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Civil Society

WORKING FOR INDIA

MEGA HALL OF FAME

Change leaders we remember from our 16-year journey

‘MPs COULD USE LOCAL AREA FUNDS BETTER’

Implementation at the district level is often wanting and money needs to be used strategically for impact, says Harivansh

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16th Anniversary

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WHAT TO DO ABOUT OUR CITIES?

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Civil Society has helped many of us stay civil even when our self-interests were often pulling us another way. The distances we unconsciously and routinely build among ourselves are really an outcome of cognitive and intellectual distance.

Correcting this is an essential aspect of citizenship which, incidentally, is not an easy trait to cultivate. Over the past 16 years, *Civil Society* has contributed significantly in making us both "civil" and socially conscious. It has done this by not remaining "neutral" but by being just and fair by the lights of what it takes to be a citizen.

It is true that one of the major attributes of citizenship is the right to vote and participate in a representative democracy. At the same time, what would be the value of this exhortation if we were not properly primed by knowledge that builds on information which shows how citizens, with disparate horizons at first sight, are actually intertwined.

In issue after issue, page after page, *Civil Society* has taught us to see the *us* in *them* in ways we would not have easily imagined. It is not as if one can agree with all that appears in this journal, but there is no doubt that they make one think and probably come out better as a consequence.

Prof. Dipankar Gupta
Sociologist

In a world rocked by hatred, violence and divisiveness, reading *Civil Society* gives me hope and solace. It reminds me of the goodness of human beings, of altruism, of people wanting to work for the betterment of others, of selflessness, of innovation and a spirit of working for a better world. I get to meet amazing people and share ideas that excite me through the pages of the magazine. Thank you *Civil Society*.

Mallika Sarabhai
Director, Darpana Academy of Performing Arts

I appreciate the focus with which *Civil Society* tells us about the many positive things happening in the country. It is important to showcase these initiatives and the magazine does a commendable job through its reportage. I greatly look forward to the book reviews as well.

Abhijit Sarkar
Transport consultant

Feedback

READERS TELL US WHAT THEY THINK

This is a magazine that does not reach out to the stars but stays grounded in issues which create a "civil society". I have been a *Civil Society* reader for the past seven years and I appreciate its genuine concerns for the betterment of our earth. These concerns are voiced through issues like environment, wildlife, gender equality, renewable energy, conservation of natural resources, health, education and the farming sector.

It is a pleasure to read a magazine not inundated by advertisements, and to appreciate the seriousness of purpose that it stands for.

Noor Khan
Educationist

I have been reading *Civil Society* from the very beginning, from the first issue itself, I think. And I've enjoyed it immensely over the years. It has given me so much knowledge. The magazine makes you feel somewhat proud of the individuals who make up India. I myself work in the non-profit space and it often feels like you are all alone. *Civil Society* covers individuals who are working in different sectors to make the country a more positive space. It makes you feel less alone and more motivated about your own mission. *Civil Society* is providing a very valuable service of covering hardworking individuals. It makes me so happy that *Civil Society* is celebrating its 16th anniversary. It has been a journey of growth and achieving maturity. Congratulations to the team!

Geeta Dharmarajan
Director, Katha

I have been a subscriber of *Civil Society* for many years. As I feel depressed about the world's serious problems such as climate change and other environmental issues, farming crisis, extreme inequality, narrow nationalism, rise of autocratic 'strong men' as leaders, and general intolerance, I keep my hopes alive by turning to *Civil Society* for its positive stories.

The problems of the world often overwhelm me but then I recall what I read somewhere: Change doesn't always begin with a bang; it often starts with just a whisper. Those whispers — small victories and positive changes — are what I look for in the magazine. They give me hope and encouragement because most of the stories are about ordinary people who do extraordinary things. They show that we, as individuals, are not as powerless as we may feel.

In these dark times, *Civil Society* is a beacon and I wish that its reach in the country would increase manifold and encourage a larger number of people to bring positive changes in our society.

Prof. R. Rajagopalan
Former professor at IIT

Civil Society is one of the most nuanced magazines I have read in terms of reporting on education and development in India. It covers issues that we must talk about and that relate to us. It is based on a certain dynamic neutrality because it reports without bias. The magazine is a wonderful resource for policy analysts, researchers, academics and aspiring civil servants. The interview format is very appealing because there is an emphasis on talking to experts and it makes the magazine a very well-researched one. I am a second generation subscriber. My father used to read the magazine. I highly recommend *Civil Society*.

Dr Bijayalakshmi Nanda
Acting Principal, Miranda House

The long format that *Civil Society* employs is welcome relief from the bullet-point lists that seem to have become the norm of journalism today. It is a magazine that truly speaks about issues concerning society. The stories are not only well-researched but also presented in a lively manner.

Pooja Sood
Co-founder, Khoj International Artists' Association

I always recommend *Civil Society* to friends, especially those living abroad. It is one of my favourite magazines. The reporting is one of a kind and gives a representation of the country so different from anything else in the media. Indian Ocean has been a part of numerous *Civil Society* celebrations, appropriately titled "Everyone Is Someone". It is one of our favourite concerts where we play and get to meet and hear the stories of inspiring people who are engaged in serving the needs of their communities, fighting administrative inertia, restoring depleted resources and displaying courage and empathy every single day. It is truly humbling to be amongst such people at least once a year. I look forward to reading many more issues of the magazine in future and hope the great work continues!

