

## India Water Partnership Report for April, 2015

### PART- I: CORE ACTIVITY REPORT

#### I. Review of State Water Polices of Goa and Tamil Nadu by India Water Partnership in line with National Water Policy- 2012 in the context of climate change

India Water Partnership (GWP-India) as part of its Work Plan is reviewing the State Water Policy of **Goa** and **Tamil Nadu** in 2015 with the support of Institute for Resource Management and Economic Development (IRMED), Delhi.

In April, 2015, an in-depth study of the Tamil Nadu State Water Policy 1994 and the Goa State Water Policy 2000 was made in the light of the provisions in the National Water Policy 2012. It was found that there are several aspects on which there is a broad similarity (with some differences in emphasis and details) between the two state policies and the National Water Policy-2012. These include need for a basin approach and a Master Plan or Integrated Plan for development of water resources, need for augmentation of water resources and types of measures to be adopted for that purpose, concern on over-exploitation of ground water, introduction and strengthening of community participation in irrigation projects, controlling water pollution and improving water quality, emphasis on water conservation, adoption of improved water application devices and water pricing, improvement in data collection, processing and dissemination, more emphasis on research for upgradation of technology and training etc.

At the same time, there are dissimilarities also specially in the case of Goa. This is because Goa's water resource scenario has several peculiar features, attention to which had been drawn in our report for March, 2015. Aspects of Goa water policy which take care of its peculiar features include proposals to regulate extraction of sand from river beds, to check damage caused by mining activities, to avoid pollution of drinking water by taking up schemes for water supply for domestic use higher ups in the river basin where there are no mines, to bring in legislation for protection of Khazan land, to formulate an integrated estuarine and Khazan area development plan, to take measures for effective and economic shore protection and to build up appropriate organizational structures to optimally develop state inland waterways. Unlike National Water Policy and Tamil Nadu Water Policy, which have more or less similar approaches for management of floods and droughts, the Goa State Water Policy makes no mention of flood or drought related issues. Aspects like emphasis on principle of equity and social justice as well as recycling and reuse of water is available in the National Water Policy and Tamil Nadu policies but these issues find no place in the Goa state water policy.

With regard to climate change related aspects, the National Water Policy-2012 has a separate section on it wherein coping strategies to be adopted to deal with the challenge of climate change are indicated. In addition, references to climate change have been made at several different places in the policy document. These throw light on water related impacts of climate change and the need to keep these impacts in mind while taking decisions related to planning and management of water resources. The Tamil Nadu Policy, however, makes no reference at all to climate change. This is understandable since there was little awareness of climate change aspects in 1994 when the Tamil Nadu Policy was announced. The Goa State Water Policy, however, stresses upon the need to take account of global warming and potential sea level rise for

planning water resources development. The policy document also throws light on the long term adverse effects of global warming on the hydrology of the Western Ghat region. In order to prevent further intrusion of saline water on the upstream side due to expected rise of sea water level, the Goa Water Policy indicates the need to take measures in advance. But the only measure suggested is construction of VasantBandharas/Kolhapur typeBandharas at appropriate places on all important rivers/rivulets. Goa may, however, be the only state in the country which included climate change related aspects in its State Water Policy, even much before it was included in the National Water Policy-2012.

Several important features of the National Water Policy 2012 are, however, missing in the water policies of both the states. These include aspects related to good governance through transparent informed decision making, need for multi-disciplinary organizations for water resources, water including ground water to be managed as a common pool community resource held by the state under public trust doctrine to be followed by modification of existing Acts, recognition of minimum ecological needs for water, emphasis on managing demand for water through changes in cropping pattern, avoiding wastage of water and raising water use efficiency, focus on access to a minimum quantity of potable water for essential health and hygiene to all the citizens, integrated watershed development activities, differential pricing of water, giving statutory powers to water users associations to collect and maintain a portion of water charges and manage water allotted to them, legally empowered dam safety measures, better planning of projects with due emphasis on social and environmental aspects in consultation with project affected and beneficiary families along with concurrent monitoring, involvement of panchayats, municipalities etc. in planning of projects, simultaneous execution of urban water supply and sewage treatment schemes, need for forums at national and state levels to evolve consensus among water users, associating private sector in public private sector partnership mode etc.

