Integrated means of managing water

Need to promote development of water, land, other resources in a sustainable manner

S K Sarkar

For many years, policymakers have adopted a top-down approach in water management. But this traditional approach is not enough now, given the complexity of rapidly ageing water infrastructure, population growth, rapid economic growth, climate change, and increasing urbanisation. Thus, an alternative approach is called for.

In the 19th century, the top-down approach was successful as the available water resources were adequate to meet the needs of the population. The conventional water resource management was typically command and control type, as it aimed to control generally the hydrological cycle through structures such as dams.

With population growth in the 20th century, this approach resulted in the deterioration of per capita water availability, stress on water supply and increased degradation of water resources.

Today, the supply of usable water services is less than its demand, and this gap is likely to increase in the coming years. It is estimated that by 2050, India will be categorised as a water-scarce country, and its per capita annual water availability will be far less than the available benchmark of scarce water supply. There is also an ongoing deterioration of the quality of available water supply.

To fulfill promises of the Sustainable Development Goals (SDG) in water and sanitation by 2030, the need of the hour is achieving universal and equitable access to safe and affordable drinking water for all, and also for achieving access to adequate and equitable sanitation and hygiene for all. These goals also stipulate the implementation of integrated water resource management at all levels by 2030.

A holistic approach is called for. Integrated water resource management at all levels is an appropriate framework. It promotes the coordinated development and management of water, land and related resources to maximise economic and social welfare equitably and sustainably. It is thus a cross-sectoral policy approach to replace the traditional and fragmented approach to water management.

Policymakers should invoke the Dublin Principles (1992) of the United Nations on water and environment, which stipulate that the world's freshwater resources are finite: water resource management should be a participatory process involving all users, planners and policymakers at all levels; women play a key role in it and they should be involved in decision-making; and finally, water should be recognised as an economic good, encouraging conservation and protection of water resources.

This approach is holistic in nature as it recognises various dimensions of water, for example, water economics, water quality and environment. This is also multidisciplinary involving fields such as engineering, economic and social sciences.

In effect, the Dublin principles emphasise the need for actions at grassroots level for policy effectiveness, which results in the participatory approach to water management widely known as the bottom-up approach. Under this, the locals themselves are considered as experts of their environment and their knowledge should be incorporated in decision-making. It provides capacity-building and empowerment to communities, enabling them to define their specific needs, and access in relation to local water management.

While the integrated water resource management approach can provide an overarching framework, others can supplement this approach. For example, the 'nexus approach' can provide an excellent mechanism for facilitating dialogue between relevant sectors (for example, food, water, and energy) in a given context.

Similarly, the 'ecosystem' based approach prioritises ecosystem functioning and its related goods and services. In the context of water resources, ecosystem approach regulates water quality and quantity, habitat resources and offers nature-based solutions.

Critics, however, point out that there are some pitfalls in the integrated water resources management approach: collaboration is time-consuming and resources intensive, and the level of coordination required for large projects may make this framework too complex to undertake when there is lack of institutional capacities.

In India, water schemes are generally supply-driven, not demand-driven. In this case, the money devolves from the Centre to states and subsequently from states to local bodies based on certain criteria. For example, 'Namame Gange' programme allocates money for undertaking various activities, interalia, to states/local bodies based on some criteria. It is a highly top-down approach. The schemes are not designed in consultation with grassroots stakeholders, such as self-help groups, panchayati raj institutions, etc.

In order to effectively implement the integrated water resource management, there is a need for willingness to change, significant institutional innovation from engineer-centric mindset to management-centric approach, empowering various stakeholders, building capacities of stakeholders, implementing Constitutional mandate (Art 243 G) by devolving power to local bodies for water management, adopting technological innovation for decentralised water management and designing tools and processes for achieving coordination.

(The writer is Distinguished Fellow, TERI, and former secretary, GoI)