

Water Resource of Odisha: Status, Issues and Management Strategies – Special Publication No.8, Geological Society of India

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Odisha, a coastal state of Eastern India is rich in natural resources but one of the economically backward states being low down in development index. Nearly one third of the state is populated by the tribals. Though it receives an average annual rainfall of 1100 mm, drought-flood syndrome often visits the state crippling the state's economy. The Mahanadi River the lifeline of the state is in dire straits, and so also its multipurpose Hirakud Project due to mindless construction of dams and flow diversion in its upper riparian state of Chhattisgarh. The decreasing trend of yield from upstream catchment of Mahanadi in Chhattisgarh is found to be disproportionately higher than the decreasing trend of rainfall over the past decades between 1957 and 2017. Pollution of the Brahmani and mining hazards in the Baitarani, the two other important rivers have added to the problem. The groundwater potential, too, is in low stage of development. Nearly 85% of the state's area is a hard rock terrain with poor to moderate potentials, and the remaining 15% is the coastal tract which though underlain by thick alluvium with high groundwater potential is often beset with salinity. These are constraints in economic development of the state. In the coming years as the state is poised for its much-needed growth and development on all fronts, water management is coming to the fore. In this context a brain storming session on "Water resources of Odisha: Status, Issues and Management Strategies" was organized at Bhubaneswar jointly by the Geological Society of India and the Society of Geoscientists and Allied Technologists. This Special Publication embodies the presentations from well-known experts in the discipline of water management, duly deliberated in the workshop and edited.

Subhajyoti Das, Editor, in the Introduction of the book has given a crisp synopsis with in-depth analysis of the state's water resources status for the readers. Er. B. P. Das has made an exhaustive analysis of the water resources scenario of Odisha highlighting the need for careful planning to ensure irrigation coverage of eighty per cent of the arable land in the state. S. N. Patro and H. C. Behera have argued for scientific assessment of environmental flows in the Mahanadi River to meet the ecological needs of the delta and river. G. C. Pati, U. Gogoi, Sudarsan Sahu, and others have presented a detailed account of the groundwater scenario of Odisha and have presented a very professional analysis of the various issues of water usage and water conservation practices. Pati has rightly observed the need of participatory approach involving the community. Prabhakar Nanda and Subhasmita Biswal in their paper have discussed at length about critical multi sectoral issues for improvement of irrigation in the state. They informed that despite 40% of arable land being covered under irrigation agricultural productivity in the state is subnormal. B.C. Sahoo and D.M. Das rightly advocate for construction of small and medium scale structures across the rivers and streams, and increasing groundwater reserve through micro dams,

ponds and tanks in the hard rock catchment areas. The authors emphasize better water use efficiency in agriculture and point to many critical issues involving surface water and ground water use, crop production and irrigation. They stress the need of appropriate land and water management using traditional techniques of water conservation. Lastly S. Mishra has called for promotion of hydrogeological exploration in the hard rock terrain aided by geophysics including aeromagnetic surveys, which helps in deciphering subsurface hydrogeology for success of water management.

Summing up, the main focus of the papers is integrated water resource management including conservation, augmentation, and judicious use of the surface water and groundwater in the state of Odisha which seems to be somewhat off the track considering the geopolitical issues. There seems to be no dearth of political will power but apparently what is lacking is the right and unbiased technical direction in support of it. The deliberations in this publication require a further thrust to make them work in the field, given the fact of climate change, and the vulnerable ecology and environment of the state. In the context of looming water scarcity in near future, be it surface water or groundwater tougher regulations in the water policy may have to be introduced and make them functional. The prevailing trend of mega piped water supply schemes needs rethinking. Piped water supply schemes based on bore wells or perennial river flows, and Ranney wells should be given top priority. Similarly, about forty revenue blocks in the state have been identified where there is progressively declining groundwater level. In such revenue blocks a moratorium on drilling of tube wells for a period of three years along with large scale rainwater harvesting and groundwater recharge measures, scientifically selected, could be a positive step for the future. The present water availability in all the rivers of the state has to be evaluated for a better assessment and appreciation of the problem(s). There is a need for assessment of the base flows in different cross sections of the rivers and formulate action plan for augmenting it by large scale water harvesting and recharge structures in the catchment areas upland. In short, the publication provides principle and detailed guidelines for integrated water management which is the basic concept of state's Water Policy. The articles are well edited with illustrative figures and exhaustive data tables. The quality of printing and reproduction of figures and photographs is excellent. The book deals with a wide range of problems in water management of the state and their long-term solutions. It will surely prove a priceless source of information for researchers, academicians, and planners. It is also a must keep in the libraries of all organizations of water science & engineering. Editors, Subhajyoti Das and Dr. B.K. Mohanty, both noted experts in the field of water management have done a yeoman's service to the state's water resource planning.