TO REVIEW AND EXAMINE EXISTING STATE LEVEL REGULATORY AND INSTITUTIONAL FRAMEWORK TO OPERATIONALISE THE NATIONAL WATER POLICY- 2012

STATE REPORT
UTTAR PRADESH

SUBMITTED BY
Shilpa Chohan

H-383, Palam Vihar,
Gurgaon
Haryana-122017
Email: shilpa.ielo@gmail.com

SUBMITTED TO

INDIA WATER PARTNERSHIP

2016

Acknowledgement

This report would not have been possible without the support of India Water Partnership (IWP) and especially Dr. Veena Kanduri, Executive Secretary-cum-Country Coordinator, India Water Partnership for her constant support and guidance. I am using this opportunity to express my gratitude to everyone at IWP and especially Mr. Mangla Rai, Research Associate, India Water Partnership who have provided support throughout the course of this project.

We would like to put on record our appreciation and acknowledgement to my team of research associates for their perseverance in locating subject matter laws and local instruments for the purposes of this research. Mr. Sant Kumar and Mr. Izhar Ali for dealing with administrative requirements of the study and we thank them for ensuring smooth commissioning of the activities requiring administrative and financial management.

We would also like to thank various information and knowledge commons that were accessed during this work as it is not possible to name all of them.

(Shilpa Chohan)

Contents

Executive Summary

The water policy and regulatory framework in Uttar Pradesh has been examined based on broader thematic areas that form the basis of the National Water Policy, 2012.

The primary objective of the present analysis is to assess the preparedness of the states in terms of regulatory and institutional framework to respond to the directives of the National Water Policy- 2012 (NWP). This study is part of a larger examination of available legal mechanisms and especially policy formulation in three states of **Sikkim**, **Tamil Nadu** and **Uttar Pradesh** to deliver on the objectives of NWP-2012. This report in brief describes about the Uttar Pradesh State Water Policy-1999 and regulatory framework existing in the State.

The State Water Policy precedes National Water Policy of 2012 and therefore some of the principles and approaches contained therein still remain to be harmonized to be in tune with NWP-2012. However, the State Water Policy of Uttar Pradesh-1999 acknowledges water as a scarce resource and underlines the need for its planning, development and management to be guided by state perspectives. The water allocation priorities are broadly classified as (a) Drinking Water, (b) Irrigation (c) Hydro & Thermal Power (d) Agro- industries; non- agricultural industries (e) Navigation & other uses. Given the state's emphasis on agriculture, irrigation is next in water allocation priorities. Water management in the state is carried out on basis of the statutory enactment such as *Uttar Pradesh State Water Policy-1999, Uttar Pradesh Water Supply and Sewerage Act, 1975, Uttar Pradesh. Panchayat Raj Act, 194, The Uttar Pradesh Participation in Irrigation Management Act, 2009, The Uttar Pradesh Water Management and Regulatory Commission Act, 2008, Uttar Pradesh Bhoomi Evam Jal Sanrakshan Adhiniyam, 1963, Uttar Pradesh Municipalities Act, 1916, Uttar Pradesh Urban Sanitation Policy, 2009.* An analysis of these enactments reveals that the state is not having any regulatory framework for groundwater management and conservation.

Most of the legal enactments governing management of water in the state were enacted prior to State Water Policy of Uttar Pradesh, except *The Uttar Pradesh Water Management and Regulatory Commission Act, 2008.* The State Water Policy of Uttar Pradesh outlines need for setting up Tariff Regulatory body and also established The Uttar Pradesh Water Management and Regulatory Commission, though it needs to be operationalised. Water zoning within the state and the economic activities be guided and regulated in accordance with such zoning but the way forward to achieve this is not provided in the policy. Similarly, there is emphasis upon regulation of ground water resources so that it does not exceed the recharging possibilities as also to ensure social equity, though regulatory backing for ensuring any measures in this regard is missing.

There is a need for revisiting State Water Policy of Uttar Pradesh in view of the objectives and principles enunciated in NWP, 2012. Considering impacts of climate change over water resources in the state is an emerging issue, there is no discussion of the same in the state policy whereas NWP, 2012 lays emphasis over this aspect. Added emphasis over demand side management and water use efficiency is required in the policy framework for Uttar Pradesh.

Introduction and Background

Uttar Pradesh (UP) is the most populous state [1] and fourth[2] largest state according to area in India. It is surrounded by the state of Rajasthan, Haryana, Delhi, Uttarakhand, Bihar, Jharkhand and Madhya Pradesh. The country of Nepal is to the Northern side of the state. The state can be equally divided into three parts namely the Northern Mountains (the Himalayan region and some of the foothills areas in the north), Southern hills plateau (the Vindhya mountains in the south) and the Gangetic Plain. The land of state is greatly influenced by the huge Gangetic Plains area is connecting the north of India to the east. The economy of the state is largely dependent on Agriculture. The agricultural sector employs 2/3rd of the workforce[3] and there is high percentage of marginal and small land holdings. The share of manufacturing sector in the economy is very small and employs about 7.7% of the work force and contributes 20 per cent of State income. The state is considered to be birth place of Lord Rama, Krishna and Gautama Buddha.