## **II. Reviewing and Analysing the State Level Regulatory and Institutional Framework of the States of Kerala, Nagaland and Uttarakhand to operationalize the National Water Policy (NWP)-2012**

**2.1** As part of the Work Plan of 2015, the India Water Partnership with the support of Indian Environment Law Offices (IELO) is reviewing and analysing the State Level Regulatory and Institutional Framework related to water for the States of **Kerala, Nagaland** and **Uttarakhand** on the similar lines as of 2014 to operationalize the National Water Policy-2012. The study is based on 16 selected thematic areas as per the NWP-2012.

**2.2**The first state taken up for the study is Nagaland. Following are the salient findings of the study undertaken in April, 2015:

### **2.2.1 Constitutional Uniqueness of Nagaland: preservation of customary laws and traditions**

Under *Article 371A of the Constitution of India*, Nagaland enjoys a special status wherein this constitutional provision bars the application of any law enacted by the Parliament dealing **with a) religious or social practices of Nagas; b) Naga customary law and procedure; c) administration of civil and criminal justice involving decisions according to Naga customary law; d) ownership and transfer of land and its resources**, unless the Legislative Assembly of Nagaland by a resolution so decides and adopts the Central Laws. The basic premise of the constitutional provisions was centrality of customary law of indigenous Naga communities to be the basis for governance in the villages inhabited by these tribes. Since Independence, the Indian government has adopted a policy

of non-interference in the local self-government of the indigenous people of Nagaland at the village level and supported it constitutionally. In doing this, the Central government is guided by a philosophy to preserve the tribal ethos, culture and governance structure, revolving around the village.

The state has adopted a legal instrument by the name of ***Nagaland Communization of Public Institution and Services Act, 2002***. The ownership and management of key public institutions and services are handed over to the communities by way of this unique enactment. Accordingly, ownership and management of education, health care, water supply, electricity, tourism and bio-diversity conservation has been handed over to the communities in villages. The Communization in Nagaland thus involves transfer of government assets to the community, empowering them by delegating governmental power of management and supervision to village committees. The committees/boards are constituted by the Village Council as the rules prescribed for management of the public service. There is a District Level Committee comprising of Deputy Commissioner and other government officials associated with the management of the public service to keep an overall check over the exercise of Communization. This assumes importance for management of water resources and sanitation in the state as various water supply schemes for the rural areas have been transferred to the Water and Sanitation Committee (WATSAN) as per the mandate of ***Nagaland Communization of Water Supply and Sanitation in Rural Habitations Rule 2003***.

**2.2.2** During the reporting period, the study focused on (i) Climate change issue; (ii) Augmenting water supply and sanitation; (iii) Groundwater use and management; (iv) Demand management and water use efficiency; and (v) Water Pricing. Following are the salient findings:

### **1. Climate change Issues**

- a. Has the state formulated State Action Plan for climate change? Has the concerns regarding effect of climate change on water resources been integrated into these plans. Are there district level climate change action plans being formulated within the regulatory framework?

***The State has formulated Nagaland State Action Plan on Climate Change (NSAPCC). The District Level Action Plan on Climate Change is still to be prepared. The impact on water resources because of climate change have been addressed in the NSAPCC.***

- b. Has the state begun to integrate the concerns of climate variability into water resource management and planning?

***The state has laid out a roadmap to integrate the concerns of climate variability into water resource management.***

- c. Is there any special impetus to increasing water storage capacity?

***Under the NSAPCC, there is plan for revival of 200 ha of derelict water bodies for fisheries development with 'co-benefits' arresting loss of water as run off. Further, rain water harvesting ponds are being developed by Soil and Water Conservation Department, Nagaland Government.***

- d. Are sustainable agricultural practices being adopted and reshaped as per the water availability in this state?

***The state grows horticulture crops in the lean season using sprinklers, drip irrigation and ridge and furrow irrigation technologies, making use of the stored water available due to heavier precipitation in the past. There is a proposal for promoting use of water efficient technologies for agriculture in lean period.***

- e. Is climate change variability included as criteria for water development projects?

***It is in the process of being assessed to incorporate it as criteria in development projects.***

- f. Are stakeholders being involved in land-soil-water management planning for evolving different agricultural strategies, reducing soil erosion and improving soil fertility?

***The implementation of plans, schemes and program of the government at the village level are undertaken by the Village Development Board (VDB) under the overall supervision of Village Council (VC) as per the Nagaland Village and Tribal Council Act, 1978.***

## **2. Augmenting water Supply and sanitation**

- a. Is the rainwater harvesting has potential in the State?

