



POSITION PAPER

on Understanding and Implementation of
National Water Policy of India - 2012

2014

Position Paper on Understanding and Implementation of National Water Policy of India - 2012

Authors:

Prof. Vijay Paranjpye

Coordinator, West Zone Water Partnership, IWP

Prof. M S Rathore

Advisory Committee Member, IWP

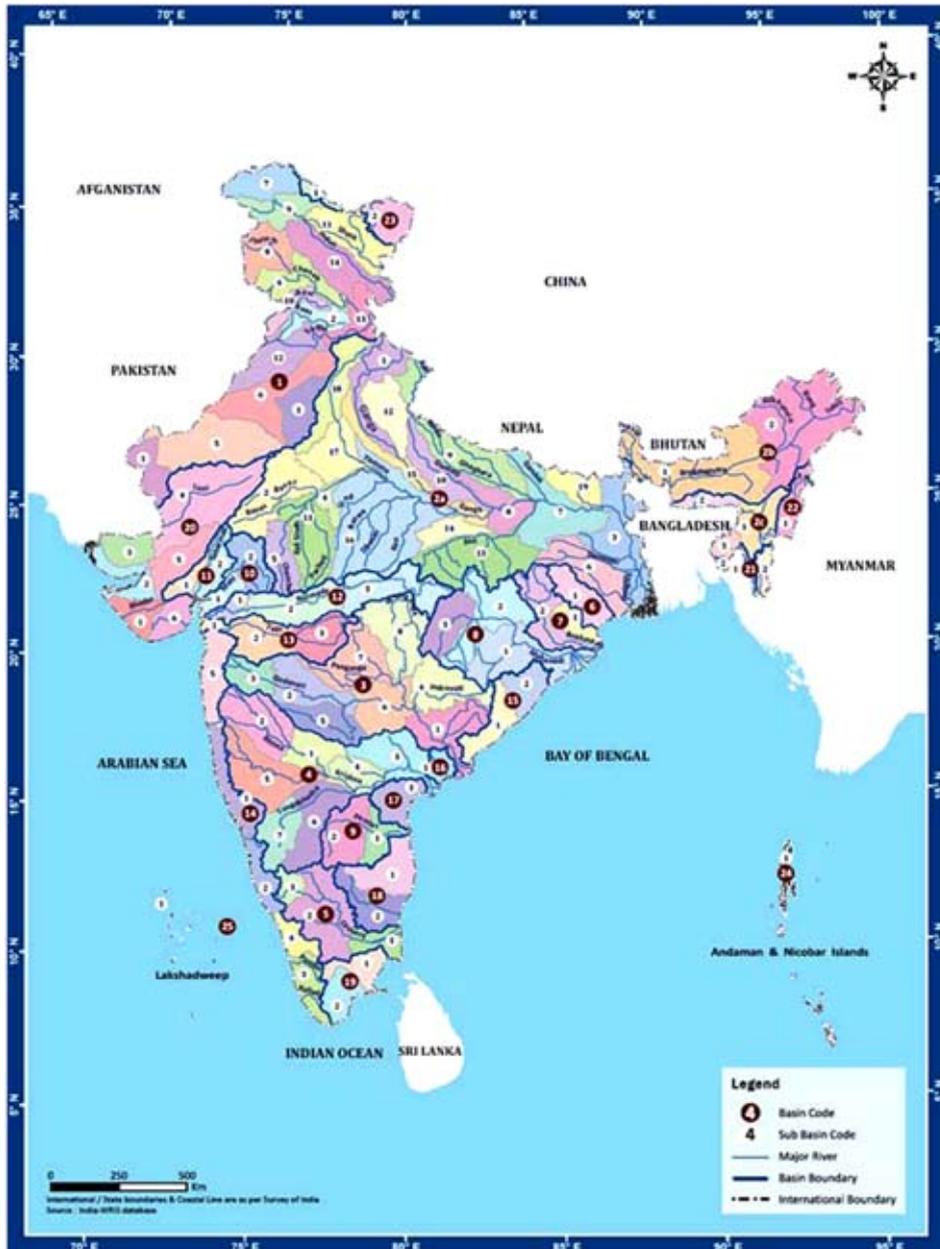
by



India Water Partnership (IWP)

2014

Major River Basins of India



Major River Basins in India

- 1 - Indus (Up to border) Basin
- 2a - Ganga Basin
- 2b - Brahmaputra Basin
- 2c - Barak and others Basin
- 3 - Godavari Basin
- 4 - Krishna Basin
- 5 - Cauvery Basin
- 6 - Subarnarekha Basin
- 7 - Brahmani and Baitarni Basin
- 8 - Mahanadi Basin
- 9 - Pennar Basin
- 10 - Mahi Basin
- 11 - Sabarmati Basin
- 12 - Narmada Basin

- 13 - Tapi Basin
- 14 - West flowing rivers South of Tapi Basin
- 15 - East flowing rivers between Mahanadi and Godavari Basin
- 16 - East flowing rivers between Godavari and Krishna Basin
- 17 - East flowing rivers between Krishna and Pennar Basin
- 18 - East flowing rivers between Pennar and Cauvery Basin
- 19 - East flowing rivers South of Cauvery Basin

- 20 - West flowing rivers of Kutch and Saurashtra including Luni Basin
- 21 - Minor Rivers draining into Bangladesh Basin
- 22 - Minor Rivers draining into Myanmar Basin
- 23 - Area of North Ladakh not draining into Indus Basin
- 24 - Drainage Area of Andaman and Nicobar Islands Basin
- 25 - Drainage Area of Lakshadweep Islands Basin

Preface

This paper aims to present a position that will help guide implementing agencies, Civil Society Organizations and individuals on policy issues related to water sector reforms through a review of the National Water Policy (NWP), 2012. It lists issues that have been adequately (or inadequately) addressed in the NWP 2012 statement. Further, it takes into consideration various viewpoints expressed by participants during the two workshops organized by IWP through its Zonal Water Partners at Jodhpur (16th & 17th December 2013) and at Pune (4th January 2014). Even though this paper primarily focuses on the NWP 2012, it also includes a wider vision which emerged during these two workshops interactions which express regional ground realities and concerns. Details of the workshops are available on IWP website www.cwp-india.org.

Further, the paper also adds the dimension of community participation and the role of civil society organizations, in water sector reforms and the inter-linkages and inter-dependencies between these elements and government agencies working in the water sector. It is hoped that this approach will help to synergize the efforts of implementing agencies, civil society organisations and individuals in a manner which will broaden the objectives of the National Water Policy, 2012 and bring about the desired reforms in the water sector to help the Central and State agencies in effectively implementing the NWP-2012. It shows the vision and farsightedness of IWP for taking lead to commission the Position Paper to build partners capacity on the subject.

This Position Paper has been prepared jointly by the Prof. M S Rathore, Advisory Committee member of IWP and Prof. Vijay Paranjpye, Coordinator of West Zone Water Partnership of IWP after reviewing the State Water Policies and National Water Policy-2012.

India Water Partnership (IWP)

Acknowledgements

India Water Partnership (IWP) is thankful to its Board of Governors for providing an opportunity of putting together a position paper on understanding and implementation of the NWP 2012. The basis for preparing the position paper was felt important because the whole world especially the India is entering into a new era of water scarcity due to various factors. How to deal the challenges of water scarcity is very much important to understand and act upon.

IWP is grateful to Prof. Vijay Paranjypte, West Zone Coordinator of India Water Partnership and Prof. M S Rathore, Advisory Committee member of IWP who jointly prepared this position paper after the review of State Water Policies and National Water Policy-2012 and also based on the multi-stakeholders' consultations organized in Pune and Jodhpur (State government representatives, academicians, community based organizations, research organizations, corporates, farmer representatives and water user group representatives etc. participated in the workshops).

We are also grateful to all the IWP partners, especially Zonal Water Partners of North (Haryana, Uttar Pradesh, Punjab, Himachal Pradesh, Uttarakhand, Rajasthan, Delhi, and Jammu & Kashmir) and state and district officials from respective states & representatives of West Zone Water Partnership for participating in the workshops and sharing their region-specific experiences and their position on Implementation of National Water Policy-2012.

We place on our records the contributions of Shri S C Jain, Regional Council member, GWP-South Asia & former Joint Secretary IWP; Shri V K Mathur, Consultant, WAPCOS Ltd. for reviewing this paper and providing their suggestions for refinement.

IWP is also thankful to respective State governments officials; community based organizations; academicians; research organizations; corporates representatives; farmers representatives and water user groups representatives for their representation and contributions in the workshops which gave better insight to the writers in preparing this position paper.

The organizations and authors whose publications have been quoted in this paper are duly appreciated and acknowledged by us.

Dr. Veena Khanduri

Executive Secretary-cum-Country Coordinator
India Water Partnership (IWP)

Abstract

This paper attempts to critically evaluate the strengths and limitations of the National Water Policy 2012 (NWP 2012) and discuss various water related issues confronting a variety of agro-economic and morphological zones in different regions in India. It offers a set of recommendations and possible actions which could lead to a more effective and timely implementation not only of NWP 2012 but also for the other policies in water sector reforms in future.

Water sector reforms through change in the governance system, backed by a National Water Framework Act, as proposed in the NWP 2012 is probably one of the most progressive legislative interventions stated in recent times that has the potential to remove most, if not all, perverse elements (political, legal and technical, etc.), which have so far inhibited a dynamic and progressive evolution of the water sector reforms in India. The paper spells out the key elements which could help the government to plan, develop and manage India's water resources in an integrated, equitable and sustainable manner.

Although water is a vast and all-pervasive subject, this position paper primarily focuses on evaluating the extent to which the National Water Policy, 2012 (NWP 2012) responds to newly emerging issues and

challenges in the water sector by adopting the principles of Integrated Water Resources Management (IWRM). In addition, the paper also looks at whether (or not) the new policy has recognized and responded to the regional variations in agro-climatic conditions, ecological limitations and socio-economic conditions prevailing in different parts of the country.

In conclusion, we would like to state that, in order to implement the conceptual and legal framework proposed in the NWP 2012, all states would have to promulgate State Water Policies which comply with the NWP 2012 on the one hand, and respond proactively to location-specific variations and geo-morphological characteristics of each state. Such state-level policies should be in line with the federal structure of the Indian Constitution, which has placed 'water' primarily in the State list, while keeping only a few matters such as 'trans-boundary and inter-state allocation of waters' as being the responsibility of the Central Government. The paper argues that bringing about the appropriate water sector reforms merely through the NWP 2012 would not be possible without being simultaneously accompanied by strong political will and inbuilt mechanisms for implementing and enforcing the existing laws and guidelines at the central and state levels.

