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CHANGING WATER GOVERNANCE IN INDIA

Taking the longer view

P.P. Mollinga¹ and S.P. Tucker²

This paper is an introduction to the collection of five papers on changing water governance in India in this issue of SAWAS. Four of the five papers (Paranjape & Joy, Gupta, Pani, Wagle & Warghade) were invited for and presented at a workshop held in Hyderabad on 30 June 2009; the fifth paper (Cantle) was invited after the workshop, through a call for additional papers. The workshop was organized as an end-of-project activity of the European Commission funded research project called STRIVER (July 2006 – June 2009).³ The project investigated issues of Integrated Water Resources Management (IWRM) and water governance in the Tungabhadra sub-basin of the Krishna basin.⁴ The point of deliberation was not the immediate situation in the research area, but the longer-term scenario and trends in water governance in the present context of India's fast-growing economy and the process of globalization.

A changing context for water resources governance and management

The water resources governance and management scenario in India is undergoing structural changes for at least three reasons.

First, many basins are closing, that is, in the case of surface water, allocation equals or exceeds available water; in case of groundwater, extraction exceeds recharge. This means that changing water use is increasingly a process with zero-sum game features. This makes the allocation of water in space, in time, and over different sectors and social groups increasingly interlinked and complex. 'Complexity' has two meanings in this regard. The first is that the interdependencies

¹ Senior Researcher, ZEF Center for Development Research, Bonn, Germany, pmollinga@uni-bonn.de.

² Principal Secretary, Irrigation and Commissioner, Command Area Development Agency (CADA), Government of Andhra Pradesh.

³ STRIVER: Strategy and methodology for improved IWRM - An integrated interdisciplinary assessment in four twinning river basins (2006-2009) is a project supported by the European Commission Sixth Framework Programme (FP6). SUSTDEV-2005-3.II.3.6: Twinning European/third countries river basins. Contract number: 037141.

⁴ On the project website www.striver.no the policy briefs, technical briefs, reports and journal articles that the project has produced can be found. The project outcomes will be published in two books, the first of which was released on 23 April 2010: Geoffrey D. Gooch and Per Stålnacke (eds.) (2010) *Science, Policy and Stakeholders in Water Management: An Integrated Approach to River Basin Management*. Earthscan.

in water management are intensifying, creating more and new feedback loops and externalities. The second meaning is that, partly as a result of this, that water management is increasingly contested – more interests need to be mediated with increasing stakes attached. Both the concrete and the political complexity of water resources management are proliferating.

Second, India is changing through rapid urbanisation and industrialisation, giving rise to new priorities and demands in water use, and a changing economic and political role of agricultural water use. Because agriculture is the dominant freshwater user (92% of surface and groundwater withdrawals according to FAO⁵), it is a safe prediction that the agriculture water sector will have to accept lower allocations in the future, by design or by default. This puts new emphasis, both on the efficiency of water use in agricultural cultivation, and on the equity dimensions of its distribution.

Third, though water resources management is inherently a localised phenomenon, global ideas and concerns are increasingly entering Indian water policy and politics, and appropriated and embedded in domestic discourse and practice in a variety of (transformed) ways. Global discourses on the role of the market in water resources management, the need for ‘integration’ of uses and users, and notions of climate change and environmental flow are finding their way in, resonating with, or being opposed by different actors in the Indian water economy and polity. The mechanisms through which this happens are various.

These three changes may produce an increasing number of water controversies through which (new) institutional arrangements will be negotiated. They also produce ‘integration by default’, different water uses, and users getting evermore connected, even if that is in an unplanned manner. Present policy responses to this changing context for water governance and management do not always seem to be fully adequate – hence the question what the ‘longer view’ should be.

At the level of Government of India policy these processes have also been reflected. Various documents, like the Mid Term Appraisal of the 10th Plan, Report of the Sub Committee of the National Development Council and 11th Plan and its Approach Paper, apart from the National Water Policy 2002, present the evolution of the thought process on water resources management at Government of India level. All these documents express concern on the prevailing low irrigation system efficiency, which is of the order of 35-45%, particularly in view of the role played by irrigated agriculture for food security while also recognizing the various other economic benefits related to addressing the issues of poverty, migration, etc. The common recommendation from these documents is to improve the efficiency of the irrigation system by 20 percent by providing a meaningful role to farmers in the management of the irrigation systems, by establishing appropriate state and basin level institutional arrangements,

⁵ See FAO’s AQUASTAT, Figure 1 at <http://www.fao.org/nr/water/aquastat/countries/india/index.stm>.

reorganizing the Irrigation departments, provision for operation and maintenance, reducing gap ayacut, etc.

Challenges to water governance arrangements: experiences with reform

There are, at present, different approaches to water sector reform in different Indian States, which could be regarded as different 'experiments' dealing with the new demands on water resources management.

The government of Maharashtra has chosen the road of establishing a regulatory authority for water, taking energy sector reforms as an example. The MWRRRA framework (Maharashtra Water Resources Regulation Authority) is now being taken over by several Indian states. In Maharashtra, the MWRRRA objectives have a focus on the creation of individual water resources rights/entitlements, the background of which is discussed in the paper by Wagle and Warghade. The primary role of the MWRRRA may lie in rearranging sector allocations of water – particularly as regards to increasing demands of the industrial and urban sector, in the context of (neo) liberalization as unrolling in India.

However, regulatory authorities can be conceived from different perspectives. The National Water Policy, 2002, of the Government of India, declaring water as a prime natural resource, a basic human need and a precious national asset, asserts that *'adequate safe drinking water facilities should be provided to the entire population, both in urban and in rural areas..... drinking water needs of human beings and animals should be the first charge on any available water..... and in view of the vital importance of water for human and animal life, for maintaining ecological balance and for economic and developmental activities of all kinds, and considering its increasing scarcity, the planning and management of this resource and its optimal, economical and equitable use has become a matter of the utmost urgency'*. This policy statement by the Government of India signifies an avowal of the water as a community resource held by the State in 'public trust' in recognition of its duty to respect the principle of inter-generational equity. The Supreme Court, in a number of cases, has also interpreted the role of the State *vis-à-vis* national natural resources in terms of Public Trust Doctrine. Further, explicitly defining its role *vis-à-vis* national natural resources under the section 'Principles' of the National Environmental Policy, 2006, Government of India says that *'The State is not an absolute owner, but a trustee of all natural resources, which are by nature meant for public use and enjoyment, subject to reasonable conditions, necessary to protect the legitimate interest of a large number of people, or for matters of strategic national interest'*.

The Andhra Pradesh State Regulatory Commission Act, 2009, is intended to support and strengthen this basic notion of protecting the rights of the people *vis-à-vis* establishing corporate control over water. It is intended to be an instrument of water equity as opposed to a mechanism for regulating water markets; ushering in water use efficiency as opposed to establishing a machinery for effecting economic water pricing; create an environment

supportive of participation of stakeholders as opposed to corporatization of water; supporting equitable public access as opposed to establishing privatization and entitlements; and ensuring water equity as opposed to a mechanism for regulating water markets.

Another emphasis in policy responses to changing water scenarios and societal demands on the water sector is the continuation and perhaps also taking into view the new levels of irrigation reform efforts. The government of Andhra Pradesh is continuing the irrigation/water sector reforms started in the late 1990s with the recent (2009) establishment of Project Committees for canal irrigation, potentially creating an important new governance level for farmer irrigation management. It is changing the professional make-up of the irrigation bureaucracy through an emphasis on multidisciplinary teams. In the state of Karnataka, a different process of federation of Water Users Association is ongoing. The role of development funding agencies in these processes varies.

Privatisation of water resources management has been talked about a lot, but there is little far-reaching practice as yet, certainly in agricultural water use. The booming of private lift irrigation, sometimes associated with water markets, is not, as such, the result of government policy, but arguably exactly the result of the absence of government control. However, the problem of regulating groundwater overextraction, which does require government intervention, remains unsolved.

The arrangements for inter-state water allocation created in the 1950s through the Water Disputes Act seem not to suffice under the newly emerging conditions. Reaching an agreement between and among States seems to be increasingly problematic, and the process seems to be increasingly prone to politicisation. There are problems with the present legalistic and centralised framework that almost exclusively focuses on surface water. It seems necessary to broaden the agenda of the Tribunals, or to have additional processes to deal with the broader spectrum of water types, water uses and water issues at regional levels.

Alternative water resources management paradigms

The considerations above suggest that the combination of neoliberalization, increasing demands on water, proliferating water controversies, increasing prominence of the environmental aspect of water resources and the limited scope and flexibility of present institutional arrangements, may constitute a 'tipping point' for water governance. Present debates and policy initiatives may be read as the emergence and experimentation with new overall concepts and frameworks to develop a new water resources 'paradigm' for the future.

Such a new paradigm or new paradigms would have to address issues both on the material/technical side and on the institutional side of water resources management, as well as having implications for the water resources knowledge system. When the general requirement for future policy frameworks is to address the issues related to the intensifying

interdependencies in water resources management, systematic thinking through the practicalities of 'integration', no matter how that is exactly defined, is needed.

As regards the *material/technical dimension* the challenge is to design and operate water infrastructures for multiple uses and users: how is the idea of multifunctionality given concrete shape, or perhaps, given shape in concrete? This needs to move beyond earlier approaches like 'multiple purpose dams', as the range of uses and users is now much broader than the government-defined perspective on irrigation, hydropower and flood control, and there is a crucial problem of trade-offs and commensuration. Considerable technical creativity will be needed.

In the case of *institutional challenges*, an important issue may be to reform the present bi-polar governance system, the two poles being the state/government and the village/community. The proliferation of water controversies at the regional level of basins, sub-basins, aquifers and other regional entities of interlinked water use, seems to ask for the establishment of institutional arrangements of a deliberative kind at this 'intermediate' level.

As regards the *knowledge system*, the above suggests a need to rethink water resources professionalism in interdisciplinary ways. Specialised expertise on sub-sectors and different dimensions of water resources management will remain important; but in addition to this, a group of professionals needs to be educated and trained that can think and act beyond disciplinary and sector boundaries, and possesses communication and negotiation skills to facilitate 'integration' across the 'problemshd' of water resources management.

The papers in the collection

The five papers in this collection address some of the issues suggested above. All papers discuss and illustrate present states of affairs in water resources management, while each explores a different dimension of the 'longer view'.

The paper directly making use of the research under the STRIVER basin is Paranjape and Joy's contribution on tanks in the Tungabhadra sub-basin, particularly the upper part of that sub-basin. The paper shows the multifunctionality of local tank systems and discusses how these might be combined with macro-scale water supply infrastructures like canal systems to enhance their functioning and sustainability. It thus presents a very material and concrete perspective on 'integration'.

The other four papers address different aspects of institutional change in the water sector. Gupta's paper reports on the irrigation reform process in Andhra Pradesh and its evolution over time. Salient points of the paper are the description of the step-wise and strategic pursuing of reform of the sector and the gradual establishment, now also at the project levels, of more inclusive and deliberative forms of governance.

The paper by Pani discusses how to understand inter-state water disputes, taking the Cauvery dispute as an example. He sketches how the dispute continues over time, and most importantly, that it is much more than a controversy of water. This suggests the limitations of procedural frameworks that exclusively focus on yearly allocation of surface water resources.

Wagle and Waghade's paper focuses on Maharashtra. They discuss in great detail the process of formulation and the content of the Maharashtra Water Resources Regulation Authority Act. Their main concerns are the transparency in the formulation and implementation process and implications of the Act's provisions for vulnerable, resource-poor groups in society.

The final paper by Cantle looks into the irrigation department of the state of Uttar Pradesh, by reporting the results (and the methodological constraints) of an employee survey that the author has conducted as part of the water sector reform programme. It is a unique paper in the sense that very little published work exists on the internal dynamics of bureaucratic organisations in the water sector, and even less on the motivations and concerns of the employees of these organisations.

TANKS IN THE TUNGABHADRA SUB-BASIN AND AN IWRM STRATEGY FOR TANKS: The long and the short view

Suhas Paranjape and K. J. Joy¹

Abstract

Though tanks were the mainstay of irrigation in the pre-British period, they declined in importance during the British period and even more rapidly in the post-independence period which was dominated by large scale canal irrigation. A study of tanks in the upper catchment of the Tungabhadra sub-basin in Karnataka found that tanks still play an important role in the area and that a proper integration of the tank and canal systems can provide important synergies. In the short run, it is important to recognise the nature of tanks, and potentially, of all water sources, as multipurpose community resources instead of purely irrigation sources serving landowners in the command. This involves changes in perceptions of who is a water user and what are the governance structures around these concepts. In the long run, there is a need to integrate small systems into large systems on the model of the Chinese 'melons on the vine' where local systems form the melons and the larger systems form the stems that convey water to feed and strengthen the melons.

Acknowledgments

The study of tanks in the Tungabhadra basin referred to above was carried out as part of European Union Supported STRIVER project titled 'Strategy and Methodology for Improved IWRM – An integrated interdisciplinary assessment in four twinning river basins'. Details may be found at www.striver.no. We draw substantially on the policy brief on tanks that we prepared for STRIVER (see below) along with our co-authors S. Manasi and N. Latha from the Institute of Social and Economic Change (ISEC), Bangalore.

Mainstay of livelihood assurance in the pre-British period

Every region in the world has evolved water systems that are adapted to its social, geographical, geomorphological and climatic particularities. While the perennial streams of North India have often led to systems based on diverted flows like the *kuhls*; in South India, traditional water systems have been based mainly on tanks (small reservoirs) and often an interconnected cascade of tanks in the lower

¹ Both the authors are Senior Fellows in the Society for Promoting Participative Ecosystem Management (SOPPECOM), 16 Kale Park, Someshwarwadi Road, Pashan, Pune 411008, Tel: 91-20-2588 0786/6542 Email: soppecom@gmail.com

portions of catchments. Over centuries a sophisticated system of irrigation had evolved around them that incorporated regulated access and allocations between and within tanks and also provided for their upkeep and improvement. Though they were not free from the social inequalities that existed in the larger system, they nevertheless provided some minimum water assurance for those traditionally entitled to farming land.

With the advent of British rule and subsequent developments centred on modern and large irrigation systems, things began to change. However, the pace of change was relatively slow and in the immediate post-independence period they still retained their eminence as providers of water for various livelihood purposes. Thus, tanks irrigated 1,151,082 ha in 1960-61 in Andhra Pradesh and 335,468 ha in 1957-58 in Karnataka and accounted for as much as 39.6% of net irrigated area in Andhra Pradesh and 44.2% in Karnataka. For the districts comprising the Tungabhadra basin, tanks irrigated 108,829 ha comprising 39.5% of net irrigated area in those Andhra districts and 157,156 ha comprising 53.4% of net irrigated area in the Karnataka districts (See Table 1 below.)

The decline of tanks

As noted by a number of studies², tank systems declined in status continuously in the post-independence period. Recent figures bring out this decline very clearly. As Table 1 shows, by 2004-05 net area irrigated by tanks in Andhra Pradesh had fallen to 477,100 ha in 2004-05 (12.3% of net irrigated area) and in Karnataka it had fallen to 147,068 ha in 2003-04 (6.2% of net irrigated area). For the districts comprising the Tungabhadra basin, in the Andhra districts, area irrigated by tanks had fallen to 12,176 ha (comprising a mere 2.9% of net irrigated area) and in the Karnataka districts it had fallen to 68,882 ha (comprising only 9.8% of net irrigated area). The decline is evident from the fact that the decline in tank irrigated area is not just relative, but there is a massive reduction in absolute terms as well. In the Andhra districts of Tungabhadra basin the area irrigated by tanks in 2004-05 was 11.2% of the area they irrigated in 1960-61, and in the Karnataka districts, the area irrigated by tanks in 2003-04 was 43.8% of the area they irrigated in 1957-58.

² For example, Von Oppen 1980, Chiranjeevulu 1992, Shankari 1993, Agarwal 1997, Vaidyanathan 2001, Shah 2002, Raju 2003, Kajisa 2005,

| Table 1: Past and present status of tank irrigation in Andhra Pradesh and Karnataka | | | | | | |
|--|--------------------------------|----------------|--------------------------------------|----------------|--|----------------|
| Region | Area irrigated by tanks | | Area irrigated by all sources | | % Irrigated area irrigated by tanks | |
| Andhra Pradesh | | | | | | |
| Year | 1960-61 | 2004-05 | 1960-61 | 2004-05 | 1960-61 | 2004-05 |
| Entire state | 1,151,082 | 477,100 | 2,909,096 | 3,880,590 | 39.6 | 12.3 |
| Tungabhadra districts | 108,829 | 12,176 | 275,613 | 423,098 | 39.5 | 2.9 |
| Karnataka | | | | | | |
| Year | 1957-58 | 2003-04 | 1957-58 | 2003-04 | 1957-58 | 2003-04 |
| Entire state | 335,469 | 147,068 | 759,379 | 2,384,037 | 44.2 | 6.2 |
| Tungabhadra districts | 157,156 | 68,882 | 294,525 | 701,531 | 53.4 | 9.8 |
| <i>Source: Directorate of Economics and Statistics, Government of Andhra Pradesh and Directorate of Economics and Statistics, Government of Karnataka, Bangalore</i> | | | | | | |

Many studies have been carried out in respect of the decline of tanks. Their decline may be traced to a chain of events started by the takeover of community and *zamindari* tanks (private tanks) by the state. This led to an institutional breakdown and erosion of traditional arrangements in most tanks, consequent breakdown of collection of water charges, lack of maintenance and increasing encroachments on tank beds and feeder channels. The decline also led to decrease in recharge of groundwater and increase in flash floods and overflows and reduced capacities. At the same time, there was an increasing population that demanded services from the tanks and their expectations were also changing rapidly and away from traditional thinking that framed traditional agriculture and tank use.

Tanks were also made redundant because of environmental degradation in upstream catchments such as deforestation, overgrazing, soil erosion and siltation. In addition, changes in land use pattern particularly in the catchment zones of reservoirs, aggravated soil erosion and subsequent siltation in tank beds. With the extension of rural agricultural community beyond the traditional sections, neo-farmers are yet to acquire proper agriculture and water management skills.

Also, it should be noted that the advent of canal irrigation results in the neglect of tanks and the net result is a replacement of tank irrigation by canal irrigation rather than an addition of canal irrigated area to tank irrigated area. This is strikingly evident in the Tungabhadra basin if we compare the figures for the Andhra districts of the basin with the Karnataka districts of the basin (see above) because the Andhra portion of the sub basin is largely served by canal irrigation. Whereas previously tank irrigation was higher in the Andhra portion than that in the Karnataka portion, now it is much lower and has been reduced to negligible proportions.

The present situation of tanks in the upper catchment of the Tungabhadra sub-basin

During the STRIVER project³, Society for Promoting Participative Ecosystem Management (SOPPECOM), a partner organisation in the STRIVER project, with the help of two local organisations, Integrated Community Development Organisation (ICDO) Davangere and Vikasana, Shimoga took up a study of tanks in Shimoga and Davangere districts in the upper parts of the Tungabhadra sub-basin. Five villages served by four tanks were taken up for the study. Two types of tanks were included in the study. Two of the tanks were rainfed tanks and two of them were balancing tanks, that is, they served as buffer storages for the larger Bhadra irrigation system and therefore received periodic supplements which were stored in the tanks. The net result was that these tanks received water from their own catchment as well as from the Bhadra system.

A house listing census was carried out in the 1655 households in the five villages. Of these, a small stratified sample of 202 households was then selected for a more detailed household survey based on perception data. For various questions, people were asked for reasons or comments and were asked to rank them in terms of importance. The household data was then further discussed in focus groups to verify trends.

Tanks have multiple uses

One of the first findings was from the house listing. The house listing form included a simple question where the households were asked to indicate the different kinds of uses of tanks that the households employed. It clearly shows that tanks should not be regarded as irrigation sources alone. A very high number of households use the tanks for several other purposes.

³ “Strategy and Methodology for Improved IWRM – An Integrated Interdisciplinary Assessment in Four Twinning River Basins” or STRIVER for short was a European Commission project under the Sixth Framework Programme. There were thirteen institutions across the globe participating in this three year research project and it was coordinated by Norsk Institutt for Vannforskning (NIVA), Norway. The study involved four basins, namely, Glomma (Norway), Tejo/Tagus (Spain/Portugal), Sesan (Vietnam/Cambodia) and Tungabhadra (India) – two from Europe and two from Asia. For the Tungabhadra basin, three institutions, namely, Society for Promoting Participative Ecosystem Management (SOPPECOM), Pune, Institute for Social and Economic Change (ISEC), Bangalore and Centre for Development Research, Bonn University, Germany were involved in the study.

| Type of use | No. of HH | Per cent HH |
|-------------------------------------|-----------|-------------|
| Drinking water (directly from tank) | 23 | 1.4 % |
| Washing clothes | 1,264 | 76.4 % |
| Bathing | 146 | 8.8 % |
| Drinking water for cattle | 673 | 40.7 % |
| Washing cattle | 673 | 40.7 % |
| Fishing | 22 | 1.3 % |
| Swimming | 229 | 13.9 % |
| Worship | 236 | 14.3 % |
| Tank bed cultivation | 18 | 1.1 % |
| Silt for farm land | 56 | 3.4 % |
| <i>Total no. of HH = 1655</i> | | |

As may be seen from Table 2, there are a host of non-irrigation uses that the tank has and a substantial number of households report these uses. It should also be noted that in this table the use of tank as a source of drinking water is not covered, since it only covers those households that individually draw water directly from the tank for drinking. However, in almost all villages the local water supply is based indirectly on the tank since it is usually based on a groundwater source (tapped through a well or a bore well that is recharged by the tank). What it shows clearly is that tanks cannot be considered to be simply irrigation sources. Indeed this applies to almost all reservoirs, ranging from the village tank right up to the large dams. This has major implications for the definition of water user and the organisation of water users. Presently the state has chosen to treat as water users only those persons who hold land in the designated irrigation command of the projects. This is too narrow a definition to adequately take account of actual water use and water users.

Another use inadvertently left out of the house listing form is water used for sanitation. In the later sample household survey, households were asked whether they used water from the tank for sanitation and the findings show that according to season, between 65 and 82 per cent of the households also use the tank as a source of water for sanitation.

Shortage of water

The reference year 2007-08 was not a bad year in terms of rainfall and water availability and not many households reported water shortages. However, almost everyone complained of recurrent shortages. When asked to assess how many of the last ten years were shortage years, the average of the reported values was 3.2 years out of 10.

Households were also asked their opinion of the reasons for water shortage and were asked to rank them. The top five reasons according a simplified rank index⁴ were

1. Lack of repair and maintenance of tanks
2. Excess water drawn by farmers at head reach
3. Encroachments on tank bed have reduced storage
4. Too many people grow water intensive crops
5. There is less rainfall

What is interesting is that excess water use as well as encroachments are also quite important factors perceived. This has implications on how to go about the tank rehabilitation programmes.

Wells and conjunctive use

There is a preponderance of bore wells (total of 52 bore wells in the sample) as against dug wells (only 6). Average pump rating was 5 hp and hours of operation per week varied from 6 in the monsoon to 13 in winter and 21 in summer. Most of the wells go dry in February. However, almost all of the wells are recharged when the tank channels are flowing. This is again important to note: these wells will statistically be counted as separate irrigation sources and the area irrigated by them will appear as well-irrigated area. However, many of the waterings from these wells will come from tank water replenishing them and therefore a substantial proportion of the irrigation they provide is indirectly tank irrigation. Unfortunately, there is no simple way the present statistics can segregate the two components. What is important is that almost universally now in tank and canal commands, farmers routinely use wells to capture recharge from irrigation.

Households were also asked about the major problems they faced regarding wells and the top five were as follows:

1. Electricity is available only for short while
2. Electricity is mainly supplied at night-time
3. Well yield is too low
4. Electricity charge is too high
5. Wells go dry

As may be seen, electricity is closely implicated in these problems

⁴ Respondents were asked to select the three highest ranked options. Ranks were assigned integer values from 1 to 3 based on rank. Highest preference was indicated by 3 and lowest by 1. Average ranking was based on aggregate ranking score for the entire sample. This method was used for all the rankings involved.

Crop preferences

Crop preferences as revealed by ranking crop choices made by households were as follows:

1. Paddy
2. Maize
3. Areca nut
4. Sugarcane
5. Sunflower

Of these, paddy, areca nut and sugarcane are all water intensive crops and it is these that are at present accounting for a very large proportion of irrigation water use. A major thrust on water saving technologies in these crops could thus yield substantial water savings. However, there is also a need to link such savings with pooling and providing them to those areas and farmers who at present are deprived of water. If this is not done, the water saved will simply contribute to expanding the area of water intensive crops grown by the resource rich.

The short view: Tanks can play a vital role in equitable and sustainable IWRM

It has also been pointed out that tanks have enormous potential and that it is possible to realise much of this potential in the short term. For example, K. V. Raju estimates the potential of tank irrigation in Karnataka to be 690,000 ha comparable to the 743,383 ha irrigated by large canal systems in Karnataka in 2003-04 (Raju 2003). Similarly, it has also been pointed out that hectare to hectare irrigated area tank irrigation is less costly. For example, according to the data from the Ministry of Water Resources, the cost of creating irrigation potential for one hectare during the Eighth Plan through large and medium irrigation projects was Rs 98,495 as against just Rs 10,051 for small irrigation projects (Raju 2003) – a factor nine difference. We suggest that tanks can play a vital role in livelihood assurance and poverty alleviation if they are rehabilitated and integrated into the larger system with an IWRM perspective and adequate attention is paid to their advantages and limitations.

Multi-purpose community resources

It is important to move away from the conventional Water User Association (WUA) approach that sees water mainly as an irrigation resource. We need to take into account the various uses that tanks have from an IWRM perspective. They include:

- a) direct uses -- irrigation, drinking water, water for domestic use and sanitation, water for bathing, drinking water for cattle, water for washing and bathing cattle, washing clothes, fishing, recreation, worship, silt and seasonal tank bed cultivation, and
- b) indirect uses – basically ecosystem services that regenerate the environment, recharge and replenish ecosystem resources and potentials.

We therefore need to broaden the concept of water use and water users and look at tanks as multi-purpose community resource. The above mentioned study of tanks in the upper catchment of the

Tungabhadra basin corroborates this aspect. In fact, this is true of all reservoirs at all scales, even though the weight given to irrigation increases with scale. The first step thus is to have an integrated view of tanks as multi-purpose resource.

More dispersed sources

Unlike large centralised commands organised almost exclusively around irrigation, tanks serve dispersed areas at various scales. Their management systems are more likely to be within the reach of the local poor and they are likely to provide more equitable access to the service they provide. When commands become large, concentrated and purely centred on irrigation, they create favourable conditions for large scale accumulation, capture and concentration of economic and social power. Moreover, IWRM does not only require basin level IWRM institutions but also requires nested institutions at various scales. At the bottom-most level, the tanks serve as appropriate units of organisation and IWRM because they combine local hydrological and associated ecosystem uses and users and bring together the many uses of water in a local ecosystem.

Tanks, therefore, have great potential of taking us towards IWRM and widely dispersed livelihood assurance, provided there is a suitable policy aimed at realising this potential. To this end, the following suggestions emerge from the study.

Need to go beyond PIM

In Karnataka, all tanks with commands of less than 4 ha are owned by the Gram Panchayat (village council), between 4 to 20 ha by the Zilla Panchayat (district council), between 20 and 200 by the Minor Irrigation Department and above 200 ha by the Major Irrigation Department. In Andhra Pradesh, tanks with commands larger than 400 ha were completely with the Irrigation Department; Panchayat raj institutions maintained tanks with command area below 40 ha in Telangana and below 80 ha in the rest of Andhra Pradesh with joint charge for those in between.

Things have changed after the advent of participatory irrigation management (PIM). Andhra has gone much farther than Karnataka in respect of PIM experience and legislation. However, this study indicates that there is a need to go beyond the prevalent PIM concepts in respect of tanks, if not for all larger sources as well. At present Water User Associations (WUAs) formed under PIM practice and law are restricted to irrigation users and within that too, only to those who own land in designated commands.

A major institutional implication of our study is the need to move from participative irrigation management to IWRM approaches in the governance institution for tanks. This implies that users and membership of WUAs must not be restricted to landowners in designated commands but must embrace the entire community that inhabits and utilises the immediate ecosystem that the tank comprises. Also, governance institutions should be based on a representation from the irrigation users as well as the community that effectively uses the tank which may be a habitat, ward, village, or groups of villages according to the size and situation of the tank. It is also important to maintain a link with the relevant PRIs.

Policy guidelines

The following policy guidelines may be suggested in this respect:

- a) All tanks with a net irrigated area of up to 200 ha should be governed by the tank related IWRM institutions (because this is the order of size of the traditional tanks),
- b) Service area and/or a users list should be worked out for each tank on the basis of its multi-functionality,
- c) Adequate representation should be provided to non-irrigation users of tanks, especially those who may not own land in the designated commands (this would normally mean a representation from all groups within the villages served by the tank),
- d) Adequate representation should be provided for PRIs (because PRIs largely do and should deal with the other water use related programmes, see below), and
- e) Governance and management of tanks is integrated with other water uses (drinking water, sanitation, fairs, water for cattle) and managed in an integrated manner.
- f) Rehabilitation should go beyond de-siltation and must ideally precede the transfer to participative institutions. This aspect is crucial in the social sustainability of tank rehabilitation, especially in respect of groups that were excluded from tank benefits in traditional systems.

Prioritising rehabilitation

In this study, farmers reported four main reasons for poor performance of tanks:

- a) Lack of repair and maintenance of tanks,
- b) Excess water drawn by farmers at head reach,
- c) Encroachments on tank area that reduced storage, and
- d) Crop pattern in which too many people grow water-intensive crops.

In rehabilitation measures, the first priority should be to clear encroachments, first, on to the feeder channels and supply channels as well as overflow weirs if present, and secondly, on to the tank bed. Attention should also be paid towards cleaning of gates and channels, repair of walls and embankments, provisions for facilities and sites for washing clothes, collecting drinking water, separate sections for animals for drinking and washing, and proper drainage from these sites. Prevention of siltation through filters and catchment treatment comes next and de-siltation comes at the end. It is important to build source protection into tank rehabilitation.

The long view: Integration of rainfed and irrigated farming areas

The measures that have been described above would go a long way towards rehabilitating tanks and increasing their coverage. However, their relationship with the large systems would remain problematic. It would not do to ignore the fact that one of the important reasons for the decline of tanks has been the growth and development of major canal systems. The figures that were quoted at the beginning show that the area irrigated by tanks fell from over 100,000 ha to just about 12,000 ha, that is almost

one-tenth of its previous coverage, reflect such a steep fall that it cannot fully be explained by the autonomous decline of tanks.

Though we are not aware of studies that explore the process that takes place when canal irrigation enters an area served by tanks, it is our surmise based on anecdotal information that when canal irrigation enters an area more and more farmers gravitate towards it and drop out of tank institutions. The overall tendency to neglect tanks and tank institutions is intensified manifold and tanks decline much more rapidly in canal served areas than they do in areas outside canal commands. The reason that the Andhra districts in the Tungabhadra sub-basin show such steep fall in tank irrigated area is explained by the additional factor – access to the Tungabhadra canal system, which in turn is symptomatic of the underlying relation and lack of integration between tanks and large systems and between rainfed and irrigated areas generally. In the long view it is this that needs to change. Tanks can become a vital link for a sustainable and equitable IWRM but for that we need to reorient our approach to tanks, dams and irrigation systems.

Tanks should receive stabilising supplements

The first step in this direction is to recognise that tanks would be greatly helped by receiving stabilising supplements from larger systems. Many studies show that rainfed tanks show good performance for years with better rainfall, but may not perform very well in bad years. Also, studies like Vaidyanathan (2001) show that the performance of system tanks in Tamil Nadu (tanks which receive regulated supplements from larger systems) is better than other tanks. Our study of tanks in the Tungabhadra basin also shows that farmers in villages served by rainfed tanks reported between 3 and 5 years out of every 10 years as shortage years, those from villages served by balance reservoirs (tanks that serve as buffer storages for extending canal reach, though not operated as system tanks) reported less than 3 years of shortage. In short, it may be assumed that tanks that receive supplements from larger systems tend to be more reliable and perform better.

This is a larger issue of IWRM in respect to the relations between tanks and between tanks and the larger systems. Studies of system tanks show that supplements from larger systems improve their performance considerably. These supplements play a number of roles. Firstly, since water from larger systems has a greater dependability of supply, such supplements can go a long way towards stabilising tank supplies for various uses. Secondly, as discussed earlier, pure irrigation-centred concentrated large commands create favourable conditions for concentration of economic and social power on a much larger scale that do supplement dispersed tank systems. Thirdly, if availability of such supplements is made dependent on augmentation and protection of local resource and good performance, it can become an incentive and instrument for ecosystem improvement and sustainable productivity enhancement. Such integration of tanks into larger systems will go a long way towards dispersal of water access and poverty alleviation.

Breaking down the 'Chinese wall': Emerging clues for integration

However, this is unlikely to take place unless we break down the conceptual and institutional 'Chinese wall' between irrigated and rainfed farming. At present, radically different policies are adopted for them and are implemented by different departments. Similarly, there is a divide between tanks (seen as 'minor' irrigation systems) and medium and major irrigation systems. In fact, a transition from one to the other may mean that benefits enjoyed earlier may be withdrawn albeit different other schemes and benefits may become applicable. The result is that rainfed farming, seen as farming without any applied water, is rapidly declining, and farmers are abandoning it and crowding into the cities in search of gainful employment. At the same time, centralised canal irrigation systems are not only becoming more and more expensive, but the more centralised they are, the more problems they have in assuring timely and sufficient deliveries to farmer fields.

However, there are clues as to how an integration may take place. First, there is a growing recognition, at the practical level, that when there is a land constraint (when it is not possible to trade off land area against risk-proofing), *some* irrigation is necessary for ensuring sustainable livelihoods. Thus we have the growth of well irrigation in rainfed farming. It is essential to see that this does not mean that *all* the farmers land is irrigated.

Managing such a system is different from managing canal irrigation systems in vogue today. Managing irrigation systems is seen as managing a block, and most often a centralised block of land in which *all* the land is potentially irrigated. Instead, managing a dispersed and changing irrigation area within a larger designated *service area*, rather than a given block of irrigated *command area* have to be dealt with. As an illustrative example, instead of a fixed designated command area of 500 ha that may be supplied with 1 Mm³ of water, such a system may have to deal with a changing pattern of say providing 1 Mm³ of water to between 400 to 800 ha within a service area of 2500 ha, where farmers will combine rainfed and irrigated agriculture. The latter in fact is what is closer to what farmers already do.

Learning from traditional systems

Traditional systems had elements of this. It never managed and did not think in terms of fixed designated commands. It was the village and the farmers, who ran it to serve their interest and had within it the inbuilt mechanisms to respond to needs. Systems were laid out, at least in their inception stages to see that everyone got some benefit. The *phad* system in Maharashtra combined *phads* as irrigated contiguous blocks with ensuring that everyone had some land within the *phad* (Datye and Patil 1987; Sane and Joglekar 2008). This is not to say that those systems were strictly equitable, they were after all, inscribed within highly iniquitous social and economic systems and had to work within them. What is important is that as we look at them, we look at them not as systems to be taken over *in toto* but as systems that certainly have definite lessons for us to learn and apply – in specific situations, in specific ways.

One of the first important lessons that can be learnt from them is that irrigation is not a matter of providing water to designated pieces of land, but is a matter of providing irrigation service to farmers

and communities. And secondly, that water sources are not to be reduced to irrigation sources, but should be treated as sources of fulfilling the whole gamut of water uses that a community has. These aspects were inbuilt into traditional systems, and modern systems have broken up these composite systems into individual and virtually independent systems. In that sense, the traditional systems as practising IWRM systems that modernisation has fragmented should be looked at. The issue is now of re-integration into a new IWRM system.

Clues for integration: service areas and water user communities

The above implies a radically different approach to water source management and service delivery. It is important to move away from the command area approach prevalent today to a service area approach. Current approaches are based on delineation of a contiguous *command area* and managing irrigation to that command area. Farmers here appear only as owner-irrigators of pieces of land in the command area and by virtue of their owning land within the command area. This is what is called an area-centred approach.

In contrast, the service area approach treats it as a matter of providing water services to the people within an area. The irrigated area within the service area would normally be only a part of the service area and need not be contiguous or constant, but would be organised in a manner so that every farmer within the service area would receive at least a certain minimum service. Secondly, the irrigated area could also be flexible, especially if crop rotations and rotation of irrigated areas as an important aspect of environmental friendly sustainable practice is taken into account. It is also important to avoid the irrigated island effect that centralised irrigation systems have.

The service area approach also implies that what is being provided is not irrigation alone but a host of water services, including for example, drinking water, water for sanitation and hygiene, water for cattle and other livestock, water for washing clothes, possibly fishing or fish culture and water for recreation and religious purposes. Many of these services, especially those tied to cultural or spiritual needs are not simply the provision of water, but waterscapes, that is, particular combinations and placements of water and landscapes. It implies a radical move away from water users as owner-irrigators to water user communities. As water users in the widened sense, they form a complex agglomeration that takes them from being a so-called single interest group to a *community* composed of intersecting and overlapping stakeholder groups. Indeed, even though a very large proportion of traditional tank water was used for irrigation, there was never any question that they were managed by the *communities* they served.

