

Focus on Agriculture in the National Water Policy

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The National Water Policy, last revised in 2012, is a guiding principle for Indian states and it is expected that states take cognisance of the NWP while formulating their policies and laws. In 2019, the Ministry of Jal Shakti formed a committee to revise the NWP 2012 under Mihir Shah. Focusing on “water in agriculture,” this article recommends changes in the NWP. The adoption of an ecosystem-based approach and climate proofing of watersheds, promotion of water stewardship approach, the Water Governance Standard, climate-resilient agriculture, and policies that incentivise increased production of rain-fed crops have the potential to shift the “use narrative” in India’s water sector.

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The Department of Water Resources, under the Ministry of Jal Shakti, constituted a drafting committee in November 2019 to revise the existing National Water Policy (NWP). Mihir Shah, a renowned water expert and a former member of the Planning Commission, chaired the committee. The first NWP was adopted in 1987; since then, the NWP has been revised twice in 2002 and 2012. The report of the NITI Aayog highlighted the alarming water crisis facing India where as many as 21 cities were expected to run out of groundwater by 2020 (NITI Aayog 2018). This underscores the need to evolve a NWP that not only addresses imminent challenges but also establishes a framework and pathway to sustainable, efficient and equitable management of surface and groundwater resources.

This article focuses on “water in agriculture” and its recommendations below seek to contribute towards a NWP that can address the issues in this sector.

Policy Suggestions

After drinking water, prioritise water for ecosystem needs: The NWP 2002 prioritises water allocations for purposes of drinking, irrigation, hydropower, ecology, industries, navigation, and other uses in that order (GoI 2002). The NWP 2012 prioritises water for drinking and domestic needs, irrigation and “minimum ecological needs” on an equal and “high priority” basis (GoI 2012). The NWP 2012 introduced the concept of minimum ecological needs and stipulated that these were to be given a “high priority” allocation. We propose that after water for drinking and domestic needs, “water for ecology and the environment” must be the second most important priority. The environment and its ecology is what provide the essential and crucial “ecosystem services,” such as water, food, fuel, wood, and fibre as well as balancing the climate on

which the survival, sustenance, and progress of the human race and civilisation depend. Therefore, securing these ecosystem services is of utmost importance given that climate change and rising global temperatures will adversely affect India.

Limit the area under water-guzzling crops and promote less water-intensive crops:

Around 90% of India’s water is used for agriculture (Qazi 2017). Without reducing water for agriculture, we can never hope to meet India’s drinking and domestic water needs. Three water-intensive crops—rice, wheat, and sugarcane—consume almost 80% of irrigation water (Shah 2019). A reduction in the area under these crops, together with crop diversification and use of micro irrigation, can significantly contribute to alleviating water scarcity and making available additional water resources for other needs, especially in rain-fed and drought-prone regions of the country. To reduce water-guzzling crops and increase the area under “water-lite” crops such as millets, pulses, and oilseeds, the minimum support prices (MSP) of these and similar crops¹ should be further increased.

Such procured crops such as millets (*jowar*, *bajra*, among others), pulses and locally grown crops should be introduced in the public distribution system (PDS), the anganwadi–Integrated Child Development Service (ICDS) programme, and mid-day meal schemes for schoolgoing children while simultaneously reducing the procurement of wheat and rice. Wheat and rice not only consume a lot of water but also, being confined to specific geographies, have to be transported over long distances. This proposition has immense potential to change the overall cropping pattern and free up water resources for other needs. The revised NWP should set a clear road map for this.

Make public investments in the water and agriculture sectors a priority to promote water use efficiency and infrastructure development:

The policies resulting in huge transfers of public money by way of loan waivers, cash transfers to farmers, subsidised/free electricity for irrigation should be reconsidered. To effectively deal with the agriculture and water crisis, there is a case for outright

stopping (as in the case of free electricity) or progressively reducing subsidies/transfers in a time-bound manner. Instead, funds saved could be utilised to promote long-term and sustainable solutions such as increasing the MSP of rain-fed and “water-lite” crops, enhancing the primary productivity of the soil, promoting water-use efficiency measures in farming (micro irrigation and precision farming) and developing the necessary infrastructure for better post-harvest management of produce and efficient value chains (godowns, warehouses, and cold chains).