Contents

Preface

Acknowledgements

Abstract

1.	Introduction	1-4
1.1	The current water crisis: Indian scenario	1
1.2	Post-Independence period	1
1.3	Lessons from the past: NWP 1987 & NWP 2002	2
1.3.1	First National Water Policy (1987)	2
1.3.2	Second National Water Policy (2002)	3
1.3.3	Unfulfilled objectives of NWP 2002	3
2.	National Water Policy 2012	5-9
2.1	Background	5
2.2	New concepts in NWP 2012	5
2.2.1	Public Trust Doctrine	5
2.2.2	National Water Framework Law (NWP 2012, Section 2)	5
2.2.3	Climate Change: Adaptation and resilience strategies (NWP '12, Section 4)	6
2.2.4	Pricing of Water for Demand and Supply Management (NWP '12, Section 6,7)	6
2.2.5	Inclusion of the Integrated Water Resource Management (IWRM) Approach (NWP '12, Section 1.2)	7
2.2.6	Third-party Environmental Impact Assessment and River Rejuvenation (NWP '12, Section 8)	7
2.2.7	Water Supply and Sanitation (NWP 2012, Section 11)	7
2.2.8	Proposal for Permanent Water Disputes Tribunal (NWP 2012, Section 12)	8
2.3	Difficulties in implementing NWP 2012	8
2.3.1	Inordinate delay in creating River Basin Agencies/Authorities/ Organizations	8
2.3.2	Inadequate implementation of policy recommendations	8
2.3.3	Intractable Inter-state disputes	8
2.3.4	Over-optimistic estimates regarding India's annual water availability	9
3.	National Water Policy 2012: Lacunae and missing links	10-15
3.1	Review of past policies and performance	10
3.2	Lack of awareness of relevance of ancient water culture and traditional systems	10
3.3	People's participation in policy formulation	10
3.4	Disregarding changes in the pattern of water-use for irrigation	10
3.5	The irrigation-energy nexus	11
3.6	Ensuring the Right to Water and the responsibility to protect and conserve it	11
3.7	Applying and Implementing the IWRM principles	12
3.8	Privatization and water grabbing	12
3.9	The subsidiarity principle	12
3.10	Prioritization of water use	12

3.11	Augmenting water availability	13
3.12	Is groundwater a public, private or common pool resource?	13
3.13	Threat to river eco-systems due to sand mining	13
3.14	NWP 2012: The regional context	13
3.14.1	Unsuitable development projects in fragile eco-sensitive zones	13
3.14.2	Water scarcity despite abundant rainfall	14
3.14.3	Drinking water supply	14
3.14.4	Water-logging and salinity	14
3.14.5	Health hazards due to contamination of groundwater	14
3.14.6	Usurping of water by urban population	14
3.14.6	Encroachment of water bodies and obstruction of flows	14
	Conclusion	15
4.	Recommendations for effective implementation of NWP 2012	16-19
4.1	Enforcement of existing laws	16
4.2	Promulgation of a National Water Framework Law	16
4.3	Transferring 'water' from State List to Concurrent list	16
4.4	Establishment of River Basin Agencies and Water Regulatory Authorities	17
4.5	Inclusion of the Doctrine of Public Trust	17
4.6	Right to Water	17
4.7	Promulgation of an Act for Participatory Irrigation Management(PIM)	17
4.8	Modification of the notification regarding EIA	17
4.9	Setting up a National River Restoration and Rehabilitation Fund	17
4.10	Setting up Independent National and State level Ministry/Department/Authority and Fund for Re-settlement and Rehabilitation	18
4.11	Making water-related data available in the public domain	18
4.12	Maintaining environmental flows of rivers	18
4.13	Implementation of the National Action Plan on Climate Change (2008)	18
4.14	Documentation, inventorization, contemporization and upkeep of traditional water management systems	19
4.15	Ensuring Dam Safety	19
4.16	Preparation of a restoration plan for saline land.	19
4.17	Breaking the energy-irrigation nexus through innovative practices	19
	Concluding remarks	19

1. Introduction

1.1 The current water crisis: Indian scenario

In the context of the current water crisis in India, the importance of implementing and enforcing a clearly defined National Water Policy with a pre-determined time-line that works towards achieving nationally determined targets cannot be overstated. It is in this light that the National Water Policy 2012 has been reviewed in this paper.

The Indian economy, along with that of several other countries (BRIC and others) have started growing at a rapid pace, and are now using an ever-increasing volume of water each year, which by some estimates has already reached a critical limit in terms of annual water availability. This is especially true in view of the increasing contamination of fresh water. As compared to the period just after independence, say 1951, the per capita availability of water in India has fallen from 5177 cubic meters (m³) per year, to 1463 m³/year by 2014. This inverse relationship between the growth in population and relative reduction in the annual water availability has been the critical contributor to the water crisis in India today. In addition, as compared to the 1950s the requirement of water for industries, urban use, and irrigation has also increased rapidly. The current use given in the table below is likely to experience more than double of water required for domestic and industrial use, consequently leading to a 12% to 17% reduction in the availability of water for agriculture.

Table 1: Comparative Usage of Water in percentage as per 2013

Sector	World	Europe	Africa	India	Expected usage in India by 2030
Agriculture	69	33	88	83	59
Industry	23	54	5	12	24
Domestic	8	13	7	5	10

Source: Based on Census of India, 2011 and Annual Reports (2012, 2013) Central Water Commission, MoWR, GR & RD, Gol.

Compared to other large economies, India is relatively worse off, in terms of availability per capita and also in terms of efficiency in use. The annual demand for

water per capita is expected to double by 2050, but the availability of water per capita will substantially reduce as the volume of water remains constant and its quality deteriorates.

Table 2: Total and per Capita Availability of Water in India

Year	Population (million)	Per capita availability (m ³ /year)	Utilizable water (Billion cubic meters) Annual average
1951	361	5177	1123
1955	395	4732	1123
1991	846	2209	1123
2001	1027	1820	1123
2011	1210	1545	1123
2014	1265	1463	1123
2025	1394	1341	1123
2050	1640	1140	1123

Source: Based on Census of India, 2011 and Annual Reports (2012, 2013) Central Water Commission, MoWR, Gol.

India's population is expected to grow to 1.6 billion by the year 2050. The current trend indicates that most states in India will be facing severe water-stress conditions by that time. This will require major corrective measures in terms of efficiency and use. Alternatively, if the current policies and practices continue without any significant changes, i.e. 'business as usual', the scenario by 2050 regarding water availability and quality is likely to be alarming. It is therefore, very important to appreciate the relevance of NWP 2012 in the context of this water crisis, since it has the potential to bring in water sector reforms for dealing with the situation.

1.2 Post-Independence period

During the Nehruvian decades after independence, the developmental thrust was towards rapid development of large-scale industrial enterprises, increasing agricultural productivity and expanding areas under productive forestry. In the case of water resources as well, the focus was on constructing large-scale dams and canals and promoting intensive cultivation. Consequently, the Industrial Policy¹ and Forest Policy² were

¹ Industrial Policy Resolution of 1956, Parliament of India, April 1956

² National Forest Policy, Gol, 1952

speedily promulgated and agriculture received the lion's share of budgetary allocations during the first three Five Year Plans. In the case of the water sector as well, huge investments were made mainly for the construction of large and medium dams (80% allocation), while almost totally neglecting the minor irrigation sector, water supply, water quality and sanitation (20% allocation altogether) and the traditional water management systems still in use, which in reality had the potential of solving the basic water needs even in dispersed areas.³

The lack of awareness of the impending 'water crisis' was not surprising since, in the year 1951, the per capita availability of water in India was quite satisfactory by international standards⁴ and stood at 3110 m³ per capita per year. Hence there appeared to be no reason to worry. It was only in the early 1970's that the problems and gravity of surface and groundwater pollution emerged as a serious threat, leading to the promulgation of the Water (Prevention and Control of Pollution) Act, 1974, perhaps, as a fall-out of the Stockholm Conference (UN Conference on Human Environment, 1972). That the lack of concern was a grave error is now evident given the fact that by the year 2014 the annual per capita availability had fallen by more than 50% (to 1463m³), thus placing most of the states in the 'water-stressed' category.

The distortions created due to the disproportionate emphasis on large and medium dams and canal networks continues till date. The progressive conceptual framework of NWP 2012 notwithstanding, this policy continues to advocate mega water sector projects.

1.3 Lessons from the past: NWP 1987 and NWP 2002

1.3.1 First National Water Policy (1987)

The first National Water Policy statement was announced in 1987 (MoWR, GoI). This policy contained three physically verifiable objectives:

- a. To increase the area under irrigation, for increasing food output from 150 million tons in 1987 to 240 million tons in 2000;
- b. To meet the drinking water needs of 100% of our population, and
- c. To meet the sanitation needs of 80% of urban and 20% of rural population.

The rest of the policy document merely contained platitudes about the need to utilize ground water, control floods, minimize impact of droughts, eliminate water pollution, establish a standardized National Information System, introduce a scientific planning and development procedure for water resources, establish Farmer Managed Irrigation Systems, etc. In reality, the actual area under irrigation fell well short of target and the food grain output in 2000-01 stood at 196.81 million tons i.e. a shortfall of about 43 million tons.

Similarly, the water and sanitation figures were also well short of the target till the year 2000. In the case of water supply, official records claim that about 85% of urban and rural population had been provided with water for drinking and domestic use, albeit with an unjustifiable increase in disparity in water availability between regions, and between the urban rich (between 200LPCD and 300 LPCD) & urban and rural poor (between 40 and 60 LPCD). While in urban areas water was being supplied to more than 90% of the population, in rural areas barely 70% of the people were receiving potable water. In addition, this had happened at the cost of a dangerous fall in the groundwater table in western and north-western India.⁵ This was also accompanied by a near complete neglect of water quality criteria. Practically all major and minor rivers, lakes and estuaries had been severely polluted, because the key elements of NWP 1987 had remained unimplemented. Poor access to safe drinking water and sanitation continues to be a problem in many areas, creating social conflicts and strife.

By the year 2010, 69% of the population in the rural areas were still practising open defecation and about 21% had nominal facilities, whereas only 10% had sanitation facilities of acceptable standards (Water in India: Situation and Prospects, UNICEF, FAO, SaciWATERS). Incidentally, by this time India had ratified the UN Declaration (1981 to 1991) as the International Decade for Water and Sanitation, but very little had been physically achieved by 1991.

³The Million Wells Scheme (MWS) was launched as a sub-scheme of the National Rural Employment Programme (NREP). The MWS was made into an independent scheme with effect from 1/1/1996. The scheme was primarily intended to provide open irrigation wells, free of cost, to individual, poor, small and marginal farmers belonging to Scheduled Castes/Scheduled Tribes and freed bonded labourers with a 20 per cent earmarking of JRY funds. Tubewells and borewells are not permitted under the Scheme. Where wells are not feasible due to geological factors, other minor irrigation works can be undertaken such as irrigation tanks, water harvesting structures as also development of land belonging to small and marginal farmers.

