



National River Conservation Directorate
Ministry of Jal Shakti,
Department of Water Resources,
River Development & Ganga Rejuvenation
Government of India

Lithological Profile of Godavari River Basin



February 2025



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National River Conservation Directorate (NRCD)

The National River Conservation Directorate, functioning under the Department of Water Resources, River Development & Ganga Rejuvenation, and Ministry of Jal Shakti providing financial assistance to the State Government for conservation of rivers under the Centrally Sponsored Schemes of 'National River Conservation Plan (NRCP)'. National River Conservation Plan to the State Governments/ local bodies to set up infrastructure for pollution abatement of rivers in identified polluted river stretches based on proposals received from the State Governments/ local bodies.

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Centres for Godavari River Basin Management and Studies (cGodavari)

The Center for Godavari River Basin Management and Studies (cGodavari) is a Brain Trust dedicated to River Science and River Basin Management. Established in 2024 by CSIR-NEERI and IIT Hyderabad, under the supervision of cGanga at IIT Kanpur, the center serves as a knowledge wing of the National River Conservation Directorate (NRCD). cGodavari is committed to restoring and conserving the Godavari River and its resources through the collation of information and knowledge, research and development, planning, monitoring, education, advocacy, and stakeholder engagement.

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Centres for Ganga River Basin Management and Studies (cGanga)

cGanga is a think tank formed under the aegis of NMCG, and one of its stated objectives is to make India a world leader in river and water science. The Centre is headquartered at IIT Kanpur and has representation from most leading science and technological institutes of the country. cGanga's mandate is to serve as think-tank in implementation and dynamic evolution of Ganga River Basin Management Plan (GRBMP) prepared by the Consortium of 7 IITs. In addition to this, it is also responsible for introducing new technologies, innovations, and solutions into India.

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Acknowledgment

This report is a comprehensive outcome of the project jointly executed by CSIR-NEERI (Lead Institute) and IIT Hyderabad (Fellow Institute) under the supervision of cGanga at IIT Kanpur. It is submitted to the National River Conservation Directorate (NRCD) in 2024. We gratefully acknowledge the individuals who provided information and photographs for this report.

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Preface

In an era of unprecedented environmental change, understanding our rivers and their ecosystems has never been more critical. This report aims to provide a comprehensive overview of our rivers, highlighting their importance, current health, and the challenges they face. As we explore the various facets of river systems, we aim to equip readers with the knowledge necessary to appreciate and protect these vital waterways.

Throughout the following pages, you will find an in-depth analysis of the principles and practices that support healthy river ecosystems. Our team of experts has meticulously compiled data, case studies, and testimonials to illustrate the significant impact of rivers on both natural environments and human communities. By sharing these insights, we hope to inspire and empower our readers to engage in river conservation efforts.

This report is not merely a collection of statistics and theories; it is a call to action. We urge all stakeholders to recognize the value of our rivers and to take proactive steps to ensure their preservation. Whether you are an environmental professional, a policy maker, or simply someone who cares about our planet, this guide is designed to support you in your efforts to protect our rivers.

We extend our heartfelt gratitude to the numerous contributors who have generously shared their stories and expertise. Their invaluable input has enriched this report, making it a beacon of knowledge and a practical resource for all who read it. It is our hope that this report will serve as a catalyst for positive environmental action, fostering a culture of stewardship that benefits both current and future generations.

As you delve into this overview of our rivers, we invite you to embrace the opportunities and challenges that lie ahead. Together, we can ensure that our rivers continue to thrive and sustain life for generations to come.

Centre for the Godavari River Basin
Management and Studies (cGodavari)
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1 Introduction

The Godavari River Basin, also known as the "Dakshina Ganga" or "Ganga of the South," is a significant river basin in India, covering an area of 312,812 km² across several states as shown in *Figure 1*. Originating from the Western Ghats in Maharashtra, it flows eastward across central and southern India, providing water resources for agriculture, drinking water supply, and industrial use. The basin's fertile soils support a wide range of crops, making it a vital lifeline for rural economies. The basin supports diverse ecosystems, including tropical forests, wetlands, grasslands, and wildlife sanctuaries, such as Pench National Park and Kawal Wildlife Sanctuary. Seasonal flooding helps maintain the ecological balance of the region by enriching soil and supporting aquatic life. The lithological importance of the Godavari River Basin is profound, particularly in relation to its impact on soil fertility, sedimentation patterns, and groundwater dynamics. The river carries a significant load of sediments, especially in its middle and lower courses, which contribute to the fertility of the floodplain. The upper part of the basin is dominated by ancient crystalline rocks of the Deccan Plateau, while the sedimentary formations of the region influence the mineral composition of the soil. The Godavari Basin plays a crucial role in groundwater recharge, particularly in areas with sedimentary rock formations, which is essential for irrigation and drinking water supply. The basin is rich in mineral resources, particularly in Chhattisgarh and Telangana, where coal, limestone, and iron ore deposits have shaped the industrial landscape.

In the context of river basins like the Godavari, a lithological profile helps in understanding how different types of rock and sediment influence the river's flow, sediment transport, and overall environmental characteristics. The lithology of the Godavari River Basin is diverse, reflecting the geological complexity of the region. It is characterized by a wide range of rock types, which influence both the hydrological characteristics and the soil composition within the basin. The basin primarily consists of sedimentary rocks, including sandstone, shale, and limestone, interspersed with igneous and metamorphic rocks, such as granite, gneiss, and basalt, which are predominant in the Deccan Plateau.

