



Water

MOVES

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CONTENTS

1
**Andhra Pradesh
 State Water Policy 2008:
 Expectations and Gaps**

R. V. Rama Mohan

4
**Kosi's Dilemma: The
 Processes Within**

Surya Prakash Rai

10
**Book Review:
 Performance and
 Development
 Effectiveness of the
 Sardar Sarovar Project,
 Tata Institute of Social
 Sciences Study, August
 2008**

Alisha Vasudev

11
**Policy Update:
 Guidelines for National
 Lake Conservation
 Plan, May 2008**

Amita Bhaduri

16
**In Memoriam
 K R Datye**

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Andhra Pradesh State Water Policy 2008: Expectations and Gaps

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The Cabinet meeting on 13th November 2008 approved the new State Water Policy 2008 of Andhra Pradesh. The news appeared in one of the local news paper but passed off without much public and media attention. The process of developing the Water Policy is not known or reported anywhere. The Water Policy seems to be a result of the recommendation of the Inter-Ministerial Task group established for mid-term appraisal of the 10th Plan to States to have their own water policies in-line with the National Water Policy 2002. The Policy recognizes that it is only a starting point and a step-by-step approach is needed in implementation from existing laws and institutions.

Water Policy 2006

In 2006, the State came up with a draft water policy with the following major features (The Hindu, 2006):

- State to be divided into five basins and basin authorities to be set up as autonomous bodies to allocate and monitor water use for different purposes:
- All water bodies in the basin, including irrigation projects, rivulets and tanks, will be controlled by the basin authority
- A water regulatory commission as ombudsman on the lines of Electricity Regulatory Commission
- A water council headed by the Chief Minister at Government level to deal with water issues as a whole
- Water audit for efficient use of water resources

This draft policy was not finalized by the Government for reasons unknown to the common public. The new policy rolled out now does not talk about most of the above features, except the setting up of a water regulatory commission.

Implications of new Water Policy 2008

If the new policy is implemented in letter and spirit, existing practices of fragmented approach to pricing, allocations and decision-making shall give way to more rational and integrated approach. Often, policies remain as statements of good intentions but do not necessarily get translated into action. It is equally important to look at the policy statements from the perspective of changes that it may or can bring in the existing culture, decisions, and practices.

The following are some of the broad areas where implementation of the policy is expected to change the existing practices:

2.1. Water pricing issues for different uses -

The present approach to water pricing for domestic, industrial and irrigation uses is compartmental, with different institutions dealing with each of them.

For example, Hyderabad urban water supply rates are determined by the Hyderabad Metro Water Supply & Sewage Board (HMWSSB) through the Board proceedings. The Board levied revised minimum charges to various categories of water consumers in Hyderabad city through Board Proceeding No.121 Administrative (A) Wing dated 14th December 2006. Citizens forums approached High Court of Andhra Pradesh against fixing minimum water charges per flat instead of residential apartments as a whole. The issue is being examined by the Court for about a year.

Industrial water allocation (both consumptive and non-consumptive) and tariffs are determined by Irrigation and Command Area Development (I & CAD) Department through

GO No.39 of 2nd April 2002. Irrigation water rates are determined by I & CAD department within Andhra Pradesh Water Tax Act 1988 (GoAP, 1988). Revision of water tax or charges is done by the Department through mechanisms such as Review Committees. For example, a Water Charges Review Committee (WCRC) has been set up in 1997 for fixing and review of water charges to cover full O&M costs of irrigation projects through G.O.Ms.No.225 dated 08.12.1997.

While urban domestic water tariff starts at Rs.6 per kilolitre in Hyderabad city, industrial water use from natural sources and irrigation canal is Rs.0.33 and Rs.0.99 per kilolitre respectively. The cost to the industries could be more when the electricity charges to be paid by them for pumping the water from source to the point of use are also added. But, at the outset, it appears that present water pricing for different uses does not match the priorities.

Therefore, setting up an umbrella framework for fixing water tariff for different uses has to be defined reflecting the true spirit of water use priorities stated by section

Industrial Water Supply Allocations Done During Feb 2008 to Oct 2008

GO No.	Dated	Purpose of Water Allocation
201	17/10/08	Permission to draw 2 MLD of water (or) 0.82 Cusecs (approx) from Coringa Island Project (CIP) Canal by M/s Gujarat State Petroleum Corporation Limited, Mallavaram Village Tallarevu Mandal, East Godavari District for Industrial purpose
196	13/10/08	Permission to draw 0.08 cusecs of water from Rameswaram Channel of Attili Canal by M/s Akula Boards Limited, Mandapaka (V), Tanuku (M), West Godavari District for consumptive use
191	25/09/08	Permission to draw 4 Cusecs of water from River Godavari at Borgampad in Khammam District by Nava Bharat Ventures Limited, for their new Captive Power Plant (1X135MW) at Paloncha Khammam District
146	22/07/08	Permission to draw 10 lakh gallons of total quantity of water per day including 3 lakh gallons already permitted from Krishna River downstream of Nagarjunasagar Dam near Wazirabad village by M/s The India Cements Limited (formerly Raasi Cements Limited) for consumptive use for their Cement Factory at Nalgonda
84	09/05/08	Industrial Water supply allocations done during Feb 2008 to Oct 2008 Permission to draw 2 TMC of water from the backwaters of Mylavaram Reservoir by M/s Bramhani Steels Limited
59	11/04/08	Permission to draw 30 Cusecs of water from Pulleru Canal through TRS Channel for cooling purpose by M/s KCP Sugar and Industries Corporation Limited Vuyyeru, Krishna District for a further period of 10 years from 1.11.2006 to 31.10.2016
58	11/04/08	Allocation of 54.18 C/s of water from Samalkot Canal to the proposed Industrial Parks of APIIC and Kakinada Special Economic Zone (KSEZ) and ONGC refinery Project at Kakinada duly withdrawing the permission already made to 9 industries
18	01/02/08	Permission to draw 0.09 TMC of water from Sarvarayasagar Reservoir by M/s Raghuram Cements Limited, for the proposed Cement Plant and Captive Power Plant at Nallalingayapalli Village, Kamalapuram Mandal Kadapa District

2.2. Water allocations to different uses from projects and rivers - During February 2008 to October 2008, I & CAD (Reforms Section of PW Wing) allocated water from rivers, reservoirs and irrigation canals to 8 industries for consumptive and non-consumptive purposes. Table 1 below lists these allocations:

The following aspects are not clear from these GOs, while allocating water to various industries:

- In many cases, quantity of water allocated is not mentioned, only flow rate is mentioned
- Process adopted for arriving at the quantities and flow rates allocated
- Details of previous allocations prevailing on the source
- The implication of present allocation on the total water availability on downstream sources and projects
- Measures such as tapering of prices as in domestic water use, which encourage efficient water use
- Mechanisms for monitoring and reporting requirements from the benefiting industry and the officials responsible on actual usage of water by the industry

As more and more industrial and non-agricultural allocations from projects and rivers are resulting in potential conflicts in the State, it is essential to make the allocation process more transparent and objective. Though, overall industrial allocations are a fraction of total water use and that of agricultural use, conflicts related to non-agricultural allocations for consumptive purposes at the level of medium and major irrigation projects become intense especially during drought periods. In such situations, these industrial allocations from reservoirs and projects also need to be adjusted against available water.