⁴The internationally acclaimed Swedish hydrologist Malin Falkenmark devised the 'Water Stress Index' and arrived at 1700 m³ of water /capita/year as the benchmark for water adequacy. By 2014 annual per capita availability of water has already gone below 1600 m³/capita/year. In most parts of the country, especially in the drought-prone areas of western and central India the figure is about 1000m³/capita/year or less and is facing chronic water scarcity. Some sub-basins in Rajasthan, Gujarat, Maharashtra, and Andhra Pradesh are periodically receiving 500 m³/capita/year or less per year, indicating a situation of absolute scarcity as per Falkenmark's system.*

⁵Vital water Graphics, An overview of the State of the World's Fresh and Marine Waters, UNEP, 2008

For all practical purposes the NWP 1987 had failed to achieve its objectives primarily because of a lack of positive response from the State Governments.

1.3.2 Second National Water Policy (2002)

The Second National Water Policy statement was released in the year 2002. This policy rectified some of the flaws of the 1987 policy by incorporating global views and concepts regarding water sector development and having a vision plan, as compared to the data-heavy policy of 1987.

NWP 2002 recommended that a standardized National Information System be established with a network of data banks having specific standards for coding and classification, in order to promote free exchange of data among Government agencies and citizens at large. Commendably, the centralized Web-enabled Water Resources Information System (India-WRIS) was established in 2008 and has compiled a lot of useful data, including the preparation of a River-basin Atlas for India. Further, some states adopted state water policies based on the NWP-2002. These state-level water policies were expected to reflect the specific state level issues and the physical, social and geo-morphological characteristics. In reality, these state policies are mere repetitions of the national policy, the only change being the preamble. They therefore failed to reflect state specific situations and were therefore ignored by the government departments involved in the water sector.

NWP 2002 put forth the concept of water as an 'economic commodity' and a 'national asset' rather than a 'community resource'. A resource cannot be sold, but an asset can. This provided room for treating water as an economic good that can be valued and marketed and thus create an opportunity for the private sector to enter the water market. This was vehemently objected to by a large number of Civil Society Organizations (CSOs) all over the country. In spite of this opposition, 11 rivers were privatized and water rights were sold to many companies.⁶ In practical all the states where this was done, there was stiff resistance from local communities. Civil Society

Organizations also opposed this move, since it violated the principle of 'Common Pool Resources'. The government had to backtrack on this decision and the rivers were reverted to the community as a 'common pool resource'.

It may be noted that the principles of IWRM were introduced in the policy document without any planning/preparation for creating an enabling environment through changes in governance, laws and institutional framework. Thus, in spite of being a progressive policy, the NWP 2002 was not able to satisfactorily fulfil its key objectives.

1.3.3 Unfulfilled objectives of NWP 2002

A. Drought and flood management

By 2011, NWP 2002 had failed to manage droughts and floods in vast areas (out of 40 million hectares of the flood-prone area, on an average, around 7.5 million hectares area was annually affected by floods). The policy failed to bring about reforms which could mitigate the problem of floods. The flood-affected area actually increased by about 29 million hectare during the period 2002-2008.⁷ According to the Standardized Precipitation Index (SPI) India has suffered from a severe drought in the year 2002 (SPI value: minus 2.0), Moderate Drought in the year 2004 (SPI value: minus 1.50 to minus 1.99), and an Extreme Drought in the year 2009 (SPI value more than minus 2.0).⁸ Similarly it had failed to increase the area under irrigation as anticipated.

B. Increasing utilization efficiency for irrigation

The percentage of the utilization of irrigation potential has been continuously dropping from 93% to 85% leading to a huge backlog of investments in irrigation which provide no services or financial returns to investments.

C. Increasing food grain production

Most important of all, NWP 2002 has failed to increase food grain production from 208 million tons (in the year 1999-2000) to 270 million tons (in the year 2010-11).

⁶ Water privatization has been recommended by the Indian Government's National Water Policy (National Water, 2002) to address the issue of water scarcity. In its article 13 titled, "Private sector participation" the policy says that "private sector participation should be encouraged in planning, development and management of water resources projects for diverse uses, wherever feasible". This has placed water privatization at the forefront of developmental policies implemented by several state governments (Ghotge, 2002). While the policy is silent on the kinds of privatization models that will be adopted as can be seen from the case studies below, most of the privatization that has been done in India follows the (D)BOOT model.

The most stark example of 'privatisation' emerged in the region in 1998, when water supply from a 22.7 km stretch of the semi-perennial Sheonath river was handed over to local entrepreneur Radius Water Limited (RWL) under a BOOT (Build-Operate-Own-Transfer) agreement to supply water to the Borai Industrial Growth Centre in Durg district. The 1998 project, the first case of river privatisation in India, which gave RWL a 22-year (renewable) 'concession', was signed when Chhattisgarh was a part of Madhya Pradesh. Following the Sheonath case there were other instances in the state where parts of rivers were leased out or handed over to industries for their private use. These include the Kharun river (NicoJaiswal Group), the Sagaririver (S R Group), Indravati River (Tata Group) and Kelu river (Jindal Group). In other States River Bahvani in Tamil Nadu, groundwater near Borai Industrial area to Radius Water Co. in Maharashtra.

People organised themselves for collective action, as with the RaigarhBachaoSangharshMorcha, SheonathMuktiAndolan and KeluBachaoSangharshMorcha and got them out of the private companies.

⁷ Climate Profile of India, Page No. 58, By S.D. Attri and AjitTyagi, 2010, Ministry of Earth Sciences, India Meteorological Department, Met Monograph No. Environment Meteorology-01/2010, Gol

⁸ Climate Profile of India, Page No. 98, By S.D. Attri and AjitTyagi, 2010, Ministry of Earth Sciences, India Meteorological Department, Met Monograph No. Environment Meteorology-01/2010, Gol

Therefore, the food grain production should have increased at an average annual rate of about 5.7 million tons per year. However, in the year 2010-11, food grain production was 236 million tons, i.e. a shortfall of 34 million tons.

D. Other unfulfilled objectives

Other objectives like prevention or reduction of pollution of water bodies, making available potable water and sanitation facilities to the population in rural and urban areas, maintaining environmental flows of rivers, integrating different components of the water sector at the sub-basin or river-basin level were also largely un-fulfilled.

The 2002 policy had strongly recommended the promulgation of a 'Dam Safety Legislation'. Unfortunately, the proposal has not yet taken the form of even a 'Bill', leave alone an Act. Further, the NWP 2002 had recommended

a review and amendment of the Inter-State Water Disputes Act, 1956, in order to achieve a time-bound adjudication and resolution of disputes. Similarly, the policy intended to bring about legislation 'for preserving of existing water bodies by preventing encroachment and deteriorating water quality'. Sadly, all these radical reforms also remain unfulfilled during the last 12 years.

In conclusion, we may say that these two policy documents (NWP 1987 and NWP 2002) could not recognize to much extent the emerging water problems in urban and rural India pertaining to the health of rivers, conflicts and paradoxes caused by sectoral policies resulting in adverse impact on water resources, changing patterns of community needs and redundancy of some of the water laws. The NWP 2002 was, in retrospect, an opportunity lost.



2. National Water Policy 2012

2.1 Background

As it stands today, the National Water Policy 2012 provides the broad direction in which water resource development and water sector reforms are expected to take place in the years to come. It lists out the major concerns which need to be addressed, and enunciates the principles which will need to be adopted to overcome these problems.

Elaborated below is our analysis of aspects of the NWP 2012 which were not included in the earlier policy documents, and which, in our opinion, represent a substantial improvement over the previous policies. They have the potential to bring about radical reforms in the water sector if certain lacunae are overcome, lessons from the past are taken into account, innovative programmes and technologies are incorporated into the implementation guidelines. The conventional paradigm of large dams and canals which have not delivered the expected results needs to be phased out; parallel legislation and amendments to existing laws must be initiated, so that the progressive concepts put forth in NWP 2012 can be uniformly implemented at both the state and national levels.

It may be noted that many of the principles stated in the two previous policy statements (1987 and 2002) have been carried forward in NWP 2012 and are therefore not repeated in this section. The new additions are discussed below.

2.2 New concepts in NWP 2012

2.2.1 Public Trust Doctrine

This is the first time that the concept of Public Trust Doctrine⁹ has been introduced in the National Water Policy document as a part of water sector reform or good governance. The history of the Public Trust Doctrine can be traced back to the Roman period. In modern times, in the United States and other western countries, the concept originally applied to rivers and lakes for fishing, navigation and trade, but then later expanded to substantially limiting private ownership rights in or-

der to protect inherent Public Trust values, the public ownership of ground water, maintenance of marine life and finally extended to the protection of drinking water supply. The doctrine has now evolved globally as a cardinal principle for the judiciary to determine the validity of government action that interferes with the use of natural resources such as air, water, common forests and lands by the general public. The current civil society discourse in India uses the term 'Common Property Resources', which is now called 'Common Pool Resources' (CPR) to denote the concept of Public Trust. In India, the principle of Public Trust has acquired a much wider application with the promulgation of laws such as the Prevention of Cruelty to Animals Act (1960) and the Environment Protection Act (1986) which ensure that not only humans and animals, but also entire ecosystems have the right of access to water, food and habitat; and that it is simultaneously the responsibility of the state and citizens to protect these rights. This is reflected in the inter-states Cauvery Disputes Award and the Krishna Award (2010) which has actually directed the concerned states to reserve and provide for environmental flows through regulated releases from the dams. The inclusion of the Public Trust doctrine in NWP 2012 is a welcome addition.

2.2.2 National Water Framework Law (NWP 2012, Section 2)

Section 2 of NWP 2012 makes a commendable breakthrough by proposing a National Water Framework Law somewhat on the lines of the EU Water Framework Directive. It also has the potential of incorporating within it the huge diversity of agro-climatic and zoogeographic zones, as well as the capacity for reconciling the specific view points and interests of different states of India. It will, however, need a country-wide public debate in order to build up a consensus on the one hand and create a feeling of ownership among all states and union territories on the other.

Currently we have a plethora of laws on water, at the central and state levels. In spite of all these, a large number of legal and administrative issues have emerged because water as a Constitutional subject has

⁹ The principle of the Public Trust Doctrine states that certain natural and cultural resources are preserved for public use, and that the government owns and must protect and maintain these resources for the public use.

been included primarily in the State List, with only matters relating to inter-state disputes and international agreements/ negotiations etc. being in the Central List. In the case of forests, a similar problem was solved by including it in the Concurrent List with the help of a constitutional amendment. In addition, practically all major rivers cross state borders, and the questions of water allocation have become very contentious. Development and management of water resources, with the river basin (hydrological boundaries) as the basic unit of planning, has become practically impossible because of this constitutional anomaly. The dynamic nature of the resource, which flows through an unending water cycle and ever increasing scarcity, has made the problem even more intractable.

