

CAPACITY BUILDING IN WATER RESOURCES SECTOR CHANGING PARADIGM AND APPROACHES

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ABSTRACT

Water sector has now become complex interplay of many different forces. Not only water is responsible for major socio-economic change and driver for economic development, it has in recent times become instrumental for socio-political stress and a key factor for environmental protection. Water policy rather than technology is a dominating factor in decision making in water sector. It is utmost important that for effective water management all stakeholders are sensitized about the water management policy, technology & concerns. This is possible only through effective knowledge sharing and capacity building of all stakeholders along with development of supporting institutional mechanism. Capacity building measures are required for stakeholders both on demand & supply side of water resources system covering government organizations, PSUs, Private Players, Corporate, Media, NGOs, Civil Society and people in general. The present paper discusses the six layers of capacity building needs viz., creating awareness amongst masses; sensitizing the media, NGOs, Civil Societies on various issues; field level training for lowest functionaries; technology training at working level; advanced technology awareness amongst the decision makers/seniors of various organization; and policy issues for higher echelon of the government and private sector.

A proactive approach is required from the government side to take various initiatives to reach out to the varied sections of the society and sensitize them on diverse aspects of water resources development. Empowering and strengthening the present institutional mechanism is vital for expanding their reach. Presently, in water sector there is very little synergy between various strata of the society and government institutions. This lack of synergy has adversely affected the water resources development in the country. Innovative mechanism will have to be developed to tap the raw energy of these sections of the society to synergize with National Water Policy.

The paper also emphasizes an urgent need to promote 'Think Tank' in water sector which is an essential part of the capacity building by encouraging professionals to express their own ideas in policy areas. A 'Centre for Water Policy & Research Centre' is long overdue to fulfill this requirement. A decentralized approach is advocated for various initiatives in capacity building, so that state governments, local government, Panchayat Institutions, NGOs etc., all can also contribute substantially. An appropriate funding mechanism through a central sector scheme will have to be formulated for providing resources to these initiatives.

INTRODUCTION

Water, the elixir of life, is necessary both for sustainable human development and healthy functioning of the Planet's eco system. The demand of water for various end uses such as irrigation, drinking water supply, industries, power generation, fisheries, navigation, and recreation is ever increasing because of the ceaseless rise in human population associated with increased urbanization, increase in standard of living, industrialization and agricultural activities. To meet the increasing demands of water, it has become inevitable to search for new techniques, technologies and innovations for increasing the supply of usable water. All these essentially aim at creation of storages, conservation, diversion, recycling and efficient management of usable water resources.

Today's society is striving to be "developed". This aspiration in a way becomes the guide for the policy makers. The policies thus evolve along with specific technological and managerial interventions which are required for increasing the supply of usable water and also to even out the temporal and special variation of water

availability. One need not to emphasize that water is one of the most vital key drivers for sustainable human development. It is important that the initiatives in water sector development which are economically and socially viable are also environmentally sound and fulfill the criteria of sustainable development.

NEED FOR CAPACITY BUILDING

Considerable development in the water resources sector has taken place in India after independence and many major projects are implemented. These projects contributed a lot in the “Green revolution” that made India self-sufficient in Food production. The water resources initiatives taken during that period enjoyed larger public support and also political unanimity. These developmental initiatives were considered vital for economic development of the country and all sections of the society were supportive of the technological interventions. However the scenario changed over a period of time. Though the ever increasing demand of water requires that we go for creation of storages, conservation, diversion, & efficient management of usable water resource, there is stiff resistance from certain sections of the society to the creation of storages and diversions. There is no doubt that any project, water resources or otherwise has to be environmentally sustainable. The sensitive issues like environmental protection, rehabilitation & resettlement, land acquisition needs to be tackled more carefully and with all stakeholders taking into confidence. Any shortcomings on this account can lead to prejudices and misconceptions about the developmental projects in general public. The result is, we have stiff resistance from the sections of the society to any developmental initiatives particularly in water resources, which ultimately hampers the economic development.

Water sector has now become complex interplay of many different forces. Not only water is responsible for major socio-economic change and driver for economic development, it has in recent times become instrumental for socio-political stress and a key factor for environmental protection. Water policy rather than technology is a dominating factor in decision making in water sector, worse, water ideology has started exerting pressure on the decision making.