Water Resources Scenario in Uttar Pradesh

Major source of surface water in the state are rivers flowing from southeast to southwest direction. Major rivers include Ganga, Yamuna, Ghagra, Gomati, Gandak, Sone and Sharda. Most of the rivers are meeting with Ganga. The rivers are perennial, snow fed and emerging from Himalayas except Gomati. The South West monsoon rain accounts for 70-80% of the total rainfall in a year. As it has predominately-rural economy with emphasis upon agriculture, number of canal systems has been developed for meeting irrigation needs. Any increase in agricultural production and productivity demands intensive and diversified agricultural practices requiring integration of surface and ground water resources for irrigation water delivery with appropriate cropping patterns. Increasing population is going to put sustained pressure on demand for water in various sectors such as agriculture, industry, urban, domestic use, drinking. These future scenarios can be arrested by adopting an integrated approach towards development and management of surface and ground water resources in a sustainable and efficient manner.

Impacts of Climate Change on Water Resources in Uttar Pradesh

Intergovernmental Panel on Climate Change (IPCC) defines vulnerability as *"the degree to which a system is susceptible to, or unable to cope with, the adverse effects of climate change, including climate variability and extremes"* (IPCC 2001). According to the IPCC (2007) "*Many semi-arid and arid areas are particularly exposed to the impacts of climate change and are projected to suffer a decrease of water resources (high confidence)".* Climate Change impacts supply and management of water resources as temperature increases can affect the hydrologic cycle by directly increasing evaporation of available surface water and vegetation transpiration and can influence precipitation amounts,

[1] Census Data of 2011
[2] Area of states: Ministry of Statistics and Programme Implementation, India
[3] UP SAPCC

timings and intensity rates, and indirectly impact the flux and storage of water in surface and sub-surface reservoirs i.e. lakes, soil moisture, and groundwater.[4] The State lying in the arid area is bound to be affected by climate change. The following outlines the impacts of climate change on water resources of the state:

- ✓ *Annual rainfall predicted to increase by 15% to 20% in the 2050's as compared to the baseline and the increase is higher towards 2080's (25% to 35%). Inter annual variability is higher towards 2080's.*
- ✓ *Greater variability in rainfall could result in frequent and prolonged periods of high or low groundwater levels, and saline intrusion in aquifers.*
- ✓ *The direct effect of climate change on groundwater resources depends upon the change in the volume and distribution of groundwater recharge.*
- ✓ *The change in blue water availability show spatial variation from marginal reduction (5%) to 20 % increase across the state towards 2050's as compared to the baseline and there may be almost 40 to 50% increase towards 2080's.*[5]

Regulatory Framework on water management

The Uttar Pradesh State Water Policy is the primary document outlining the water as 'prime natural resource, a basic human need and a precious asset'. It allocates water for drinking and domestic use as the highest priority. The objectives of the policy are ensuring preservation of the scarce water resources and its optimisation, to bring about qualitative improvement in water resource management and make it participatory, maintaining water quality, both surface and underground and ensuring ecological and environmental balance while developing water resources. The State established Uttar Pradesh Water Management and Regulatory Commission in 2008, as per the mandate of The Uttar Pradesh Water Management and Regulatory Commission Act, 2008.

In Uttar Pradesh water management is undertaken as per the following policy and legal instruments:

1. Uttar Pradesh State Water Policy
2. Uttar Pradesh Water Supply and Sewerage Act, 1975
3. Uttar Pradesh Panchayat Raj Act, 1947
4. The Uttar Pradesh Participatory Irrigation Management Act, 2009
5. The Uttar Pradesh Water Management and Regulatory Commission Act, 2008
6. Uttar Pradesh Bhoomi Evam Jal Sanrakshan Adhiniyam, 1963
7. Uttar Pradesh Municipalities Act, 1916
8. Uttar Pradesh Urban Sanitation Policy, 2009

[4] Uttar Pradesh State Action Plan on Climate Change
[5] Uttar Pradesh State Action Plan on Climate Change