During the last few decades, the need for a National Water Framework (NWF) Act has been broadly accepted by the central and state governments and this new concept has been incorporated in NWP 2012.

2.2.3 Climate Change: Adaptation and resilience strategies (NWP '12, Section 4)

The NWP 2012 takes cognizance of the international discourse on climate change which largely focuses on emission reduction as the principle vehicle for climate change adaptation. It advocates the use of technology for reducing the carbon footprint, demand management through changes in consumption patterns and lifestyle modification through financial incentives and disincentives. Although, the NWP 2012 stresses on mitigation at micro level through technological options, but does not recommend a strategy to counter the adverse effects of climate change. Nor does it take into account India's long and ancient tradition of resilience to climate change through traditional crop rotation, coping techniques for adjusting to and living with floods.

For adopting compatible agricultural strategies and cropping patterns and improved water application methods, the NWP-2012 clearly states about revival of traditional water harvesting structures and water bodies.

India is likely to seriously experience the impact of sea level rise, increased glacial melt and extreme floods/drought episodes on the peninsula, and this burden is likely to be borne disproportionately by the poorer communities. The brunt of the impacts will be felt largely by the poor and the NWP 2012 should have had a pro-poor, pro-people stand. Creation of storage reservoirs (dams) is currently considered by the Ministry of Water Resources, River Development & Ganga Rejuvenation (MoWR, RD & GR), Government of India to be the only option for dealing with the problem of increased variability of flows in rivers. The detailed document prepared by the MoWR, RD & GR/Central Water

Commission appears to be based on the conventional premise that more and more storage structures (large dams) are going to be the panacea to all climate change impacts. It would be pertinent to note that the most important climate change impacts that India is likely to face mainly due to, sea level rise and consequent inundation, population migration, floods caused by glacial melt, randomly cloud bursts and hailstorms cannot be mitigated by building additional dams. This will require a different approach which is stated in the last section of this paper.

2.2.4 Pricing of Water for Demand and Supply Management (NWP'12, Section 6,7)

In order to bridge the gap between demand and supply of water, full cost pricing of water is considered to be one of the important tools. In this regard NWP 2012 suggests very pertinently that pricing of water should ensure its efficient use and should reward water conservation efforts.

In our opinion, equitable access to water for all and its fair pricing should be determined on the basis of volumetric supply. Such charges should be reviewed periodically. Recycle and reuse of water should also be incentivized through a properly planned tariff system. Each State Government should set up an independent statutory agency to decide and periodically review water tariffs for various uses.

It may be clarified that water in general is a public good, and that only when public (or private) investments are made for impounding, transmitting, distributing, purifying or treating effluents etc. then such costs of providing these services may be priced. In other words, it is the service which is priced and not the water per se. Only after meeting the basic need of all the people, eco-systems and livestock, a price could be levied for the services rendered. This would help to conserve the water and save it from misuse, thus ensuring its efficient utilization and reducing wastage.

In order to address the water-pricing problem, the Central government strongly advocated the establishing of State Water Regulatory Authorities. Most of the northern State governments agreed to it and put in their policy documents and a few have even created the Water Regulatory Authorities (e.g. Maharashtra Water Regulatory Act (MWRRA) in Maharashtra state). However, their performance and results are not yet visible. This is mainly because some States have unilaterally created such Authorities without permitting an informed public debate on them. It must be mentioned here that in Maharashtra, the Regulatory Authority did follow an elaborate procedure for bringing about public awareness and participation. Although some apprehensions were expressed

by civil society organizations and experts, by and large the process has been well-intentioned and participatory. There is a general agreement about the need for such organisations but there are misgivings on account of the process of appointing the committee-members and their functioning, since this process is often influenced by political interests. For example, in Maharashtra, the most critical functions like allocation of water and giving bulk entitlements have been surreptitiously retained by the Cabinet, in spite of the stipulations of the MWRRRA 2005 which required the functions to be handed over to the Regulatory Authority.

2.2.5 Inclusion of the Integrated Water Resource Management (IWRM) Approach (NWP '12, Section 1.2)

The key principles of IWRM have been broadly incorporated in NWP 2012. However, one must keep in mind that 'IWRM' is not a program or a scheme. It is about changing the nature of water governance, which is defined as a range of political, social, economic and administrative systems that are in place to develop and manage water resources, and the delivery of water services at different levels of society" (GWP-January 2002). It is observed that none of the States has yet prepared a Comprehensive Action Plan which incorporates the IWRM principles, nor initiated meaningful changes in the governance of the water sector. Government departments are reluctant to share data, information, decision-making, or to get into a dialogue and negotiate with other departments, communities or civil society organizations in order to find optimal solutions. Consequently, the different departments dealing with water are currently functioning in an isolated and fragmentary manner, sometimes even at cross-purposes with each other. This leads to inordinate delays, unnecessary duplication of work and irrational increase in overhead costs.

Even though the NWP 2012 advocates the IWRM approach it does not clearly spell out or insist on the formulation of statutory procedures and guidelines for bringing about inter-departmental and inter-sectoral integration in order to avoid fragmentation of the water sector.

2.2.6 Third-party Environmental Impact Assessment and River Rejuvenation (NWP '12, Section 8)

The NWP 2012 (Section 8, Conservation of River corridors, water-bodies and Infrastructure) is entirely devoted to river conservation. This is an important improvement because the previous policies had not dealt with rivers as independent entities. The new policy strongly directs the state agencies to conserve rivers, river corridors, water bodies and infrastructure in a scientifically planned manner through community participation.

Saving India's rivers from reaching dangerous levels of pollution, rampant encroachments, illegal grabbing of sand-beds and dangerously manipulating its natural regimes are the critical issues which have been comprehensively introduced in the NWP 2012. This is a commendable improvement over the previous policies.

Remarkably, the concept of third-party Environmental Impact Assessment has been introduced, since there has been a lot of furore about the partisan nature of EIA reports prepared by government or semi-government organisations or even state-supported institutions and consultants in the past. The Environmental Impact Assessment and Public Hearing have been important instruments in recent years for involving local communities in the process of ensuring river rejuvenation and regulation of developmental activities.

The NWP 2012 further directs that encroachments and diversion of water bodies (like rivers, lakes, tanks, ponds, etc.) and drainage channels (irrigated area as well as urban area drainage) must not be allowed, and wherever it has taken place, it should be restored to the extent feasible and maintained properly. It also states that environmental needs of Himalayan regions, aquatic eco-system, wet lands and embanked flood plains need to be recognized and taken into consideration while planning.

2.2.7 Water Supply and Sanitation (NWP 2012, Section 11)

The NWP 2012 suggests that urban and rural domestic water supply should preferably be from surface water, in conjunction with groundwater and rainwater.

However, experience indicates that the major problem of urban areas is that their water demand cannot be met from local surface or groundwater sources hence they have to depend on bulk transfer of water from outside, consequently denying the rural population of their rightful share. Urban population being politically strong does not want to pay for water transport/transfer costs and also no compensation to the rural population affected by the transfer of water. Further, the urban water is so mismanaged that distribution losses account for more than 40 percent. Also, urban populations do not take initiative to recharge groundwater by adopting roof top rainwater harvesting despite such a law being promulgated by some of the States.

While NWP 2012 has recognised the problem of the rural-urban divide, it has not recommended mechanisms or guidelines for ensuring the equitable distribution of water.

2.2.8 Proposal for Permanent Water Disputes Tribunal (NWP 2012, Section 12)

The conflict resolution mechanism proposed in the NWP 2012 is a Permanent Water Disputes Tribunal to be established for resolving water related disputes expeditiously in an equitable manner. Past experience of the Awards given by various Water Disputes Tribunals in different states have demonstrated that public participation and societal consensus-building have been routinely circumvented, and consequently, the Awards have not been accepted by communities, and therefore not implemented in actual practice.

It is observed that upstream and downstream water sharing disputes are a common phenomenon in almost all states, in the hills of Jammu and Kashmir, Uttarakhand and Himachal Pradesh, sharing of water between Haryana, Punjab and Rajasthan, sharing of Ganga water between U.P., Haryana and Delhi, are the most visible examples of inter-state water sharing conflicts. Conflicts arising out of sharing water between urban and rural areas are also common.

The crisis in a metro city like Delhi is precipitated due to extensive and unregulated development activity, urbanization, in-migration and industrialization leading to water scarcity and pollution of ground water. Besides, the river water of Yamuna, the life line of Delhi, is highly polluted due to untreated sewer water being put in to it. Growth in slums has led to aggravation of sanitation problems. Thus, conflict due to unequal access to water by slum and non-slum population also gets reflected in the tug of war for intra-state sharing of river water.

2.3 Difficulties in implementing NWP 2012

In addition to the lacunae described above, there are certain difficulties which are likely to be encountered while implementing NWP 2012 which need to be taken seriously, otherwise, NWP 2012 may suffer the same fate as the two previous policies (1987 and 2002).

2.3.1 Inordinate delay in creating River Basin Agencies/Authorities/ Organizations

For well over a decade, experts in the field have expressed the need for establishing river basin agencies as independent legal entities empowered to prepare integrated river basin plans, co-ordinate, implement and execute all the requisite developmental projects and activities, create the necessary institutional and

management structure, function as an appellate authority in case of complaints and redressal, and for resolution of intra basin/inter-sectoral conflicts.

It is indeed unfortunate that no state has as yet set up such River Basin Agencies. Even in states like Maharashtra, which mandate the creation of such authorities through the Maharashtra Water Resources Regulatory Act 2005, the existing River Valley Development Corporations have not yet been converted into River Basin Agencies (MKVDC, VIDC, GIDC, etc.). Long-term Master Plans have not been prepared and the entire water sector continues to function in a un-coordinated manner. Inefficiency and fragmentation in decision-making and execution, multiplicity of decision making authorities, unacceptable levels of political interference and corruption have become rampant. Other states also promulgated Water Regulatory Authorities, but experience shows that the functions and responsibilities assigned to them were rarely performed. Further, these bodies failed to be effective due to lack of political will.

2.3.2 Inadequate implementation of policy recommendations

When the earlier NWP was announced in 2002 it was expected that equivalent state policies would subsequently be promulgated in order to operationalize the principles enunciated in the policy statement. It was also expected that the characteristics and peculiarities of different states, especially those related to agro-climatic variability, geographical location, and the existing stage of water resource development would be reflected in the State policies. In reality, out of the 29 states and 7 Union Territories, only 10 states have actually passed policies through their state legislatures and even in these states, their implementation has been half-hearted and inadequate. It is therefore only in these 10 states that protocols, GRs and Notifications could be issued for basin-level/field-level implementation.