Nikhil Rao
Guitarist, Indian Ocean

Feedback

READERS TELL US WHAT THEY THINK

When Umesh and Rita Anand took up the challenge of producing *Civil Society* on a shoestring budget and a load of optimism bordering on bravado, I thought it was an exciting but formidable initiative. I still do.

So when Umesh called up to say 16 years had passed by, I had to pause and reflect on that optimism and the challenge and whether it had been worth it.

There is no doubt *Civil Society* has defined a space that was just calling for media attention. It has its own position in the media. Wherever I go I find that it is displayed on racks, desks and tables of the volunteer world. And it is clearly read, not just displayed. There are also questions: Do you know these people? Have you visited this place? What do you think of the write-up?

So, 10 marks for optimism and 10 marks for achievement. If at all one were to be a carping critic, one could only say, one cuckoo does not a monsoon make.

But that is the limitation of this mode of storytelling: that it can inspire, it can motivate, but it cannot be made responsible for the actual spread of transformative change. That requires social forces that are beyond the scope of a monthly labour of love and persistence. But does *Civil Society* inform? Does it inspire? Magnificently, yes!

Dunu Roy
Director, Hazards Centre

What do I think about *Civil Society*? Great question! I do not think about *Civil Society*. *Civil Society* teaches me how to think. Living in the age we are living in, we have a stereotyped reaction to everything: no thinking, no assimilation, just a standard reaction. Epigenetic. No reasoning. Made worse by the commerce of column centimetre in the print media and the TRP influenced content of the visual media. *Civil Society* has changed that. I am now re-learning finer values, the nuances of a better thinking state of mind, the varied essence of good human interaction. Being better. Thank you *Civil Society.*

Dr Ashok Khurana
Radiologist

It is a great thing to be celebrating 16 years. Congratulations. I read your magazine because it publishes stories, articles and interviews that hold a mirror to society and are, at the same time, a harbinger of change and hope for future generations. You provide in-depth analysis of issues and events.

Shilpa Chohan
Environmental lawyer

IN THE LIGHT

SAMITA RATHOR

Feedback

READERS TELL US WHAT THEY THINK

Civil Society magazine is one of the best magazines I have read and continue to read since the past nine years. Its articles and content are clear, precise and so utterly relevant to our life and times, to the environment and our social behavior. As a professional musician, one cannot help but focus on detail, and *Civil Society* is quick and sensitive to pinpoint reality and truth; sometimes a bitter pill to swallow. In an expansive and diverse nation such as ours, it is so easy to often miss the quantum of work being done by well-meaning individuals and institutions, and *Civil Society* does a stellar job in highlighting the same. From innovation to creativity, social well-being to service, *Civil Society's* in-depth, incisive and inclusive content brilliantly showcase achievements and sincere efforts made to improve our lives.

Deepak Castelino
Guitarist and banjo player, Chaar Yaar

I was introduced to *Civil Society* magazine in 2007 by Anupamji and have since been a regular reader. I have been impressed by the high standards of reporting and design that have been maintained over the years. It is great to see so much hard work going into reporting on social initiatives which otherwise tends to be ignored in the media.

India is dominated by the status conscious and the powerful. The result is so much good work taking place at the grassroots gets ignored. But it is in the concerns at ground level that the reality exists. *Civil Society's* journalism reflects this wonderfully well.

Having worked on issues pertaining to water, I know how much information has been provided by *Civil Society* on local solutions and not just the problems. For a long time I knew only the magazine. Later, Dipankar Chakarborti told me about its founders and I was reassured about the values and concerns espoused by them.

Saurabh Singh
Arsenic Mitigation & Research Organisation

ANNUAL DOUBLE ISSUE

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Civil Society
READ US. WE READ YOU.

Sweet 16

THE running of a small media enterprise comes with many challenges but the journalistic satisfaction in bringing out our magazine every month is compensation in fair measure. It feels good to be able to do the stories we do and reach a growing number of appreciative readers. It is work we enjoy and doubly so because of its relevance in a complex emerging economy trying to balance growth with equity.

In 2003, when we started our venture, we were sure we were on to something exciting. India was in transition in multiple ways. We wanted to tell these stories of change. Instead of focusing on problems, we decided to go in search of solutions. With this as context, we went much beyond NGOs and activists to check out those entrepreneurs, doctors, lawyers, engineers and industrialists who were committing themselves to making a difference and closing the gaps in society.

In our journeys across India in 16 years we have come across thousands of changemakers about whom we have written in our magazine. We bring many of them together in this anniversary issue in what we have called The Mega Civil Society Hall of Fame.

We also have a special section on cities. What do we do about them as they attract an ever-increasing number of people? We have seven perceptive pieces on governance, healthcare, technology, migration, finance, waste and infrastructure. Cities are of great interest to us and we report on them through the year under these same heads.