Accelerate and augment programmes for watershed, springshed and catchment development as well as in-situ soil and water conservation works: Not only do these measures increase decentralised rainwater harvesting and groundwater recharge, at scale across landscapes at a fraction of the costs incurred in the case of dam-based irrigation projects, but they also result in much more equitable economic growth as benefits reach a lot more people than otherwise. Moreover, with agriculture in India being predominantly rain-fed, such catchment treatment and soil conservation measures are the only feasible way in which drinking water and irrigation potential can be sustainably increased (accompanied by appropriate demand-side management), while also recharging groundwater sources, which are the mainstay of irrigation in such regions. Moreover, while implementation of such measures is undertaken at the micro-watershed/habitation level, planning should concurrently be done at the sub-basinal level to account for and address upstream–downstream dependencies as well as environmental needs. The relationships between surface and groundwater hydrology should also be kept in mind and appropriate conservation and management interventions need to be undertaken.

Need for an ‘ecosystem-based adaptation’ approach: While watershed development is still one of the key programmes for water resource development particularly in rain-fed regions, in the context of increasingly adverse impacts of climate change, there is an urgent need to

change its approach to one that not only focuses on water harvesting but also on building resilience as well as the adaptive capacities of local communities and the local ecosystem. For this, a sub-basinal and ecosystem-based, collaborative, science-based, multi-sectoral, integrated and climate-responsive approach involving multiple stakeholders across levels should be promoted. This will help in addressing developmental, mitigation, and adaptation needs. In this approach, vulnerability and risk reduction, societal co-benefits, ecosystem health and inclusive governance with capacity-building of communities should be integrated with watershed and water resources development interventions. In this regard, Watershed Organisation Trust (WOTR) has developed a tool—Community Driven Vulnerability Evaluation-Programme Designer (Co-Drive-PD)—to help communities assess their risks and vulnerability to climate change on the basis of which adaptation and mitigation measures can be planned and implemented.²

Harmonise water-related policies and programmes: There are important policy instruments and programmes, either under drafting or implementation, such as the National Water Framework Bill, River Basin Management Bill, the Model Bill to regulate and control the development and management of the groundwater, Jal Jeevan Mission, Atal Bhujal Yojana, National Aquifer Mapping and Management (NAQUIM) programme, state-specific programmes on desiltation of reservoirs, river deepening and straightening, and water harvesting. The revised NWP should ensure that the approach and interventions under these extant policies and programmes are harmonised with and aligned to the goals and outcomes envisaged in the proposed NWP so as to realise synergies and minimise conflicts.

Catchments of dams need to be developed on a priority basis: In the background of the recent massive and devastating flood in Sangli and Kolhapur districts of Maharashtra, dam management (systematic and regular supervision and maintenance) has to be improved. In addition, emphasis on the treatment of

the catchment areas of dams through soil and water conservation measures is necessary. This will ensure that in days of heavy rainfall these catchments will absorb more water, reduce the velocity of run-off, recharge groundwater aquifers and ensure advance warning and safe discharge of excess water in the dams. Considering the increasing events of erratic rainfall and changing overall monsoon patterns due to climate change, this needs priority attention in the NWP.

Groundwater to be priced: The interconnectedness of surface and groundwater hydrology has to be recognised, as both are forms of the same resource. Hence, it is not logical to price only surface or canal water while making groundwater free for the few better-endowed farmers. Wider observations show that the absence of groundwater pricing is one of the causes of indiscriminate extraction and depletion of groundwater resources in many regions. A system of groundwater pricing based on the area under irrigation, similar to canal water, should be introduced. To make this legally tenable in the case of groundwater, it is necessary to revise and modify the Indian Easements Act, 1882, mainly Section 7/ Clause (g)³ (and related sub-clauses) that confers exclusive private domain over what is essentially a common property resource.