2.3.3 Intractable Inter-state disputes

Instead of paying attention to the implementation of the progressive and sustainable principles of the NWP 2012, every state is only interested in approaching Tribunals for getting the largest possible share of interstate river waters. Thus, allocation of water has become the predominant and contentious issue and environmental concerns, social justice and sustainability of water resources are totally ignored.

Table 3: Inter-state Dispute over River Waters

Rivers	States concerned	Date of reference to the Tribunal	Decision of the Tribunal
Krishna	Maharashtra, Andhra Pradesh, Karnataka	April 1969	May 1976
Godavari	Maharashtra, Andhra Pradesh, Karnataka, Madhya Pradesh & Orissa	April 1969	July 1980
Narmada	Rajasthan, Madhya Pradesh, Gujarat, Maharashtra	October 1969	December 1979
Ravi & Beas	Punjab, Haryana & Rajasthan	April 1986	---
Cauvery	Kerala, Karnataka, Tamil Nadu & Pondicherry	June 1990	Report u/s 5(2) received 5.2.2007
Krishna	Karnataka, Andhra Pradesh & Maharashtra	June 1990, April 2004	Report u/s 5(2) pending
Madel/Mandovi/Mahadayi	Goa, Karnataka and Maharashtra	November 2010	---
Vamasadhara	Andhra Pradesh & Orissa	February 2010	---
Periyar	Tamil Nadu & Kerala	---	---
Godavari (Bhabli Barrage)	Maharashtra & Andhra Pradesh	---	---

Source: Asian Development Bank. Water Resources Development in India: Critical issues and strategic options (2009), Updated till January 2011.

2.3.4 Over-optimistic estimates regarding India's annual water availability

As a finite resource, the quantity of fresh water availability is static over time in hydrological terms. In reality however, an inverse relationship between demand and supply of water has been observed. As stated earlier the annual per capita availability has been falling drastically due to the increase in population, and currently (2013) stands at around 1545 M³ / Capita / Year i.e. if we accept the assumption made by NCIWRC (CWP) and the Planning Commission about the annual rate of evapo-transpiration (ET) as 40%. However, if we consider the international studies conducted by acclaimed research institutes and individual hydrologists the ET for India would be in the range of 60%¹⁰ to 69.5%¹¹ per year, and the resultant values for per capita water availability would be even lower at 1280 M³ and 1090 M³ respectively. By implication, this indicates that India is already facing a serious problem of water-scarcity as per the water-stress Index. The situation will be even worse if we factor in the pollution due to non-treated industrial effluents and sewage, which have caused the destruction of water-bodies.

The analysis made by independent experts reveals disturbing facts. First of all, the most fundamental

parameter – namely, the average annual utilizable volume of water used for planning and investing in water infrastructure is flawed. It gives wrong signals to policy-makers and planners. Interestingly, the earlier NWP statements (1987 and 2002) did give a rough estimate of the total annual average precipitation of 4000 billion cubic meters (BCM), and a figure of 690 BCM as the figure available for utilization, assuming an annual evapo-transpiration (ET) loss to be 40%! Strangely, the NWP 2012 does not give any estimates of water availability in absolute or per capita terms. Secondly, the NWP 2012 is based on the illusory assumption that the current annual abstraction and current use of water i.e. 634 BCM can still go up to 1123 BCM which is our projected requirement for 2025. On the other hand, if we take a more realistic value for annual average water availability, i.e. assuming 65% as ET, then the figure for availability of 654 BCM is pretty close to India's current abstraction and consumption of 634 BCM.

The writing on the wall is clear. We are close to reaching an annual demand/consumption figure which leaves us no surplus cushion. There is no doubt that there has been a gross over-estimation of water availability.



¹⁰ Independent Water Regulatory Authorities in India: Analysis and Interventions PRAYAS, Pune India September 2009

¹¹ Jain S.K., Agarwal and Singh, "Hydrology and Water resources of India", I.I.T.Roorkee, 2007

3. National Water Policy 2012: Lacunae and missing links

3.1 Review of past policies and performance

Ideally, the first logical step while formulating or revising a policy would be to evaluate the performance of earlier policies and to assess the level of achievement of previous objectives by applying objectively verifiable criteria. The NWP 2012, however, does not appear to have carried out any such exercise, nor does this policy refer to the earlier policies. It would have been prudent to assess, for example, why the objectives and targets set for providing minimum needs like water and sanitation were not met, even though both the earlier policies had made declarations to that effect. Such an assessment would have provided a sound basis for setting realistic targets in the new policy. The same applies to state-level water policies. This would have created an atmosphere of transparency on the part of the government agencies and a sense of ownership among the beneficiaries and stakeholders.

3.2 Lack of awareness of relevance of ancient water culture and traditional systems

The NWP 2012 also fails to take into account the relevance of ancient water culture to present day needs considering that almost two-thirds of the population in India still depends partially or solely on traditional water harnessing and supply systems and structures to provide for its daily water needs.

It must be noted that the water needs in all regions of the country have been substantially satisfied by communities right from pre-historic times to the present through an ingenious and comprehensive web of management systems and traditional water harnessing, storage and distribution devices and practices depending on the location-specific geo-morphological, agro-climatic and socio-economic and political conditions. These are to be found along the entire length and breadth of the country, even in the most remote corners where no centralized modern water supply and irrigation systems have reached. A catalogue containing designs, devices and distribution systems along with an assessment of their relevance in the modern age and comparative studies of ancient and modern systems could have been initiated in 1987 itself, so that by the year 2012, these inputs would have been

available while formulating NWP 2012, thus making the policy statement rooted in ground realities. Sadly, water, in the National Water Policies, is treated merely as a hydro-geological and techno-economic quantity (4000 BCM to be precise) with the sole purpose of impounding or using it for satisfying human needs (and that too, often in an inequitable manner).

3.3 People's participation in policy formulation

The NWP 2012 has advocated people's participation in the planning, development and management of water resources. However, there appears to have been no attempt to solicit people's participation while formulating the policy itself. The MoWR, RD & GR could have asked all states to prepare their own policy draft emerging from stakeholders' meetings, and then used them as the basis for drafting NWP 2012. Considering the national importance of this policy, it should also have been preceded by a Parliamentary discussion and public debate. This would have increased the level of ownership and accountability of the federal states vis-à-vis NWP 2012. The MoWR, RD & GR has thus lost an opportunity for getting ground-level inputs based on the diversity of geo-morphological and agro-climatic conditions in different states. The NWP 2012 could then have been accompanied by a compendium of succinctly stated needs based on currently existing assets.

3.4 Disregarding changes in the pattern of water-use for irrigation

Since the promulgation of the previous NWP in 2002, there has been a paradigm shift in the use of water for irrigation. On the one hand, the general demand for irrigation facilities has increased rapidly, while the annual water availability has remained constant. In addition, the annual rate of irrigation potential created has been crawling at snail's pace. Further, during the last 15 years there has been an inordinate delay in the completion of dam projects and water delivery systems. Consequently, farmers have resorted to extraction of large quantities of groundwater for irrigation. This paradigm shift in water-use for irrigation is indicated by the fact that over 18 million bore-wells have

been dug and 67 million hectares of gross cropped area has been irrigated with ground water alone. This is validated by the large-scale electrification of 11.5 million pumps and installation of 6.7 million diesel pumps in the last two decades.

The 4th Minor Irrigation Census conducted by the MoWR, RD & GR, taking 2006-07 as the base year, covering 33 states. The Census data has revealed that India has now become the largest groundwater-based economy in the world, whereas in 1947 we had the world's largest irrigation network of dams and canals, and groundwater was largely untapped. This major shift in water-use should have rung a warning bell, and the MoWR, RD & GR should have woken up to the fact that the irrigation facilities provided by the large dam sector were in no way adequate and that they must now shift their emphasis to minor irrigation storages. Capital investments and public sector outlays made in favor of small-scale surface reservoirs are not only faster to build, but are also more economical and capable of directly recharging the ground water aquifers. Unfortunately, NWP 2012 has not taken cognizance of these ground realities. The NWP-12 clearly mentions aquifer mapping, incentivizing efficient water use in overexploited aquifers, encouraging community based management of aquifers as well as Integrated Watershed Development activities with groundwater perspectives.

3.5 The irrigation-energy nexus

The shift in the use of ground water was not an accidental phenomenon. It was mainly the result of massive and often perverse subsidies for electrification of irrigation pumps, especially since the canal network from large reservoirs was able to cover a relatively small area. By now, Punjab, Haryana, Maharashtra, Rajasthan, Karnataka, Tamil Nadu have subsidized energy to such an extent that millions of pumps were installed for extracting groundwater, and the electricity distribution companies suffered huge losses making them practically bankrupt.

Some states have already started using innovative strategies to overcome this problem. In Karnataka, for instance, the state government has launched the Surya Ratha Programme wherein the government offers guaranteed buy-back of surplus solar power from solar pump owners at an attractive price.

In the case of Gujarat, which is a groundwater-scarce

state, the government took the decision to delink the supply of electricity for irrigation pumps from the central energy grid since farmers started using subsidised electricity for irrigation through groundwater. In certain areas, there was over-exploitation of groundwater. In order to remedy this situation, the government took the decision to apply commercial rates for agricultural pumps. Thus the Gujarat government was able to control and reduce the over-extraction of water by applying a strategy of differentiated prices for domestic and commercial consumption. This simultaneously reduced the over-extraction of groundwater and enabled the Power Utilities/Companies to recover appropriate charges for commercial energy consumption. This innovative approach helped to increase energy and water use efficiency.

NWP 2012 has failed to take cognizance of such innovative and successful policy measures to find alternatives to subsidized thermal power for agricultural pumps, thus breaking the irrigation-energy nexus.

3.6 Ensuring the Right to Water¹² and the responsibility to protect and conserve it

The Supreme Court of India has expanded the meaning of the Constitutional Right to Life' to include the 'Right to Water'. By implication, it becomes the duty and responsibility of the State to provide adequate potable water to each citizen. Consequently, in our view, this also implies that the volume of water required for ensuring this Right must be 'reserved' in every water-infrastructure project without exception. In 2010, the United Nations made a declaration recognising Right to Water as a Fundamental Right. This declaration was ratified by India. However, in spite of this, the NWP 2012 does not mention 'Right to Water'. Instead, NWP 2012 (section 1.3 (vi) considers Water as merely a 'pre-emptive need'¹³, followed by high priority allocation for other domestic water requirements including needs of animals, achieving food security, supporting sustenance agriculture, and minimum eco-system needs. It needs to be clarified here that calling drinking water as a 'pre-emptive need' does not give it the status of 'Right to Water'. The difference between, 'Right to water' and 'Water as a basic-need', is not semantic but real. A Right is enforceable by law, whereas a need is not. However, the 'Right to Water' for drinking and sanitation has unfortunately not been specifically spelt-out in the NWP 2012. Interestingly, the Constitutional Amendment Act, 1976 which inserted articles 48a and

¹² The Right to Water, however, is not to be confused with 'waterrights' which are granted only to individual farmers (e.g. paani-parwanain Maharashtra) or associations of farmers or corporate enterprises as 'bulk water entitlements', for which a levy or a water-rate is charged. In this case those not willing to pay water charges are excluded from the facility. The Water Regulatory Authorities where they exist are empowered to determine 'water-rates' or 'bulk water tariffs' for different economic / commercial uses. Such water-rights are granted for a fixed period of time and for specific purposes.

