Group B Importance of Capacity building of P H Engineers and its short term and long term effects

Capacity Building-Importance, Practice and Effects in City Water Management

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The water is dynamic in nature, elixir for life and water management is essential to sustain life, meet the water demand for the development to full fill desire for the prosperity and good quality of life. Urbanisation is inevitable process; more than 50% of the total population on the earth shall be living in urban areas of which large part in metro and mega cities. Best and effective water utility management is a set practice proven in many cities across the globe both of developing or developed countries. Such practice is broadly based on use of advance technology for the treatment, making water distribution-collection of waste water and reuse of treated waste water in efficient manner as well conventional wisdom in conservation and water use specific to the agro-climatic condition, geography and rainfall pattern of that region.

Nothing is stands still, climate, chemicals, materials, technology, customer expectations, standards, urban plans. (Martis de Condorcet 1743-94)

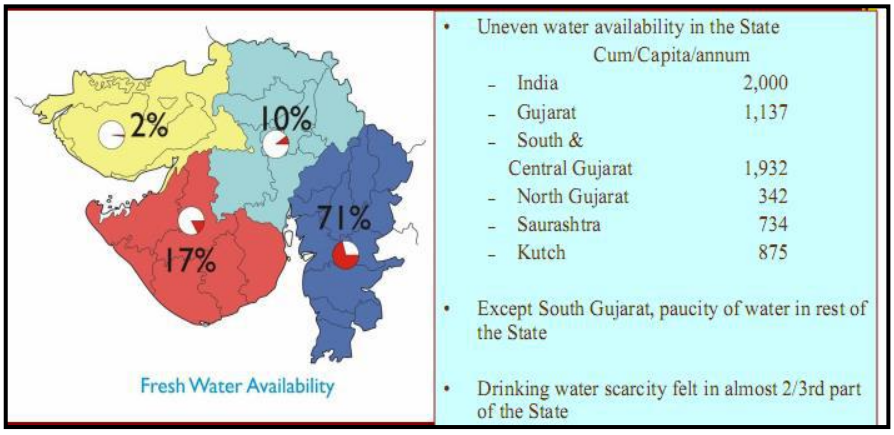
Therefore, it is necessary to be prepared for health, safety and environment risk ready. Cost efficiency, licences to operate, employer of choice and brand image are few drivers to update water management practice through research to meet the operational challenges and developmental programs. The probability of the project success largely depends on the professional skill of the persons involved. Learning is a continuous process which enable person to understand and deal with the situation, challenges in presence and likely to meet in near future.

It has been aptly quoted by Dr Albert Einstein**,** "I never teach my pupil. I only attempt to provide the condition in which they can learn." So, it is important to develop the condition in which the person can learn. Training institutes, universities, research centres plays an important role in learning process. Governments play important role in developing high quality institutional infrastructure and facilitating them in providing learning environment and operating capacity building programs suitable at all the levels for the students and the professionals. Evidence shows that lack of integrity

of academia with the service providers- ULBs and industries resulted in failure in implementation of the government programs, developing and operating water projects in the desired time limit, optimal use of the resources available e.g. 24x7 water supply, planned water reuse, NRW reduction etc. Learning and capacity building are important to prepare the officials to adopt advance technology and implement it.

Capacity building (or capacity development) is the process by which individuals and organizations obtain, improve, and retain the skills, knowledge, tools, equipment and other resources needed to do their jobs competently or to a greater capacity (larger scale, larger audience, larger impact, etc.). Capacity building and capacity development are often used interchangeably. Community capacity building is a conceptual approach to social, behavioral change and leads to infrastructure development. It simultaneously focuses on understanding the obstacles that inhibit people, governments, international organizations and non-governmental organizations (NGOs) from realizing their development goals and enhancing the abilities that will allow them to achieve measurable and sustainable results. (wikipedia2019)

Gujarat Scenario:



Source: http://jnnurm.nic.in/primers.html

Gujarat is a water stress state having 50 BCM water demand per annum which sourced 75% surface and 25% ground water. Water allocation is 90% agriculture, 7-8% domestic and 2-3% industrial purpose. Narmada is only a perennial river which is situated in south Gujarat. Large variation in rainfall distribution across the regions- 71% in South Gujarat only left other three regions Saurashtra 17%, North Gujarat 10%, Kutchh 2-3%, this situation compels state to spent large amount for the bulk water transmission through canals and pipe lines to meet the water demand in these three regions. Saurashtra, Kutchh and North Gujarat is dependent on water supplied through Narmada canal. Gujarat has eight municipal corporations and 159 ULBs where ULBs are providing water supply services for domestic use. Not a single city has 24x7 continuous water supply, level of metering is almost negligible. Total waste water generation in 170 cities (8 corporations + 162 municipalities) 4385 MLD, treatment 2328 MLD @ 53% of which standard treatment is @12% and planned water reuse is almost nil. Water accounting and water audit not in practice in any of the ULBs or state water board and agencies. To match water demand 2020, 970 MCM water reuse was planned by water supply department, GoG, Swarnim Gujarat publication (2011). At present almost