2.3. Setting performance standards and benchmarks and continuous monitoring / auditing mechanisms

- Sections 2.2.6, 3.4.1, 3.4.6, and 3.5.1 of the policy talk about fixing standards of infrastructure, services and utilization efficiencies (GoAP, 2008).

Water services and institutions, in all domestic, industrial and irrigation sectors, are presently operating at sub-optimal levels. Inefficiencies in water transmission, distribution and supply in urban water supply are a serious concern coupled with quality problems. Evaporation losses in irrigation water supply, inequitable distribution of water in the command areas, tail-end deprivation are major and perpetual issues in irrigation sector.

Water pricing and efficiencies are closely related and operate in correlation. Those arguing against rationalization or full-cost recovery in water sector, feel that not enough attention is paid to reduce losses

and inefficiencies which would have reduced the costs of operation and maintenance. Higher efficiency will result in lower costs of operations which in turn shall result in efficient and rational pricing of water.

Section 3.5.2 favours upgrading urban and rural services to 24x7 safe water supply in adequate amounts to meet the growing needs in urban and rural areas for domestic and industrial use (GoAP, 2008). Upgrading to 24x7 is perceived as moving towards better service delivery and higher standards of service. Very commonly heard justification for 24x7 supplies is that, in such systems pipelines will be always flowing under hydraulic pressure which avoids contamination of water from external sources.

Upgrading to 24x7 in the current distribution network may result in higher amounts of leakages, wastages and inefficiencies as one will be putting more water into an inefficient distribution network. If present network wastes 20% (not the actual figure) of water in distribution, upgrading to 24x7 will result in 2 or 3 times more wastage. This new system will also release increased amount of water as sewage into the existing inadequate sewerage networks.

The fundamental flaw in this proposal is that family needs are growing and more water is needed by each family, say, from present level of 3-4 hours a day to 24 hours a day. Needs of a family can be very well fulfilled with a reliable water supply of 4 hours a day, of potable quality. Therefore, the focus should be on reducing inefficiencies in institutional services and water delivery than intensification of water delivery such as 24 x 7 supplies. Instead, expanding the distribution network to those poorer people and remote areas where water supplies are not available or inadequate should be given priority.

2.4. Public interface for effective functioning of regulatory commission - Operations and decision making processes of a regulatory body, such as, Water Resources Regulatory Commission, will only be meaningful and serve its purpose if performed in a transparent way, free from the influences of political or non-political parties and groups.

The Regulatory Commission is expected to take impartial and transparent decisions for efficient allocation, distribution and utilization of water resources in the interest of larger population of the State. The Regulatory Commission shall play the role of a monitoring and mediating agency on behalf of people and shall be accountable to the people as in the case of the Governments.

Public accountability and transparency can only be ensured by creating proper space for interface of the Commission with various sections of society. Electricity Regulatory Commissions organize public hearings every year before deciding on the tariff orders. Such public hearings are required, at each irrigation project level, for decision making on water allocations and pricing in irrigation sector. Water Users Associations should be an essential part of these public interfaces along with other basin / project level CBOs and farmers' representatives.

Gaps in the Policy

The following are some more issues that are not adequately dealt or missing in the policy document:

- Energy-water co-management in groundwater irrigation: Energy supply and pricing policies have direct implications for groundwater use in the irrigation sector. Agricultural power supply is the most neglected in the energy sector with huge power losses and un-accounted free supply to agricultural pump-sets. The existing free power policy in Andhra Pradesh made this sector unattractive to the distribution companies. Groundwater irrigation is growing rapidly in canal command areas due to unreliable canal supplies. Conjunctive use of groundwater should be encouraged along with methods of efficient use of water.

- Safety of Water Infrastructure: Section 3.5.8 seems to be only concerned with dams and safety issues (GoAP, 2008). A number of traditional tanks get breached during intense rains and floods in the State every year, which can be avoided to a large extent. Repairs

Kosi's Dilemma: The Processes Within

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The geo-history of rivers reveals that they have been the cradle of civilizations. Even today, all the cities/settlements are along the banks of some or the other river. The only worrying fact is that most of these rivers are dying with the expanding settlement area and shrinking drainage area. Very similarly, in the vast Northern plains of India, the drainage lines of various channels have been disturbed. This fertile and agriculturally rich area became the epicentre of revenue generation, once the Britishers acquired the Bengal region and introduced the Permanent Settlement in 1793. Further, the introduction of railways catalysed the exploitation. As a consequence, the drainage lines of numerous streams was damaged and aggravated by the natural topography, the area is always prone

and renovation of such tanks is requiring crores of public funds. Repeated breaches to same tanks are not uncommon indicating the need for a comprehensive revision of tank designs.

- Role of Project Committees (PCs): Elections to PCs were conducted for the first time in the State during October 2008 after 11 years of enacting APFMIS Act 2007. PCs need to be empowered with their fair share of powers and responsibilities to fulfil their respective purposes. PCs should play an important role at project level in the areas of allocations and distribution for different uses; operational issues such as releases in the main canal; over-all planning and monitoring of O & M works. Proper representation of PCs in basin level organizations is essential.

Conclusion

The Water Policy 2008 is a major step in the course of water sector reforms in Andhra Pradesh. Introduction of a regulatory framework is the major change in terms of legal and institutional aspects. It is highly desirable that the experience of States like Maharashtra and Arunachal Pradesh in setting up Water Regulatory Authorities is thoroughly and critically studied instead of blindly copying from them. Implications of provisions such as privatization in irrigation sector or open-market trading of water entitlements should be thoroughly understood before considering them in Andhra Pradesh. More clarity on the issues raised here may come when the State enacts a legislation to set up a Regulatory Commission, if this policy does not meet the same fate of earlier drafts!

to flooding and people have been living in misery. Floods or the excessive water flow was a common phenomenon in the past also and people were used to living with it, the kharif crops sustained them and the newer alluvium gave bumper Rabi crops. But now, floods have become synonymous with devastation. The Kosi flood of 2008 was a result of natural processes being disturbed by human interventions. Man's greed to exploit natural resources by taming nature and in the process sidelining its carrying capacity has led to such disasters.

In this article, we would see the flow regimes of the Kosi river, the causes and history of floods in the belt along the lower Himalayas, the nature and extent

of flooding, Kosi floods of 2008, relief work done and the malpractices involved and the need of good governance strategies to deal with the 'disaster' that continues in a vicious cycle.

Agro-ecological Characteristics

The Kosi River is a combination of seven streams. It is the third largest tributary of the Ganges and drains the area between Gosainthan and Kanchenjunga in the Himalayas. The main stream, Arun, rises to the north of Gosainthan and flows south west for nearly 320 km in a fairly flat stretch. It is then joined by the Yaru River from the east, the combined stream then flows between Mount Everest and Kanchenjunga and receiving numerous small tributaries from the glaciers of these mountains. After passing through the main Himalayas range, it is joined by Sun Kosi (composed of several tributaries viz. Indrawati, Bhote Kosi, Tamba Kosi, Likhu Kosi, Dudh Kosi) from the west and Tamur Kosi from the east. These two run parallel for a fairly long distance and join the Arun at Dangera. The Kosi river cuts across the Mahabharat range and the Siwalik hills and emerges into the plains near Chatra. It is from this portion till its confluence with the River Ganges that the Kosi has created a sphere of influence through its continuously wandering channels for centuries. The river has a steep gradient of 47m/km in the upper reaches, but after entering the plains at Chatra, it rapidly flattens to 1m/km. It is known that the Kosi flowed by Purnea district around 200 years ago, but its present course is 160 km west of the place, sweeping an area of 10,500 sq.km.

