

**City in Numbers**  
**93%** RAINFALL DEFICIENCY IN BENGALURU SINCE OCT 1

**The Metro Rail Guy**  
 @TheMetroRailGuy  
 BMRCL has finally invited bids to construct #Bangalore Metro's 7.2km Reach1B between Kundalahalli & Whitefield.



**Try This | Film show**  
 India Foundation for the Arts in collaboration with Visvesvaraya Industrial and Technological Museum (VITM) presents the screening of docudrama, The Common Task. Directed by Pallavi Paul and Sahej Rahal, the 52-minute film explores the proposition of a one-way trip to Mars, conducts a philosophical and scientific inquiry into the lives of two astronauts who want to make this journey. At VITM, Kasturba Road, on December 3 at 6 pm. Entry free.

# The River is Dead, Long Live the River

A remarkable endeavour to revive a lost river has begun at Sidlaghatta, a town about 60 km from Bengaluru. The river, Dakshina Pinakini, could well save the city and its citizens from water shortages.

Originating in the Nandi Hills, the river flows through Chikkaballapura, Hoskote, Malur, Kadugodi (with an ancient Kashi Vishwanath temple that stands on her banks here) and then onto Sarjapura for about 100 km. Tragically, the river runs dry till Malur. Here, the dead stream collects all the wastewater flushed down Bengaluru's drains before winding into Tamil Nadu near Hosur.

Groundwork to revive the river started from a field office near Sidlaghatta ten months ago. Watershed expert T Pradeep started connecting drains on 4,700 hectares of farmland, ending with the Belluti lake, which is now the base of the Dakshina Pinakini.

The damage that Bengaluru inflicts seems irreversible. "No matter how much watershed you do, every bit of water will go into recharging borewells. Farmers here have been digging borewells at 1,500ft. When it rains, all the water goes into the empty spaces that borewells have created. The water table won't rise," he says.

"Bengaluru is to blame for this because it has created so much demand for fruit and vegetables that farmers have overexploited groundwater." Pradeep now is trying to get farmers here to grow vegetables under a polyhouse by harvesting rainwater. "We want farmers to stop digging borewells and let the water table rise enough to get the river's base flow back."

The Dakshina Pinakini River Rejuvenation Project, spearheaded by some of India's finest watershed experts, provides Bengaluru an opportunity to look beyond the Cauvery for water, along with the Thippagondanahalli reservoir on the city's outskirts.

The Cauvery's emergence as the primary source of water for Bengaluru dates back to the 1960s when BWSSB was created and lakes were removed from local control and put under government bodies. Pumped from 100 km away, Bengaluru gets 1,392 MLD of Cauvery—considered Asia's costliest water—four-fifths of which turns to sewage.

The existing Cauvery water supply is far below the demand. Of the 1392 MLD, about half is lost in leakage or goes unaccounted for. "We can't depend on the Cauvery because it can't provide for more than 60% of the city's population. With changing rainfall patterns, Cauvery supply is dwindling," IISc ecologist TV Ramachandra says.

The Thippagondanahalli reservoir was built at the confluence of Arkavathi and Kumudvathi rivers and was Bengaluru's only major source of potable water since the 1930s. Till recent years, the city consumed 125 MLD from its 1,453 sqkm catchment area. The state government is now preparing to rejuvenate the reservoir by setting

**CAUVERY NOT ENOUGH**  
 The Cauvery supply is far below the demand. Of the 1392 MLD, about half is unaccounted for

## THANK GOD IT'S FRIDAY

With a water crisis round the corner, it is high time Bengaluru looked for alternative – and more sustainable – sources of water. The Dakshina Pinakini River Rejuvenation Project, spearheaded by some of India's finest watershed experts, and the revival of the Thippagondana Halli reservoir provide Bengaluru an opportunity to look beyond the Cauvery for water. **Bharath Joshi and Nirupama V** report



up an Arkavathi and Kumudvathi River Basin Conservation and Development Authority. Authorities hope the rejuvenated reservoir would hold 2.5 tmcft of water.

At the same time, an expert committee constituted by the state government on ways to rejuvenate the Bellandur lake has, in its final report, stated that Bellandur and Varthur lakes would be developed as a secondary source of water supply for Bengaluru.

The Bellandur lake, Varthur lake and a host of other lakes in the city are interconnected, all leading to the Dakshina Pinakini. "At least 60% of water Bellandur and Varthur lakes get is through Rajakaluves. If the entire ecosystem is not taken care of by clearing encroachments, these lakes will soon run out of water. In effect, the Dakshina Pinakini channel has to be saved if these two lakes are to survive," says V Ramprasad, convener of Friends of Lakes.

If the Dakshina Pinakini is revived, it can feed water to the southeast, northeast and east parts of Bengaluru. "We're looking at 400 million litres per day (MLD) to the southeast, northeast and east Bengaluru, which are the most economically rich but ecologically poor parts of the city," says Chandrashekar Hariharan, who heads Biodiversity Conservation India Limited.

