

# Making Chennai a water-wise city

There is a compelling need for a paradigm shift in the way the ongoing water crisis is being viewed



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The public discourse on Chennai's ongoing water crisis has been along predictable lines. Source augmentation, deepening of waterbodies and giving rainwater harvesting a renewed emphasis are among the suggestions being made, apart from demand-side management. But these ideas, however well-meaning they may be, have their limitations. There is a compelling need for a paradigm shift in the way the water crisis is being viewed.

When it comes to source augmentation, in the last 40 years, a couple of major projects were taken up for Chennai to tap both fresh water and sea water.

The Krishna Water Supply Scheme or Telugu Ganga Project (1996) and the New Veeranam Project (2004) were implemented using two important inter-State rivers – the Krishna and the Cauvery, both of which depend on the southwest monsoon (June-September).

Though the Krishna Water Supply Scheme, if realised fully, can take care of at least half of the Chennai Metropolitan Area (CMA)'s projected water demand of 1,721 million litres a day (MLD) for 2020, Tamil Nadu has not received the assured quantum from Andhra Pradesh even once in the last 20+ years. As regards the Cauvery project, the 'upper-riparian attitude' of Karnataka determines the flow to Tamil Nadu. In effect, realisation of water by Chennai hinges on nature and inter-State ties, both of which are, more often than not, unpredictable.

### Tapping stone quarries

Another source since 2017 for the city has been the abandoned stone quarries located on the outskirts, from where water is drawn for public water supply after treatment.

Further, two desalination plants of 100 MLD each were commissioned in 2010 and 2013. Work has begun on another desalination plant of 150 MLD while steps are on to set up another 400 MLD unit. However, given the costs and environmental



An operator filling his water tanker at a Metrowater station in Chennai in June. Even if there are bountiful monsoon years, it is unlikely that the southern metro will become a water-surplus city. • GETTY IMAGES

concerns, it is unlikely that Chennai can afford to stretch this option beyond a point.

Deepening of tanks and lakes, a popular option, is easier said than done. Issues such as the costs involved in removing and transporting the silt and inadequate disposal arrangements have bothered the authorities to such an extent that nothing much has been done.

As regards rainwater harvesting (RWH), it cannot be a panacea and site-specific requirements will have to be kept in mind while putting up RWH structures. The model of storing rainwater and reusing it may demonstrate the efficacy of RWH.

Many of the options being suggested to overcome the distress situation faced by Chennai have been tried out in the past. Yet, just one bad monsoon has pushed the city to yet another water crisis. This scenario may get repeated in the future too.

Even if there are bountiful monsoon years, the prospects of Chennai becoming a water-surplus city are remote. An official document prepared a few years ago estimated that the CMA, which covers not only Chennai Corporation but also nearby municipalities, town panchayats and village panchayats, will have a shortfall of 1,089 MLD in 2020. Even assuming that the southern peninsula experiences good southwest and north-east monsoons this year, the gap can

come down only by a maximum of 400 MLD.

A note available on the website of The Energy and Resources Institute states, quoting the Central Public Health and Environmental Engineering Organisation, that the average water supply in urban local bodies of the country is 69.25 litres per capita per day (LPCD) against the service level benchmark of 135 LPCD. For a metropolitan city like Chennai, the benchmark goes up to 150 LPCD. If one were to go by the admission of Chennai Metrowater, the service level achieved in March 2018 was 112 LPCD. This is why the need for a paradigm shift becomes all the more important.

### Waste-water recycling

Just as in many other Indian cities, the concept of waste-water recycling and re-use has not yet caught the imagination of either the authorities or the public in a big way. The demand-supply gap will be a permanent feature of urban India unless society realises the critical importance of recycling and re-use of water. It needs to be noted here that on an average, 85 litres of water goes waste for every 100 litres utilised.

There is also another reason why the concept ought to be popularised. According to information furnished by the Centre, while urban areas of the country generate 61,948 MLD of

sewage on a daily basis, the installed capacity of sewage treatment plants (STPs) is just 23,277 MLD. This means that only 37.5% of sewage generated can be treated. As per a conservative estimate, Chennai generates about 930 MLD of sewage, whereas its STPs can handle 727 MLD. With rapid urbanisation, the space for new plants is hardly available in peri-urban areas of Chennai, a scenario applicable to any other city in India. As a result, the city's rivers and canals have been reduced to carriers of raw sewage. Over and above these reasons, one of the targets set under the 2030 Agenda for Sustainable Development, adopted by UN member-countries in 2015, is to halve the proportion of untreated waste water.