Groundwater contamination should be treated as a punishable offence: To control groundwater contamination by urban sewage and industrial effluents, the “polluter pays” principle is not a sufficient deterrent. Rather, it allows industries to pollute and pay. Hence, groundwater contamination should be treated as a punishable offence and enforced.

Need for inclusive local water management institutions: Community/user group organisations such as water user associations (WAUs) and village watershed committees, in which women play a dominant role, should be promoted. The managerial capacities of such bodies should be progressively built up and financial resources, as required (maintenance and infrastructure acquisition)

should be devolved to them. These bodies must be inclusive (and seen to be as such) in order to ensure equitable access. The “Wasundhara Approach” developed and successfully deployed by the woTR since several years provides a methodology for the effective and inclusive representation of different users/stakeholders based on the principle of the socio-economic ranking of households (Jewler 2011).

Commission more in-depth studies on water needs for securing healthy ecosystems: There is a dearth of evidence-based studies with respect to optimum water needs of ecological niches, ecosystem, and environmental flows for landscapes and rivers. As the agroecological and climatic zones and subzones differ, policy formulation needs to be backed by sound geo-ecologically representative research and scientific evidence to arrive at the optimal water requirements of these natural systems, also including those under conditions of a changing climate. This is also urgently necessary as many policy documents, projects and civil society actors are promoting tools for water auditing and water budgeting at different scales in the absence of clarity on the amount of water that has to be allocated for maintaining local ecological functions and environmental flows. NWP should mention and prioritise this as an important area for in-depth study in the Indian context.

Need for adopting a ‘water stewardship’ approach at the local level: As land and water resources are local issues having transgenerational implications, local communities need to conserve them for their own needs and that of future generations. Hence, a “stewardship” approach and attitude need to be fostered and adopted. While the supply side is given a lot of attention, demand-side management and water governance by communities is often limited to preparing “water budget” plans with scant attention paid to their implementation. The tragedy of successful watershed management projects in rain-fed regions teaches us that the lack of attention to water management in the post-watershed period leads to skewed benefits to a few

and serious threats to the sustainability of existing water resources. Hence, the urgency of measures that incentivise demand-side management of water use—appropriate cropping patterns, water use efficiency, governance of surface and subterranean waterbodies, and those that can change the mindset that groundwater is private property (especially changes to the Indian Easement Act, 1882)—need to be recognised and incorporated in the NWP. This objective can be achieved by adopting a “Water Stewardship” approach and practices, which sensitise communities, build a cadre of local “water stewards” (*jal sevaks*), put in place community-defined access and use rules and establish representative and effective governance mechanisms that enforce these. The woTR has piloted this approach in more than 100 villages across regions and found that the water stewardship approach has immense potential to address the complex issues involved in managing water at the local level (D’Souza et al 2019).

Water and aquifer literacy: Along with NAQUIM at the macro level, the promotion of water literacy based on the local hydrogeology and aquifers will help people realise that water is indeed a public and hence, a shared good. Capacity-building of communities and participatory generation of local knowledge on these issues play an important role in raising awareness, facilitating increased community “ownership” and establishing inclusive and effective water governance institutions and practices locally. Making the invisible aquifer characteristics and its relationship with surface hydrology visible has great potential for sensitising people on local water dynamics. The woTR has developed a tool for this purpose called “Community Driven Vulnerability Evaluation-Visual Integrator (Co-Drive-vi)” that integrates surface and subsurface hydrology in a 3D model while allowing the villagers to incorporate their local knowledge (Chemburkar and Kale 2019). This tool has been used effectively on the ground and can form part of a toolkit for the information, education and communication component in the revised NWP.

Assessment of district-level performance of water management required: Although the NWP 2012 lays stress on demand management and water use efficiency (Section 6), there is a lack of a systematic operational tool to assess the achievement of this goal. Therefore, a system is required for the periodic evaluation of the achievement of this goal and a strategic plan to address the gaps. The Composite Water Management Index (CWMI) developed by NITI Aayog which assesses the supply and demand side of water management, as well as governance aspects at the state level, is a welcome and timely step in this direction (NITI Aayog 2019). However, the CWMI needs to be further customised and applied to the district and eventually block levels for greater impact and utility. The periodic assessment of this index at these levels can help identify required and viable investment opportunities in the water sector.