For all the reasons discussed above, it is utmost important that for effective water management all stakeholders are sensitized about the water management policy, technology & concerns. This is possible only through effective knowledge sharing and capacity building of all stakeholders along with development of supporting institutional mechanism. Till now the focus of capacity building was only directed towards the personnel from water resources departments of central, state & local governments. The focus was more on technology aspects than the governance and policy aspects. In the changed scenario, now a major shift in the approach is required to cover all stakeholders. Capacity building measures in a big way are required for stakeholders both on demand & supply side of water resources system covering government organizations, PSUs, Private Players, Corporate, Media, NGOs, Civil Society and people in general. It will make the stakeholders aware of various schemes being implemented by the Governments for WRDM. This will also help in countering the misconceptions and prejudices regarding water resources projects among the public at large.

The areas identified for capacity building may include water policy planning and implementation, governance aspects of water resources management, IWRM, management of community water supply services, management of water quality, waste water management and conservation of water resources.

SIX LAYERS OF TRAININGS

The efforts of capacity building has to be structured appropriately to suite the targeted group stakeholders. Following six layers are proposed for capacity building and training in water sector.

- a) **Awareness Campaign Amongst The Masses:** The public opinion and response of masses are vital in a democratic setup to achieve any developmental goals. The demand management solutions in water sector require that the people understand and practice the conservation measures at home, at work place, at fields, for irrigation, for domestic & cattle requirements etc. These measures can be effectively implemented only if the masses are sensitized and these methods are popularized. People’s participation is essential for success of any conservation schemes aimed at demand management.

Water Resources Day, World Water Day offers the requisite opportunity to campaign these measures on large scale, but the efforts are focused only for a day or for a week. A sustained campaign is required so as to achieve the desired impact and results on a wider scale.

Training at grass root level involves very large numbers. Assuming 65% of India's population is dependent on agriculture, and 6 persons per farming family unit, the number would be in the range of 10 crores even if only one person is to be addressed per family. Institutions like National Water Academy (NWA), Rajiv Gandhi National Ground Water Training and Research Institute (RGI), or Water and Land Management Institutes (WALMI), with a capacity to train a few hundred persons per year, can barely make an impact in their entire lifetime. This task can only be done through NGOs and Extension units of Agriculture Dept., two major institutions whose potential is yet to be exploited. It would be an under-utilization of the skills of NWA, RGI, and WALMIs to tie them up in directly training the grass root levels, and would also result in neglect of higher learning. The role of these institutions should be ToT, higher learning, and generating new thinking.

Urban population too requires sensitization and slightly different approach than the rural population with focus on conservation in domestic use. Targeting school children and women with specifically designed campaigns through print and electronic media can be effective in giving results. NWA is regularly conducting Training of trainers (ToT) workshops for school teachers, which can be replicated by other institutes, NGOs and Extension units on a larger scale.

b) Field Level Training At Lowest Level : The lowest functionary at the field level from the Govt. sector private sector, PSU or from NGOs can deliver only if he is appropriately skilled with the technical & practical knowledge for the field of his activities. In water sector, presently there is very little synergy between the NGOs, private sector and Government Institutions. Some NGOs spend most of their energy in advocating ideas which may not be in line with Govt. policy, while some others go about working at field level in whatever manner they understand, with little support from Government Institutions. There is an urgent need to synergize the energy of PSUs, private sector, NGOs and Govt. The task of field level training at lowest level is gigantic and NGOs, Extension units, institutes like WALMIs can play major role.

c) Field Level Training At ToT Level : The large number of personnel to be covered in the field level training with different skill sets make it imperative that a level of ToT is added to the structure to effectively cover the whole group. The field offices of central organizations like CWC, CGWB can be entrusted with the task as they have the requisite competencies and reach to contribute to this goal. In addition NGOs, PSUs can be roped in and their efforts can be synergized with the efforts of govt departments. Higher knowledge platforms like NWA, WALMI like institutions can also contribute in standardizing the Basic instructional modules.

d) Training For Media Personnel And Civil Society Members : Electronic and print media plays a crucial role in framing the public opinion whenever some issue crops up, a new policy is introduced, a project is announced, or a dispute occurs etc. While the NGOs and civil society members have mastered the art of effectively using the media for putting forward their views and getting wider coverage and prominence, it the Govt's views or views of the departments, serving experts and eminent persons that gets drowned in the din.

Normally every media publication have expert journalists for areas requiring specialized knowledge like economy, defense, sports, politics etc. However very few are having specialized personnel for reporting on water sector. Naturally the reporting on water sector gets lopsided or falls short of right perspective. Media is hardly to blame for this, as there are little avenues available for journalists to get some basic training on water sector. NWA, Pune conducted two training programs (including one having fellowship component) and the response was quite encouraging. Most of the prominent media houses nominated their representatives for the programs. However two programs are too little to cover the entire media. Such programs need to be conducted at all major cities with some added incentives like a fellowship or stipend etc. A lot of good quality mass awareness would be generated persistently if the media persons are well informed on water sector issues.

