless of the initial quality of the water, flourides may be added to reduce the incidence of dental caries. (Pennel et al., 2015)

Sewage

Sewage is a mixture of natural organic and inorganic materials with a small ration of man made substances. The main source of sewage polluted is human excreta with food preparation from contributions and surface drainage. The physical and chemical nature of water wastes can be further complicated by industrial wastes that are composed of strong spent liquors from main industrials processes. Domestic waste water comes mainly from hospitals, whereas, industrial waste water comes from manufacturing plants. Inevitably, large towns and cities have a mixture of domestic and industrial waste water, which is commonly referred to as municipal waste water. The other waste water that rich in organic materials and readily biodegraded are the agro industrial wastes, these wastes varied according to agricultural practice.

Sewage treatment plants to save Falgu in Gaya

Gaya Municipal corporation has planned to set up sewage treatment plants at two place – kandi Nawada and Manpur to stop pollution of the Falgu.

Around Rs. 384 Crore will be spent on the project for which Asian Development Bank would provide loan to the corporation. Bihar Urban infrastructure Development corporation.

The Civiv body has also selected land at Kandi Nawada and Manpur for setting up the treatment plant.

Under the project all the drain in Gaya town will be connected with a pipeline network that would finish either at Kandi Nawada or at Manpur. After treatment of dirty water, the cleaned water will be released into the Falgu reverbed. It will stop pollution on the riverbed.

A sewage treatment plant functions in three phases. First dirty water flowing in drains is collected at treatment plant through pipeline network. Second, Solid Waste, and wate are separated through chemical process. Lastly, the treated water will be released on the Falgu riverbed.

The Falgu considered as holy river in the Hindu Scriptures, is used by millions of devotees every year to offer pinddaan.

General aspects toward Cleaner water.

There must be intergrated approach would in corporate collaborative efforts of various sectors involving the government, and civil society.

Role of Government

(i) Supporting awareness drives :- The government needs to support civil society and organizations involved in increasing awareness.

(ii) Testing and remedial action :- The data in respect of water quality affected habitations is available in the website of DDWS but many of the state water and sanitations department do not have such data. Generating data, its interpretation and communication is essential for effective management of water.

(iii) Inter-agency Co-ordination – There is as fragmented approach at the state and central level with the involvement of numerous agencies in the supply and management of water. Better co-ordination among ministries and departments would ensure effective implementation.

(iv) Making the service provider accountability – Article 21 of the constitution of India, relates to the protection of life and personal liberty and right to pollution free water is guaranteed under this provision. The user has right to know whether water being provided at source is free from any contamination as claimed by authorities.

(v) Water qualities standards and provisions of water under food law Bill: The qualities of drinking water suppliers in India by public agencies is presently governed by Bureau of India standards (BIS) specification IS :

10500 – some cases, there is difference in the permissible limit between the two.

(vi) School water supply programme

By focusing on children today and providing them with knowledge with regard to maintaining water quality and effective sanitations. Practices we will be securing the upcoming generation from the threat of water and sanitation related disease. This will not only provide a hygienic

environment in schools, the children will also convey the message back home.

(vii) Role of environment sanitation and hygiene – A direct relationship exist between water, sanitation, health nutrition and human well being consumption of contaminated drinking water, improper disposal of human excreta, lack of personal and food liquid waste have been the major causes of disease in our country.

Role of Civil Society and communities

(viii) Awareness – The user should be made aware of the importance of preventing contamination of water and also of the importance of clean and healthy surrounding near water sources.

(ix) Accountability- User should also realize their individual responsibilities in maintaining the quality of water supplies to them natural and behavioral practices like open defecation, bathing of cattle's results in contamination of water sources.

Conclusion

The quality of water used for drinking purpose by the public in Gaya town is very poor requires processing before it can be used as drinking water. The health care department must ensure clean and processed water for drinking. The state health department must give all support to the concerned department C.M. Nitish Kumar has promised tap water to one and all Gayaites may not have to wait very long.

Reference

1. Water pollution :- Source and Treatment, American Journal of environment engineering 2016.
2. Yojana, magazine, July 2010.
3. Drinking water, quality, WWW. wateraid.org
4. Sewage treatment to save falgu, www.Telegraphindia.com>bihar
5. Census 2011, Bihar
6. City Development plan 2030, Gaya Municipal Corporation
7. Central ground water Board (Ministry of water resource Sep 2013)
8. Ground water information Booklet (Gaya district, Bihar State)