***In some rural areas traditional rainwater harvesting systems are adopted such as Zabo (the word means 'impounding run-off'). Also known as the ruza system, it combines water conservation with forestry, agriculture and animal care.***

- b. Has the water use efficiency been made mandatory in the state?

***It is not mandatory. Limited urban areas are being metered to regulate water use efficiency in the state. The Water Tax is being levied from Consumers in accordance with the Nagaland Water Supply Consumers Rules 1998 and rates are revised from time to time. However, the charges levied are nominal and are no deterrent to wastage of water. A systematic evaluation for options for an efficient pricing of water as a commodity especially by the urban users may be undertaken.***

- c. Are there subsidies and incentives for recovery of industrial pollutants and recycling / reuse?

***Presently, there is no scheme for providing subsidies or rebate for promoting recycling/reuse of water in the state.***

- d. Are sewerage charges being put/removed in urban areas?

***The Water Tax is being levied on consumers in urban areas where piped water is supplied in accordance with the Nagaland Water Supply Consumers Rules 1998 and rates are revised from time to time. However, the charges levied are nominal.***

### **3. Ground water use and management**

- a. Has the state done Aquifer mapping to know the quality and quantity of ground water?

***Nagaland Science and Technology Council (NASTEC) has prepared a map on 'Ground water prospects of Nagaland'. The Central Ground Water Board, Government of India has mapped the Dynamic Ground Water Resources (2011) to be 0.62 BCM.***

- b. Does the state have a ground water law?

***Nagaland has not enacted any Groundwater Act or Law.***

- c. Is there any authority mandated to manage and conserve groundwater?

***The Department of Geology & Mining is in-charge of exploring and developing ground water resources.***

- d. Does the law protect over exploited aquifers, if yes, how?

***There is no law on groundwater in the state.***

- e. Is extraction of ground water linked with recharge?

***In the state the Central Ground Water Board has notified no area for regulation of groundwater because of stress. It is lately that groundwater is being used for supplying drinking water. Stage of development of ground water in the Kohima district is 2.13% and it is mainly restricted to the valley area.***

### **4. Demand Management and Water use efficiency**

- a. Is there any specific law mandating quantum of water for a particular use i.e. benchmarking of water usage for different uses in industrial water usage?

***There is no law mandating benchmarking of water usage in the state.***

- b. Is there any penalty for wastage of water and incentive for water use efficiency?

***There is no provision for penalty or incentive for water use efficiency.***

- c. Is there any efficiency benchmark at which irrigation projects have to perform and function?

***There are no benchmarks established for irrigations projects.***

- d. Is there any scheme in the state which encourages people to use water as efficient gadgets?

***There is no scheme in operation in the state.***

- e. Is there a mechanism to conduct water audits –voluntary or mandatory?

***There is no mechanism for undertaking water audits.***

## 5. Water pricing

- a. Is there a mechanism for water pricing?

***For Urban consumers Water Tax is being levied where piped water is supplied in accordance with the Nagaland Water Supply Consumers Rules 1998 and rates are revised from time to time. However, the charges levied are nominal. In rural areas the function of levying and collecting water charges to cover O&M cost has been given to WATSAN committee formed by Village Council as per Nagaland Communization of Water Supply and Sanitation in Rural Habitations Rule 2003 under the Nagaland Communization of Public Institutions and Services Act 2002.***

- b. Has Water Regulatory Authority been established?

***There is no Water Regulatory Authority in the state.***

- c. Are water charges being recovered from the consumers?

***Nominal water charges are being recovered from the urban consumers.***

- d. Are Water Users Associations (WUAs) are involved in the process of fixing rates of water?

***The function of collecting water charges to cover O&M cost has been given to WATSAN committee formed by Village Council as per Nagaland Communization of Water Supply and Sanitation in Rural Habitations Rule 2003 under the Nagaland Communization of Public Institutions and Services Act 2002. They are free to determine the charges to be recovered in the village for supply of water.***

## III. Participation in Meetings/Workshops/Conferences

**Participation of Dr.RavinderKaur, Director (Acting) Indian Agricultural Research Institute (IARI) & Project Director, Water Technology Center, IARI, Government of India in an Interactive Workshop on Development of South Asia Drought Monitoring System on 20<sup>th</sup> April, 2015 and South Asian Climate Outlook Forum - 6 (SASCOF-6) & Second Session of Climate Services User Forum for Water Sector (CSUF-2) from 21<sup>st</sup> to 23<sup>rd</sup> April, 2015 at Dhaka**