With civil society playing an increasingly prominent role in framing public opinion, it is high time that some ways and means are found in engaging with them. The interaction can be mainly on technical issues and on a limited scale for policy issues.

e) Higher Technology Trainings: These are continued activities required for technical people and decision makers to keep in pace with the advances in technology area. Application of Information Technology (IT) in Water Resources Development and Management (WRD&M), Geographical Information System/Remote Sensing techniques, Construction techniques, advanced design methods, water

quality management, water treatment, recycling, survey and investigations, mathematical modeling, simulation, basin modeling, system engineering are the higher technology areas requiring continued capacity building.

The training in these areas is required to be conducted at two levels. One is the in-depth, skills imparting, hand on training for engineers or technical experts who actually use these tools in their field of activity. These training are detailed and long duration where by the personnel are trained in theory and hands-on of the software, tools and methods. This type of training is targeted for middle level and lower level technical personnel. The other level training is for senior functionaries who have to supervise the work and take decisions. These training are structured as short term and are focused on overview of the technology. The senior functionaries are exposed to the capabilities, functions and limitations, areas of applications for these tools and financial implications thereon.

f) **Training on Policy Issues:** Training in technology areas are covered by many institutions like NWA, RGI, WALMIs, ESCI etc. However, there is hardly any institute which covers policy issues pertaining to water sector like water entitlements, water rights, ownership of water, water markets, PPP, environmental flow, irrigation sector reforms, water rates etc. NWA did take initiative and conducted a brain storming session on policy issues. However, there is a paucity of experts on these topics. This is the area which requires faculty development on a big scale. Middle and senior level engineers in State and Central WR related Dept, faculty of NWA, RGI, WALMIs, decision makers other than technocrats, administrators at Union/State/District level can be the target group for these training. Institutes like IIM, LBSNAA, IIPA, NIRD, ASCI etc. needs to be roped in for training on policy areas.

INSTITUTIONAL ARRANGEMENTS FOR CAPACITY BUILDING

In addition to synergizing the energy of the NGOs, private organisations with higher knowledge of NWA, RGI, WALMI like institutions, there is need to rope in professional bodies like IIMs, ASCI in capacity building in water sector. However, at present these institutions have do not have much internal expertise in water issues. Internally, IIMs are organized in various specialized "Centers". However none of them have a "Center" for water resources. Ahmedabad has a Center for Management in Agriculture. It deals with topics like agricultural supply management, agro processing industries. IIM-Kolkata has a Center for Environmental issues and so on.

IIMs can contribute with some serious thinking in various policy issues pertaining to water sector. At present they seem to be less attracted towards water sector. It could be because there is very little scope for private players and for entrepreneurship in water sector. Or it could also be because their opinions in water policy domain could place them in confrontation with Activists, and the industry managers are normally averse to such confrontation. Whatever may be the reason; deliberate efforts will have to be made to first get IIMs interested in water sector. There is huge scope for IIMs in areas like water pricing, water ownership, tradable water rights, water markets, water sector reforms, socio-economic aspects of river valley interventions, financial sustainability of water infrastructure, stakeholder management, PPP, etc.

One of the major challenge in this capacity building exercise will be that of generating content consistent with Ministry's policies. It is not impossible that in absence of a centralized coordination of content, some of the institutions proposed to be involved may advocate ideas that are at variance with Ministry's NWP. (e.g. a CBSE Textbook lists dams as a cause of floods.)

There is need to develop a network of training institutions for organisation of training etc. at various levels throughout the country. Presently there is little interaction amongst NWA, WALMIs, IIMs, ASCI etc. in the form of participants or as faculty, in each other's programs. However, this interaction cannot be achieved only by taking a decision to promote it. Several attitudinal and administrative changes will be required to achieve increased exchange between these different institutes.

Table 1: Recipients of training, their requirements, and the provider institutions