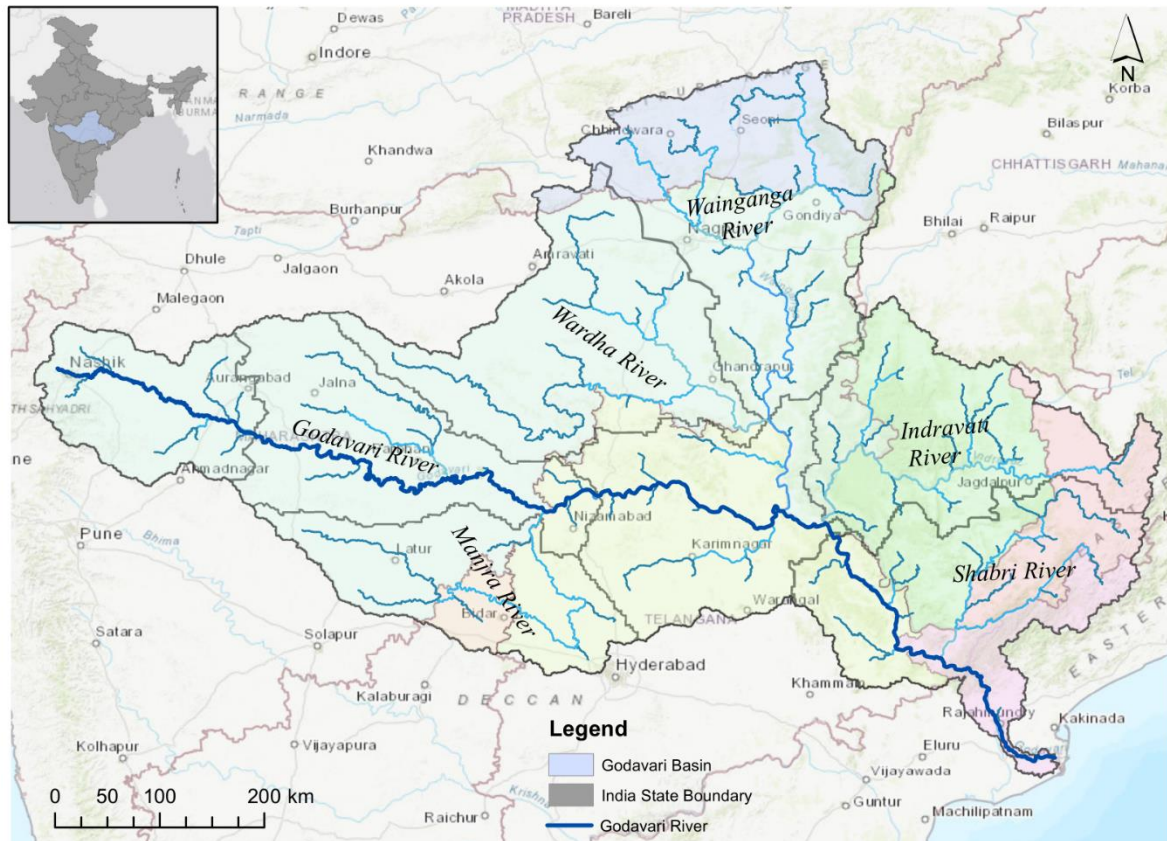


Figure 1: Location of Godavari River basin

A lithological profile is a vertical representation or description of the various rock types, sediments, and geological formations encountered in a specific location, typically depicted in a cross-section or stratigraphic column. This profile provides detailed information about the different layers of rock and sediment present beneath the surface, including their composition, texture, colour, and age. In a lithological profile, the layers are usually arranged from the surface (topmost layer) to the deepest (bottommost layer), showing how rock formations are stacked over time. The profile helps to understand the geological history, structure, and properties of the Earth's crust in a particular region, offering insights into resource potential, soil fertility, water retention, and even the region's seismic behavior.

As the river flows eastward, it crosses through a series of alluvial plains, where the river deposits sediments, enriching the agricultural land. Understanding the geological composition of the Godavari River Basin is essential for assessing water resource management, agricultural productivity, and environmental conservation efforts.

2 Lithological map

A lithological map is a type of geological map that displays the distribution, extent, and nature of different rock types and sedimentary formations in a specific geographic area. The map uses various colours, symbols, and patterns to represent different lithology's (rock types), providing a visual representation of the Earth's surface and subsurface composition. Lithological maps are valuable tools for geologists, environmental scientists, and land planners as they offer insight into the geological structure of a region.

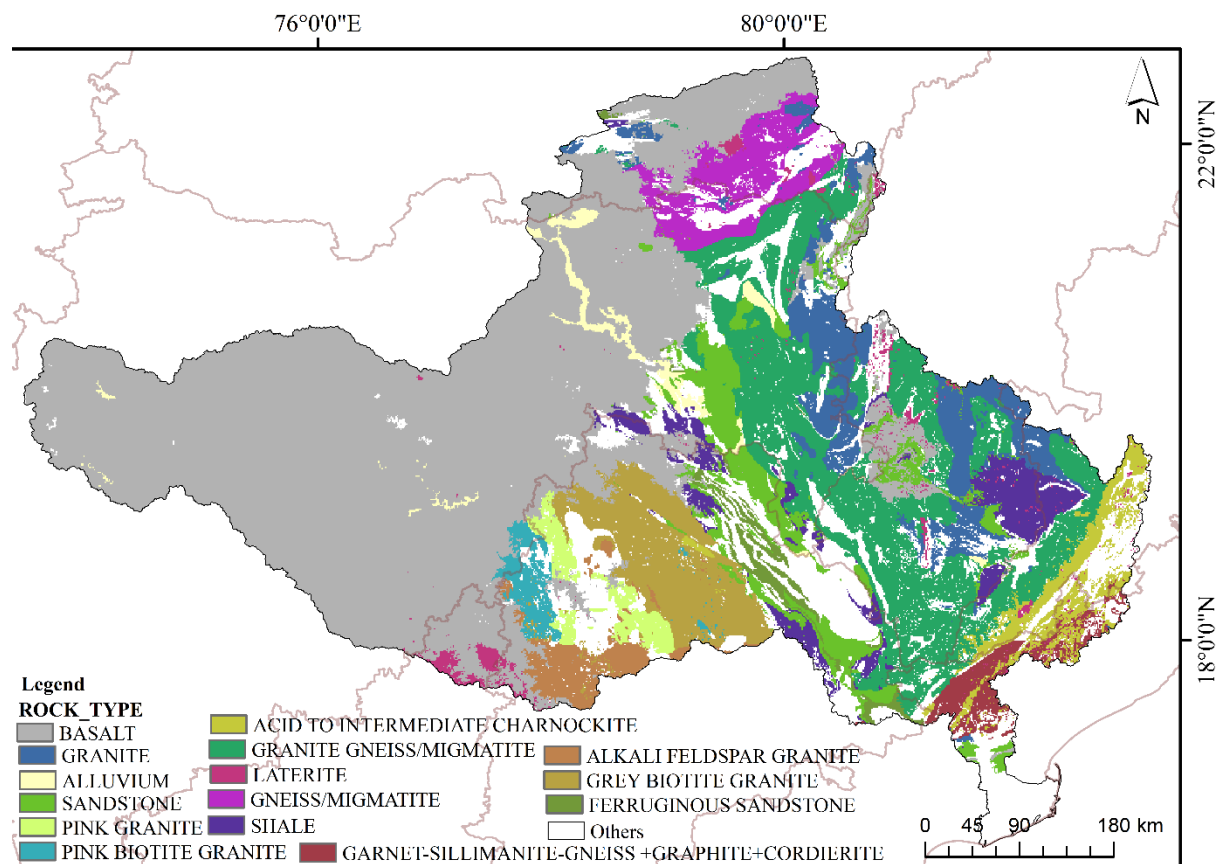


Figure 2: Rock type in Godavari River Basin

Table 1: Types of rocks in Godavari River Basin and its extent.

Rock Type	Area (km ²)
BASALT	153701.77
SANDSTONE	15443.23
SHALE	10446.33
PINK GRANITE	4233.14
PINK BIOTITE GRANITE	3358.51

QUARTZ-GARNET-SILLIMANITE-GRAPHITE SCHIST/GNEISS	3042.07
PINK HORNBLENDE BIOTITE GRANITE	2323.24
QUARTZITE	2045.08
RHYOLITE	1839.77
PHYLLITE	1616.25
MIGMATITE GNEISS	1229.21
SANDSTONE AND ORTHOQUARTZITE	1221.72
MUSCOVITE SCHIST	1172.80
SANDSTONE AND CLAY	870.51
MUDSTONE	712.64
TUFFACEOUS QUARTZ MICA SCHIST	663.38
META BASALT	450.00
PYROXENE GRANULITE	268.72
MARBLE	243.40
SAND (CHANNEL BAR/ POINT BAR)	235.22
SANDSTONE, CONGLOMERATE	215.15
WATER BODY	210.53
SANDSTONE WITH COAL	207.27

In the Godavari river basin, basalt rock covers over 73% of the land. 7% sandstone, 5% shale, 2% pink granite, 2% pink biotite granite, and other rock types follows in the order as shown in

Table 1 and Figure 2. The data is obtained from GSI.

2.1 Litho-logs

Litho-logs are detailed, descriptive records or logs of the physical and compositional properties of rock layers (lithology's) encountered in subsurface investigations, such as during drilling or geological studies. They are used in fields like petroleum exploration, mining, and geological research to understand the composition, structure, and properties of rock formations.

