GEOGRAPHICAL ANALYSIS

RESEARCH ARTICLE

A Geographical Study on Sewage Water Treatment Plants in Mysuru City

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Abstract

The rapid growth of the population, the technological and industrial development has brought enormous problems and degradation of the environment. There is a gradual decline in availability of fresh water to be used for irrigation in India. As a consequence, the use of urban waste water (UWW) for irrigating agricultural lands is on the rise particularly in peri-urban areas of developing countries. Effective collection and treatment of urban wastewater is a critical problem in a developing country like India. A case study was undertaken to assess the characteristic of the urban waste water and its management in Mysore city and its long-term effect on irrigation. Over the past few years the discharge of waste and sewage in Mysore City has increased, exerting a great amount of pressure on ecological protection. In this study, we focus on achieving a balanced spatial layout of sewage treatment plants in order to reveal the regional differences.

Keywords: UWW; Balanced; Treatment

Introduction

Increase of urban populations and increased coverage of domestic water supply and sewerage give rise to greater quantities of Urban waste water (UWW). On the contrary, providing safe and sufficient drinking water and proper sewerage system remains as the challenging tasks for many developing countries particularly so, in urban areas. With the increasing scarcity of freshwater resources that are available to agriculture, the use of urban wastewater in agriculture has increased, especially in arid and semi-arid countries. The major challenge is to optimize the benefits of wastewater as a resource of both the water and the nutrients it contains, and to minimize the negative impacts of its use on human health. About 80% of urban waste in India ends up in rivers where it destroys rivers ecosystems and it also makes bodies of water unfit for human use and if this trend continues the rivers could soon become dead rivers.

Urban waste water means domestic waste water, consisting of Blackwater-excreta, urine and associated sludge and grey water-kitchen and bathroom wastewater or the mixture of domestic wastewater from commercial establishments and institutions including hospitals with industrial wastewater and run-off rain water.

Non point sources include silt from earth-moving activities; storm runoff from roads, home gardens, and industrial sites, infiltration from aquifers contaminated with domestic waste water or industrial chemicals; and automobile emissions. Domestic waste water created by residences, institutions, hospitals and commercial are discharged into sewages.

Objectives

1. To Study the spatial distribution of sewage water treatment plants in Mysuru city
2. To assess the sewage water treatment plants management and problems of Mysuru city

Methodology

The Present study is based on Both Primary and Secondary source data. Since the area of study is limited to Mysore city the study highlights how the technology positively and negatively impacts on the water and environment of the city. The secondary data collected from various reports, article and books. The primary sources of data have been collected from field survey through questionnaire and observation, to achieve the goal of studies.

Study Area

Mysore City is an Ancient, historic and one of the beautiful cities of the country. It is the 2nd largest city in the state of Karnataka, next to Bangalore. It lies about 146km (91 miles) southwest of Bangalore, the capital of Karnataka. The Mysore city is located between 12º 14' 41"N to 12º 22'25" N latitudes and 76º 34'20"E to 76º 43'23"E longitude at an altitude of 2526ft above the mean sea level (Map.1). Mysore city Spread across an area of 128.42 km2 (50 sq.miles) & it is lies in the saucer shaped basin & is situated at the base of the Chamundi hills. The City of Mysore in Karnataka is one of the most visited tourist destinations of the state. City is divided into 9 Zones and they sub divided as 65 wards by MCC (Mysore City Corporation) based on 2011 data. The population is about 8, 93,062 in 2011 census, with males 4,46,676 and 4,46,386 females respectively.

Results and Discussion

In the Study area, the source of water for domestic and industrial purpose is mainly from the Cauvery River and ground water. In recent years industrialization has become main cause of city's growth. There is diversity in industrial landscape of Mysore with haphazard distribution. The industrial areas are distributed all over the city and its surroundings with lack of order and regulation in industrial location. A large number of small medium and large- scale industries exist in and around the Mysore city, including engineering, chemical, pharmaceutical, food, brewery, distillery, textile, steel and metal smelting. Mysore has adequate water supply resources due to the proximity of Rivers Cauvery and Kapila.