Institutional, and organisational set-up on water management

Sl. No	Name of the Organisation/Institution	Functions assigned
State Level Organisation/Institution		
1.	Housing and Urban Planning Department	The Dept. currently has responsibility for Solid Waste and Liquid Wastes Disposal, Storm Water Drainage, rain water harvesting
2.	Barren Land Development Department (Parti Bhumi Vikas Vibhag)	The department undertakes long-term program to improve agricultural productivity in areas with a high concentration of sodic lands. It undertakes Integrated Watershed Management Programme to restore the ecological balance by conserving and developing degraded natural resources such as soil, vegetative cover and water.
3.	Irrigation and Water Resources Department	The focus of the department is towards the development and construction of dams, canals and wells for irrigation purposes. It looks after the irrigation projects in the state both small and large irrigation works.
4.	Fisheries Department	The department has evolved the Fisheries Development Policy-2013 that aims at development of fisheries in lakes, reservoirs etc.
5.	Uttar Pradesh Pollution Control Board (UPCB)	It undertakes Water Quality Monitoring Programme to assess the status of pollution in the natural environment.
6.	Forest and Wildlife Management Department	Preservation and enhancement of the quality of the natural environment, including water, air and soil quality. Implementation of Water (Prevention and Control of Pollution) Act, 1974 and The Water (Prevention and Control of Pollution) Cess Act, Rules, 1977-78.

7.	Minor Irrigation Department	Undertakes development of rivers
8.	Department of Rural Development	The mandate of Rural Department is to provide clean, safe and adequate drinking water to the rural habitation, improve the sanitation facilities, and ensure rural water security. Uttar Pradesh State Rural Livelihood Mission (UPSRLM) is a society formed under the aegis of Department of Rural Development to promote and improve livelihoods of the disadvantaged sections of the rural population of the state.
9.	Department of Infrastructure and Industrial Development	This department functions as the government arm to formulate and implement industrial and infrastructure development policies and strategies according to the specific needs and objectives of enabling socio-economic development of Uttar Pradesh. One of the section of the department specifically deals with Water supply & drainage, Road, etc. & other infrastructure development works. All the industries and infrastructure works use water and estimation of water requirement is essential for this department.
10.	Uttar Pradesh Jal Nigam	The corporation was established under the Uttar Pradesh Water Supply and Sewerage Act, 1975 for the development and regulation of water supply and sewerage services in the state .
11.	State Water Resources Agency (SWaRA)	The agency was set up for management, planning and sectoral allocation of Water Resources (both Surface & Ground) to various agencies viz. Drinking Water, Agriculture, Industrial Development, Hydro Power, Transportation, Entertainment and Thermal Power Production, Environmental flow of water in rivers. It works as a technical secretariat to the State Water Board.

12.	State Water Resources Data Analysis Center (SWaRDAC)	Its function is to provide water related data to the State Water Resources Agency (SWaRA) and other Central/State water plans for all river basins of the State.
13.	Water and Land Management Institute (WALMI)	The institute was started to enhance capacity of various stakeholders in land and water management. The activities of the institute is organizing foundation and refresher course for officials, officers of the irrigation department and other stakeholders, such as, farmers, water user associations, local government bodies, officials and officers of agriculture department, command area development Authorities and NGOs.
14.	Uttar Pradesh Bhumi Sudhar Nigam	This govt. undertaking is involved in undertaking, assisting, financing, measures for land development, conservation and improvement of soil and water resources.

Assessment of Institutional and Regulatory Framework qua National Water Policy, 2012

The institutional and regulatory preparedness of the state as per thematic areas presented in National Water Policy-2012 (NWP) is collated in Table 2.

	Thematic Areas as per NWP	What is to be explored	(Status based on the ongoing research)
1.	**Public Policy on water resources to be informed of basic common principles**	a. Whether state has a water policy	The State Water Policy, 1999 [6] is in operation

[6] http://irrigation.up.nic.in/state_water_policy.htm#

		b. Whether the state water policy is updated in view of NWP-2012?	The state policy is not updated in view of NWP-2012. Though, in the Policy of 1999, there is an acknowledgement that the state water policy needs draw its general guidance from the national water policy.
		c. Whether the sentiment articulated in NWP is echoed in state policies?	Some of the sentiments of NWP-2012 are articulated in the state water policy but not all are reflected. The UPWP, 1999 acknowledges that the state water policy needs to be in consonance of the national water policy. (para 1.9 of the SWP)
		d. Any concrete action is taken to revise the State policy?	There exists a draft of the State Water Policy 2014. It needs to be ascertained if it has been accepted by the government.
2.	**Raising Awareness about criticality of water as a natural resource**	a. Does water policy of the state say anything about water being a scarce, natural resource?	The water policy states that the state has bountiful water resources though increasing demand for water for various purposes is resulting in scarcity of the resource.
		b. Does the state have a campaign running or any engagement with its citizens to create and foster this sentiment?	The state has initiated campaigns on raising awareness on water conservation under various government schemes. The Uttar Pradesh Urban Sanitation Policy, 2009 includes raising awareness, behavioural change and sensitization as one of its first key goals.
3.	**Water quality and quantity**	a. Does the state water policy include a provision on right to access to minimum quantity of potable water for	The State Water Policy is not having a specific provision on right to access to minimum quantity of potable water for health and hygiene, though it highlights priority use for this purpose over all other water uses.