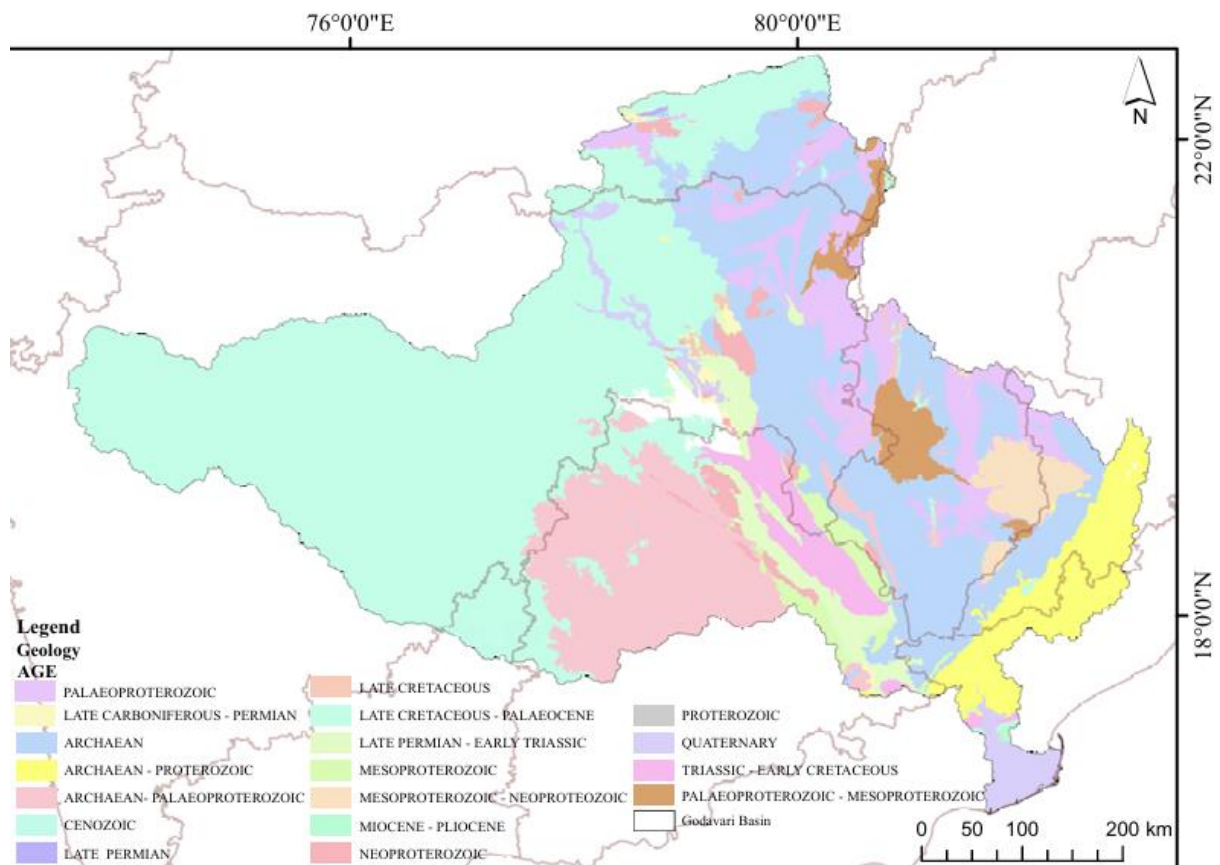


Figure 3: Geological age of rocks in Godavari River basin.

Table 2: Age of rock formation and its area covered in Godavari river basin.

Age	Area (km ²)
ARCHAEAN	62371.58
ARCHAEAN - PROTEROZOIC	17994.17
ARCHAEAN- PALAEOPROTEROZOIC	38865.27
CENOZOIC	2332.51
LATE PERMIAN	154.66
LATE CARBONIFEROUS - PERMIAN	1260.66
LATE CRETACEOUS	600.56
LATE CRETACEOUS - PALAEOCENE	149469.36
LATE PERMIAN - EARLY TRIASSIC	9903.90
MESOPROTEROZOIC	5100.69
MESOPROTEROZOIC - NEOPROTEOZOIC	6752.23
MIOCENE - PLIOCENE	230.48
NEOPROTEROZOIC	5485.78
PALAEOPROTEROZOIC	25306.63
PALAEOPROTEROZOIC - MESOPROTEROZOIC	7973.49

PROTEROZOIC	0.41
QUATERNARY	7494.12
TRIASSIC - EARLY CRETACEOUS	8747.62

In the Godavari River Basin, the LATE CRETACEOUS-PALAEOCENE covers around 43% of the area, followed by ARCHAEOAN (18%), ARCHAEOAN-PROTEROZOIC (11%), and others. The spatial extent is shown in *Figure 3* and the area is summarized in *Table 2*. The data presented here is obtained from WRIS-INDIA.

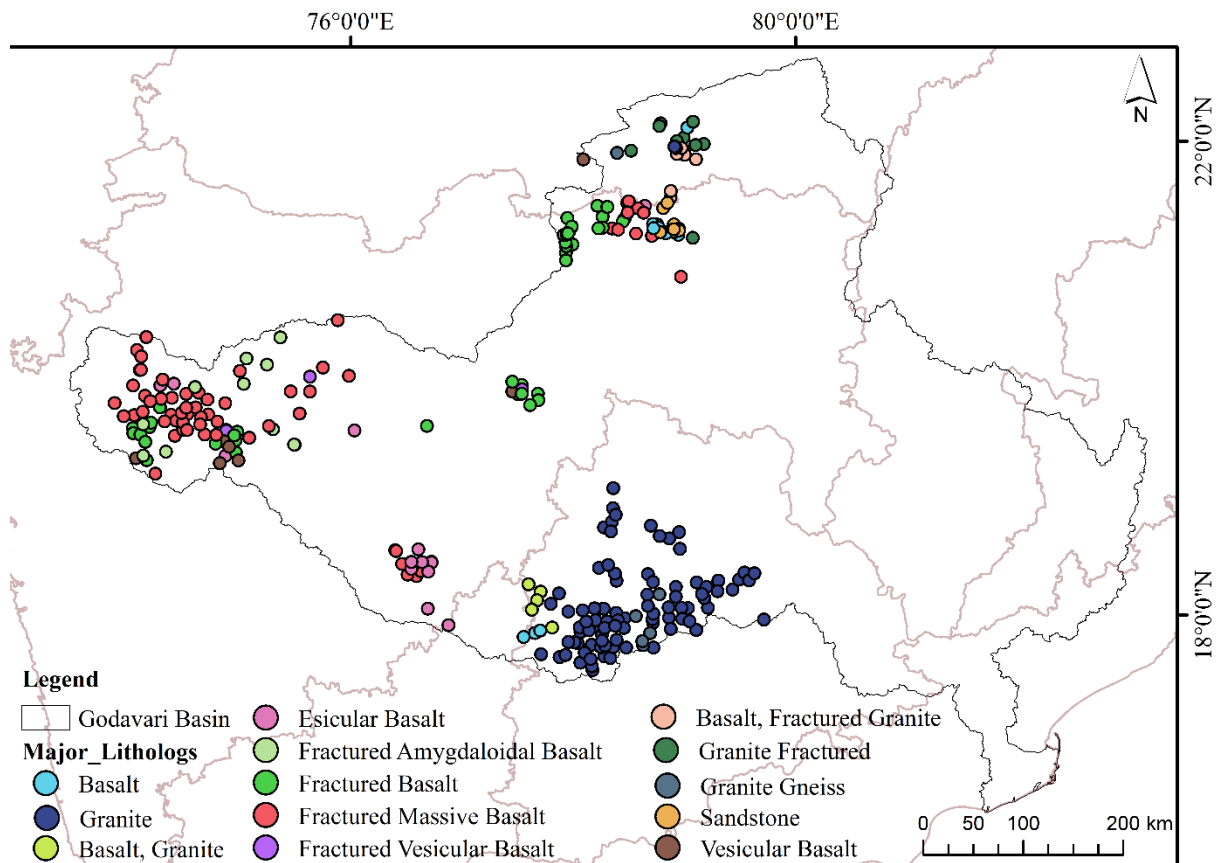


Figure 4: Locations Of major litho-logs in the Godavari River basin.