This is another point where tanks could have an important role to play. Community bonds do not form very easily and it is useful if their natural-social affinities can serve to bring about this bond among water users. Here it would be important to organise the lower rung of the irrigation system in such a way that the smallest units also coincide as much as possible with traditional units, either in the form of a village or hamlet or groups of hamlets or in the form of earlier tanks. This then would form the most appropriate lowermost unit for an IWRM system.

Integration of irrigated and rainfed farming and minimum water assurance

One of the important aspects of such a system would be the acceptance of the integration of rainfed and irrigated farming. This implies first of all the acceptance that farmers will normally have both irrigated and rainfed land and that they will manage a farming system that is composed of both elements. The task of irrigation providers is to provide irrigation facilities to such an *integrated* system. The service area then constitutes the sum total of the rainfed and irrigated land that the farmers operate and the irrigation provision must take due note of how the integrated system works and demands. If this is taken as a starting premise, farmers can then rotate crops and irrigation in a manner that will avoid the islanding effect of centralised command systems and minimise the environmental ill effects of repeated and continuous mono-cropping.

Hand in hand with this is required the recognition that service areas should be determined so as to devote the bulk of their water to create livelihood security/assurance for as many farmers as possible. This is again distinctly different from the earlier methods of designation of command areas that are based on working out how much contiguous area one can serve by delivering a designated depth of water or serving a hypothetical crop pattern. Planning for a service area then is like a micro planning exercise, in which the attempt is to identify livelihood needs and water requirements and gaps. The important thing here is the change from land to people as a unit and from the introduction of livelihood assurance (which include basic needs) as the principle to be utilised in determining the service. Obviously some guidelines is needed on how much water could be then provided on one hand to the more enterprising farmers for profitable activities and on the other, for the needs of environmental integrity and sustainability of the water source itself.

`Melons on a vine'

So far only the lowest rungs of the IWRM system have been described in an illustrative manner. And, to that extent, many people would agree, but would also maintain that while it is appropriate for smaller systems and traditional tanks, how can the same be then extended to the medium and major systems, which may be at the scale of hundreds and thousands of villages? However, the problem is not all that intractable if it is broken down into modular units. And ironically, a rudimentary form of that type of organisation is also prefigured by the clues towards integration that are emerging from the larger systems themselves that have been pointed out earlier.

The clue to the organisation of such an IWRM system on larger scale is afforded by the long-prevalent system tanks in Tamil Nadu and the increasing use of tanks as `balancing' reservoirs in the other areas. If a system in which water communities, with service area planned around local storages, each of them forming a modular unit is imagined, then the medium or major systems are organised in manner in which they deliver water, *not to the end user* but to these *modular systems*.

The whole system looks like what the Chinese have called `melons on a vine', the melons being the local water systems and the vines, the larger systems supplying the melons with the `nutrients' they need. The system would be extended by the melons growing bigger or by adding new melons. These local

systems then act as rainfed tanks in their own right and also as distribution mechanisms for the larger systems. In fact, if tank rehabilitation programmes are planned in such a way as to integrate them into the nearest larger system and the larger systems, in turn are reorganised in such a manner wherever possible, an equitable and sustainable IWRM would almost be attained.

Starting from both ends: walking on two legs

The transition to such a system is not a small task and will have to be taken up from both ends: in restructuring both the existing large and small systems and their further development. This is a big exercise. What follows are a few illustrative suggestions.

Approach towards local water systems

- Start with a spurt in local water system development with watershed development as a starting point. And extend it to *all* areas including irrigated areas, provided they adopt this type of integration. This will be important in converting present command areas onto melons on a vine.
- Adopt Low External Input Sustainable Agriculture (LEISA) systems with rainfed as well as irrigated components with limited but assured water application. The irrigated areas could comprise of small plots with intensive cultivation and the rainfed component could be biomass production from rainfed horti- and silvi-culture integrated into farming systems.
- Extensive local buffer storages (e.g. farm ponds) for protective and limited irrigation (5 per cent farm pond programme)

Approach towards larger water systems

- All incomplete and new dams and storages should be restructured on the basis of the 'melons on a vine' concept, pool command area development funds with watershed funds can rehabilitate and develop local water sources through watershed development as a starting point.
- Restructure as much of the existing command area as possible on the same lines by rehabilitating tanks and local storages within and around the commands and integrating them into the system
- Provide support for water saving and LEISA techniques for the major water consuming crops in canal areas with the condition that saved water be available to non-canal areas
- Tie quantum of water supplied to a local system to the degree of development of local resource. Typically, it could be made proportional to the degree to which the local system realizes the sustainable water resource potential of that area. Since this ties supply of external water to the degree of development of potential of local sources, it helps avoid the sort of neglect and decline of local sources that follows the entry of canal systems into an area.

To summarise, it is believed that tank rehabilitation without the long view in mind is insufficient in respect of moving towards a truly IWRM system that integrates the large and the small. Without the long view, tank revival will certainly take place, but will always remain threatened because it will lack the stabilizing integration into larger systems that it sorely needs. On the other hand, the larger systems will

continue to be overextended, over-centralised and will suffer from lack of sufficient buffer capacity. Both large and small systems will suffer. Together, they have the potential to form a stable IWRM system that will go a long way towards providing sustainable livelihoods for the rural areas in India.

References

Vaidyanathan A. (ed.) 2001. *Tanks of South India*, Centre for Science and Environment, New Delhi

Raju K. V., Karanth G. K., Bhende M. J., Rajasekar D., Gayathridevi K. G. 2003. *Rejuvenating Tanks: A Socio- Ecological Approach*, Books for Change, Bangalore

Raju K. V. 2002. *Tank Rejuvenation in Karnataka: Why it should be a Community Based Approach?* IWMITATA Water Policy Research Program, Annual Partner's Meet

Paranjape Suhas and Joy K. J. 2008. *Report on Findings of Tank Survey in Five Villages in Upper Tungabhadra Sub-basin*, (memo) (forthcoming), SOPPECOM, Pune

Paranjape Suhas, Joy K. J., Manasi S. and Latha N. , 2008. *IWRM and Traditional systems: Tanks in the Tungabhadra system* available online: www.striver.no

Tushaar Shah, R Seenivasan, C. R. Shanmugam and M. P. Vasamalai, 2002. *Sustaining Tamil Nadu's Tanks: A Review of Issues and Approaches* in Dinesh K. Marothis (ed.), *Institutionalising Common Pool Resources*, Concept Publishing Company, New Delhi

Kei Kajisa, K. Palanisami and Takeshi Sakurai, 2006. *Declines in the collective management of tank irrigation and their impact on income distribution and poverty in Tamil Nadu*, India FASID Discussion Paper Series on International Development Strategies No. 2006-10-005

U Shankari and E Shah, 1993. *Water management traditions in India*, PPST Foundation, Chennai

M Von Oppen and KV Subba Rao, 1980. *Tank Irrigation in Semi-arid Tropical India*, Economics Program Progress Report, ICRISAT, Hyderabad

P Chiranjeevulu, 1992. *Tank irrigation and agricultural development*, Kanishka Pub. House

Anil Agarwal and Sunita Narain, 1997. *Dying Wisdom: Rise, Fall and Potential of India's Traditional Water Harvesting Systems*, Centre for Science and Environment, New Delhi

Sane, S. B. and G. D. Joglekar, 2008. "The Collapse of the Phad System in the Tapi: A River Strains to Meet Farmers' Needs", in Joy et al (edited) *Water Conflicts in India: A Million Revolts in the Making*; New Delhi: Routledge

Datye, K. R. and R. K. Patil, 1987. *Farmer Managed Irrigation Systems: Indian Experience*, Pune: Centre for Applied Systems Analysis in Development.

IRRIGATION GOVERNANCE CHALLENGES

PERSPECTIVES AND INITIATIVES IN ANDHRA PRADESH

Sanjay Gupta¹

Abstract

The paper discusses some of the challenges encountered in moving towards accountable and proactive governance in irrigation management. The paper draws heavily from my experience of leading a team of freelance professionals and technocrats that worked on these issues. It highlights challenges that emanate from the polity and from natural features. Almost all major rivers in India run across more than one state boundary, through states with different institutional structures and rainfall patterns, with competing demand for water among and between sectors, and with different economic growth rates and phases of basin development. Similarly, there are challenges located in the structure and function of the existing organizational arrangements, the institutional capacity to handle scarcity of resources, the absence of a multi-disciplinary approach and the devolution of managerial roles to stake holders. The complexity of these challenges is increasing with increase in demand and the challenges are thus dynamic in nature, in consonance with the contemporary socio-political and economic environment. A great deal of political negotiation and contestation is involved in overcoming these challenges at various levels. The paper studies these challenges in the context of recent interventions in water sector governance, in particular irrigation, in Andhra Pradesh. These interventions are partly reactive, to address existing maladies, and substantially proactive, to address the issues arising out of the next generation of water sector complexities.

Challenges to Water Governance

Generically, governance is about institutions that provide opportunity and sustainability, including financial sustainability, transparency of procedures and agenda and equity of opportunity, access and rights. The scope and extent of these issues would ordinarily be manifested through a policy document as a cherished intent of the government. This intent needs to be followed by the rules of the game to provide physical shape to contemplated concepts for end user satisfaction in a sustainable fashion. Water being the basic survival need, after air, is aggressively contested at various levels, from the local community level to the international level. Ownership of energy and water is likely to define the political

¹ Special Commissioner, Irrigation and Command Area Development Department, Government of Andhra Pradesh

supremacy in the new millennium and is widely quoted to be the most likely cause of future wars². Water governance, thus, gradually assumes increasing relevance as part of the development agenda of states. Challenges to water governance are many and owe allegiance to various political perspectives, social circumstances and natural environments.

India has few competitors in the world as regards the width of the spectrum of challenges posed to water governance. A student interested in studying complexities in water governance would find a multi-page problem menu on offer for satisfying inquisitive appetite, whereas the persons vested with water governance responsibility have an unenviable job. The range of challenges includes physiographic and political challenges as well as the positioning of policy in the phase of basin development, the pressures arising in a developing economy growing at about 8-9 %, and, last but not least, demographic pressure.

With its size of about 3.24 million km², India is one third of the size of Europe. In the north, it has glacial and perennial rivers, some of which are among the world's largest. The south has major seasonal rivers on the Deccan Plateau. India accounts for 2.4% of the world's area and about 1869 BCM³ (billion cubic meters) of water, i.e. almost 4% of the world's fresh water resources. The Central Water Commission estimates that the water available for human use out of the above is approximately 1123 BCM (690 BCM as surface water and 433 BCM as ground water).

A quasi-federal polity like India with water as a subject within the legislative powers of 32 states adds to the physiographic challenge. Almost all major rivers pass through different sets of legislation, governance, institutional structure and management rules on their way from the source to the sea. The Union government is empowered by the constitution of India to interfere, resolve and adjudicate in the matters of inter state conflict through special purpose vehicles called inter state water dispute tribunals. One of the major causes of these inter-state disputes, apart from growing demand and competition for water, can be traced to the pre-independence water sharing agreements between the erstwhile princely estates. Post independence, the political boundaries were redrawn through the Re-organization of States Act, 1956. Interstate water disputes in many cases are fallouts of this reorganization. Inter state water dispute tribunals have generally taken a long time to award. Thereafter, political parochialism ensured that these awards were not respected but more violated than followed.

The surface water available in the country is equivalent to an ultimate irrigation potential⁴ of about 76 million ha while ground water is equivalent to about 64 million ha irrigation potential. The stage of

² There are numerous such writings. The former Pakistani foreign minister, Khurshid Mehmood Kasuri has warned both Pakistan and India that a war between India and Pakistan probably may break out on water related issues. http://www.dailytimes.com.pk/default.asp?page=2010\03\03\story_3-3-2010_pg7_24

³ There are various estimations that do not vary widely. However the present estimates of water availability and irrigation potential are those of Central Water Commission, Government of India. These are accessible at <http://www.cwc.nic.in/main/webpages/statistics.html#1>

⁴ Handbook of Water Statistics, (2006) Central Water Commission, Government of India.

development of irrigation potential varies considerably from state to state. Some river basins are closed completely for all co-riparian states, while other basins are closed for a particular riparian state that is to say that a state has exhausted its allocated water. This is a crucial variable that determines the nature of expectation from the governance system as the basin moves from the surplus stage to deficit stage and then to the allocation stage.

Irrigation dominates the usage of water and consumes 90-95 % of water, varying from state to state. The irrigated lands, which are about 40% of cultivated lands, contribute about 65% of agricultural production and thus are a major contributor to food security. Nevertheless, the share of agriculture in the gross state domestic product (GSDP) is gradually reducing. It is now about 17%, down from 35% five decades ago. The fragmented and uneconomically small size of land holdings creates a politically sensitive large constituency of stakeholders who are dependent on agricultural land as owners, tenants or laborers. To sum up, 90-95% water contributes to about 17% to GSDP and supports about 65% of the population. The Indian economy can no more be termed as an agricultural economy, but Indian society is a predominantly agriculture-supported society, making water an extremely sensitive issue. Any overt attempt to improve water use efficiency is perceived as reduction in supply and feared to be perpetuated, leading to permanent deprivation. No politician can afford to give even an oblique impression of supporting an action that even seems to be connected to water-rights deprivation and thus the support to water-use efficiency may be perceived as a politically incorrect stand if not adequately and properly contextualized and communicated.

Andhra Pradesh, which is of the size of France, has a population of about 90 million, and presents the same wide spectrum of variation. Rainfall varies from 500 mm in the south west of the state to about 1200 mm in its northern parts. There are three major river basins: Godavari (catchment of 73201 km² and 41.9 BCM (Billion cubic meter), Krishna (catchment of 74382 km² and 23.0 BCM) and Pennar (catchment of 48111km² and 2.8 BCM). The potential of Krishna and Pennar is completely exhausted and these can be termed as closed basins. The state level stage of development of surface water is 4 million ha out of a possible 7.9 million ha under surface water and 2.9 million ha out of a possible 3.9 million ha. A major irrigation infrastructure creation program was initiated during 2004-2005 to harvest the balance potential under surface water. The program is expected to be completed by 2014 and would invest about US\$ 45 billion.

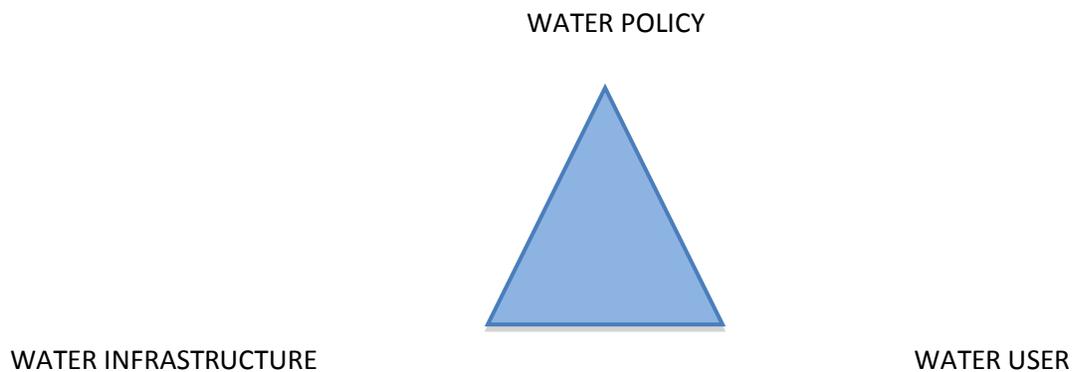
Present per capita water availability in Andhra Pradesh is 1,400 m³ per year⁵, and the state is thus 'water scarce' and will move closer to the 'severely scarce' category⁶ by 2020, with the projected increase in the population. Therefore, with limited water resources available, governance and water management related instruments will need to effectively and equitably address the demands of economic growth and development in the state.

⁵ Less than 1,700 m³ per capita per year is categorized as water scarce.

⁶ Less than 1,000 m³ per capita per year is categorized as severely scarce.

Step-by-Step Approach to Improve Governance

Any water service related governance in a democratic and socialist set up needs to be people centric. One can easily identify the three main actors that impact water availability and water related services. These are, the infrastructure that allows the water to be utilized, the water users, and the policy, rules and regulations that provide, regulate or limit the access to water. The latter is a direct product of the governance model adopted. Governance becomes very complex in large scale irrigation systems as it involves a large geographical area, number of people and number of institutions at different levels. One of the aims of the initiatives in irrigation governance improvement is to establish strong linkages between the irrigation department and farmers' organizations in governing water resources. This paper is not intended to deliberate discourses on the theoretical perspectives on governance. It deals with the attempts made by the Irrigation and CAD (Command Area Development) department in relation to governance, structural and functional adjustments for water management, both at government and farmers level.



The experiences in irrigation governance show that, as we move towards creating favorable grounds for better governance, new sets of challenges keep unfolding. These challenges arise out of discovery of various complexities of the water sector by the stakeholders that would mean that the organizations entrusted with water governance equip themselves with management skills to address these new complexities. Further situational analysis would lead to the evolution of an efficient support system. Change and reform are not a onetime affair and call for regular revisiting of the various components of governance, including structural requirements, challenges, issues and policy related actions to achieve the goals. The basic characteristics of the initiatives include an orientation towards self governance, which would be participatory in nature, consensual in orientation, accountable, transparent, responsive, effective and efficient, equitable and inclusive and upholds the rule of law. One of the ideas of narrating the case of participatory management in Andhra Pradesh, as it evolved over the years, is to provide the details of the process for achieving good governance in irrigation systems.

Water governance and in particular, irrigation system governance is thus a complex issue. It is not easy to achieve the desired results in terms of judicious use of water, consensual decision-making process and participatory management. Various actors and stakeholders are involved who are dependent on water directly or politically. These actors and stakeholders are perceived to play at mutually competing purposes. Parochialism inherent in this approach makes water sector a zero sum game. In such a scenario, efficiency related measures run the risk of being perceived as future deprivation from the presently available quantity of water to a particular sector amongst the competing sectors and to a group of users within a sector. Resolution of inter-sector issues is possible at highest level of bureaucracy or political hierarchy. In Andhra Pradesh, this decision-making was assigned to bureaucracy. Water management across sectors was brought under the state level apex body for planning and management while a regulatory commission is created for providing the guidelines on management to review performance and to suggest measures for further improving performance and streamlining the processes. This assisted in creating a state level perspective of water as opposed to a competing sectors' scenario. To simplify the complexities involved, a step by step and a theme-based approach was adopted. Within the irrigation sector, institutional performance and financial sustainability related issues were taken up parallelly and gradually. Gradual implementation avoided scaring the various groups of stakeholders. Gradual implementation also meant that there was no significant departure from the existing practices in one go. This approach instilled confidence among the FOs (farmer organizations) and the departmental officials that they can implement the new set of guidelines. Implicitly, these groups were getting prepared for the next stage of the agenda. The following sections detail the steps initiated in Andhra Pradesh following the above approach while focusing on the actions by the major user of the water, that is, irrigation. Key actions, not necessarily in chronological order, are discussed.

Creating Space

Prior to 1997, the state was in the first generation of basin development, with a focus on development of infrastructure. There was hardly any visible and well-directed attempt to improve water use efficiency or to formalize the participation of the farmers until 1997 when the Andhra Pradesh Farmers Management of Irrigation System Act was enacted to provide space to farmers in operation, maintenance and management of irrigation systems. Elections under the Act were conducted in November 1997.

During 2004, the new political and bureaucratic dispensation initiated a fresh look at the role of irrigation in the development of the state as an instrument of poverty reduction. The Vision 2020⁷ document had earlier projected a possible annual average growth rate of 6% for agriculture with an investment of about Rs. 1,250,000 million in irrigation infrastructure coupled with other investments and initiatives in agriculture. This precisely means enhancing capital formation in the agricultural sector. This investment focused on creation of new irrigation infrastructure.

⁷ Vision 2020, Prepared during the year 1999 by Government of Andhra Pradesh and McKinsey & Company.

Political space for efforts to improve governance for higher efficiency was limited as there was no immediately visible popular demand for improving efficiency, though in principle none can negate the need to improve governance and efficiency. However, the opportunity cost of inaction or delaying action was not appreciated. Therefore a discussion was initiated with the political dispensation on the necessity for such an agenda and also whether we own it as our agenda or we should appear to implement a direction from outside. Arguments in support of necessity of investment in efficiency and management were put forth to decide whether we should create new infrastructure while neglecting the existing, and thus not create a sustainable operation and maintenance mechanism. By that time the Xth plan was midway through and its midterm appraisal highlighted key areas requiring attention, which included investment in efficiency. Additionally, the National Water Policy 2002, the Report of the sub committee of the National Development Council and the Approach Paper for the XIth Plan also highlighted the key concerns in the water sector. All these documents highlighted the role played by irrigated agriculture for food security and stressed to provide a meaningful role to farmers in the management of the irrigation system, to improve cost recovery and operation and maintenance, to create appropriate state and basin level institutional arrangements, close the gap ayacut and increase efficiency of the projects. These documents have also suggested various measures emerging from best practices identified across the states and thus listed the priority areas of intervention in the water sector. These documents and suggestions therein created a favorable space for the agenda of participation, sustainability, efficiency and transparency. Initially, low cost politically insignificant issues were picked out of the above prescriptions while the process gradually moved to next stages.

As a first step to implement the above agenda, a team of professionals was constituted at state level to look into the institutional issues, technical issues and the monitoring of the system. The team also reviewed the Andhra Pradesh Water Vision released in 2004. An in-house Geographical Management Information System cell was created to assess the status and output from the system. The cell compiled and analyzed data on organizational features (like administrative hierarchy, features of farmer organization), natural resources (catchments surface water and ground water status, availability and usage and temporal and spatial variation), infrastructure related information (irrigated area and performance measurements etc), apart from climate and other related data.

The state water sector agenda evolved through a consultative process, based on the analysis of the available data and the inputs from the professional team. The process aimed at improving the governance of the water sector and operational modalities. In the light of the recommendation of the Central Water Commission (CWC) to all Indian states to adopt a comprehensive policy document for efficient use of water resources detailing the state's vision, this water agenda was converted into a comprehensive water policy. The policy highlights that water is a finite and increasingly scarce resource. It also highlighted the immediate challenge of managing the demand for drinking water, irrigation, industry and power supply. The projections indicate that the increasing demands from all users will outstrip available water supplies by the year 2025. The policy document comprises of six sections spelling out the needs, objectives, strategies, approaches, implementation arrangements and the road map for water resources management in the state. The policy also focuses on improving and

safeguarding existing drinking water supplies, managing water for irrigation, industry, power supply and environmental sustainability and prevention of pollution along with issues like development of new infrastructure, maintenance and operation of existing infrastructure, pollution, over-abstraction and unplanned development, water logging, salinization, increasing toxic elements, as the main challenges and issues of concern for the state. The policy is expressly designated to be a dynamic document to address evolving issues. This approach facilitates functionality as compared to the rigid policy documents generally adopted. While the policy drafts were under discussion and consultation, some non-negotiable and uncontested issues were simultaneously unrolled.

Governance – State to User Level

An appropriate organizational structure to address the requirements of the evolving agenda was identified as a key requirement and is given adequate emphasis. These organizational arrangements are contemplated and implemented at the levels of decision-making, administration and implementation. That is to say that the arrangements are contemplated from state, regional level and user level in a continuum with strong functional linkages, both vertically and horizontally. Guiding principles for these organizational arrangements create space for participation, professional advice, review of and consolidation of ongoing efforts and their impacts to refine the decision-making. These include creation of a Water Management Committee, the Andhra Pradesh Water Regulatory Commission, restructuring the Irrigation Department and empowering Farmer Organizations. Role and responsibilities played by these are briefly stated below.

Water Management Committee⁸

This is a state level apex body for decision making on water related issues and is constituted to have a holistic view of state water resources, regulation, performance, convergence and coordination among various water sector related departments. The broad functions of the Water Management Committee include water sector overview, setting guidelines for efficient water use in various sectors and related services, promoting research and analysis in water resource management for future policy formulations and reforms, fixing rates for various water uses, monitoring water quality and water pollution and harmonizing the existing policies. The Chief Secretary chairs this Committee consisting of the Secretaries of various water user departments.

⁸ The Water Management Committee was constituted through government order number 95, dated 05-06-2007 of Irrigation and Command Area Development Department.

Andhra Pradesh Water Regulatory Commission⁹

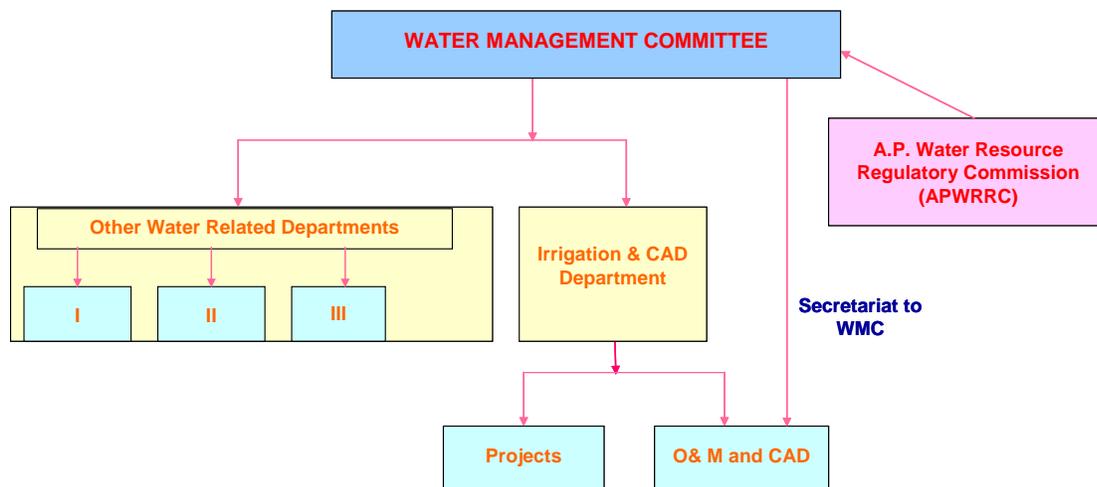
The Commission is constituted through an Act of the assembly for ensuring the performance standards of service delivery by various service providers, both government and private. The Commission would have jurisdiction over the entire water sector and services like irrigation, drinking water, industrial water, pollution of water, etc., and would consist of a Chair Person and three experts from the field of Irrigation Engineering, Ground Water, Agriculture/Economics and Finance/Revenue. The Commission's mandate is different than what is generally adopted by other states in India. It is not constituted as a body accountable to none. It has been constituted to assist the state government in implementing the policy and provide required oversight and guidelines. The state level apex body that is the Water Management Committee may also request expert advice from time to time on emerging issues or agendas before it. The Commission would also act as a technical support to the Water Management Committee.

Re-organizing the Irrigation Department

The legacy of the first generation, construction or supply phase, still continues in the water services related departments. With closure of basins and with no further available water, departments, including the Irrigation department, should have moved to acquire the new set of skills to address the issues related to water management and efficiency. In the Irrigation Department, the efforts during the last five years are focused to move from design, construction and repair to developing management plans which include agriculture, revenue generation, livelihoods, networking and utilizing the various water bodies. As the next generation issue, management of created infrastructures with equitable and judicious utilization occupies a prime position, which calls for appropriate policies and support programmes. Thus, the major task is to bring in institutional restructuring, including professionals with a multi-disciplinary background.

⁹ The Andhra Pradesh Water Resources Regulatory Commission Act, (Act 15 of 2009).

STATE LEVEL WATER GOVERNANCE



As a first step for creating space for such a multi-disciplinary team and a meaningful role for farmer organizations, review of performance and service delivery of the water sector was included in the regular review of construction management at the highest level. This arrangement aligned the reform agenda with construction/infrastructure oriented thinking of the Irrigation Department and focused on the creation of a dedicated wing with the mandate to improve irrigation performance. The ICAD department is thus reorganized to consist of three functional wings.

- *Project wing* – for construction of new projects,
- *O&M wing* – for O&M of completed projects with a focus on outcome and efficiency. The government has also decided to establish six professional multi disciplinary Project Management units comprising of engineers and other professionals, and
- *Minor Irrigation Wing* – for creation of new and revival/restoration of minor irrigation projects.

Command Area Development re-organization

The scope and complexity of the water sector agenda requires continuous technical and managerial support. The Command Area Development wing of the Irrigation Department is thus assigned the responsibility to act as secretariat for the Water Management Committee. The CAD wing is reorganized into the following cells for a focused approach. The government and hired professionals staff these cells.

- *Participatory Irrigation Management Cell* – for management of irrigation projects and irrigated agriculture through farmers' organizations. The cell organizes the capacity building of the farmers' organizations and their management;
- *Water Policy Research Cell* – to provide support to the Water Management Committee and Technical Group;
- *Operation and Management Cell* – for cost recovery and plough back of tax revenue for maintenance of the irrigation projects;

- *Water Audit and Benchmarking Cell* – for coordinating the WUA wide annual water audit and benchmarking through the respective Chief Engineers;
- *Technical Cell* - for providing technical support for the above listed agenda and for externally aided projects; and
- *Remote Sensing and Geographical Management Information System Cell*

Empowering Farmers' Organizations

Andhra Pradesh is the pioneer State to enact the statutory provisions for de-centralizing irrigation management through farmers' organizations. The Andhra Pradesh Farmers Management of Irrigation System Act, 1997 provides for three-tier farmer organization (Water User Association, Distributory Committee and Project Committee) for major irrigation projects, two tiers for medium irrigation (Water User Association and Project Committee) and single tier for minor irrigation projects (only Water User Associations). The government completed the elections of the 10800 Water User Associations, 323 Distributory Committees, 23 Major and 60 Medium Project Committees and thus formalized the stipulations of a decade old legislation.

The WUAs have been made a *continuous body*¹⁰ with one third of the members retiring every two years. Every member is elected for a period of six years. This provision has ensured continuity and institutional memory. State government has *fixed the dates of election for every second year*. The elections for the WUAs are now scheduled for every second year during the first fortnight of January and the elections for the Distributory committees are scheduled for the second half of January. This schedule is in force from January 2008 onwards. This provision will bring transparency and will avoid litigation by those who do not support the emergence of a new constituency of farmers with likely political implications. The FOs are supported to establish a formal office for smooth functioning of their affairs. These units are permitted to incur up to 10% of the tax re-plough amount on non-recurring and recurring expenditure related to office establishment¹¹. Permission to WUAs to hire *Lashkars* for water release management from the establishment cost further strengthens the traditional role of the community in managing the water release schedule. This aims at bringing a shift of attitude, inculcating ownership of the irrigation system among the farmers. Performance of these organizations is evaluated through independent studies and suggestions for appropriate changes are evaluated.

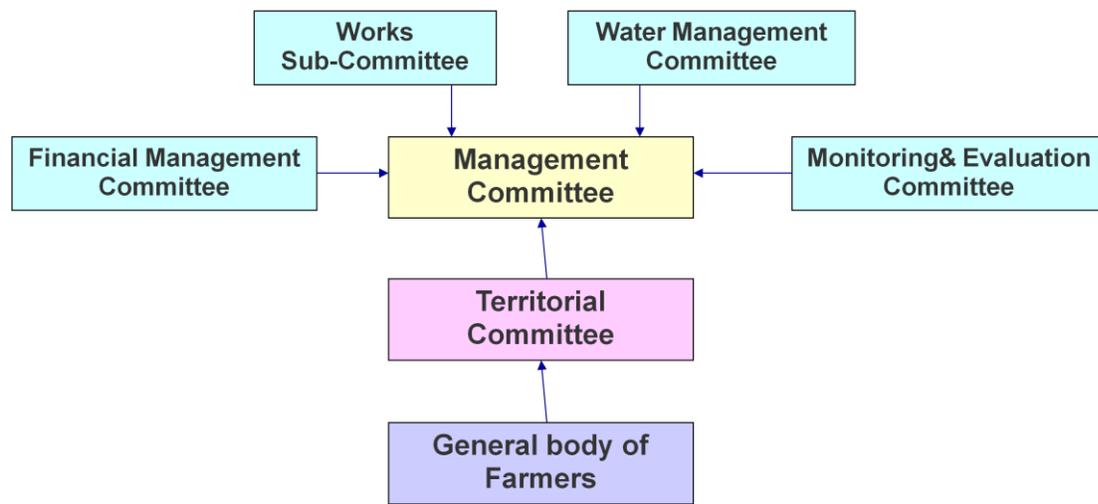
The empowerment of farmer organizations to assume the responsibility as enacted in the APFMIS Act is a key requirement of the decentralized management of the irrigation infrastructure and sustainability. The *logical start point* evolved a capacity building strategy encompassing a needs assessment of the

¹⁰ The Water User Associations were made continuous bodies, vide amendment to Andhra Pradesh Farmer Management of Irrigation System Act during 2003.

¹¹ Circular Memo No COM/CAD/DEE1/1147/07, dated 13-08-2007, permits the establishment cost of the Farmer Organisations from the tax replough amounts. The memo also authorizes the Farmer Organizations to hire the Lashker within the norms.

primary stakeholders and capacity assessment of the secondary stakeholders for addressing the identified needs of primary stakeholders and that of implementing the new agenda. Circle level training centers are established, providing a platform for the WUAs in each circle for capacity enhancement and for exchange of views among fellow WUA members. Detailed modules for the WUAs, DCs and engineering staff are prepared and implemented, covering various requirements as identified in the needs assessment, which also includes exposure visits to other projects within or outside the state. The general awareness campaigns on water management and services to be delivered by the farmers' organizations are arranged as part of the strategy for transparency. The goal of the capacity building is to achieve efficient water management, including transparent and accountable water management.

The APFMIS Act envisages the constitution of four sub-committees of farmers for discharge of the responsibilities assigned to Water User Associations. These sub-committees distribute the responsibilities and thus also avoid centralization of power in the hands of few farmers. The capacity building program targets these sub committees as well. The relationship of various entities within the WUA is shown in the diagram below.



Networks – Inside Outside Approach

Modern management theories support the systems approach of management. This recognizes and addresses the wide-ranging set of activities that are in a complex, dynamic, evolving and interactive relationship. This relationship is organic because it is evolving and mutually dependent. Management of complex systems would need expertise in each field involved, apart from general management and administration skills. This argument was put forth, as explained above, in favor of creation of a multidisciplinary approach within the department. The question, however, would remain, how much of the expertise should be created *inside* the department and how much can be hired through professional agencies *outside*. It may not be difficult to argue that not all the expertise needs to be created inside the department. Depending upon the nature of the output and availability of such expertise outside, various

types of contractual relationships can be formalized with professional organizations recognized for such expertise. This inside outside model based thinking led to the creation of a multi-disciplinary team inside the department and created a network with professional agencies that are independent of the department. Some of these agencies supported the state level decision-making process while some others delivered the defined professional services at sub – district level. An in-house professional is assigned with the responsibility to be a dedicated contact point to interact with the outside agencies and implement the services as identified.

State Level Support and Consortium

At the state level, the Andhra Pradesh State Remote Sensing Application Center provided the services on digitization of the command areas, canal networks, irrigated area assessment, cropping pattern etc. More specifically, the Center provided the various services during the recent floods, like the forecast on the likely inundation, drainage congestion points, etc., which assisted in decision making. For empowering the WUAs in efficient agricultural water use, management and increasing productivity, the department recognized the need of creating a Consortium of line departments, research institutions and private companies for knowledge sharing on best practices and innovations in irrigated agriculture, productivity enhancement, trade and marketing of agricultural produce. The Consortium¹² is housed in the Center for Good Governance, which is providing services related to knowledge compilation and sharing in the areas of agricultural productivity and provides an e-learning platform.

District Level Support System

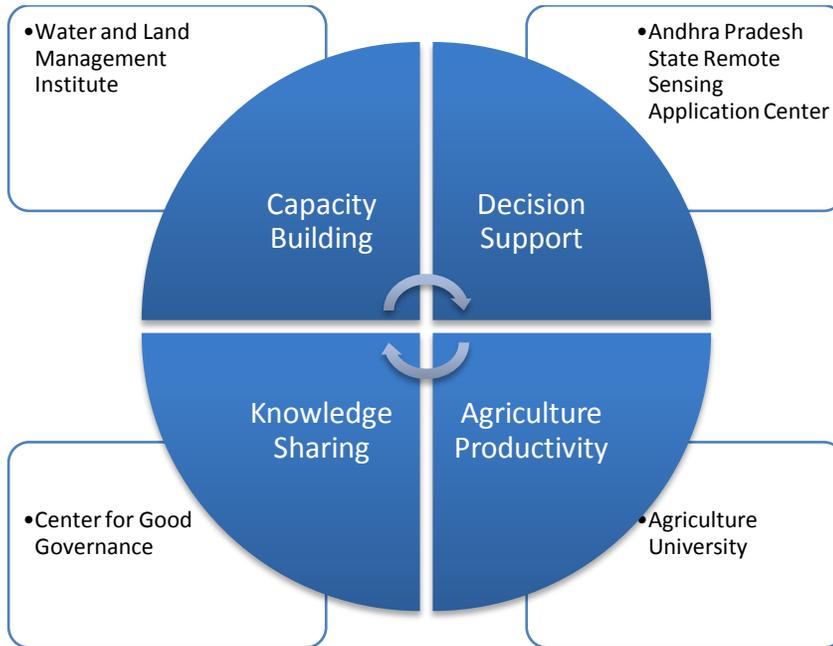
The Water and Land Management Training and Research Institute is providing support for developing the capacity building strategy and also carry out various capacity building events at the district and sub-district levels. Services of a large number of NGOs are hired for community mobilization and process strengthening related works. Specifically for water bodies, a District Level Committee under the District Collector is constituted for convergence of activities of a large number of departments that provide services related to water bodies like fisheries and agriculture.