### Non-consumptive use

There are numerous ways through which waste water can be treated at the point of generation. Several Information Technology companies, located outside the city limits, have adopted the concept as they have their own STPs and use the treated water for non-consumptive purposes such as gardening and flushing toilets. Some high-end residential apartments too have begun implementing the idea.

Realising the potential benefits, Chennai Metrowater has at last launched work on establishing two tertiary treated reverse osmosis plants of 45 MLD each. The process will involve sewage treatment in three stages and will use reverse osmosis system through which most of the dissolved solids and bacteria will be removed from the treated sewage.

Besides, projects are on to experiment with the idea of conjunctive use of fresh water and treated sewage – mixing treated sewage with fresh water by letting it into the lakes of Porur and Perungudi. These are only some modes of water treatment, the scope for which is enormous and still untapped.

All said, a wise society cannot allow itself to become complacent once the rainy season starts. The present debate needs to be taken forward so that waste water is reused and recycled in an imaginative and optimal way. This way, Chennai can take pride in being a water-wise society.

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# Contentious remedies for a clear, structural malady

The NEP's proposals will not ensure equity in health care



GEORGE THOMAS

The primary objective of medical education should be to provide a cadre of personnel to take care of the health needs of the country. In addition, any education policy in the modern world has to take into consideration social objectives, for example equity and justice in enrolment and access. That apart, certain fundamental questions need answering too. For instance, how many years of training are required for a medical professional? What should be the purpose of a basic degree in medicine? Is specialisation required? If so, how much and how is it to be done?

The draft New Education Policy (NEP) speaks about equity, inclusiveness and sustainable development at many points, starting from the preamble. However, it is by no means clear that its recommendations will fulfil these objectives, especially in the field of medical education. For example, on page 300, it states that fees in medical colleges, both public and private, will be left to be decided by the institutions themselves. However, just a few pages later, it asserts that the cost of education should be lowered.

At another point, the policy document states that all private institutions should be not-for-profit. It appears that the committee that drafted the report hoped that this recommendation, as well as the regulatory apparatus suggested by it, by itself will take care of the problem of profiteering. However, what gives it such confidence is hard to understand given that the present policy too is to consider higher education a not-for-profit enterprise but has become a very large driver of the black economy, according to several reports. Though the document states at several points that no student should be deprived of education due to lack of finances, the solution it suggests is scholarships.

### Confused thinking

The fact that on the one hand, the cost of education is sought to be lowered and on the other, fees are allowed to remain unregulated, betrays confused thinking. With the National Medical Commission Bill regulating fees only for 50% of seats in medical colleges, it looks like the commitment to equity is merely a pious homily.

At several points in the policy document, the need for a flexible education system has

been stressed. One part of this flexibility is in the possibility of multiple entry and exit points. One can understand having a National Entrance Examination for admission to undergraduate courses. However, it is absolutely clear that having a National Exit Examination for MBBS as the mode of entry to postgraduate courses is neither flexible nor fair. Can a student be expected to take the exit examination multiple times if the initial score is not good enough? Are all medical colleges across the country of the same standard to ensure a level-playing field? Sealing the student's fate once and for all through an exit examination is certainly not just.

### High level of centralisation

The objectives of autonomy and adaptation to local needs are contradicted by the high level of centralisation in medical education by the National Medical Commission. The document considers separation of the functions of regulation, funding, accreditation and standard setting as absolutely necessary. However, the National Medical Commission has sought to arrogate to itself many of these functions. Further, the recommendation that diploma courses should be expanded in order to provide "intermediate specialists" lacks focus. What are these intermediate specialists supposed to do?

Multiple postgraduate courses have been started without any clear rationale. The MBBS degree has been debased to such an extent that it is considered merely a necessary requirement for postgraduation. One of the main drivers of the thirst for a postgraduate degree is the lack of adequate respectable employment opportunities for an MBBS graduate. The overwhelming privatisation of health-care delivery in India has led to the concentration of personnel in those parts where the public has the capacity to pay. Having a postgraduate degree has a multiplier effect on employability, income and respectability for the doctor. How useful it is for the society is questionable.