The river basin (in Indian territory) lies in the North Bihar and Avadh plains eco sub-region of the Eastern Plains eco-region as per the NBSSLUP (National Bureau of Soil Survey and Land Use Planning) classification of the agro-ecological regions of the country. Occasional flooding and imperfect drainage conditions of the soil, limiting optimum air water relationship at the root zone affecting the crop growth are the inherent characteristics of the sub-region.

The river's catchment area at Triveni in Nepal is 23000 square miles and is hemmed in between latitudes 26°28' and 29°5' N and longitudes 85°27' and 89°10' E. All the physical characteristics like variations in topography, geology, weather etc of the catchment area have a significant contribution to the river flow downstream. The catchment basin spreads along a vast trough of land between Gosainthan peak in the west and Kanchenjunga in the east, extending far into the Tibetan plateau north of the Nepal-Tibet watershed and towards the

south in Chatra along the bordering north-eastern plains of Bihar.

History of Floods in North Bihar Plains: Kosi

The highest flood affected area in India lies along the Indo-Nepal territory caused by river systems rising from the Himalayas. Almost 72% of the total area of Bihar is affected by floods and 76% of the total population is reported to be flood prone (Mishra, D.K, EPW-1997). The flood density is highest in the North Bihar plains (in fact, the whole of North Bihar is susceptible to flooding). It has become common to see the pictures of flood affected people in any of the newspapers during the months of August-September with people stranded along submerged railway tracks, breached highways, roof-tops and food packets being air dropped! Then comes the aerial surveys of leaders of distinguished political parties but the Gandak, the Kosi, the Mahananda and many other tributaries of Ganga have continued to flood the plain areas since times immemorial. But, in the recent past, this process has been maneuvered and catalysed by anthropogenic activities. We have disturbed the essence and the flow of the rivers along their natural path, even the shifting of rivers is being engineered to allow the flow of a river along a specific path. But, how long can we stop water from overflowing within an open pipe that is full of obstacles? (this is what has happened during the Kosi flooding in 2008, where the embankments are filled with the river's sand deposition).

There has also been a change in perception of the floods since the British Raj. The Bihar plains was the most productive and prosperous region since antiquity. The rivers formed a vast network of irrigation and in addition to that, deposited alluvium during the floods, which were very fertile and conducive for all the crops. But, the shift began with the advent of and exploitation by the Britishers. The Permanent Settlement ruined the economy of the Bihar Plains (then in Bengal) and created immense pressure on the natural resources. To quote some of the district gazetteers on floods; Muzaffarpur district gazetteer states that 'Flood is almost a necessary evil and this part of the country cannot do without it'. The positive note towards welcoming the floods can be better intercepted through the lines of the Darbhanga gazetteer on 1902 floods: 'In spite of the losses they sustained, the cultivators in the north welcomed the floods. In the preceding year the rainfall had been deficient, and the winter crops had nearly failed in some parts. Here the floods were of comparatively short duration, but they sufficed to replenish the empty tanks and wells, and left a thick

deposit of silt.’ (Floods, Flood Plains and Environmental Myths (1991), CSE Publication). Whereas now, the nature, causes, extent of flooding has changed and more importantly the impact is disaster or ‘pralay’ in political terms.

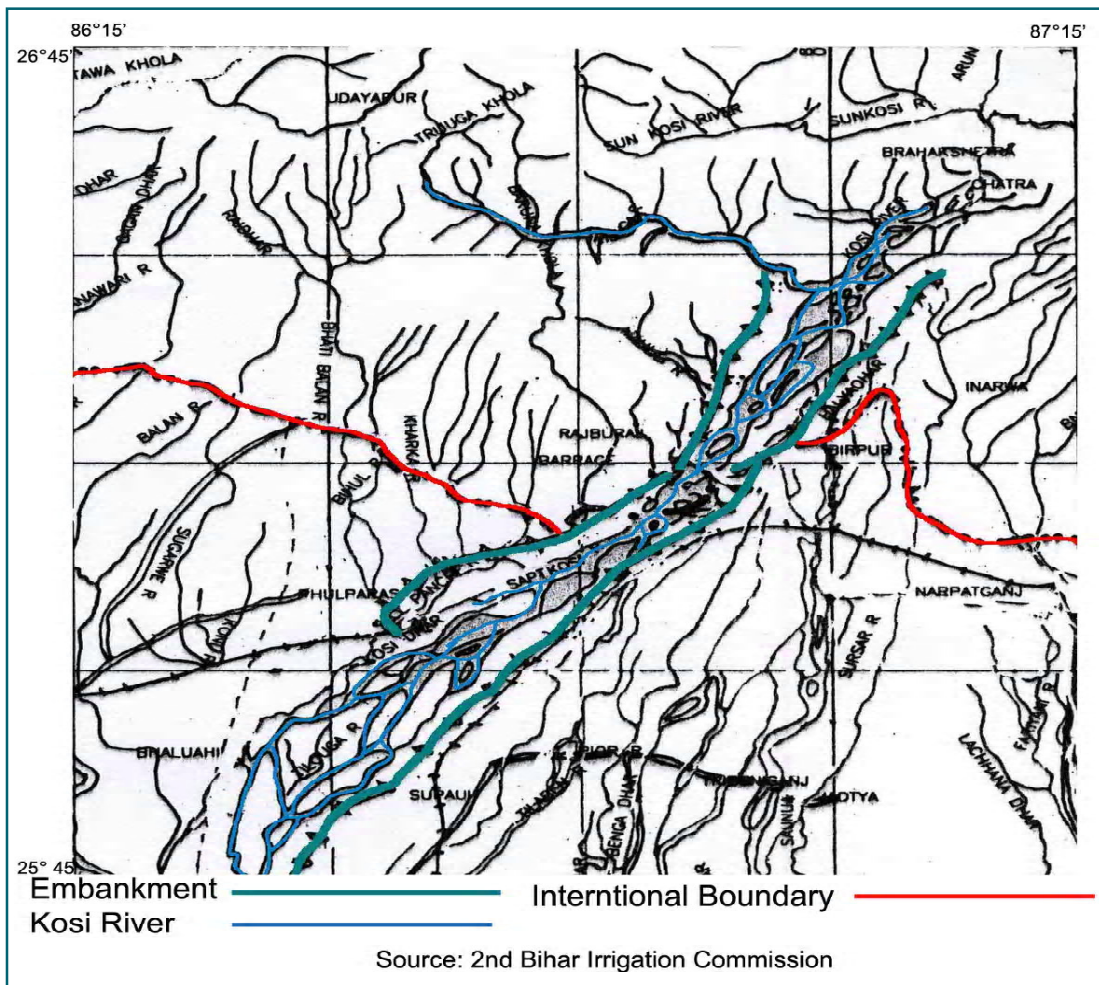
There is a long history of repeated floods, causing vast devastations in the Kosi basin. Since colonial rule, engineers and administrators have been trying to tame the massive river, but with little success. Numerous villages and towns across the Indo-Nepal region have witnessed the devastations of Kosi’s floods. The river’s unique characteristic of immediate and large scale shifting of its course has compounded the woes in controlling the floods. Chitale et al. have commented on the meandering nature of the river: ‘The Kosi is known as the sorrow of north Bihar’ the Kosi has shifted from east to west over 70 miles in the last 200 years, spreading devastation and laying an area of 3000 sq. miles bare with sand deposits’. Further they note: ‘the flood embankments cannot prevent the shifting tendency of the river course’. The run off as estimated by Nayak’s work in 1993, for the Sun Kosi, Arun and Tamur Kosi are 22.4, 18.0 and 10.0 m³ respectively, that has caused soil erosion with the result that about

180 million tonnes of surface fertile soil is lost annually from the Kosi river itself, which is about 47.5% of the national share. The Kosi is also the most sediment laden river of Nepal with an average sediment concentration of 10g/litre, compared with the predicted mean concentration of 2.69 g/litre for the Mahabharat region (Nayak, J.D, Proceedings of the Exeter Symposium, July 1996).