Farmer Field School Approach

The strategy adopted here is to leverage the existing social capital of WUAs and various other initiatives in the private and public sector for implementation of the extension strategy on agriculture. The Agriculture University provides the technical backstopping and *Krishi Vignana Kendras* that are managed by the University and the Indian Council of Agricultural Research act as the implementation agency. The approach of extension is learning by following a free from subsidy model by adopting the Farmers Field School (FFS) method. The FFS is a comprehensive package for identified crops as integrated crop management practice. Linking the agricultural university to the farmers' organizations has formalized the lab-to-land concept. The FFS based extension is well received by the farmers. Very recently a farmer

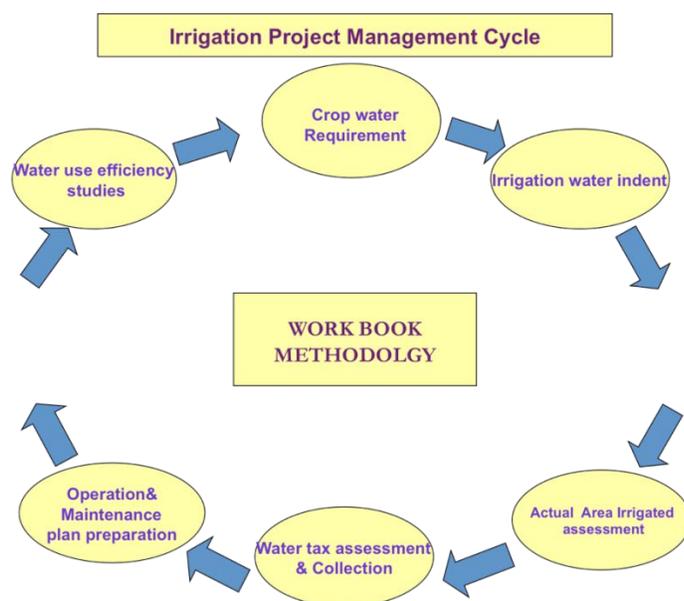
¹² The Consortium on productivity enhancement was constituted, vide GO Ms no 189, dated 19-09-2008 of Irrigation and Command Area Development Department.

center was created in the office of the Commissioner, Command Area Development and gradually farmer organizations are approaching this office for a single source of both, water management related issues and agriculture related services. With successful establishment of these institutional arrangements, focus is now on agriculture productivity, leveraging the extensive network of the farmer organizations and professional agencies.



Project Cycle Approach

A Project Cycle approach is adopted for management of irrigation systems to conform to the agriculture seasons. The FOs are encouraged to plan and manage their respective areas through the work-book¹³ approach following the classical management principle of plan, act and review. The FOs plan the operation and maintenance related activities ahead of the agricultural season and record it in the work book along with likely cropping patterns and consequent water demands. The activities are carried out in accordance with the plan. Before the beginning of the next season, the performance of the system is evaluated through self-assessment by the FOs. This self-assessment is also followed through more



rigorous formal systems. The annual performance evaluation leads to publication of an annual report on performance. The state government has introduced a system of performance assessment on various parameters to analyse the temporal and spatial variations in performance of the projects, administrative hierarchy and also that of farmer organisations. Performance measurement is formalized and made mandatory through a government order for each project on season and annual basis. The Planning Commission has also advised the state governments to take up the performance assessment on identified parameters. The CAD wing of the

department coordinates this activity. Annual reports on the performance assessment are published at the state level. The first report, comparing the performance of the three agricultural years 2006-2009 is under publication. The evaluation comprises of the following components:

Water audit

The seasonal water distribution plan for each WUA (and other users) is prepared before the start of the season on the expected cropping pattern and other projected needs. The expected outputs for each unit from the water supplied are anticipated and proposed. The actual performance against the proposed plan is evaluated after each season to compare the intra- and inter-project performances.

¹³ Workbook comprises of a compilation of schedules to be prepared by WUA and DC, based on field needs. It includes formats for use by FOs for water indent, water release plan requests, crop plans, season-wise user fees – demand and collection based on irrigated area assessment in each season. Compilation of information in the workbook also facilitates understanding related to water use efficiency of the project. These schedules are completed by WUAs along with the concerned Competent Authority. The process is facilitated by the Training Coordinators of Field Training Center (FTC).

Benchmarking

This comprises of another set of indicators wherein the overall picture of the project in the catchment and its performance at a macro level, including the externalities, is evaluated.

Performance indicators

There have been various attempts worldwide to identify a set of indicators that can comprehensively measure the performance of irrigation projects. The wide range of services and the complex nature of interdependent factors affecting the performance of the projects render it as a challenging proposition for the project managers and the planners. However, an initial and functional list of indicators is agreed upon, covering the themes of agricultural performance, environmental performance and the technical parameters of project performance.

Self-monitoring

A pictorial chart based tool of participatory situational analysis has been developed to help farmer organizations for assessment of their own performance on a seasonal basis. The analysis is taken up on identified parameters on a chart, which are self explanatory and usable by illiterates as well. The analysis of these charts by the project managers provides insights in project performance at the macro level.

Financial Sustainability

Participation of farmer organizations in water and financial management are two undisputed tenets for meaningful and decentralized management of irrigation projects. Adequate provision of funds to meet the delegated requirements of the functions is ensured through the changes brought in.

Budgetary Support

Cost norms are laid down for each category¹⁴ of works to assess the fund requirement. These requirements are supported by recently created separate budget provisions for each project to ensure fund flow necessary for O&M of the projects.

Water Tax Re-plough Account

Hitherto the tax re-plough procedure was following a circuitous route and did not have a dedicated budget head in the state accounts. Funds were allocated to a single account head with each Chief Engineer for tax re-plough and for other maintenance needs through the same head of accounts. From

¹⁴ The operation and maintenance of the projects are classified in three categories of works as per the nature of the works. The A category works are those to be carried out by the WUAs through the tax re-plough funds as enacted in the APFMIS Act and are generally of the nature of routine minimal works that would facilitate operation of the projects. The B category works are deferred maintenance works. The last category of works include the original works, expansion works and modernization of projects

2007-08 onwards, an exclusive budget head is created for tax re-plough to the FOs. This head is operated by the Commissioner CAD and thus is insulated from the ever-pressing demands of other maintenance. This budget head secures the fund allocation to the FOs.

Local Collection and Plough Back

System of assessment of areas irrigated under each WUA is modified to provide role to primary stakeholders, that is, farmers. The demand is raised by the concerned revenue authority and tax collected with the involvement of WUA. These steps are one step short of tax collection and re-plough by the WUAs themselves. However, the government has agreed in principle to allow the water tax to be converted to user charges to allow it to be retained at the local level outside the treasury system to facilitate the timely availability of the funds. The decision is likely to be implemented from 2010-11.

Financial Delegation

The government has also further simplified the procedure¹⁵ for taking up the works and simultaneously also created provisions for meaningful participation of farmers. The category 'A' works are to be carried out by the WUAs alone. Works up to Rs 500,000 can be taken up by the WUAs themselves, while works above this limit can be tendered. The B category maintenance works follow the same financial delegation. This dispenses with procedures causing delays. These provisions are also aimed at completing the required maintenance works during the canal closure period.

Industrial Water Royalty

The water off take points from irrigation projects are now provided with measuring devices for estimation of the quantity and schedule of the water taken by various users other than the Irrigation Department. The reasons for such arrangements are twofold. One is to assess the exact quantity consumed by the user department to calculate the water use efficiency subsequent to water off take. Another reason is to assess the tax or royalty demand, from the department concerned or for the equivalent subsidy, from the government. These measures are initiated for financial sustainability of the irrigation projects. Water used by the industries is chargeable at the rates fixed by the government¹⁶. A long standing anomaly on the role of the Industries Department *vis à vis* the Irrigation Department was resolved recently by assigning the responsibility to the Irrigation Department, suppressing an earlier order. The industrial water royalty demand is of the order of Rs 800 million annually¹⁷ and forms a substantial part of the total operation and maintenance demand of the irrigation system.

¹⁵ The simplified procedure for the collection of tax and enhancing the share of the farmer organizations were issued, vide government orders no 96, dated 08-06-2007 and GO Ms No 170, dated 14-10-2008 respectively.

¹⁶ The industrial water royalty rates are fixed, vide government order no 39, dated 02-04-2002 of Irrigation and Command Area Development Department.

¹⁷ Estimates made by the Commissioner, Command Area Development, on the basis of the quantity of water allocated to various industrial purposes and the prevailing rates for industrial water. This also includes the annual royalty of Rs 100 million from Srisailem Hydropower Project.

Decision Support System - Geographical Management Information System

Several departments are involved with water related services. Within the Irrigation Department, several Chief Engineers/Engineer in Chief are managing the major and medium irrigation projects in the state. This has quite obviously created a peculiar situation, where at the state level, information of state water and irrigation project status and output was not available at one place for comprehensive decision making. This role was assigned to the Commissioner CAD and a Geographical Management Information Cell was created, which is being gradually upgraded as the Andhra Pradesh Irrigation Information Center. This cell is presently being manned by Assistant Executive Engineers and Deputy Executive Engineers of the department, selected through a rigorous selection procedure and who have the requisite exposure and qualifications of GIS and MIS. Additionally, professionals are hired from time to time for guiding and supervising the activities of the cell. The cell has a functional and continuous working relationship with the Andhra Pradesh State Remote Sensing Application Center and with the Irrigation Unit of the Center for Good Governance. This cell now handles the various types of spatial and tabular data on water, projects, irrigated agriculture, farmer organizations, performance, floods, hydrological boundaries, various standard remotely sensed layers, demographic details, etc. Some of the key initiatives that assist decision making are listed below.

Reservoir status management system¹⁸

This is an automated system to monitor the status of reservoirs during the flood and canal operation period. One engineer at dam site of each of the major irrigation projects and 30 largest medium irrigation projects are designated to pass on the information daily at 8 am through an SMS to a designated cell phone which is connected to a server. The information sent by the designated engineer contains the details of the present levels of the reservoir, capacity status, inflows and outflows (canals, surplus, power, drinking, etc.). This information is uploaded to the connected database. Subsequently, automated fax and SMS are disseminated to designated cell phones of senior officers like Chief Minister's Office, Chief Secretary, Commissioner Relief, Secretaries of Irrigation Department and Senior Engineers. This information is available to anyone on demand through a SMS.

WUA Database and Rating

A comprehensive database of more than 10000 WUAs is created. It contains static information on the WUA and the data collected through Rapid Assessment Survey. The analysis of the survey report has lead to an action plan for physical works and for the capacity building of the farmers' organizations. The WUAs are rated on the basis of performance on three main groups of indicators: water management, financial sustainability and management *per se*.

¹⁸ The linked webpage can be accessed with username as 'guest' and password as 'guest' at <http://cadarsms.cgg.gov.in> for reservoir status and <http://apcada.cgg.gov.in/> for canal flow monitoring.

GMIS of projects

An elaborate database of static and performance information related to the projects is being created for assisting in the management of projects. The information network is planned to provide connectivity and accessibility up to the WUA level.

Digitized canal network

The entire canal network of all the major and medium irrigation projects is digitized and the related hydraulic, agriculture and performance data is being updated to the main and distributory canals along with the maintenance works carried out. These view the present flow levels during the canal operation period.

Flood prone area

The flood prone areas in the deltas of Krishna, Godavari and Pennar are marked through remote sensing. The reason for flooding many a times is congestion of the drainage system. These points are being identified on prognosis or the historical data of the floods.

Irrigated Area Assessment

The irrigated area assessment is corroborated through remote sensing, three times during each crop season. This additional process of irrigated area assessment will reduce the discrepancy between the figures of the Revenue and Irrigation Departments and would lead to a more realistic assessment.

Water logged area assessment

Factors affecting the performance of the projects are being regularly evaluated at the state level and corrective steps being taken. Water logging of project command is a serious concern in Deccan Plateau because of the undulating topography and mismanagement of water application. To assess the extent of water logging, observation wells are established in the commands of the projects, which are monitored by the State Ground Water Department. The spatial distribution of these areas on a map is shared among the project engineers for corrective measures.

Conclusion

The initiatives narrated above are primarily focused on ensuring transparency and appropriate decentralisation in decision-making and creating accountable systems at all levels in accordance with the state policy for equitable distribution of resources and optimal output. The attempts so far include creating a state level structure, followed by the district level and farmer organisation level structures with a well defined mandate, transparent system of functioning and people centric decision making, which is generating better results for efficient use of water and main system management. Continuity of these efforts and concurrent modification of the approach would need to be assured. Consistent leadership is a prerequisite for such continuation.

The available literature and experiences highlight plenty of examples of community managed irrigation system. However, the Andhra experience is unique in terms of its sheer size, spanning over 4 million ha of farmlands and about 6 million farmers. Having established the institutional structure and procedures related to water governance, the focus is now shifting to the next generation issues of productivity. Next in line is pollution control. The bigger challenge would be the continuity of the efforts initiated, sustainability, efficiency and maximizing the agriculture output to the envisaged levels.

THE PLACE OF THE TRIBUNAL IN INTER-STATE WATER DISPUTES

Narendar Pani¹

Abstract

The enthusiasm in official circles for Tribunals to settle inter-state river water disputes has not been matched by that of the states involved in the disputes. There is some doubt about whether the awards of the Tribunals dealing with the more difficult tasks will be accepted by the states. This throws up a rather fundamental question: What role, if any, can Tribunals play in resolving inter-state river water disputes in India? In order to answer this question, we first seek an appropriate concept of institutions that would help us understand Tribunals. Based on this concept, we would look at the abstract case for Tribunals. We would then go on to look at the issues that emerge in practice, before finally going on to argue that while the Tribunals have an essential role to play in addressing the technical and judicial aspects of inter-state river water disputes, there are other dimensions to these disputes that are equally important to address. Unfortunately, these fall well beyond the capabilities of even the best equipped Tribunal. Thus the effectiveness of a Tribunal depends not just on what it does, but also on what is done to address factors beyond its control.

Keywords

Tribunals, rivers, disputes, India, institutions

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¹ The author is a Professor at the National Institute of Advanced Studies, Indian Institute of Science Campus, Bangalore 560012; Email: narendar.pani@gmail.com

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National governments in India have tended to rely quite heavily on Tribunals to determine the sharing of river waters between states of the Union. Disputes concerning the waters of Narmada, Godavari, Krishna, Cauvery, Ravi and Beas rivers have all been referred to Tribunals.² The response of state governments to the awards of these Tribunals has however been rather uneven. In some cases, the verdicts of the Tribunals were accepted without too much resistance by the states concerned. In the case of the Godavari, the affected states even worked out a series of agreements leaving the Godavari Water Disputes Tribunal with the less onerous task of incorporating these results into its final report. On the other hand, in some other river basins, the contending parties have proved more difficult to please. Not only have they been far less capable of settling the disputes themselves but also they were not entirely willing to accept the awards of the relevant Tribunals. Indeed, Karnataka's rejection of the interim order of the Cauvery Water Disputes Tribunal in 1991 was accompanied by violent protests (Sebastian, 1992). There is thus a disparity between the enthusiasm in some official circles for Tribunals between the institutions with the knowledge and authority to resolve inter-state water disputes and the doubts sometimes expressed by states over the validity of a Tribunal's orders. This divergence brings to the fore a rather basic question: What role, if any, can Tribunals play in resolving inter-state river water disputes in India?

In order to answer this question we first seek an appropriate concept of institutions that would help us understand Tribunals. Based on this concept, we would look at the abstract case for Tribunals. We would then go on to look at the issues that emerge in practice, before finally identifying some of the essential features of an effective mechanism to address river water disputes and the role of Tribunals in that mechanism.

Institutions and River Water Dispute Tribunals

In choosing a concept of institutions to understand the nature and functioning of River Water Dispute Tribunals, we run the risk of our choice being equipped to deal with only a part of the many dimensions of this issue. Too often, we take a rather narrow view of an institution as one that sets the rules that must then be unquestioningly followed. While the fairness of these rules may be debated in an academic, even abstract sense, the possibility of a rule that is believed to be fair in terms of accepted academic criteria not being considered fair by people in the contending states is not given too much importance. It is implicitly, and sometimes even

² Brief accounts of the various Tribunals are available at the website of the Ministry of Water Resources, Government of India, <http://wrmin.nic.in/> accessed on 10 July 2009.

explicitly, assumed in academic discussions that once a Tribunal has considered all the facts and come up with an award, the state must quite simply use all the resources at its command to implement it. Any attempt to take into account emotional reactions on the ground would be seen as a sign of weakness.

This tendency is reflected in some academic responses to Karnataka's rejection of interim order of the Cauvery River Water Disputes Tribunal in 1991. Confronted by Karnataka's actions, Tamil Nadu had asked for a direction from the Supreme Court that the order be implemented. But wary of the possibility that the Supreme Court's order too could be difficult to implement in the emotionally charged environment at the time, the concerned states reached a short-term compromise which involved Tamil Nadu withdrawing its petition. The politicians' recognition of the need to keep down the temperatures of the debate was not shared by at least one administrator/academic commentator who believed "an opportunity for an authoritative pronouncement by the Supreme Court on the question whether compliance with the award of an ISWD Tribunal is mandatory or not was missed" (Iyer, 2002).

This approach has the advantage of logical clarity, as it does not have to take into account the often inconsistent and apparently unrelated claims that political reactions tend to bring into the picture. But the extent to which the politicians reflect perceptions of the dispute among the affected people keeping their reactions out, amounts to going by what is officially considered fair rather than what is *seen to be* fair. And if disputes and their intensity are determined by what is *seen to be* unfair, leaving out perceptions of unfairness will not help. Since disputes only disappear when the affected parties accept a proposed solution, we could argue that the success of a Tribunal should be measured not just in terms of its award being just, but also on it being seen to be just. A concept of institutions that would help us understand the nature and functioning of river water dispute Tribunals in India must then recognise that there could sometimes be a substantial divergence between what a Tribunal genuinely believes to be fair and what people in the contending states consider fair.

One concept of institutions that meets this requirement is that used by John Rawls in *A Theory of Justice*. Rawls makes a distinction between two ways of perceiving an institution: "first as an abstract object, that is, as a possible form of conduct expressed by a system of rules; and second, as the realization in the thought and conduct of certain persons at a certain time and place of the actions specified by these rules. . . The institution as an abstract object is just or unjust in the sense that any realization of it would be just or unjust" (Rawls, 2000). Clearly, the academic and legal debate on water Tribunals tends to focus almost exclusively on the first way of looking at institutions, that is, the creation of a set of rules for water sharing. The focus of the politicians, on the other hand, is almost entirely on the second way of looking at

institutions, that is, the consequences of implementing the rules of water sharing laid down by the Tribunals. And, as this concept makes clear, it is the realization in practice of an institution that determines whether it is just or unjust, we cannot afford to leave out the responses to the actions of a Tribunal.

To get a more inclusive picture of the role water Tribunals can play, we would need to go beyond looking at this institution as one that makes the rules of water sharing, in trying to understand the determinants of the reactions to its actions.

The Rule Maker

In a purely legal sense, water Tribunals owe their existence to the decision of the framers of the Indian constitution to make water the responsibility of state governments. When distributing subjects according to whether they should be dealt with by the states, the union or concurrently by both, water was placed on the state list. This created a need for a mechanism that would deal with disputes between states. The scope to create such a mechanism was provided by Article 262 of the Indian Constitution which states:

“Adjudication of disputes relating to waters of inter-state rivers or river-valleys:

1. Parliament may, by law, provide for the adjudication of any dispute or complaint with respect to the use, distribution or control of the waters of, or in, any inter-state river or river valley.
2. Notwithstanding anything in this Constitution, Parliament may, by law, provide that neither the Supreme Court, nor any other court, shall exercise jurisdiction in respect of any such dispute or complaint as is referred to in clause 1.” (Bakshi, 2005)

Based on this Article, the Indian Parliament enacted the Inter-State River Water Disputes Act, 1956.³ Three aspects of this Act stood out in its approach to river water disputes. First, it was true to the spirit of the Constitution, in that it upheld the view that water was a state subject. As such, it saw a role for Tribunals only at the request of an affected state. Second, it sought to merge the skills and reputation of the judiciary with the detailed investigation required to appreciate the intricacies of inter-state river water disputes. Thus its chairman and members had to be judges of the Supreme Court or a High Court at the time of their nomination, even as they were given sufficient time to investigate the matters referred to it. And third, there was no room for doubts about the stature of the Tribunal and its awards as the Act reiterated the

³ Downloaded from <http://wrmin.nic.in/index3.asp?subsublinkid=377&langid=1&sslid=385> accessed on 10 July 2009.

provision of Section 262 that neither the Supreme Court nor any other court would have any jurisdiction over any water dispute referred to the Tribunal under this Act.⁴

The Act seemed to work well enough in the first three and a half decades of its existence. The Narmada Tribunal submitted its report in December 1979 and the Godavari Tribunal in July 1980 and both found the required degree of acceptance by the affected states (Iyer, 1994). Since the 1980s however, there have been signs of the water disputes becoming much more politicised, with the dispute between Karnataka and Tamil Nadu over Cauvery waters being a prime example. This tends to make states less accommodating towards Tribunals. The public perception of the Tribunals in individual states is that of central institutions which do not necessarily have that state's interests at heart. And in this charged atmosphere, there are bound to be doubts about whether the verdicts of the Tribunals would be accepted by the state governments.

The official response to this challenge has largely been in terms of trying to improve the efficiency of the Tribunals. The problems were seen as one of long delays before a Tribunal's verdict was available and then the difficulties in enforcing that verdict. The Sarkaria Commission on Centre / State relations addressed both these concerns.⁵ It recommended deadlines at various stages in the entire process. It sought a one-year limit for the Union government to constitute a Tribunal once it received an application from a state. It also wanted the award to become effective within five years from the date of constitution of the Tribunal, though it was realistic enough to allow for the government to accede to the request of the Tribunal for an extension. And, in order to speed up the entire process of investigation, it made a case for a Data Bank and information system at the national level. To help make the award binding, it demanded that the awards of the Tribunal be given the same force and sanction as an order or decree of the Supreme Court. It was also inclined to curb the power of the states by allowing the Union government to appoint a Tribunal suo moto, without waiting for one of the affected states to approach it.

Not surprisingly, when the recommendations were considered by a sub-committee of the inter-state council, the attempt to give the Union government suo moto powers was struck down. But for the basic approach of setting deadlines and providing the Tribunal's award, a greater legal tooth was endorsed. The deadline on the Union government to set up the Tribunal within

⁴ It must be remembered that, in practice, a distinction is made between the settlement of a water dispute and the enforcement of the decision of the Tribunal. The Supreme Court has ruled that it can go into cases relating to the enforcement of the decisions of a Tribunal (Jain, 2005).

⁵ The Commission under Justice RS Sarkaria was set up in June 1983 to review the working of the relations between the Centre and the States. It submitted its report in January 1988. It devoted a chapter (Chapter XVII) of the final report to inter-state water disputes.

a year of the complaint was accepted as was the recommendation that the Tribunal's award be given the same force as an order or decree of the Supreme Court. Deadlines were also set for the Tribunal to give its report and for the report to be implemented, but enough flexibility was built into the clauses to allow for political and other contingencies.⁶

Since the enactment of the relevant law in 1956, the Tribunals have emerged as institutions that can play an important technical and judicial role in inter-state river water disputes. They have demonstrated the technical expertise required to evaluate the contributions of the catchment areas of individual states to the river. They have also shown the judicial skill required to determine how the water should then be shared. But the acceptance of their verdict is an issue that they evidently believe is well beyond their purview.

'Externalities' and Water Disputes

While looking at popular responses to an inter-state water dispute it is important to recognize that the public perception of the issues involved need not tally directly with the legal issues involved. River water disputes do not occur in isolation but, within a larger social, economic and political context. In a purely legal sense, we could treat many of these issues as external to the dispute, or what economists would call 'externalities'. But that does not necessarily diminish their importance. Indeed, in the popular perception, what is typically being debated is the entire set of issues that can be directly or indirectly related to the specific water dispute and not just the technical aspects that is the focus of the Tribunals. And this broader debate could be influenced by a variety of factors.

The intensity of water disputes tend to be very sensitive to popular perceptions of shortages. The disputes can, and often do, arise well before a shortage actually emerges. The moment conditions arise that raise the possibility of change in the demand for water, states tend to make their claims. The dispute over Cauvery waters first arose in the late nineteenth century when a significant proportion of the water was flowing into the sea. But, as the states move towards utilising a greater proportion of the water, there is the possibility of canals going dry in a bad monsoon year. It is the fear of such extreme shortages that adds to the intensity of public reactions to the dispute in a poor monsoon year.

This sensitivity to the monsoons is also heightened by the pressures to build irrigation infrastructure based on excessively optimistic estimates of rainfall. Given the often vast differences between conditions in wet land and dry land villages, it could make economic sense to construct irrigation infrastructure even if it is expected to go dry, say, once in every four

⁶ These changes were incorporated into the Inter-State River Water Disputes Act in 2002.

years. But in the dry year, there will be a tendency to look suspiciously at other users of the river water, especially if they are in another part of the country.

The frequency of such dry years would depend not just on the monsoons but also on the efficiency of the irrigation network. The wastage involved in extremely low levels of efficiency could lead to canals going dry even in years of only a limited decline in rainfall. And there are several factors that contribute to this wastage. The demands of rural politics ensure that the pricing of irrigation water is such that it is difficult to even cover maintenance costs. There is then little possibility of charging anywhere near the scarcity prices needed to prevent the wastage of irrigation water. The challenge of putting in place a pricing system in the urban areas that prevents wastage is also largely unaddressed. In addition, cities are also marked by grossly inadequate attention being paid to the need to differentiate water quality for different uses. More often than not, drinking water is used for gardens.

The effect of the rising probability of the canals going dry has been accentuated by larger macro economic trends. The rapid growth in the Indian economy since liberalization in the 1990s has been marked by a sharp decline in the share of agriculture from well over 40 percent of Gross National Product to well below 20 percent of GDP. At the same time, there is little to suggest a corresponding shift in the workforce from agriculture to non-agriculture. While the census noted a fairly sharp decline in the proportion of agricultural labourers and cultivators to total workers in a few states like Kerala, this trend was far less pronounced in most other parts of the country.⁷ If we take into account the overall growth in population, the number of people dependent on agriculture has, in fact, grown very substantially. Indian agriculture thus presents a picture of a larger number of people dependent on a lower share of GDP. Efforts to ease this pressure are constrained by the fact that the net sown area in India has not grown significantly since the 1960s (Bhalla and Singh, 1997). The entire emphasis then is on cropping the same piece of land more frequently. And irrigation forms an essential part of this dream.

To make matters worse, there are indications of an increasing dependence on river waters. Other more local sources of water are already under intense pressure. The centuries-old tank irrigation network is, in most parts of India, in a state of extreme disrepair, leading to a massive decline in the area irrigated by tanks.⁸ In urban areas, there is an economic incentive to hasten the decline of this water source, as tank beds can be converted into expensive real estates. The

⁷ For a comparison across states, see Pani and Jafar (2008).

⁸ Noting that the decline in tank irrigated area is a common feature across the country, the *Jala Samvardhane Yojana Sangha* of the Department of Water Resources (Minor Irrigation), Government of Karnataka, records that "The actual area irrigated by [Karnataka's] tanks have shown a consistently declining trend with the current irrigation at 2,40,000 ha. This is only 35% of the total potential." <http://www.jsysindia.org/TIK.asp> accessed on 10 July 2009.

unregulated use of groundwater has also resulted in the gross over-utilization of this source (Singh and Singh, 2002). Not surprisingly, the dependence of cities on river waters has also increased. Chennai has had the benefit of an agreement between neighbouring states, giving it additional water from the Krishna. Bangalore's dependence on the Cauvery for its water has also grown quite rapidly.

These water-related pressures have been given an additional dimension by national political trends. The 1980s can be seen as one of the turning points in the emergence of regional identities in Indian politics. It was marked by the rise of a variety of regional movements across the country from Punjab to Assam and down to the southern states. The nature and intensity of these movements did vary quite substantially – from secessionist terrorism in Punjab to greater assertiveness within the Indian union in states like Karnataka and Andhra Pradesh. It was perhaps only to be expected that this trend would have its effects on river water disputes as well. It may not be entirely coincidental that the decades after 1980 have seen states being less willing to accept the verdict of Tribunals. The challenges of sharing the water of individual rivers too have tended to be increasingly articulated in inter-state terms. In rivers like the Cauvery, disputes over water sharing could occur just as easily within as well as between states. One of the major disputes over sharing the waters of this river in the 1970s was over the Varuna canal, which saw a clash of interests between farmers of two districts in Karnataka.⁹ But since the 1980s, the focus has been entirely on the sharing of waters between states. And disputes between linguistically defined states provide a prominent place for language and linguistic identities. The response in Karnataka to issues related to the sharing of Cauvery waters is not confined just to the basin but extends to Bangalore. And in Bangalore, the agitations are typically dominated by the same groups that lead language and identity based politics in the state.¹⁰

It is important to note that the impact of such external factors on water disputes and the Tribunals set up to address them need be uniform. The factors involved would themselves vary from situation to situation. Language, for instance, would tend to play a far more potent role in disputes between states that have a history of language tensions than in conflicts between states where such tensions do not exist. Much would also depend on the response to public discontent. One of the reasons why tempers on the Cauvery dispute did not reach the levels they had in 1991, in the following years, was the fact that the governments, both in Delhi as well as in Karnataka and Tamil Nadu, chose not to take a purely legalistic approach to the issue

⁹ In 1978, farmers in Mandya had protested against the construction of the Varuna canal that was meant to irrigate Mysore district (Jayaram, 2002).

¹⁰ Organisations like the *Karnataka Rakshana Vedike* have been leading agitations in both, on issues like the Cauvery water dispute as well as demanding the primacy of Kannada language in Karnataka.

and force the awards on an unwilling population. Indeed, even the Supreme Court has been wary of insisting on an immediate implementation of the Cauvery Tribunal's final order, regardless of the social tensions on the ground. The nature and impact of external factors on the functioning of a Tribunal would then need to be understood on a case by case basis.

Putting the Tribunal in Context

The divergence between the two dimensions of the Rawlsian concept of institutions is clearly quite substantial in the case of Water Dispute Tribunals in India. The technical aspects of the disputes, such as the rights of individual states to the water and the principles to be used in apportionment, are complex enough. But when we enter the realm of reactions to the dispute, a number of other equally complex, and frequently much more intangible, elements enter the picture. The links to identity politics in particular have sometimes led to situations that are very volatile. The considerable distance between the technicalities of water sharing and the aggressive postures on the street of identity politics makes it rather difficult for practitioners in one to relate to the other. It is tempting for the technical experts to simply hope that the central government will demonstrate the strength to make the pressures of identity politics irrelevant. Such expectations are however based on a gross underestimation of the very real link between an essential requirement like water and identity politics.

In order to understand this link, we need to make explicit the distinction between the river basin and the territory covered by the users of the river water. The boundaries of the river basin are determined by the catchments of the river. The usage of the water from the river can extend beyond the basin. In a relatively backward agrarian economy that does not have the ability to divert river waters for irrigation, the two territories may be broadly the same. But technology can substantially change this situation. Large storage dams and irrigation networks can take the water to fields outside the basin. Large scale urbanisation outside the basin can also add to the demand for river water. Rapid industrialisation outside the basin too can create a fresh source of demand for the water. To the extent that we consider urbanization and the development of non-agrarian economies as essential features of development, we can expect that over time, the divergence between the boundaries of the river basin and that of the territories that use the river water will only grow.

The non-basin users of the water, in turn, represent very diverse interests, which can generate their own conflicts over water. The demands of water-intensive industries would have to be balanced against the drinking water needs of the population. The need to provide free drinking water to the poor can lead to higher prices for water being paid by the non-poor. The political mobilization of these groups requires them to be brought under a common umbrella. Language

and regional identities provide large umbrellas. Thus, as long as there are diverse groups outside the basin that share a common interest in water, there will be a temptation to link the politics of water to that of identity.

Inter-state river water disputes are thus a reflection of a larger set of tensions thrown up by changing relationships in a number of areas. A meaningful effort to resolve the conflict would then require a multi-dimensional approach. Such an inclusive approach would address at least three important aspects of the issue.

First, it would recognize the divergence between a river basin and the areas utilizing the waters of that river. It would be prepared for the possibility that economic development will shift an increasing portion of the water from the basin to areas outside the basin. This shift need not be confined to what is made possible by large irrigation projects. It could also be the result of increasing non-agrarian uses of river waters. This shift will have to be managed in a way that is consistent with the availability of water. A crucial element in such a management strategy would be water pricing that reflects the scarcity of this resource as well as other priorities such as the provision of drinking water to all and the need to ensure sufficient water for the production of food crops.

Second, an effort would have to be made to ease the existing pressures on water. A variety of steps would be needed to improve the efficiency of water usage, ranging from the prevention of wastage to ensuring that scarce drinking water is not used where reusable water would suffice. The problem of a greater number of people than required being dependent on a unit of land, and irrigation water, would also have to be addressed. The availability of alternative occupations will help reduce the dependence on irrigated agriculture for a livelihood.

Third, it must be recognized that, notwithstanding the fact that there are a large number of dimensions to water issues, Tribunals have a critical role to play in the resolution of inter-state disputes. Much as we have emphasized the need to be comprehensive in the approach to water issues, it does not, in any way, diminish the importance of at least two roles that the Tribunals play.

First, a significant degree of legal knowledge is required when determining the principles to be used when apportioning river waters. This knowledge is unlikely to be available outside the judiciary. Since a Tribunal, by law, consists only of senior members of the judiciary, it is equipped to handle this task. There may still be the odd error in the functioning of a Tribunal. It could be argued that the failure of the Cauvery Water Disputes Tribunal to include a distress sharing formula in its interim order was a major error. It meant the upper riparian state had to bear the entire burden of a failure of a monsoon. But given the complexity of the issues

involved, it is only to be expected that the possibility of legal errors is less when the exercise is carried out by members of the judiciary.

Second, the Tribunal has the ability to investigate the specifics of each river basin with a degree of independence and detail that would be beyond the scope of other judicial institutions. It is unlikely that other institutions, including the Supreme Court, would have the time to go into a specific river water dispute with the same degree of detail as a Tribunal that has years to do so. The Tribunal is thus, in a unique position to merge technical knowledge with judicial experience.

The effectiveness of a Tribunal can also be enhanced if its structure can be modified in a way that allows it to address at least some of the factors that are currently considered to be outside its purview. In the current arrangement, there is no reason why a Tribunal, looking only at the technical and judicial aspects of a dispute, must come up with solutions that are acceptable to state governments that are sensitive to the political dimensions of that dispute. One way to bridge the gap between Tribunals and state governments would then be to allow place for a wider set of interests within the Tribunal. A Tribunal could first identify the major stakeholders in the dispute and then go on to co-opt representatives of each stakeholder. The solutions offered by such a broader Tribunal may not still be the same as those demanded by an elected state government. But to the extent that the Tribunal would now be looking beyond the technical and judicial aspects alone, the gap between its view and that of an elected government is likely to be narrower.

To answer the question we started out with, the Tribunals have an essential role to play in addressing the technical and judicial aspects of inter-state river water disputes. But there are other dimensions to these disputes that are equally important to address which fall well beyond the capabilities of even the best equipped Tribunal. The effectiveness of a Tribunal would then depend not just on what it does, but also on what is done to address factors beyond its control.

References

Bakshi, P.M. 2005. *The Constitution of India*, Delhi, Universal Law Publishing Co Pvt Ltd.

Bhalla, G. S. and Singh, G. 1997. Recent Developments in Indian Agriculture: A State Level Analysis, *Economic and Political Weekly*, 32(13): A2-A18.

Iyer, R.R. 1994. Federalism and Water Resources, *Economic and Political Weekly*, 29(13): 733-736.

Iyer, R.R. 2002. Inter-State Water Disputes Act, 1956: Difficulties and Solutions, *Economic and Political Weekly*, 37(28): 2907-2910.

Jain, M.P. 2005. *Indian Constitutional Law*, Fifth Edition, New Delhi, Wadhwa and Company Nagpur.

Jayaram, A. 2002. Govt. cannot disobey SC order, *The Hindu*, Sunday Oct 6. <http://www.hindu.com/thehindu/2002/10/06/stories/2002100601670400.htm>, accessed on 10 July 2009.

Pani, N. and Jafar K, 2008. *Mass-education led growth and non-agrarian villages: Long-term results of the Kerala model*, National Institute of Advanced Studies, Bangalore (Mimeo).

Rawls, J. 2000. *A Theory of Justice*, Delhi, Universal Law Publishing Co Pvt Ltd.

Sebastian, P.A. 1992. Cauvery Water Dispute and State Violence, *Economic and Political Weekly*, 27(27): 1371-1372.