Recipient Group	Needs	Provider Institutions
Grass Root level (Farmers)	On-farm water management, Improved irrigation techniques; Efficient use of water; RWH; improving productivity in rain-fed agriculture; Participatory Irrigation Management (PIM)	NGOs Ext. Dte.
NGOs, Ext Dte. Panchayat functionaries Block level officials	Same as above, but in ToT mode and at a higher level; Policy issues - PIM and Water User Associations(WUA); water sector reforms;	NGOs Ext. Dte., CWC, CGWB field offices, WALMIs RGI, NWA
Media personnel	Basics of WR management, policy issues	NWA, RGI
Junior and middle level engineers in State WR Dept.	All of above. ToT; WRD&M Technology topics at simpler level (like hydrologic observations, O&M of canals)	WALMIs, NWA, RGI, CWPRS, State WR training Institutes.
Middle and senior level engineers in State and Central WR related Dept. Faculty of NWA, RGI, WALMI	All of above. WRDM technology at higher level (like designs, hydrology, flood and drought management, hydro-power) Socio-economic aspects of river valley projects, Policy issues at higher level - water entitlements, water rights, ownership of water, water markets, PPP, etc.	WALMIs, NWA, RGI, IITs, IIM, NIRD, ASCI, Foreign Institutes
Decision makers other than technocrats, administrators at Union/State/District level	Socio-economic aspects of river valley projects, Policy issues at higher level - water entitlements, water rights, ownership of water, water markets, PPP, etc.	NWA, RGI, Institutes like IIM, LBSNAA, IIPA, NIRD, ASCI etc.
IIM, ASCI faculty	Same as above	NWA, RGI

The capacity building in water sector has to be implemented in decentralized manner so as to increase its reach and to be inclusive. State Govts. will have to play a crucial and proactive role in implementing various programs. Funding through specially formulated plan schemes will have to be provided so that the plans gets translated in to reality.

Every State Government can have a Nodal department to undertake capacity building program under various schemes. The nodal department will administer the pool of funds from central schemes with proportionate investment by state Govt. The State Governments can also identify number of institutes depending on the requirement to give resource support for undertaking the capacity building program. An action plan can be prepared by the state government in consultation with the resource institute in line with the objectives of the scheme for receiving funding support from center.

Increased investments in the capacity building are need of the hour, which will ultimately give returns in terms of coherent approach and synergization of various sections of society towards water resources sector.

CENTER FOR WATER POLICY & RESEARCH

Policy research in water sector is at present a neglected area. The MoWR has specialized institutions (NIH, CWPRS, CSMRS) to undertake research in technology areas. It is generally agreed that the water security, food security and livelihoods security in the future will depend more on the strategic and policy initiatives, than on the technology. However, there is no institution to undertake research in policy areas.

It is common that the policy research and debate is best done outside the Government. The concept of think-tanks for such policy debate is quite common in other sectors. Some examples are: Institute for Defense Studies and Analyses (IDSA); Centre for Asian Strategic Studies – India; Indian Council for Research on International Economic Relations; Centre for Policy Research. However, there is no platform that acts as a think-tank in the

water, for policy research and debate outside the government framework. The ensuing vacuum has been filled by various advocacy NGOs who promote their own views which at times can be at variance with Govt policy.

Such an entity has many purposes viz:

- To act as ‘Think Tank’ on policy; to explore policy options with supporting analysis;
- To undertake research in policy areas;
- To act as sounding board for policy initiatives;
- To act as a bridge between the Government and Civil Society.

There is an urgent need to establish “Center for Water Policy and Research” to fulfill above objectives..

Role of Distance learning in Capacity building: Advent of information technology and internet has offered a very effective and economical way of reaching out to a large section of targeted audience in the form of Distance Learning (DL). The online training management systems like MOODLE (which is a free resource) offers a lot of flexibility and user friendly environment for delivering distance learning courses. Online and offline content can be delivered through various activities like live webinars, subject modules, quizzes, course forums etc. With really no limitation on number of participants per batch DL programs can cover large number of participants in few days with minimum resources. All the institutes involved in Capacity building in water sector must be enabled with requisites tools and skills for delivery of DL. NWA has started conducting such DL courses and the results are highly encouraging. DL programs can be adopted for most of the training levels described above.

BRIEF PROFILE OF THE AUTHORS

Sh V.N.Wakpanjar, a double post graduate is presently Chief Engineer, CWC, and Chairman, Tungabhadra Board. In his 30 years of distinguished service encompassing all aspects of Water Resources Sh Wakpanjar made several contributions in the field of Hydrological observations, Flood Forecasting, Sharing of Ganges waters between India and Bangladesh, Monitoring of Projects, Appraisal of Projects, Dam, Foundations and Seepage problems in Dams, Water Quality Assessment Authority, water Balance Studies of the interlinking of river studies for Indian rivers etc. He held various positions in CWC and other organizations in the Ministry of Water Resources, including ministry proper.

Shri D. S. Chaskar a postgraduate in "Design Engineering" from IIT, Mumbai is presently working as Director, NWA, Pune. He is having about 20 years of experience in various aspects of water resources planning, development and management. He has served at various positions in CWC in the areas of cost appraisal, hydro-mechanical design, hydel civil design, FEM, HIS, application of IT in WRD&M, technical coordination, administration, capacity building & training, Distance Learning programs etc. He is presently a core faculty at NWA and has contributed in the infrastructure & institutional development of NWA.