no infrastructure set up exist for recycling of waste water in the state, however, recently water reuse policy (2017) announced, GWSSB has taken steps to develop the facilities to meet the policy target 70% TWW reuse by 2025 and 100% by 2030. In fact 70% of urban population lives in 8 municipal corporations' area, major volume of waste water generation and the secondary treatment facilities established even though struggling to have planned water reuse facilities in order. Supreme Court judgment 22-2-2017 compels ULBs to develop and implement waste water treatment by 2020 and have to evolve norms to recover funds, for the purpose of generating finances to install and run the infrastructure. It shows the failure in implementation of the best water management practices but the government commitment to overcome the challenges and to meet the demands.

Continuous water supply, water reuse development and NRW reduction requires strength in the following four areas; (1) the adoption of the advance technology like advance metering infrastructure (AMI), Internet over Things (IoT), membrane technology (2) strategic project development and implementation- multi-disciplinary approach, setting appropriate mechanism for the project financing, (3) strong political will to declare appropriate pricing policy necessary to meet the capital and operational expenditure (4) Capacity building of the public health engineers, professionals and stake holders at all levels.

Gujarat is legging in urban water supply, waste water collection and water reuse compare to Asian countries and far legging behind with the advanced countries like USA, Europe and Australia. Gujarat has strong financial capability and political will. So, one of the major reason may be institutional and governance failure in running capacity building programs and bridging the gap among academia, industry and the service providers.

Various universities offer the courses in water resource management, infrastructure planning and civil engineering. Gujarat Jalseva Training Institute (GJTI) is established by Government of Gujarat to conduct various training programs for public health engineers serving in the state and ULBs. Few NGOs are working on rain water harvesting and conservation practice. None of the universities or institutes have developed dedicated water research centre and established laboratory to study the continuous water supply and water reuse related subjects. There is a need to train technicians and run courses and training programs for advanced plumbing and plant operations.

WATER-WISE AND SUSTAINABLE URBAN WATER

'Water-wise' behaviour means that leadership culture, governance arrangements, professional capacity and innovative technology are all aligned with the objective of maximising sustainable urban water outcomes.

Sustainable urban water management means that all water within the city (including reservoir and aquifer water, desalinated water, recycled water and storm water) is managed in a way that recognises the connection between services, urban design and the basin, with an approach that maximises the achievement of urban liveability outcomes, and resilience to unexpected social, economic or bio-physical shocks, while replenishing the environment. (IWA, 2017)

Water auditing is declared mandatory for the cities covered under the smart city program. Water accounting is a new subject requires training and capacity building. It is desirable to do water accounting first and do water auditing. It makes the water supply system efficient, transparent and accountable necessary for the best water management practice. Systematic project management approach is necessary to make the city's water wise and capacity building is essential strength required to implement the projects.

Invest in Capacity Building:

Source: Community Partners.org

Capacity building is one of the least understood yet most important aspects of development work. Building human and social capital is integral to strategic community investment because it leverages and multiplies the impact of CI resources by strengthening local partner organizations, promoting self-reliance, and increasing the likelihood of project success. Effective capacity building benefits both the company and local stakeholders by generating inclusive processes that strengthen trust and build commitment and good relationships. (InternationalFinanceCorporation-IFC, 2010)

Five questions are important-

- WHOSE capacity are we trying to build?
- Capacity to do WHAT and WHY?
- WHEN do we need to build these capacities?
- WHO should deliver the capacity building?
- HOW will we know if we have succeeded?

Target the Right People, BUILD THE RIGHT TYPES OF CAPACITIES- functional, technical, behavioural, do right assessment of the needs, invest appropriately and evaluate the outcome. Capacity building

measures may change in collaboration and alliances, culture, learning and innovations, policy and standards, process and systems, strategy, structure and technology.

Capacity building practice should be demand driven, systems view, understand the history, work through indigenous entities, integrate gender, and promote action learning and participation.

IWWA Role:

Indian Water Works Association, Gujarat chapter can play an important role developing the suitable capacity building programs, advising state and local government, working out strengthening institutional arrangement in the state. The recent development of information technology and many tools are readily available to make the learning easy at low cost. Hence we should adopt e-learning to the best possible extent. It can be done through GJTI and collaborating with excellent capacity building service providers.

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