On the invitation of Regional Office, GWP-SAS, Dr.RavinderKaur, Director (Acting) Indian Agricultural Research Institute (IARI) & Project Director, Water Technology Center, IARI, Government of India participated in an Interactive Workshop on **Development of South Asia Drought Monitoring System** on 20<sup>th</sup> April, 2015 and **South Asian Climate Outlook Forum - 6 (SASCOF-6) & Second Session of Climate Services User Forum for Water Sector (CSUF-2)** from 21<sup>st</sup> to 23<sup>rd</sup> April, 2015 organized at Bangladesh Meteorological Department (BMD), Dhaka, Bangladesh. The brief note received from her is as under:

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The drought workshop was attended by 16 participants/ resource persons from South Asian member countries (viz. 6 from Sri Lanka, 3 from India, 1 from Pakistan, 1 from Bhutan, 1 from Maldives, 1 from Nepal), besides other participants/ resource persons. While the overlapping South Asian Climate Outlook Forum - 6 (SASCOF-6) meetings (April 19- 22, 2015) and the Second Session of Climate Services User Forum for Water Sector (CSUF-2), from April 22-23, 2015, were attended by an additional 19 and 11 participants/ resource persons, respectively, from various member/ organizing countries. The objective of the scheduled workshop was thus to a) Present a beta version of the South Asia Drought Monitoring System (SADMS) in corporation with national partners in South Asia, b) Have a dialogue with national partners of their country requirements to ensure it responds to the need of users, c) Start a discussion on how to integrate the results of the SADMS to regional, national and state level decision making processes and d) Have initial awareness on the final product and attract the attention of key actors in the water & climate community. In order to address these issues, firstly presentations from various member countries, including one from Indian Agricultural Research Institute, on current drought monitoring and management efforts were held. Subsequently the delegation was divided into three breakout groups (with self's participation in Group 3) to discuss the actual implementation needs of the proposed South Asian Drought Management System (SADMS). It was noted that IARI's efforts in connection with an India Drought Monitor are quite in sync with those of the IWMI's for a SA-DMS and therefore it was unanimously felt to bring these two strong partners together at some point during the second phase of the project for an effective utilization of the SADMS - product in the (major) agriculture sector. It was unanimously felt that the developed system should reside at some regional point, such as any SAARC disaster management centre, with several nodes in member countries (for keeping mirror images of SA- data and for easy data migration in case of any contingencies). It was also deliberated that the final product's operationalization and further developments should be funded through UNESCAP, JICA or USAID's support.

As regards the other two meetings, the South Asian Climate Outlook Forum (SASCOF) presented the climate outlook for the 2015 southwest monsoon season (June to September). A consensus outlook for Southwest monsoon season rainfall over South Asia was prepared based on the expert assessment of prevailing large-scale global climate indicators, experimental models developed during capacity-building workshops conducted for the South Asian countries in association with the previous and the current SASCOF sessions, and experimental as well as operational long-range forecasts based on statistical and dynamical models generated by various operational and research centres of the world. The outlook for southwest monsoon rainfall over South Asia as evaluated during the workshop by various member countries suggests that during the 2015 southwest monsoon season (June – September), below-normal rainfall is most likely over South Asia as a whole. The Water Forum meeting that aims to bring better synergy between the water community and the climate community within the South Asian countries with the long-term objective of making best use of the climate services and information provided through SASCOF efforts, and otherwise available in the region was also clubbed with the aforementioned meetings. It was in general felt during this meeting that so far the climate outlooks are coarse and thus cannot be used by the water users directly. It was therefore suggested that to aid generation of good hydrologic decision making products, there is a need to lay more emphasis on refining afore-mentioned climate outlooks.

## **PART- II: WACREP PHASE-II REPORT**

### **(i) Water-Energy-Food Nexus: Developing a Framework for Resilience in Urban Areas with reference to Housing Societies**

India Water Partnership (GWP-India) is undertaking the above activity with the support of The Tata Energy Research Institute (TERI). During April, 2015, the TERI has undertaken the following activities:

#### **1. Identification of study area and indicators**

Preparation of indicators for selecting specific hot-spots in the study area is in progress. Based on this, the hydrological and sub-hydrological units will be delineated. For the study, all the four blocks of Gurgaon (Haryana); namely; Gurgaon, Pataudi, Sohna and Farrukhnagar have been considered as the project area.