The Floods of Kosi

The first serious approach towards controlling the floods was initiated post-independence. But, is it really possible to hold the flow of the excess water during monsoon season especially when a huge chunk of the catchment (>95%) lies under the scanner of geopolitics and its geological framework, which has often been ignored, has a more significant role to play in the havoc? Is it even viable to suppress the demands of the people in the Nepalese territory for the sake of flood control in north Bihar?

The embankments are constructed with a maximum capacity of 9,55,000 cusecs but this year it breached at 1,44,000 cusecs, one-seventh of its capacity, whereas the maximum flow recorded in Kosi was 9,13,000 in 1968 when there was another embankment breach



near Darbhanga. According to Census 2001, 9.88 lakh people in 380 villages live between Kosi and its embankments. The average distance between embankments is 10 km. Kosi is free to spill 10 km. From these villages, the river spills outwards during a breach in the embankment-eight times so far. In the remaining 40-odd post-embankment years, these villages have faced annual deluges, without much publicity.

Agrarian and Livelihood Problems

Nirmal Sengupta's study on 'Agrarian Movements in Bihar' (Das, A.N: Agrarian Movements in India: Studies on 20th Century Bihar, 1982) reveals that demographic characteristics have played a major role in determining the livelihood sources, mainly possession of land. The very high density of population in the Kosi basin has brought many conflicts amongst the different castes in the belt and the changing course of the river acts as a catalyst in the process. The floods in the Kosi belt lead to the formation of diara lands, which are extremely fertile, and there are conflicts over the ownership of such lands. Share croppers or the bataidaars have often been engaged in such conflicts with the zamindaars in various parts of the Kosi basin in north Bihar.

A study of IIT-Kanpur on flood risk analysis in the Kosi river basin, north Bihar using multiparametric approach of Analytical Hierarchy Process (AHP) reveals that the flood prone areas of the Kosi river were to its west but the recent floods proved it wrong and all the areas that were not affected by flood since 1998 were covered during the floods of 2008. It is just an exaggeration to claim that the river is shifting towards the east.

Kosi Flood of 2008

According to the Flood Management Information System (FMIS) of the Water Resource Department of Bihar, a breach in eastern afflux bund of Kosi embankment between 12.10 km to 12.90 km, upstream of Kosi Barrage at Kusaha occurred on 18th August 2008. Due to this breach in the embankment, flood water from Nepal side entered into Supaul District of Bihar State in India. The flood water has inundated a vast area of Supaul, Madhepura & Araria districts of Bihar and further spread to adjoining districts of Purnea and Saharsa. As per the NRSA data based on RADARSAT, 17% of the total area of the state of Bihar was inundated with flood waters through which Kosi passed.

The breach of the embankment on August 18 was an end result of many composite factors including *geo-*

tectonic-anthropogenic causes and the *politico-engineering malpractices nexus* existing in the system. It was only an output of the integration of these factors that yet again brought forward the rough face of the Kosi.

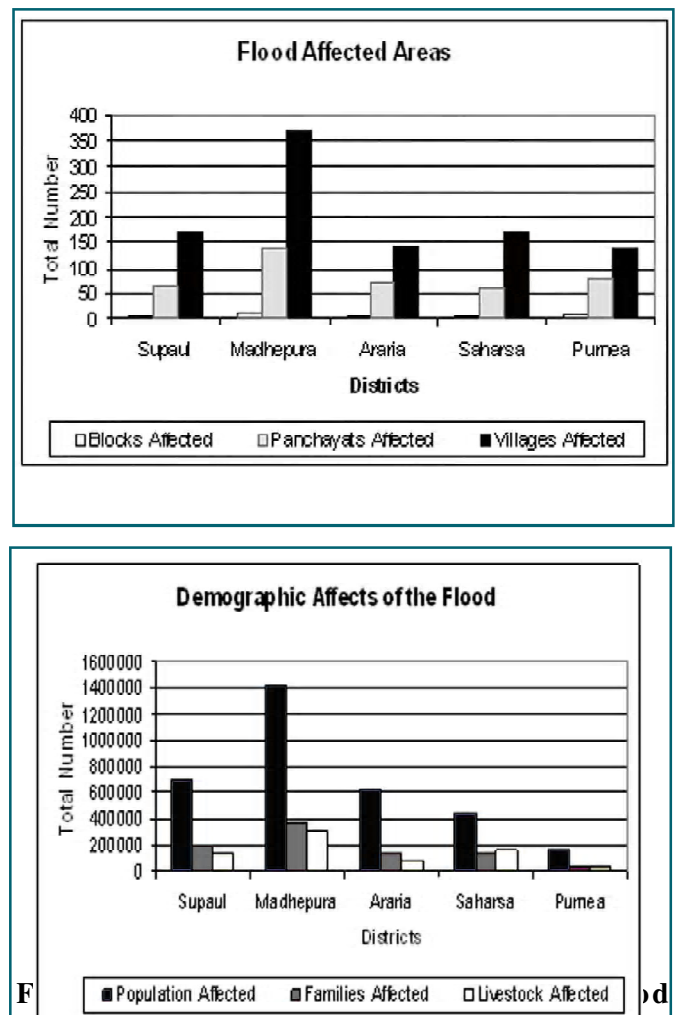
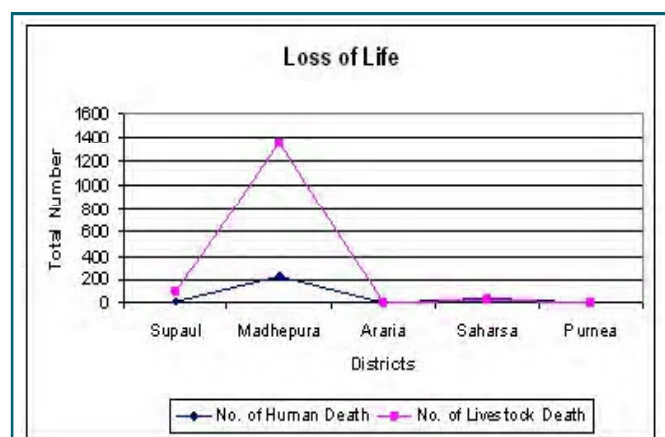
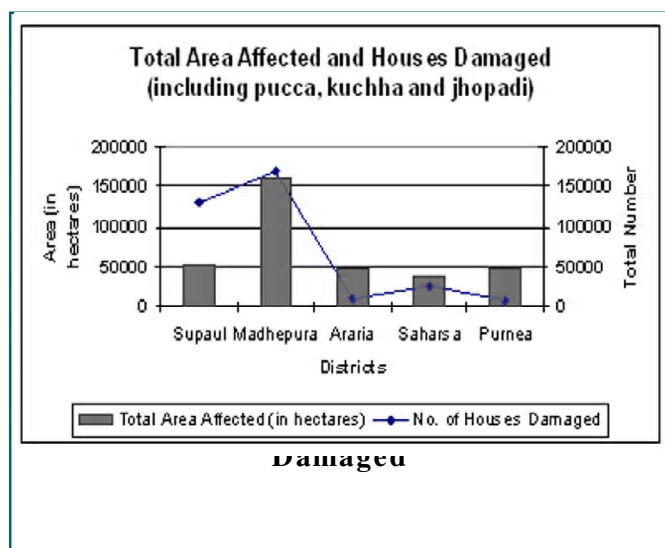