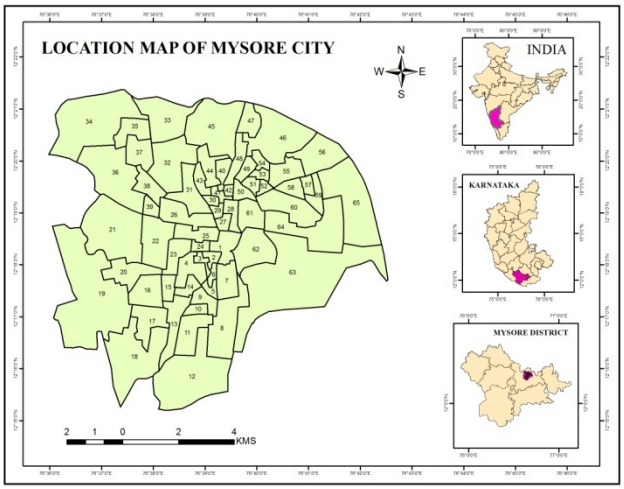

Fig. 1. Location of Mysore City with Wards

All kinds of variations in wastewater use are possible and it is to be expected that different uses will have different impacts on agricultural productivity, the environment, and human health. Appropriate policy decisions and technical interventions are likely to depend on the nature and characteristics of the wastewater and the way in which it is being used. The following are the three types of waste water use are the most relevant.

There are three sewage treatment plants in Mysuru city Vidyaranyapuram plant is one of them it was started in 1998 and was functioning by bottle bay company Mumbai then after in 2002 it was handed over to the government in south Karnataka Mysuru. Kesare treatment plant was started in 2002, the area is generally formed in a zig zag shape and Rayanakere.

The city has been provided with three wastewater treatment plants. Drainage districts of have the wastewater treatment plant of capacity 60.0 MLD, which is located at Rayankere, H. D. Kote Road, Mysore. The treatment plant for drainage district B is of capacity 67.65 MLD, which is located at sewage Farm, Vidyaranyapuram, Mysore. The treatment plant of the capacity 45.0 MLD, which is located at Kesare Village, Mysore. The wastewater from point source and non-point sources from different areas of the drainage districts are collected in wet wells and treated in the wastewater treatment plants. All the treatment plants have facultative aerated lagoons and sedimentation basins. The process of primary treatment involves simple lagooning and subsequently natural oxidation.

Sampling Stations: The following three sampling stations were selected for the present study located at wastewater treatment plants.

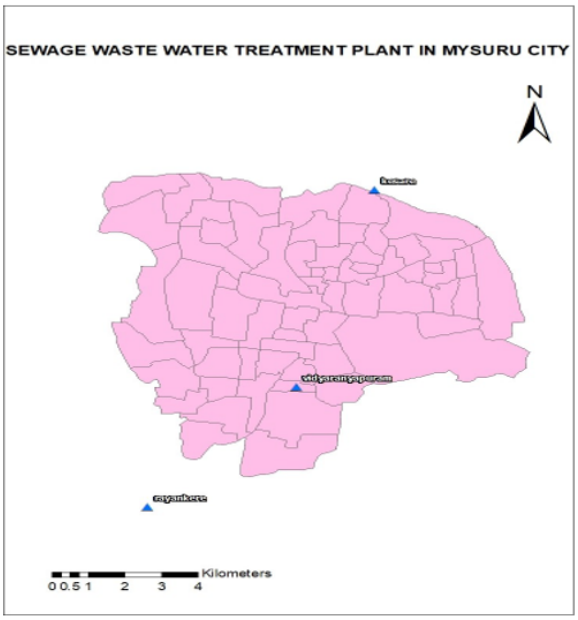

Fig. 2. Location of Sewage Waste Water Treatment plant

Fig. 3. Satellite image of location of Sewage Waste Water Treatment plant in google earth