¹³ A 'Pre-emptive water need' is normally understood as a need to be satisfied with the highest priority, without using the water for any other purposes until this 'need' is satisfied.

51a (g), squarely places the responsibility / duty of protecting and conserving all natural resources including water, on the citizens as well as the State. In spite of these statutory obligations, the National Water Policy, 2012 does not mention protection of water bodies as the duty of the citizen and the State.

3.7 Applying and implementing the IWRM principles

NWP 2012 gives prime importance to the IWRM principles and further broadens their scope. However, it has failed to appreciate the point that all these principles are meant to be applied through a participatory bottom-up approach. Instead, the NWP 2012 gives an impression that these IWRM principles are to be implemented through a centralised, top-down approach. This erroneous impression has been further strengthened by the Ministry of Water Resources and the Central Water Commission using IWRM principles as the justification for pushing through and lobbying for the 'Interlinking of Rivers' (ILR), even though this concept is considered by most independent experts to be impractical and flawed in terms of techno-economic viability, social equity and environmental sustainability.

It may also be noted that the IWRM principles, however appealing they may seem cannot be operationalized unless they are applied to a discrete river basin. In other words, only when River Basin Agencies are created for formulating Master Plans can the principles of IWRM be applied in letter and spirit.

3.8 Privatization and water grabbing

Before delving into these contentious issues, it is necessary to state that privatization of water was mentioned as a clearly preferred option in the previous NWP (2002) statement for satisfying basic urban, rural and industrial needs. Instruments such as 'Public-Private-Partnership' (PPP's), Build-Own-Operate and Transfer (BOOT) and/or Direct Corporate or Foreign Investments were strongly advocated (refer to NWP 2002). Consequently, several such agreements have already been signed at the State and Central levels, and are in various stages of implementation.

But rather surprisingly, the issue of privatization has been totally dropped from the NWP statement of 2012! In a sense, this abandonment of water-privatization was inevitable because it would have violated the Public Trust Doctrine which forms a key element of the new policy and also indicates a fundamental deviation from the previous policy (2002). Only time can tell how these two rather contradictory positions are actually reconciled or resolved at the level of implementation.

Besides the dichotomy mentioned above, there is another policy issue which needs to be resolved regarding privatization under the principles of 'Common Pool Resource Management' and the 'Public-Trust-Doctrine' (P.T.D). It is well-known that under the P.T.D, water-bodies and/or other sources of water e.g. ground-water-aquifers, rivers, lakes, springs, etc. cannot be privatized or sold, since they are not 'owned' by the government but held in trust for the present and future generations. Theoretically, volumetric bulk-entitlements may be granted for fixed periods of time and payment conditions. Similarly, water services such as public water purification, distribution, collection of charges, treatment and disposal of sewage or industrial effluents may be privatized or outsourced, so long as they do not contradict or compromise the fundamental Right to Water (Life) of an individual citizen or the community dependent on it. Therefore, the broadly accepted view is that 'water-services' can be privatized but water sources *per se* cannot be privatized.

NWP 2012 does not contain any guidelines for mechanisms to ensure the Right to Water for satisfying preemptive needs, or to prevent re-allocation of water from domestic and agricultural use to non-agricultural uses, stop water grabbing by powerful industrial lobbies and other vested interests.

3.9 The subsidiarity principle

The current international discourse on water management has adopted another important principle, namely the 'subsidiarity principle' i.e. the devolution of planning and decision-making powers to the lowest appropriate level. In the current context, where most government officials at the Central or State level, are attitudinally unwilling to part with their powers to subordinates or representatives of the community/civil-society. This principle is totally absent from the NWP 2012 statement in spite of the fact that at the international level, India has ratified several conventions which contain the subsidiarity principle. In fact, even within the country, the 73rd and 74th Constitutional Amendment Act, (1996) was meant to bring about precisely such a devolution of powers to the State, district and eventually the Gram Panchayat levels, even though it does not specifically use the term 'subsidiarity principle' Unfortunately, this Act has largely remained unimplemented due to lack of political will and strong resistance from the bureaucrats. However, if IWRM is to be implemented in its true letter and spirit, this attitudinal change will soon have to be a part of water sector reforms.

3.10 Prioritization of water use

On the issue of prioritizing water use, the NWP-12 has, unlike the 1987 and 2002 policy statements, totally

avoided listing of priorities and only mentioned different types of water use. This has led to a situation where, without first ensuring fulfilment of 'pre-emptive needs' and access to a minimum quantity of potable water for essential health and hygiene to all its citizens, water can easily be diverted for industrial or urban uses and where water users can afford to pay high prices.

This has created apprehensions in the minds of civil society organizations, researchers and the public at large that the State wants to favour industry at the cost of drinking water security, food security and environmental flows for protecting the hydrological cycle and its long-term sustainability .

While it appears to favor privatization of water for industries, NWP 2012 does not contain any guidelines on efficient and optimal use of water for industrial purposes. It has been left to the Ministries of Agriculture, Urban Development, and Energy, Industries to prepare appropriate guidelines and ensure their implementation. In the absence of a clearly stated order of priorities, certain stakeholders/users/beaurocrats, use the ambivalence to inappropriately distort the allocations and priorities of water use.

3.11 Augmenting water availability

In order to enhance the quantity of water available for use, the NWP-12 inter-alia, suggests that declining ground water levels in over-exploited areas need to be arrested by introducing improved technologies of water use, incentivizing efficient water use and encouraging community based management of aquifers. In addition, where ever necessary, NWP 2012 recommends that artificial recharging projects should be undertaken so that extraction is less than the recharge. Although the approach is commendable, the NWP 2012 does not give any guidelines regarding the provision or allocation of requisite financial resources to the agencies (e.g. Central Ground Water Board, State Ground Water Development Agencies) or civil society organizations for implementing the ground water augmentation programmes.

3.12 Is groundwater a public, private or common pool resource?

NWP 2012 does not address the vexatious issue regarding the 'ownership' of groundwater. Although groundwater is a part of the hydrological cycle and a community resource, at the government as well as societal level, it is still perceived as an individual property and is exploited inequitably, without any consideration to its sustainability, thus leading to its over-exploitation in several areas. Since the NWP 2012 statement has not taken a position on whether or not ground water should be considered to be public or private property,

it has been unable to suggest statutory provisions for resolving this issue.

3.13 Threat to river eco-systems due to sand mining

Illegal and unregulated sand mining has become so rampant that it is destroying river eco-systems in the vicinity of urban areas. The river sand beds which hold water in the summer months and have served as a life-line for riverine eco systems are now being seriously denuded by the sand mafia and causing severe imbalance in the groundwater aquifers. NWP 2012 does not mention this glaring reality.

3.14 NWP 2012: The regional context

This policy statement (NWP 2012), like the ones before it, has failed to give adequate importance to the diversity in geographic conditions, agro-climatic zones, socio-economic disparities in the country and hence there is a need for region-specific approaches in policy recommendations. Such a blanket policy statement does not reflect regional diversity in water availability and its usage, nor does it offer solutions to emerging problems. For instance, the groundwater-abundant Ganga-Brahmaputra-Meghna belt (GBM) on the one hand, and the ground-water-scarce hard-rock areas of peninsular India, on the other, will require almost diametrically opposite policy measures. The history of water resource development in the modern era as well as colonial and post-independence period represents a centralized, top-down, blanket approach. 'National' policies have rarely taken into consideration the ground realities, or evaluated the actual effect of the policies on communities and eco-systems, nor have they made the necessary corrections.

The scope of this paper does not permit a detailed discussion of these problems. However, an indicative list is given below to highlight the complexities of the water crisis.

3.14.1 Unsuitable development projects in fragile eco-sensitive zones

In the Himalayan region, for instance, it is important to find water resource development and energy solutions which harness resources without being detrimental to the fragile geo-morphology and biodiversity. These regions cannot support of large reservoirs (e.g. Tehri dam) necessary for generating large-scale hydro-power. Instead, dispersed small-scale storages or tapping of springs and streams are the viable solutions. There is a need for looking at the comparative advantages of low water-intensive horticulture to generate employment and income.

Unfortunately this is never taken into account while making plans for development. Instead, mega projects which primarily provide benefits and services to population living in the plains are imposed in such areas, at the cost of neglecting the water requirements of the hilly region population, who have no choice, but to abandon their fields and migrate to the plains.

3.14.2 Water scarcity despite abundant rainfall

The North-East region is characterised by the fact that it receives very heavy precipitation in a very short space of time, which runs off very rapidly because of the steep gradients, therefore causing acute water shortage in the summer months. The Central Water Commission and MoWR, RD & GR however, have been treating the river basins located in this area (Brahmaputra, Barak, and Meghana) as water-surplus, since they take into account the total annual rainfall, but not its seasonality variation. The heavy rainfall creates an illusion that a great amount of water is available for utilization. The per capita availability for such areas needs to be measured in terms of water availability during the lean period and not in terms of the average annual rainfall. As a result, cities like Shillong and Kohima face severe water scarcity during summer months. A major part of the population stays in dispersed hamlets and requires decentralized small-scale interventions for conservation and protection of water sources. These regions should ideally have water projects which contain measures for preventing run-off and increasing ground water recharge. Unfortunately, the MoWR, RD & GR still considers large water storages as the best option and wrongly classifies these areas as water-surplus!

3.14.3 Drinking water supply

Provision of drinking water security to people in the hilly areas is a big challenge mainly because of the undulating topography and scattered pattern of village settlement. In dry regions, water supply may pose a challenge due to water scarcity and over-exploitation of groundwater. In Rajasthan for instance, groundwater meets 90% of drinking water needs. Thus water governance and regulation of water use is based on assumptions which do not take into account location-specific conditions and local traditions which have successfully harnessed water over centuries by building individual underground storages even in urban areas. On the positive side, the promulgation of NWP 2012 has led to greater awareness of this problem in different states and many of them are making their own poli-

cies on these lines. It is hoped that the policies being formulated for Jammu & Kashmir will take into account the distinctive characteristics of Ladakh, which is a cold desert, the Kashmir valley and the lower hills of Jammu.

