VISVESVARAYA TECHNOLOGICAL UNIVERSITY

JNANA SANGAMA CAMPUS, BELGAVI-590018

PROJECT REPORT

On

"WATERSHED MANAGEMENT USING OPEN SOURCE GEOSPATIAL TECHNOLOGY AND INSITU DATA OF LOWER BHADRA RIVER BASIN"

Submitted by

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In partial fulfillment of the requirements for the degree of

BACHELOR OF ENGINEERING

In

CIVIL ENGINEERING

Under the Guidance of

Dr. H G Umeshchandra.

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DEPARTMENT OF CIVIL ENGINEERING

ALVA`S INSTITUTE OF ENGINEERING AND TECHNOLOGY

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CERTIFICATE

Certified that the project work entitled "WATERSHED MANAGEMENT USING OPEN SOURCE GEOSPATIAL TECHNOLOGY AND INSITU DATA OF LOWER BHADRA RIVER BASIN" is a bonafide work carried out by

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in partial fulfilment for the award of BACHELOR OF ENGINEERING in **CIVIL ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAVI** during the year 2019–2020. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the Bachelor of Engineering Degree.

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ABSTRACT

Determining suitability and vulnerability of surface and groundwater quality for irrigation use is a key alarm and first aid for careful management of water resources to diminish the impacts on irrigation. This study was conducted to determine the overall suitability of groundwater, surface water quality for irrigation use and to generate their spatial distribution maps in lower Bhadra river basin catchment, Bhadravathi. Twenty-one samples were collected to analyze and map the water quality. In the present study, at each sampling station, chemical parameters such as, Temperature, pH, Chlorides, Total Hardness, Calcium and Magnesium Hardness, Sulphates and Alkalinity Were determined using the Standard Methods. All water samples were analyzed for DO and BOD. Observed water quality parameters in both surface of Bhadra River and the ground water along the bank are well within the permissible limit of drinking, irrigation and all other domestic and recreational purposes. GRASS GIS, QGIS, Google Earth were used to generate geospatial distribution maps. The trend of increasing in openland and built-up area and decreasing in vegetation and waterbodies, LU/LC categories are expected continued in 2030 and 2045 periods. Population growth and reduction of land productivity are the drivers of such changes. If the trends of LU/LC changes continued, it will have implications on increasing soil loss and impacting the hydrology of the studied watershed in particular. GIS and irrigation water quality are better methods for watershed management to achieve a full yield irrigation production to improve food security and to sustain it for a long period, to avoid the possibility of increasing environmental problems for the future generation.