1. Kesare Village, Mysore.
2. Sewage Farm, Vidyaranyapuram Mysore.
3. Rayankere, H. D. Kote Road, Mysore.

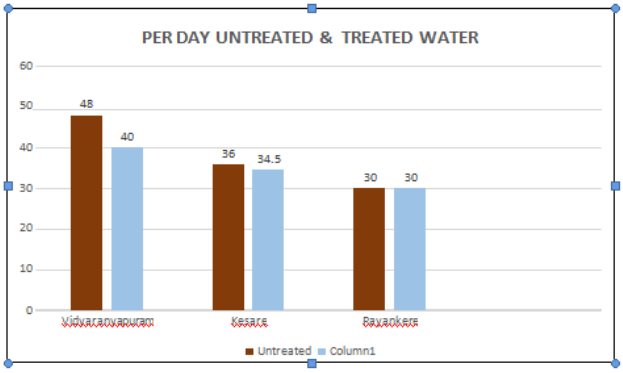

Fig. 4. Per Day Untreated and Treated water

Here Figure 4 this graph represents about the per day untreated and treated water in vidayranyapuram, kesare, Rayankere in the form of MLD (million Liters per day)

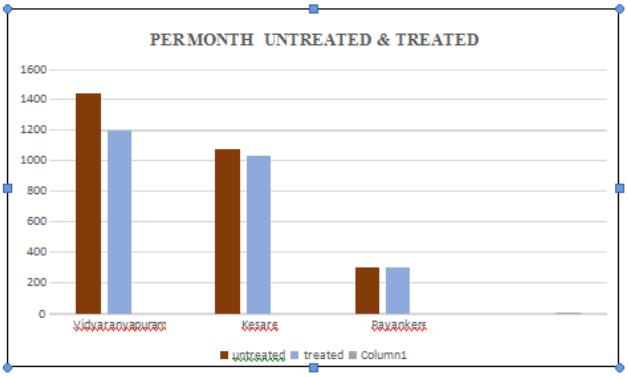

Fig. 5. Per Month Untreated and Treated water

Here Figure 5 this graph represents about the per month untreated and treated water in vidayranyapuram, kesare, Rayankere H.D Kote Mysuru.

1. **Vidyaranyapuram:** The water at this place takes 5 days to be treated. and send it to the dalvoy lake. It is being used for agricultural purpose, gulf club, chamundi hills, Mysuru race course. the grass is also being sold for rupees which cost 1rupee per kilogram. This treatment plant is 2.5kms far away from the Mysuru palace
2. **Hale Kesare:** -Banimantap is regarded as an industrialised area in Mysuru city. And this waste water which includes domestic and industrial both being sent to the hale kesare for the treatment. this place is the major

source to the plant. in addition to that they release the treated water for agricultural purpose to the surrounding villages. And the rest water is being released to the Kaveri River. The water is being utilized for cultivation of rice and sugarcane. This plant is in a zigzag shape. There were above 500 coconut trees in this plant, the corporation was getting the gain/profit of it.

3. **Rayankere:** Treated water was left to DADADAHALLI lake and the surroundings using it for irrigation.




Conclusion

This study was mainly emphasis the current status of urban drinking water treatment system in Mysuru for all season the values of physio-chemical parameters are within the limit of water quality standard. In some plants noticed the prolonged equipment errors, but the finished water quality they maintained based on the chlorine dosage. During the monsoon season the values are higher compare to other seasons (winter and summer). The overall conclusion of this study the present operational status of treatment using all three water treatment plants is moderately safe. The existing urban water system full fills the norms but a sustainable point of view can be up graded with newer technologies. Land application of wastewater, sludge and excreta on land is a widespread practice with a long tradition in many countries around the world. Therefore, agricultural use of untreated wastewater has been associated with land application and crop production for centuries. However, over the years, it has become less popular in developed countries with the improvement of treatment technologies and increased

STP Names	Capacity	Area tors	Depth	Acres	Primary TRMN	Secondary TRMN	Worker	Plant Repair
Vidyaranyapuram	67.65 MLD	36	15ft	354	Airation	Sedimentation	23	10 lakh
Hale Kesera	45 MLD	32	15ft	30	Airation	Sedimentation	17	5 lakh
Rayankere	60 MLD	34	15ft	175	Airation	Sedimentation	14	6 lakh

awareness of the environmental and health issues associated with the practice.

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