Table 3: Showing major litho-logs in the Godavari river basin.

Major Litho-logs	No. of Points
Basalt	12
Basalt, Fractured Granite	6
Basalt, Granite	7
Esicular Basalt	16
Fractured Amygdaloidal Basalt	13

Fractured Basalt	47
Fractured Massive Basalt	76
Fractured Vesicular Basalt	6
Granite	123
Granite Fractured	13
Granite Gneiss	8
Sandstone	9
Vesicular Basalt	12
Total	348

The Geological Survey of India (GSI) measures a total of 348 lithology sample places (GSI-India). The majority of the litho-logs in Maharashtra are fractured massive basalts. Granite is mostly found in Telangana. Granite litho-logs are primarily found in the Godavari basin, as shown in *Figure 4* and *Table 3*.

2.2 Applications of Soil Layer Information in the Godavari River Basin

The Godavari River Basin's soil types are crucial for agriculture, water resource management, ecological balance, and regional development. Alluvial soils support staple crops like rice and wheat, while black cotton soils support the cotton economy. Red and yellow soils support pulses and oilseeds. Clayey soils help with water retention during droughts, while sandy soils are ideal for groundwater infiltration and recharge. Alluvial soils deposit by the river contribute to floodplain stability and agriculture during seasonal flooding. Different soil types support biodiversity in the basin's wetlands, forests, and floodplains. Understanding soil characteristics helps communities adapt to changing climatic conditions. Soil information is essential for planning infrastructure projects and conservation programs. Understanding soil erosion, nutrient loss, and degradation helps in planning conservation programs.

3 Type of soil

The Godavari River Basin is home to a variety of soils, including alluvial, red and yellow, black cotton, clayey, laterite, and sandy soils. Each soil type has unique properties that influence agriculture, water management, and ecological balance. Understanding the distribution and characteristics of these soils is essential for implementing effective agricultural strategies, ensuring water security, managing land resources, and supporting climate adaptation and conservation within the basin.

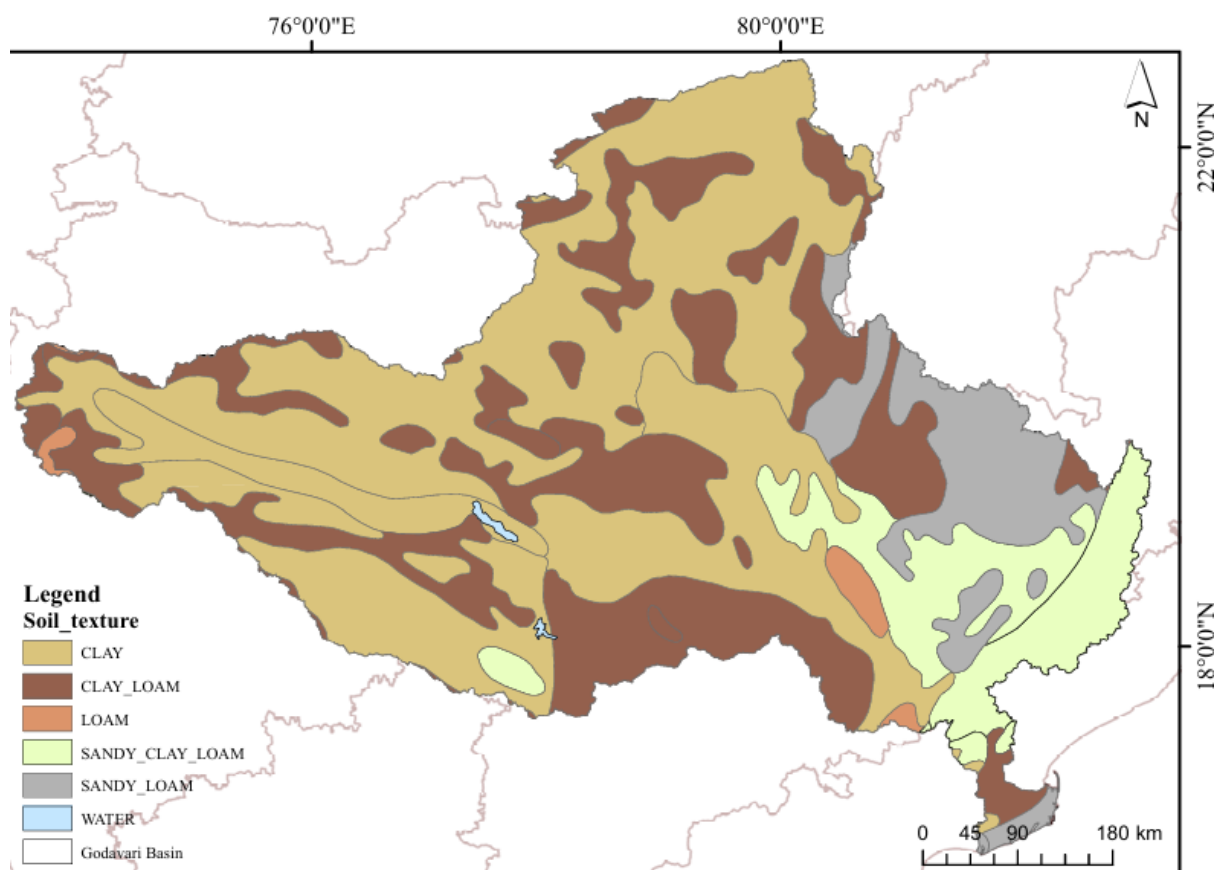


Figure 5: Soil texture in the Godavari River Basin (Source: FAO)

Table 4: Types of soils found in the Godavari River Basin

Soil Type	Area (km ²)
CLAY	175241.4
CLAY_LOAM	103807.7
LOAM	3806.6
SANDY_CLAY_LOAM	39139.9
SANDY_LOAM	30754.4
WATER	551.8

Nearly 61% of the basin is covered with clay-type soil, followed by Sandy Clay Loam (16%), Sandy Loam (11%), Clay Loam (10%), and Loam Soil (0.3%). In Maharashtra State, the majority of the land is covered with Clay and Clay Loam. (as shown in Figure 5 and Table 4). The information is obtained is from FAO.

3.1 Importance of Soils in the Godavari River Basin

The Godavari River Basin's soil types are crucial for agriculture, water resource management, ecological balance, and regional development. Alluvial soils support staple crops like rice and wheat, while black cotton soils support the cotton economy. Red and yellow soils support pulses and oilseeds. Clayey soils help with water retention during droughts, while sandy soils are ideal for groundwater infiltration and recharge. Alluvial soils deposit by the river contribute to floodplain stability and agriculture during seasonal flooding. Different soil types support biodiversity in the basin's wetlands, forests, and floodplains. Understanding soil characteristics helps communities adapt to changing climatic conditions. Soil information is essential for planning infrastructure projects and conservation programs. Understanding soil erosion, nutrient loss, and degradation helps in planning conservation programs (as shown in *Figure 5*).

