**ASSESSMENT OF WATER RESOURCES AND MANAGEMENT STRATEGIES OF BRAHMANI RIVER BASIN**

**ABSTRACT**

The integrated water resources management (IWRM) affords a set of ideas to help us manage water more holistically and optimally. The basic ideas of integrated water resources management are nearing 100 years of age. IWRM is a call to consider water properly, to manage it across sectors, and to ensure wide participation in decision making. In essence, they are a call to stop fragmentary approaches to water management and high-handed development decisions made for the benefit of a single user group or faction.

In India, the concept of integrated water resources management has been utilized in some river basins, with certain limitations. The ideas are an excellent point of departure for considering improvements in water governance and management. Many researchers have developed models and designed software to estimate water supply and demand for various sectors.

In the present work, a generic modified approach has been evolved to include various coefficients, efficiencies and parameters to improve the existing models and assess the available water supply and water demand optimally for agriculture, domestic (urban and rural), industry and the environment. The model has been successfully applied in Brahmani river basin and its eight sub-basins (Tilga, Jaraikela, Panposh, Gomlai, Rengali, Samal, Jenapur and Delta). In addition, satellite data has been used to obtain (a) present agricultural practices using NDVI for both Rabi and Kharif season, (b) available suitable land for agricultural, domestic (urban and rural development) and industrial purposes based on topography, land use and other variables. The model has been successfully used to maximize the benefit and helped in understanding the variables involved in reducing the production cost and increasing the benefits.

The integrated water resources management is essentially required in Brahmani river basin to increase the crop production, fish culture and industrial development. In the present condition, very less water is being utilized for different purposes and the concept of consumptive use is missing..