Singh, D.K. and Singh, A.K. 2002. Groundwater Situation in India: Problems and Perspective, *Water Resources Development*, 18(4): 563–580.

NEW LAWS ESTABLISHING INDEPENDENT REGULATORY AGENCIES IN THE INDIAN WATER SECTOR: Long Term Implications for Governance

Subodh Wagle¹ and Sachin Warghade²

Abstract

Independent Regulatory Agencies (or IRAs)³ are new governance mechanisms introduced at the state level in the Indian water sector through special laws, which bring in comprehensive and fundamental changes in governance of the sector. This paper aims at examining these changes and their impact on the governance of the sector as well as on the interests of the 'non-dominant' sections of society.

Keywords

Water Sector Reform, Independent Regulation, India, Reform Laws, Water Governance

The paper focuses on the five aspects of the structure and functioning of the IRAs as defined by the laws: Process of Formulation of the Laws, Selection of Members of IRAs, Composition of IRAs, Procedural Matters in the Functioning of the IRAs and Substantive Matters in the Functioning of the

¹ He is a Professor at the Tata Institute of Social Sciences (TISS), V. N. Purav Marg, Deonar, Mumbai, 400088, India, Email: subodhwagle@gmail.com

² He is a Senior Research Associate in the Resources and Livelihoods Group, PRAYAS-Pune at B-21, B.K. Avenue, Opp. Paranjpe School, New D. P. Road, Azadnagar, Kothrud, Pune-411038, India, Email: sachinwarghade@gmail.com

³ Independent Regulatory Agencies is a term to denote a category of organizational mechanisms which are given the "regulatory" functions and are supposed to be "independent" of the state. Such agencies can take different organizational forms in different sector across countries such as an "Authority" or "Commission" in the case of India.

IRAs. The findings are based on the analysis of the three laws and inputs received through interactions with members of key stake-holding groups in the water sector. On the basis of key findings, the paper concludes that the IRA laws effectively disenfranchise non-dominant sections of the society. The new water 'entitlements' regime to be established by these laws would near-permanently quash hopes of non-dominant sections of getting access to water. The changes brought in the governance system would not only delegitimize the IRAs themselves, but would also seriously jeopardize smooth and efficient governance of the sector. The emerging situation in the state of Maharashtra, however, indicates some possibility of positive change.

Background

Like many other developing countries, India initiated broad-based economic reform in 1991, in the wake of a brief period of monetary crisis. The economic reform brought in a long list of changes in infrastructure sectors, which are often described as fundamental, comprehensive, and irreversible. The sectoral reform included a set of measures—which are referred to as (organizational) 'restructuring' of the sectors—that involved comprehensive and fundamental changes in the roles, responsibilities, authorities and relationships among the main actors in the sectors. Restructuring measures also included equally fundamental institutional changes in the form of changes in basic principles, norms and procedures concerning key matters of governance of the sectors. Restructuring measures—both organizational and institutional—were primarily aimed at eliminating the monopoly of the state in governance of the sectors and simultaneously, facilitating entry and a significant role for private interests in the sectors.

The rationale underlying reforms and restructuring is too well-known to merit detailed elaboration here. The rationale argued that the state had monopolized and taken control over all the governance roles, including the responsibilities of policy-making, provision of services or goods (which included implementation and making executive decisions) and regulation of governance.⁴ This led to serious erosion in the overall efficiency and effectiveness of governance, severely affecting the overall performance of the agencies in the sectors and precipitating the financial crisis that crippled most infrastructure sectors. Hence, the state should do what it could do effectively and leave other roles to other agencies, including the private sector agencies. Based on this line of thinking, the prescription was three-fold: (a) divesting all responsibilities from the state other than that of policy-making, (b) entry of private sector agencies for taking over the function of provision and the responsibilities that come with it (i.e., implementation and making executive decisions), and (c) establishment of independent regulatory agencies (or IRAs) (Wagle and Dixit, 2006).

⁴ Here, regulation of governance essentially means monitoring the other functions of the governance (i.e., policy-making and implementation/ making executive decisions) and ensuring that the relevant laws, rules and norms are adhered to. It also includes arbitration.

This broad generalized story of infrastructure sectors fits very well to sectors like electricity.⁵ The story of the water sector has some variations, though the main-stay of the story remains more or less the same. The main root of these differences is the distinct nature of water as a resource. It is a resource that cannot be generated; it existed before the entry of the state and the state can only increase the scale of its tapping and distribution. The presence of the state in the Indian water sector certainly grew by leaps and bounds in the post-independence era, especially through a large number of dams and irrigation projects—of different types and different scales—that largely tapped water from the pre-existing sources. This type of intervention by the state made water available in a larger proportion, in many cases, to a limited number of (and new) water users, by encroaching upon the water use and rights of traditional beneficiaries of old water sources (Thakkar, 2009). This naturally gave rise to intense contestation over water, creating a strong politics among a large number of stakeholders with substantial stakes. Other reasons apart, the contestation and politics over water gave rise to various movements and struggles demanding rights over water or to gain control over water. The contestation and politics also attracted a large number of academic and other researchers—not only engineers and economists but sociologists, political scientists and anthropologists—who not only created a significant body of knowledge but also significantly contributed to informed awareness among policy-makers and implementers about the benefits and costs of the prevailing model of development of the water sector. The analysis of the problem existed right from the 1980s (Wade, 1980; Wade and Chambers, 1980; Datye and Patil, 1987). One cannot resist comparing this with the situation in the electricity sector. In absence of intense contestation, strong politics and independent research, the energy sector suffers from myopic vision and autocratic rule of engineers and economists in the mainstream institutions of the sector. This, to some extent, is also true for the water sector, despite the active involvement of social movements and researchers, especially, social scientists (PRAYAS, 2007a).

The informed awareness due to contestation, politics and independent research gave rise to demands and pressure for reforms in the water sector well before the sectoral reform in other infrastructure sectors were envisaged by the mainstream agencies. Two examples of responses by the mainstream agencies to these demands could be cited. First, these mainstream agencies accepted the ‘principle of participation’ and promoted participation of farmers in irrigation management, which in fact, was the traditional practice in many Indian states. Second, the mainstream agencies have also accepted the principles of Integrated Water Resources Management (IWRM), which bring an integrated perspective and planning approach to the water sector. This, however, is not to claim that these reform measures had perfect designs or that they were widely implemented across the country, or that they were successful in achieving underlying objectives. Further, though these reform initiatives were progressive in nature, the same did not guarantee the results expected by the demands for reforms made by civil society actors.

⁵ A comparison with electricity sector is made in this paper on more than one occasion since the IRAs in the water sector are modeled around those in the electricity sector. For example, the quasi-judicial nature of IRA, composition of IRAs and the functions like tariff determination are modeled around the electricity sector IRA. For the same reason, the regulatory agencies from the other infrastructure sectors are not discussed in this paper.

The reforms in the water sector are now entering a new phase, which seem to be driven by the 'sectoral restructuring' model followed in the other infrastructure sectors. The cornerstone of this phase of the reform is establishment of new organizations called 'independent regulatory agencies' or IRAs. Though there has been discussion on IRAs in the water sector for some years, in India, the progress until now has been slow and their spread has been limited. The first-ever state-level water sector IRA was established in the Indian state of Maharashtra in 2005. In 2006, the state of Arunachal Pradesh passed a similar law. In 2008, the biggest Indian state, the state of Uttar Pradesh (UP) passed an IRA law and is in the process of establishment of the IRA. The state of Andhra Pradesh followed suit and enacted an IRA law in August 2009. The IRA tide, for various reasons, is expected to gather more force soon and spread to the other states (PRAYAS, 2009c). Other states and sponsoring international agencies like the World Bank have been watching the progress of the IRA in Maharashtra (Briscoe and Malik, 2007). Considering the rather smooth working of the Maharashtra IRA for almost four years, these agencies will now move into the next stage of spreading the IRAs to other states. The wide spread of electricity sector IRA across the country, in two stages, exhibit a similar trend. An indication of such transition to the next stage could be seen in the strong recommendation to form state water IRAs—on the lines of Maharashtra—in the XIth Plan Period (2007-12) Report by the 'Expert Group on Water Resources' appointed by the Planning Commission (Gol, 2006). Another important favorable factor is the financial provisions and conditionality pertaining to establishment of IRAs in agreements for water sector projects funded by the World Bank in different Indian states. (WB, 2001, 2005b, 2006)

Conceptual Framework and Research Design

This paper relies on a framework suitable to investigate the theme mentioned in the title of the paper. The paper looks at the possible implications of the new agency of governance as well as the new IRA laws. The argument is that the IRA laws are bringing in comprehensive, fundamental and often 'near-irreversible' changes in the governance of the sector. By creating a new governance agency vested with crucial roles, responsibilities and wide powers, the IRA laws introduce organizational restructuring in terms of rearrangement of roles, responsibilities, powers, interrelationships and accountability connections among the main entities involved in the sector. Apart from restructuring of the organizational arrangements, the IRA laws also give rise to new matters for governance of the water sector. For example, the laws introduce the concept of 'entitlements' and introduce a governance system (comprising of rules, norms, procedures and organizational mechanisms) required to govern the entitlements. Further, the IRA laws introduce new principles of governance and emphasize or de-emphasize certain other principles in the sector. For example, the IRA laws emphasize on the principle of financial sustainability and full recovery of costs through tariff, deemphasizing the principles of 'cross-subsidy' or 'affordability' in the process. In the light of these new principles, some of the old concepts and aspects or matters of governance will acquire new meaning and will create new demands not only on the governance system but also on the stakeholders. For example, tariff was earlier seen largely as 'charges to be paid by *beneficiaries* to the extent possible (affordable) for them'. However, in new circumstances, the tariff is an instrument for ensuring full recovery of costs of the utility from the *consumers*, and hence, financial sustainability of utility. This change puts new demand on the utility to

calculate and justify annual revenue requirement (ARR) as well as cost and service efficiency. At the same time, it requires civil society organizations to participate, in an informed and analytically sound manner, in exercises like assessment of ARR as well as monitoring of cost and quality of service.

The paper traces different types of changes in the governance system brought in by IRA laws in terms of governance principles, norms, procedures, organizational arrangements and accountability-relationships. It also assesses the implications of these changes for the capacity of different stakeholders to influence the governance of the sector. The main concern of the paper is the implications of the reform for ‘non-dominant’ stakeholders⁶ such as common citizens, poor consumers and non-consumers. The paper attempts to ascertain possible impacts of IRA laws on capacities of the ‘non-dominant sections’ to influence the governance process in the sector. These are to be contrasted with the capacities of the dominant stakeholders such as the state governments, state bureaucracy, the World Bank, the corporate sector and the mainstream political parties.

The research objectives for the paper are the following:

1. To assess implications of the new IRA laws in terms of changes in: (a) norms, principles and procedures of governance of the water sector, (b) rules, responsibilities, powers and interrelationship among the main stake-holders in the sector
2. To examine possible impacts of these changes in the governance system, primarily on the ‘non-dominant’ sections of the society.

The primary research method used is the analysis of the content of the relevant laws from the three states that have enacted laws to establish IRAs in the water sector. The authors have been involved in diverse activities, in addition to research around the theme of water sector regulation. During these activities, the authors have been able to engage in personal conversations, communications as well as informal interviews with representatives of different stake-holding groups. The inputs acquired through these are also used in the paper. Moreover, the authors have drawn from the understanding and insights gained by one of them during the research, analysis and advocacy work on electricity sector regulation for more than a decade.

For the purpose of analysis, the main data used are the laws of the three states in India—viz., Maharashtra, Uttar Pradesh (UP) and Andhra Pradesh (AP)—that define and establish the IRAs in the water sector in these three states. The full names of these laws are: (a) Maharashtra Water Resources Regulatory Authority Act, 2005 (GoM, 2005), (b) Uttar Pradesh Water Management and Regulatory Commission Act, 2008 (GoUP, 2008), and (c) Andhra Pradesh Water Resources Regulatory Commission

⁶ For the purpose of this paper, “non-dominant” stakeholders would also include: civil society organizations (CSOs), non-party political organizations, small political parties, and organizations of other ‘non-dominant’ stakeholders like farmers. They are considered “non-dominant” because they have very low level of influence on the governance processes in the sector in contrast with “dominant” sections such as the state government agencies, mainstream politicians, bureaucrats, the corporate sector, IFIs and consulting firms.

(draft) Act, 2009 (GoAP, 2009). The law of the fourth state that has enacted IRA law, Arunachal Pradesh (ArP) (GoArP, 2006) is not considered separately here as it is almost a section-to-section copy of the Maharashtra IRA law.⁷

For the assessment of these three laws with the perspective described above, the laws are divided in groups of provisions that define different aspects of the structure, processes and functioning of the IRAs. These also include the process of formulation of IRA laws. The paper identifies five main aspects (along with seventeen sub-aspects) for this purpose: (a) Formulation of IRA Laws, (b) Selection Procedure for Members of IRAs, (c) Composition of IRAs, (d) Functioning of IRAs: Procedural Matters, and (e) Functioning of IRAs: Substantive Matters. Provisions from the three laws pertaining to each of the aspects are analyzed to see how the provisions will change different elements of the governance system. For analysis of the impact of these changes in the governance system on the interests of the 'non-dominant' stakeholders, the paper looks at the same five aspects.

Analysis and Findings

Formulation of IRA Laws

Process of Formulation of the Law

The structure and functioning of the IRA are defined through a special law enacted for the purpose of creating the IRA in each of the three states. Hence, the process of formulating or drafting the law is critical not only for shaping its structure and functioning but also for determining its credibility among the stakeholders. The following observations bring out critical elements of the process of formulating the IRA laws as conducted in the four states.

First, there has been no prior disclosure of the bills or public consultations on contents of the laws with stakeholders while drafting the IRA laws in the three states of Andhra Pradesh, Uttar Pradesh and Arunachal Pradesh. There was no indication from the respective governments of their intentions to bring in such bills, except in the case of Andhra Pradesh. The State Water Policy (SWP) of Andhra Pradesh that was published a few months before the bill was introduced did mention the IRA. However, there was no official disclosure or consultation on the policy before or after its publication (GoAP, 2008; GoM, 2003; GoUP, 1999). Government of Maharashtra published its SWP in 2003. But the first draft of the IRA bill could be traced back to 2002⁸. So even though the SWP came after the first draft of the IRA bill, there is no mention of IRA in the SWP, despite the SWP being the official mechanism for discussing and disclosing the intentions and plans of the government.

⁷ Hereafter, in the paper, the law in Arunachal Pradesh is referred only when the process of preparing the law is discussed. However, the Arunachal Pradesh Law is not referred to separately when the content of the laws are discussed since it is similar to the law in Maharashtra.

⁸ The draft in Marathi language is available with the authors.

Second, the Maharashtra government conducted consultations on the draft of the bill. These consultations were limited to a small number of NGOs and were conducted in an unaccountable manner. The representatives of the civil society organizations complained that they were not provided any copies of the minutes or proceedings of these consultations.⁹ The copies of the proceedings obtained by the authors using the Right to Information Act, show that no detailed or comprehensive proceedings were prepared after these consultations. The proceedings do not record presence of many civil society representatives who attended the consultations; neither is there any mention of the suggestions or comments they made. This indicates the lack of seriousness of the government regarding the consultations and the suggestions from the participants. These consultations are used by the MWRRA, the state government, the World Bank and other supporting agencies to claim participatory process and gain legitimacy for the law (WB, 2005a). There are significant differences in the draft presented for discussion in the consultations and the bill that was presented in the legislature. The comments and suggestions given in these consultations were also not incorporated in the final bill.¹⁰

Third, the manner in which the bill was introduced and passed in the legislative assembly was objectionable. In Maharashtra, the bill was introduced and passed by 'voice vote' as one among the sixteen bills introduced and passed in the last hour of the last day of the assembly session (Sainath, 2005). As a result, there was hardly any debate on the particular bill inside or outside the legislature.

The three state governments of Uttar Pradesh, Andhra Pradesh and Arunachal Pradesh apparently did not feel the need to consult the other stakeholders. This clearly indicates that the processes of formulation of the IRA laws in all the four states were opaque, non-participatory and unaccountable.

The formulation and enactment processes nipped in the bud any possibility or opportunity to common citizens, water users or poor sections of society to influence the structure, compositions or functioning of IRAs. As a result, a lot of suspicion was created about the intentions of the government, which led to alienation of civil society and organizations of other stakeholders. This alienation has eroded legitimacy of the IRA and its credibility and acceptance among most stakeholders, including political representatives¹¹. It has also adversely affected awareness and interest about the IRA among stakeholders, affecting their willingness to participate in processes initiated by IRA. The success of measures and decisions by IRA critically depends on participation of these stakeholders.

⁹ This is based on inputs from interview with one of the office bearer of a non-ruling political party, who participated in the consultation on the draft MWRRA bill.

¹⁰ This is based on analysis of: (a) the various drafts of the bill, (b) the proceedings of the consultations procured through Right to Information, and (c) interviews of people who participated in the consultations.

¹¹ This is clear from various responses of political parties and other stakeholders during consultation meetings organized by MWRRA on water tariff. It was found that after repeated efforts by CSOs and claimed efforts by MWRRA there was very low turnout of political parties or their representatives in the consultation meetings. Those who participated took a strong position on the very credibility of MWRRA and the process initiated by them.

Credibility of Organizations Involved in Formulation of the Laws

The nature of the process adopted for passing the IRA laws thus defines not only structure and functioning of IRAs but also affect their credibility and acceptance. Equally important is the credibility of the organizations who are involved in the formulation of the laws.

Primarily two agencies are involved in formulation of the IRA laws. The first is the state government, which is often seen by civil society as the conduit for vested interests, operating through administrative and political functionaries¹². A variety of individuals and civil society organizations seem to perceive that the primary cause and main culprit behind the current problems in the water sector is the government¹³.

The second agency involved is the World Bank, which is seen by a large section of media, political establishment and CSOs as an agency that is not only arrogant and condescending towards the host country and its people, but also as an agency pushing an anti-people agenda of privatization¹⁴. The privatization agenda is claimed to be based on a 'fundamentalist pro-market ideology' and driven by foreign interests, especially those of multinational corporations (Dwivedi et al., 2007).

With such a public image, these agencies are handicapped in securing credibility and acceptance for any product of their joint action from the outset. Their actions and the impressions they created during the process of formulation of the IRA laws further aggravated the problem.

First, in none of the states, grounded analysis was carried out to investigate: (a) suitability of the IRA as a solution to local or state-level water problems, (b) suitability of other options for resolution of the problems, or (c) possibility of variation in the design of the IRA pushed by the World Bank and borrowed from the electricity sector. Therefore, it is perhaps also not surprising that there hardly is any fit between the IRAs and the sectoral vision held by the state governments. Possibly, as a result, SWP of Maharashtra does not have any mention of the IRA.

Second, even the top officials and political functionaries involved in the formulation of the IRA laws openly, though informally, complain about the 'tremendous' pressure exerted by the World Bank to completely accept its model while formulating and enacting the IRA laws¹⁵. There are crucial differences

¹² This has been repeatedly shared by senior state-level and national-level activists during consultations on the theme of IRA.

¹³ Opinion and remark to this effect have been repeatedly expressed in formal and informal consultations with civil society organizations and individuals.

¹⁴ This is how these two organizations (viz., government and WB) are described by a large section of CSOs, media-persons, and representatives of the farmers' organizations during the consultations and workshops.

¹⁵ The interviews of the top officials have brought out this complaint repeatedly. While participating in seminars and workshops organized by research institutions, officials from various states like Maharashtra, Tamil Nadu, Andhra Pradesh and Uttar Pradesh have described their efforts to fight the pressures from the World Bank.

in the drafts of the bill put forth by the Government of Maharashtra at two stages of the process. In an earlier draft of the bill, there was not even a single reference to proposed provisions introducing 'market' principles in water rights (such as tradable entitlements). But, the final bill passed in 2005 clearly specified entitlements as use-rights that can be traded through a market mechanism¹⁶. The main features that are common (with some variations) to the three IRA laws—determination of "Entitlements", Trading of Entitlements, and Tariff determination—are the core reform recommendations in the discourse and policy documents authored or published by the World Bank (World Bank, 2005a; Briscoe and Malik, 2007).

Third, the 'Water Sector Improvement/Restructuring Projects,' funded by the World Bank (WB), are being implemented or in the pipe-line in various states—including Maharashtra, Andhra Pradesh and Uttar Pradesh (World Bank, 2005b, 2001, 2006). The official documents related to these projects clearly mention establishment of IRA as a condition (with varying degrees of compliance specified) for providing the loan to Uttar Pradesh and Maharashtra. In fact, the website of the 'Bank-Netherlands Water Partnership Program' (BNWPP) clearly shows that a technical assistance was provided to the state of Maharashtra for institutional reforms, including preparation of draft MWRRA Act (BNWPP, 2003). However, the state government officials in formal and public meetings tend not to mention about the conditionality or the technical assistance and hence, underplay the role of WB¹⁷.

The public image of these organizations as well as their actions and the impressions they created during the process of formulation of the IRA laws have serious implications; for example, in the form of severe erosion of credibility and acceptance of the laws and their products (i.e. the IRAs) in the minds of a large section of stakeholders, including civil society and organizations of other stakeholders such as farmers and urban consumers. The alienation created by this lack of credibility has resulted not only in the lack of acceptance and support, but also, in fact, turned into open and large-scale antagonism when the Maharashtra IRA tried to conduct hearings on the Tariff Approach Paper¹⁸.

Selection Procedure for Members of IRAs

This section discusses the selection of members of the IRA. This selection is a key aspect because independence and performance of the IRA critically depends on the quality and capability of its

¹⁶ This is based on the comparative analysis of the MWRRA Act, 2005 and the draft bill circulated in 2002.

¹⁷ This is based on the response given by MWRRA officials in a conference organized in Pune to a question on role of WB in MWRRA law. This is also based on the information available at various official websites of the government and MWRRA.

¹⁸ This was recorded in process documentation done by authors of the consultation meetings conducted by MWRRA on its Tariff Approach Paper. While the antagonism partly resulted from the content of the Approach Paper, it was also rooted in the distrust of the state government, WB, and the IRA.

members. The public image of the IRA and its members is created by the manner in which they are selected, and on this basis, they will be pre-judged before they have any chance of performing their tasks.

Composition of the Selection Committee

All three IRA laws provide for a special Selection Committee to identify candidates, assess them and recommend two names per vacancy in the IRA to the agency making the final selection. Though the logic of having the Selection Committee or its special role is not indicated in the law, the idea seems to be that a separate and special selection committee would be a mechanism to ensure independence and autonomy of the chairperson and members of the IRA from 'political interference'. It needs to be noted that the term 'independence' here is used to indicate 'independence' from the state, and more precisely, from interests that operate through political and administrative functionaries of the government. It is interesting to look at the composition of the Selection Committee and the procedure employed for selecting the candidates in this light.

The composition of the Selection Committee seems to be largely similar in all the three laws. In the case of Maharashtra, the Selection Committee is comprised entirely of top-level officials from the state bureaucracy. This includes the Chief Secretary (the top-most level civil servant) of the state as well as 'Secretaries' (the top-most official in departments) of about eight departments in the state government. The final selection is, however, done by the Governor of the state, who is not part of the executive branch of the state government, but, who often follows advice from the government.

In the case of the IRA law in Andhra Pradesh, the composition of the Selection Committee is the same as that of Maharashtra. The only difference is that the Committee includes Secretaries of only three (instead of eight) departments of the state government.

In the case of the law in Uttar Pradesh, the Selection Committee is comprised of the Chief Secretary of the state, Secretaries of two departments of the state government and the Chairman of the Central Water Commission. Importantly, the Director of the Indian Institute of Management at Lucknow (the capital of the state) is also a member of the Selection Committee. However, the final selection of the members from the two candidates suggested by the Selection Committee will be done by the state government itself.

In comparison, the composition of the Selection Committee for the Central Electricity Regulatory Commission (at the federal level) includes one non-governmental member (Reference: Section 78-1, 78-3 of E-Act), while the Selection Committee for the state-level Electricity Regulatory Commission is headed by a retired judge of the High Court (Reference: Section 85-1 of E-Act) (GoI, 2003).

Though the law in Uttar Pradesh tries to temper bureaucratic monopoly (that existed in other states) by inclusion of one outsider, it is very clear that the top-level bureaucracy at the state level has dominance in membership and hence, there is a danger that it could exercise higher control over the Selection

Committee. The situation is worse in the case of the laws in Maharashtra and Andhra Pradesh due to the absence of provision for inclusion of an outsider.

In this regard, the argument for bureaucracy, as per our analysis, is that the top-level bureaucrats are entrusted with this responsibility because the bureaucracy is the only institution (not involving politicians) that has three qualifications needed in order to be vested with the responsibility and authority of selecting members of an independent agency, which is going to make economically and politically critical decisions. These three qualifications of the top-level bureaucrats include: (a) clear constitutional legitimacy, (b) well-defined public accountability, and (c) long-standing stakes in governance and government.

Simultaneously, however, and as noted above, the same bureaucracy is also seen by segments of the public and civil society as a conduit for interference by vested interests, which the IRAs are expected to curtail. Handing over the responsibility of selection to top-level bureaucrats from that bureaucracy may thus be regarded as contradictory. The bureaucrat-dominated selection Committees for IRAs in water sector have ended up selecting retired bureaucrats in an overwhelmingly large number, even on the posts of 'experts' where members from other organizations could have been selected.

The makers of the IRA laws in the water sector had, before them, the IRA laws in the electricity sector. The electricity IRA law tried to avoid the monopolistic control by state-level bureaucracies of the Selection Committee. However, this aspect gained very limited following in the water sector. The water IRA law in Andhra Pradesh that came after the law in Uttar Pradesh did not bring in the provision of one member from an independent institution that had been part of the IRA law in Uttar Pradesh.

The domination of the Selection Committee by one set of stakeholders is likely to preclude reflection of the perspectives and preferences of other stake-holding groups. As a result, the IRAs may become as lop-sided as the Selection Committees, with possibly adverse implications for the functioning of IRAs as well as for the outcome of their functioning.

A serious effect of such a lop-sided structure of the Selection Committee is the suspicion, alienation and lack of interest among the other stakeholders that it generates. These stakeholders start looking at IRAs as an agency turned by the top-level government officers into an agency for post-retirement accommodation for their retiring colleagues¹⁹.

Process of Selection of Members of IRA

As discussed in the case of the process of formulation of the laws, the manner in which any process is conducted significantly affects the quality, credibility and acceptance of the product of the process. This

¹⁹ A prominent leader of the farmers in Maharashtra publicly made a direct remark to this effect, while addressing the MWRRA members during the consultation organized by MWRRA in Pune on 21st January 2010.

is also true in the case of the process of selection of members of the IRA by the special Selection Committee. The following are some observations on the process of selection of IRA members.

First, there are no provisions in any of the IRA laws that lay down a concrete procedure for selection of chairmen or members of the IRAs. Neither are there any rules framed by the government or other institutions which lay down a detailed procedure including the criteria of selection or mechanisms of transparency. The law in Uttar Pradesh contains some provisions in this regard (Sections 6-3, 6-6, 6-7) which provide for some qualitative criteria related to performance, ability and integrity of the candidate members. The provisions also require the person being considered for selection to disclose information regarding possible conflict of interest as well as to report relevant information to the Selection Committee. The law in Uttar Pradesh also includes a provision asking the state government to make rules laying down the procedure for selection and appointment of the chair and members, a provision not included in the laws in Maharashtra or Andhra Pradesh. The Maharashtra and Andhra Pradesh laws are silent on the procedure to be adopted for selection of candidates.

Second, none of the laws have a provision for allowing participation of members of other stake-holding groups in the affairs of the Selection Committee. However, such participation could have been solicited at various stages and in various degrees. For example, there is no provision in the law for the Selection Committee to invite the public in general or members of other stake-holding groups to suggest names for candidates (minimal level of participation, at the initial stage of the process). The Selection Committee is also not mandated to conduct public hearings on the list of recommended candidates as done in other countries for critical posts (very high level of participation, at the last stage of the process). There certainly are some costs of different mechanisms for participation, but they should not be dismissed before considering the benefits.

Finally, there is no provision to ensure accountability of this high-power committee. There is not even the minimal provision in any of the IRA laws for preparation of a post-facto report by the Selection Committee on the procedures adopted for identification, assessment and finalization of the candidates for the post of IRA members. Neither are there any legal provisions for voluntary or automatic disclosure of such a report of the selection procedure to the legislature or public.

The above suggests that the procedure for selection of members of IRA is opaque, non-participatory and unaccountable, effectively giving a blank cheque to the top-level bureaucrats dominating the Selection Committee. As a result, suspicion and alienation created due to the composition of Selection Committee are aggravated further, bringing into increased danger the credibility and acceptance of the IRA and its orders.

Composition of IRAs

Any governance agency is significantly influenced by the capabilities and performance of its members. In this section, observations regarding provisions in the three laws relevant to capacity and performance of their members are discussed.

'Reservation' for Chairman's Post

The IRA is headed by the Chairperson, who enjoys special powers given by the law. Hence, it is important to assess the eligibility criteria for the Chairperson.

In the Maharashtra law, the eligibility criteria limit the choice of Chairman to either the current or a former Chief Secretary of the state or a person of equivalent rank. Under the law in Uttar Pradesh, choice is to be made from the former state Chief Secretaries or former Secretaries to Government of India, or any equivalent post with experience of departments related to water. These eligibility criteria for the post of the Chairman of the IRA are further evidence of the concerted efforts by the top-level state bureaucracy to exercise control over the IRAs. Under the law in Andhra Pradesh, provisions are similar to those in the Maharashtra law, but also include the option of selecting a person of eminence in the water sector with a proven track-record. It is not clear why the lawmakers in all the three cases thought that the primary category of the persons who are eligible for this high-stature post is the group called 'former Chief Secretaries'. Only the law makers in Andhra Pradesh felt that there are other categories of possibly eligible candidates for the post.

Such eligibility criteria for the post of the Chairman of the IRA provides further evidence of the concerted efforts by the top-level state bureaucracy to exercise control over the IRAs, severely eroding, in the process, credibility and acceptance of the agency and its outputs.

Experts as Members of IRAs

The Maharashtra IRA law, the oldest in the water sector, is somewhat vague on the eligibility criteria for members of the IRA. It just requires 'experts' in water resources engineering and water resources economy, leaving the meaning of 'expert' open for interpretation. In none of the three laws, the eligibility criteria for the members of IRA explicitly require retired bureaucrats in these posts. Rather, the criteria mention expertise in technical and economic matters pertaining to the water sector as the primary eligibility criterion. This keeps the doors open for experts from outside the government, such as people from academia, corporate sector, consultancy companies or independent professionals in the field.

The law in Uttar Pradesh is explicit in opening the door for experts from organizations other than the government, including the private sector, banks, academia and research institutes. It is also explicit in listing the desired specializations in different areas and sub-sectors such as drinking water, ground water, agriculture and land management. The IRA law in Uttar Pradesh has made provisions for four members apart from the Chairman, as against two members in the case of the IRAs from Maharashtra and Andhra Pradesh.

The IRA law came in Andhra Pradesh after the law in Uttar Pradesh was enacted. The lawmakers in Andhra Pradesh did not draw anything from the law in Uttar Pradesh in this regard and remained satisfied with provisions very similar to those in the Maharashtra law.

The experience of the IRAs in the electricity sector suggests that, those who occupy the positions of 'expert' members also come largely from government departments. The positions of economic experts are often occupied by officers from the IAS or IRS cadres²⁰. The positions for technical experts are generally filled by retired senior engineers from government agencies. The preference seems to be for individuals from the state technocracy, preferably top retired officers from the state government's utility or department. Occasionally, a technocrat from the central (all-India) cadre is accepted, but mostly under pressure.

The example set by the electricity sector seems to have been picked up by the water sector IRA in Maharashtra. The seat of the Chairman of this IRA is occupied by a retired Chief Secretary from the state; that of the Member (Economic) is occupied by a retired IAS officer from the state cadre. The post of Member (Technical) was occupied by a senior technocrat from the central government agency, who has now retired. The post has been filled up by the retiring Secretary of the state irrigation department who is an engineer. It is noteworthy that, in the case of electricity IRA in the state, after retirement of the Member (Technical) who came from the central technocracy, the post was recently filled up by the retiring top official of the state electricity distribution company.²¹

It could be argued that the IRAs, who, at least for the present, have to regulate state-owned utilities, can make good use of the knowledge and experience of a former top 'boss' of the state utility/department. However, a counter-argument could be made that the retired top 'boss' of the state-owned utility or department, when he becomes a member of the IRA, acts as a conduit for vested interests to make entry into the IRA. This is especially problematic when the IRAs do not have effective accountability relationships towards stakeholders or citizens.

Despite its merits and demerits, it seems that the trend is now set that the IRAs become the half-way houses for government bureaucrats or technocrats *en route* to retirement.

"Political" Representative or Stakeholders' Representative

As per the IRA laws, the chairperson and members of the IRAs are selected by virtue of their administrative experience or their professional expertise. However, none of the IRA laws in the water sector provide for membership for a representative of stakeholders. This follows from the understanding that the 'substantive' decisions (like tariff determination) should be made by the experts in the field. The IRA laws also do not provide for membership to any 'political appointee' or elected representatives, which could be traced to the argument that the IRAs should be free from partisan

²⁰ Indian Administrative Services (IAS) or Indian Revenue Services (IRS).

²¹ In interviews with officials of the Maharashtra government, the authors were informed that a previous occupant of the post of the Governor in Maharashtra was instrumental in bringing outside technocrats into the Maharashtra IRAs in the electricity and water sectors. He is now replaced, and the next occupants in the both these positions are, as shown, retired top officials of the concerned state agencies.

political interests (Brown et al., 2006). However, techno-economic decisions pertaining to the issues of costs, tariff and entitlements unavoidably have serious socio-political effects and impacts, which techno-economic experts may not be able to understand or deal with effectively.

The law in Maharashtra and Andhra Pradesh has a provision for appointment of special invitees. In Maharashtra, special invitees are expected to represent the five river basins in the state and are not expected to be 'experts' per se. These invitees do not have voting power; they are expected to be consulted. However, one of the special invitees from Maharashtra shared with the authors that he was not consulted during the process of hearings on the Tariff Approach Paper²². In fact, one of the invitees opposed the tariff process by MWRRRA during his presentation in a public consultation meeting organized on 12th February 2009.

This absence of representation to stakeholders gives more credence to the concern that the needs and expectations of the 'non-dominant' sections would not get due attention in the functioning of the IRA.

Lack of Experts in Social, Institutional or Cultural Aspects

There is no provision to include experts on social, cultural, institutional, or governance related areas in any of the IRA laws. This is startling in view of the fact that governance and regulation of a sector like water—which has seen intense contestation—deeply involves social, cultural, institutional and governance-related aspects. It is difficult for members with technical or economic training to look into social, cultural, political or institutional matters.

In summary, it could be said that, 'reservation' of the post of the Chairman as well as occupation of the experts' posts by senior state bureaucrats underscore the dominance of IRAs by the state-level bureaucracy. Further, while economic and technical experts are supposed to get a place on the IRA, experts from other equally important and relevant areas remain excluded. Similarly, there is no representation on IRA for the other stake-holding groups. In short, the particular composition of the IRA reflects continued neglect and failure to bring in concerns other than techno-economic concerns and perspectives of 'non-dominant sections'.

Functioning of IRAs: Procedural Matters

This section analyses the provisions in the IRA laws pertaining to the functioning of the IRAs, beginning with assessment of changes brought about by the IRA laws in procedural matters as regards to decision making and accountability of decision-makers. Further, it also assesses implications of these changes for the governance of the sector and on the interests of the non-dominant sections. The last sub-section looks into some substantive matters pertaining to the functioning of the IRAs.

²² Based on a personal communication of the authors with one of the invitee member.

Basic Functional Characteristics of IRAs

This subsection looks at the basic characteristics of the functioning of the IRAs. IRAs are the agencies carrying out governance functions but are not government departments / utilities; nor are they the judicial agencies (courts) strictly deciding on the conflict by interpreting the law.

The functioning of IRAs could be described as 'quasi-judicial', 'adjudicatory' and 'adversarial' in nature. IRAs are 'quasi-judicial' because they are not courts, but still conduct their business in a similar manner. They act as courts in basing their decisions on interpretation of the law in the light of the evidence brought before them. However, IRAs do not follow judicial procedures 'strictly'; for example, they do not stick to the law of evidence in accepting and assessing the evidence brought before them in the same strict manner as a formal court.

Functioning of IRAs is also described as 'adversarial' because its procedures primarily involve providing evidence by a stakeholder to prove one's own argument or to prove the arguments of other parties as incorrect or lacking factual basis or being illogical. This focus on 'contestation' is contrasted with the procedure wherein negotiations and arriving at compromise by both the parties is the main element.

Further, the term 'adjudicatory' means that the IRAs will give their judgment (orders/ decisions) by making the decision primarily on the basis of evidence brought before them. In doing so, they will decide which arguments and prayers (demands) are acceptable and which are not. In normal circumstances, while arriving at the decision, these agencies are not bound to go beyond what is presented to them, on their own, or search for additional evidence. This, in a sense, absolves them from any implications of their decision for the sector, utility, or other stakeholders, as long as their judgment is reasoned.