4 Macro Nutrients

These are nutrients that plants need in large quantities. They are crucial for basic plant processes, including energy production, growth, and the formation of plant structures. The importance of macro nutrients for crop yield is give below:

1. **Nitrogen (N):** Vital for plant growth, nitrogen is a key component of amino acids, proteins, and chlorophyll. It helps plants produce lush, green foliage.
2. **Phosphorus (P):** Important for root development, flower and fruit production, and energy transfer within the plant. It is part of DNA and RNA molecules.
3. **Potassium (K):** Regulates plant metabolism, helps with disease resistance, and aids in the production of starches, sugars, and proteins.
4. **Calcium (Ca):** Important for cell wall structure and stability, and helps in root development and nutrient uptake.
5. **Magnesium (Mg):** A central component of chlorophyll, it supports photosynthesis, and helps with enzyme activation.
6. **Sulphur (S):** Crucial for the formation of amino acids and proteins, and helps with plant growth regulation.

Table 5: Criteria for classification of the macro-nutrients according to the SHC initiative.

Macro-Nutrient	Value
Nitrogen	High->560 Kg/ha
	Medium-280-560 Kg/ha
	Low-<280 Kg/ha
Phosphorus	High->25 Kg/ha
	Medium-10-25 Kg/ha
	Low-<10 Kg/ha
Potassium	High->280 Kg/ha
	Medium-120-280 Kg/ha
	Low-<120 Kg/ha
Sulphur	Sufficient->0.2 ppm
	Deficient-<0.2 ppm
Manganese	Sufficient->2.0 ppm
	Deficient-<2.0 ppm

4.1 Soil Testing Process

The Soil Health Card (SHC) is a government initiative by the Ministry of Agriculture & Farmers' Welfare, Government of India, designed to assess soil health across the country and provide recommendations for improving it. The Soil Health Card contains information about the nutrient status of the soil and helps farmers with the proper application of fertilizers and other inputs to optimize soil fertility. The data is obtained from SHC portal (<https://soilhealth.dac.gov.in/home>), the methodology followed in SHC is as follows,

- **Soil Sample Collection:** Farmers collect soil samples from their fields, either individually or in groups, following the guidelines provided by agricultural extension officers or local authorities.
- **Analysis at Soil Testing Laboratories:** These samples are sent to designated soil testing laboratories, where they undergo chemical analysis to determine the soil's nutrient content, including both **macro** and **micro** nutrients.

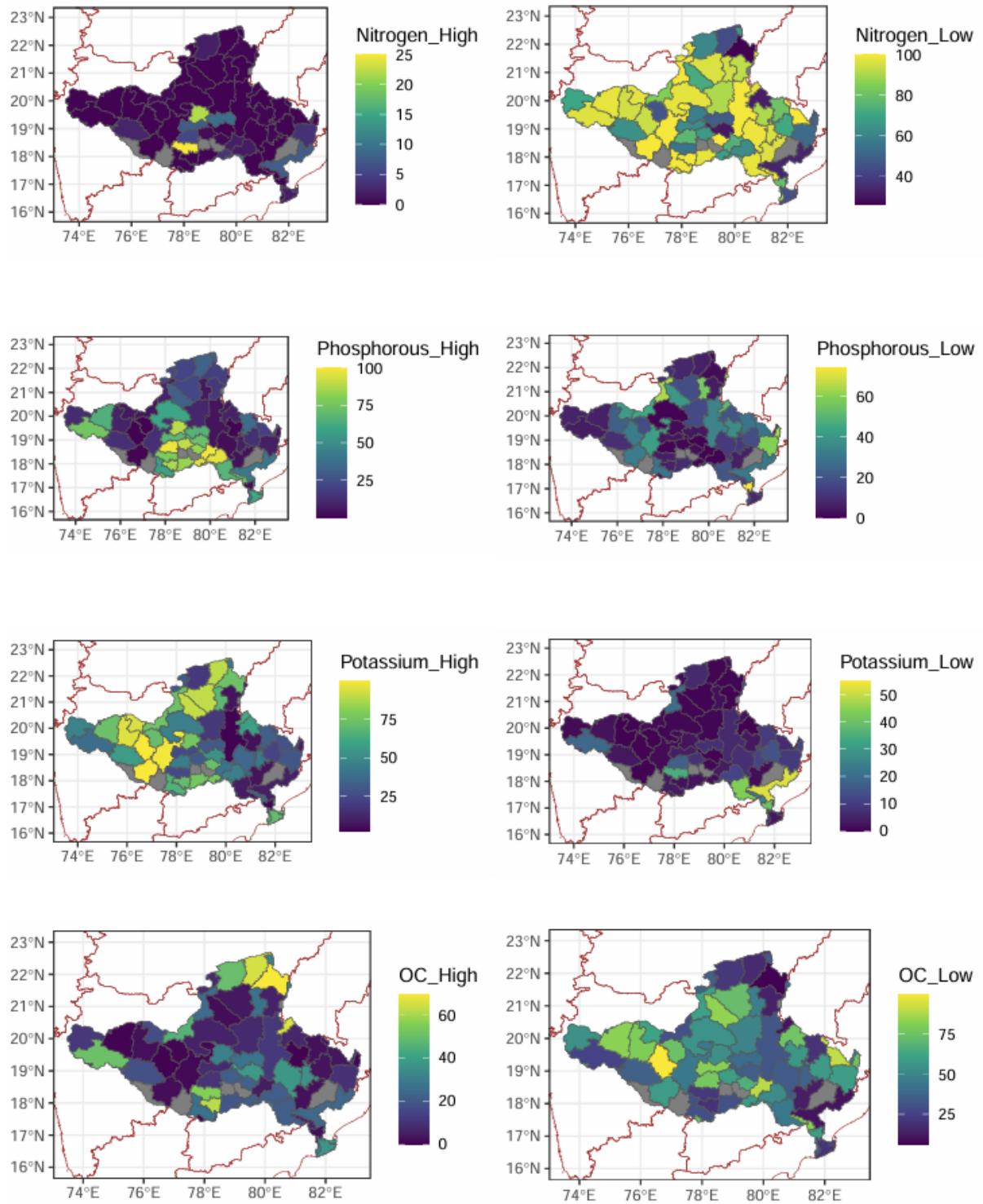


Figure 6: Map showing district-wise macronutrients in Percent of Soil Samples Collected (Nitrogen, Phosphorous, Potassium, Organic Carbon) in Godavari River Basin