#### **2. Secondary data collection**

Demographic data of Gurgaon including details on urban agglomeration and township has been collected from various sources like; National Sample Survey Organization (NSSO), Census India and official website of Gurgaon district.

#### **3. Literature review**

Literature review on Water Energy Food nexus is in progress. Different nexus approach from various organizations like, FAO, World Economic Forum, GIZ, TERI, GWP, UN population, OECD, Bonn 2011 nexus conference etc. have been studied in detail and analysed in the context of food consumption pattern. Various examples of such nexus from other countries like China, Singapore and Brazil have also been studied.

#### **Activities planned for May, 2015**

- Deciding the sample size;
- Delineation of hydrological units, identification and mapping of hot spots on GIS platform;
- Questionnaire framing for the study;
- Continuation of literature review;
- Secondary data collection from Gurgaon Municipality, Haryana Urban Development Authority, Jal Board, Urban Town Planners.

### **II. Climate Resilient Development- A Case Study of Mashi Sub-Basin in Rajasthan**

India Water Partnership is undertaking this activity with the support of one of its network partner; Centre for Environment and Development Studies (CEDS) based at Jaipur, Rajasthan. The following two sub-activities were undertaken in April, 2015:

## 2.1 GIS and Remote Sensing

### Acquisition and processing of the satellite data

IRS LISS IV images were to be procured from National Remote Sensing Station (NRSC). Images of both Kharif and Rabi season of the same year to be selected and procured for particular year. Vintage, cloud (>5% of area) and complete area coverage are the criteria by which images to be selected. The 6 scenes for selected dates unfortunately were not cloud free and it was known only after the order was placed.

***In the course of finalizing the data procurement, it was realized that the data required for the project area is covered by 6 scenes and as per the data availability with NRSC, it has now been noticed that the 6 scenes required are not available for the periods selected for the study as there was cloud cover. Now there is need to modify the data selection and revise the order accordingly to finalize the procurement process. Due to this problem the delivery of expected GIS outputs has been delayed.***

The satellite images acquired from NRSA will be geo-referenced using the toposheets of the area. The variation in texture, shape, size and pattern would be used to identify and delineate different categories.

### Thematic layer Preparations

Meanwhile, the digitisation of thematic layers such as geological map, physiographic maps, slope map, soil maps are in progress using secondary data collected from the study area, satellite image interpretation and limited field verifications. Geological map is interpreted from satellite image (open Source) and verified with the maps collected through open sources and later verified during the field checks. Physiographic map is prepared using toposheets and satellite images. Various Thematic maps are derived from the satellite image through visual interpretation and later value addition is done using field data and Survey of India maps. All these works are in progress.

### Conduct of socio-economic survey, data collection on land, livestock, population, extraction of water, livelihood patterns, etc.

For undertaking socio-economic survey, two sets of questionnaire have been prepared for pre-testing; one Village Schedule and the other Household Schedule. These schedules will be tested once the geo-hydrological survey is completed as that will help in selection of villages. Study of toposheets of the Mashi Sub Basin and review of secondary information is underway.

### **III. Promotion of Integrated Water Resource Management in Peri-Urban Settings (Action Research to develop innovative IWRM Investments)**

India Water Partnership (GWP-India) with the support of one of its network partner; TARU Leading Edge, New Delhi is undertaking this activity.

- **Literature Review:** The literature review which started in March, 2015 continued in April, 2015 also. The review involves collection of secondary sources of data to trace the growth of Delhi-NCR, the drivers of urbanization and their implications for water resources of the city, drawing on government sources, media reports and published articles in books and journals.

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- Terms of Reference (TOR) for engagement of the local partner have been finalized. **S.M. Seghal Foundation** will be involved with TARU Leading Edge for undertaking this activity.
- **Scoping exercise** to identify potential sites for research and the key issues for in-depth investigation and research has been completed. The criteria for the site selection has also been prepared covering levels of their being peri-urban in terms of the extent of land use change—with consequent implications for occupational diversification, the varying distance from the city, the period since when land use change had occurred and the nature of governance structure and water stress/quality levels, etc.
- After undertaking the scoping exercise in six villages, GadiHarsaru village, Gurgaon (Haryana) has been selected for the IWRM project under WACREP Phase-II. The field visit to this village has been planned on 11<sup>th</sup>/12<sup>th</sup> May, 2015. The visit will be undertaken teams of TARU Leading Edge and India Water Partnership.