Review Paper

Remote Sensing and GIS Approach for the Water Pollution and Management In Tiruchirappli Taluk, Tamil Nadu, India

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ABSTRACT

The present study area confined only to the Tiruchirappalli taluk which was surrounded by Srirangam taluk in north and west, Thanjavur district in east and southern portion was covered by Pudukottai district. Water resource development has taken place all over the world. There is a tremendous amount of pressure in protecting the water resources available in the country. Protecting the surface water resources from wastewater pollution plays a vital role for the development. The disposal of wastewater into the surface water bodies leads to serious problems and affects the people in health aspects. Especially in the urban areas, the pollution of domestic effluent discharges into the nearby surface water bodies created problems for the public. There are many ways of safe disposal of wastewater. But improper management of wastewater generation in the urban areas find its own way of getting into the surface water. To prepare base map from SOI Toposheets within 1:50000 scale. To demarcate the administrative division of the study area with prepare various thematic layers in the block. Remote sensing study through IRS 1D LISS III, satellite imagery and SRTM data. The above details gathered from government and NGOs, the study objectives came into a final target that the urbanization and industrialization preferably the main reason for the water pollution in the environment. Water pollution promotes the disturbances in the total surroundings in relation to health, traffic concession, over exploitation in and around the polluted area.

Keywords: Remote Sensing, GIS, Water Pollution

1. Introduction

Water resource development has taken place all over the world. There is a tremendous amount of pressure in protecting the water resources available in the country. Protecting the surface water resources from wastewater pollution plays a vital role for the development. The disposal of wastewater into the surface water bodies leads to serious problems and affects the people in health aspects. Especially in the urban areas, the pollution of domestic effluent discharges into the nearby surface water bodies created problems for the public. There are many ways of safe disposal of wastewater. But improper management of wastewater generation in the urban areas find its own way of getting into the surface water. Hence, the effluent discharge affects the surface water bodies. The water quality changes in the surface water bodies created many health problems to the public. Urban conglomerations are increasing at a very fast pace. Pivotal to the urbanization phenomenon are the associated problems of providing municipal services and water infrastructure, including the provision of both fresh water resources and sanitation services. Indian cities are no exception to the urbanisation process and have tremendously expanded. The major cities are growing with a daily average addition of 1000 persons.

1.1 Aim and Objectives

The present study has been prepared for the following objectives;

- To demarcate the administrative division of the study area with prepare various thematic layers in the block.

- To determine landuse classes were derived over the thematic layer through the toposheets.

- The water pollution and management of the taluk studied very broadly and assessed.
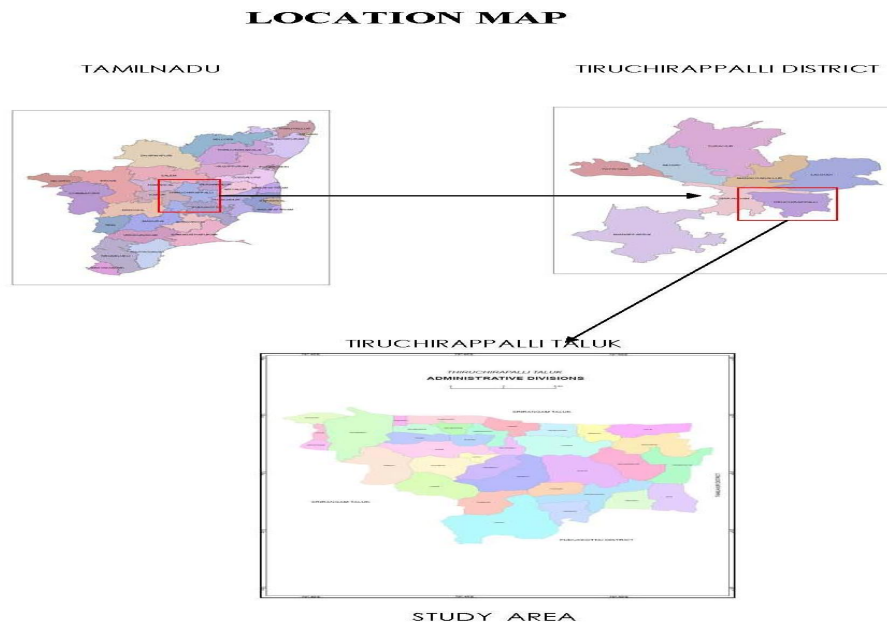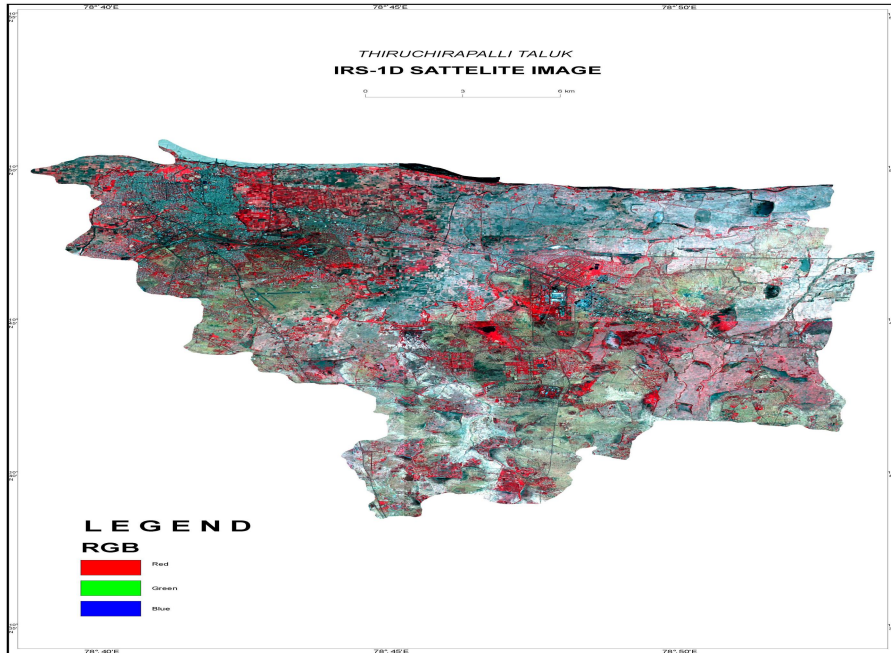