		health and hygiene?	
		b. Is there any law to guarantee this?	There is no law to guarantee this.
		c. Does the State Water Policy contain an article or a provision which places responsibility on citizens about protection and conservation of water sources in their immediate vicinity?	There is no provision laying emphasis upon responsibility of citizens regarding protection and conservation of water sources.
		d. Is the institutional mechanism geared up to deliver this?	The State Policy talks briefly about qualitative improvement in water resource management through user's participation and decentralization of authority, further the water resource planning for various uses is being done by the respective departments. Also the state government has constituted a "State Water Board" under the chairmanship of the Chief Secretary.

		e. Does the state provide the rights or powers to the Panchayat Raj Institutions, or citizens to independently initiate actions for protection and conservation of water sources in their immediate vicinity (article 48(a)(g) and 58 (a) of the Indian constitution specifically referred to these responsibilities related to water, and other natural resources)?	The U.P. Panchayat Raj Act, 1947 endows upon the Gram Panchayat the power and function of *water management and watershed development* in the area within its jurisdiction.[7]
4.	**Maintaining and sustaining Ecological needs and flows in a river**	a. Is there any law or policy in the state which makes it mandatory to undertake a scientific study to determine the ecological requirement of water for a river?	The state water policy has a provision on the need to maintain ecological flow of the water for a river. The state has undertaken various studies to determine the ecological flow of rivers in the state though it is not mandatorily stated in any state act. The state being member of ***N**ational Ganga River Basin Authority (NGRBA)* undertaking the Mission Clean Ganga is required to contribute to determining ecological flow of river Ganga and to monitor it. [8] This assessment is underway. One of the functions of *Upper Yamuna River Board* formed as a result of MoU between States of Uttar Pradesh, Haryana, Rajasthan, Himachal Pradesh

[7] Section 15 U.P. Panchayat Raj Act No. 26 of 1947

[8] One of the functions of NGBRA: Maintenance of minimum ecological flows in the river Ganga with the aim of ensuring water quality and environmentally sustainable development.

			and National Capital Territory of Delhi to regulate allocation of surface flow of river Yamuna amongst these states, is to determine and maintain ecological flow of the river. The State Water Resources Agency (SWaRA) created in June 2001 by an office order in the State of Uttar Pradesh for management, planning and sectoral allocation of Water. One of its functions is to provide policy inputs to the State Water Board. Another function is to direct other agencies to undertake assessment of environmental flow of rivers in the state as it would be an important input for water management.
		b. If yes what is the implementation and monitoring of the same?	As stated above
5.	**Adaptation to climate change**	a. Has the state formulated state action plan for climate change and has the concerns regarding effect of climate change on water resources been integrated in to these plans. Are there district level climate change action plans being formulated within the regulatory framework	The State has formulated Uttar Pradesh State Action Plan on Climate Change. The impact of climate change on water resources of the state has been assessed by modelling studies. The impacts have been integrated in the measures to be adopted for the water sector in the state. The district level climate change action plans have not been prepared yet.
		b. Has the state begun to integrate the	The state has begun to incorporate climate concerns in water resource management.

		concerns of climate variability in to water resource management and planning by doing the following (this is only an illustrative list based on NWP-2012?	
		c. Is there any special impetus to increasing water storage capacity?	One of strategies for the water sector as outlined in the State Action Plan for Climate Change is to increase in water storage capacity and especially green water storage as it has the potential to benefit the agriculture in months with little or no precipitation. Another key strategy is to carry out mass drive for renovating the traditional rain water harvesting structures/water storage structures like village ponds, bawris, etc. as they are important source of water in periods of drought and have a strong significance in the lives and livelihoods of drought prone regions.[9]
		Is there increase in water use efficiency across all water users groups of, agriculture, domestic, commercial and industrial?	There is added focus on increasing sectoral water use efficiency and the same is reflected in the measures stated in the climate action plan.
		d. Are sustainable agricultural practices being adopted and reshaped as per	The priorities for the state for its On Farm Water Management focus primarily on enhancing water use efficiency by promoting efficient on-farm water management technologies and

[9] Uttar Pradesh State Action Plan on Climate Change-2014

			the water availability in Uttar Pradesh or a region of Uttar Pradesh?	equipment. Assistance would be extended for adopting water conservation technologies, efficient delivery and distribution systems etc. To conserve water in farms itself, farm ponds may be dug using MGNREGA funds and earth moving machinery. It will also focus on enhancing water use efficiency by promoting appropriate technological interventions like drip and sprinkler technologies efficient water application and distribution system by secondary storage and drainage development.
		e.	Is climate change variability included as criteria for water development projects?	The inputs from the modelling projections as outlined in the Uttar Pradesh State Action Plan on Climate Change, will feed into the process of water 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 Uttar Pradesh State Action Plan on Climate Change lays emphasis upon development of water and nitrogen use efficient crops to enhance tolerance to drought, water logging, sodicity, pest and disease infestation following different breeding approaches including recombinant DNA techniques. There is provision for involving the stakeholders in the implementation of measures but not in the planning process.