Fig 1 shows the flood affected areas. Madhepura and Supaul are the most affected districts as they were straight into the path of the flow of the river after the breach. Overall, 993 villages have been affected due to the flood. The demographic effect is revealed in Fig 2, where Madhepura, Purnea and Araria districts were most severely hit. This year's flood has affected the lives of more than 3.3 million people, the most during any flood of Bihar for past 50 years. Fig 3 shows that the highest affected areas were in Madhepura and Supaul and so were the damaged houses. Overall, 3.4 lakh hectares of area of the state were affected by the floods. Fig.4 shows the loss of life and reveals the losses in the flood-affected districts. Madhepura (222) and Saharsa (35) accounted for the highest loss of life while 275 deaths were registered for the overall area. Similarly, Madhepura (1348) and Supaul (96)

registered the highest number of livestock deaths while 1466 livestock deaths were registered for the overall area.



(All the figures are based on the data of the IInd Phase Bihar Floods: As on 2nd November, 2008)

The reasons for such massive losses have been haunting the administration for many years. The embankment breach in the Kosi in August, 2008 was the eighth one during the last fifty years. The first breach occurred in 1963, followed by breaches in 1968, 1971, 1980, 1984, 1987 and 1991. The gap between the breaches in 1991 and 2008 is the longest one and the reasons attributed for the breaches are also very different. The reasons for the first few breaches were attributed to the digging of holes by rats and foxes, while hiding the actual laxity behind the maintenance of the embankments during the rest of the breaches. (Mishra, D.K, EPW-September, 2008)

On one side, the findings of an independent fact finding committee on floods in Bihar (Down to Earth,

September, 2008) reveal that the embankments have brought further misery into the lives of the people in the flood affected areas of Kosi by preventing the river’s annual silt load from spreading to the surrounding areas and improving the fertility, increase in the river bed by 4m due to deposition within the embankment area thus causing obstruction in the natural drainage system whereby creating permanent water logging in more than 8000 sq km of area and overall increase in the flood prone area by more than three times of that in 1950.

The other facet is that of the irregularity, heavy costs and involved malpractices in the overall process of maintenance of the embankments. The failure of the Technical Advisory Committee’s recommendation in 2008 is a clear sign of negligence of their duty in the maintenance of embankments before the due date of June 15 every year. Government has spent more than Rs 1600 crores over the embankments and this year the Water Resource Department of Bihar has invited tenders worth an estimated cost of Rs. 94.11 crores for construction of four spurs at the breach site and supply of boulders at various reaches of the embankment. The heavy money poured into the construction and maintenance of engineering structures plus the unaudited account for the expenditures during the flood relief work has brought about an emergence of corruption amongst the officials and the politicians. The allegations by the convener of the special sub-committee of the Bihar Assembly’s 53rd estimates committee (1973) on the then Railway Minister L N Mishra and then Bihar’s Power and Irrigation Minister Jagannath Mishra (who later on became the Chief Minister of Bihar) for their involvement in awarding several contracts of the Kosi Project worth crores of rupees to the members and relatives of their own family brought about a political crisis at the state as well as the national level (Singh, N.K, EPW-September, 1973). Gautam Goswami, a young bureaucrat’s involvement in the heroic relief activities of flood relief work in the 2004 Bihar floods brought him fame but then a detailed investigation revealed his involvement in the multi-crores flood scam in 2005.

Floods, after all bring opportunities to make big money for corrupt officials. The Central government has sanctioned Rs 1000 crores for relief activities whereas a Special Task Force (Source: Business Standard) set up by the Centre has suggested seeking monetary help from international financial agencies and constitution of a consortium of international donors for the flood-hit state and seeking a special package of Rs 25,000

crore to Rs 30,000 crore for rehabilitation of millions of flood victims and reconstruction of damaged infrastructure in north Bihar.

Table 1: Relief Activities during the IInd Phase of Bihar Floods, as on November 02, 2008

Activities	Supaul	Madhepura	Araria	Saharsa	Purnea	Total
Relief Camps						
Relief Camps Opened	3	38	11	1	0	53
Persons in Relief Camp	2378	29787	15918	265	0	48348
Handpumps installed	638	400	414	411	292	2155
Temporary toilets construction	693	821	838	732	666	3750
Health centres functioning	3	34	11	11	0	49
Relief Distribution						
Food packets distributed	100166	73365	13452	51540	1406	239929
GR distributed (in qntl)	133742	208024	167667	102186	52592.5	664212.3
Cash dole distributed (in lac)	3096	7433.16	3343.40	2467.17	1060.51	17400.26
Kits distributed from CMRF	53844	49775	42541	17387	14412	177959
No. of polythene distributed	33831	69764	20154	26055	8100	157904
Resources Used						
Own boats in use	65	0	7	117	3	192
Boats from other districts	0	241	0	22	0	263
Motor boats in use (NDRF/others)	9	0	0	0	0	9
Total no. of boats in use	74	241	7	139	3	464

Source: <http://disastermgmt.bih.nic.in/Downloads/PR-Impact-of-Flood-by-Koshi.pdf>

The Disaster Management department of Bihar had vested special powers to the district magistrates for the purchase of boats, but the overall relief operations were not very impressive. The loss of lives was lesser in this flood, but the heaviest destruction was caused by the massive flooding spread over large areas of land. The Kosi belt which is already the focal point for migration, has been catalysed by this flood to force more people in search of livelihoods to major cities, mainly Patna, Delhi and Mumbai.

Some Issues to Focus On

With so much at stake, it would be a litmus test for the Bihar government to deal with the rehabilitation work. The massive loss of livelihood sources and the magnitude of people affected has further complicated the process. The big task would be showcased by the efficiency with which the resources (land/common property) would be allocated after the floods. The biggest challenge would be ensuring the health of the community, medical protection, insurance and only time would reveal the effectiveness of the post-flood relief works.

Rapid and large scale migration would be an immediate threat and maximum possible efforts to curb migration as a result of loss of livelihoods and resources can

only give justice to the marooned and affected families. It is high time that the view of the intelligentsia in Nepal and their suggestions be taken seriously and mutually strengthen the loopholes in the existing treaty with Nepal and their involvement in maintenance activities (maintenance of structures in their territory is not allowed to them).