3.14.4 Water-logging and salinity

Due to the mind-set of planners who believe that impounding large quantities of water in storage reservoirs and using it for intensive irrigation without considering the irrigability of the soil transferring (e.g. black cotton soil in Madhya Pradesh, gypsum layers under sandy soil in Rajasthan), thus creating huge tracts of water-logged areas and soils containing salt effervescence. This is a glaring example of inappropriate technological solutions which do not take into account regional soil characteristics.

3.14.5 Health hazards due to contamination of groundwater

The surface and ground water quality issue is common to all regions. None of the State Governments are serious about it despite the fact that people's health is seriously affected. Punjab is a glaring example of large numbers of people suffering from cancer as well as water-borne diseases. The excessive use of pesticides and chemical fertilizers in agriculture has led to contamination of groundwater. Further, pollution upstream affects communities downstream. This serious problem is not reflected anywhere in National Policies.

3.14.6 Usurping of water by urban population

Practically all of north, western and central Gujarat is arid and drought-prone. Most of the water resources, have been used up in southern Gujarat and in case of the main Narmada canal, the water has been largely used up for the urban and industrial purposes. Since the canal network still remains largely unfinished, the area under irrigation is a small percent of the total potential. Since the Narmada canals have not been supplying water as expected for the last two decades, a majority of the farmers have opted for tube-wells/bore-wells which have resulted in groundwater depletion. Regional disparities in water resource development are to be seen not only between states but also within each state.

3.14.6 Encroachment of water bodies and obstruction of flows

Most metro cities (Hyderabad, Bengaluru) witness illegal reclamation of water bodies for building and construction causing severe water shortage during sum-

mer. In cities like Mumbai and Delhi, natural streams and rivers have been flattened and obliterated resulting in immediate flooding even with small amount of precipitation. It may be noted here that NWP 2012 has

recommended protection to water bodies and further stated that if this has been done illegally, they should be put back in their original state. This is a fine example of the policy taking cognizance of local characteristics.

Conclusion

It is evident from the description above, that the current centralized and top-down approach to resource development represents serious difficulties at the ground-level. Since the NWP 2012 advocates principles of IWRM which are essentially participatory and bottom-up, policy must take cognizance of the regional variations and ground realities described above. In conclusion we may state that unless there is a paradigm shift in the approach of our planners and policy-makers towards water resource development (or for that matter, development of any resource) even fairly progressive policies like the NWP 2012 cannot achieve the desired results.



4. Recommendations for effective implementation of NWP 2012

This position paper puts forth recommendations not only for better implementation of NWP 2012, but also for the formulation of future policies. The recommendations deal with legislative, administrative, institutional measures. The NWP 2012, as stated earlier, is a statement of intent and hence most of it mainly has a recommendatory value. It is our view that many of the key principles of NWP 2012 are progressive and radical and should be implemented in earnest by both the central and state agencies. In this section, the recommendations are primarily intended to bridge the lacunae or missing links which have been outlined in section 3.

This section contains a set of recommendations for the effective implementation of the NWP 2012 as it stands today. In addition, it spells out a vision for water reforms in the future assuming that these will be incorporated in future national and state policy documents since these recommendations reflect ground-level experiences of various stakeholders, view-points of experts from civil society organizations and inputs from local communities.

4.1 Enforcement of existing laws

It is recommended that penal clauses under existing laws such as the Water (Prevention and Control of Pollution) Act 1974 and the Environment (Protection) Act 1986, be immediately made stringent enough to act as deterrent.

Further it is strongly recommended that the elected representatives of the State and Central legislature, who are in fact the law makers, should give the enforcement agencies (e.g. pollution control boards, police, administrative authorities/competent authorities who have been statutorily vested with these powers) a free hand to implement the laws without interference.

A policy statement can be implemented only after the objectives are converted into an enforceable Act along with the related notifications, GRs, guidelines, etc. Even after that, implementation and enforcement is possible only if and when the law is invoked by government agencies or private citizens. An interesting example in the water sector is that of the River Board Act (RBA 1956) promulgated under Entry 56 of the Union List of

the Indian Constitution has remained totally inoperative for 58 years simply because it was never invoked by the MoWR, RD & GR/Central Water Commission. Implementing the State water policies will also require the promulgation of statutory laws and notifications before they can be enforced.

It is therefore recommended that all ministries and departments related to the water sector immediately scrutinize existing laws and assess whether the laws were invoked, implemented and enforced. Further there must be an evaluation of the effect of these laws.

It is also recommended that after this exercise, the redundant or outdated laws be referred to the concerned legislature for being repealed. Further, if the scrutiny reveals that merely modifications in the existing laws are required, this process should also be initiated and followed up with legislators by the Ministries/Authorities concerned.

It is further recommended that inputs from stakeholders and subject matter experts be solicited for preparing well-considered drafts of Bills for submission to the legislators.

4.2 Promulgation of a National Water Framework Law

Currently, there is very little knowledge or support at the societal level about the need for a National Water Framework (NWF) Law, although the government agencies and subject experts are aware of its importance. In order to bring this issue into the public domain and media discourse, it is recommended that both, the concerned government agencies and civil society organizations which are convinced of the importance of such a law, should initiate a national awareness and advocacy campaign and build up public support for such a law. This would garner the necessary public support for its eventual enactment by the legislature.

4.3 Transferring 'water' from State List to Concurrent List

This would be an important step in the operationalization of the National Water Framework (NWF) Act as proposed in NWP 2012. This would require the passing of

a constitutional amendment for transferring 'water' as a subject from the State list to the Concurrent List. Alternatively, a certain number of state assemblies can be persuaded to pass supportive resolutions after which it can be enacted at the centre.

It is recommended that civil society organizations lobby with elected representatives at the state and centre level for making such a Constitutional amendment.

4.4 Establishment of River Basin Agencies and Water Regulatory Authorities

NWP 2012 states that the river basin/ sub basin should be the base unit for planning, development and management of water resources. It further states that 'appropriate institutional arrangements' should be made in each river basin for monitoring water quality and collecting data etc. However, it does not specifically mention the creation and structure of Water Regulatory bodies or River Basin Agencies.

It is therefore recommended that independent statutory Water Regulatory Authorities and River Basin Agencies be set up in each state with the involvement of representatives from civil society /stakeholders. It is also recommended that prior to creating these regulatory bodies, a wider public debate on the issue be undertaken so that guidelines for making the Regulatory Authorities accountable and responsible to the public are prepared through participatory process. Since Maharashtra has had an experience of 9 years after the creation of the Maharashtra Water Resources Regulatory Authority (2005), the positive and negative aspects could form the basis for the creation of regulatory authorities in other states.

4.5 Inclusion of the Doctrine of Public Trust

This is first time that the concept of Public Trust has been introduced in the National Water Policy document as a part of water sector reform or good governance. It enables the judiciary to determine the validity of government action that interferes with the use of natural resources such as air, water, common forests and lands by the general public. It safeguards 'Common Pool Resources' (CPR).

It is therefore recommended that the doctrine of Public Trust, introduced in the NWP 2012, be incorporated in other laws related to water in order to establish an internal consistency in their operation.

4.6 Right to Water

The NWP 2012 states that the Right to Water can either be included as a fundamental right or as a human

right within the National Water Framework Law.

It is recommended that the Right to Water be simultaneously accompanied by a responsibility to protect all fresh water sources, shared equally by the citizens and the state, as implied in the Constitutional Amendment Act which is inserted Articles 48 A and 51 A (g).

It is further recommended that the responsibility of protecting the fresh-water bodies (viz.-springs, rivers, lakes, estuaries and underground aquifers) be explicitly placed on both government agencies as well as local communities. This would create a balanced system of rights and responsibilities.

4.7 Promulgation of an Act for Participatory Irrigation Management (PIM)

In order to operationalize the people's constitutional responsibility towards protection and conservation of water resources, it is recommended that all states be persuaded to promulgate an Act in line with the model PIM Act prepared by the MoWR, RD & GR(GoI). Here again, the experience of Maharashtra, which promulgated the MMISF, 2005 (Maharashtra Management of Irrigation Systems by Farmers) Act could serve as a basis for other states to formulate similar laws.

4.8 Modification of the notification regarding EIA

It is recommended that the notification regarding Environmental Impact Assessment (EIA, 2006) be modified, since large and medium dams meant for supplying water for drinking and domestic purposes to urban areas have, for some inexplicable reason, been currently excluded from attracting the EIA notification.

Such exclusion is not only discriminatory but has resulted in the ad hoc approval and construction of large/medium dams near metropolitan areas. This anomaly needs to be corrected forthwith.

4.9 Setting up a National River Restoration and Rehabilitation Fund

Section 8 of NWP 2012 has succinctly and comprehensively dealt with the issue of river pollution, restoration, management etc. However, it has not suggested any mechanism for raising the necessary finances.

It is therefore recommended that a National River Restoration and Rehabilitation Fund be immediately created. Each Municipal Corporation should be asked to deposit a Minimum of 5% of their annual budget into the river restoration fund. It is further recommended

that the central as well as state government create independent Ministries for River Restoration and Rehabilitation in order to execute river restoration projects.

4.10 Setting up Independent National and State level Ministry/Department/ Authority and Fund for re-settlement and rehabilitation

All river infrastructure projects (Large/medium dams and their canal networks) have created millions of involuntarily displaced persons. In spite of the existing laws, there is still an enormous backlog vis-a-vis the resettlement and rehabilitation of displaced persons. The courts have taken a firm stand about not permitting further construction until R & R has been satisfactorily completed. Consequently, there is a tendency on the part of Project Authority to look upon R&R as an impediment, rather than as a social and mandatory responsibility.

In order to overcome this impasse, it is recommended that an independent ministry¹⁴ or a national agency be created for the rehabilitation and re-settlement of persons displaced due to river valley projects. Such an agency will need the requisite personnel qualified and trained to perform sensitive and delicate tasks required for the successful implementation of the entire R&R cycle. This should be mandated through a special Act which enables the newly constituted Authority/Ministry to acquire land, assess appropriate compensation, set up a mechanism for grievance redressal.

It is further recommended that a National Re-settlement and Rehabilitation Fund for project affected households be immediately created. A minimum of 7-10% of the base costs of the project should be deposited in this fund before it is given technical, administrative or financial approval either by the State or the Centre.

4.11 Making water-related data available in the public domain

Even though the NWP 2012 states that all hydrological data should be in the public domain, it does not mention official data of various government departments, statistical information, committee reports, water related laws, notifications, rules and by-laws.

