

C-PACT WATER BULLETIN

CPACT & WSP (Water Science Program) present a monthly news bulletin of latest news from India and abroad on debates, concerns, and events related to water.

Aquifer Based Groundwater Management

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Recognizing the pressing need to manage ground water efficiently, the Government of India along with the World Bank launched *Atal Bhoojal Yojna* in March 2018.¹ This is the first scheme in the country to address groundwater management; the planned investment of Rs. 6000 crores is aimed at sustainable groundwater management in groundwater stressed areas.

A central concern in managing groundwater, is how we know what aquifers are and how they behave. Students in the Water Science and Policy (M.Sc.) programme in Shiv Nadar University, spend one month in the field during the 3rd semester in their 4 semesters long MSc programme, studying aquifer based groundwater management. This report on the training in Advanced Center for Water Resources Development and Management, Pune (ACWADAM) brings out the bio-geophysical and socio-economic, as well as political dimensions of groundwater management. As a part of the training the students were involved in elaborate field exposure along with discussions and deliberation with various stakeholders on ground.



Figure 1: ACWADAM Surveyor with Well owner and local youth showing the wells and helping with the measurement, Pokharkarwadi, Maharashtra

Figure 2 - Geological Observation during the field visit - Compact Basalt (top), Vesicular Amygdaloidal Basalt (bottom) and Red tuffaceous layer in between.

¹ Press Information Bureau, Government of India, March 15, 2018

The field visits in ACWADAM were designed to give students an understanding of the rural and urban groundwater situation and the associated human behavior.

- i. The rural visits which involved dug well inventories in seven villages (Table 1) for a project on drinking water by *UNICEF, ACWADAM and Bridgestone*² in Maharashtra. The major data collected included the location of the dug
- ii. wells, *shivalik* tanks and borewells (latitude, longitude and elevation), depth of the well, static water level , post and pre monsoon water levels, the drinking water sources, water quality (pH, electrical conductivity, TDS, salinity and temperature), diameter of the well, casing and the power of the pumps installed. Also, information regarding the post and pre monsoon water levels was noted. The use of the wells and also the period when it is dry were noted. These villages are located in high rainfall areas - greater than 1000 mm/year. Still, there is a major drinking water problem at least in two of the three villages. Also, among the villages visited one village had a reverse osmosis (R.O.) plant set up for water supply and in other villages people were still using water from dug wells and bore wells directly for drinking.
- iii. Cultivation of irrigation intensive cash crops, predominance of exotic (cross-bred) cows, was the norm in these villages, all dependent on groundwater. Since 2018 has been declared a drought year in various parts of Maharashtra, the groundwater recharge and water availability for next summer is expected to be low, with major implications for drinking water availability.
- iv. The apathy of urban dwellers and impact of rapid urbanization on the springs situated within Pune was evident in the field study. The springs and wells in *Omkareshwar* temple and *Shanivar wada*, in the flood plains at the confluence of *Mulla* River and *Ramnadi*, in *Bhudan* and at the origin of *Ramnadi* River, revealed massive pollution and negligence of springs and wells. Even with civil society organizations attempting to revive the river bodies and the springs, the general apathy, disregard and negligence of spring management has been undermining their underlying geological and cultural significance. The policies along the lines of polluter pay principles are still being applied by the ULBs with regard to the destruction of springs and rivers. But obviously urban pollution and destruction of groundwater is allowed first, to entitle the polluter to pay! The confluence of the Omkareshwar spring, the *Muta* River, and Pune's urban sewerage water right in the middle of the city, is a painful evidence of negligence.



Figure 3 - Women taking water using hand pumps. The mouth of the pump is covered with cloth that to filter the water that comes out with red sediments

Location	Key water related aspects identified
Verude (Village)	Drought prone, major cash crops – potato
Gadakwadi (Village)	Drought prone, faulty watershed interventions, traditional onion cultivation
Javulke (Village)	Drought prone, heterogeneous (caste) community
Dhakale (Village)	Drinking water problem - no sustainable option, only seasonal
Kashik (Village)	Very high rainfall, spring water dependency for drinking water and agriculture
Phatalewadi (Village)	High Rainfall, Paddy, Community R.O, Partial drinking water Pipeline coverage
Phokarkarwadi (Village)	Drinking water shortage, onion cultivation area
Pune (City)	Pollution, Spring destruction by construction debris, construction on recharge zones of the aquifer

Table 1: The villages visited during ACWADAM Training Programme in Pune, Maharashtra, and the key issues related to water