There is also an urgent need towards proper integration of works between related Ministries/ Departments rather than segregated work. After all, what is the use of a Disaster Management Department when the most common disaster all over India (floods) are either due to malfunctioning in the responsibilities of other Departments like Water Resource/Irrigation Department, breach in embankments and canals; flooding in Mumbai, Municipality etc. It is not that a separate Department for Disaster Management has been made, so the related responsibility of each of the concerned Departments towards making a single step for prevention against disasters should stop. The rivers have been the fountainhead for civilizations since age old times and let us not doom their nature by making them a symbol of 'sorrow'. The recent flood has prolonged the sorrows amongst the people of the Kosi basin. But why is this so while billions of rupees have been spent to tame them for flood control?

Book Review: Performance and Development Effectiveness of the Sardar Sarovar Project – Tata Institute of Social Sciences, Mumbai

Alisha Vasudev, SPWD, New Delhi

First proposed in 1946 and later constructed, the Sardar Sarovar Project on the Narmada benefiting Gujarat; Maharashtra; and Madhya Pradesh, has long been a bone of contention with the height of the dam being revised every few years till date. The height of the Dam has been fixed at 138.68 m as of October 2006. Much has been debated about the dam – its purpose and cost and benefit in terms of livelihoods of those displaced by the construction; while a lot of lobbying has taken place in the past against the project, interest in the issue has decreased post-2000 with mostly those who have already been or are likely to be affected in the future showing interest in the activities of the project.

This study has thus been undertaken to assess from a cost benefit point of view the current activities that are being carried out in the project with special emphasis being laid on extension of the height bearing in mind fulfilling of needs that this act would bring. The report is based on the principle that the present height of the dam (121.92m) meets most of the requirements that need to be met in terms of electricity generation, irrigation and usage for domestic and industrial purposes. Hence an in depth analysis and review of both social and monetary cost benefits of raising the height of the dam are urged.

The report goes on to highlight some critical milestones of the project that have been instrumental in influencing the current project approach. Of particular importance was the resistance in the early 80's led by affected populations that led to a World Bank and Union Water Resources Ministry review and the Supreme Court verdict in 2000 that stipulated that project work and rehabilitation go hand in hand and sought compliance of states involved to the norms laid out by the Narmada Water Disputes Tribunal Authority (NWDTA) and clearance norms laid out by the Ministry of Environment and Forests.

The report evaluates the project in two spheres, namely, planned benefits vs. actual benefits in terms of irrigation, drinking water and power, as well as projected costs vs. actual costs in relation to financial, human displacement, and environmental costs incurred.

Irrigation: While the area under irrigation was initially stated as 17.92 lakh ha. in Gujarat and 73,000 ha. in Rajasthan, this figure, along with the length of distribution networks has been on the rise but only in estimates as much of the construction work

is far from completion. The report states in its findings that despite extra funds being pumped in and initiatives being taken, most of the work is still incomplete, be it with respect to construction of irrigation channels, operation of the WUAs or command area development.

Drinking Water: With 1.06 out of 9 Million Acre Feet being promised for municipal and industrial use in 1979, the number of villages short listed for water supply was zero. As of 2005, a total of 10,740 villages and 141 towns in Gujarat and Rajasthan had been identified for water supply by a revised master plan brought out by the Gujarat Water Supply and Sewerage Board. Performance appraisals carried out in 2006 by the office of the Comptroller and Auditor General showed that up to 33% of the drinking water potential was realised so far in the project with there being a diversion of water allocation favouring industries and reducing domestic allocation of water by 0.8 MAF. Recovery of water charges have not been carried out properly through implementation of tariffs with government bodies having to bear costs of the project not originally intended to be met by them.

Power: Raising the dam height in 2006 was viewed as an opportunity for increased power generation but this too could not be realised as power generation remained short of the project's actual potential. Further delays caused due to commissioning of the powerhouse saw the power generation start in 2005 wherein only one third of the surplus generated was due to the increased height which was way short of its actual power generation capabilities.

Financial Costs: As far as financial costs of the project are concerned, what initially was estimated at Rs. 6406.04 Crores in 1986-1987 is estimated to go up more than ten fold i.e- Rs. 70,000 Crores on its completion in 2012. Management of financial costs has been widely criticised by the CAG with the Sardar Sarovar Narmada Nigam Limited known to be indulging in improper practices be it with respect to the contracts given out for construction, heightened debt repayment or arbitrary borrowings from the market.

Human Displacement Costs: The project at full height was estimated to submerge 37,533 ha. of village land while displacing 48,304 families and the planned canal distribution network is expected to affect a

further 80,000 ha. of land. Rehabilitation efforts have been a bone of contention for long with this report estimating that individual state rehabilitation authorities have not adhered to norms set out by the Supreme Court, especially those in relation to housing and livelihoods of the displaced. Individual initiatives taken by the states such as cash-for-land and division of temporary and permanently affected households have served as a means for rough shod rehabilitation by the individual governments and have been viewed in a very bad light.

Environmental Costs: The impact of the project on the environment is known to be wide and varied with close to 13385.45 ha. of forest land slated for submergence. This was to be compensated by afforestation measures, ecological surveys, treatment of land, command area development as outlined by the MoEF in 1979 when clearance for the project was sought. In reality the implementation of the environmental safeguards seem to be severely lacking with its negative effects on the region such as degradation of the soil and land, inferior water quality due to improper clearing of forests being some of the visible and documented realities in the region. As of 2001, the Maharashtra government spent an appalling Rs. 0.22 lakh on treating the catchment according to the CAG survey. Ground realities vis-à-vis reported figures only help prove the state of environmental apathy in the project site.

Findings of implementing agencies namely the Narmada Control Authority, Sardar Sarovar Nigam Limited, Grievance Redressal Authority, The Planning Commission, and Prime Minister's Office have been delved into in this report in order to highlight the discrepancies in the project implementation. The extent of malpractices and 'promises of convenience' have clearly been brought out with the report urging proper planning,

Policy Update: Guidelines for National Lake Conservation Plan, May 2008

Amita Bhaduri, SPWD, New Delhi

The Ministry of Environment and Forests (MoEF) has been implementing the National Lake Conservation Plan (NLCP) since 2001 for conservation and management of polluted and degraded lakes in urban and semi-urban areas. This revised guideline of May 2008 is expected to enthuse the State government to work in close partnership with the Government of India to protect and conserve the lakes.

The guidelines consists of the following sections: background, objective, activities covered under NLCP, prioritization of lakes, selection criteria, other conditions,

reviews and implementation be carried out by the empowered government authorities overseeing the project.

The report suggests policy measures in the form of short to medium term measures and medium to long term measures. Short term measures include: inquiries be launched into the prevailing corruption, better representation of civil society organisations and academic institutions for rehabilitation progress review leading to accountability of implementing agencies involved, adherence to rehabilitation measures as outlined specially with respect to provision of cultivable land, and freezing of the current height of the dam to avoid adverse impact on the ecology of the region.

Medium to long terms measures suggested include prioritizing building of canal channels as this is lagging behind greatly and a review of areas under irrigation with the increase in the height of the dam as well as proper monitoring of water allocation between states from the dam. As regards rehabilitation, it has been suggested that it be carried out in an appropriate manner with a special mention that the Government of Madhya Pradesh be urged to follow land for land compensation norms as outlined by the NWDTA.

In conclusion, the report urges that until the full potential of the dam is realised at its present height (121.97 m), the height of the dam should not be increased further to 138 m. This involves meeting of past objectives and a proper evaluation of future costs bearing in mind the socio-economic and environmental impacts such an initiative would cause. Proper accountability and evaluation of the project costs in a participatory manner are urgently needed along with adherence to rehabilitation of affected families and environmental amelioration measures.

legal support and policy framework, capacity building and proposals on conservation and management of lakes.

