URBAN WATER SCARCITY AND FRAMEWORKS FOR INTEGRATED URBAN WATER MANAGEMENT

Dr. S. Lalitha*

P. Michael Vetha Siromony**

Abstract

Water is indispensable for human survival. In India water Scarcity in urban areas is a major concern. The rapid population growth, lack of infrastructure facilities, urban divide, lack of community participation, climate change, water contamination, industrialization and lacuna in water supply systems etc., are the major challenges in meeting the demands of urban dwellers. The Urban Local Bodies are the governing institutions have crucial role in finding solutions for setting up framework to ensure safe, equitable and sustainable water supply in urban areas. The Integrated Water Resource Management is a process which promotes the coordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital eco-systems. Constructing frameworks for Integrated Urban Water Management will pave way for concrete action towards water security and sustainability.

Key Words: Urban water scarcity – role of Urban Local Bodies - Integrated Water Resource Management – Frameworks for Integrated Urban Water Management.

* Training Officer, RGNIYD

** I.A.S., Director cum Vice Chancellor, RGNIYD

Introduction

Water is indispensable for human survival. Currently, water has become a scarce resource and needs to be protected, harvested and well managed for its sustainability. As on 1st March 2001, the total population of India is 1027 million. Of them, about 742 million live in rural areas and 285 million in urban areas. The percentage of urban population to the total population of the country stands at 27.8 and it goes on increasing. Providing basic facilities especially safe drinking water to the people who live in urban areas is a big challenge to the service providers. The over extraction of ground water, improper water management and conservation practices, urban divide, industrialization water contamination, lack of purchasing power, lack of awareness and lack of civic responsibility, climate change, poor administration and bottlenecks in the service delivery mechanisms are the major causes for water scarcity in Urban areas. Access to safe water is viewed as basic Human Rights. The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses. This may be achieved by setting frameworks for Integrated Urban Water Management.

Water Scarcity and its Impact in Urban areas

The urban areas are the places generally characterized by higher population density and vast human features in comparison to areas surrounding it. People from rural areas migrate to urban areas for various reasons like scope for education, employment, business opportunities, infrastructure facilities and glamour. Sharing of basic amenities becomes problem due to population density. In India water Scarcity in urban areas is a major concern. It is estimated that by 2050, half of India's population will be living in urban areas and will face acute water problems. In India 85% or urban population has access to drinking water but only 20% of the available drinking water meets the health and quality standards set by the world Health Organizations **(Singh, 2000).** The Draft NWP 2012 emphasizes that access to safe and clean drinking water and sanitation should be regarded as a right to life essential to the full enjoyment of life and all other human rights. However, the poor in urban areas are always become the victims of water quality issues. The unhygienic conditions, improper facilities and lack of

awareness are the underpinning factors which are denying them to get access to safe water and results in urban water inequality.

The demand for water supply in urban areas is increasing every day. The per capita demand for water in urban area is estimated to be 250 to 300 liters. The reasons for water scarcity in urban areas are not only due to source limitation but the other factors like industrial growth, increase in population, poor water supply and distribution, inequity in service provision, lack of infrastructure facilities, climate change, illegal service connection and water supply, water contamination due to industrial wastes and improper sanitation measures, excessive usage of water in the industries, mega malls and theme parks are the major causes for water shortage in urban areas.

The urban India is divided in to various sects like Towns, Municipalities, Corporations, Metropolitan and Mega cities for administration purpose. The Municipalities and Corporations are the Urban Local Bodies are the service providers. They supply water through trucks, tanks and pipe lines to urban dwellers. There is huge water loss while supplied through trucks due to leakages in the distribution channel. Further more, often the urban water supplies are contaminated from a variety of sources, including discharge of untreated industrial wastes, leading from waste dumps in to sewerage and poor solid management **(Bansil, 2004).** This reflects the negligence and in-efficient water management system and that have become stumbling blocks in ensuring availability and accessibility of safe water in urban areas. Hence, water losses needs coherent action to address not only the technical and operational issues but also institutional, planning, financial and administration issues **(WHO, 2000).** Moreover, incorporating water safety in all water systems, building capacity to assess risks to water quality, develop proper mitigation response plans and follow-up on the plans will provide clean water for all **(Cronin and Burgers, 2011).**

Role of Urban Local bodies in enhancing community participation towards water management