6.	**Augmenting water Supply and sanitation**	Is Uttar Pradesh is doing any of the following to augmenting water supply and provide access to sanitation and made recycling and reuse mandatory	The Uttar Pradesh Water Supply and Sewerage Act, 1975 provides that promotion, operation and execution is one of the key functions of the *Jal Sansthan* created under the Act and the *Jal Sansthan* is empowered for carrying out all the tasks under the Act.
		a. Rain water harvesting potential	One of the function of The Uttar Pradesh Water Management and Regulatory Commission Act, 2008 is to enforce rain water harvesting to augment groundwater recharge[10]
		b. Desalination techniques	It is not applicable to the state
		c. Made water use efficiency mandatory	al Sansthan has the mandate to promote efficient system of water supply under the Water Supply and Sewerage Act, 1975
		d. Are there subsidies and incentives for recovery of industrial pollutants and recycling / reuse	Research in progress
		e. Are sewerage charges being put/recovered in urban areas	Yes. The Water Supply and Sewerage Act, 1975 provides that the institutions established under it are empowered to set water tariffs. The Jal Nigam at the

[10] Section 12 (b) The Uttar Pradesh Water Management and Regulatory Commission Act, 2008

			state level has the function to review and advise the Jal Sansthans and the local bodies on the water tariff as the agreement entered with the Nigam under Section 46 of the 1975 Act. Further, Jal Sansthan, under section 25 of the 1975 Act have the power to introduce or amend tariff for water supply and sewerage services and collect such charges, subject to Nigam's approval.
		f. What steps are undertaken to augment rural water supply?	A number of centrally sponsored schemes and programs are run in the state such as Swajaldhara, Accelerated Rural Water Supply scheme, National Rural Drinking Water Program. However, their performance and implementation coverage can be known by way of ground level inputs. In terms of laws, the UP Panchayati Raj Act provides for the powers of the Gram Panchayat to Waterways (Section 17)
7.	**Ground water use and management**	a. Has tUttar Pradesh done Aquifer mapping to know the quality and quantity of ground water	Yes, the state policy has done mapping inferring the quantity and quality of the ground water.
		b. Does the state have a ground water law	Yes. The state has attempted a dedicated ground water law by the name The Uttar Pradesh Groundwater Conservation, Protection And Development (Management, Control And Regulation) Bill, 2010. However, the Bill is pending adaptation (as per the latest web research)

		c. Is there an authority mandated to manage and conserve groundwater in the State	The State Groundwater department is the nodal agency for regulation of groundwater in rural and urban areas. It is mandated to carry investigations for the development of groundwater resources, artificial recharge of groundwater, hydro-geological studies etc.
		d. Does the law protect over exploited aquifers, how?	In state policy, under conjunctive use apart from specifying about- to augment the ground water in the available aquifers, it is also mentioned to ensure that such projects should not pollute the ground water aquifer. The Ground Water Bill, 2010 has the provisions to protect overexploited aquifers. However, the Bill still needs to be adopted by the state government.
		e. Is extraction of ground water linked with recharge of the same?	The State Groundwater Board has the mandate to undertake measures aimed at groundwater recharge such as through rainwater harvesting. However, the Uttar Pradesh Water Management and Regulatory Commission is entrusted with the task of enforcing rainwater harvesting for ensuring groundwater recharge (Section 12(m))
8.	**Integrated Watershed development**	a. Whether specific steps Uttar Pradesh is taking to ensure integrated watershed development.	As per State Action Plan on Climate Change (Uttar Pradesh) "JAL MISSION" is the mission in state been linked to the National mission and also there are some ongoing programmes and works of Forest Department in this regard.
		b. Have statutory / administrative / departmental steps been taken in order to integrate / align	State policy mentions only about preparation of perspective plan of the water resources development of the State on integrated basis within the concept of basin/sub-basin development. The institutional arrangements on water in

		the objective functions which may differ	the state are very fragmented both at the state level as well as at the district and village level.
		c. Are water sources and their catchment areas being looked at in totality?	The UP Water Resource Agency is entrusted with the task of preparing an integrated water resource management plan to be approved by the Water Management and Regulatory Commission. The Act does not talk about the agency having the mandate to look at catchment areas in totality.
		d. Have steps been taken to avoid duplication of overhead costs in order to create synergies	No. At least the numbers of laws on different aspects of water management and a diverse range of institutions established under them show that there might be duplication of overhead cost.
		e. Are developmental laws harmonised with the need of integrated watershed development.	No. The research has not revealed any dedicated initiative by the state government on the harmonizing developmental laws with the state level water law framework.
		f. Have other development related laws been amended or harmonized in order to avoid contradictions (e.g. The Indian Easement Act 1882 and the confusion regarding ownership of groundwater, and / or surface water)	As above