In addition to these three characteristics, the IRAs are expected to consider only 'techno-economic' evidence, while making decisions on techno-economic matters like entitlements and tariff. Techno-economic evidence include evidence based on: (a) factual data and information on technical and economic matters, (b) findings of methodologically-sound analysis of such data, and (c) conclusions arrived at through logical arguments based on the information and findings of such an analysis. In other words, the IRA cannot consider 'political' demands or emotive appeals as basis of their decisions.

These basic characteristics of the functioning of the IRA have serious implications for the governance of the sector, as these characteristics, together, put huge demands on any stakeholder who wants to plead or put before the IRA its viewpoint in order to influence the decisions by the IRA.

First, to effectively plead its case or present its view-point, the stakeholder has to possess good understanding and skills related to judicial procedures, even though the IRA is said to be a quasi-judicial agency. Second, it needs to have capabilities, resources, and skills not only to collect and present the necessary techno-economic evidence but also to refute and counter the evidence presented by the 'opposing' party. Third, the stakeholders need to have capabilities, expertise, resources, and skills necessary to analyze the techno-economic data or evidence presented by the opponents and present its

findings in a 'professional' manner. Alternatively, the stakeholders should have economic resources to hire experts with all this knowledge, skills, capabilities and expertise.

This is a tall expectation, especially from non-dominant sections such as common citizens, poor consumers or even the ordinary CSOs or organizations of other stakeholders. In contrast, the government, the corporate sector and other such resourceful stakeholders do possess such expertise and skills in-house or have resources to hire them. Effectively, these basic characteristics of functioning of the IRAs put the non-dominant sections of society at a distinct disadvantage when it comes to effectively representing their views in the decision-making and regulating process.

Provisions for Procedural Accountability

In order to make IRAs a governance agency independent of 'political interference', efforts are made to keep them completely insulated from political organizations, political processes and political actors. While this insulation might protect IRAs from interference by elected politicians, it also makes IRAs devoid of any direct or indirect 'political' relationships or linkages with citizens that would allow these citizens to extract 'political accountability' of IRAs (Brown et al., 2006). It could be argued that as the IRAs are primarily involved in making decisions on technical, economic and financial matters, there is no need of such 'political accountability'. The counter argument to this would be that the IRAs need to have strong linkages (direct or indirect) of political accountability with citizens as the technical, economic and financial decisions they make do have serious social and political (and even environmental) implications, affecting certain sections of society as well as the society as a whole.

Going beyond the argument for broader 'political accountability' of the IRA towards citizens, an agency making such critical decisions needs to have accountability for its decisions at least towards the stakeholders and at least on techno-economic grounds. The law does not provide for any explicit linkage or relationship between stakeholders and members of IRAs that would allow the stakeholders to extract accountability from the members of the IRA. In the absence of any accountability relationship with either the citizens or stakeholders on any grounds, the IRA is unlikely to obtain public legitimacy and credibility as these normally have a symbiotic and reciprocal relationship with accountability.

In this situation, the only source for obtaining legitimacy for the IRA is the IRA law that provides the mandate to members of the IRA to discharge such critical functions. This, then, means that legitimacy from this source can be obtained only through strict adherence to the provisions providing explicit mandate and also to those (even implicit) specifying limits of this mandate. In this sense, the members of IRA are indirectly accountable to stakeholders through their (i.e., members') adherence to legal procedures and norms. In comparison with the earlier term 'political accountability', this type of accountability is termed here as 'procedural accountability'. The provisions in the law for ensuring 'procedural accountability' will, thus, define the extent of legitimacy enjoyed by the IRA members. Stricter the provisions for procedural accountability, higher would be the level of accountability of the IRA members and higher would be the legitimacy and acceptance of the IRA and its members among stakeholders.

When it comes to the interests of 'non-dominant' sections, we also need to assess whether the provisions for procedural accountability in the laws are within the reach of these non-dominant sections. For the analysis of the IRA laws in the water sector on this point, the Electricity Act 2003 is used as the standard bench-mark (Gol, 2003). This is because it is one of the most-debated laws and is a trendsetting law, especially for the water sector IRAs. The following is based on a detailed exercise of comparison between the three IRA laws and the Electricity Act 2003 or the E Act (PRAYAS, 2009d). Beginning with the provisions related to transparency in the procedures of IRA, the comparative analysis throws up the following observations.

The E-Act contains an almost ideal type of provision for procedural transparency. "The State Commission shall ensure transparency while exercising its powers and discharging its functions" (Reference: Section 86-3 of the E Act). This provision provides for mandatory requirement and unrestrained scope for transparency. The water IRA laws in Maharashtra and Andhra Pradesh has no provision mandating concrete measures for transparency. This curtails the possibility of development of mechanisms in the Conduct of Business Regulations (to be prepared by the IRA) for ensuring transparency in the functioning of the IRA. The law in Uttar Pradesh does not contain a provision mandating transparency in procedures. In contrast, it contains provisions, which require that information obtained by the IRA with respect to any person or business shall be treated as 'classified' and shall not be disclosed by commission without consent of the person or business, except for information related to tariff (Reference: Section 18-1, 18-2 of the law in Uttar Pradesh). The law also includes a general provision making all information in possession of the regulator confidential which is to be furnished to any person or agency only with the permission of the regulator (Reference: Section 18-3 of the law in Uttar Pradesh). These provisions are categorized under a separate heading of 'Restriction on Disclosure of Information' (Wagle and Warghade, 2009a; PRAYAS, 2009a).

For public participation in the procedures and processes conducted by the regulatory agency, the E-Act requires public participation in the tariff process (Reference: Section 64-3). The Maharashtra water IRA law contains a somewhat weaker provision requiring 'ascertaining of views of beneficiary public' before determining tariff (Section 11-D). A similar provision is not included in the law in Uttar Pradesh (PRAYAS, 2007b)²³.

The main function of the IRA in the electricity sector is to determine tariff. In the water sector, the IRAs are entrusted with decision-making on additional and equally crucial matters such as 'determining water entitlements,' 'review and approval of projects' and 'preparing and monitoring of state water plan'. None of the three laws have any provision for 'public participation or consultation' during the processes for making decisions on these crucial matters. It is noteworthy that the E-Act has a provision for public consultation in preparation of the National Electricity Plan (Section 3-4), while the water IRAs in the three states are empowered to make decisions on the above mentioned crucial matters without informing citizens or water users, with the exception of the decision on tariff in Maharashtra.

²³ There is no provision for determining tariff in the Andhra Pradesh water IRA law.

Regulations prepared by the IRA itself govern the conduct of its own business and its own functioning. This is the special authority given to the IRA in order to protect its independence from the government. Hence, the regulations and the process of formulating these regulations become a key issue determining procedural accountability of the IRA. The publication of the draft regulation would thus be a key element, which would generate debate among stakeholders and public debate prior to finalization of the regulation. In this regard, the E-Act requires: “All regulations made by the state commissions shall be subject to condition of the prior publication” (Section 181-3). In contrast, none of the water IRA laws has a provision requiring ‘prior publication’ of draft regulations prepared by the respective IRA for implementation of the law. The laws for Maharashtra and Andhra Pradesh do provide for ‘prior publication’ of rules to be prepared by the state government for implementation of the law. Such a provision is absent in the law in Uttar Pradesh.

One of the main ways to achieve procedural accountability of IRAs is to make the ‘reasoned order’ mandatory. The reasoned order is the order by the IRA (articulating or documenting its decision) that takes cognizance of all the points raised before the IRA in the matter under consideration. The reasoned order is also required to explicitly state the reasons for rejection or acceptance of each point raised before the IRA. This ensures that an IRA does not only take cognizance of the arguments of all the stakeholders appearing before it, but also that the decisions of the IRA is in adherence to the provisions of the law and based on logical reasoning. The preparation of the ‘reasoned order’ involves considerable time and effort, which can act as a deterrent. However, it is of strategic importance for achieving procedural accountability.

The E-Act includes provisions which make it mandatory for the IRA to provide reasons in writing for all crucial regulatory decisions (Section 15-6-b, 24-1, 64-3-b). There is no such provision in the water IRA laws of Maharashtra and Andhra Pradesh. However, the law in Uttar Pradesh makes it obligatory on the IRA to issue its decisions, directions or orders accompanied with reasons behind the same (Section 10(4)).

In the absence of mandatory provisions for ensuring procedural accountability, barring some exceptions, there is no formal or legal deterrent to prevent unwarranted use of the discretionary power and unaccountable behavior by members of the water sector IRAs. This, the authors suggest, may affect the credibility of the newly-formed institutions and may pose a risk to the interests of the ‘non-dominant’ sections of society.

Functioning of IRA: Substantive Matters

Apart from procedural matters, provisions in the three IRA laws related to substantive matters in functioning of the IRAs are equally crucial in shaping the governance of the sector. In this section, provisions pertaining to some substantive matters in the functioning of the IRAs are analyzed in brief.

Creation of “Rights” on Water

The law in Maharashtra and Uttar Pradesh contain provisions for determination and distribution of water ‘entitlements’ to groups and individual water users. Entitlements are usufructuary rights: rights to *use* water but not to *own* water or its source. Once determined, an entitlement will become a private use-right of a group or individual. We see it as a ‘private’ right because there will be no public control other than the restrictions put by the IRA law, regulation or conditions put forth by the IRA while determining or distributing entitlements. Also, it is argued by the World Bank (WB) that water entitlements will enjoy the same legal certainty as land and property rights. Hence, such a right becomes an important instrument for promoting water markets in the form of tradable entitlements (WB, 2005a). Thus, though prima-facie it appears as a use-right, entitlements operationally lead to a regime of private property rights.

The Maharashtra law states that, without entitlement, no one will be allowed to use water (except for certain small water sources). Access to water, thus, becomes dependent on the capacity to secure water “rights”, which will not be equally easy for everyone, particularly for marginal groups, as they generally have poor access to administrative processes. On the positive side, the distribution of water entitlements would create restrictions on *ad hoc* diversion of water from different water sources by government agencies to dominant water users. Similarly, water users situated at the tail-end of the irrigation canals would stand a better chance of securing their due share of water once entitlements are distributed to these farmers.²⁴

Cognizance of Equity Concerns While Creating “Rights”

The most critical issue related to the entitlements of water is who will get the rights? In other words, on what grounds these rights will be determined or allotted? There are some serious concerns in this regard.

The IRA laws seem to accept only landholders in the command areas of irrigation projects as possible entitlement holders. Families that do not own land in the command areas will not be entitled to get rights. Neither would families outside the command areas (both land-holding and landless) have any entitlements. Further, the Maharashtra IRA is legally bound to follow the provisions in the State Water Policy which gives higher priority to industrial water users in comparison to agricultural water users.

There is no effort or space in the law to question or redress existing water distribution. It is well documented that dominant groups like large farmers in canal irrigation or large industrial complexes for instance have cornered large shares of available water (Mollinga, 2003; PRAYAS, 2009c). Without provisions for questioning or redressing existing spatially and socially unequal patterns of water distribution, the law may end up legitimizing current unjust distribution of water in favor of dominant stakeholders (Warghade and Wagle, 2009).

²⁴ This is based on comments made during consultations by Civil Society Organizations.

Flexibility in Criteria for “Rights” in the Law

As per literature in the field of administrative law, in many instances, the provisions in the administrative type of laws are generally broad and non-specific, as their main function is to provide a broad policy framework, which would remain relevant for diverse ground conditions across the geographic areas under its jurisdiction and over a long time period (Sathe, 2006). Articulation of the specifics within this framework is done by the particular agency empowered through the law (for example the IRA) in the form of subordinate legislation (like rules and regulations) which can be changed comparatively easily. However, the IRA laws tend to freeze specifics of various substantive issues, such as water tariff and water entitlements, in the body of the laws themselves. As an example, the Maharashtra law has provisions articulating very detailed criteria for determination of water entitlements. For example, the law has mandated adherence to the principle of ‘land-based and proportionate’ water entitlements. As a result, the political debates created by the social movements over ‘water rights to landless’ may remain unacknowledged and public decision-making on the principles underlying definition of entitlement and allocation is pre-empted.

Scope for Review of Distribution of Entitlements

The IRA laws of Maharashtra and Uttar Pradesh have no provision for mandatory periodic review of entitlements. Review can be undertaken only if required and in extraordinary circumstances. This effectively makes the initial distribution of entitlements near-permanent. This is critical in view of the possibility of the initial distribution of entitlements being unjust. In such a situation, the non-dominant sections may not stand any chance of getting entitlement or access to water through a public process.

Trading of Entitlements

Once created, entitlements or usufructuary rights can be easily traded formally or informally. Only the Maharashtra law includes a provision for trading of water entitlements through a market system. At present, trading as per the provisions of law in Maharashtra is restricted within the same category of use and on a seasonal basis. This means that a water entitlement for irrigation cannot be traded to an industrial or urban user; and trading among irrigation users can be done only for one season at a time. Though this bars long-term trading, it allows for diversion of water to contract farming companies. Considering the concrete steps taken towards promoting contract farming through amendments in Maharashtra Agricultural Produce Marketing (Development and Regulation) Act, there is a possibility of steady increase in contract farming in the state. On this background, it is suggested that the contract farming companies, due to their financial might, will buy water entitlements from adjoining poor farmers. Such a diversion of water entitlements from poor farmers to contract farming companies will pose a threat to livelihood sustainability of these farmers (PRAYAS, 2009c).

The more serious and widely shared apprehension expressed by many farmers’ organizations and CSOs is that this is just a beginning and gradually the restrictions on trading would be relaxed, opening the doors for wide-spread trading of water entitlements at the cost of the interest of the non-dominant

sections of society²⁵. This apprehension is based on the connection seen by these organizations between the role played by the World Bank (WB) in pushing for establishment of IRA laws containing these provisions and the strident position the bank takes on these issues in its literature. Enactment of IRA Laws in Maharashtra, Uttar Pradesh and Andhra Pradesh can be traced to conditionality in the water sector improvement/ restructuring projects funded by the WB. The available literature on 'water entitlement system' also suggests that WB has been in the forefront in recommending the setting-up of such systems. The literature emanating from the WB on 'water entitlements' is very emphatic in recommending creation of 'water markets based on the distribution of entitlements' (World Bank, 2005a; Briscoe and Malik, 2007).

One of the key objectives of such a market, as cited in the WB literature, is to 'allow transfer of water from low-value use to high-value use'. The WB literature also cites the examples of Chile and Australia where such a system is operational. While citing the example of Chile, the literature suggests that, in such a system, government determines the entitlements initially and market redistributes these subsequently²⁶. However, critical studies of such a market-linked water entitlement system in Chile, suggest a negative trend in net water entitlements of farmers and resulting in deterioration of livelihoods of farmers due to such market operations (Romano and Leporati, 2002). It has been shown through empirical assessment of Chilean water markets that the model is not compatible with integrated water resources management (IWRM) and the idea that it will benefit the peasants and poor farmers has failed (Bauer, 2004).

Water Tariff: Clear Prioritization of Cost Recovery Principle

The IRA laws in Maharashtra and Uttar Pradesh contain the first-ever legal provision sanctifying the principle of 'cost recovery' in the water sector in India. This principle was hardly implemented in the water sector, though there is some mention of the principle in policy document (GoM, 2003). The emphasis on making this principle as part of the legal obligations can be linked with the emphasis in the discourse towards the principle of water as an 'economic good'.

In the Maharashtra law, the list of the 'costs to be recovered' through the tariff from the water users is restricted to the Operation and Maintenance (i.e. O & M) costs. The law in Uttar Pradesh goes a step ahead and includes 'depreciation charges' and 'cost of subsidy' in the list of costs to be recovered through tariff.

The World Bank literature on water sector reform argues for gradual increase of cost recovery (World Bank, 2005a; Revels, 2005). In this literature, six levels of cost recovery are considered, starting with 'no recovery' (Level 1) to 'recovery of O&M costs' (Level 2) and then gradually elevating the level to 'recovery of profits on investments' (Level 6). The State Water Policies of Maharashtra and Uttar Pradesh mention gradual recovery of capital costs as a goal for the future (GoM, 2003; GoUP, 1999).

²⁵ This is expressed in the state-level consultations organized on the issue of water entitlements in Maharashtra.

²⁶ Also refer to Saleth and Ariel, 1999

The apprehension raised by civil society organizations is that the level of cost recovery as mandated in the law would be gradually elevated, as evident in the law in Uttar Pradesh (PRAYAS, 2009c). This increase would gradually make the tariff unaffordable to poor sections of society, especially, small farmers, thus encouraging sale of the entitlements to users ready to pay higher prices. Unaffordable tariff may not only reduce access of non-dominant sections to water, but, in extreme cases, may also create pressure from non-dominant sections for relaxing the restrictions on the trading of entitlements as it would give them better price.

It is important to note that all the three laws are silent on tariff subsidy to poor. The root of this silence could be traced to the argument that small and marginal farmers who would be eligible for subsidy in water tariff (revised tariff based on cost-recovery principle) are so large in number that it would be financially infeasible to lower their tariffs to a large extent²⁷.

Regulation of Costs and Service

One of the main areas of contribution by the electricity sector IRAs at the state level has been to reduce costs and reduce losses in order to improve the economy and efficiency of the sector. This is also expected to reduce the tariff burden on the consumers.

In the case of the water sector, though the laws in the two states require IRAs to ensure recovery of full costs while determining and regulating tariff, there is no attention to improvement in efficiency of operations or reduction in expenses or reduction in losses. This turns the IRAs into 'cost recovery apparatuses' (PRAYAS, 2009b; Wagle and Warghade, 2009b). As the experience of the electricity sector suggests, in the absence of cost reduction and improvement in service, the IRAs will find it extremely difficult to increase tariff. The victims of the double impact of increasing tariff and falling efficiency and service standards would be the non-dominant sections, as the dominant sections would make themselves immune by creating 'islands of efficiency'. Such islands of efficiency could be established by the dominant sections by developing their own water resources (such as done for city of Mumbai) or by developing their own distribution system (like piped system). Thus, the dominant sections would isolate themselves from the predicament faced by non-dominant sections.

General Conclusion and Some Recommendations

This paper analyses the three state-level IRA laws in India for the water sector. The analysis used the framework presented in Section 2 of the paper, which mainly comprised of two objectives and the five key aspects of the structure and functioning of the IRAs. The key findings are the following.

²⁷ This apprehension was expressed by a senior government official during consultations of Approach Paper on Bulk Water Tariff prepared by MWRRA.

Critical View-Point

The analysis of the process of formulation of the IRA laws brought out vividly the opaque, non-participatory and unaccountable nature of the process as well as the low levels of credibility of the organizations involved in the formulation of these laws. These two factors together, are likely to adversely affect credibility and acceptance of the IRAs in the minds of a broad section of stakeholders. The resulting alienation, it is suggested, will erode the interests and willingness of these stakeholders to participate in the functioning of the IRA, thus seriously affecting the quality and acceptability of the orders and decisions from IRAs. The plausibility of such a scenario can be inferred from the low level of response from different types of stakeholders to the MWRRA's invitation to participate in the consultation process on the issue of bulk water tariff²⁸.

In the selection process of IRA members, monopolization of the Selection Committee by top-level state bureaucrats, combined with an opaque and unaccountable process of selection is likely to result in similar adverse impacts such as: (i) Monopolization of the IRAs by retired government bureaucrats and technocrats, (ii) dominance of the economists and engineers in IRAs, and (iii) absence of the representatives of the other stakeholders. These three factors will also lead to the neglect—on the part of the IRAs—of the concerns and perspectives of the non-dominant sections of society.

The analysis of procedural matters in the functioning of the IRAs indicates similar problems. The analysis of the basic functional characteristics of the IRAs demonstrates that the IRAs, in their present form, are structurally and functionally biased against the non-dominant sections of the society. Moreover, very weak provisions for procedural accountability in the IRA laws not only erode legitimacy of the IRAs, but may also allow discretionary and unaccountable behavior of IRA members, with the danger of harm to interests of the non-dominant sections.

In terms of substantive matters, the IRA laws create 'private', tradable, near-perpetual rights that legalize and give permanence to the existing distribution of water, which is unjust on several counts. These rights would work against interests of the non-dominant sections, quashing hopes for equitable and fair sharing of water. In addition, the 'cost recovery principle', the principle of 'ascending level of recovery' and neglect of regulation of costs and service-quality may soon make the tariff unaffordable and services effectively unavailable to non-dominant sections of society.

²⁸ This is clearly evident from near-total absence of any sort of response from mainstream political parties, elected representatives, local government bodies and other key stakeholders to the MWRRA's consultation on Tariff Approach Paper. Out of 861 copies of approach paper sent by MWRRA to stakeholders almost 360 were sent to elected representatives at the state level (figure from the presentation made by MWRRA on 21st January 2010 at Pune) and about 200 to local government bodies and other stakeholders. However, very few political and local representatives were present at the hearings, largely in the individual capacities. Political parties have not issued any public statement on this critical issue. Other stakeholders also did not participate in large numbers. Participation of civil society—though not very impressive in quantity and quality for various reasons—could largely be attributed to mobilization by some non-party political organizations which are part of a broad coalition emerging in the state of Maharashtra.

These findings, when viewed together, lead us to the conclusion that the changes in governance of the water sector brought about by the IRA laws will significantly affect ability of the non-dominant sections of society to influence the governance processes and protect their interests. This will effectively lead to their disfranchisement as far as governance of the water sector is concerned.

Apart from disfranchisement in governance, the non-dominant sections face another equally important threat. The analysis of provisions related to the substantive matters in the functioning of the IRAs demonstrates that, through creation of near-perpetual and tradable entitlements, access to water may be effectively denied to a large section of non-dominant sections of society. This analysis also shows that, even if the non-dominant sections get limited access to water, they may be priced out soon due to the unaffordable tariff. Disfranchisement in governance will make it more difficult for non-dominant sections of the population to fight against these threats.

Finally, the analysis shows that the IRAs are in danger of losing their legitimacy, credibility and acceptance among a large cross-section of stakeholders, because of the way in which the IRA laws have shaped the structure and functioning of the IRAs. This may lead to alienation of these stakeholders, who will not be willing or interested in actively participating in the governance processes and procedures conducted by the IRA, thus negatively affecting the quality and acceptance-level of the orders and decisions of IRAs. Considering that the IRAs will be the key governance agency in the sector, the overall governance of the sector will be negatively affected as a result.

The Way Forward

The foremost recommendation with regards to the IRA laws that follows from the analysis presented in the paper is that the IRA laws need to be located in sound framework of principles of water governance. The pro-market approach, taken in other infrastructure services like electricity or telecom, will lead to severe implications for the interests of the non-dominant sections, if the same is applied in water sector. Hence, principles and measures like ‘full cost-recovery’ or ‘tradable entitlements’ need serious rethinking before they become part of mandatory provisions in IRA laws.

It is necessary to restate here that the three water IRA laws and the principles that they bring in are not grounded in local discourse and local demands related to water sector. So such principles should not be included as part of the IRA legislation before the nature and implications of these principles are widely discussed and debated among the various stakeholders, including the non-dominant sections.

Another major area of recommendation that emerges from the analysis is related to the ‘procedural accountability’ of the IRAs. The analysis clearly shows that there are certain ‘good practices’ related to IRAs available in policy instruments or literature that need to be integrated in water sector. For example, the blanket provision for transparency in E-Act (refer section 3.4.2 of this paper) can be replicated in other IRA laws in water sector. Similarly, the provision for ‘reasoned order’ including in water IRA law in Uttar Pradesh is worth replicating in other IRA laws (refer section 3.4.2 of this paper). There are many other ‘good practices’ that can be learnt through cross-comparison of procedural accountability

measures in different infrastructure services' regulation. A comprehensive cross-comparison should be undertaken of such measures for its adaptation in water IRA laws²⁹.

Ray of Hope

Developments in Maharashtra over the last two years (since 2008) indicate a different possibility. After publication of the Tariff Approach Paper by MWRRRA, a broad coalition of diverse civil society organizations gradually emerged. The coalition comprised expert NGOs, farmers' associations, grassroots political movement around water issues, environmental activists working on water issues, non-party political movements and political parties with progressive agenda. As per the analysis of the authors, this coalition has been successful in forcing the debate on socio-political considerations as well as participatory processes in regulatory procedures. The members of coalition have been successful in exerting significant influence on functioning and decision making of the IRA in Maharashtra.

The coalition has also started debating and gearing-up for activities aimed at bringing in many amendments and changes in the state water policy as well as the IRA law. Though, this presents a possible way out of the current dismal situation, such activities do face serious barriers. Apart from managing the political dynamics and perspective level differences among members of the coalition, the issues of techno-economic, legal, analytical capacities as well as human and financial resources still persists.

References

Bauer, C. J. 2004. Results of Chilean water markets: Empirical research since 1990. *Water Resources Research*. VOL. 40, W09S06, doi:10.1029/2003WR002838, 2004.

BNWPP. 2003. Technical Assistance to the State of Maharashtra - Phase 2. Webpage of the Bank-Netherlands Water Partnership Program, accessed on 13th March 2010. http://www-esd.worldbank.org/bnwpp/index.cfm?display=display_activity&AID=47&Item=7

Briscoe, J. and Malik R.P.S. (Eds). 2007. *Handbook of Water Resources in India: Development, Management, and Strategies*. New Delhi: Oxford University Press and The World Bank.

Brown, A.C.; Stern, J.; Tenenbaum, B. and Gencer, D. 2006. *Handbook for Evaluating Infrastructure Regulatory Systems*. Washington, DC: World Bank.

Datye, K; Patil, R. 1987. *Farmer Managed Irrigation Systems: Indian Experiences*. Mumbai, India: Centre for Applied Systems Analysis in Development.

²⁹ For a detailed discussion, refer to Prayas submission to MWRRRA (PRAYAS, 2007b) and Electricity Governance Toolkit (Mahalingam et al., 2006).

Dwivedi, G; Rehmat. and Dharmadhikary, S. 2007. WATER: PRIVATE, LIMITED Issues in Privatisation, Corporatisation and Commercialisation of Water Sector in India. Badwani, Madhya Pradesh, India: Manthan Adhyayan Kendra.

GoAP (Government of Andhra Pradesh). 2008. Andhra Pradesh State Water Policy, Irrigation & CAD Department, Hyderabad, India.

GoAP (Government of Andhra Pradesh). 2009. A Bill for Establishment of Andhra Pradesh Water Resources Regulatory Commission. Hyderabad, India: GoAP.

Gol (Government of India). 2003. The Electricity Act 2003. New Delhi, India: Gol.

Gol (Government of India). 2006. Report of the Working Group on Water Resources for the XI Five Year Plan (2007-2012). New Delhi: Ministry of Water Resources.

GoM (Government of Maharashtra). 2003. Maharashtra State Water Policy 2003. Mumbai, India: GoM.

GoM (Government of Maharashtra). 2005. Maharashtra Water Resources Regulatory Authority Act 2005. Mumbai, India: GoM.

GoUP (Government of Uttar Pradesh). 1999. Uttar Pradesh State Water Policy. Lucknow, India: GoUP.

GoUP (Government of Uttar Pradesh). 2008. Uttar Pradesh Water Management and Regulatory Commission Act 2008. Lucknow, India: GoUP.

GoArP (Government of Arunachal Pradesh). 2006. Arunachal Pradesh Water Resources Management Authority Act 2006. Itanagar, India: GoArP

Mahalingam, S; Jairaj, B; Naryanan, S; Chandrasekhar, K; Reddy, T; Kumar, S. and Kumar, R. 2006. *Electricity Sector Governance in India: An Analysis of Institutions and Practice, Application of the Electricity Governance Indicator Toolkit in India*. Research Report. New Delhi: CPR.

Mollinga, P. 2003. *On the Waterfront. Water Distribution, Technology and Agrarian Change in a South Indian Canal Irrigation System*. Wageningen University Water Resources Series. Orient Longman: Hyderabad.

PRAYAS. 2007a. Proceedings of the National Consultation on Regulation and the Poor in Electricity and Water Sectors. New Delhi, India. 12 July 2007.

PRAYAS. 2007b. Suggestions for the Process of Preparing the Regulations. Letter to Maharashtra Water Resources Regulatory Authority, Mumbai. 14 May 2007.

PRAYAS. 2009a. *Water Regulatory Authority: Process, Analysis and Community Impacts of Water Reform Programs*. Pune, India: PRAYAS (In Local Hindi Language *Jal Niyamak Ayog: Jalkshetra 'Sudhar' karyakramo ki prakriya, vishleshan aur samudayon par prabhav*).

PRAYAS. 2009b. Bulk Water Tariff Determination: Process and Content. Pune, India: PRAYAS (In Local Marathi Language *Thok Jala Dar Nischiti: Prakriya Wa Ashay*).

PRAYAS. 2009c. Water Sector IRAs and Institutional Reforms in India, Proceedings of the National Workshop on Independent Regulatory Authorities (IRA) and Related Institutional Reforms in the Water Sector in India, held in Mumbai on August 28 2009. Pune, India: PRAYAS.

PRAYAS, 2009d. Independent Water Regulatory Authorities in India: Analysis and Intervention. Compendium of Analytical Work by PRAYAS (2006-09). Pune, India: PRAYAS.

Revels C. 2005. 'Equitable' Cost Recovery – Do we all mean the same thing? Presentation at Water Week 2005, World Bank.

Romano, D. and Leporati, M. 2002. The Distributive Impact Of The Water Market In Chile: A Case Study In Limarí Province. 1981 – 1997. *Quarterly Journal of International Agriculture* 41(4): 41-58.

Sainath, P. 2005. Water: how the deal was done. *The Hindu* (28 April 2005).

Saleth, Maria R. and Dinar, A. 1999. Water Challenge and Institutional Response: A Cross-Country Perspective. Washington DC: World Bank.

Sathe, S.P. 2006. *Administrative Law*. New Delhi, India: LexisNexis Butterworths.

Thakkar, H. 2009. Displacement in the Name of Development. In Iyer, R. (Ed), *Water and the Laws in India*. New Delhi: Sage.

Wade, R. 1980. On Substituting Management for Water in Canal Irrigation: A South Indian Case. *The Economic and Political Weekly*. December 1980, A 147-160.

Wade, R. and Chambers, R. 1980. Managing the Main System: Canal Irrigation's Blind Spot. *The Economic and Political Weekly*. September 1980, A 107-112.

Wagle, S. and Dixit, K. 2006. Revisiting Good Governance: Asserting citizens participation and politics in public services. In Chavez, D. (Ed.), *Beyond the Market: The Future of Public Services*, pp. 21-30. Amsterdam: TNI/ PSIRU.

Wagle, S. and Warghade, S. 2009a. Uttar Pradesh Water Management and Regulatory Commission (UPWMRC) Act, 2008: Need for Civil Society Attention. In: *Water Moves: A Quarterly News Letter on Water Governance* (2 May 2009). New Delhi, India: SPWD.

Wagle, S. and Warghade, S. 2009b. Water Regulatory Authority or 'Cost Recovery' Authority? News paper article published in Maharashtra Times (Marathi Language).

Warghade, S. and Wagle, S. 2009. Assessment Of Reform Policy Instruments For Their Contribution To Empowerment And Equity In The Water Sector. In Proceedings of the Fourth South Asia Water Research Conference on Interfacing Poverty, Livelihood and Climate Change in Water Resources Development: Lessons in South Asia, Kathmandu, Nepal, 4 May, 2009: SaciWATERS.

WB (World Bank). 2001. Project Appraisal Document on WB Loan of US\$ 149.2 Million for Uttar Pradesh Water Sector Restructuring Project. WB Report No: 23205-IN. Washington, DC: World Bank.

WB (World Bank). 2005a. *India's Water Economy: Bracing for a Turbulent Future*. Report No. 34750-IN. Washington, DC: World Bank.

WB (World Bank). 2005b. Project Appraisal Document on WB Loan of US\$ 325 Million for Maharashtra Water Sector Improvement Project. WB Report No: 31997-IN. Washington, DC: World Bank.

WB (World Bank). 2006. Project Information Document on Proposed WB Loan of US\$ 435 Million for Andhra Pradesh Water Sector Improvement Project. WB Report No: AB2508. Washington, DC: World Bank.

LESSONS FROM AN EMPLOYEE SURVEY IN AN IRRIGATION DEPARTMENT IN NORTH INDIA

Harry E. Cattle ME¹

Abstract

An employee survey was undertaken in the Uttar Pradesh Irrigation Department as part of the research of an Institutional Strengthening and Restructuring consultancy. A methodology commonly used in Australia was simplified and circulated to 32,000 staff. A relatively low response was received compared to that usually expected, but even so, much information about the organisation could be extracted.

The survey faced formidable barriers due to an organisational culture, which is coercive and non-transparent, but many lessons were learnt that are useful to those seeking to apply democratic management tools in “feudal” bureaucracies.

Keywords

Employee survey, India, Irrigation Department, Analytical techniques

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Introduction

Throughout the world, large organisations use the technique of employee surveys to gauge the opinions of staff about features of current operating conditions and perceptions of the future. A perception survey is both democratic and personal, if returns are completed honestly. The literature on this subject is extensive and a vibrant consultancy industry exists in India, as

¹ The author is a Consultant Civil Engineer with Appropriate Improvement Systems P/L, 7 Blackall Avenue, Blackalls Park, NSW, Australia 2283; Email: harrycattle@bigpond.com

elsewhere, offering Employee Perception services to companies. However, a web search will quickly reveal that the published results emphasize outcomes like “our Company is the best place to work” rather than the far more valuable insights such as “managers who communicate company objectives clearly have more productive teams”. The techniques have evolved internationally during the last twenty years and organisations usually prefer to outsource the activity since this increases the perceptions of independence as well as protecting individual staff confidentiality. The downside of this evolution is that an organisation wishing to commence a survey process (commonly it is repeated every second year) is generally forced to engage a specific consultant, and use them repeatedly, and thus become trapped in the extent of benchmarking across similar industries to the size of the consultant’s client base. The author gained lengthy experience in Australian government department undertaking surveys, using generic Australian questionnaires designed to be applicable across different industry types.

During the author’s tenure in Lucknow (2004-2007) leading the *Institutional Strengthening and Restructuring* project, it was noted that discussion was prevalent in both the popular press² and in serious journals³ of the concept of India’s “Feudal Democracy”. This refers to the gap between notional democratic norms and the ground reality of power, influence and money in the daily political economy, which is particularly strident in North India.

These papers resonated with the observations of the operations of the Uttar Pradesh Irrigation Department (UPID) bureaucracy, and led to the coining of the expression “feudal organisation” for this paper. The phenomenon is certainly not new, being elegantly described by Sharma⁴ who noted that the cultural framework of Indian management presents:

“a plausible picture of the average Indian’s resistance to change, his willingness to delegate but unwillingness to accept authority, his fear of taking an independent decision, his possessive attitude towards his inferiors and his abject surrender to his superiors, his strict observance of rituals and his disregard of them in practice, his preaching of high morals and against personal immorality, and his near desperate efforts at maintaining the status quo while talking of change”

² E.g. *The Hindu*, January 01, 2002

³ A.V. Rajwade (2002). ‘Fifty Five Years of a Feudal Democracy’ *Economic and Political Weekly* 37(33): 3398-3401.

⁴ Sharma, I.J. (1984). ‘The culture context of Indian managers.’ *Management and Labour Studies*, 9(2): 72-80.

The seminal work by Robert Wade⁵ also greatly influenced the author as he struggled to make sense of the emerging UPID data and in fact when he shared the then 25 years old paper with a senior engineering manager in the organisation, the engineer announced “it is describing me”. However, it should be emphasized that the term is not intended to be judgemental, rather the author hopes that it assists in the discrimination between simple bureaucratic responses and the far more hierarchical and tribute-related transactions of the truly feudal relationship that emerged as commonplace within the organisation.

This paper was prepared as a “practitioners report”, not an academic critique of employee perception surveys, and two themes will be pursued:

- 1) Demonstration of the use of a survey to assist management decision making.

- 2) Lessons learned in survey design and practice in the Indian Public Service context.

The goal of the paper then is to demonstrate how information-laden is this management tool, even when facing a feudal organisation.

Design of the survey

Approximately 32,000 copies of a one-page questionnaire were distributed widely across the UPID area of operations, accompanied by an endorsement of the process by the Head of the Department. A conventional five-point response scale was considered, but the survey team were doubtful about using it because it was thought there would be a tendency to “mark down the middle”. Instead, a simple “yes/no” option was given. An invitation to freely comment was included at the end of the questionnaire.

The results of this survey are remarkable because of the high incidence of what the author has called “feudal” voting, where the employee has answered in the way that would please his boss. In fact it came to be known that some staff checked their responses with their supervisors, *who countersigned the results!* When this became apparent, experienced locals said, “Well what do you expect in a punishment-driven organisation?”

In excess of 2,000 questionnaires were completed and returned for analysis - a return rate of 6.3 %. For comparison, it is not unusual to achieve a 70% response rate in an organisation that is reasonably compact, that provides a personal survey to each employee delivered by mail to their home address, and which undertakes a follow up telephone call to each employee to assist with preparation of a response using an independent consultant.

⁵ WADE R. (1982). ‘THE SYSTEM OF ADMINISTRATIVE AND POLITICAL CORRUPTION: CANAL IRRIGATION IN SOUTH INDIA’ *JOURNAL OF DEVELOPMENT STUDIES* 18(3): 287 – 328.