The 73rd and 74th Constitutional Amendments in India has given status to Panchayats and Municipalities are the local self government authorities where the democratic process begins. The 74th Constitutional Amendment affirms the responsibility of Urban Local Bodies (ULBs) for water supply and sanitation. The Municipalities and Corporations are the Urban Local Bodies/Governing Institutions and are responsible in designing and implementing regulatory framework to ensure accountability, transparency and participation. The regulatory framework should be on regulating water resources, demand management, setting water quality targets, water tariff fixation, poverty-targeted subsidies, technical expertise and law enforcement etc. The per capita demand for water in urban area is estimated to be 250 to 300 litres **(Subramanian 2011)**. To fulfill the per capita demand the Urban Local Bodies have the greater responsibility in implementing water resources management techniques in urban areas through awareness creation, sensitization and enhancing community participation in the aspects of adhering to water supply norms, payment of user charges, attitude and behaviours towards water handling practices and participation in decision making, operation and maintenance of water supply systems **(Chatterjee, 2003).**

Integrated Water Resource Management

Water management is the activity of planning, developing, distribution and managing optimum use of water resources. To overcome the issue of water crisis in urban areas water need to be managed effectively. The Ministry's' Declaration at Fresh water meet in Bonn, 2001 placed greater commitment on water resources management for sustainable use, protection and management of fresh water resources (**Mohandas, 2003**). Integrated Water Resource Management (IWRM) is a systematic process for the sustainable development, allocation and monitoring of water use in the context of social, economic and environmental objectives.

The Global Water Partnership defines IWRM as a process which promotes the coordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital eco-systems. Critically IWRM is about information, and communication, good planning based on a sound and broadly based understanding of people's

wants, and needs but also their abilities and the constraints imposed by working with a finite resource. In simple term the IWRM approaches make a clear link between resource management and water service delivery functions. The implementation of IWRM needs collective and concerted effort of the stakeholders' viz., service providers (Urban Local Bodies), private authorities and urban community. Participation of community is fundamental towards Integrated Water Resources Management especially in water regulatory structure, tariff fixation and clear policy direction/implementation **(Eleventh Five Year Plan)**, operation and maintenance and conservation measures.

Frameworks for Integrated Urban Water Management

The National Water Policy 2002 endorses that water is a scarce and precious natural resources, to be planned, developed, conserved and managed as such and on an integrated and environmentally sound basis, keeping in view the social-economic aspects and needs of the state. In order to meet the future challenges, there needs to be a paradigm shift in the way we manage urban water systems **(Khatri and Vairavamoorthy, 2007).** For managing water in urban areas some frameworks must be constructed at the indigenous level in a coordinated way. They are as follows;

1. The Urban Local Bodies shall avail fiscal support from State and Central governments to mitigate the cost of meeting public service obligations.
2. Information, communication and Education through awareness creation, training, capacity building on understanding water reclamation and re use.
3. Identifying stakeholders and make them accountable partners for the judicious usage of water, operation and maintenance of water resource systems.
4. Interchanging the role of service providers to facilitators (the authorities must change their role from service provider to facilitators to enlist the community participation).
5. Enhancing community participation in understanding water potential, demand, quality surveillance, effective water handling practices and water security. Encompassing the participation of women and marginalized in water management is to be ensured.

6. Encouraging public and private participation to avail the technical support towards water recycling measures and developing tool kits.
7. Execution of water harvesting measures, ground water recharging and recycling measures, desalination, combined water supply, revival and usage water bodies, water pricing to ensure water sustainability.
8. Establishing public vigilance system and water auditing to check the water supply, usage to ensure water equity.
9. Enforcing water metering, tariff fixing, payment of user charge and water supply norms to regulate water delivery and distribution.
10. Enlisting Integrated Water Resource Management at the indigenous level considering the availability of space and resources.

Therefore, adhering the frameworks on Integrated Urban Water Resource Management would certainly address the issue of water scarcity in Urban India. .

Conclusion

The demand for water in urban areas will ever increase due to increase of population, migration, industrial growth and climate change. It is apparent that the country is stressed with water scarcity. Water resources need to be augmented. The per capita availability of water in urban areas needs to be assured and urban planning has to be done. Areas with better water source and distribution should be strengthened and deficit areas be focused to reach the minimal time and quantity. Continuous water supply in urban area is a dream. By implementing the Integrated Water Resource Management a Model urban area can be evolved, identified for learning and to replicate. The Urban Local Bodies have greater role in it. The frame works on Integrated Urban Water Resources Management must begin from micro to macro level to meet the basic water demand of the urban population and to ensure quality and sustainable water supply.

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