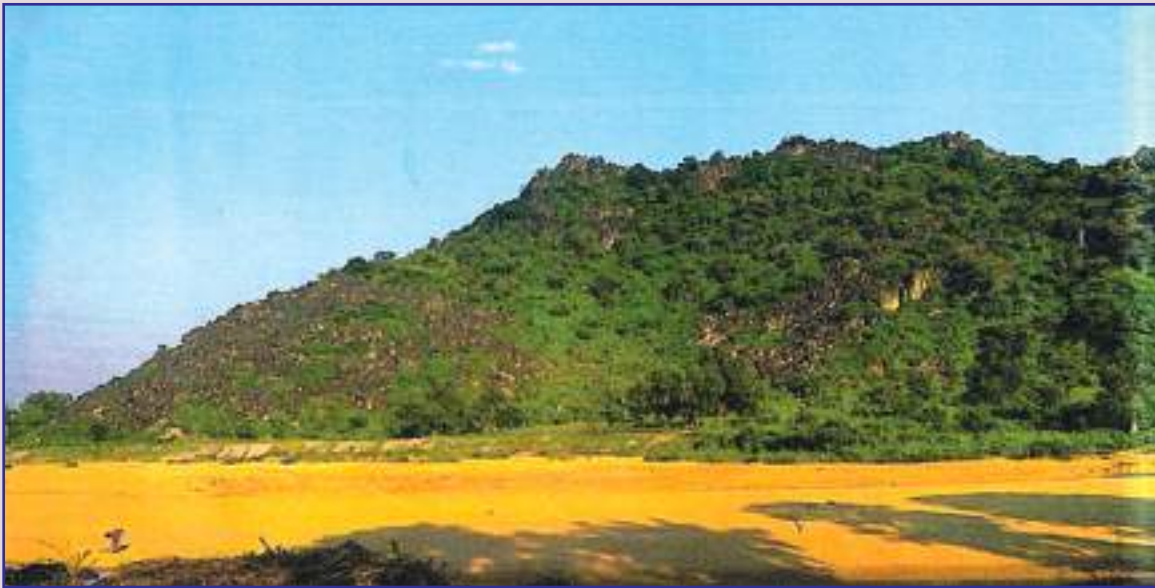


Researches
in
GRANITES OF INDIA
(BASIC EARTH SCIENCE SERIES)

VOL - II

Ground Water in Granites
(Granitic Region of Upper Mahanadi Catchment, C.G.)

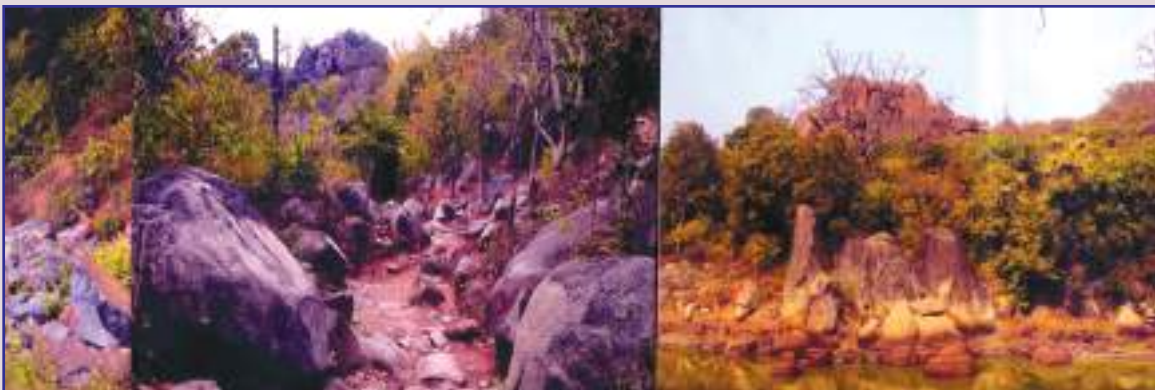


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**Dedicated
To
SHRI SHRINGI RISHI
(SIHAWA MOUNTAIN)
(CHITROTAPALA GANGA-
MAHANADI)**