Ironically, Cauvery towers over all other rivers in the Kannada mindspace. Water expert S Vishwanath says: "Ask anyone and they'll say Bengaluru is in the

**Belluti lake, the base of the Dakshina Pinakini**

**A PROJECT TO REVIVE DAKSHINA PINAKINI**

**Originates in the Nandi Hills**

**Flows through Chikkaballapura, Hoskote, Malur, Kadugodi and then onto Sarjapura**

**Runs dry till Malur. Here, it collects wastewater flushed down Bengaluru's drains**

**CLEAR THE CHANNELS**

**At least 60% of water Bellandur and Varthur lakes get is through Rajakaluves. If the entire ecosystem is not taken care of by clearing the encroachments, these lakes will soon run out of water. In effect, the Dakshina Pinakini channel has to be saved if these two lakes are to survive**

**Lakes in Yelahanka, Jakkur, Bellandur and Varthur lake and the Yele Mallappa Shetty lake are interconnected, all leading to the Dakshina Pinakini**

**VRAMPRASAD, convener, Friends of Lakes**

Cauvery river basin. No one will tell you that two-thirds of Bengaluru is in the Dakshina Pinakini basin."

The Dakshina Pinakini, also known as the Dakshina Ganga, finds mention in Sangam and medieval Thevaram-Bhakti era literature where it is depicted as a river rich with lush vegetation on its banks. "There are pictures to show it had enough water until about 1980. The surge of borewells during the Ramakrishna Hegde government—it was an age of ecological innocence—punctured the water table," Hariharan says.

The Dakshina Pinakini group is also lobbying to have Bengaluru's 800 MLD of sewage pumped into the Kandavara lake in Chikkaballapur, which can be treated and allowed to flow into the river's dried-up basin. Experts point out that this exercise—enormous as it may sound—would cost only about Rs 200 crore as against the Rs 13,000 crore the government wants to spend on the Yettinahole

project to supply drinking water to Bengaluru Rural and surrounding districts.

For Water Resources Minister M B Patil, who is fighting the fire on the Cauvery and Mahadayi river fronts, the Dakshina Pinakini is not a priority. "Where's the water in that river," he asks. "That's why we are focusing on west-flowing rivers. The Dakshina Pinakini is dead."

Former BWSSB chairman BN Thyagaraja agreed. "If Bengaluru has to get any water, it must be only from the west-flowing rivers. And waters of all those rivers come only to TG Halli."

Another challenge faces Dakshina Pinakini: "Assuming we use treated sewage water to restart the river, do Bengalureans have the mindset to drink it? This isn't Singapore," water resources deputy secretary Anil Marali says.

The present situation is grim. Only 7 lakh households out of 22 lakh in the municipal limits have Cauvery water supply.

## Unchecked Groundwater Use to Put City in Dire Straits



**KAVYA SHREE K**

After a BWSSB special council meeting which was convened a few days ago, the chairman of the nodal body responsible for providing water to Bengaluru announced the city is heading towards a 'water crisis'. Well, the news is not surprising especially after the legal fight over the Cauvery waters between the two states which was almost like two kids fighting for a share of an already small piece of chocolate.

It is been announced that the city will experience disruption in water supply between January and May 2017. What is more amazing is that the BWSSB is now looking at groundwater as a substitute for the reduced supply from the Cauvery. This move is even more unsustainable compared to irregular supply from the Cauvery.

In 1950s, an economist by name Lionel Robbins said economics is a science which studies human behaviour as a relationship between ends and scarce means which have alternative uses. With respect to Bengaluru's water supply, the scarce means are surface water and groundwater. In the case of surface water, the total net water supply Bengaluru's domestic sector receives after considering all sources including BWSSB's most important and reliable source 'the Cauvery Water Supply Scheme' is 825 MLD (million litres a day).

On the other hand, the groundwater scene is not rosy as well. The most sustainable way of using groundwater is to only extract water from the dynamic resource which is the fluctuating layer of the water table. According to the Central Ground Water Board, the net available groundwater in Bengaluru Urban—the water that can be extracted without using static resources (stagnant water table)—is estimated to be around 1,67,680 million litres per year. But what is worrying is the yearly increment in the rate of consumption of groundwater which is about 7%.

To satisfy this increasing demand, there is a huge increase in the number of bore-wells (5,000 to 4.08 lakh over the past three decades) which have been dug in the city. Of this, 7,920 bore-wells are owned and maintained by the BWSSB. It is unfortunate that due to overdrift of available groundwater, the water table has shrunk from 100-120 metre (m) to about 76-91 m in just two decades. This signals Bengaluru's groundwater abstraction has conveniently breached the dynamic threshold indicating unsustainability.