9.	**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	The Uttar Pradesh Water Management and Regulatory Commission Act, 2008 provides for the establishment of the **Uttar Pradesh Water Management and Regulatory Commission** to regulate the water resources within the State. Facilitate and ensure judicious equitable and sustainable management, allocation and optimal utilization of water resources for environmentally, economically sustainable development of the State, fix the rates for water use for agriculture, industrial, drinking, power and other purposes.
		b. Is there any penalty for wastage of water and incentive for water use efficiency	The Uttar Pradesh Water Management and Regulatory Commission Act, 2008 does provide the provision of penalty in case of contravention of the provisions of this Act, the rules or the regulations and also refusal or failure without any reasonable cause to comply with any direction, order or requirement under this act.
		c. Is there any efficiency benchmark at which irrigation projects have to perform and function	The water policy does talks about management of the irrigation water and efficient use briefly.
		d. What are the existing schemes providing incentives for engaging in cropping pattern using micro irrigation (drip, sprinkler, etc.), automated irrigation operation, evaporation-transpiration reduction, etc.	The Uttar Pradesh Participatory Irrigation Management Act, 2009 talks about water budgeting and installation of measuring device. The Act also talks about crop plan as per the water budget and soil condition. However use of drip irrigation etc is not discussed.

		f. Is there any scheme being used in the state which encourages people to use water use efficient gadgets	None, so far.
		g. Is there a mechanism to conduct water audits –voluntary or mandatory	The Uttar Pradesh Water Management and Regulatory Commission Act, 2008 in its section 26, provide a provision to conduct mandatory audits and the records to be maintained by the commission.
10.	**Water pricing**	a. Is there a mechanism for water pricing?	Water policy mentions about the pricing of water for which "Tariff Regulatory Body" is proposed to be constituted.
		b. Has Water Regulatory Authority been established	Water Management and Regulatory Commission was established in 2008
		c. What is the water pricing methods being followed?	Both the Jal Nigam at the state level and the Jan Sansthan at the city level are empowered to review and set water tariff respectively in the state. However, the basis for water pricing is not known in details.
		d. Has water pricing been rationalised? If yes how? If no why?	The Commission as per The Uttar Pradesh Water Management and Regulatory Commission Act, 2008 is mandated to frame regulations for determining fees and charges for different types of consumers.[11]

[11] Section 35(2) (h) The fees and charges payable by the licensee and the consumer or water;

		e. Are water charges being recovered from the consumers?	Yes.
		f. Are Water Users Associations (WUAs) are involved in the process of fixing rates of water	Water User Association under the PIM Act, 2009 are empowered to recover water charges from a water user, however, these charges are fixed by the state government.
		g. Are Water Users Associations (WUAs) given statutory powers to collect and retain a portion of water charges, manage the volumetric quantum of water allotted to them and to maintain the distribution system in their jurisdiction?	Yes. The PIM Act provides for WUA to collect water charges at the intermediary level and run and manage WUAs.
11.	**Scientific assessment of water resources and Database, information system a.**	a. Which are the Institutions involved in the scientific assessment of the water resources	The State Water Resources Data and Analysis Centre works as the technical secretariat to the Water Management and Regulatory Commission established in 2008.
		c. Which institutions and regulatory bodies are involved in the collection of Data	The State Water Resources Data and Analysis Centre

12	**Allocation and uses of water**	a. Is there a mechanism for water allocation amongst different competing uses	The State Water Policy provides for the following priority of uses: i. Provide adequate water for drinking and domestic use. ii. Providing water for irrigation. iii. Maximize hydro power generation within the constraints imposed by other users. iv. Provide water for industries including Agro industries. v. Provide water for navigation, recreation, health and for other uses.
		b. If yes, the criteria and principles followed for allocation	The 1999 Policy does not elaborate upon principles of water allocation and use. The Uttar Pradesh Water Management and Regulatory Commission Act, 2008 underlines the function of the commission which encompasses allocation of water[12].
		c. Are principles of equity and social justice being followed for water allocation	There are no guiding principles available for water allocation.
		d. What is the existing mechanism for dispute resolution in allocation of water	*The Uttar Pradesh Water Management and Regulatory Commission Act, 2008* provides a mechanism for dispute resolution between licensees or users[13] through the process of Commission for arbitration. The act elucidates the users as user of groundwater[14], water user utility[15] so the mechanism for dispute resolution covers them.