The policy document does not recognise that the main driver of inequity in health care is the presence of a large, poorly-regulated, for-profit sector. Private interests have ensured regulatory capture in health-care policymaking. It appears that the National Education Policy has not escaped this capture, hence the clear disconnect between the repeated exhortations to ensure equity and quality and the recommendations which will achieve neither.

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# Island of hope in the midst of global measles resurgence

Sri Lanka has become free of the viral infection

R. PRASAD

On July 9, Sri Lanka became the fourth country in the Asian region – after Bhutan, The Maldives and Timor-Leste – to eliminate measles. Amidst an increase in the number of cases worldwide, especially in Europe, this came as an encouraging development. Measles is considered as eliminated when a country interrupts transmission of an indigenous virus for three years.

However, the viral infection has, since the beginning of 2018, seen a resurgence in 49 of the 53 countries in the World Health Organization (WHO)'s European Region. A total of 1,60,000 cases and more than 100 deaths were reported from these 49 countries between January 1, 2018 and May 30 this year.

The number of cases reported last year in the European Region, the highest in this decade, was thrice the number reported in 2017 and 15 times the number for 2016. With nearly 78,000 cases reported in the first five months of this year, indications are that the number will surpass last year's.

Ironically, the sharp increase in the region came despite vaccination coverage for the second dose being at a record-high of 91% in 2018. So what could have caused the spike? According to the WHO, the vaccination coverage has "not been uniform across the region nor high enough to ensure herd immunity" to break the transmission cycle.



While global coverage for the first dose of vaccine has remained stagnant at 85% and for the second dose, it is still at 67%, the coverage for Sri Lanka has been above 95% for both the first and second doses. The vaccine is provided to children under the routine national immunisation programme.

### Regular vaccination campaigns

The island nation, where measles is a notifiable infection, has also carried out periodical mass vaccination campaigns to reach the small pockets of unimmunised children. Sri Lanka also has strong surveillance in place.

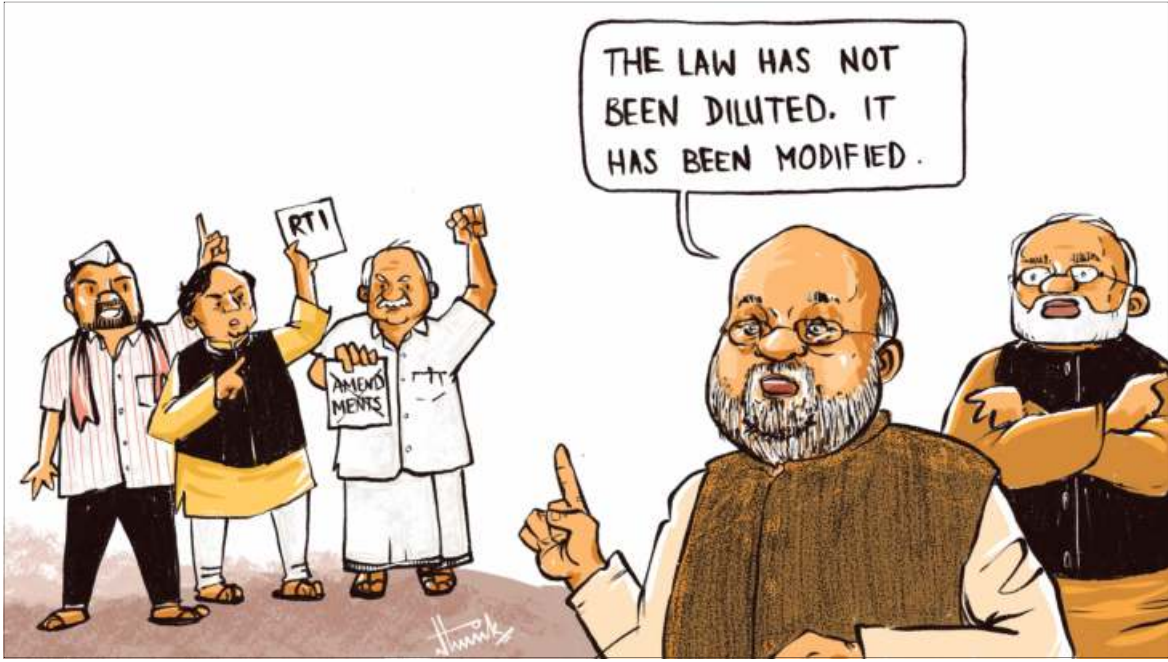
However, the country did encounter a few bumps in its path. In 1984, it introduced measles vaccine in the national immunisation programme and set the goal of eliminating the infection. Though local outbreaks were reported, the annual incidence declined till the year 1999.

