



जल शक्ति मंत्रालय
MINISTRY OF
JAL SHAKTI

सत्यमेव जयते



“Catch the Rain”

“Catch the rain, where it falls, when it falls”

Assessment based on 4 cities in the state of Uttarakhand



On 22nd March 2021: Shri Narendra Modi Hon'ble Prime Minister of India launched the Catch the Rain program to nudge the states and stakeholders to create appropriate Rain Water Harvesting Structures (RWHS) suitable to the climatic conditions and sub-soil strata before monsoon. In light of the initiative Centre for Ecology Development and Research (CEDAR) conducted a broad assessment in 4 cities of Uttarakhand to assess the need, gaps, and possibilities to implement the **“Catch the Rain” initiative of The Ministry of Jal Shakti, Government of India.**

Context

Urban centres across Uttarakhand are undergoing rapid expansion and economic transformation. Rise in population increase in migrants from rural areas; consumptive lifestyles as the economic status of people and effects of climate change, are all contributing to ever-growing water shortages. Majority of towns and cities in Uttarakhand are functioning beyond their carrying capacities. While their size has grown manifold in the past few decades, most remain dependent on springs, streams and local lakes to meet their water requirements. Most of these sources have depleted due to degradation of their catchments. This is exacerbated by climate change which appears to lead to more concentrated precipitation, and therefore higher runoffs and lower recharge. Some of the larger towns have been drawing water from distant rivers or large springs and lakes, but soon even these face water scarcities. In this context, the cities in Uttarakhand are particularly significant. Cities in the past were self-sufficient and reliant on water resources within the city, today some of these cities face variable degree of water crises. It is likely that the cities are going to suffer from further water shortages in future as a result of population rise and Climate change.

CEDAR has been trying to understand the problems of mid-sized mountain cities in the state of Uttarakhand. To inform policymakers about the benefits of ‘nature-based solutions’ i.e. “Catch the Rain” initiative for water-secure and climate-resilient cities and how government schemes can be leveraged for more sustainable cities. Our understanding is derived from 4 cities in Uttarakhand, 2 lying in mountainous regions and 2 in plain areas. We first try to understand the gap in demand and supply gap Table 1. Institutions responsible for implementation, key issues, barriers, and challenges followed by recommendations.

City	Population ¹	Demand (mld)	Supply (mld)	Gap (mld)
Mussoorie	30,118	14.4	7.6	6.8
Nainital	41377	20.5	18.2	2.3
Haldwani	1,56,078	26.85	23.1	3.75
Dehradun	5,69,578	147	92	55

¹ Census of India 2011

Observations

Increasing gap between demand and supply is an issue, but necessarily as result of limited water resource. Several other factors play a role in water management which ultimately shape the way in which a system (natural, administrative, economic and social) cumulatively responds. These include non-alignment of institutions, power equations and lack of social inclusion and changing climatic conditions (Fig 2). Most cities have strict building bylaws and ground water abstraction guidelines but seldom followed. At one end oversight in regulation and inertia between implementing bodies leads to mismanagement on the other climate change water rational behaviour is a cause of concern.

