

Community-based water security key to handling drought: Lessons from Jamui

Drought and water security

When Stockholm Water Prize winner Rajendra Singh said earlier this year that the drought was man-made and not natural, he was pointing at India's inefficient water management, compounding matters for a country heavily dependent on rainfall. The National Disaster Management Authority (NDMA) concurs - drought is no longer mere scarcity or absence of rainfall, but related to inefficient water resource management.ⁱ Even regions with high rainfall often face severe water scarcity – Meghalaya's Cherrapunji with over 11,000 mm of rainfall, now faces drought during winter. Add to this the fact that in three of the past four years, India's annual rainfall deficit has been 14% (2015), 12% (2014) and 11% (2012). How does a country which ranks 141 out of 180 in the 2016 Environment Protection Indexⁱⁱ promote efficient water management?

With over 600 million of its 1.2 billion involved in agriculture, water scarcity can spell disaster for India. 55% of the net sown area in India is rain-fedⁱⁱⁱ, which makes conservation of available water all the more crucial. The soul of India's agriculture productivity lies in its rural communities, where agriculture and related activities form the backbone of household incomes. The 2016 drought affected about 330 million people in India, one of the most severe so far.

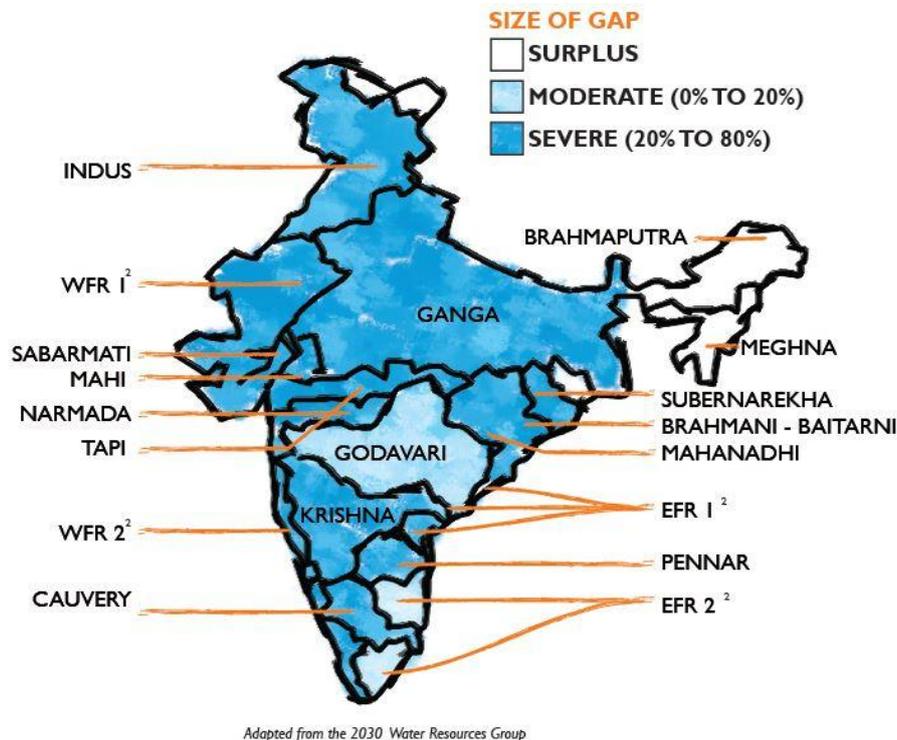
For India to achieve water security – the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development^{iv} – the three main components are building of infrastructure, building of knowledge and community mobilization. The most critical site where the first two meet is the Indian village, thus making community mobilization key to change.

Community-based water security – Jamui's success

Studies have shown that there is a direct correlation between community participation and system performance^v. According to the Ministry of Agriculture, "as local water management and rainwater harvesting hold the key to drought mitigation, Government policies should emphasize community-based water resource management. Community-based institutions, such as Water Users Associations (WUAs), can play important roles in managing water resources at the micro level^{vi}."The country needs to ensure that its rural communities are active participants in the task of achieving water security.

Some villages in one of India's rainfed districts Jamui, on the Bihar-Jharkhand border, scripted a success story across ten years of community-based water management initiatives despite being drought-prone. The annual rainfall in Jamui in 1998 was 1204.60 mm, which fell to 663.7 mm in 2008; the district's rainfall has been recorded as below average for the last six years as per data from 2013. It finds itself in the 'severe' area in a study on the gap between existing supply and projected demand by 2030 (Figure 1). Jamui is one of the 167 districts identified by the National Rainfed Area Authority (NRAA) as needing immediate attention on extensive human and social capital building and infrastructure development for enabling access to natural resources^{vii}. Jamui is one of the bottom 20 districts of the country in terms of economic development, according to the District Development and Diversity Index, 2015^{viii}.

Figure 1: Gap between existing demand and projected¹ supply in 2030
Percent of 2030 demand



1: The unconstrained projection of water requirements under a static policy regime and at existing levels of productivity and efficiency, 2: WFR –Western-flowing coastal rivers; EFR – Eastern-flowing coastal rivers

In Jamui's Chakai block, most of the population earn their livelihood by farming activities. Chakai block has a hilly and rocky terrain, and only 40.43% of the total land area is cultivatable. Additionally, Chakai had low rainfall, poor irrigation infrastructure, sparse water bodies, and heavy soil erosion. Mono-cropping was the only way of farming in practice, creating an overt dependence on the *kharif* crop - paddy - and zero income in off-season. As a result, people live in poverty, resulting in food insecurity and migration to nearby cities.