Background

This section mentions the significance of lakes as a major source of water in addition to other characteristics like providing habitat to plants and animals, aesthetic beauty, influencing micro-climate etc. It also mentions the value of lakes ranging from ecological goods and services to direct production values. After listing

the various problems and their causes that have resulted to the shrinkage and threat to survival of lakes, it clarifies on the funding source of NLCP by stressing the fact that the cost sharing between the Centre and the concerned State would be on 70:30 basis w.e.f February, 2002.

Objective

The guidelines mention that the scheme is to restore and conserve the urban and semi-urban lakes and other unique freshwater ecosystems of the country degraded due to various sources through an integrated ecosystem approach.

Activities Covered Under NLCP

The guidelines say that the major activities under the plan would be prevention of the entrance of pollutants to lakes and suggest sewerage and sewage treatment for the entire catchment area of the lake. The processes include in situ measures like de-silting, de-weeding, bioremediation etc, catchment area treatment, strengthening of bunds, lake fencing etc, solid waste management measures, generating public awareness, prevention of pollution from non-point sources, capacity building in the area of lake conservation and any other activity suitable to the location specific requirements.

Prioritisation of Lakes

This section of the guidelines forms the basis for the selection of the lakes under NLCP. The priority list has already been prepared by MoEF whereby 62 lakes have been identified and all the respective State governments have been informed and their views sought for finalising the list, but the State can revise the priority list after an interval of 5 years.

Selection Criteria

The guidelines mention three distinct selection criteria. The hydrological criteria is based on the size of the lake, usually parameters like nature of perenniality and lake dimensions. The scientific criteria comes to play in the account of physico-chemical composition of the lake, witnessed by discharge of pollutants into the water body, dumping of municipal solid wastes, heavy silt loads from the catchment. For the chemical composition, the Designated Best Use Criteria for Surface Waters (as given by Central Pollution Control Boards) is the standard criteria. The administrative criteria is based on the use of water body, especially if it serves the purpose of drinking water, domestic supply, recreational use etc and facing threat to degradation.

High demand from local stakeholders for conservation also forms a part of this criterion.

Other Conditions

The other conditions mentioned in the guidelines are considered to be a pre-requisite for preparation of proposals, based on site specific requirements. These include: details of involved stakeholders, standard bathymetry of the lake for de-siltation component, restriction of 'lake front development' cost to 25% of the project cost, minimization of engineering works for bund development, lake shores to be kept naturalized, inclusion of sampling and analysis of lake water as per standard methods, all conservation activities leading to groundwater recharge, preparation of comprehensive plan for environmental awareness and public participation by state government, introduction of eco-friendly activities to minimize degradative impacts on the water body.

Legal Support and Policy Framework

Though till date, the lakes and wetlands are not covered by any specific legal statute but the guidelines mention that till any such specific regulatory framework is formulated, the lake conservation activity would come under the provisions of existing legislations covering provisions for conservation of lakes viz.: the Water (Prevention and Control of Pollution) Act, 1974; the Environment (Protection) Act, 1986 and the National environment Policy (2006).

Capacity Building

The guideline proposes the State to undertake measures for capacity building.

Proposals on Conservation and Management of Lakes

The guidelines specifically mention that for consideration of a lake under NLCP, the State government has to develop a Detailed Project Report, based on the surveys including water quality and biodiversity of the lake. It also mentions specific manuals to be referred for various parameters like sewerage treatment, storm water management, water quality and sediment monitoring, waste water analysis, standard methods for desilting and lake front development etc. The proposals include a set of annexures to be attached. These are: Information sheet for collecting basic information as Annexure I, summary of the proposal as Annexure-II and IIA, a number of mandatory administrative requirements like funding pattern, O & M costs, institutional and monitoring mechanisms, etc as Annexure-III.

A recent Karnataka High Court order in an effort to put brakes on lake privatisation restrained the Lake Development Authority (LDA) from entering into any fresh agreement with companies to develop any lake in the State and also obtained an undertaking from three developers that they shall not make any further development in Hebbal, Nagwara and Agaram lakes, all water bodies in Bangalore. A Division Bench comprising Chief Justice P.D. Dinakaran and Justice V.G. Sabhahit passed the order on public interest litigation (PIL) petitions by Environment Support Group (ESG) and Leo Saldanha who had challenged the LDA action in handing over to private developers the three lakes. The petitioners had questioned the legal framework under which the privatisation of these lakes was taken up. They said the State set up the LDA on July 10, 2002 to protect the existing water bodies but had unilaterally decided to privatise some of the lakes and tanks around Bangalore to benefit hoteliers and builders. While some builders had constructed buildings adjacent to the lakes leased to them, others started dredging operations without the Karnataka State Pollution Control Board's permission. The petitioners urged the court to stay the notifications relating to the privatisation of the lakes. When the Karnataka State Pollution Control Board (KSPCB) said its consent was not taken before the lakes were privatised, the Bench sought to know how the Government could ignore the report of the KSPCB and Forest Department and go ahead with the privatisation of the lakes. The Bench asked the Government advocate to inform the court on the steps needed to be taken by it to maintain the lakes and gardens so that commercial activities could be avoided. Expressing its anguish over the manner in which the lakes were privatised, it orally asked why the have-nots should be deprived of their rights to enjoy nature [Source: The Hindu, 05/11/2008]

Amendment to Mizoram Water Supplies (Control) Rules, 2006, May 2008

The Mizoram Water Supplies (Control) Rules notified in 2006 has been amended in May 2008. In the Mizoram Water Supplies (Control) Rules, 2006 for sub-rule (24) of rule 7 the following sub-rule has been substituted namely:

(24) if water-meter is lost or out of order due to some defect, and if the defect is not in the nature of a manufacturing defect, then a flat rate of Rs. 200/- per month per house water connection or average of the last three months whichever is higher shall be charged until and unless the water meter is replaced by the owner of the house having water connection or the consumer, as the case may be.

The act had been passed in 2004 by the Public Health Engineering Department. The rules had earlier laid down the conditions for provisions of water connection, for disconnection of water connection and suspension of water supply, transfer of water connection, right of reservation of water sources with the catchment areas for human consumption, rate of water and other charges, procedure for committing criminal proceedings for offenses created by any person, the manner and procedure of entertainment and disposal of disputes and Departmental appeals, manner of maintenance of records, returns and prescription of forms. The application form for permanent and temporary house/government/ organization water (re)connection are appended with the rules.

GOs related to Rehabilitation and Resettlement, ICAD, GoAP

The GoAP, ICAD has come up with five GOs related to the Rehabilitation and Resettlement during the last few months. These pertain to the AP State policy on Rehabilitation and Resettlement, 2005. The policy had been brought in response to the need for a comprehensive policy to ensure uniformity of benefits across the state and also to ensure the delivery of benefits in a transparent manner.

The objectives of the policy are :

- i. to minimize displacement and to identify non-displacing or least displacing alternatives
- ii. to plan the resettlement and rehabilitation of project affected and displaced families (PAFs/ PDFs) including special needs of tribals and vulnerable sections
- iii. to provide better standard of living to PAFs and PDFs and
- iv. to facilitate harmonious relationship between the requiring body and PAFs through mutual cooperation.