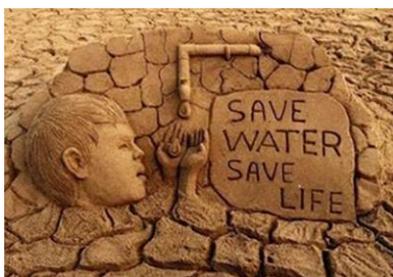
Major lessons were about (a) some counter intuitive causal relationships such as, how high rainfall need not necessarily mean better water security, (b) need for disciplines such as geology, hydrogeology, geomorphology etc. to understand nature's behavior, (c) people's preference for groundwater (for drinking water and irrigation) over surface water, (d) gendered division of labour and gender discrimination in access to and economic use of groundwater, (e) institutionally and historically differentiated roles, power and interests of stakeholders, with various degrees of desperation and involvement, and (f) misplaced policies and interventions, like the *Jal Yukt Shivar* Scheme in Maharashtra, which defines drinking water scarcity based on tanker water demand statistics, which is actually misleading.

Prevalent groundwater management practices highlight the need for nimble footed policies and democratic knowledge, which have space for understanding the bio-geophysical basis and social-economic nuances of the problems, and can provide solutions accordingly.

Latest News

World Water Day: India is 3rd largest groundwater exporter, but 21 cities are running out of water by next year!

The theme for World Water Day 2019 is 'Leaving no one behind.' 21 Indian cities, including Delhi, will run out of groundwater by 2020, affecting 100 million people.



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Depletion of lake, rivers plunge Chennai into water crisis

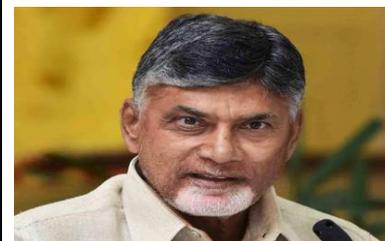
The rise of a parallel water economy and the depletion of wells, lakes and rivers have plunged Tamil Nadu capital's into a crisis



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Penna, Godavari rivers to be interlinked soon: CM Naidu

While asserting his government's commitment over interlinking of all rivers in the state, TDP National president N. Chandra Babu Naidu has said that people of Kadapa are going to conduct farming operations with Godavari waters as government is going ahead for interlinking Penna river with Godavari very soon.



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Premise of SC ruling on forest dwellers wrong: UN Special Rapporteur

Victoria Tauli-Corpuz, UN rapporteur on the rights of indigenous people, says tribals are treated like squatters all around the world.



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J&K among 7 states without water-testing labs.

J&K is among the seven states which are yet to establish state-level laboratories under the National Rural Drinking Water Programme to check the quality of water being supplied to people in rural areas.



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**Friday, 22 March
World Water Day 2019**

Sustainable Development Goal 6 is crystal clear: water for all by 2030. By definition, this means leaving no one behind. But today, billions of people are still living without safe water – their households, schools, workplaces, farms and factories struggling to survive and thrive.

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2019 Leaving no one behind

Academic news: scholarships

Bill & Melinda Gates Foundation (BMGF) Scholarship

This scholarship is for the one-year Master in (non-sewered) Sanitation only.

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Joint Japan Worldbank Graduate Scholarship Programme (JJWBGSP)

The next call for applications for a JJWBGSP Scholarship is scheduled to open from 7 March till 11 April 2019.

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Rotary Scholarships for Water and Sanitation Professionals

The specializations of the following IHE Delft MSc programs are eligible for a 2019-2021 Rotary Scholarship:

Water Management and Governance

Urban Water and Sanitation

Water Science and Engineering

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Conference/call for papers:

The 5th International Conference on Water Resource and Environment (WRE 2019) will be held in Macao, China from July 16th to 19th, 2019.

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3rd world water summit 2019 on 21-23 august 2019

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Towards a Sustainable Water Future' in Bengaluru, India.

24 - 27th September 2019 Bengaluru, India

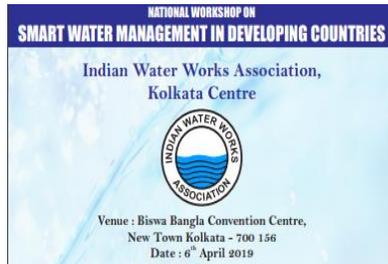
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Course/ Training Seminar Workshop/Contest:

National Workshop on "Smart Water Management in Developing Countries" 6th April, 2019 - Kolkata

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"Centre for Education & Research in Geoscience invites entries for JAL KATHA 2019 - International short film festival on water".

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Water Innovation Summit 18-19 Sep 2019

The Lalit New Delhi, New Delhi, India

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