However, community-based water conservation efforts have borne fruit in Chakai, initiated in 2005 and aided by the NGO World Vision India. In a span of over ten years, farmers belonging to the SC/ST and most economically vulnerable – a lion's share of the community's working population – came together to form farmer clubs which facilitated a participatory management of the available water resources. With water availability being the most pressing need, farmers were successful in creating water storage and irrigation structures, aided by Krishi Vigyan Kendras (KVKs), MLA funds, Bihar Government's Public Health and Engineering Department (PHED), Mahatma Gandhi National Rural Employment Scheme (MNREGS) and other linkages and resources. In terms of infrastructure, irrigation wells, irrigation ponds, farm ponds, check dams, lift irrigation structures and canals were constructed.



Information-building was also a key factor, with farmers groups getting trained on improved farming techniques including multilayer vegetable cropping and System of Rice Intensification (SRI). Over 1000 farmers from 77 villages were trained by KVK on multiple cropping, mixed cropping, seed preparation, seed treatment, vermicompost, organic farming, low-water farming techniques and remedies to common crop diseases. Following this, apart from the *kharif* crop farmers also began cultivating the *rabi* crop (wheat), sugarcane and vegetables, which meant year-long cultivation.



Due to year-round availability of water, 912 acres of land were brought under irrigation and 2800 farmers reported increase in yield (as per 2015 data), and migration also declined. The proportion of families who were able to provide well for their children had gone up from 33.66% in 2012 to 67% in 2015, as per surveys. Farmers in Baratand village were able to increase the cultivable from 17.87 acres to 60.05 acres. The farmers groups actively participated in the *gram sabha*, used local resources and MGNREGS for the creation, repair and renovation of the water structures. With the water structures being community-owned, there was no monopoly over these, which facilitated equitable access. These groups meet monthly, share knowledge, keep accounts and maintain linkages with government bodies. Chakai recorded a reduced impact of the disaster on agriculture, especially

in the last two years. “Despite the drought, we are expecting a higher yield of 53 quintals in 2.6 acres this year as opposed to last year,” says Shyam Verma, one of the 31 members of the Gandhi Kisaan Sangh, a farmers group in Nawada village.



Way forward

Water is a community resource. For the country, long-term water security calls for practical, locally-owned water management approaches – a bottom-up effort to scale up best practices at the grassroots. The National Water Policy (2012) called for a National Framework Law on astute water management, focussing on dealing with the local water situation and the need to manage water as a community resource.^{ix} The Draft National Water Framework Bill 2016 recognizes the right to water for life and a people-centred management of water. The passing of the Draft Bill is critical to manage water as a vital and stressed natural resource.

Community-based Disaster Risk Reduction (DRR) ensures that the community ownership of their at-risk assets is translated into active participation. It also promotes equitable access to water in communities, considering 48.4% of Dalit villages are denied access to water sources. The socio-economically disadvantaged would be further pushed towards poverty if water security does not materialise. Inter-governmental Panel on Climate Change (IPCC) predicts that yield from rain-dependent agriculture could be down by 50% by 2020. World Bank reports say rainfall variability alone could push 12 million people to absolute poverty.

As NDMA emphasises, preparing the most vulnerable people from the grass roots for better preparedness and response is crucial during droughts. If supported by capacity building of communities and local government, water infrastructure, and adequate budgetary allocations, most water woes could be addressed better. The Government’s plans to drought-proof vulnerable communities by converging the three critical ministries (Agriculture, Water Resources and Rural

Development) and their flagship schemes need to be implemented effectively, with community participation at its core.

Equipping the community increases awareness, brings them closer to their rights and entitlements, helps them realise key linkages and ultimately makes them resilient. To make rural India immune to perennial losses from droughts, deliberate and strategic community involvement is indeed the way forward.

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ⁱ <http://www.ndma.gov.in/images/guidelines/droughtguidelines.pdf>

ⁱⁱ <http://epi.yale.edu/reports/2016-report>

ⁱⁱⁱ <http://nraa.gov.in/pdf/Rainfed-final.pdf>

^{iv} For more details: <http://www.unwater.org/topics/water-security/en/>

^v “Water Management Institutions for Enhancing Water and Food Security - Design for Better Adaptiveness” by Vaibhav Bhamoriya and Vasant P Gandhi, India Infrastructure Report 2011.

^{vi} Drought Manual, Ministry of Agriculture

^{vii} The NRAA set up by the Ministry of Agriculture to address drought mitigation in the country has identified 167 districts as needing immediate attention for enhancing productivity and livelihood based on a Rain-fed Areas Prioritization Index.

^{viii} “Report for India and Major States,” District Development Diversity Index Report by US-India Policy Institute and Centre for Research and Debates in Development Policy.

^{ix} <http://wrmin.nic.in/writereaddata/NationalWaterPolicy/NWP2012Eng6495132651.pdf>