Need for a water governance standard and certification system: In the existing version of the NWP, achieving water-use efficiency is one of the important objectives. However, there is a need for a comprehensive set of indicators to judge the success of water management at the local/village/watershed level which cover not only supply-side indicators but also demand and governance aspects. These could form the basis to formulate a mechanism to incentivise villagers to move towards collective governance of water resources and the adoption of efficient and sustainable use practices. With this in mind, the woTR has developed a “Water Governance Standard (wsg) and Certification System” to assess comprehensively, together with the community, the overall water management status in the village while offering a concrete pathway to progressively improve their level of certification. This standard and certification approach offers an objective benchmark for investors, public agencies, and donors to compare and decide upon villages where investments and infrastructure will likely result in relatively greater social and economic returns. This creates an incentive for desiring villages to improve their rankings in the

wsg if they are to attract water-related and other funding opportunities (Sathe 2018). This standard is in line with the CWM developed by NITI Aayog for states. Such mechanisms for incentivising rural communities for better water management practices need to be adopted and promoted in the NWP.

Cautious promotion of solar energy: Finance Minister Nirmala Sitharaman, in her budget speech on Union Budget 2020, had given high importance to the promotion of solar pumps (35 lakh in total). As fallow and barren lands were proposed to be installed with solar panels, it may result in reducing the village commons which play an important role in maintaining local ecosystem balance and village livelihoods. Alternatively, canals and water reservoirs may be a more appropriate choice to instal solar panels as a reduction in water evaporation will be a secondary benefit. Furthermore, many studies and experiments have shown that while solar energy can deliver additional benefits to farmers, it can have negative impacts on groundwater levels (Bhushan et al 2019). In hard rock basalt aquifers, solar pumps may result in further depleting the already precarious groundwater resource. The revised NWP needs to incorporate mitigative and remedial solutions to the risks posed to water and land resources by the increased use of solar pumps.

Need for identifying clear strategies and actions: All the earlier versions of the NWP had many positive propositions such as the establishment of river basin organisations, water-pricing, and adaption to climate change. Unfortunately, these versions were confined to setting the goals and proposing what should be achieved, without indicating a clear road map and establishing accountability. As a result, progress towards the stated goals is either patchy or mostly non-existent. Clear guidelines on fixing or allocating clear responsibilities and functions and how these are to be achieved together with timelines need to be specified if the new NWP is to make a difference.

In conclusion, we propose that the revised NWP should only include goals and

outcomes that are realistic, achievable, and environmentally, socially and economically sustainable. Furthermore, a clear road map together with a clear responsibility and accountability structure at all levels should be spelled out. Adequate resources in terms of trained human resource, finances and technologies should be provided for if the same is to be realised. Adoption of an ecosystem-based approach and climate proofing of watersheds, promotion of “water stewardship,” the wsg, climate-resilient agriculture and policies that incentivise increased production of rain-fed crops have an immense potential to shift the “use narrative” in the water sector in India. We sincerely hope that the committee under Mihir Shah’s leadership will take into consideration the issues we have raised and address them in the revised NWP.

NOTES

- 1 These crops are largely grown by small farmers in the rain-fed and dryland regions of India which constitute the bulk of arable lands, host the largest number of poor people, and produce over 85% of cereals, 83% of pulses, 70% of oil seeds, and even 65% of cotton (CRIDA 2011) in India. With agricultural productivity declining in “green revolution” regions, rain-fed and dryland regions are potentially the next food basket of India.
- 2 The WOTR has designed, tested, and implemented “Co-DriVE-PD” tool across the many regions. The tool examines “Drivers & Pressures” that influence decisions to promote change and reduce vulnerability, <https://www.wotr.org/books/wotr-codrive-visual-integrator>.
- 3 Section 77(g): “The right of every owner of land to collect and dispose within his own limits of all

water under the land which does not pass in a defined channel and all water on its surface which does not pass in a defined channel.”

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