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Groundwater challenges & groundwater recharge potentials of Pakistan

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The groundwater recharge in Pakistan is estimated to be about 68 BCM (55 MAF). It is being exploited through installation of about 16,000 large public capacity (3-5 cusecs) and 500,000 small capacity (0.5-1.5 cusecs) private tube-wells. The groundwater abstraction in Pakistan has increased from about 4 BCM (3.34 MAF) in 1959 to about 60 BCM (48 MAF) in 1996-972. The mining of water is causing intrusion of saline water. In the Indus Basin, water table is going down in 26 canal commands out 45. Many cities are having difficulties in getting sufficient quantities of raw water as local aquifers are being over-pumped and contaminated. Thus there is an urgent need of groundwater recharge not only to compensate the declining water tables in the agriculture sector and also in the urban areas but also to compensate the rise in the anthropogenic and geogenic pollution of groundwater. With increase in groundwater recharge, the farmers will get access to good quality & quantity of groundwater. The yields of wheat, cotton and rice and other crops can increase after the application groundwater. There will be more employment in agriculture sector, industry & more poverty eradication, thus also more development of the country. The surplus water taken from floods and harvested rainwater will reduce the flood risks in the downstream and also to secure safe water reserves to cover the coming droughts.

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Availability of freshwater in future: A challenge

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Among all natural resources, water is the most vital for the survival of mankind. Almost 70 percent of the earth's surface is covered with water. The seemingly abundant availability of water is misleading. Freshwater, the only usable kind, as far as human needs are concerned, is only a small fraction (2.5 percent) of the water present on our planet. Further, most of freshwater is in the form of permanent ice and snow, or in the form of groundwater which is regarded as un-renewable. In the end only 0.3 percent of freshwater is renewable. Water quality considerations are equally important as thousands of children in India die of water borne diseases each year as a result of drinking unsafe water. Population growth, people's changing life style and urbanisation are direct determinant of increase in water demand particularly for domestic uses. A major fresh water crisis is gradually unfolding in India due to lack of access to safe water supply to millions of people as a result of inadequate water management and environmental degradation. The crisis endangers the economic and social development of the country. In rural areas, women still have to walk long distances and spend several hours every day to provide the household with water. In view of aforementioned circumstances it becomes imperative to conserve more and more freshwater by implementing water management strategies. This paper focuses on very effective and result producing strategies for water management including community awareness, people education, ground water legislation and regulations, application of new technologies in the optimal use of water, use of sprinkler and drip irrigation, rainwater harvesting, reuse of wastewater and use of new water fittings and better distribution systems to reduce considerable wastage of water.

Biography

Mubeen Beg has completed his PhD degree from AMU, Aligarh. He has published more than 70 papers in reputed journals, conferences and symposia. He has presented research papers abroad in Chicago; USA, Singapore, The Netherlands, San Francesca; USA, Japan and Saudi Arabia. He is a Reviewer of several national and international journals. He has guided a number of MTech dissertations. Water resources, fluvial hydraulics and hydrology are his research areas. He has been working on several consultancy projects.

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