

The book entitled “Integrated Water Resources Development” comprises mainly the issues related to water resources availability, development and management in different sectors of water demand. With time there has been an increasing interaction between man and his environment. The natural result of this has been maximizing use of natural resources without simultaneously protecting and enhancing the same.

So far, the country has a singular habit of development and management of the water resources separately. As a matter of fact surface water, groundwater and run-off are an integral part of water resources occurring during the same hydrological cycle. So far, these water resources are developed and managed separately under different administrative and technical control in isolation and devoid of coordination. The development has been successful to a large extent, in priority sectors like drinking water and food, but simultaneously causing side effects of overexploitation of groundwater, pollution and environmental problems, particularly in hard-rock areas and excessive use of surface water has created problems like waterlogging and salination problems in the alluvial areas.

It is, therefore, significant to maintain a holistic approach to plan the water resources together right from their occurrence in the form of precipitation at the watershed level and plan for development to meet the requirements of all priority sectors.

India, predominantly being an agricultural country, her economy largely depends on agricultural produce. This has been evident, from the fact that the global financial crisis in the recent decade has not affected India's financial stability as compared to the developed world. It is significant that increasing water management for agricultural needs must be coordinated with overall water management of the region's sustainability; public health and environmental protection.

In India, North-Eastern region comprising 37% of the geographical area carries 72% of the total estimated surface water resources. These areas are also rich in groundwater and the rainfall in these areas is also high. Geological stratification is also favorable to accommodate more recharge. This disparity of water resources availability in hard-rock areas reflect the inadequacy for drinking water and irrigation.

As per the latest assessment (1993), out of the total precipitation including snowfall around 4000 billion cubic meters in the country the availability from surface water and replenishable ground is put at 1869 billion cubic meters. Because of the topographical and others constraints, about 60% of this, i.e. 690 billion cubic meters from surface and 432 billion cubic meters from groundwater, i.e. put together total utilizable water resource is estimated to be 1122 bcm. Water requirement indicated by International Agencies for the population of 1600 million by 2050 will be around 1600 bcm at the minimum rate of 1000 KL/per year per person. Therefore, we need not only stress augmentation and re-assessment but adopt, conserve, utilize conjunctively and economically all water resource together from their *in situ* precipitation, i.e. from village level, and increase water use efficiency under all priority sectors of water uses judiciously and environmentally sustainable ways (IWRS–Theme Paper, 2004).

After 63 years past, since independence period water users in rural areas and even in urban areas are not aware about

an availability of water resources in their watershed. Hardly, a few numbers of knowledgeable people knows about the occurrence of ground water and its potential recharge process and limitation of its annual withdrawal resulting of overexploitation, salitization, environmental impact due to non-availability of base flow in drainage system, even immediately after monsoon.

A well-developed information system for the water related data in its entirety at the National/State/Sub-basin/watershed level is a prime requisite for resources planning. A standardized National Information System should be established with a network of data banks and data bases, integrating and strengthening the existing Central and State level agencies and improving the quality of data and the processing capabilities. Apart from the data regarding water availability and actual water use, the system should also includes integrated, comprehensive and reliable project planning and its projection for future demands of water for drinking, food, industries, energy and diverse uses on principle of equitable distribution as envisages under National Water Policy, 2002.