FOREWORD

Prof. (Dr.) U.C. SINGH

M.Sc. (LU), Ph.D. (Vikram), D.Sc. (Bucharest)

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Ever since the beginning of Earth Science, the igneous or primary plutonic rocks, particularly the Granitic massifs and terrains are widely attracted and studied by Petrologists/Earth Scientists all over the world as well as in India too. The Granites have fascinated the attention of scientific and trading communities globally as one of the most popular and natural stones of decoration work. Its high compressive and tensile strength have led to search suitable sites for construction of huge masonry structures of dams/reservoirs and various other water resource projects. A vast area of continents is occupied by Granitic Basement rocks and exhibits outcrop exposures at number of places in the form of hills and hillocks and have developed into the subdued topography. In the present context of groundwater in Granites, it needs extensive researches in the domain of water resources. In Central India, the Bastar Craton is enriched with granitic rocks and due to inheritance and intrinsic properties of granitoids, there is always a limited scope of groundwater storage in granitic hard rocks. This necessitates exploring the new dimensions of groundwater resource recharge and its optimum utilization for the welfare of society and to fulfil the ever increasing demand of groundwater in future. In this work, the scientific methods of Groundwater Conservation, Artificial Recharge Practices and suitable site selection for Groundwater Extraction have been elaborated in a concise manner, applicable to granitic regions by a committed and dedicated team of Chief Editor, Editor and the Author. I feel privileged to mention that the Chief Editor Prof. (Dr.) D.P. Kuity (my former colleague in RSU), a well established eminent teacher and Granite Petrologist and my research students Prof.(Dr.) S.S. Bhadauria and Dr. H.D. Diwan have taken enough care and thoughtfulness in the preparation of this book. I hope that this volume on Groundwater in Granites will be of immense value to students, researchers and professionals engaged in water resource studies.



2023

[Prof. (Dr.) U.C. SINGH]

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The author wish to express his deep sense of gratitude to Omnipotent Nature for her kindness.

The author is also indebtedness to Shiksha Guru Prof. (Dr.) Umesh Chandra Singh and Shiksha Guruwain Late (Smt.) Sheela Singh for their blessings and motivation.

CONTENTS

| | | |
|-------------|--|----------------|
| | PREFACE | |
| | CHAPTERS | |
| I. | INTRODUCTION | 1-49 |
| II. | GRANITES OF UPPER MAHANADI CATCHMENT | 50-90 |
| III. | NATURAL LANDSCAPE AND HYDROGEOMORPHIC CHARACTERISTICS | 91-125 |
| IV. | GROUND WATER EXPLORATION (GEOPHYSICAL PROSPECTING) | 126-140 |
| V. | GROUND WATER IN GRANITES | 141-174 |
| VI. | GROUND WATER QUALITY | 175-205 |
| VII. | GEOTECHNICAL FEASIBILITY OF WATER HARVESTING ENGINEERING STRUCTURES | 206-243 |
| | REFERENCES | i-vii |

PREFACE

In BES series, Researches in Granites of India, Vol. II, the importance and significance of Granite and Granitic terrain environment, with respect to Ground Water Resources, have been incorporated in seven Chapters. In this volume the researches in Granitic terrains of Upper Mahanadi Catchment have been peer reviewed by subject experts. The occurrences, infiltration, movement and storage of ground water mainly depends on the properties and thickness of geo materials generated during weathering and erosion of granites. It evolves the unconfined groundwater aquifers in Granite terrain with limited ground water potentialities. The presence of lineaments/Joints/Fractures and weaker zones of granitoid hard rocks give rise avenues for ground water movement where the network of fissures and open fractures constitutes aquifers in Granitic region. The importance of granite is also known for stable and sound foundations for Water Resources Projects Development programmes like construction of water impounding structures. After geotechnical investigation of sites, the enhancement of groundwater storage can be carried out through suitable Artificial Recharging and Harvesting Structures.

I hope that the subject topics, methodologies and description of incorporated will be useful to researchers, students and professionals working in the field of water resources.

Edition 2023

Chief Editor

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