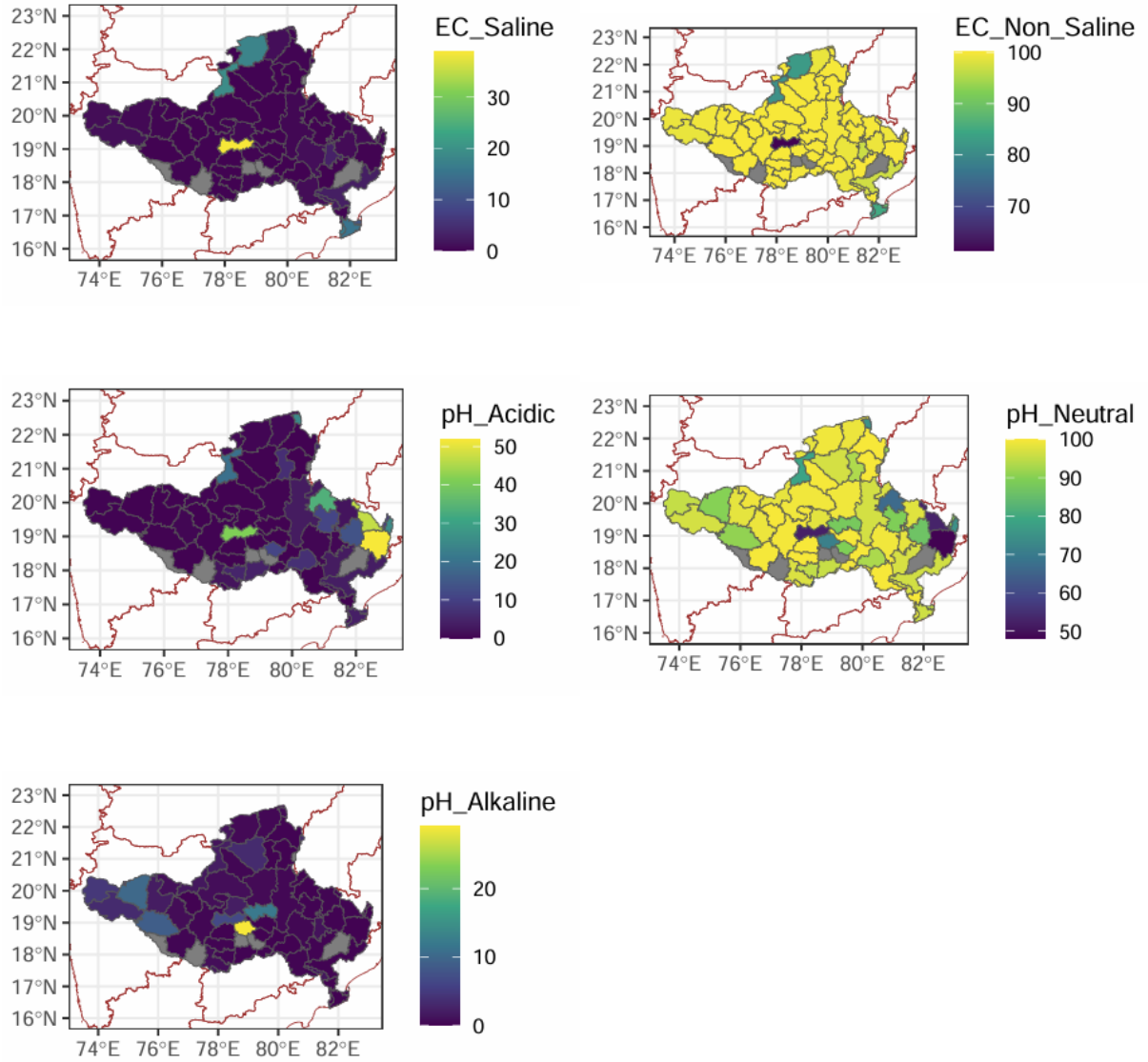


Figure 7: Map showing district-wise EC and pH in Percent of Soil Samples Collected according to Soil Health Card initiative for 2023-24, in Godavari River Basin

The macronutrient information is obtained from Soil Health Card Program-India, where the percentages represent Target for Soil Samples Collection and Testing per No. of Samples Collected. Out of the target samples, the percentage of samples meeting the nutrient levels are categorized into high, medium, low, sufficient or deficient. The criteria of classification of a nutrient is shown in *Table 5*. The information on the status of macronutrients were obtained from the SHC data portal for 2023-24. The spatial choropleths of the macronutrient information is provided in *Figure 6* and *Figure 7*. Results show that Telangana has the highest nitrogen deficiency, with 94.02% of soil having low nitrogen content, while Chhattisgarh has the best nitrogen levels, with 68.79% of soil in the medium range. Odisha and Maharashtra also struggle

with nitrogen, with 67.3% and 98.03% of their soils low in nitrogen, respectively. Phosphorus levels are best in Telangana, where 80.6% of soil has high phosphorus content, whereas Chhattisgarh has the lowest phosphorus sufficiency (only 8.55% high). Potassium is highest in Maharashtra (88.14% high), while Telangana has significant potassium deficiency (20.97% low). Odisha and Chhattisgarh have moderately balanced potassium levels. Organic Carbon (OC) is mostly low in all states, with Chhattisgarh (75.66%) and Telangana (73.95%) having the highest OC deficiency. Most soils are non-saline, and acidic soils are more common in Odisha (34.28%) and Chhattisgarh (33.43%), while Telangana and Maharashtra have mostly neutral pH.

5 Micro Nutrients

These are nutrients required in much smaller amounts, but they are still essential for plant health and growth. They assist in enzyme functions, metabolic processes, and overall plant resilience. The importance of the micro-nutrients for plant growth is mentioned as below:

1. **Iron (Fe):** Vital for chlorophyll formation and photosynthesis.
2. **Manganese (Mn):** Helps with enzyme function and the production of chlorophyll.
3. **Zinc (Zn):** Involved in the synthesis of plant hormones and the production of proteins.
4. **Copper (Cu):** Important for photosynthesis and several enzyme systems.
5. **Boron (B):** Plays a role in cell wall formation and the movement of sugars and other nutrients.
6. **Molybdenum (Mo):** Involved in nitrogen fixation and enzyme function.
7. **Chlorine (Cl):** Helps in osmotic regulation and photosynthesis.

The percentage of samples meeting the micro-nutrient levels are categorized into sufficient or deficient. The criteria of classification of a nutrient is shown in *Table 6*. The information on the status of micro-nutrients were obtained from the SHC data portal for 2023-24.

Table 6: Criteria for classification of the micro-nutrients according to the SHC initiative.

Micro-Nutrients	Value
Boron	Sufficient->0.5 ppm
	Deficient-<0.5 ppm
Iron	Sufficient->4.5 ppm
	Deficient-<4.5 ppm

Copper	Sufficient->0.2 ppm Deficient-<0.2 ppm
Organic Carbon	High->0.75% Medium- 0.50-0.75% Kg/ha Low-<0.50%
Soil pH	Acidic-<4.5 Normal->6.5-7.5 Alkaline-7.5-8.5
Soil Salinity	Non-salinity-0-1.68 ds/m Mild-salinity-3.36-6.72 ds/m