None of these logistical criteria were met in Uttar Pradesh and although geography, communications and cost were a significant barrier, the main limiting factor was concerns held regarding the independence of 65% of the received returns, where such features as endorsement by supervisors on the form and “block voting” done with the same handwriting and pen in the ‘Comments’ field were apparent, leading to a rejection of these from the analytical process. In order to analyse all responses in a similar way, those lacking the important demographic and geographic data were also rejected, resulting in 850 usable responses.

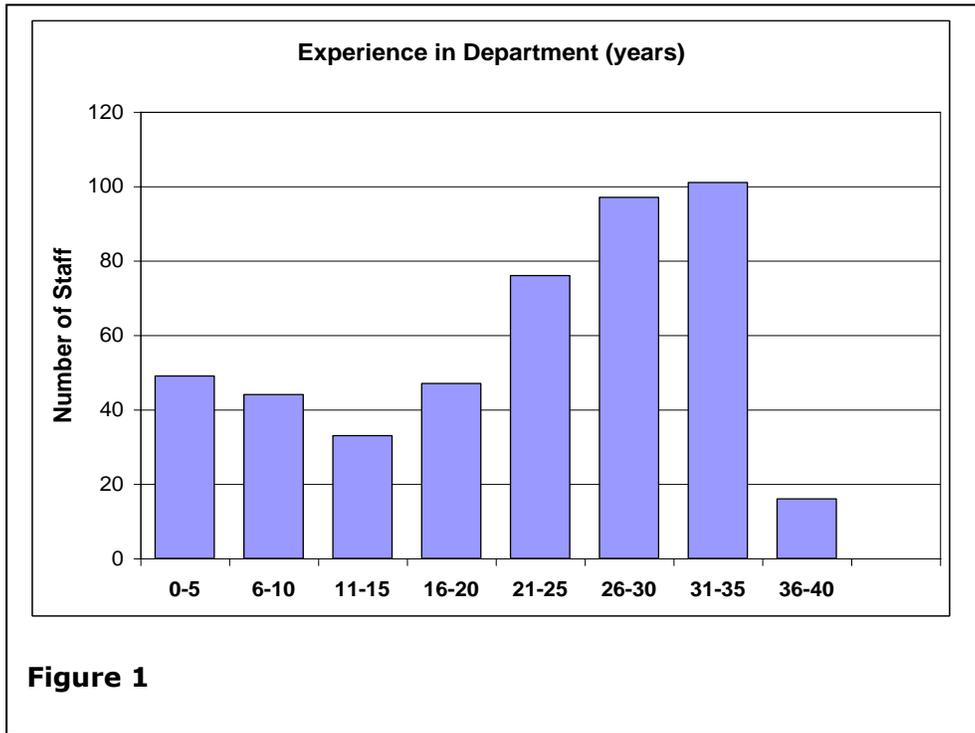
In the structured survey of 12 questions⁶, information was sought in three areas where future management initiatives were feasible:

- relating to the relationship with the individual’s superior officer
- relating to the impact of the organisation on the individual
- relating to the individual’s perceptions

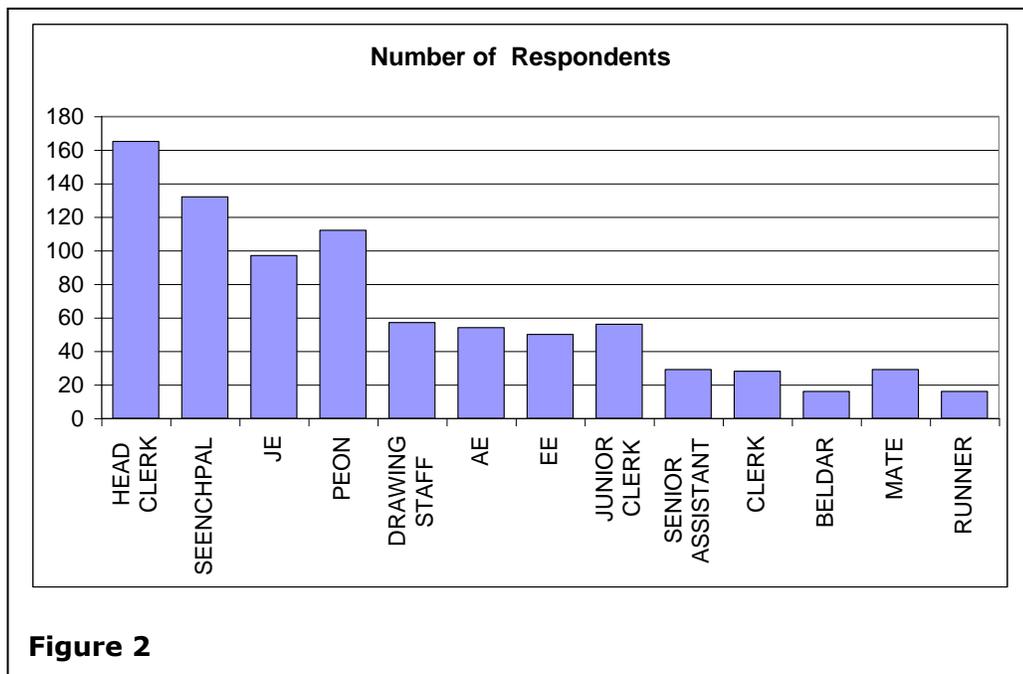
Therefore we can look at the survey in terms of the management behaviours of the boss and of the organisation and the impact of these two forces on employee satisfaction and hope.

Figure 1 in the next page illustrates the experience of staff, where it can be seen that a broad range of length of work experience was sampled.

⁶ A major unanticipated difficulty arose with the translation of the English questions into Hindi. Readers familiar with surveys will be aware that the specific wording used in a survey has a major impact on responses. For this reason surveyors are extremely reluctant to revise questions in subsequent survey exercises, as this destroys the temporal comparisons. Similarly with translations, there is the challenge of a lack of a one-to-one correlation with the English, with often a wider word choice in the Hindi. If our exercise is repeated in UPID in the future, we would advise maintaining the wording, even if misinterpretations arise in practice (see analysis in Figure 10 later). The survey form in Hindi is appended to this paper.



Those familiar with North India will be aware of most of the staff designations in the chart



(figure 2). Seenchpals and Beldars are skilled field workers, Senior Assistants are clerical

workers with long seniority, and Junior Engineers (JEs) are para-professional engineers. Assistant Engineers (AEs) and Executive Engineers (EEs) are qualified professional engineers.

The UPID, which is common with most irrigation departments in India (and in Central Asia, where the author is currently engaged), suffers from a major decline from its halcyon days of large budgets and the construction of gigantic new projects. It has slipped from its position as *employer of choice* to an organisation that has extreme difficulty in attracting young talent (figure 3)⁷.

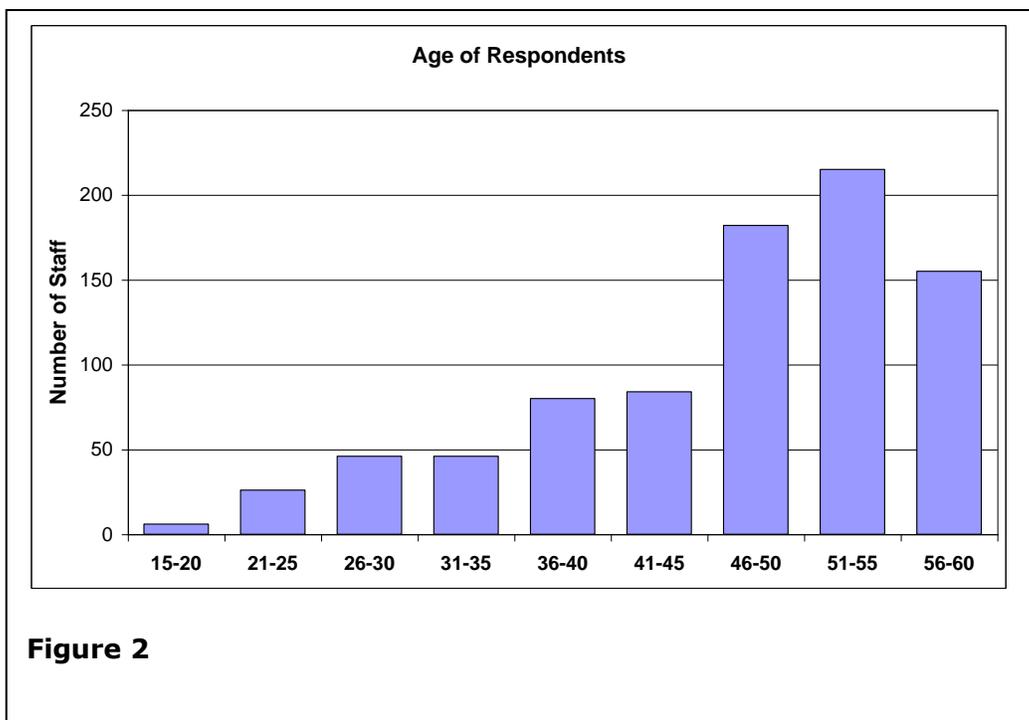


Table 1 indicates the names of the places in Uttar Pradesh from where more than 10 responses were received, and also the 13 main designations of the respondents. Note that “EE” includes Executive Engineers, Supervising Engineers and Chief Engineers together since they are all Class 1 officers.

⁷ To “investigate the reasons why young engineers are not attracted to the Department” was part of the terms of reference for the consultancy. Contributing factors include remoteness of work locations, poor working conditions, low official remuneration (and in recent times, reduced “unofficial” remuneration). The questionnaire was designed to provide data in some of these sociological areas.

Table 1

| <i>Location</i> | <i>Number of respondents</i> | <i>Designation</i> | <i>Number of respondents</i> |
|------------------|------------------------------|--------------------|------------------------------|
| LUCKNOW | 135 | HEAD CLERK | 165 |
| MEERUT | 102 | SEENCHPAL | 132 |
| GORAKHPUR | 96 | PEON | 112 |
| BULAND SAHAR | 59 | JE | 97 |
| MODI NAGAR | 54 | DRAWING STAFF | 57 |
| MATHURA | 51 | JUNIOR CLERK | 55 |
| JHANSI | 36 | AE | 53 |
| MAHARAJGANJ | 33 | EE | 50 |
| ALLAHABAD | 31 | MATE | 29 |
| AGRA | 31 | SENIOR ASSISTANT | 29 |
| SAHARANPUR | 30 | CLERK | 28 |
| BAREILLY | 24 | BELDAR | 16 |
| DEORIA | 18 | RUNNER | 16 |
| MUZAFFARNAGAR | 17 | | |
| SANT KABIR NAGAR | 15 | | |
| NEW DELHI | 12 | | |
| LALITPUR | 12 | | |
| ETAWAH | 11 | | |
| JILEDARI DADRI | 10 | | |
| ALIGARH | 10 | | |

Table 2, in the next page, lists the questions, and their short titles used in the charts that follow. Included in the table are the percentages of “yes” responses to these questions and below that, these results are charted in figure 4. Readers familiar with drafting surveys, you will note that there are no tricky questions where a “no” answer is required for a “yes” opinion, nor is the same matter raised in a different way in more than one question as a verifying tool.

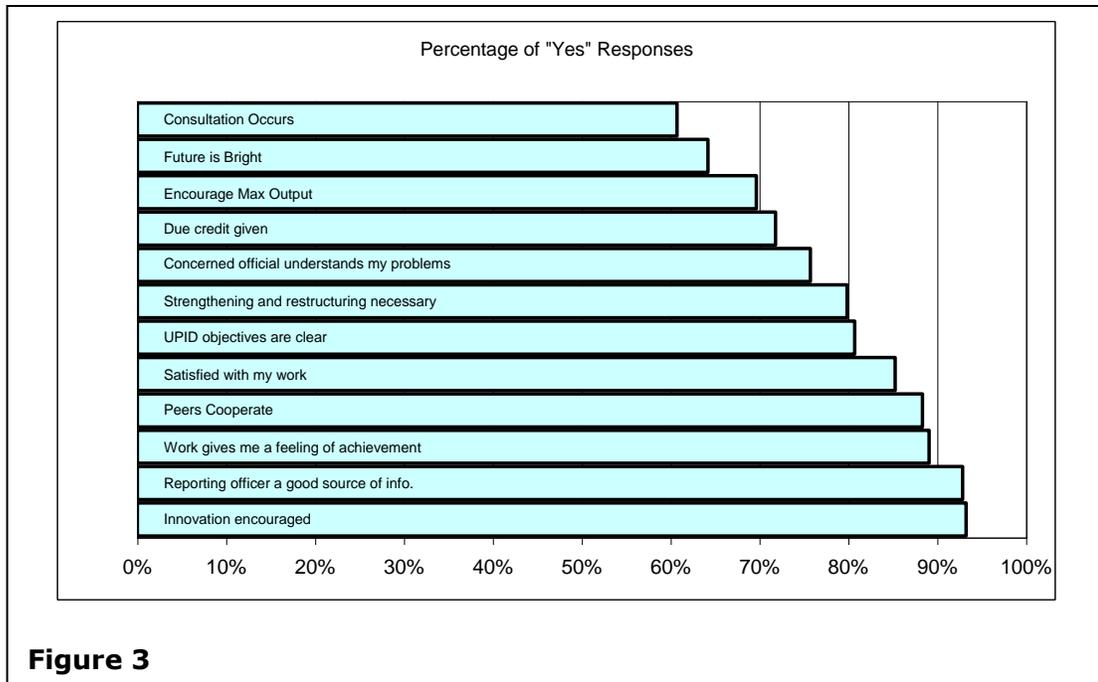
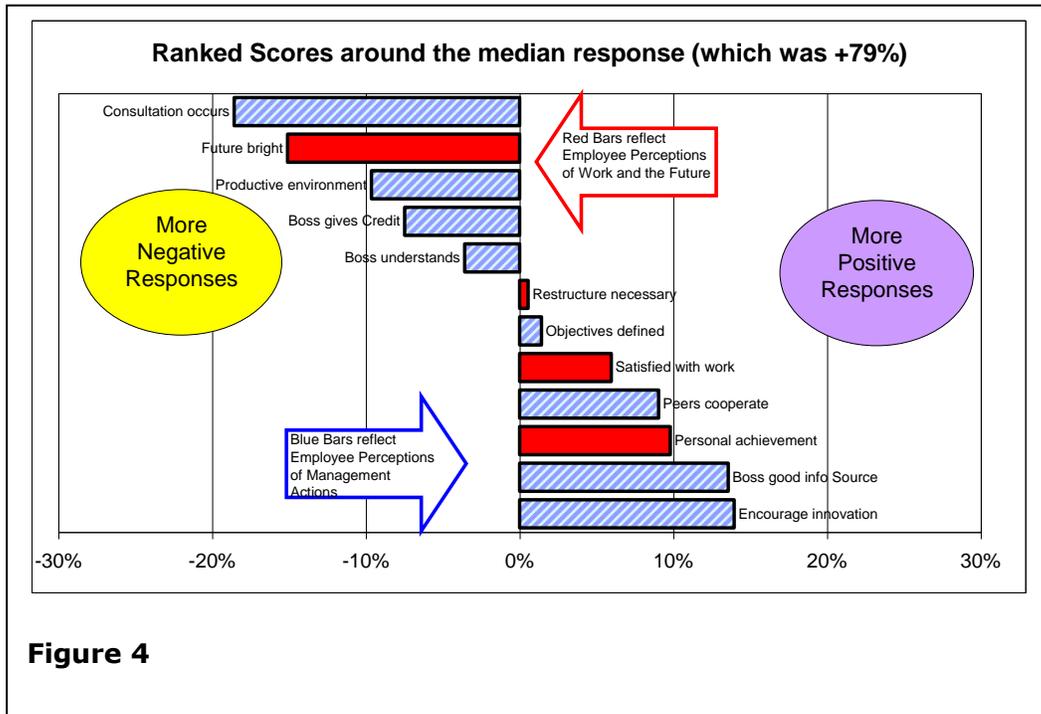


Figure 3

Table 2 Summary of Percentage of “Yes” responses.

| Question No. | Full Text of Question | Text used in charts | |
|--------------|--|------------------------|-----|
| 1 | My reporting officer/official is a good/correct source of information. | Boss good info source | 92% |
| 2 | The affected workers are consulted before decision-making occurs. | Consultation occurs | 64% |
| 3 | The future of irrigation department is bright. | Future bright | 64% |
| 4 | My reporting officer/official gives me credit for satisfactory work. | Boss gives credit | 74% |
| 5 | My nature of work & environment encourage me for maximum work output. | Productive environment | 74% |
| 6 | The directly concerned management understands my problems. | Boss understands | 76% |
| 7 | Is it necessary to strengthen & restructure the irrigation department? | Restructure necessary | 78% |
| 8 | The objectives of irrigation department are clearly defined. | Objectives Defined | 81% |
| 9 | In all circumstances I am satisfied with my work. | Satisfied with work | 84% |
| 10 | My work gives me a feeling of personal achievement. | Personal achievement | 86% |
| 11 | My peer colleagues provide complete co-operation to me. | Peers cooperate | 88% |
| 12 | I am encouraged to discover new & innovative ways of working. | Encourage innovation | 91% |



The next chart (figure 5) reveals the variation between responses more clearly by “discounting” for the overall positive bias in the scores. During the planning for the survey, consideration was given to a 5-point scale, but it was felt that the novelty of the exercise was already sufficient for staff who often have low standards of education. Discussion of the results with local sociologists supported the view that a positive bias to questions “from the management” can be expected, leading to the 79% median “yes” score that we recorded.

In figure 5, attention is also drawn to the “management initiatives” (like consulting with staff before taking actions) which are in hatched blue colour, and those relating to the responses of the staff to those initiatives are shown red.

The body of this paper is associated with unpacking these results using the demographic and geographic indicators that were collected. To this was added a large amount of anecdotal data gathered from the author’s staff, who undertook the logistics along with other data from our research in this *Institutional Strengthening and Restructuring* consultancy.

Analysis of the Results by Classification of Employee

In the survey a grouping of the 12 questions can be made: those relating to the relationship with the individual’s superior officer, those relating to the impact of the organization on the individual and those relating to the individual’s perceptions, as listed below.

Questions relating to the relationship with the individual's superior officer:

1. consultation occurs
2. boss gives credit
3. boss understands
4. boss a good information source

Questions relating to the impact of the organization on the individual:

5. work environment encourages me to maximise output
6. objectives defined
7. encourage innovation
8. peers cooperate

Questions relating to the individual's perceptions:

9. satisfied with work
10. feeling of personal achievement
11. restructuring necessary
12. future bright

Therefore we can look at the survey in terms of the management behaviours of the boss and of the organisation and the impact of these two forces on employee satisfaction and hope.

The responses are shown in terms of the classes of employees in the next 12 charts. It is impossible to add a commentary about all the employee classes for all the charts, and so to illustrate, some themes are followed.

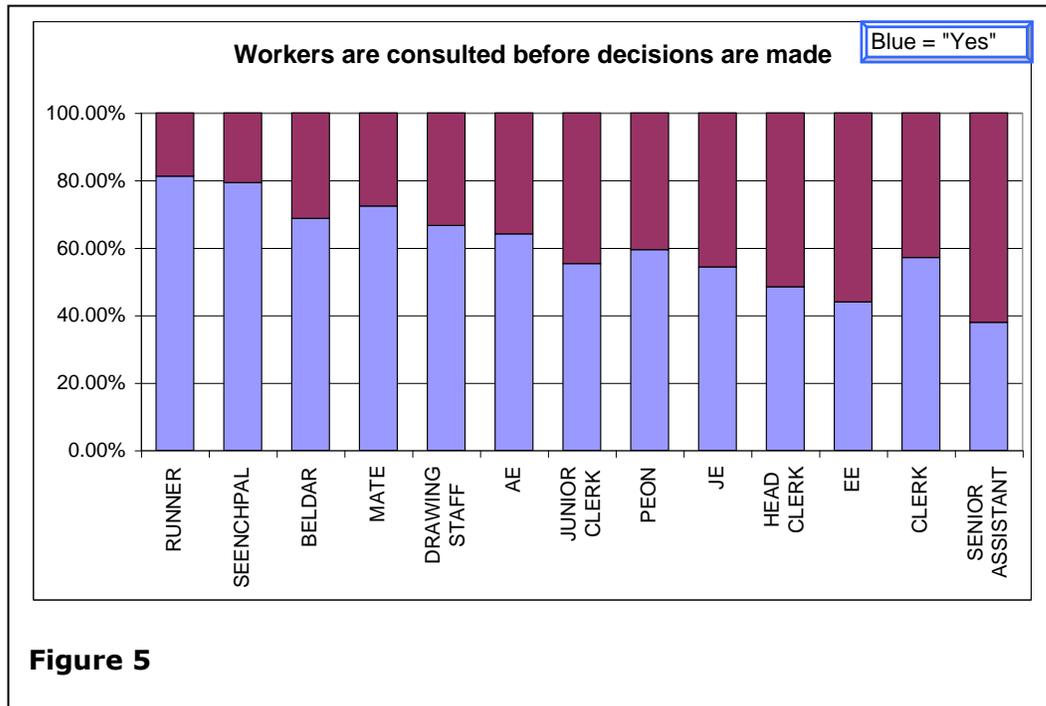
- Perceptions amongst the engineers (EE, AE, JE)
- Perceptions of the employees who interact with farmers directly and continuously (particularly seenchpals, but also beldars)
- Head clerks and clerks

The majority of the charts that follow illustrate “% of staff responding with ‘yes’ to the question under discussion”, which is the Y-axis in most cases. The Y-axis scale is usually from zero to 100, with ‘yes/no’ responses indicated by colour and a legend. Where this is not the case, the axes titles and scales are identified.

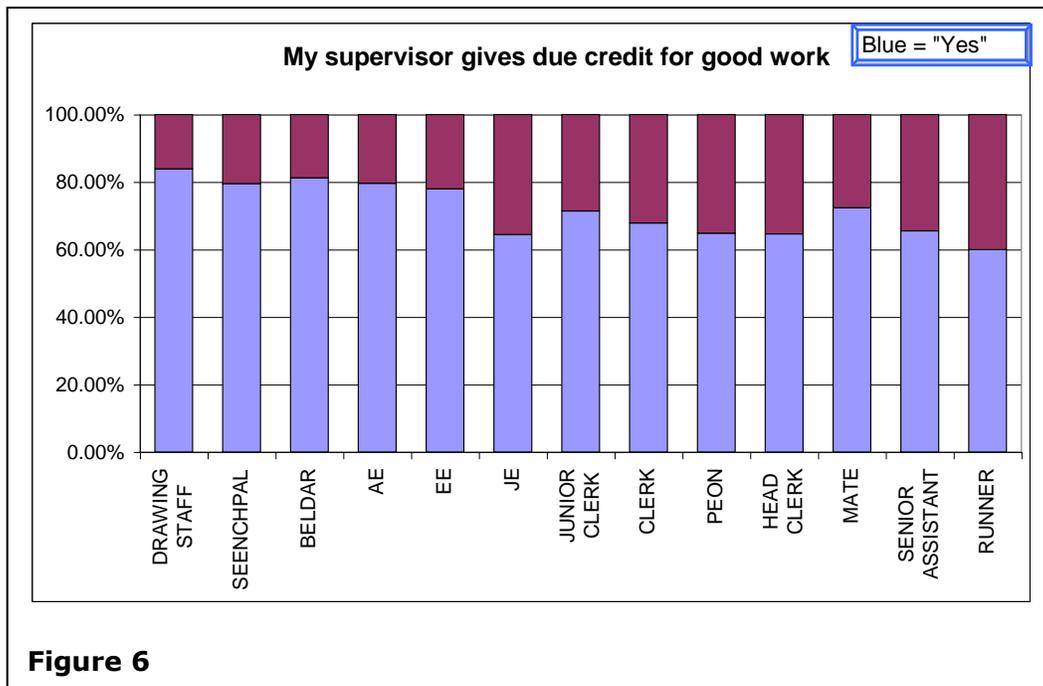
The relationship with the individual’s superior officer

First we investigate the relationship with the individual’s superior officer. In relation to **consultation** (see figure 6), findings can be summarized as:

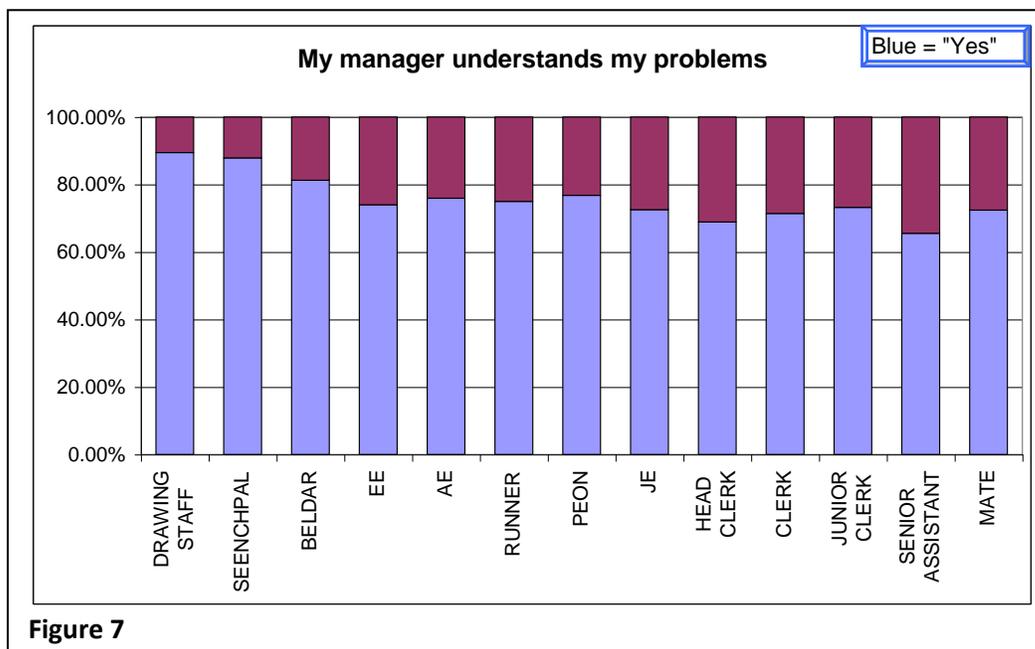
- AEs feel consulted, but their bosses (the EEs) perceive they are consulted less.
- Both field worker groups strongly perceive that they are consulted.
- This is reversed with clerks – the superior officer considers himself consulted more often than the subordinate clerk.



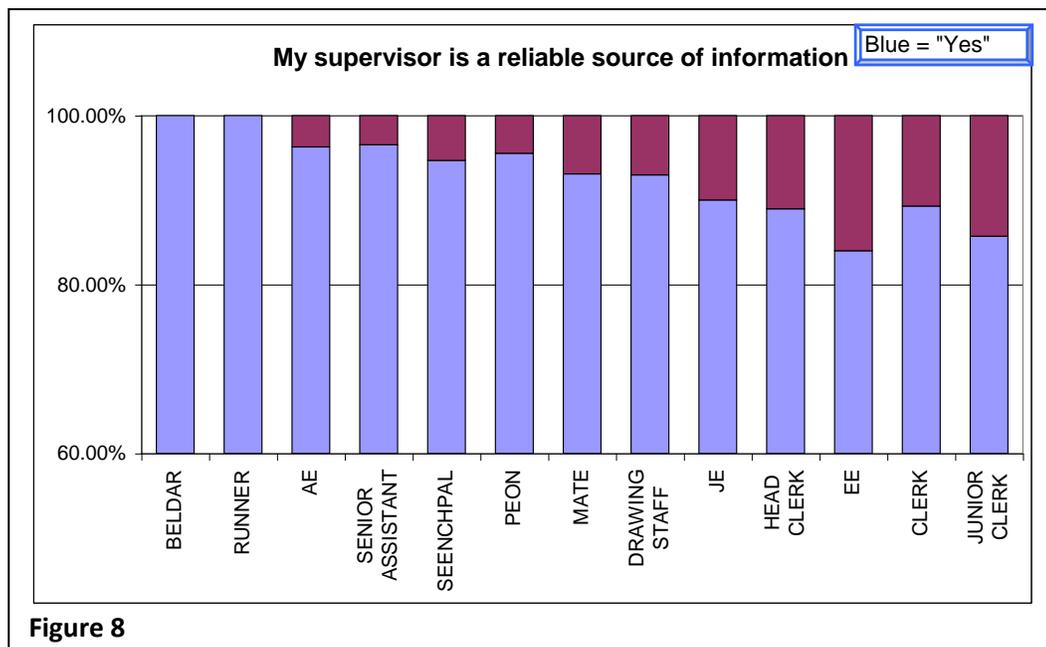
The senior engineers respond equally in the question of **recognition** as do the field workers (see figure 7). For the clerical staff, recognition is also similar. The “Runner” has a low score here, and considering that many of them spend their days in the corridors, sitting waiting to be dispatched on errands, the response shown is likely to be realistic.



There is a gap between the EE/AE engineers and the JEs regarding **sensitivity** shown by supervisors (see figure 8). This is an instance of the Feudal Organisation in action, where chauvinism by the Degree-holding engineers towards the para-professional JEs is apparent. The JEs have a stronger employee union and have a history of gaining their rights despite the objections of the EEs and AEs. Again the field workers respond similarly, and likewise the clerks are close, but with a less positive view of the understanding of the boss



The question of trust in the boss's **provision of information** (figure 9) reveals the first instance of the low positive responses to questions among senior engineers. Since these staff were all promoted from AE, something happens during the transition (or during the EE experience) to drive down trust. This will be explored more later.

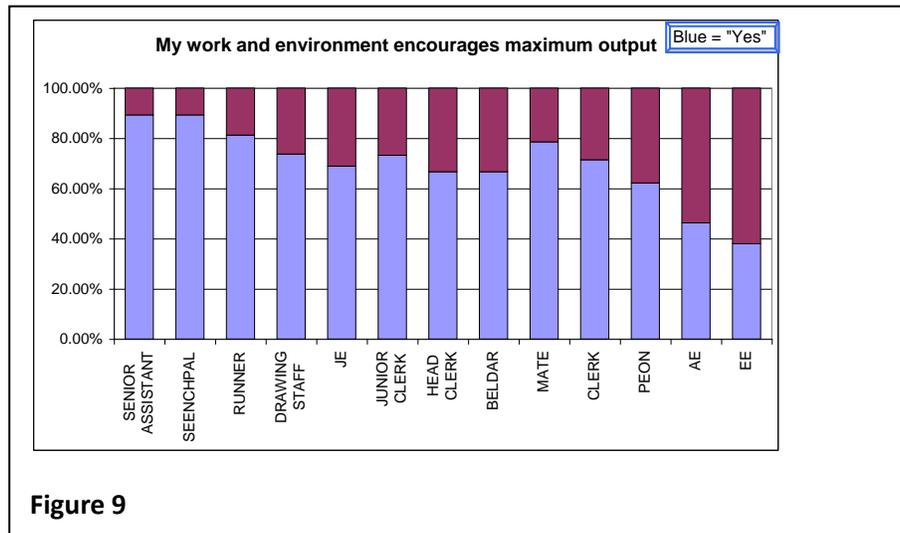


Regarding trust in the information from the boss, the three clerk classes fare badly. Thus we have administrative departments peopled by staff who are relatively untrusting of each other and those above.

How The Organisation Impacts On The Individual

Next we examine responses to the questions relating to how the organisation impacts on the individual. This group of questions probably has the strongest cultural overlay, with very high scores for innovation and for cooperation being recorded, and so analysis will be more limited. In employee surveys we should guard against the trap of asking the “Is India the best country on Earth?” type question, which perhaps is the fate of enquiring, “Are Indians innovative and do they cooperate?” A 5-point scale and independent-minded respondents would also change this result.

The question of **work and environment** (figure 10) is an important one in the UPID Employee Survey, as a later analysis will reveal how this assessment correlates with other important issues.



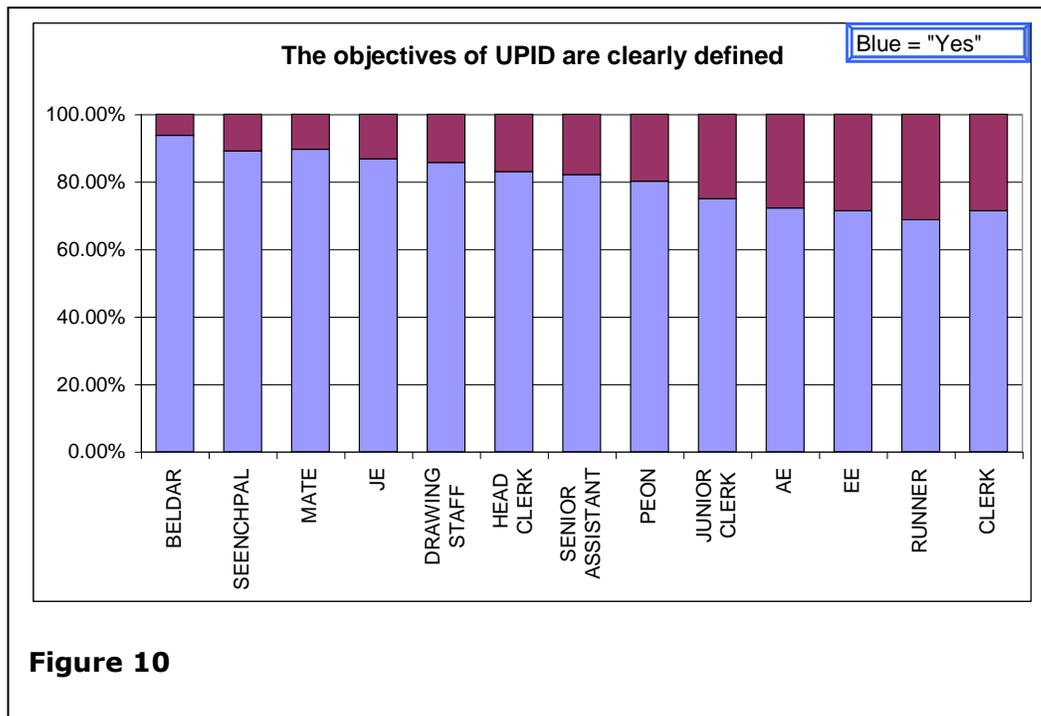
On reflection, the team could not be sure how the question was interpreted, although it was meant to explore whether jobs were stimulating and if conditions encouraged productivity. Obviously it is possible to have a stimulating job in dreadful working conditions, to which the truthful answer would be “yes and no”. From extensive association with the Departmental staff over four years, the author has decided that the dominant thought in the minds of the respondents would be “working environment”, not job stimulation.

Within the category of engineers the gap between the “field-based” JE and the “deskbound” AE and EE is notable. The EE response is of particular concern, considering that they have the best offices! The author interprets this response as relating to the frustration felt because of the wide range of stakeholders they have to deal with. In the UPID, the EE position is the interface with the local politician, as well as the more difficult issues with farmers and the upwards and downwards interactions in the organisational hierarchy. The result shown is probably a fair representation of their chaotic lives.

Perhaps this is why the two clerk groups fare better in the same office environment –they are insulated from the political pressures.

The high score by the “customer service” officers (seenchpals) is indicative of the certainties of their **roles and responsibilities** (figure 11). Having limited freedom to act, in an unchanging environment leads to confidence about objectives. For the JEs there is some of that too, and so this group scores higher than the senior engineers. The result of most concern for Objectives is the perceptions of these senior engineers, where objectives would be expected to be clearly defined. This lack of clarity poses a serious threat, but at the same time it is probably a true

representation of a Department that has completed its “build” mission but has not willingly embraced the “maintain” mission in its mature phase of development.



The “heroic” era of canal construction has now passed and with it the challenging (and lucrative) design and construction postings. In other countries, energetic engineers have turned to the science of maintenance planning and control, but this has not occurred in UPID, largely because of the lack of sufficient budget for maintenance. Most of the budget that is received is consumed by salaries and so, particularly for the engineers, the objectives of the organisation have become blurred as employment and promotion become the main pursuits. Throw in the perturbations of frequent political interventions targetted at these EEs, and their responses are understandable.

Incidentally, it would be interesting to quiz the clerks further – the author suspects the low score for strategy reflects the chaotic administration procedures, where the maintenance of accurate records is discouraged because it would impose unwanted transparency. It is reasonable for a clerk to wonder, “Well, what am I here for?”

Innovation (figure 12) and **cooperation** (figure 13) will not be analysed further at this stage for the reasons outlined earlier.

