

From:

P K Modi
Senior Manager
Gujarat Water Infrastructure Limited
Morbi

CAPACITY BUILDING of Public Health Engineers**Overview:**

With the increased awareness towards improved living environment, development of water and sanitation infrastructure has been accelerating in last 30-40 years. Even after establishment of onsite facilities, if the system is not operated well it may fail to provide desired results on sustainable basis. It is very important for an organization to have engineers with good capacity of planning, designing, construction and sustainable operation- Maintenance of water supply and sewerage systems. Therefore capacity building of manpower and engineers is of great need which contributes to institutional strengthening.

An institutional capacity building is also important and measures must be taken for its strengthening and internal capacity building so that efforts made can be sustained over a period of time and the system put in place can be well managed.

Institutional capacity building can be done by

1. Adequate decentralizing of the administration,
2. delegating sufficient powers,
3. inducting professionals into administration
4. providing adequate training to the existing staff

Meaning of world Capacity building in Broad sense:

Capacity building means to make it stronger for all aspects & for ascertaining desired results over a long period of time.

For improvement of community health both water and sanitation sectors are key sectors. Maximum health benefits can be achieved only by supplying sufficient and good quality water upto an individual and providing proper sewage and sanitation facility. For carrying out effective and efficient facilitation capabilities are to be strengthened.

Institutions

Water supply and sewerage facilities are historically under the control of public health engineering departments governing entire state for capital works and local bodies like corporations, municipalities, and gram panchayats are doing operation and maintenances. Some major cities and metro cities are having their own Boards or Nigams for capital works as well as operation and maintenance e.g. Banglore, Hyderabad, Chennai and Lucknow. Most of the municipal corporations have separate departments for water supply and sewerage systems. While at Gram Panchayat level they have Pani samities.

Present Rolls of institutions

Central Government:

1. To do administration by bringing out manuals, advisories and distributing grants under various programs.
2. Formulating and Circulating broad policies and guide line to state government.
3. Publishing Technical Manuals.
4. Funding for conducting various training programs

State Government

1. Assist local bodies or group of local bodies in planning and implementation of water supply and sanitation schemes.
2. Financial aid for capital investment in water supply and sanitation schemes in the form of Grant in aid, loan etc.
3. In special circumstances it assists in operation and maintenance of schemes through department or statutory boards.
4. Monitoring general progress of schemes of local bodies through department and boards or statutory bodies.

Urban and Rural local bodies:

It is obligatory for every local body (Municipal corporation, Municipality, Nagar Panchayat and village Panchayat) to supply adequate, safe and sufficient potable water to citizens and villagers. They are also responsible to collect, transport and properly dispose of sewage produced in the area under their respective jurisdiction. These local bodies receive financial help from state and central government to meet a part/whole of their

capital investment. The expenditure on annual M &R of these schemes are however is to be met by ULBs out of its own revenue generated from taxes.

Capacity Building of Human Resources (P H engineer)

A public health engineer has to face many tasks in his field which makes him a multi tasking personality.

There are three Es in word Engineer, Which means for

Efficient

Economical and

Energetic

So, an engineer must be economical, Efficient and energetic in performing his tasks.

Roll of a public health engineer is not confined only in the field of technical but now it is extended to social and managerial aspects also.

Technically he has to go for making good projects, and he has to do following tasks at all for a project:

1. Demand based scheme design
2. Technical appraisal of scheme
3. Framing documents for call of Bids/Tenders
4. Technical and financial evaluation of Bids
5. Awarding works and MoUs
6. Execution of project, Recording measurements, accounting
7. Supervision
8. Testing and commissioning
9. Operation and maintenance
10. Reconstruction and Renovations

As a social engineer, an engineer shall be good enough to handle community based issues. Many problems can be solved only due to proper communication and proper messaging at right time.

P H Engineer has to remain in contact with local bodies and local community representatives. By making good communication of government objectives and laws enforced for that makes it easy implementation of projects and programs in a specific area and in time.