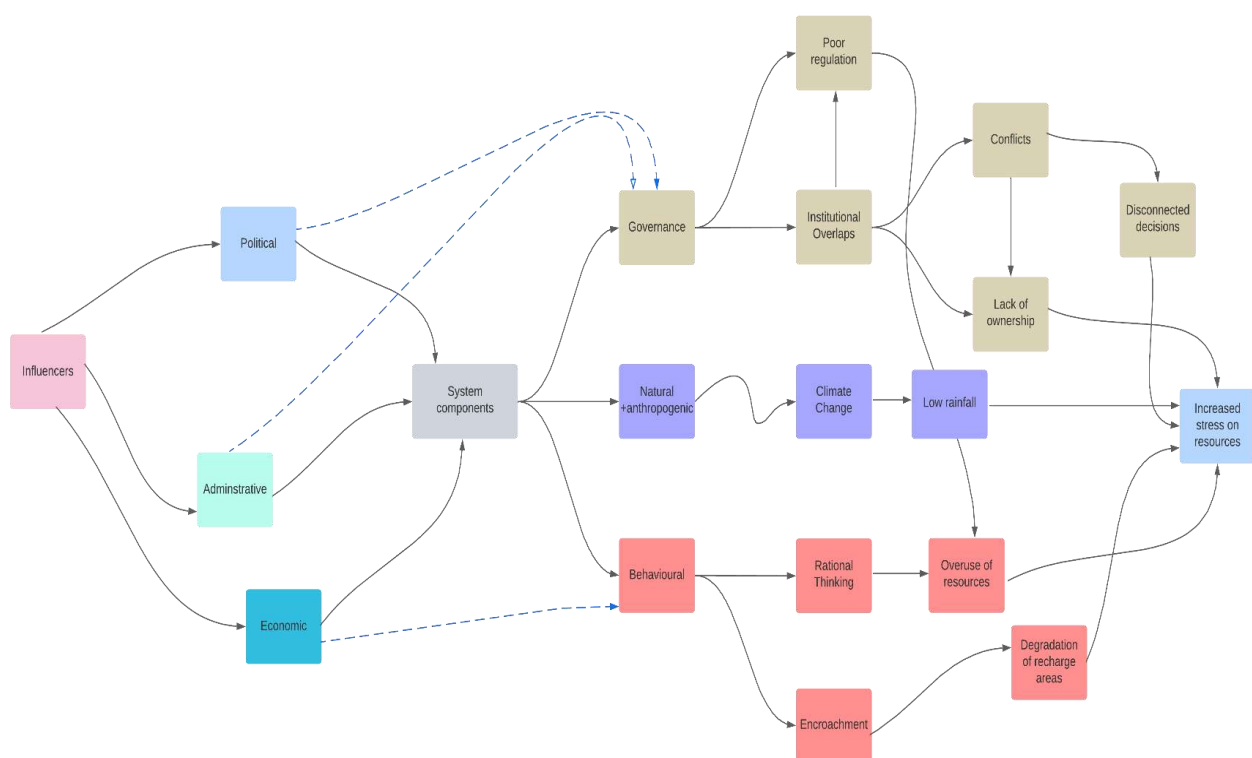


Fig 2: Influence and Response

Experiences are repeatedly showing that engineering solutions, wherein water is lifted from distant sources at great costs, will not alone be able to sustain the growing urban clusters of Uttarakhand in the decades to come. Extremely heavy capital investment, high running costs and depletion of even these distant water sources due to catchment degradation and climate change make this mode of water supply unsustainable in the long run unless augmented by

some alternate solutions. Moreover, ambiguity in institutional responsibilities create a complexity and duplicity. Informal influence on water management creates further governance issues as resulting in inequality in water access. There is a pressing need today to work towards solutions that are sustainable, equitable and climate resilient.

The good news is that ‘There is a scope for water augmentation through nature -based solutions i.e. rainwater harvesting, restoration of spring sheds, identification and demarcating natural depressions and tapping into local knowledge about water management’.

Understanding

On basis of our past experiences and ongoing research supported by the Ministry of Jal Shakti. CEDAR’s research team on Climate change and adaptation and Urban Water security emphasizes the need to orient cities towards nature-based solutions such as National Water Mission’s (NWM) **“Catch the Rain”** “Catch the rain, where it falls, when it falls” Program of Ministry of Jal Shakti, Government of India. To maximize benefits, we advocate that the main carrier of change and improvement concerning each city shall include the following components.



Fig 3. Components required for effective execution and ‘win-win’ scenario’s

Recommendations

In terms of water availability all four cities have adequate water resources, in addition the favourable points with regard to “Catch the Rain” Initiative are

1. All the cities receive approximately twice the rainfall against national average.

2. Individual initiatives have demonstrated that at least between 50-60 % water deficit can be met through nature-based solutions systems such as roof water harvesting.
3. The mountainous areas are bestowed with natural depressions which act as buffers and help recharge of springs, streams and lakes.
4. All four cities are educational and institutional hubs, school and government institutions have large roof areas which are adequately suited for roof water harvesting without much monetary investment.
5. Excess water could be shared with communities living downstream through gravity.
6. In plain areas the same should be used to recharge depleting ground water.
7. The general awareness an environmental sensitivity amongst the citizens is relatively high, which could be harnessed to implement Catch the Rain initiative depending upon the roof areas or/and for awareness generation.
8. While behavioural change is important, however the regulatory authorities must ensure that illegal boring of tube wells are stemmed.
9. Incentivising and penalising mechanisms should be followed. Many environmentally responsible citizens are paying the cost of reckless abstraction or water by relatively few individuals. Heavy penalties for illegal water abstraction and incentivized water saving should be promoted for water metering is essential both at domestic and commercial levels.
10. Depressions in the mountains need to be identified and demarcated as “critical water zones” These geological treasures should be preserved through strict regulating laws around such zones.

Challenges

The biggest challenge is to align departments and develop synergies to achieve a common goal. Water is the essence of life and a fundamental right, power equations around water create inequity. Improved awareness and identification of resource persons, for the design and development of plans are required at city, state, and national levels. Demonstration models implemented on government buildings will encourage private players and citizens of Uttarakhand.