

An Integrated Ground Water Approach Sequences Methodology of Lakes-Wanaparthy, TS

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Abstract: Great nature of water is needed for all living life forms. Three significant lakes in Wanaparthy city in particular Ramanpadu lake, Nallacheruvu lake and Rajanagaram lake. Inside these three lakes one is the prime wellsprings of drinking water to city individuals. The Ramanpadu Lake is arranged close to the Wanaparthy in mahabub nagar. The Ramanpadu Lake is situated between North Latitudes 16°34'97" and East Longitudes 77°59'48" to the catchment space of Ramanpadu lake is about 2.52km and its height goes from 410 m above mean ocean level (MSL). The watershed gets a normal precipitation around 587 mm. A 10 MLD limit of water treatment plant is developed on the bank of Ramanpadu Lake by Municipal Corporation of Wanaparthy for the inventory of treated water for the piece of Wanaparthy area for drinking reason. Quick couple of years this lake is dirtied by squander water. Numerous individuals are enduring to sicknesses. In this study will approach the integrated study of sequence of methodology lakes in Mahaboobnagar.

Keywords: Ground-Water, Samplnig, Lake Water, Preservation, Bio Accumulation, ICPMS, XEF

1. Introduction

Mahabubnagar is halfway situated on the highest point of the Deccan Plateau, Presently is one of the biggest locale in Telangana. mahabubnagar area base camp town was named after Mir Mahabub Ali Khan, the nizam of Hyderabad. The MahabubNagar region is spread over a space of 18432 sq.km.it is situated between north scope 16.7433 to 17.2000 and east longitudes 77.1500 to 77.9933.Wanaparthy is third grade region in MahabubNagar District having a populace of 50,262 according to 2001 evaluation and spread more than 27,139 Sq.K.M. It is arranged on scope 23° 24' 26.67" and on longitude 78° 5' 33.33". Its height changes from (+) 385.00 Mtrs. To (+) 410.00Mtrs over M.S.L. The normal precipitation is 587 mm for each Annum and greatest and least temperatures are about 44° and 15° separately.. If there should arise an occurrence of soils the region is principally covered by three sorts of soils viz.red sandy soil (dubbas and chalkas) red earth and square cotton soils. Red sandy soils and red earth are porous and all around depleted.



Fig. 1. Mahaboob nagar, Telangana

Groundwater is one of the important, valuable and renewable resources of India. It has ability to act as a large reservoir that provides freshwater during periods of drought due to failure of monsoon. Most of the groundwater is of good quality water because of natural purification processes, unless it is intensively polluted by industrial chemicals. Despite the threats from potentially polluting activities, it is often surprisingly resilient, and water quality over large areas remains good. Groundwater is under threat of degradation both by contamination and by inappropriate use. The main threats to groundwater sustainability arise from the steady increase in demand for water (from rising population and per capita use, increasing need for irrigation etc.) and from the increasing use and disposal of chemicals to the land surface by agricultural, industrial and urban area. Ground water was abused through shallow, enormous measurement burrowed wells until 1970 to meet homegrown and water system necessities. As of now ground water is being abused through shallow and profound bore wells with profundity going from 100-180 thinking about the restricted capability of hard rock springs, decreased re-energize and that the asset is being tapped from more profound profundities, there is plausibility of debasement of groundwater past recoverable level in future because of quick urbanization

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in Nalgonda.. In spite of the fact that groundwater isn't effectively polluted, when this happens it is hard to remediate, and in the non-industrial nation like India, such remediation might demonstrate basically unthinkable. Groundwater should be painstakingly overseen if its utilization is to be supported for people in the future. The board is needed to stay away from genuine corruption and there should be expanded familiarity with groundwater at the arranging stage, to guarantee value for all partners and generally significant of all to coordinate with water quality to end use (there by keeping up with the best quality for consumable use). Despite the fact that groundwater isn't effectively polluted, when this happens it is hard to remediate, and in the creating scene, such remediation might demonstrate essentially inconceivable.