Goals of an Engineer shall be

1. Specific
2. Measurable
3. Agreeable
4. Realistic and
5. Time bound.

These all goals help government for providing early and sure benefits of its programs to community.

Quality of an Engineer shall be

1. Success seeking
2. Motivating
3. Attitude (+ve)
4. Risk taking
5. Team work

These qualities help government in efficient and economic implementation of a program for community.

How to do Capacity building of Engineers?

A Public Health engineer needs his capacity building for

1. Technical updation with development of technology

Now a day technology is fast growing and every day some new developments or corrections in current technology can be noticed.

An engineer's capacity can be enhanced by conducting

- Technical trainings
- Exposure visits of those areas where new techniques are applied
- Knowledge sharing work shops
- On job trainings
- Refresher courses
- Implementing quality improvement programs

2. For use of non conventional methods of water treatment and sewage treatment plants

Due to increasing need of drinking water, depletion and exhausting of ground water and limited availability of local dam due to scanty of rainfall a heavy dependency on

Narmada water has been arisen in past two decades which has lead to supply of bulk raw water for catering urban and rural need. Government has implemented many small as well as big water supply projects for survival of urban and rural community. So different water treatment processes and sewage treatment processes has to be utilized.

3. Desalination Technological option as new source of water supply

Now government has decided to use a new source of water supply to match up the increasing need of drinking water and this is desalination. Gulf countries are utilizing this source as they have less availability of water resources. Gujarat has a long coastal belt and state government has decided to use it for supply of drinking water. So every engineer shall know how this technology works and what an effort is made by government to supply water upto tail end.

4. Recycle and reuse of waste water

Gujarat government has recently issued a policy for recycle and reuse of waste water particularly from urban areas for nearby industries and to save pure water.

5. Use of solar energy for running Desalination plants:

For running of desalination plants now non conventional sources of energy is to be utilized as hybrid system and so an engineer has to be used to by all this implements.

Short term and Long term effect of Capacity Building

It is said that organization knowledge is due to its employees. And if knowledge of an employee is increased it makes organization more knowlegeous.

Every year due to various reasons new employee joins the department and some old employees goes out. This reshuffling makes variation in that. Organizational knowledge shall always remain in organization only and that shall be transferred from brain to brain. And this is the largest benefit of the capacity building.

By capacity building of engineers knowledge growth also takes place and latest things are added to previous existing knowledge.

Due to capacity building of engineers knowledge sharing increases and it ultimately turns into increased facilitations of people.

Efficiency of processes increases and finally quality improves. It leads to the economical development of state.

Capacity building with reference to frequent occurrence of water scarcity situation

Saurashtra region of Gujarat receives scanty of rainfall almost every year.

Following traditional works at community base shall be encouraged to save water and to harvest water

- Roof top water harvesting structure
- Development and rejuvenation of traditional water sources
- Development of water recharging units.
- Reuse and recycling of waste water in rural area, may be for agriculture

Water supplied after long transportation is very precious and shall be used efficiently and the water so saved will only be the water produced.

At the point of end users like village pani samiti following activities are useful to save water and for economic use of water

1. Exposure visit of community leaders and Pani samiti where good works are done.
2. Encouragement of Pani samiti by giving titles and by giving cash prizes
3. Providing training on various subjects like operation and maintenance of water supply scheme, pre construction training, Water quality training etc.
4. Arranging seminars and orientation workshops for community at village level.
5. Save water campaign at all levels

Due to frequent water scarcity conditions in the state and especially in Saurashtra region it has lead to the development of number of regional water supply schemes. This scheme requires remodeling and reconstructions and so an engineer shall be technically sound for correct engineering designs and execution, quality control etc. Proper and frequent training in this regard is the only way.

Special emphasis on Computer aided designs

Various tools and soft wares are made available by department and from supporting agencies for designing of pipeline network designing, structural designs and for many other works including reporting and monitoring. Regular trainings are already arranged by Gujarat Jalseva Training institute for regular capacity building of Engineers.