It is therefore recommended that National Water Resource Information System currently in existence should

be mandated to put all this data in the public domain. Keeping data and information or placing data on rivers, water, climate etc. under the Official Secrets Act 1923, has now become redundant and should be promptly done away with. Such a transparent and user friendly information system would not only make it available for Indian agencies and researchers but also to neighbouring countries (especially SAARC), and simultaneously remove the unnecessary and misplaced apprehension regarding development of water resources by individual countries.

It is recommended that the National Water Resource Information System be further expanded to include more data in the public domain and a mechanism be developed to prevent misuse of sensitive data.

4.12 Maintaining environmental flows of rivers

The current and future purity and health and sustainability of our rivers depend substantially on the maintenance of 'Environmental Flows'. While this has been included in the NWP 2012, it will get meaningfully implemented only after river basin specific studies have been conducted for each of the 16 major and 10 of the eastern (western flowing) minor rivers.

It is recommended that the Ministry of Environment and Forests, (GoI) and the respective State Water Resources Departments should be made responsible for preparing such basin-specific studies for the assessment of environmental flows through a time-bound research program not exceeding three years. The existing experience on the Ganga conducted by WWF India, as a part of Living Ganga Project 2008-12 can be a good benchmark for such studies. In addition, experts who have worked in this field should form a think-tank for advising and supporting state level studies. The Water Quality Assessment Authority (WQAA) constituted in 2003 and reconstituted again in 2009 for assessing environmental flows guidelines has not yet finalized any report or come to any conclusions / consensus. Such inordinate delays must be avoided and the WQAA must be given a time bound period of three years to make the necessary observations and recommendations.

4.13 Implementation of the National Action Plan on Climate Change (2008)

While NWP 2012 states that attention be given to enhancing the resilience of communities by adopting innovative and appropriate technologies and cropping

¹⁴ It may be noted that just after Independence, there existed a Department for Rehabilitation of refugees from Pakistan and later, from Tibet which was closed down. Instead, it should have been converted into a department or even a ministry for R&R of persons displaced by major development projects.

patterns along with optimal use of water and coping strategies, the policy unfortunately recommends increasing water storage as a solution. It is unfortunate that in spite of the proven limitations of large dams for solving water related problems, the establishment still considers this as the only available option, when there are so many viable alternatives available.

It is recommended that innovative technologies, traditional practices and coping mechanisms be given serious consideration and financial support for adapting to climate change and developing resilience.

4.14 Documentation, inventorization, contemporization and upkeep of traditional water management systems

As seen earlier, NWP 2012 completely ignores India's ancient tradition related to water, even though large sections of the population, especially in remote areas still depend on traditional devices and water supply systems for satisfying their water related needs. For instance, the four hundred year old Malguzari tank system (Bhandara, Gadchiroli, Gondia districts of Maharashtra) is still in regular use; the traditional integration of inland fishing techniques and synergising them with aquatic crops in tanks have already proved their sustainability over the years. In Rajasthan, there exists a whole range of traditional devices and social systems which together have been able to optimize the use of the scarce water resources available there. Many of these techniques can be emulated in other drought-prone water-scarce regions. Such innovative and time-tested techniques are found in all regions with minor location-specific variations.

It is therefore recommended that the existing traditional water management structures and water distribution systems be inventorized and documented. Their sustainability and suitability for satisfying modern day needs should be studied, quantified and compared to the current paradigm of large centralised dams. Documentation of traditional and cultural water management needs be given serious consideration in the National Water Policy as well as State water policies.

4.15 Ensuring dam safety

The safety and up-keep of the enormous infrastructure created for the development and use of water resources is suffering from inadequate dam safety measures inspection, monitoring and investments for corrective measures.

It is recommended that, the National Dam Safety Act which has been languishing as a Bill for several years

be promulgated by the MoWR, RD & GRat the earliest, making it mandatory for the centre and the state to inspect and ensure the safety of all large and medium dams in India.

4.16 Preparation of a restoration plan for saline land

It is recommended that an integrated *khazan* and estuarine development plan be prepared for all affected coastal states. Salinity affected land and estuaries need to be protected, re-claimed and developed by the EPA (1986). It may be noted that the Coastal Regulation Zone is primarily meant for regulating land-use activities, whereas we are recommending an integrated and sustainable plan for areas affected by saline water intrusions and inundation of estuaries as well.

4.17 Breaking the energy-irrigation nexus through innovative practices

Many states provide electricity free of charge or at heavily subsidized rates to farmers for running diesel pumps. This has led to over-abstraction of groundwater.

It is therefore recommended that instead of subsidizing electricity which is based on thermal power, subsidies should be given for pumps using renewable energy. In Karnataka, for instance, the state government has launched the Surya Ratha Programme wherein the government offers guaranteed buy-back of surplus solar power from solar pump owners at an attractive price. Applying different rates, as in Gujarat can also help reduce use of electricity for extraction of groundwater.

Concluding remarks

In conclusion, IWP would like to re-iterate that the National Water Policy 2012 is indeed path-breaking in several aspects and has introduced the concept of "good governance through transparent decision-making, intensive participation, transparency and accountability". However, this can be achieved only if the implementing agencies at the state and national level take up these concepts and create appropriate laws & mechanisms.

The recommendations in this paper have therefore been made with a view to operationalize the ideas put forth in NWP 2012 and are based on ground-level experiences and action research.

List of References

1. Water in India; Situation and prospects, UNICEF, FAO, Sasi WATERS. 2013
2. Annual Water Report, CWC, Ministry of Water Resources, GOI. 2012-13
3. National Water Policy (2012), Ministry of Water resources, GOI. April 2013
4. IPCC's Fifth Assessment Report (AR5), Summary for Policy Makers. 2014
5. The physical science basis, Summary for Policymakers, Climate Change; UNEP, WMO. 2013
6. Independent Water Regulatory Authorities in India: Analysis and Interventions PRAYAS, Pune India September 2009
7. State Water Policy; Government of Goa, Panaji, Goa 2000
8. Gujarat Water Regulatory Authority; Government of Gujrat, Gandhinagar, 14th February 2012
9. Karnataka State Water Policy, GOK, 2002
10. Orissa State Water Policy, Government of Orissa
11. Kerala State Water Policy, Government of Kerala
12. Madhya Pradesh State Water Policy, Government of Madhya Pradesh
13. Himachal Pradesh State Water Policy, Government of Himachal Pradesh
14. State Water Policy, Government of Andhra Pradesh 2008
15. Jammu and Kashmir Water Resources (Regulation and Management) Act, 2010
16. India's Water Balance and Evapotranspiration, Sharad K Jain, Current Science, April 2012
17. Global Water Balance estimated by land surface model (GSWP2), PaikanOkaiet. al. University of Tokyo, Japan.
18. Workshop on: Roadmap for, effective implementation of the national water policy 2012, 4th Jan 2014.
19. National Water policy (1987), MoWR, GOI. 1987
20. National Water Policy (2002), MoWR, GOI. 2002
21. States, Their Public Trust Doctrines, & Water resources Management, Robin Craig , 40th Annual Conference on Environmental law, March 2011
22. Industrial Policy Resolution of 1956, Parliament of India, April 1956
23. National Forest Policy, Ministry of Environment and Forest, Gol, 1952
24. River Boards Act (1956), GOI
25. Water Resources and the Public Trust Doctrine, Centre for Progressive Reform, (Google for reference date)
26. M C Mehta vs. Kamalnath and others writ petition (C no 182 of 1996), Supreme Court of India 1996
27. Water grabbing in Maharashtra: Analysis of Water Allocation Decisions and Amendments in MWRRA Law, March 2013
28. Water and Sanitisation Sanitation Sector in India; The Water and Sanitation Sector in India, Department of Economic Affairs, GOI. October 2009
29. The National Urban Sanitation Policy, GOI, 2008
30. Constitution of India, Article 21
31. Environmental Flows, An introduction for Water resources Managers; National Institute of Ecology, New Delhi, 2013.
32. Vital water Graphics, An overview of the State of the World's Fresh and Marine Waters, UNEP, 2008
33. Chitale Committee Report submitted to the Govt. of Maharashtra in April 2014, Comptroller and Auditor- General of India
34. Shiklomanov I.A. , "Comprehensive assessment of the Freshwater resources of the world", - World Meteorological Organization, Geneva
35. Jain S.K., Agarwal and Singh, "Hydrology and Water resources of India", I.I.T.Roorkee, 2007
36. The National Action Plan on Climate Change (NAPCC), GOI (2008 June)
37. The 2nd Maharashtra Irrigation and Water report (Chitale Commission Report) 1999
38. Masterplan for development of ground water in Goa State; CCWB, should be CGWBMoWR, Gol March 1997
39. Climate Profile of India, Page No. 58, By S.D. Atri and AjitTyagi, 2010, Ministry of Earth Sciences, India Meteorological Department, Met Monograph No. Environment Meteorology-01/2010, Gol
40. Climate Profile of India, Page No. 98, By S.D. Atri and AjitTyagi, 2010, Ministry of Earth Sciences, India Meteorological Department, Met Monograph No. Environment Meteorology-01/2010, Gol
41. Industrial Policy Resolution of 1956, Parliament of India, April 1956
42. Water Scarcity and Security in India, Dr. Narayan G. Hegde, BAIF



India Water Partnership (IWP)

Established in 2001, India Water Partnership (IWP), an organisation for not profit, is working with a mission to support action of sustainable and integrated development and management of water resources at national, regional river basin/sub-basin and local levels in India. It is also accredited by Global Water Partnership, Stockholm, Sweden as a Country Water Partnership, thus also known as GWP-India. The IWP is hosted at WAPCOS Ltd., Gurgaon (Haryana) which is a Public Sector Undertaking under the Ministry of Water Resources, River Development & Ganga Rejuvenation, Government of India.

The major thrust areas of IWP are; (i) Promote use of low cost water saving technologies; (ii) Policy advocacy; (iii) Encourage traditional methods of water conservation in water scare/drought prone areas, gender mainstreaming and promoting water use efficiencies in urban areas, especially amongst poor/slum population; (iv) Water quality testing; (v) Promote use of safe drinking water; (vi) Create awareness amongst stakeholders about inter-linkages between water and climate change, gender and water issues and sanitation; (vii) Advocacy among Water Users Associations/Water User Groups/water regulatory authorities at district and State level for planning and managing the river basin through participatory approach; (viii) Promoting and strengthening Area Water Partnerships for resolving local level water related issues, etc.

India Water Partnership

Secretariat- WAPCOS Ltd.

76-C, Sector-18, Institutional Area; Gurgaon - 122015 (Haryana)

Tel. : (+91-124) 2348022 (D); (+91-124) 2399421, Extn : 1404; Fax : (+91-124) 2397392

E-mail : iwpneer@gmail.com, veena@cwpc-india.org

Website : www.cwp-india.org