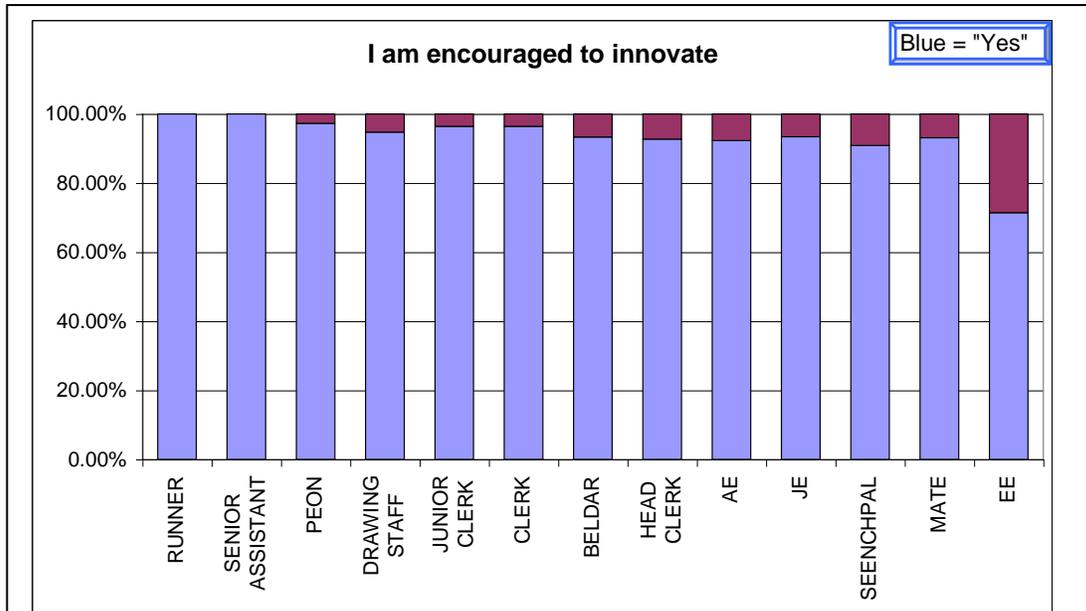


Figure 11

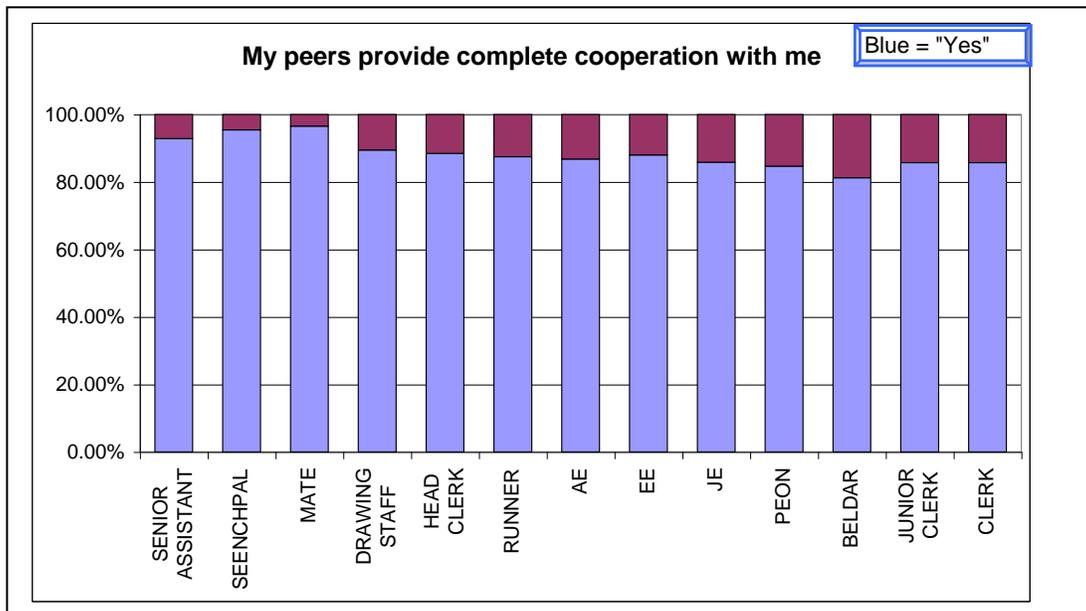
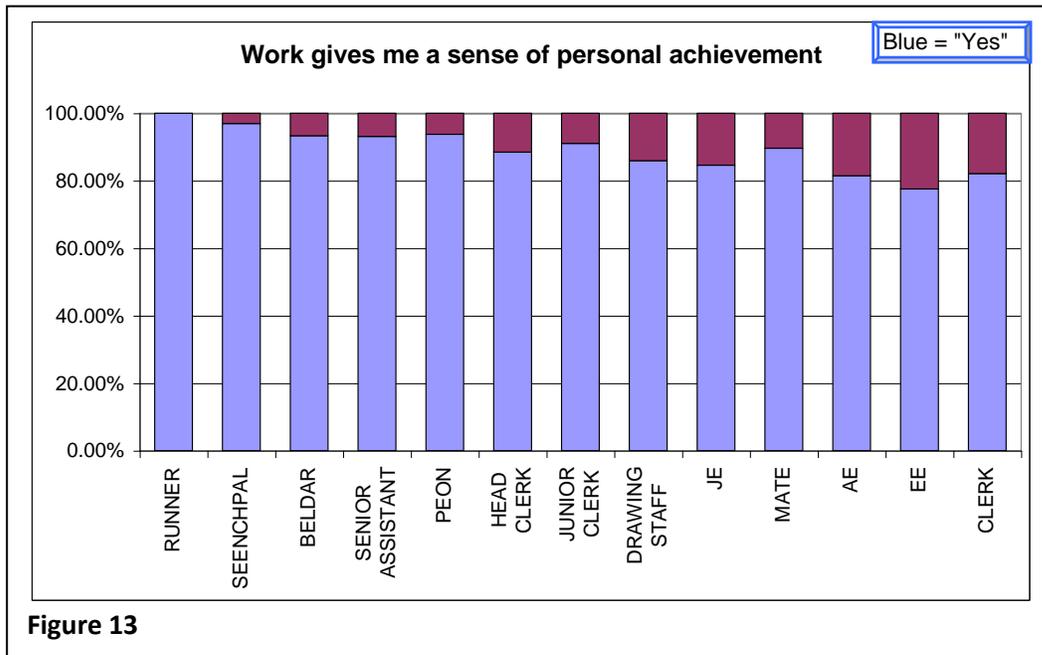


Figure 12

As a footnote to the ‘innovation’ topic, it may be noted that despite the grandiose title of the “Senior Assistants”, they and the “Mates” are at the bottom of the power system, often idle and more dependent on patronage for their positions than other ranks. The chart then is

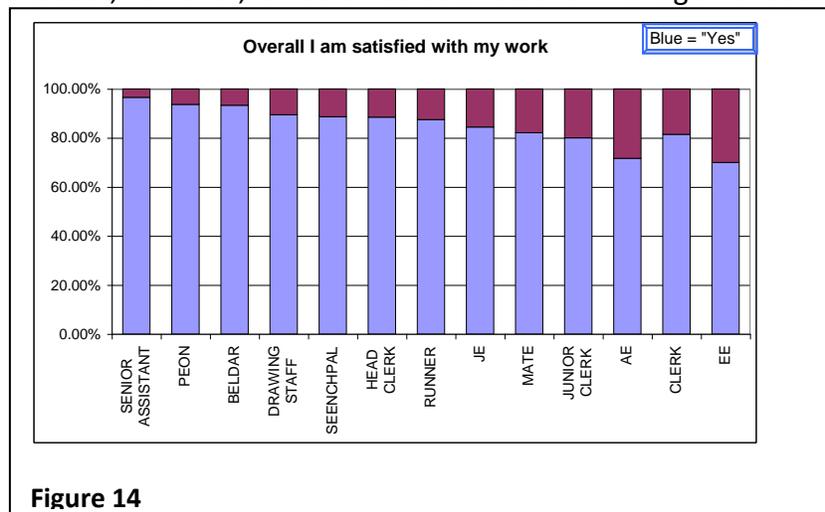
counter-intuitive, where those with the most freedom to act (the Executive Engineers) show the lowest result in innovation, whilst those with the most menial tasks have the highest scores. It is included here because that is what was found, but explanations are not apparent. As mentioned earlier regarding pride in the nation, perhaps it is in the wording of the question.



How the Individual Responds to His Boss’s Actions and the Organisation’s Impact on Him

In figure 14, again it is seen that the more senior staff of the organisation (the engineers) have a lower **sense of achievement** than the junior staff. This loss of a sense of achievement increases with rank.

It is intriguing that Clerks fare poorly whilst Head Clerks and Junior Clerks do better. With all these results above 80%, however, it would not be a focus for management action.



Similarly the **overall response** question (figure 15) elicited high positive answers, again decreasing with increasing rank in the organisation. Normally in surveys this is the “Indicator Question” which an organisation would track over the years as surveys are repeated. When this is done, trends emerge, and so the question is of less interest in this first (and possibly only) survey.

Another use of this question is for benchmarking across similar organisations in different parts of the nation – a wonderful project to undertake in India, because of its diversity.

As an illustration, the author compared two groups of mechanical tradesmen in two different types of industries in Australia, one a rigid production line situation, and the other involving direct customer contact and emergency response work. Unexpectedly, the production line workers were found to have a higher score for sense of personal accomplishments. Further analysis revealed that the production line workers were reporting a more frequent achievement of their relatively poor expectations of job satisfaction compared to the expectations of the customer service crews. The latter, because of their higher personal expectations of their roles, reported greater failures to achieve these outcomes. The sharing of perception survey results (using identical wording in questions) amongst differing work groups across a nation can be rewarding to all who participate.

Attention should now be paid to the two most important questions from the standpoint of a strengthening and restructuring consultancy. In the remainder of the paper, the author’s analysis of these two questions from different viewpoints will form the majority of the discussion.

For **restructuring** (figure 16) at an aggregate level, there are really only two discernable responses – those above 80%, and the two classifications of employees well below 80%. For one of these (“Mate”) only 30 returns were received, and they do not hold a senior position in the organisation. For JEs, there are 97 useable returns, and so the latter’s response is worthy of deeper analysis.

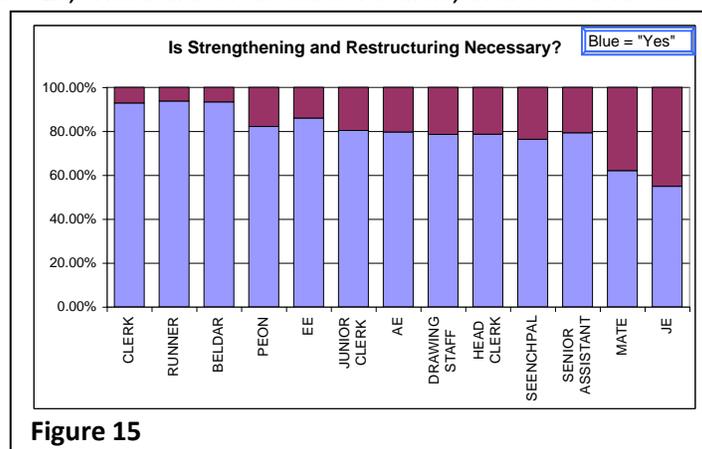
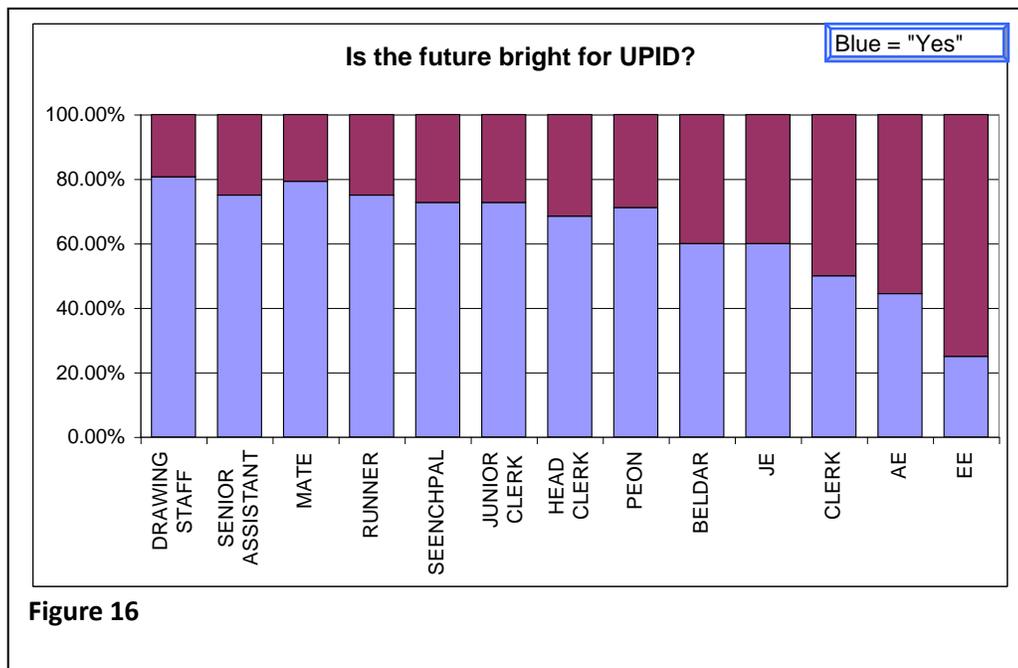


Figure 15

To reiterate, the JEs are the senior officers in the field, but they experience chauvinistic treatment from the degree holding AEs and EEs. Their strong union has achieved advancement in their entitlements and this may explain their aversion to strengthening and restructuring – they are “getting along quite nicely”.

A final important observation regarding this question is that, like a working environment, it is open to two interpretations. Strengthening is a word usually understood as meaning “training and development”, whilst restructuring is usually interpreted as “change”. Therefore the message from the JEs could be, “Do not develop us and do not change us”, but it is more likely to be, “Change is not warranted”.

The “**future bright**” results (figure 17) have been chosen to receive the most analysis in this paper. This is partly because of their significance to the consultancy objectives, but also because of the variations found in the responses – this was the “indicator question”.



Note this may not be seen as the critical indicator for management purposes by the UPID, and so deciding “what to watch” should be related to the objectives and roles of a particular manager, perhaps with the more general questions like “future bright” being the focus of general management rather than line management.

The observations from this last aggregated chart are:

- The low perceptions of the senior staff, including all the engineers,
- The extremely low value of the perceptions of the EEs,
- The more positive view of the seenchpals, who relate to the farmers directly, than that of the beldars who maintain equipment and canals, and
- The pessimistic views of the clerks, as compared to their bosses.

These matters are explored further in the next section with more detailed charts.

Perceptions of The Future in UPID

Reams have been written about the Roles and Responsibilities of the Executive Engineer in the Irrigation Departments of India, and this author does not claim to be an expert. For a reader, new to the subject, the following factors dominate the EE working environment:

- They are the interface between Departmental Operations and the local political figures – and therefore suffer the greatest pressures on transparent behaviour.
- They are the Principal’s Representative in contracts, carrying the power to impede or accelerate works done under contract, and often facing threats that are real and deadly.
- An unknown proportion of this group will have influenced their promotion to the position through financial offerings. Lucrative positions gained this way have to be protected through a continuing process of financial patronage.
- Failure to participate appropriately in the “marketplace for transfers” will lead to punishment appointments to locations where access to additional payments is not possible, such as the Design Branch.

It is the author’s conclusion from extensive observations of this cadre in action over a number of years that many of the negative responses apparent in the following chart are due to these factors (figure 18). As well as their designations, employees of the Department are divided into “classes” –classes 1 and 2 being the senior engineers and class 3 comprising of Junior Engineers (para-professionals), field staff and office staff. Class 4 includes base level field and office staff, where the responses to “future bright” are similar to class 3 (figure19). It is concluded that, apart from the engineers, the aggregated perceptions of the department’s staff are similar whilst the most senior engineers have the least positive perceptions about the future.

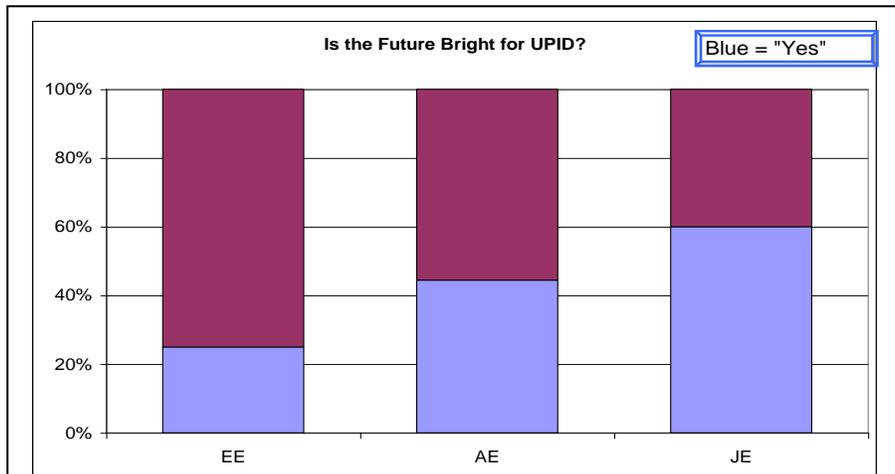


Figure 17

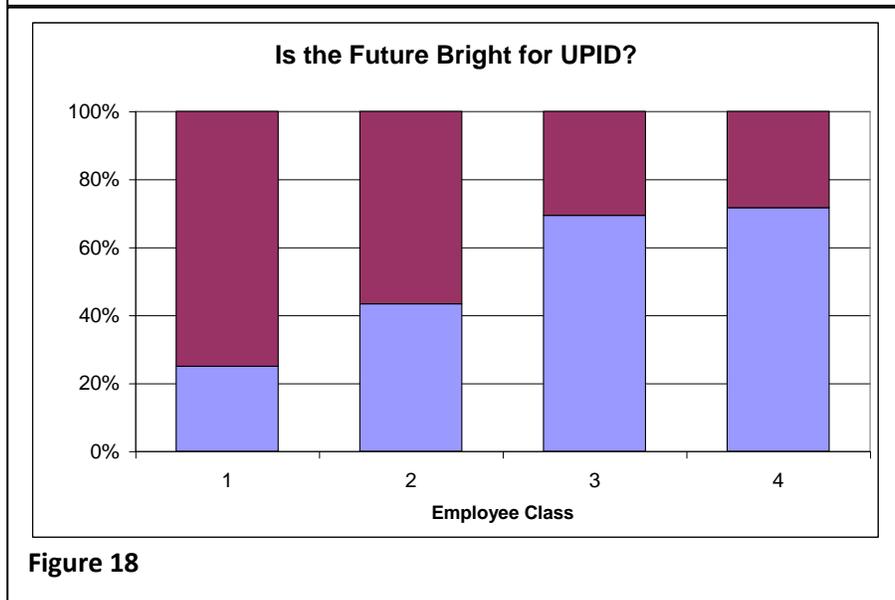


Figure 18

Understanding the Engineers' Responses

Before analysing the situation with the engineers, the author has included the following notes from the surveyor's diary of interviews carried out in a region where the engineers all reported poor perceptions about the future.

There was a general feeling among the respondents, irrespective of their rank (SE and EE are referred to here) that the situation is quite worse and there is hardly any hope for the department. This is explained by the following recorded statements of respondents.

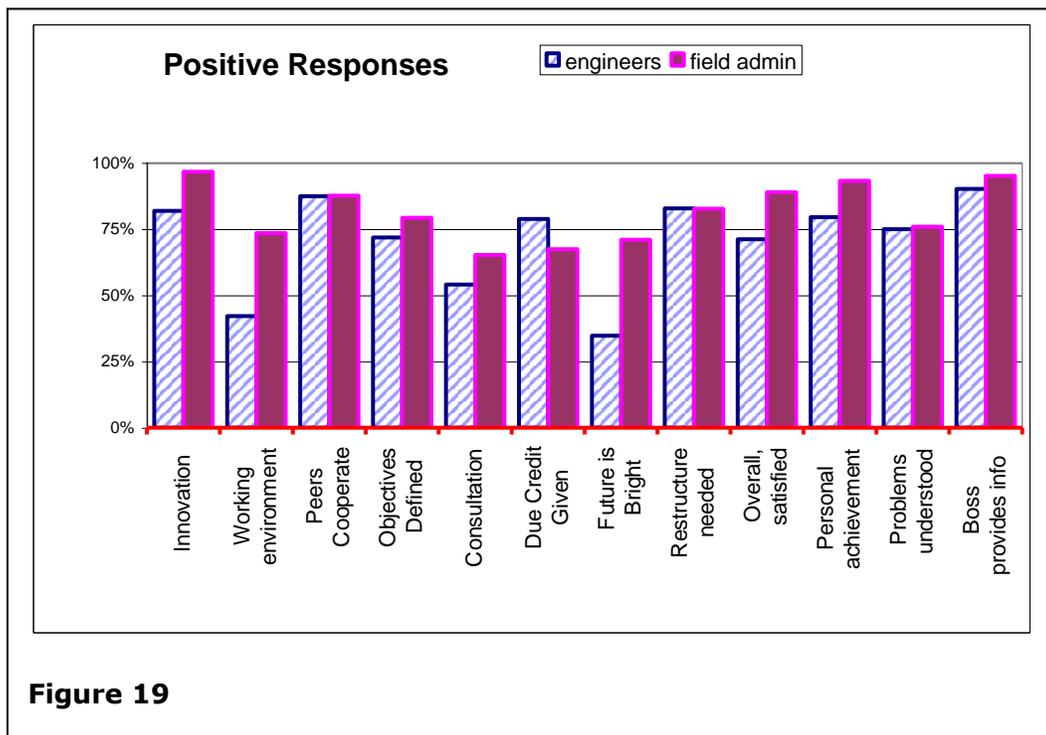
SE: "I am about to retire and I have seen all the deteriorating trends within the department, including corruption and interferences at all levels. Plus nobody allows us to do technical work.

Now the dominance of other players is so much that there is hardly any hope for a better future.”

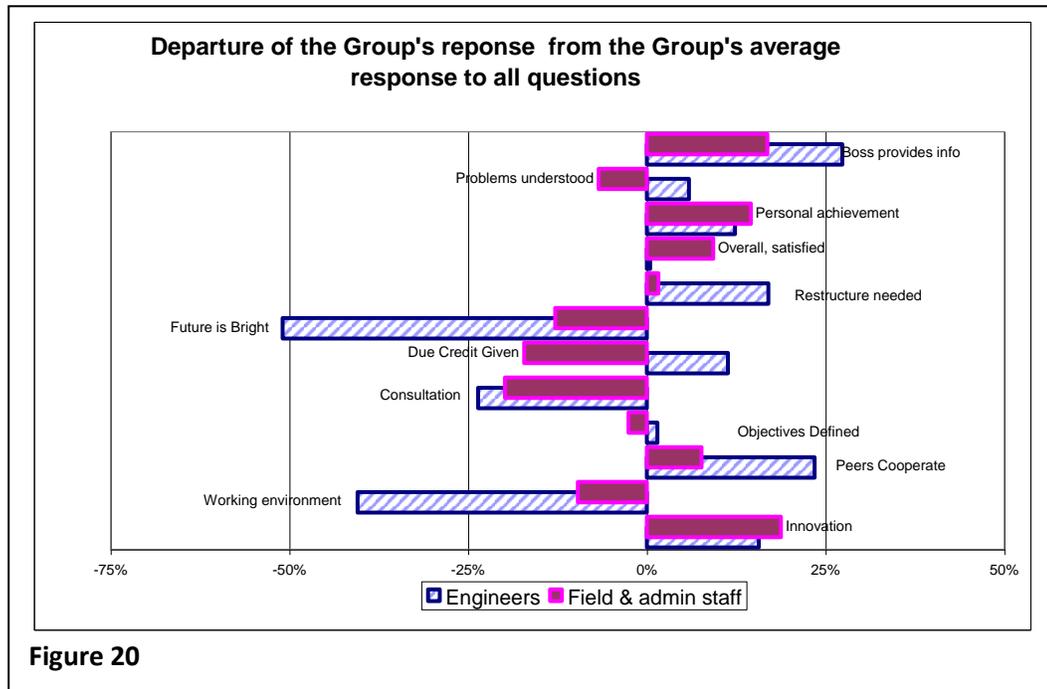
EE: *“I am highly depressed with current state of affairs, where everybody, from administration to politicians ask for all sorts of undue favours. I used to book AC train tickets for politicians. District Administration asked me to get the fuel tank of their cars filled from the petrol pumps where we have credit accounts for our department jeeps, or sometimes they even take our vehicles for their personal works/tours.”*

An AE, highly depressed at the deteriorating scenario in the field with operation and maintenance of canals. While working under this region, which is (i) a sugarcane belt (means water requirement is always intense), (ii) highly resourceful but with volatile mentality, (iii) head to middle reach of Ganga system, and (iv) politically sensitive area, leads to a lot of social and political pressures for providing undue share of water. This often leads to lesser water availability to many command farmers. Although they are senior officers, people don’t pay much heed to them and any small-time politician can easily bash them. So they are highly depressed and don’t look forward towards the future.

The next chart (figure 20) compares the aggregated results of the senior engineers and field staff, where the comparatively lower positive responses of the engineers to the working environment and the future are clear.



In order to further reveal the distinctions between the two groups, each was plotted against the mean of the responses to all the questions by the respective groups, shown in figure 21.



It can be seen that generally the engineers vote in a more extreme way than the field and administrative staff. Thus in the aggregated questions, their influence on the average for the Department will depend on the number of responses received. When a sub-sample of data is analysed, for example from one office, this could become even more exaggerated. However, the evidence in this chart is clear. Senior engineers report poor perceptions about both, the future and their working environment.

Another approach to this part of the research was to use regression analysis between pairs of questions and search for the “trending regressions”, that is, where the influence of either the relationship with the superior officer or the organisational context on the individual’s perception of the future is strong and also taking into consideration the correlation coefficients generated, as shown in figure 22.

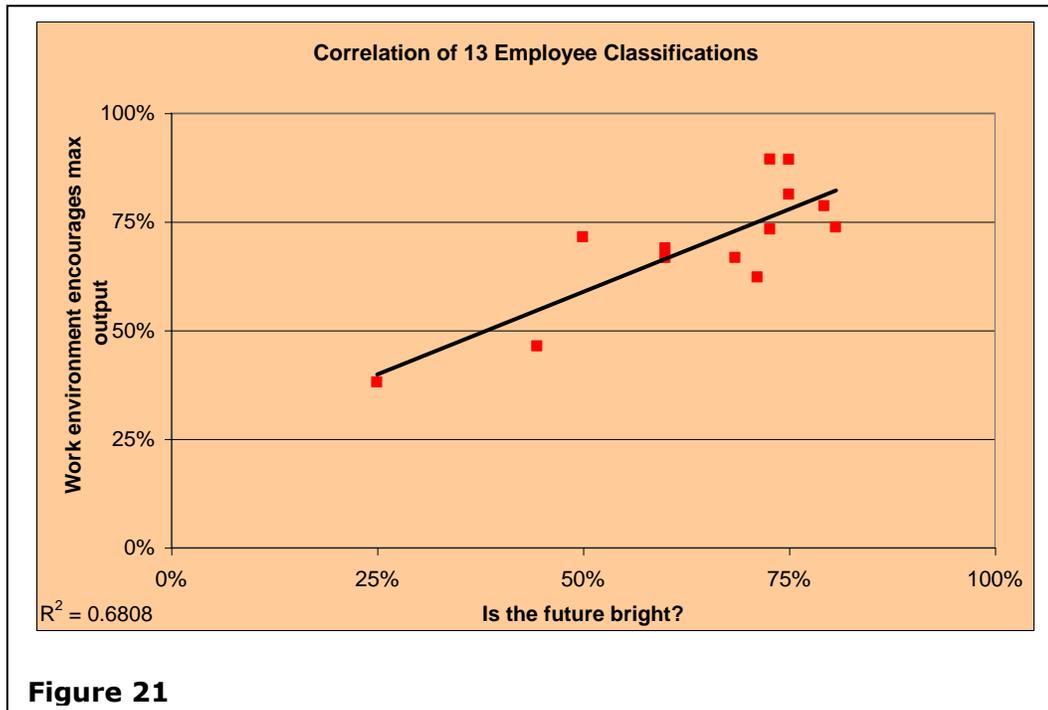


Figure 21

This enables the identification of influencing factors that can be reported with high confidence. To illustrate, “Future Bright” is presented in this way too. This chart includes the thirteen classifications of employees used in this study, with a correlation coefficient of 0.6808.

This can be summarised by using the four employee classes. The results in the following chart (figure 23) have a higher correlation coefficient partly because of the fewer data points, but the understanding of the contrast between the classes is increased, as the perceptions of a good working environment correlating strongly with perceptions of a bright future is seen.

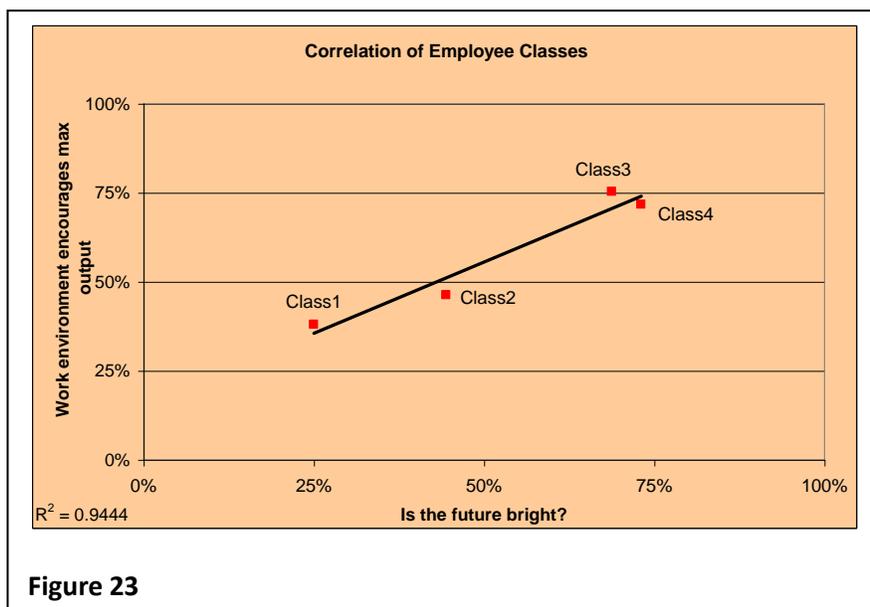
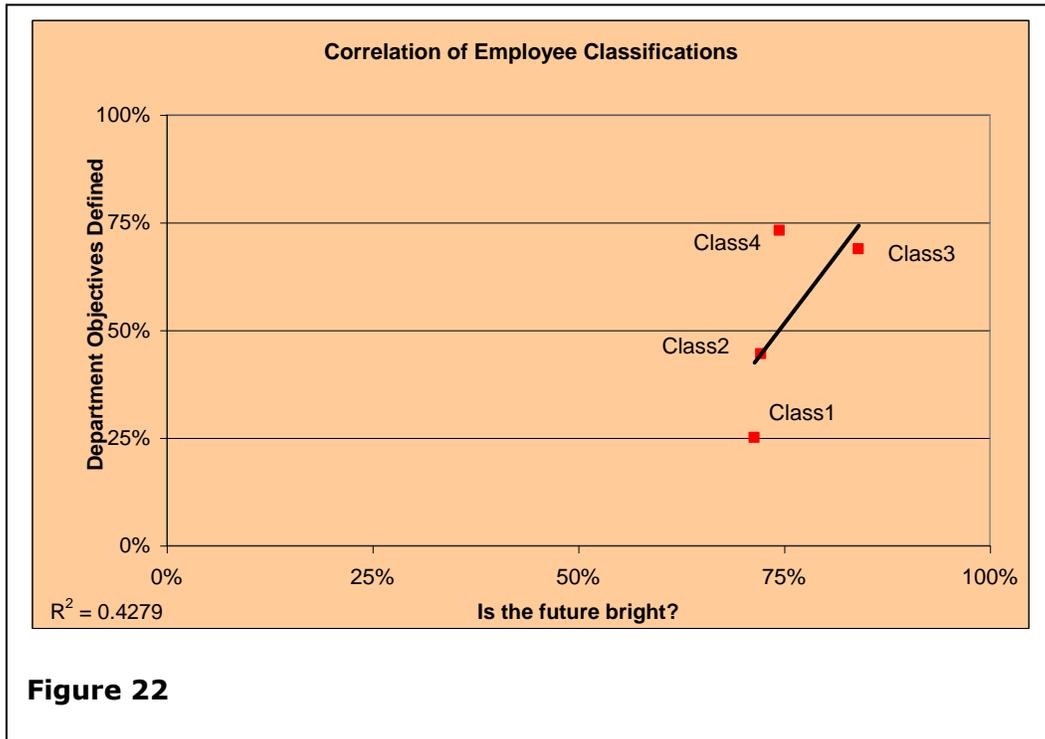
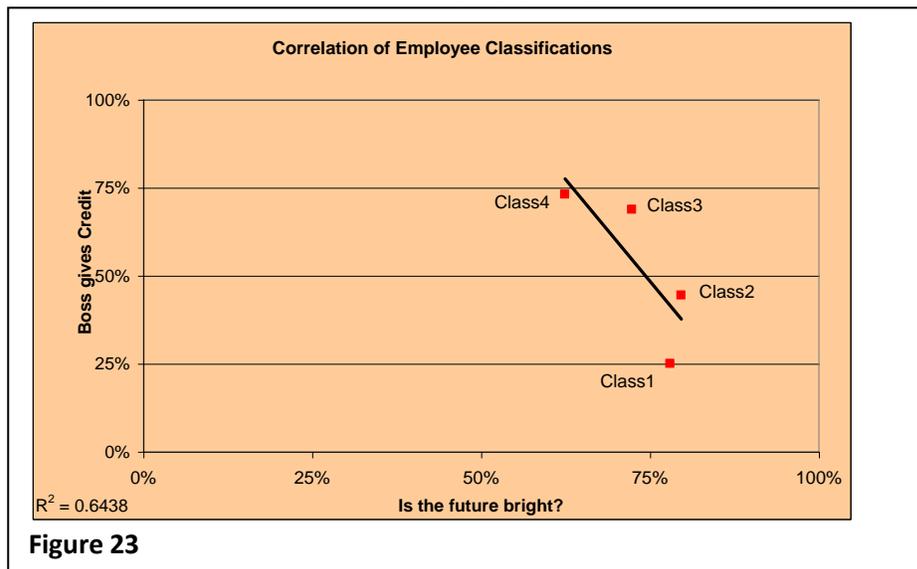


Figure 23



An extensive search was made for other strong and reliable correlations, mostly without success. For example, the relationship between “Future Bright” and “Department Objectives Defined” is positive (figure 24), but the correlation coefficient is low.

Using regressions through only four points is always a dubious procedure and overlaying this on the feudal voting behaviour can lead to bizarre results, like the next chart (figure 25), where it appears that if the boss spends less effort acknowledging good performance, perceptions of the future improve.



The work reported indicates that regression analysis assists with the study of trends (in this case the progression up the engineering hierarchy, from class 3 to class 1, where a reduction in the reported rate of bosses giving credit occurs). But it is also obvious that there is no useful understanding revealed between giving credit and the perceptions of the future.

Of these correlation charts, the strongest relationship with “Future Bright” was found to be with “My nature of work and environment encourage me for maximum work output” (figure 23). This is a surprising result, considering the previous experience of the author.

In Australia, stronger correlations with perceptions of the future come from clear objectives and democratic decision-making and so one of the author’s Indian staff was requested to comment, as reproduced below. The question the author put to him was, “In UPID why is the quality of the chair, the desk and the almira (storage cupboard) more influential than strategy and consultation?” The response from the surveyor was:

“Yeah, the objective is much more significant than the table-almirah-chair. But when it comes to hardcore reality of their offices, the story is different. We know that they earn a lot of money from other means, but they tend to live a simple life, either to hide the truth or expect the government to do such things for them.

In this case as well, the offices (especially divisions, circles and sub-divisions) are in bad condition and from their general responses, one can conclude that they desperately need basic infrastructure rather than any philosophical or ethical thought. However, there are certain individuals, who still believe in integrity and want to uplift the department to new heights, but the other bunch outnumbers them significantly.

Another reason for table-almirah-chair greed appears to be their exposure to other high profile officers in private offices, which is often like a shock for them. What they actually deserve is a different thing, but they definitely compare their offices with the other ones.”

The Influence of the Individual Workplace on Employee Responses

The disaggregation of results by workplace is discussed here. This is the area where most attention is focussed in organisations that undertake surveys regularly, allowing the impact of individual manager performance to be revealed, as well as the impact of changes in organisational strategy. “How did we compare?” is a phrase raised by both, managers and staff at individual locations when the survey results are released.

Because the UPID management declined to circulate the results of the survey, this question could not be answered and in retrospect, the extremely low response-rate may have led to incorrect conclusions being drawn. To illustrate, the following analysis explores the results from 6 different offices, reviewed as 3 pairs of charts. It will be seen that comparisons between work groups are complex to interpret.