The policy states that 'the system of extending cash compensation does not, by itself, in most cases, enable the affected families to obtain cultivable agricultural land, homestead and other resources, which they have to surrender to the State. The difficulties are more acute for persons who are critically dependent on the acquired assets for their subsistence livelihoods, such as landless agricultural workers, forest dwellers,

tenants and artisans, as their distress and destitution is more severe, and, yet they are not eligible for cash compensation. The policy provides a broader canvas for an effective dialogue between the Project Affected Families and Project Displaced Families and the Administration for Resettlement & Rehabilitation. The policy will be applicable to the projects as defined in this policy and upon notification under this policy. Administrator (not below the rank of Joint Collector of the State Government) for R&R shall implement this policy in letter and spirit in order to ensure that the benefits envisaged under the Policy reaches the Project Affected and Displaced Families, especially resource poor sections including Scs/STs. The policy clearly lays down the powers and functions of the Administrator and Commissioner for Resettlement and Rehabilitation. The overall control and superintendence of the formulation of resettlement and rehabilitation plan and execution of the same shall vest in the Administrator, Resettlement & Rehabilitation. The government approval of the policy repealed the earlier Gos on the issue such as GO 98 and GO 64.

The recent GOs are:

- i. G.O. Ms. No:142 dated:14-07-2008 - Establishment of new Commissionaire for R&R
- ii. G.O. Ms. No. 181 dated:08-09-2008 - Non Lending Technical Assistance (NLTA) programme for strengthening and transforming Institutions for Management of Land Acquisition (LA) and Resettlement and Rehabilitation (R&R) with World Bank support orientation
- iii. G.O. Ms. No. 188 Dated: 19-09-2008 - Creation of a R & R Commissionerate
- iv. G.O. Ms. No.189 dated: 19-09-2008 - Consortium on Productivity Enhancement of Irrigated Agriculture through Knowledge Sharing and
- v. G.O. Rt. No. 671 dated: 5-9-2008 - Permission to entrust infrastructure works of R&R colonies to EPC contractors.

The Resettlement and Rehabilitation of the Projects has acquired monumental proportions during the recent years especially in view of the Jalayagnam (WHAT IS IT?) programme being taken up within the state. The Government has taken some important decisions relating to this program through these GOs -

- i. Creating a new R&R Commissionerate within Irrigation Department.
- ii. Posting of a senior level officer in the rank of a Secretary to head the newly created R&R Commissionerate in the Department of Irrigation.

iii. A separate budget head for R&R activities.

iv. Staffing of the R&R Commissionerate.

While the state level R&R Commissionerate could be a policy making, regulatory and monitoring body, there is a need to evolve a mechanism to ensure smooth planning and implementation of R&R programs in individual development projects. The Commissioner R&R in his proposal has recommended setting up an R&R Society, as an executing agency which would work under the overall control of the R&R Commissioner.

The Commissioner has indicated that resettlement of development induced displaced population is a complex process and needs to be handled carefully to ensure that those displaced (both physically and economically) are helped to restore their livelihood. More often, the involuntary resettlement component of a development project is treated as subordinate to construction process and schedules. While relocating the physically displaced population could be planned and implemented in a time bound program, resettlement and restoration of their livelihood is a long-term process and requires close working with, and continuous support and guidance to the affected communities. With few exceptions, this process often goes beyond the time taken to complete the construction of a development project. This assumes importance since the majority of the project displaced communities come from fragile economic and ecological systems that take a very long time to reconstruct. This essentially requires a conscious commitment of efforts and resources over a long period of time. Therefore, an organization (R&R Society) outside the regular government set-up could work with those affected by development projects on a long-term basis and thus help address R&R issues to their satisfaction, while reducing the burden on the regular government machinery.

Management of R&R programs through a Society has several advantages and some of these include the following.

- i. Bring flexibility in planning and implementation of R&R programs. Resettlement programs need to be designed in accordance with the local conditions - scarcity of land, high population density, extensive rural poverty, etc.;
- ii. Attract required technical expertise including from outside the government and thus reduce pressure on the existing government machinery;
- iii. Develop an NGO/CBO partnership to work with the affected communities;

- iv. Promote private-public partnership in the implementation of R&R programs, particularly in projects in private sector;
- v. Mobilize resources, in addition to regular budgetary allocation by the State, required to implement R&R programs;
- vi. Put in place a suitable financial management structure to meet the challenges of long term process of planning and implementation of R&R activities. This should essentially provide flexibility in terms of financial operations to ensure that funds are available throughout the year;
- vii. Reduce fiduciary risks through increased transparency and accountability;
- viii. Plan and implement effective information, education and communication strategies; and
- ix. Ensure improved monitoring and tracking mechanisms and build partnership for civil society oversight and feedback.

In view of the situation as above, Commissioner R&R has recommended for creation of an R&R Society, with a flexible organizational structure, operational procedures and financial autonomy essential for smooth planning and implementation of the R&R component of development projects. In the process of functioning, the society could help develop a pool of human resources within the state with expertise in working with the affected communities and helping them in their R&R process. Government after careful consideration of the proposal, hereby permit the Commissioner (R&R) for setting up of an R&R Society, as an executing agency which would work under the over all control of the state level R&R Commissioner with a mandate as spelt out above.

Revised policy guidelines for construction of tube-wells/ bore-wells for drinking and domestic purposes, Central Ground Water Authority, August 2008

The following regulations have been suggested for construction of tubewells/ borewells in the notified areas -

- i. Only one tube-well is allowed for construction in the premises to meet the drinking and domestic purposes. No tube-well/bore-well will be constructed, if any working tube-well already exists. In case the existing well has become non-functional and is to be replaced, it should be converted to recharge well, if possible or properly sealed and no water be pumped from it.
- ii. The person(s) intending to construct new tube-well will intimate the Authorized officer/Advisory Committee, 10 days in advance along with the name and address of the drilling agency, which will undertake construction of tube-well.
- iii. The maximum diameter of the tube-well should be restricted to 100 mm only and the capacity of the pump should not exceed 1HP.
- iv. Concurrent with the construction of tube well, the owner of the tube-well shall undertake installation of the rainwater harvesting system in the premises.
- v. The water from the tube-well/bore-well will be used exclusively for drinking and domestic purposes only.
- vi. All details of the drilling like formations encountered, the depth and diameter of the constructed tube-well, type of pipes used in tube well, yield of bore well/ tube well and ground water quality etc., shall be kept for record.
- vii. Any violation to the above conditions will attract legal action under section 15 of the Environment (Protection) Act, 1986.

The resident is also required to submit an undertaking for compliance of guidelines of CGWA on a non-judicial stamp paper of Rs. 10.

Sector	Allocation						
	ExpansionWUAs		ExpansionDCs		ExpansionPCs		Expansion GPs
	Works	Admn	Works	Admn	Works	Admn	
Major	50 %	10 %	15 %	5 %	14 %	1 %	5 %
Medium	50 %	10 %			30 %	5 %	5 %
Minor	80 %	10 %					10 %

The amount earmarked for administration can be utilized for administrative expenses, water management and incidental charges by the Farmers Organizations.

In Memoriam K.R. Datye

K.R. Datye, an eminent civil engineer and much revered contributor to the water sector, passed away on 28th September, 2008. While his presence will be missed immensely, we hope people continue seeking inspiration and carry on the great work initiated by him.

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