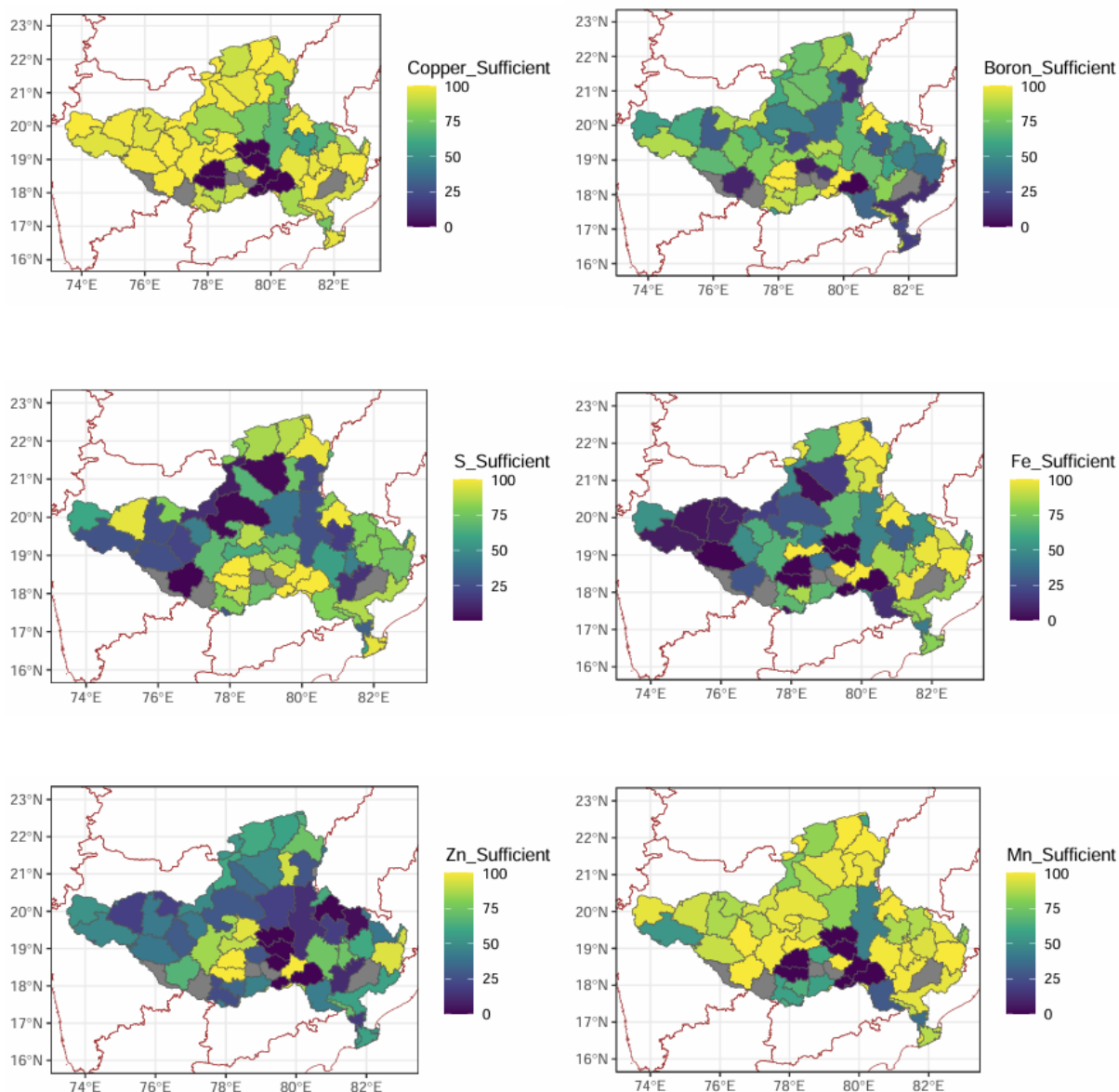


Figure 8: District -wise micro nutrient status in the percentage of the soil testing samples according to the Soil Health Card initiative for 2023-24 in Godavari River Basin

The state-wise micro-nutrient results are shown in above *Figure 8*. Chhattisgarh exhibits excellent nutrient sufficiency, with 100% sufficiency in Boron and Manganese and high Iron (99.74%) and Sulfur (98.9%) levels. However, it has critical Zinc deficiency (99.44%), making it the weakest in this nutrient. Maharashtra has near-complete Copper sufficiency (99.98%), but suffers from severe Iron (60.7%) and Sulfur (74.75%) deficiencies. Odisha maintains moderate nutrient levels, with good Zinc (71.77%) and Iron (82.32%) sufficiency, but has significant Boron deficiency (40.24%). Telangana struggles the most, with low Copper sufficiency (53.22%), high Boron (51.18%) and Zinc (51.16%) deficiencies, and poor Manganese sufficiency (49.11%). While Chhattisgarh and Odisha show balanced nutrient

availability, Maharashtra and Telangana have more severe deficiencies. The data highlights the need for region-specific soil management strategies, especially in Telangana and Maharashtra, to address Iron, Sulfur, Boron, and Zinc deficiencies.

6 Major Aquifers

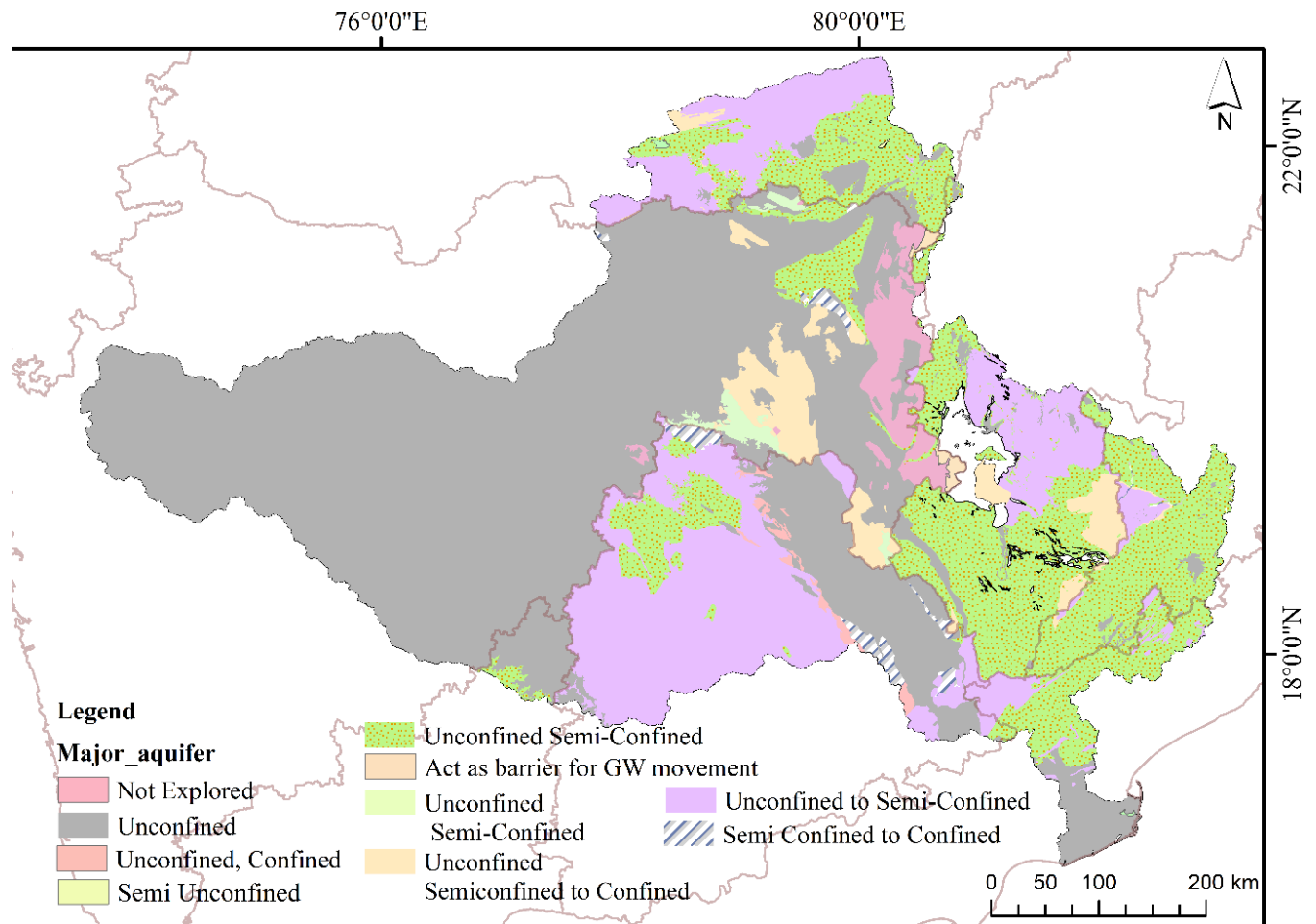


Figure 9: Major aquifer type in the Godavari River Basin

Table 7: Area covered by major aquifers types in Godavari River Basin

Major Aquifer	Area (km ²)
Act as barrier for GW movement	649.28
Not Explored	7185.22
Semi Confined to Confined	716.54
Semi Confined to Confined	1944.21
Semi Unconfined	28.07
Unconfined	45837.41
Unconfined Semi-Confined	3332.27

Unconfined to Semi-Confined	6483.67
Unconfined Semi-Confined	58736.12
Unconfined to Semi-Confined	49715.02
Unconfined	107707.50
Unconfined Semi-Confined	1621.47
Unconfined Semiconfined to Confined	7995.17
Unconfined, Confined	1135.74
Unconfined, Semi-Confined	1919.17
Unconfined Semiconfined to Confined	3308.16

6.1 Unconfined Aquifers (Phreatic Aquifers)

These aquifers are found in shallow depths, typically in alluvial deposits such as sand, gravel, and unconsolidated sediments along riverbeds or floodplains. They are not bounded by any impermeable layers on top, so groundwater can move freely through these aquifers. The Godavari basin has extensive areas with unconfined aquifers in its alluvial plains, especially in regions near the river and its tributaries, as shown in *Figure 9*.