Modi Nagar and Jhansi –“the commitment of the manager is not enough”

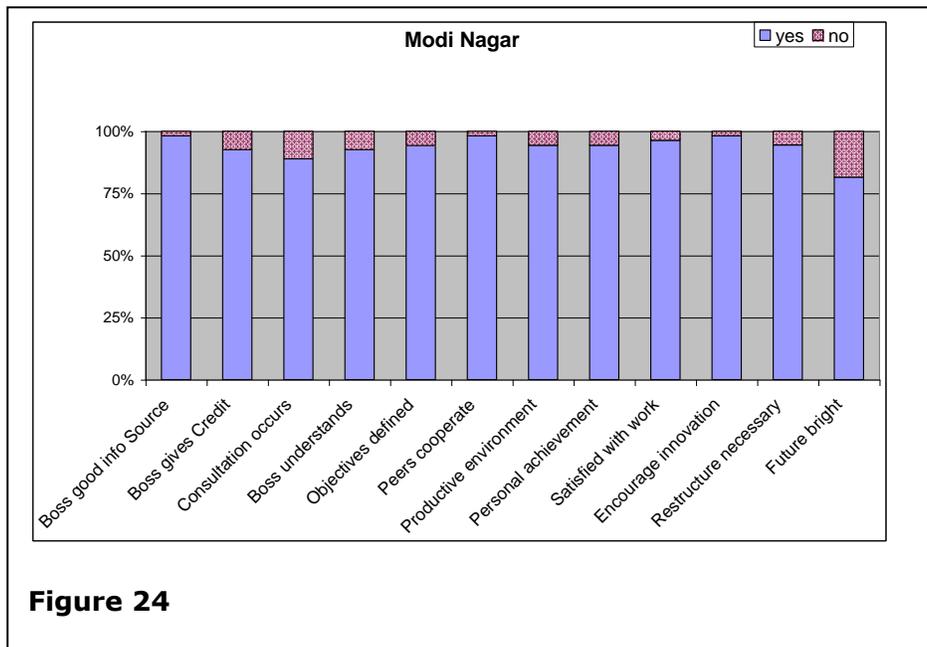


Figure 24

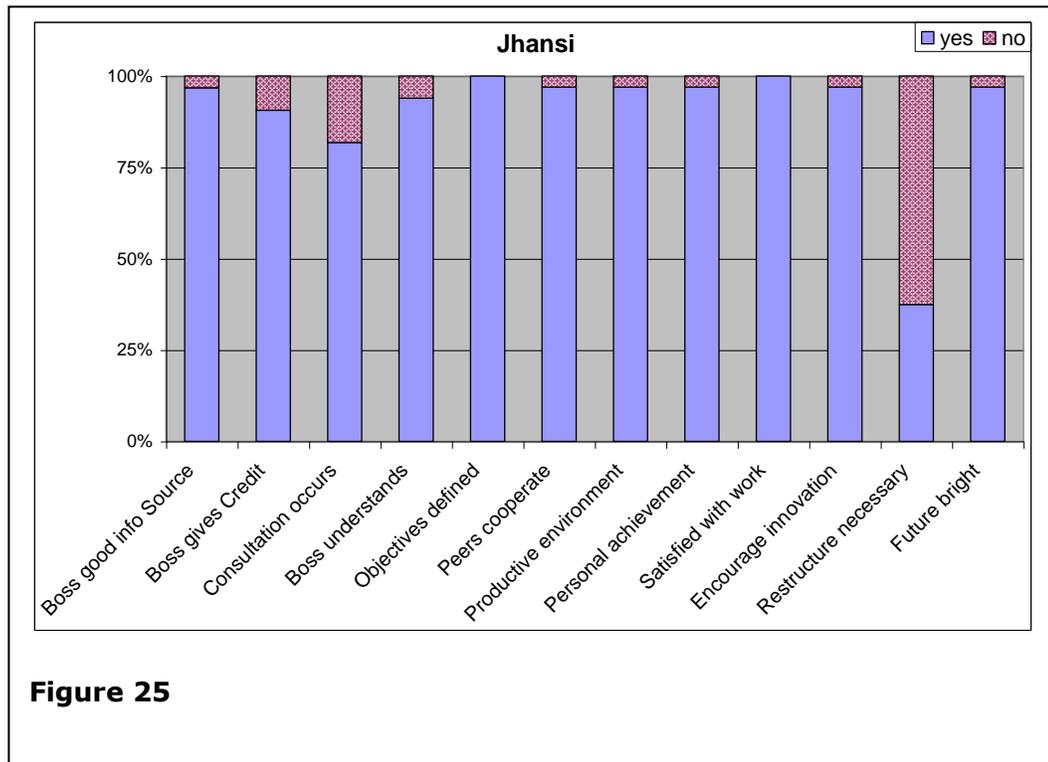
Modi Nagar (figure 26) – comments from the surveyor:

“It is more or less Operation and Maintenance divisions. Lots of interferences but being a well connected district (to Delhi) and a highly resourceful area (in terms of water and soil fertility, it is known for being a sugarcane area), people love to be here. Of course, the avenues for other means to generate money is also relatively high over here”.

This work site returned one of the most positive perceptions across all questions, with “Future Bright” being their poorest result.

But there is an indication of feudal voting apparent - where the consensus on all questions is strongly positive, including Restructure Necessary. If all is so wonderful, why is there a consensus that restructuring is necessary?

Compare this with Jhansi (figure 27), where Restructuring received a far lower positive response.



From the surveyor:

“As I recall, the Jhansi guy was relatively okay with the current scenario. I think it is more to do with an individual. This guy was sober, quiet but highly positive and work oriented. So probably the restructuring requirement from his viewpoint is minimal. Despite the fact that this place is remotely connected, poorly resourced, drought prone but still boss is relatively satisfied with their work and are performance oriented”

The results are similar except there is only 40% support for restructuring. Further analysis revealed that the sample, from Modi Nagar, contains 50% seenchpals – field supervisors who distribute water, whilst 50% of the Jhansi sample were Head Clerks. There was a 95% yes vote for restructuring among seenchpals and 40% support from the clerks.

Bareilly and Maharajanj –“staff responses reflect the group’s core activities”

The responses for Bareilly (figure 28) and Maharajanj (figure 29) are presented next.

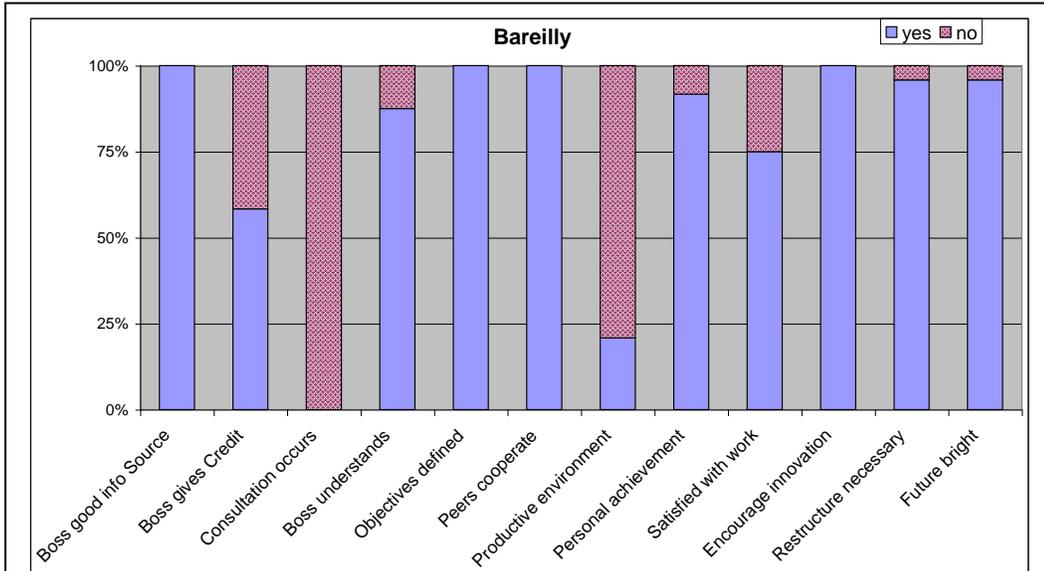


Figure 26

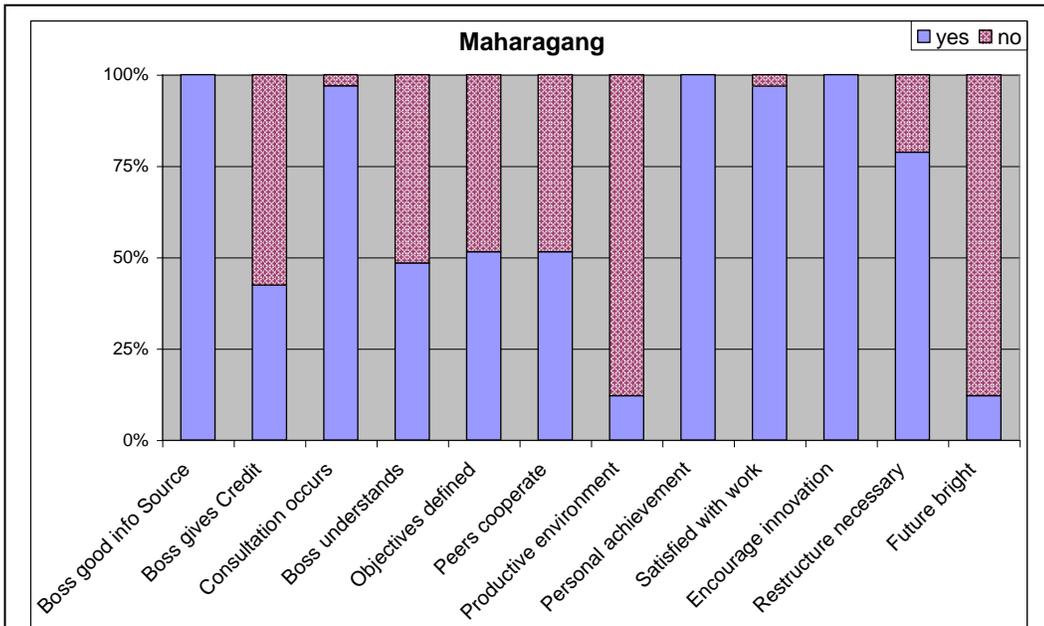


Figure 27

From the surveyor:

“The Bareilly people are mainly from workshop divisions. As they did not have significant workload, they are a bit disgruntled. They are more annoyed by the fact that, although they can do designing and fabrication works, the Department still outsources this task to private players and never takes their opinion in this regard.

This workshop used to be the pioneer in its times, but now the situation has totally turned around. Two reasons – first, lack of construction works, in comparison to earlier construction-driven era, and second outsource of similar works to other private players.

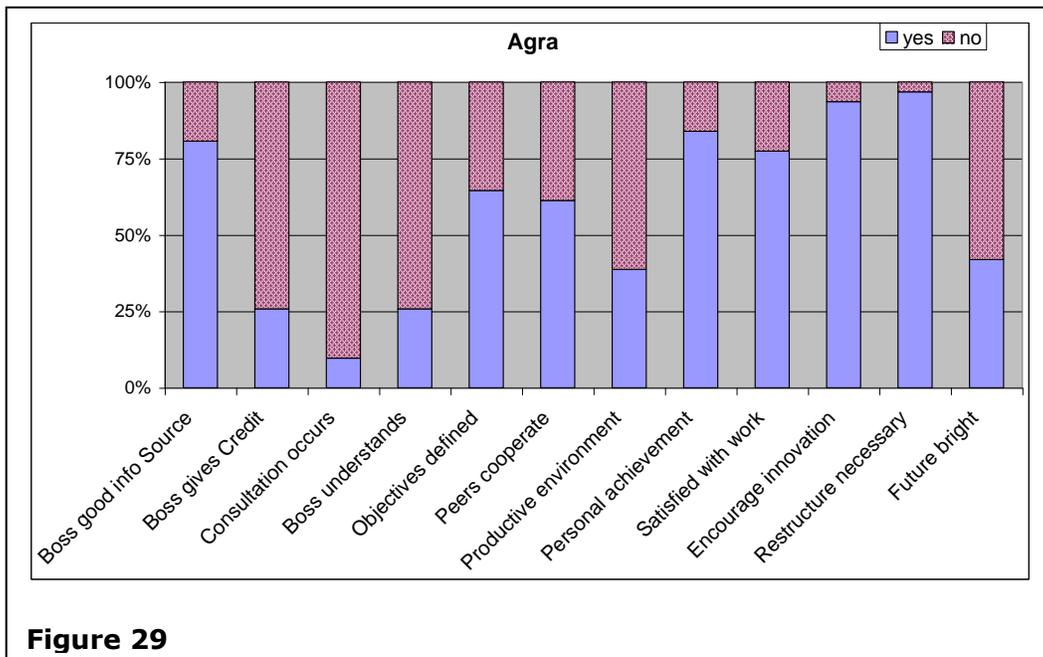
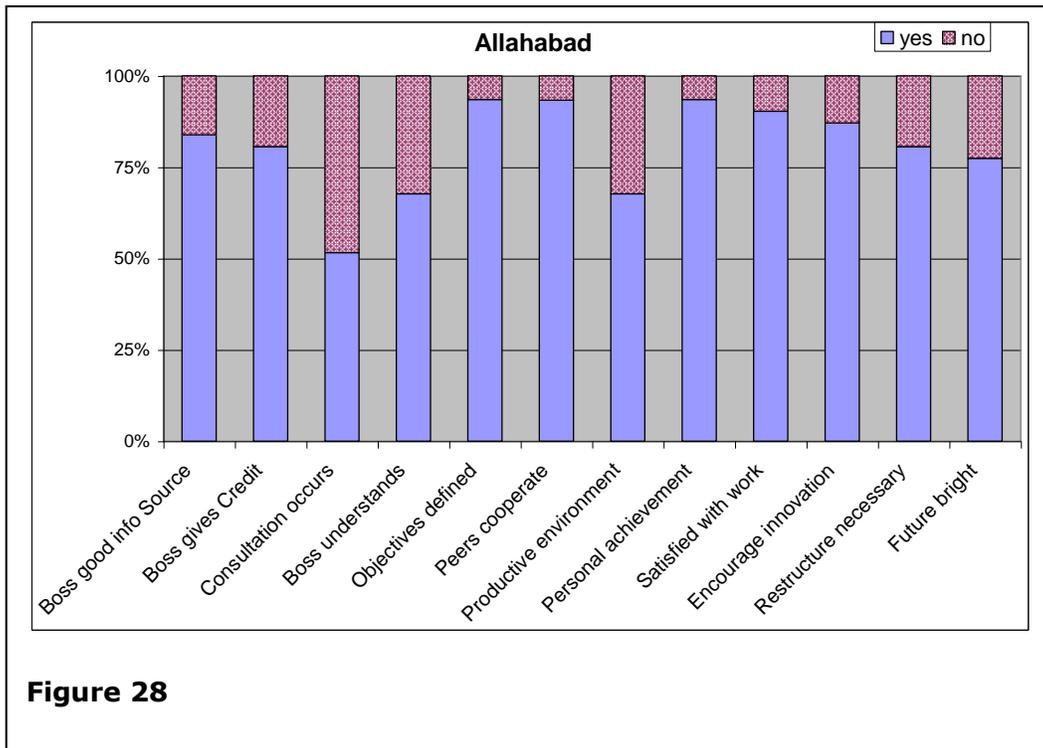
However, Department may be right in doing so, as the work efficiency in such workshops have gone down along with the usual government labour complexities.”

“Maharajganj is a Floods division and part of it may be looking after Operation and Maintenance. It is a highly remote area, with a lot of mafia and political interferences. I will not be surprised by the responses like no hope for future, desperate need for restructuring, deteriorated working environment, etc. This is all attributed to current social and political complexities. Part of the reason is persistent negligence of authorities towards this area and under-resourced scenario of this area”.

Comparison of the charts indicates contrasting scores in these locations for both Consultation and Future Bright. Thus for these two worksites the impressions of the surveyor in onsite conversations was confirmed by the survey: consultation was lacking in Bareilly and the impact of political interference in Maharajganj on hope for the future was apparent.

Allahabad and Agra – “Local management decisions will have an impact”

Allahabad (figure 30) and Agra (figure 31) are two prominent cities with large local Irrigation Department offices. Despite this similarity, their results are contrasting and the author’s surveyor provided some reflections on their local operating environment.



“Agra Managers are forward looking but since they do not have significant workload and were just doing deposit works, so they desperately sought change, but under the current scenario, they felt that the future of the department is bleak for them, unless some significant irrigation construction work comes to them. At the time of the survey, an active Division of Agra Circle was transferred to the city of Mathura, leading to further resentment among those that were left behind.

Agra was having no significant work in hand, except some deposit works on behalf of water supply (Jal Nigam) and Municipal (Bathing Ghats) departments. I still remember, the manager of Agra Irrigation Works Circle - relatively dynamic person, looking forward to change, as his current work is not what they are actually supposed to do. So may be degree of hope towards requirement of restructuring and change is high in this case.”

“Allahabad is having a couple of major construction works like Bansagar and Ken-Betwa Link. So they are happy and feel that for them, the change is already on.”

And so an opportunity exists for the Department to take into consideration these responses to the strategic decisions taken by the organisation. If the assessments by the author’s surveyor are accurate, then in this case it is not a management style problem that is leading to poor outcomes in Agra, rather strategic decisions by the organisation.

Conclusions

This paper records the results of the application of a modern employee survey instrument in a large Indian Irrigation Bureoucracy in which the author was undertaking an Institutional Strengthening and Restructuring consultancy.

The conclusions drawn have been separated into those relating to the outcomes and those relating to the lessons learnt from the application of the instrument in an organisational environment far different from that commonly encountered in modern private organisations and most public institutes.

Outcomes from the UPID Employee Survey

- Poor perceptions about the future of the organisation are widespread and are most extreme amongst senior engineers.
- Responses to the phrase “my work and environment encourages maximum output” followed the same pattern, although it is suspected that the question was related to “office comfort” rather than to working relationships and frustration with interactions with external parties, like politicians.
- Staff have a strong confidence that their supervisors are a reliable source of information.

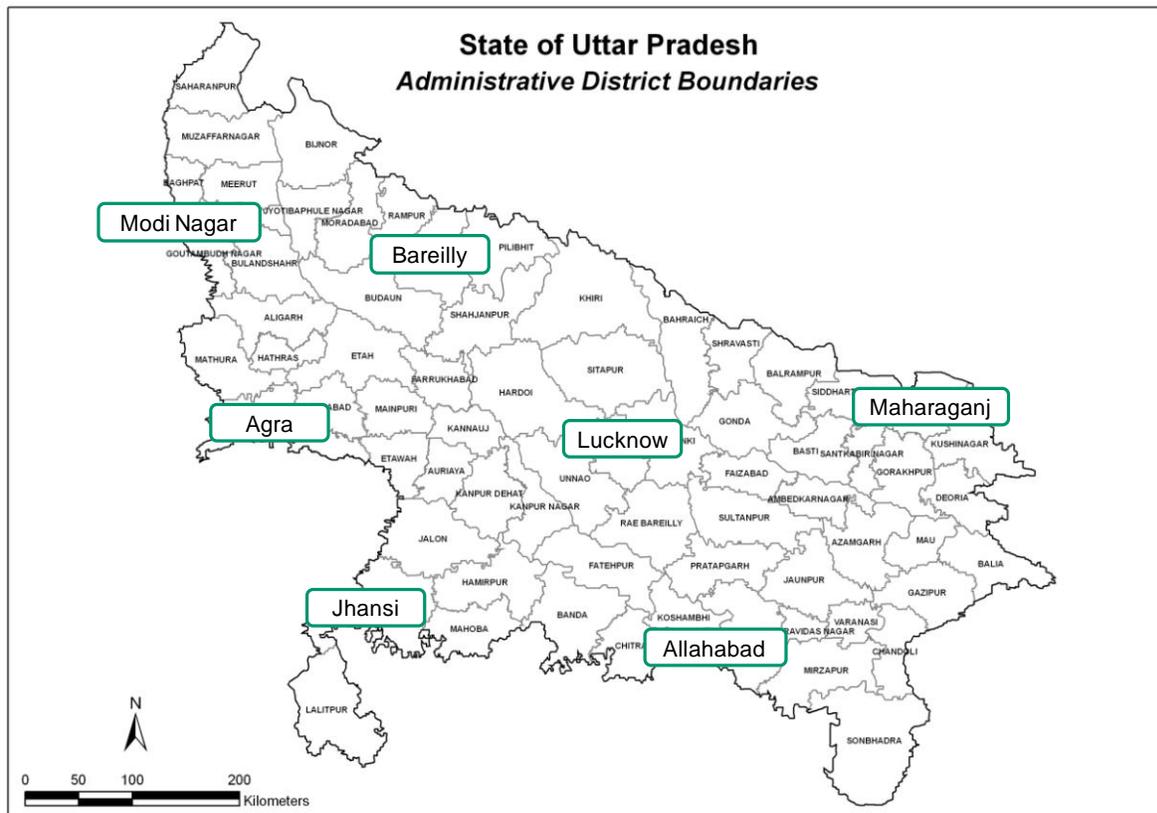
- Field staff interacting directly with farmers report a clearer sense of the objectives of the Department than office workers. Here too, the office-based engineers score lowest.
- The perceptions of personal satisfaction and the overall satisfaction with work are high.
- Most groups of staff recognise that restructuring and strengthening is necessary, but the Junior Engineer class is least in favour of change.
- There is a pronounced trend towards increasing pessimism about the future of the Department as we move up the ranks of engineers. This is partly because of the more extreme responses of this group to all the questions, but appears to be linked to their working environment. For this senior group, this is unlikely to be a reflection of “hygiene factors” like a lack of furniture, but probably reflects the often compromised nature of their role in the organisation.
- The responses to the UPID employee survey are strongly geographically biased. Wide variations were revealed in perceptions of the future, communications, trust and other measures across the State. This implies that individual managers or the local strategies of the Department affect outcomes. These are controllable by the organisation if it chooses to address these factors.
- With the limited knowledge of the author and his team, it has been possible to account for some of the variations in local strategic and social issues. The survey has demonstrated its power to reveal forces that obstruct the performance of the organisation.

Lessons learnt from the application of this management tool in an Irrigation Department in India.

- Democratic tools are far less effective in these environments since they will be resisted by feudal management at all levels.
- The survey was designed to be extensive and inclusive by offering questionnaires to 40% of the 82,000 employees. This involved enormous logistical efforts, particularly collecting returns, some of which arrived on the author’s desk six months after the completion of the survey. Next time the author would narrow his search and invest more in increasing understanding by the staff of the purpose of the survey. In other words, apply a sampling strategy and provide more context to staff.
- Endorsement by senior management, although effective in other cultures, did not lift the response rate. This is not surprising in a feudal bureaucracy where instructions delivered personally by telephone from the Head of the Department are commonly ignored in the field.
- The “yes or no” choices given to the staff was not a successful survey tactic. The decision resulted in a heavy bias towards the positive, but it is suggested that in a feudal bureaucracy, being positive about one’s boss has a survival value.

- The survey was undertaken under "instructions" from the Department, which was the author's client at the time. None of the results was included in the final recommendations regarding strengthening the reforms as most of the empirically-based research undertaken was rejected by the client. It is important to explore the intended use of the data with those who commission it before the exercise is undertaken.
- For UPID, the author predicts that at some future date, if other keen persons undertake a survey, they will encounter cynicism from the staff towards the process. To take a survey and then take no action, even just to give feedback, is damaging to the credibility of those who commission the work.
- Despite the barriers to success inherent in the feudal organisation, the author's staff can be considered to have been successful in executing the survey, in that the subsequent analysis described herein demonstrates that much has been revealed.
- From the author's experience of implementing management development initiatives based on the same questions in an Australian utility, it would be possible for the Head of the Department in UPID to use these results to identify the high performing units and assist managers to improve the performance of the staff under their control.

Annex 1 Map of Uttar Pradesh showing locations referred to in the paper.



Annex 2 Hindi Translation of Survey Form.

सिंचाई विभाग कार्मिक सर्वेक्षण, दिसम्बर, 2005

प्रियवर,

सिंचाई विभाग के संस्थागत सुदृढीकरण एवं पुनर्गठन, आई0एस0आर0के कार्य हेतु यह आवश्यक हो गया है कि विभाग में कार्यरत अधिकारियों/कर्मचारियों का एक सर्वेक्षण किया जाय। इस हेतु एक प्रश्नावली तैयार की गई है जो प्रथम श्रेणी से चतुर्थ श्रेणी तक के कर्मचारियों को सुविचारित उत्तर देने हेतु भेजी जा रही है। गोपनीयता रखने हेतु प्रश्नावली पर अपना नाम भेजना आवश्यक नहीं है तथापि विश्लेषण हेतु यह आवश्यक है कि सभी अपना वर्तमान पदनाम, पता एवं विभाग में कार्यरत अवधि इंगित करने का कष्ट करें। सर्वे का परिणाम विश्लेषण उपरान्त अब तक प्राप्त सूचनाओं को सत्यापित करेगा एवं भविष्य के लिये नये मुद्दे खोजने में लाभदायक होगा। निवेदन है कि कृपया दिसम्बर, 2005 तक प्रश्नावली का उत्तर भेजने का कष्ट करें जिससे इस सर्वे के परिणाम जनवरी, 2006 में प्रकाशित किये जा सकें।

| | | |
|---|--|------|
| पद : | आयु : | |
| सेवा कार्यकाल : | कार्य स्थल : | |
| कृपया दिए हुए प्रश्नों को ध्यान पूर्वक पढ़कर अपनी प्रतिक्रिया पर चिन्ह लगाएं। | प्रतिक्रिया हाँ <input type="checkbox"/> नहीं <input type="checkbox"/> | |
| प्रश्न | हाँ | नहीं |
| मेरा नियन्त्रक अधिकारी/कर्मचारी एक अच्छी/विश्वसनीय सूचना का स्रोत है। | | |
| मेरा नियन्त्रक अधिकारी/कर्मचारी कार्य के सुचारु रूप से पूर्ण होने पर मुझे क्रेडिट देता है। | | |
| कोई निर्णय लेने से पूर्व उससे प्रभावित होने वालों से पूछा/चर्चा की जाती है। | | |
| मेरे से सीधे सम्बंध वाला प्रबंधन/अधिकारी मेरे स्तर की कठिनाईयों को समझता है। | | |
| सिंचाई विभाग के उद्देश्य स्पष्ट परिभाषित हैं। | | |
| जिनके साथ मैं कार्य करता हूँ वे मुझे कार्य पूर्ण करने में सहयोग प्रदान करते हैं। | | |
| मेरे कार्यों की स्थिति एवं यातावरण मुझे अधिक से अधिक कार्यक्षमता प्राप्त करने में प्रोत्साहित करते हैं। | | |
| मेरे कार्य मुझे व्यक्तिगत उपलब्धि का एहसास दिलाते हैं। | | |
| सब परिस्थितियों के बावजूद, मैं अपने कार्य से संतुष्ट हूँ। | | |
| मैं अच्छे एवं नये तरीकों को बूझने एवं कार्य करने में प्रोत्साहित महसूस करता हूँ। | | |
| क्या सिंचाई विभाग के सुदृढीकरण एवं पुनर्गठन आवश्यक है। | | |
| सिंचाई विभाग का भविष्य उज्ज्वल है। | | |
| क्या अनुसंधान मद में आपको पर्याप्त धनराशि प्राप्त हो रही है। | | |
| क्या कार्यालय व्यय मद में आपको पर्याप्त धनराशि प्राप्त हो रही है। | | |

हमारे संज्ञान के लिए ऐसा कोई विषय जिस पर आप प्रकाश डालना चाहें।



Uttar Pradesh Irrigation Department

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Book Review

A call for convergence of disciplines for Integrated Water Management

Water, Ecosystems and Society: A confluence of Disciplines

By Jayanta Bandyopadhyay

Publisher: Sage; Year of Publication: 2009; PP: 191, Price: Rs 550

Anjal Prakash

Sr Fellow, Research & Outreach, SasiWATERS

In the wake of water scarcity, climate vulnerabilities and mounting environmental degradations, water issues are becoming more complex posing newer challenges for better governance and management. The complexity and new challenges require blending of knowledge from different disciplines that can bring valuable information about the possibilities and consequences of decisions and actions towards an impending solution. Interdisciplinary approach, therefore, is essential in laying the scientific foundation for solving complex problems that need integration across the biological, physical and social science disciplines in a very broad sense. The book under review revolves around this theme and provides an approach to the generation of interdisciplinary knowledge around water and ecosystem. Calling the water systems management - a confluence of disciplines, the author has put forward interdisciplinarity as a major agenda for building perspective around water.

To support the main argument of the book and bring in an interdisciplinary outlook in the planning and management of water resources, the book brings in four intense and well researched papers which have relevance in present day ecosystem management. The first chapter, being an introductory one, explains the need for interdisciplinary knowledge for water while setting the agenda for future research and action through providing signs of probable research gaps. Three chapters that follow the introductory chapter indicate how these gaps could be filled and then elaborate further on covering some areas in detail.

Chapter one – interdisciplinary knowledge on water systems maps the gap of water science and policy in India to answer the questions – why Indian water management has functioned with disciplinary brilliance but has not been able to go beyond the disciplinary boundaries? The author discusses the lack of institutional incentives as a root cause for not being able to cross disciplinary boundaries and to question the status quo of present water management thinking and practices. The author expects that the institutional mechanisms for facilitating newer

knowledge for water would feed into the practical world and be used for fulfilling the larger cause of poverty alleviation. Nine interdisciplinary research themes are identified which could be used as the framework for research on water systems. They border on eco-hydrological knowledge on the surface and ground water systems, comprehensive assessment of water related projects, application of economics in water policy and governance, ecological perspectives of extreme events, social dimensions of water systems use and local institutions, technological options for water systems management, global change scenarios and adaptation and water laws and entitlements.

Chapter two focuses on the eco-hydrological perspective on floods and builds the argument around the fact that floods are part of the natural process and have many beneficial ecosystem contributions that could provide important economic opportunities. This is against the classical engineering understanding that looks at floods as disasters which need to be controlled. Providing a detailed and technical understanding of the causes and conditions of flooding, the author gives a framework for a holistic and ecological perspective of flood moving away from mere engineering to an interdisciplinary analysis. Providing a typology of floods in India, the author explains the detailed eco-hydrological processes associated with the flood systems and as an important ecological function. Extreme events, as associated with floods, are not only rare but occur more because of the human-induced drainage congestions and less due to natural occurrences. This view is necessary to counter the reductionist view of floods that is attributed to natural disaster which is needed to be controlled through engineering marvels. These views fail to recognize floods as an integral part of riverine processes that performs important ecosystem services such as breeding of fish population, control of salinity ingress, supply of biomass, cultivation of tropical wetland crops, livestock grazing, groundwater recharge.. etc to name a few. So what is the idea of living with floods in south Asia? The author explains the adaptive approaches and locally evolved flood survival norms as 'holistic, locally based, participatory and integrated approach that recognizes the importance of floods in maintaining ecosystems and their roles in human society' (pp-87).

Chapter three deals with a rather contentious issue of valuation and pricing of water and its policy implications. The author takes lead largely from economics and ecological economics and applied this to the valuation of water. The chapter is largely based on the critique of the institutional economists who are not able to quantify the transaction costs 'due to their improper delineation' (pp 102). The chapter thus proposes for more objective instrument for policy makers in terms of water valuation. The first part of the chapter talks about valuation as a tool which can be used for resolution of water disputes and in providing economic services of water (for agriculture, industrial and domestic water sector). The second part deals with the valuation of ecosystem services of water using a detailed account of different theories of

valuation. It focuses on the scarcity value of water due to shortage of resources. There is a difference between the scarcity value and the total market value and the total cost of water should highlight upon both, on scarcity value as well as opportunity cost of water which, according to the author, should guide allocation decisions within and across water sub-sectors. The author claims that 'scarcity value is a holistic measure of not only the state of the resource, but also of every type of intervention that can occur on the resource, which rarely gets captured by the notion of scarcity' (pp 132). The chapter is interesting to read for its nuanced understanding and elaboration of water pricing tool but the core question of 'getting the prices right' still remains one of the dogmas of commercialization of water. The premise of the pricing of water corresponding to the cost of the service all the way along the supply curve does not hold good in reality though extensively discussed in text books. The recourse to this technical jargon not only leaves many public service advocates infuriated but also helpless against rapid water price increases for poor people. The economics of water allocation and pricing in developing world shows that it is an immensely political process and most often do not follow the impeccable economic logic. More interdisciplinary work is needed on pricing as a tool for water allocation and management.

Chapter four focuses on the much discussed and ambitious river-linking project of India put forward by the Bharatiya Janata Party led National Democratic Alliance. The project was scrapped by the United Progressive Alliance government in 2009 when the present book was under publication. The project was conceived as a part of the inter-basin transfer of water and proposed to link 14 Himalayan rivers in the north and 16 peninsular rivers in South India. The benefits of the scheme was shown in terms of adding 35-37 million hectares of irrigated land, generating 34,000 million kilowatts of electricity and increasing navigational efficiency apart from controlling floods and eliminating chances of drought. The chapter critiques this striving effort of the government on economical feasibility, social acceptability and ecological sustainability which will 'neither secure domestic water supply in all the dry areas nor assure basic food security of India' (pp 177). According to the author, there is no justification of a river basin being surplus or deficit in hydrological science as each river basin represents an ecosystem and water flow in each ecosystem is according to the natural conditions in which it occurs. This chapter puts forward a very important learning of comprehensive assessment and appraisal is needed before planning interventions especially when it is going to impact a large population of people – positively or negatively. Interdisciplinary knowledge plays an important role in this judgment.

Overall, the book is very well researched and written in a lucid language which is both academically sound and scientifically justifiable. It carries a political perspective which shows an alternative to each issue discussed, barring the chapter on water pricing. This small and handy

book will be used by researchers and academicians interested in inter- and transdisciplinary knowledge on water as it also sets an agenda for future research and action. However, the reviewer expects the author to also dwell on the other six issues discussed as research agenda in the introductory chapter which was not elaborated in the chapters later.

Book Review

Politics associated with Policy Making

Resisting Reform? Water Profits and Democracy

By Kshithij Urs and Richard Whittell

Publisher: Sage; Year of Publication: 2009; PP 169, Price: Rs 395

Vishwa Ballabh

Professor (Economics) and Coordinator

Centre for Rural Management, XLRI School of Business and Human Resources, Jamshedpur

The United Nations 2006 Human Development Report was devoted to water and it has argued that with the start of the 21st century, unclean water is the world's second biggest killer of children and left unchecked will derail progress towards the Millennium Development Goals (MDG) and hold back human development. It has further argued that the ill-health associated with deficit in water and sanitation undermines productivity and economic growth, reinforcing the deep inequalities that characterize current pattern of globalization and trapping vulnerable households in cycles of poverty. The book by Kshithij Urs and Richard Whittell is a reminder of these concerns. If everybody's need for water cannot be reconciled with the desire of some to profit from its sale, the need to provide all with the water they need to survive should get priority over other uses. The water privatization priorities and the financial profit of a few must be subordinate. However, the current reform process in water sector and involvement of private corporations in general make peoples' basic needs subordinate to running economically efficient services. Thus public private partnership is the preferred agenda in the current reform process and discourses in water governance reforms. The manner in which public private participation is implemented over other water reforms leaves out those who cannot pay for these services. These arguments are neither new nor unknown to Indian academia, policy makers and civil society organizations. What is new and unique about the book is the detailed description about the manner in which the private corporation is entering into the water sector undermining and bypassing people's institutions and their elected representatives.

There have been fierce arguments in Indian academia and civil society during the 1990s about water as an economic private, public or common good. It was argued that water comes in many forms; these are typically governed by different legal, economic and cultural framework. However, proponents of privatization have argued that water needs be treated as an economic

good which gives primacy to markets. Critics however, maintained that 'water' is composed of bundle of rights, allowing some aspects of water to fall under private control and/or to be consumed, and withholding other rights 'in the public or common domain'. An alternative conceptualization holds that there is a fluid continuum between what is private and public and often water access may be treated as common pool resources. Thus, if reconceptualization of water as an economic good is sought, how would pricing be used to regulate private consumption of the 'powerful' without endangering other private and public rights in the bundle? There will be little disagreement that, from the perspective of individual human beings, adequate access to safe water must be treated as a right similar to other human rights. Water is the essence of all life and cannot be replaced by any other alternative form to fulfill its role. This is the spirit of this book. *"The privatization is not being advocated because it is intellectually coherent (it is not) or because it has worked well throughout the world (it has not). It is on the advance in India and in Bangalore because it is supported by the variety of powerful institutions, both in and outside the country". (p.73,)*

The book is not only a critique of privatization of water services and private-public partnership but also a larger political economy of the state and how the state and peoples' institutions are undermined to incorporate the agenda of big powerful lobbies of both inside and outside country. For example, it concludes how democratic institutions are bypassed in the current reform process. *"The neutralization of democracy and the exclusion of popular voice that this leads to is further lubricated by the increasing dominance of parastatal bodies, even at the expense of the powerful ministries of state. Policies, arranged into grand sounding programmes, are designed either at the state or national level or by foreign institutions, and are channeled through a 'nodal agency', invariably a parastatal body. The municipality then functions within the parameters specified by the relevant scheme, and then at the behest of the parastatal bodies". (p 33)*

The book describes in detail about the politics associated with policy making – why and how certain reform agendas get priority over others and how people resist these changes and how their concerns are ignored. It is must read book by all those who criticize privatization of water and water services as well as those who support it and all those who are involved in reforms in water sector or any other sectors. It cautioned how not to privatize even if one is an ardent supporter of it. Thus the book rightly emphasizes multi- stakeholders approach for progress in water front, which the authors believe, will help achieving the Millennium Development Goals. For this to happen, sustained political pressure need to be built by people.