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Water Scenario in Urban Delhi

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ABSTRACT

Delhi being the major urban city with large growing population has a huge demand on the decreasing water resources that is also being degraded in quality due to environmental pollution. This research focuses on this important issue by surveying residents in the city to obtain their views on the water situation here and the problems they face as a result of this.

1. Introduction

The rapidly growing urban city of Delhi, with a high density of population, has an extremely high demand for water resources for domestic, industrial, and various other uses. In Delhi, the major sources of water are the River Yamuna and the groundwater in the aquifers. The river Yamuna flows in a southerly direction and is flanked by alluvial plains on either side. The extent of the active floodplain is 97 sq.km. The river Yamuna enters the NCT of Delhi about 1.6 km north of Palla village flowing in a southerly direction and leaves Delhi at Jaitpur, 3 km from Okhla after a 51 km stretch within the city.The water from the river is not able to meet the growing demands of water in the city. This has resulted in the increasing use of groundwater in many areas in the city. Groundwater collects in the aquifers and is recharged through rainwater infiltration. With growing population density, the demand for water increases, and there is the excess withdrawal of groundwater. On the other hand, urban infrastructure, grey landscape with concrete surface prevents on a large scale, the infiltration of rainwater into the ground and its recharge. Other sources of recharge are the surface runoff from irrigation, seepage from canals, tanks, and other water conservation structures. The present research work analyses the water problem the residents face in the city.

2. Literature review

Rai, S.C (2011) highlighted that in Delhi both water supply as of present and the management policy of wastewater is inadequate given the general apathy towards this along with the lack of interest in the development of plans considering the long-run and poor practices of management.

Singha,S.(2016) has noted that groundwater levels are at severe risk in many areas in Delhi and has suggested various measures including reviving aquifers, rain water harvesting etc that may be taken.

Zérah, M.-H.(2000) noted that water supply in certain districts of Delhi to those with a water connection is irregular or of less duration and hence has required many to follow measures to cope with this such as by storing water in buckets when water is available, installing a motor with tanks, tube wells for groundwater and also noted such strategies have variations in different areas of Delhi.

3. Research Methodology

Asurvey of residents was conducted in randomly selected 25 households in each of the districts of Delhi through an online questionnaire. The residents were asked about the supply of water, quality of water, and should wastewater be reusedalong with any other measures that need to be followed to improve the availability of water in Delhi and avoid a water crisis in the future.

4. Findings

In Delhi, the Delhi Jal Board under the state government has the responsibility of supply of water to the public. In the survey, it was found that 75% of the people get the Jal board water supply but it is restricted to 2-3 hrs per day and in the summer season the supply is for an hour or less and on some days there is no supply at all. Due to this, the people augment their water requirement by the withdrawal of groundwater by personal tube well and this water is from shallow aquifers and will have large scale pollution endangering the health of people. In Delhi, the groundwater does not get continuously recharged and the pollution levels are high. Recharge is impacted due to vegetation being cleared and concrete surfaces that prevent infiltration of rainwater. According to the Central GroundWater Authority illegal heavy extraction of groundwater further depletes the groundwater.

The Delhi Jal Board water supply was stated by people to mostly have very low pressure and it takes a long hours to fill their tanks and so 75% of households stated they have installed a motor for pumping water from the main water pipes to fill and store water in their tanks for daily use.

To overcome the shortages or irregular water supply and the poor quality or non-availability of groundwater in their areas, 70% of the people said they buy bottleddrinking water. They said that in the summers as consumption of water is more, buying a larger quantities of bottled water becomes very expensive for them.

The people were also asked about how they perceived the quality of water. It was found that 80% of the people said they use filters for drinking water as directly using the water makes them fall ill. Around 30% of people use the Reverse Osmosis (RO) filters as they use groundwater which is hard water in their areas and having highTotal Dissolved Solids (TDS) levels, however, the people said that they realised that in RO filters there is a lot of wastage of water and only around 10 % of RO users stated that they reuse the ROwastewater for watering their plants.

The people were also asked about the steps to be taken to conserve water and their suggestions were that awareness of using water judiciously should be promoted by the media, Delhi Jal Board should have efficient maintenance and monitoring of their pipelines to avoid leakage and wastage, rainwater harvesting can be undertaken in society complexes, parks, and open grounds.

The people surveyed were also asked about their use of groundwater which is heavily polluted. A majority, 75%%of the people are aware but they are helpless as water is a basic requirement for daily domestic uses. 25% of people were not aware of the ill effects of polluted groundwater.

Delhi residents therefore have a lot of problem with low water supply in all parts of the city and measures should be undertaken to improve this by proper distribution, curbing leakage and wasting and augmenting water quantity by recycling wastewater, rainwater harvesting, increasing ground surface under vegetation to recharge groundwater. A better check should be kept on illegal dumping of sewage into water sources and the number of water treatment plants too should be increased.

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