[12] Section 12 (b) to determine the allocation and distribution of entitlements for various category of use of water at utility, project level and also between various water user entity within the parameters laid clown by the State Water policy on such terms and conditions as may be prescribed for such a distribution;

[13] Section 19 of the Uttar Pradesh Water Management and Regulatory Commission Act, 2008

[14] Section 2 (aa) "User of groundwater" means the person or persons of an institution including a company or an establishment, whether government or private who or which own or use groundwater for any purpose including domestic use made either on a personal or community basis

[15] Section 2 (ac) "Water User Entity" means any Water User entity including Water Users' Association, utility, Industrial Users' Association or any other group or individual which is authorized by the Commission to receive and utilize a water entitlement;

		e. Have the water uses have been prioritized, and has the basic needs principle been adopted; e.g. Reservation of water for drinking (inclusive of cattle) drinking and domestic purposes	Yes. The State Water Policy provides for the following priority of uses: i. Provide adequate water for drinking and domestic use. ii. Providing water for irrigation. iii. Maximize hydro power generation with in the constraints imposed by other users. iv. Provide water for industries including Agro industries. v. Provide water for navigation, recreation, health and for other uses
		f. Has the state policy defined the procedure of allocation of scarce water between sectors? e.g. Drinking and domestic, agriculture, industry, Hydro-power etc, in order to achieve optimal use	The SWP, 1999 provides that the priorities of development should also be aimed at reducing the existing regional imbalances. In this context, transfer of water from surplus to scarce areas should also be considered.
		g. Between the principle of satisfying basic needs and the principle of ability to pay (pricing), which one will be given preference and / or priority?	No specific mention in the formal water related instruments at the state level.
13	**Management of Flood & Drought**	a. What is the regulatory mechanism to prevent loss of land eroded by a river, which causes permanent loss	The UP Bhoomi and Jal Sanrakshan Adhiniyam, 1963 established an institutional mechanism at the state and district level in the form of a Samiti which consists of members from state administration as well as people's representatives to oversee to prevent loss of land eroded by a river.

		b. Is there an institutional setup for flood forecasting using real time data acquisition system and linked to forecasting models?	The UP Disaster Management Authority and the Department are the nodal institutions for flood forecasting. They are supported by other organizations having technical expertise.
14	**Integrated Water Resources Management**	a. Has the state incorporated river basin / sub-basin as a unit as the main principle for planning, development and management of Water resources.	There are no river basin management authorities in UP. The National River Ganga Basin Management Authority is a national level institution. However, the state has established a State Ganga River Conservation Agency (SGRCA). One of the main functions of the SGRCA is to implement River Basin Management Programme prepared and approved by the National Ganga River Basin Authority & U.P. State Ganga River Conservation Authority.
		b. Are there river basin [16]management authorities established by the state government	One of the main functions of the SGRCA is to implement River Basin Management Programme prepared and approved by the National Ganga River Basin Authority & U.P. State Ganga River Conservation Authority.
		c. What are the functions and powers of the river basin management authorities	The functions and powers of the U.P Ganga River Conservation Agency include: ain object of Agency is pollution abatement in River Ganga and it's environmental / ecological improvement and to achieve it's object there are following objectives of the agency:- • To implement River Basin Management Programme prepared and approved by the National Ganga River Basin Authority & U.P. State Ganga River Conservation Authority. • To monitor the executed programme of National Ganga

16

			River Basin Authority at State level and to evaluate and audit itself or to get it evaluated and audited. • To prepare the annual work plan of U.P. State Ganga River Conservation Agency and obtain it's approval of the U.P. State Ganga River Conservation Authority/concerned Authorities. • To facilitate smooth implementation of approved yearly work plan. • To supervise and Coordinate the activities necessary for pollution control and treatment for maintaining the quality of water in river Ganga. • To implement the recycling and reuse of water, rain water harvesting, decentralized sewage treatment system, water conservation and conservation procedures. • To facilitate State Government and / or local bodies in issues related to the land acquisition, removal of unauthorised encroachments, contracts for the purpose of implementation of instructions of National Ganga River Basin Authority and U.P. State Ganga River Conservation Authority. • Study of researches for achieving above objects and to prepare case studies. • To encourage participation of all sections of communities including females for equitable and uniform development for ensuring water quality in river Ganga. • To develop proper knowledge and effective communication with all stockholders for

			fulfilment of above objectives; and • Other works which may help the agency in fulfilling the above objectives.
15	**Planning and Implementation of water resource projects**	a. What is the level of participation of local governing bodies like Panchayats, Municipalities, Corporations, etc., and Water Users Associations, in planning of Water resource projects.	The Jal Sansthans are the water bodies to implement water related schemes in districts, towns and blocks. Panchayats take up the work in villages. These are administratively controlled by the Jal Nigam at the state level. Water Users Associations at the village level perform other important water management functions. In addition to this Municipal Corporations in urban areas and Village Water & Sanitation Committees in rural areas perform water management functions for the purposes of implementation of water resource projects.
		b. Are the needs and aspirations of the Scheduled castes and Scheduled Tribes, women and other weaker sections of the society being taken into consideration in the planning process	The State Water Resource Agency is required to prepare an integrated plan taking into account needs of all sections of society.