Figure 1: Image showing the study area

1.2 Study Area

The present study area confined only to the Tiruchirappalli taluk which was surrounded by Srirangam taluk in north and west, Thanjavur district in east and southern portion was covered by Pudukottai district. The total area of the study area was 27.9 sq.kms. This taluk extends from 10degree 49seconds 26 minutes N to 78degree 52 second 89minutes E. Total population of the study area was found to be 9,28,590 while conducting literature review.

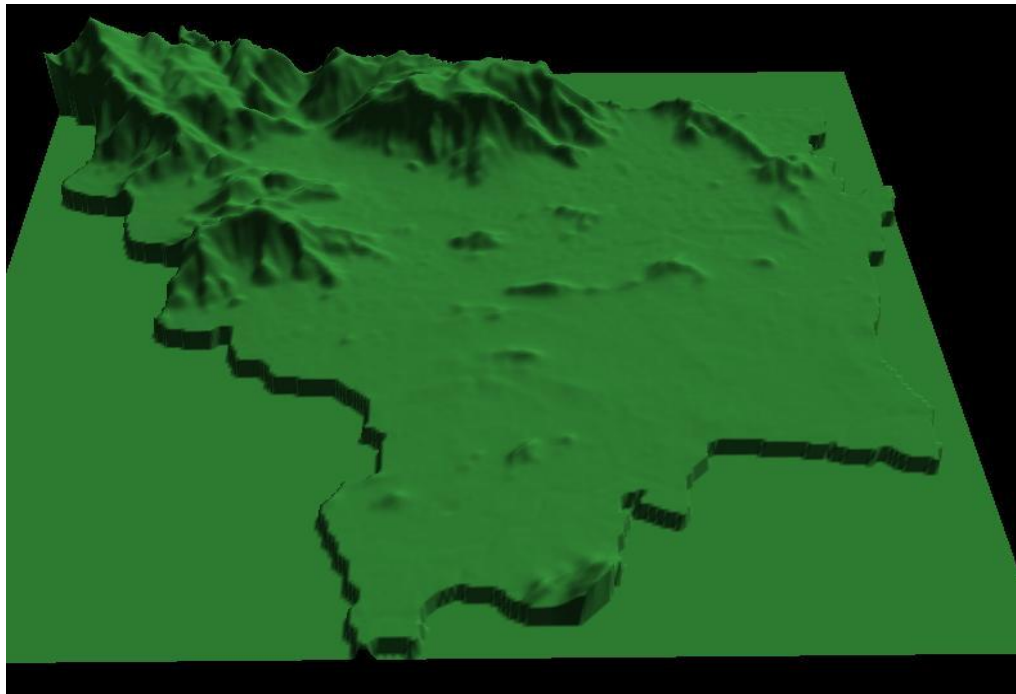**Figure 2:** Satellite image of the study area