During Sri Lanka's measles epidemic of 1999-2000, nearly 15,000 cases were reported following which a two-dose vaccine schedule was introduced, resulting in a sharp decline in incidence. The country reached an elimination target of less than five per one million people in 2011.

But in 2012, the measles immunisation schedule was changed following which babies no longer received measles vaccine at the age of nine months but a measles, mumps and rubella (MMR) vaccine on completing 12 months. Following this, in 2013, the country witnessed its last major measles epidemic. Besides other reasons, the change in immunisation schedule was seen as a possible cause.

The MMR vaccine schedule was again changed following a sero-survey data. Babies now began receiving the first dose at nine months and second dose at the age of three years. The country reported its last case of measles caused by an indigenous virus in May 2016.

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### DATA POINT

## Race to the South

Never before in history has a country even attempted to soft-land an object near the moon's South Pole. If all goes well, India's Chandrayaan-2 will achieve this feat on September 7, 2019. The South Pole is suspected to harbour reservoirs of ice, proof of which will have massive impact on future missions. By Vignesh Radhakrishnan

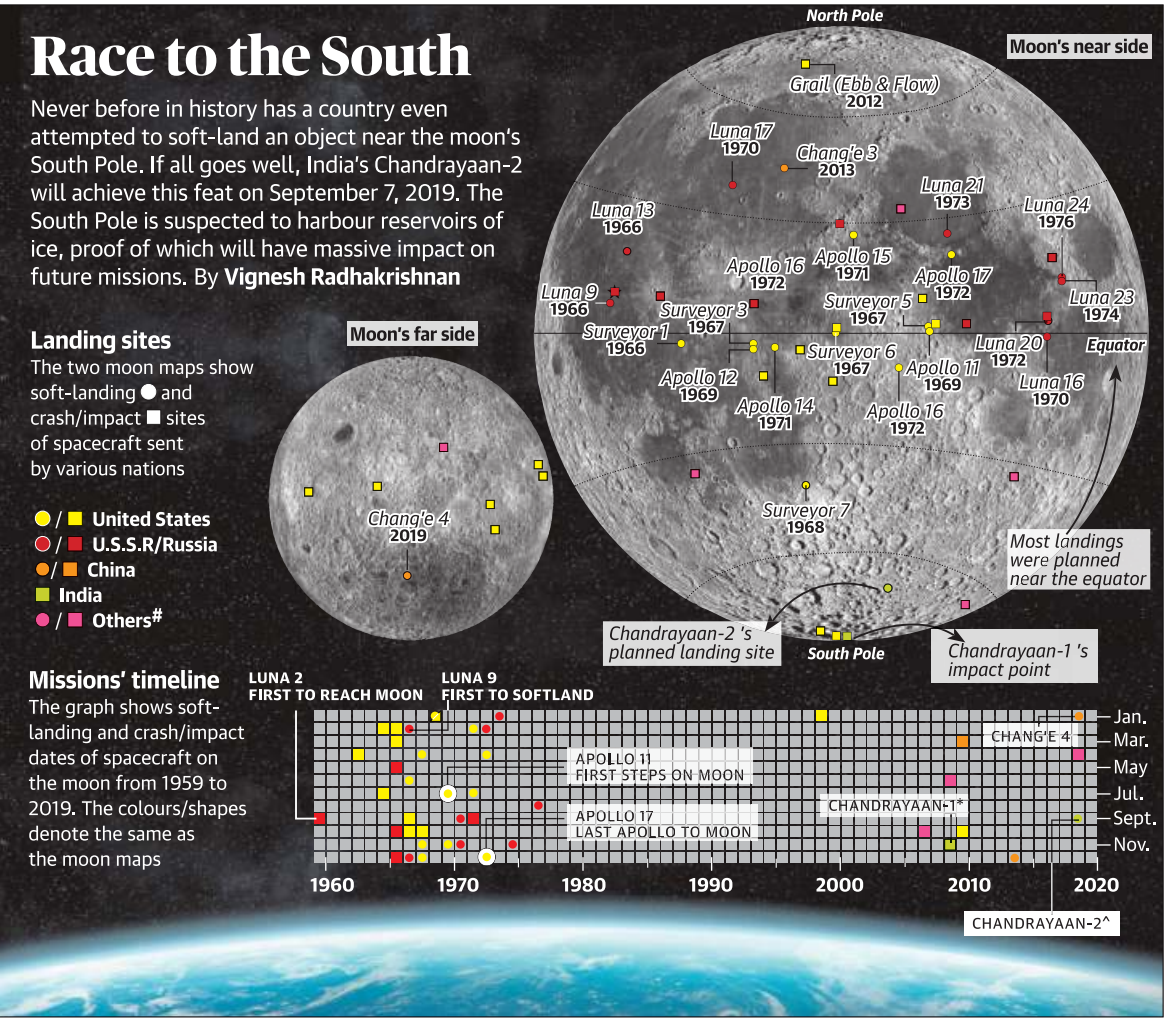
### Landing sites

The two moon maps show soft-landing and crash/impact sites of spacecraft sent by various nations

- United States
- U.S.S.R./Russia
- China
- India
- Others#

### Missions' timeline

The graph shows soft-landing and crash/impact dates of spacecraft on the moon from 1959 to 2019. The colours/shapes denote the same as the moon maps



\* VIA AN IMPACT PROBE; ^ PROPOSED; # EUROPE (ESA), JAPAN, ISRAEL, S. KOREA | DESIGNED BY L. BALAMURUGAN | SOURCE: NASA, REUTERS

## The Hindu. FROM THE ARCHIVES

FIFTY YEARS AGO JULY 25, 1969

Yahya yet to respond