		c. Is there an institutional mechanism in the form of a single window clearance for all clearances, including environmental and investment clearances, required for implementation of projects to avoid the economic losses	The state is yet to implement a system single window environmental clearance.
16	**Conservation of river corridors, water bodies and wetlands**	a. What is the prevalent institutional structure for conservation and management of river corridors, water bodies, wetlands within the state?	There is no unified authority, department, body or agency looking after water bodies and wetlands in the state. Under the U.P. Panchayat Raj Act, 1947, Gram Panchayats have the power of protection and conservation of water bodies within their jurisdiction. The water bodies and wetlands within Urban limits are managed by the Property Department of Municipalities/ Municipal Corporations.
		b. Is there community participation in the conservation of river corridors, water bodies, wetlands?	There is no institutional mechanism for community participation in the conservation of river corridors, water bodies, wetlands in the state. Though, stakeholders are involved depending upon scheme/plan for its protection. Under the Government of India (GoI) scheme of Repair, Renovation and Restoration of water bodies the various State Governments prepares projects with the involvement of the community, Panchayati Raj Institution (PRI), Water Users Associations to prepare Detailed Project Reports for the conservation and protection of water bodies within the villages.[17]

[17] Sixteenth Report Standing Committee On Water Resources (2012-2013) (Fifteenth Lok Sabha) Ministry Of Water Resources Repair, Renovation And Restoration Of Water Bodies

		c. What are the institutional and regulatory measures to deal with encroachments and diversion of water bodies, wetlands in rural and urban areas?	The state of UP has a number of legislative enactments which have direct and indirect bearing on water and water bodies. These laws together provide collective prohibitions on the diversion and encroachment on water bodies. However, the administrative complexity in terms of who performs these functions and in what manner needs to be further researched.
		d. Besides participation, has the community or an individual being given the right (duty and responsibility) to protect and conserve water sources?	The UP Bhoomi and Evam Jal Sanrakshan Adhiniyam, 1963 is an important legislation for the protection of soil and water. The law provides for the constitution of a Samiti. The Samiti can have only one member from the community. (Section 6(2)(j))

Whether the present institutional and regulatory framework is adequate to implement the National Water Policy-2012?

- **Need for revisiting the Uttar Pradesh State Water Policy, 2009:** The State Water Policy of Uttar Pradesh, needs to be revisited in terms of the NWP, 2012 as the basic principles require reflection at the state level. Considering that impacts of climate change over water resources in the state is an emerging issue, there is no discussion of the same in the state policy whereas NWP, 2012 lays emphasis over this aspect.

- **Inclusion of Climate Change Adaptation strategies in water planning processes:** There is absence of discussion on climate change impacts or adaptation in State Water Policy regarding water resources, whereas climate change adaptation is one of the major issues dealt in NWP, 2012. The climate change impacts on water resources of the state are well documented and various studies are underway to assess adaptation strategies. Given this focus, it is important for the state water policy to address this aspect.

- **Development of Navigational uses of Rivers and water bodies:** The NWP, 2012 lays emphasis on development of rivers and water bodies for navigational uses and its inclusion in the planning process from inception phase. Neither the State Water Policy of Uttar Pradesh discusses navigation potential of the rivers nor finds mention in the water allocation priorities of the state. In this aspect

State Water Policy of Uttar Pradesh requires to be updated to include aspects on navigation.

- **Operationalising Uttar Pradesh Water Management and Regulatory Commission:** The state government though enacted the enabling legislation to establish Uttar Pradesh Water Management and Regulatory Commission, 2008, but it is still not operational. The NWP, 2012 lays emphasis upon establishment of an independent statutory Water Regulatory Authority, mandated to fix pricing of water for drinking and other uses such as sanitation, agricultural and industrial. The underlying idea being to evolve water charges 'to meet equity, efficiency and economic principles.

- **Enhancing sectoral water use efficiency:** The NWP, 2012 lays great emphasis on demand side management and water use efficiency for various sectors as a measure to ensure sustainable and efficient way of using water. The State Water Policy of Uttar Pradesh is silent on demand side management of water, which is a way forward to ensure availability of water for different competing uses.

- **Flood Management and Forecasting:** State Water Policy of Uttar Pradesh outlines the measures for flood control and management though there is no discussion on developing Flood forecasting models as a measure for flood preparedness. The efforts at developing flood-forecasting models for various basins are inbuilt as a flood management strategy in NWP, 2012.