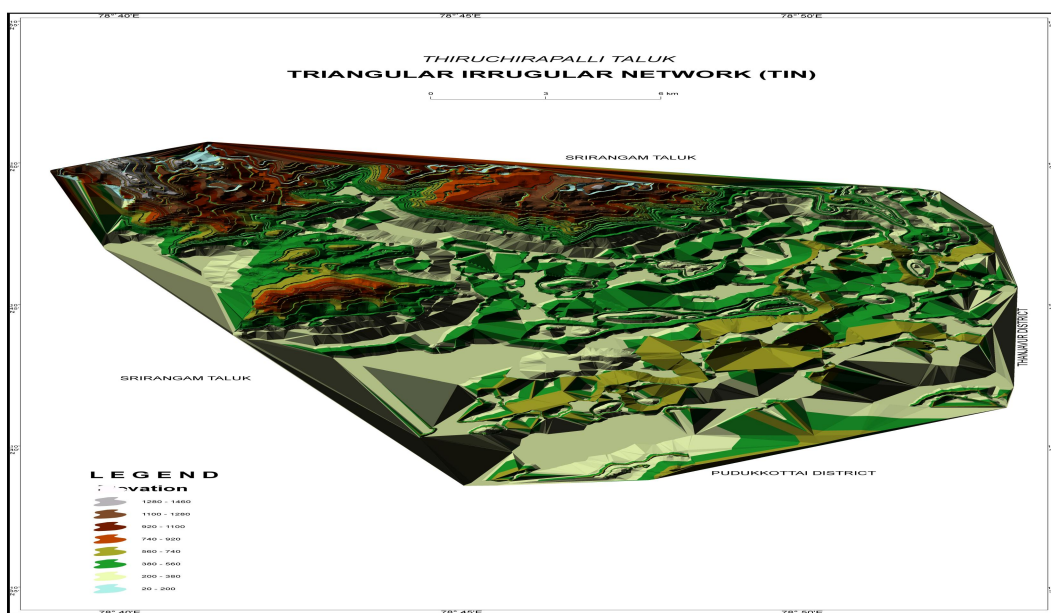**Figure3:** Elevation Model (DEM) of the study area

Figure 4. Triangular Irregular Network (TIN) map of the study Area

2. Methodology

Methodology adopted for achieving the above mentioned goals are summarized below. There are three major components in the study viz. a) Field data collection include geological mapping. b) Canal data and meteorological data collection from Public Work Division (PWD). c) Remote sensing studies through IRS 1D LISS III, satellite imagery and SRTM data. From the filed, water level data, canal water inflow, groundwater condition runoff, evaporation and recharge of water have been studied in detail. Remote sensing study includes generation of False Color Composite (FCC) and other processed outputs used to interpret drainage, geomorphology, landuse/land cover in this region. All the attribute data were integrated in GIS environment.

3. Result and Conclusions

Currently, the environmental risk to water quality caused by various improper activities such as industrial discharges, human activities etc., The government-led actions on water standards and other national actions such as integrated water resources management and river basin development planning, when fully developed and implemented, will have a marked impact on maintaining a healthy environment. This study has a great attention over the environmental degradation in the Tiruchirappalli taluk which was the heart of the state Tamilnadu. And it has wide geographical area. So, these recommendations will helpful to the planners and decision makers to find the real solution for the problem chosen. The following are the main recommendations from the study. To control the pollution in and around the study area the co-operation between people and government sector must be the prime phenomenon. To manage the water pollution the government has to engage strict rules and regulations to establish industries and other associated sectors which main reason for the pollution. The industries also must follow the rules and regulations allotted by the government to order to control the pollution level. To prevent the pollution level, the awareness of the effects due to water pollution is to be clearly understood by the people in a proper way. This study highlights the present and future water pollution problems and demand to the drinking water in future. A water pollution and management aspect of Tiruchirappalli taluk is an ideal example to identify the relevant management strategies to control the water pollution and its management in the taluk. The suggestions and recommendations could be made for conserve and preserve the water pollution which directly and indirectly influencing the agricultural, health, economic and other associated aspects of the study area. The study objectives came into a final target that the urbanization and industrialization preferably the main reason for the

water pollution in the environment. Water pollution promotes the disturbances in the total surroundings in relation to health, traffic concession, over exploitation in and around the polluted area.

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