The Pakistan President Gen. Yahya Khan has not yet sent a reply to Mrs. Indira Gandhi's letter sent through Mr. Kewal Singh, the External Affairs Secretary, who went to Islamabad recently to sign the Kutch Agreement. The Prime Minister had, in that letter, urged an early normalisation of Indo-Pakistan relations at least in the cultural sphere. General Yahya Khan made no comment even on her renewed proposal for the appointment of a joint Indo-Pakistan body at any level to consider all outstanding problems between the two countries. The Prime Minister's letter, dated June 22, was placed on the table of the Rajya Sabha to-day [July 24] by the Deputy Minister for External Affairs, Mr. Surendra Pal Singh, in reply to a question whether India proposed to enter into any meaningful discussions with Pakistan. Deploing the almost total lack of contact now between the peoples of India and Pakistan whose destinies were inextricably intertwined, Mrs. Gandhi suggested that it would help to remove misunderstandings and misconceptions if both countries eased the regulations for travel between the two countries, encourage greater cultural contact in the field of letters, art, music, science and sport.

A HUNDRED YEARS AGO JULY 25, 1919.

Leper problem in India.

The Rev. Frank Oldrieve, Secretary of the Mission to lepers in India, delivered an interesting and instructive lecture last evening [July 22] at the Regent's Park Hall [in Dacca] on "The Leper Problem and How to Solve it". The Lecture was illustrated by magic lantern pictures. His Excellency Lord Ronaldshay, who presided, in introducing the speaker made reference to the great service the mission has been rendering to humanity. His Excellency said that it was a matter for regret that very little attention was being devoted by the people to the disease of leprosy, whereas malaria, tuberculosis and other diseases had engaged so much of their attention. Out of a total of more than Rs. 44,00,000 of the annual expenditure, only a small fraction was received from the public. There was an exhibition of pictures showing the infectious character of the disease and the relief work that the mission has been carrying on in the different centres in India. The total number of lepers in India would be nearly 150,000. The Rev. Oldrieve said that the disease was not hereditary but according to expert opinion it was infectious.