1) Work plan

- Initially different physio chemical parameters along with different heavy metals are to be analyzed.
- To get the proper idea about the quality of the lake monthly analysis is proposed
- Subsequently bioaccumulation studies are to be conducted
- After getting complete data regarding the lake water quality, ground water contamination, bioaccumulation studies ,aimed to propose a treatment procedure(either to individual families or common treatment)

2. Objective

- Evaluating the chemicals that cause toxicity to aquatic life [3].
- Studying the long-term effects on the ecosystem.
- Conducting the status and monitoring of wetland resources by studying their physico-chemical and biological parameters.
- Qualitative assessment of water.
- Collection of soil samples for XEF and ICPMS Studies
- Providing accurate data of pollution levels of the Ramanpadu Lake.
- Ground water analytical studies helps in understanding the sensitivity of the problem.

3. Methodology

Importance of objective enumerated above following field and laboratory investigation have been proposed.

1) Field investigations

1. Geological mapping of the area
2. Delineation of rock types
3. Representation of structural data
4. Hydro geological studies
5. Water sampling for qualitative analysis in different geological terrain.

2) Laboratory investigations

Visual image interpretation of satellite data

1. Extraction of various themes
2. Updating of thematic layers after selected ground checks

3. Analysis of water samples
4. Interpretation of field data
5. Integration of data generated in geographic information system.

3) Sampling

The sample collected should be small in volume, enough to accurately represent the whole water body. The water sample tends to modify itself to the new environment. It is necessary to ensure that no significant changes occur in the sample and preserve its integrity till analyzed (by retaining the same concentration of all the components as in the water body) [8]. The essential objectives of water quality assessment are to: Define the status and trends in water quality of a given water body. Analyze the causes for the observed conditions and trends. Identify the area specific problems of water quality and provide assessments in the form of management to evaluate alternatives that help in decision-making.

4) Site selection

Sampling sites for the water body/lake are selected to represent the water quality at different points and depths. Generally three sampling sites are selected for monitoring [1].

- Inlet: the point where the principal feeder opens into the lake.
- Center: the point that gives the general water quality of the lake.
- Outlet: the place where the overflow occurs.



Fig. 2. Study Area

5) Preservation of the sample

Between the times a sample is collected and analyzed in the laboratory, physical, chemical and biochemical reactions may take place in the sample container leading to changes in the intrinsic quality of the sample, making it necessary to prevent or minimize these changes with suitable preservatives such as alcohol and Mercuric chloride. Highly unstable parameters such as pH, temperature, transparency, free carbon-di-oxide, dissolved oxygen, etc. are measured at the sampling site. The preservation procedure includes keeping the samples in the dark, adding chemical preservative, lowering the temperature to retard reactions, or combinations of these [6].

6) Physical and chemical properties

The physical and chemical properties of a freshwater body are characteristic of the climatic, geochemical, geomorphological and pollution conditions (largely) prevailing in the drainage basin and the underlying aquifer. The biota in the surface water is governed entirely by various environmental

conditions that determine the selection of species as the physiological performance of the individual organisms. The primary production of organic matter, in the form of phytoplankton and macrophytes is more intense in lakes and reservoirs than in rivers. In contrast to the chemical quality of water bodies, which can be measured by suitable analytical methods, biological quality is a combination of both qualitative and quantitative characterization. This can be carried out in two levels [5]:

- *Physical parameters:* Colour, Temperature, Transparency, Turbidity and Odour.
- *Chemical parameters:* pH, Electrical Conductivity (E.C), Total Solids (TS), Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Total Hardness, Calcium Hardness, Magnesium Hardness, Nitrates, Phosphates, Sulphates, Chlorides, Dissolved Oxygen (D.O), Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Fluorides, Free Carbon-dioxide, Potassium and Sodium.

4. Conclusion

In study, work on pollution of Lakes and its impact on ground water and bio accumulation of different toxic non-biodegradable toxicants (heavy metals). Concluded Cause for

this water pollution is due to different wastes from human waste and errors which are present in and around Udayasamudram Lake are letting their effluents directly in to these lakes. As this is completely polluted with different industrial effluents ground water is also polluted to the maximum possible extent.

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