6.2 Confined Aquifers

These aquifers are located below an impermeable or semi-permeable layer (such as clay or shale), which restricts the upward movement of water. Groundwater in confined aquifers is typically under pressure, and when tapped, water may rise to the surface naturally (artesian wells). Confined aquifers can be found in the deeper layers of the basin, particularly in the sedimentary formations like Deccan Trap basalt or sandstone layers in parts of the basin.

6.3 Semi-Confined Aquifers (Leaky Aquifers)

These aquifers lie between unconfined and confined aquifers and are partially confined by a semi-permeable layer. The groundwater in semi-confined aquifers experiences some movement through the overlying layers, but the flow is more restricted than in unconfined aquifers. They are commonly found in areas where there are alternating layers of hard rock and soft sediments.

Thirty-six percent of the aquifers in the Godavari river basin are unconfined. 15% of the land is made up of unconfined aquifers, while 20% are unconfined semi-confined and 17% are unconfined to semi-confined aquifers *Table 7*.

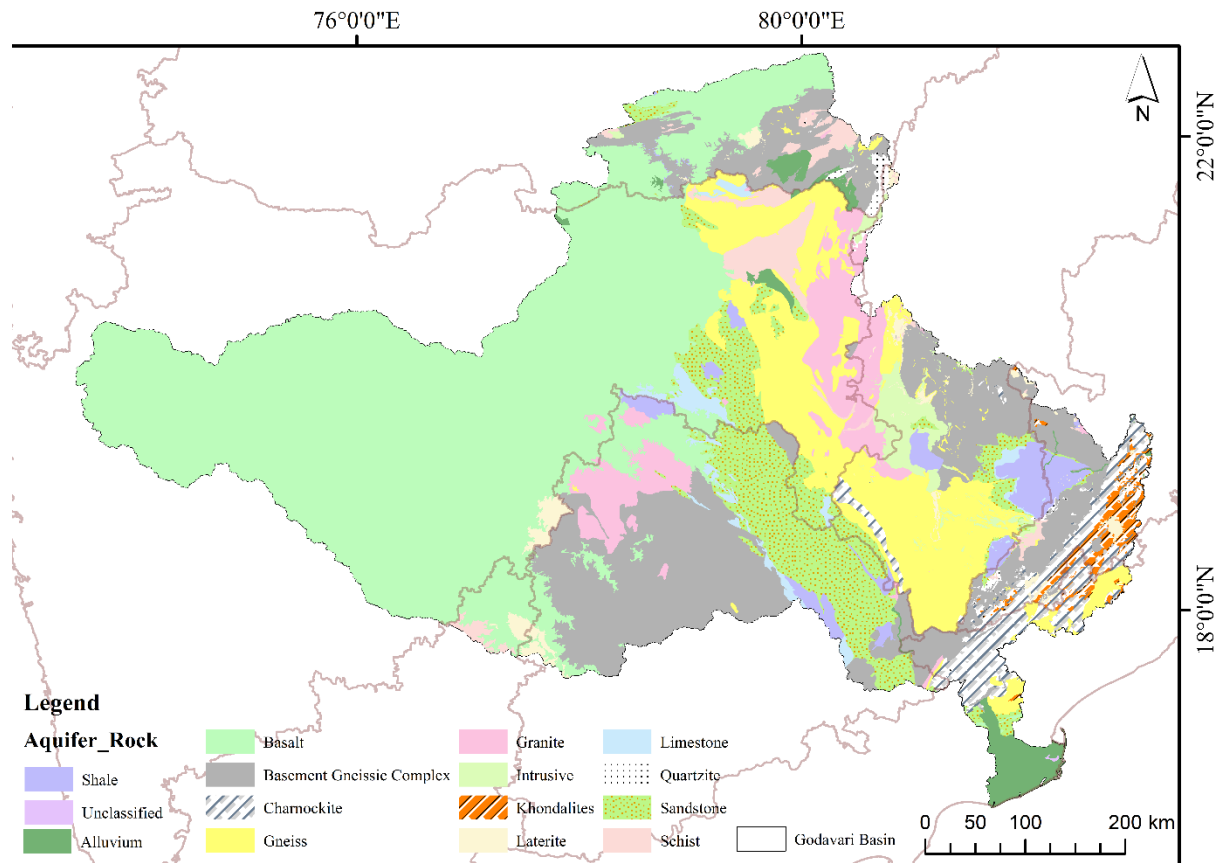


Figure 10: Aquifer rock in the Godavari River basin

Table 8: Aquifer rock and there area in km²

Aquifer Rock	Area (km ²)
Alluvium	5671.05
Basalt	128454.54
Basement Gneissic Complex	52541.16
Charnockite	11122.54
Gneiss	33760.32
Granite	15244.29
Intrusive	4473.63
Khondalites	3037.54
Laterite	3603.09
Limestone	3488.80
Quartzite	1187.59

Sandstone	26023.90
Schist	6400.79
Shale	7016.47
Unclassified	36.94

Basalt aquifer rock covers 43% of the area in the Godavari river basin. Granite aquifer rock covers 5% of the region, gneiss aquifer rock covers 11%, and basement gneissic complex aquifer rock covers 17% (as shown in *Figure 10* and *Table 8*).

7 Summary

- The Godavari river basin is primarily composed of basalt rock, sandstone, shale, pink granite, and other rocks.
- The Late Cretaceous-Palaeocene covers 43% of the area, followed by Archaean (18%) and Archaean-Proterozoic (11%).
- The Geological Survey of India measures 348 lithology sample places. The majority of litho-logs in Maharashtra are fractured massive basalts, with granite litho-logs primarily found in the basin.
- Nearly 61% of the basin is covered with clay-type soil, with the majority in Maharashtra State.
- Nearly 36% of the aquifers in the Godavari river basin are unconfined, with 15% of the land being unconfined aquifers. Basalt aquifer rock covers 43% of the area, while granite aquifer rock covers 5%.
- Telangana has the highest nitrogen deficiency, with 94.02% of soil low, while Chhattisgarh has the best nitrogen levels. Odisha and Maharashtra also struggle with nitrogen, phosphorus, potassium, organic carbon, and pH. Most soils are non-saline, with acidic soils more common in Odisha and Chhattisgarh.
- Chhattisgarh and Odisha have high nutrient sufficiency, but suffer from critical Zinc deficiency. Maharashtra has near-complete Copper sufficiency but suffers from severe Iron and Sulphur deficiencies. Odisha has moderate Zinc and Iron sufficiency but significant Boron deficiency. Telangana struggles the most with low Copper, high Boron, Zinc, and Manganese deficiencies.

In summary, the present report provides the structural information of the basin on the rock types, aquifer types and the condition of the soil. This information is useful in achieving the overall objectives of the river basin management such as improving the ground water recharge and reducing the soil erosion among others.

8 References

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