Another trend is that the extracted groundwater is not only used for domestic purposes but also being sold to commercial tankers, thereby creating a private unofficial water market in the city. Since water is subsidised for the domestic sector, the cost of water to private tankers turns out to be meagre when compared to the price they charge to the consumers. To top this, a single tanker does around 20-30 trips in a day.

And there are a number of water tankers which operate in the city. So the volume of groundwater abstracted is unthinkable. The more severe problem here is who allowed them to abstract enormous amounts of water every day. Unfortunately, there's nobody to take responsibility neither for the menace created nor to regularise them.

Only now there is some initiative taken by the authority where the private water tankers are mandated to declare their source of water. This is not sufficient. There is need for more stringent regulations and effective implementation to curb the illegal abstractions as there is a huge lobby involved in the private water market. Hope the authority takes note of the situation before it's too late.

(The author is an economics faculty at Mount Carmel College, Bengaluru)

## Busy B

Weekend Delights in Bengaluru

### FILM FESTIVAL

Tribute to Hrishikesh



City-based Pickle Jar is organising a three-day film festival to celebrate filmmaker Hrishikesh Mukherjee and the values portrayed in his movies. Classics like Anand, Abhimaan, Bawarchi, Satyakam, Khoobsurat and Chupke Chupke will be screened from December 2 to 4 at NGMA (Palace Road) and Alliance Francaise (Vasanth Nagar). Prakash Belawadi and Chandan Gowda will debate Mukherjee's body of work, while Amol Palekar and Vikas Bahl will be guests of honour. For more information, visit the Pickle Jar Facebook page.

### EVENT

A Hundred Hands Collective



The only collective dedicated to handmade is back for the 7<sup>th</sup> year, with over 85 artists from across the country. Including a very special theme of Celebrating the '90s in WF project where over 50 artists have volunteered to launch an all new range of the collection.

30<sup>th</sup> Nov - 4<sup>th</sup> Dec, 2016 | 11am - 8pm

Organised by the nonprofit A Hundred Hands, the annual event promotes handmade crafts and helps artisans earn a sustainable livelihood. With collaboration as the theme this year, 85 artists will display their work. At the United Theological College, near Jayamahal Palace Hotel, from 11 am to 8 pm. The event will be on till December 4.

### MUSIC WORKSHOP

Learn from the Maestros



During the two-day music workshop, Shubha Mudgal and Aneesh Pradhan will talk about how seasonal cycles are reflected in Hindustani music and discuss the larger cultural context in which these songs emerged. They will teach select examples of seasonal long-forms to participants. At The Jamun, RMV Extension 2nd Stage, on December 3 and 4. For registration and more details, write to veronica@thejamun.com. Anyone interested in music can apply.

### FESTIVAL

Third Coffee Santhe



Coffee Santhe 2016 is the annual fundraising event organised by the Women's Coffee Alliance to empower women coffee plantation workers. The fair will have handcrafted coffee, games, music and dance. At the Karnataka Chitrakala Parishath, from December 02 to 04, from 11.30 am to 7.30 pm. Entry free.

# If I were a Dictator, I would Scrap the Steel Flyover Project

## HIGH-FIVE WITH

**SIDDHARTH MANGHARAM,**  
 CO-FOUNDER, FLOH.IN



A CANDID CHAT ABOUT WHAT MAKES BENGALURU A FAVOURITE CITY

**1 What makes Bengaluru tick?**

The people, for sure. They are chilled-out and unpretentious and yet you'll always be able to have an intelligent conversation with them on topics that range from music, art and beer, to technology and business. The concentration of great educational institutions combined with excellent weather has attracted the brightest minds to our city.

**2 What is your favourite Bengaluru moment?**

Going for a long run on Sunday from Koramangala to the World Trade Centre and ending at Indian Coffee House on Church Street. Nothing beats

a double benne masala dosa and hot filter coffee after a 25-km run!

**3 If you were the dictator of Bengaluru, what is the first thing you would do?**

I would make chopping of trees a non-bailable offence that attracts a prison sentence equivalent to the

## CENTRES OF EXCELLENCE

Great educational institutions like IISc (shown right) have attracted the brightest



age of the tree that was cut. I would also scrap the steel flyover project as well as any other ridiculous plan to build hideous structures that require the chopping of thousands of trees.

**4 Who is your favourite Bengalurean? Why?**

Geetha Narayanan. Her contributions to the city are numerous and include founding two world-class educational institutes - Mallya Aditi International

School and Sriшти School of Art, Design and Technology. She has taught thousands of students and it has been an honour to have had her as my high school teacher. I'm glad to say that we have been in regular touch over the past 30 years.

**5 If not Bengaluru, which city? Why?**

Seattle. The city has a similar relaxed charm, with a high concentration of very friendly and smart people. The outdoor scene, especially the mountaineering and running communities, ensure that you will be in great shape all your life.

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