Our interview with Harivansh, the Deputy Chairman of the Rajya Sabha, explores several areas of concern relating to the spending of local area funds by members of Parliament. Harivansh is of the view that a better system is needed so that use of the money goes beyond repairing constituency roads and other such minor works. He would like MPs to think about how they can have more impact — collectively, perhaps, wherever possible.

In Delhi, in the neighbourhood of Rajokri, a pond has been revived to serve as a component of a low-cost, natural sewage treatment facility. It is an example of the inventiveness that needs to be shown in the managing of our cities. The Rajokri facility brings down the cost of treating sewage to a fraction of what it is in a mechanical sewage treatment plant. More importantly, it promotes beautification and urban revival. In doing so it dramatically improves the quality of life in a congested and slum-like area. Other cities should look closely at this example of cleaning up a congested area with a low investment.

PICTURE BY SHREY GUPTA

Harivansh: 'The question is how can good examples be large-scaled and replicated and systemic faults removed in MPLADS'

'MPs could be more impactful with their local area funds'

Harivansh says implementation needs to improve

Civil Society News
New Delhi

MEMBERs of Parliament get ₹6 crore a year to spend on the uplift of their constituencies. It is called the MP Local Area Development Scheme or MPLADS. It is assumed they know best what is needed to be done. But over the years, MPLADS has come to be questioned — both as a scheme and how the money is being used.

It has been felt that there is scope for introspection and Harivansh Narayan Singh, Deputy Chairman of the Rajya Sabha, has taken the initiative to review the working of MPLADS. He is chairman of the MPLADS Committee in Parliament and in this capacity hopes to build a consensus on ways to improve the functioning of the scheme.

Before he became an MP, Harivansh was Editor-in-Chief of *Prabhat Khabar,* the formidable Hindi daily. He took *Prabhat Khabar* from a few pages printed crudely in black and white to being a powerful voice against corruption and a valuable media brand.

> 'Most MPs use the money for minor works, which benefit local people. It could be for building a road or some other minor infrastructure. I wanted to use the money differently. I wanted it to benefit society as a whole.'

Civil Society spent a morning with Harivansh at his Akbar Road home in Delhi for this interview.

What are your concerns about MPLADS?
As ex-officio chairman of the committee on MPLADS I took a close look at the scheme. Before that, as an MP in the Rajya Sabha, the question that confronted me was how I should use my own MPLADS fund. And, earlier, as a journalist I was aware of the genesis of this scheme.

But first let me explain how I used my own MPLADS fund. Most MPs use the money for minor works, which benefit local people. It could be for building a road or some other small piece of infrastructure.

I wanted to use the money differently. I wanted it to benefit society as a whole, enhance its future. The state government carries out development works like building roads or improving schools. I wanted to use the scheme in a more significant way.

What you are saying is that you didn't want to duplicate the work that the state government was doing, you wanted to use the fund in a more strategic and meaningful way?
Exactly. After talking to our chief minister, Nitish Kumar, and seeking his advice, I funded a Nadi Adhyayan Kendra (Centre for River Studies) at the Aryabhatta Vishwa Vidyalaya, Bihar's upcoming and most prestigious university.

My reason for doing so is that Bihar is a land of rivers. We have always been ravaged by floods. I used to live near a river. I saw how a river changing its course would wipe out village after village. A research centre on rivers, I felt, would greatly benefit society by changing the way we perceive rivers and helping us tackle the right issues.

I also recommended the setting up of two other centres in IIT Patna. One is a Centre for Earthquake Studies. The second is a Centre for Endangered Languages. Work has started on all three centres.

And how are MPLADS funds being used generally?
When I became chairman of the MPLADS Committee, I called a meeting of the committee's members. They pointed out that they hadn't gone to see how the scheme was being implemented on the ground.

So, in November last year, we went to the Northeast. We met high-level bureaucrats of West Bengal, Sikkim, Manipur, Tripura, Nagaland, Mizoram, Arunachal Pradesh, Assam. We inspected (the implementation of) the scheme.

My first impression was that the fund is perceived as a Parliament fund. If there is any malfeasance or impropriety in the scheme, then our MPs are mostly seen as being responsible for it. But the truth is, this is not so.

Yes, there may be some MPs who may have misused the scheme, but largely it is the system that is at fault. It is filled with lacunae.

The scheme is to be implemented at the district level by the bureaucracy. If a part of the fund has been used, a utilisation certificate is needed so that more funds can be released. Meetings and regular monitoring are supposed to take place. But all this does not happen. The mechanism for monitoring the scheme is faulty. The district magistrate is overloaded with work. He or she is already chairperson of some 75 committees.

Also, sometimes the fund is used for projects it isn't meant for. For example, rules have been clearly framed on how much money you can give to an NGO, that the NGO should be registered and so on. But this isn't always followed.

Having said that, in the Northeast and West Bengal, some really good work is also happening under MPLADS. I have seen how marginalised women are being helped and their children are getting a good education.

The question is, how can good examples be large-scaled and replicated and systemic faults removed.

In retrospect, what is your overall assessment of MPLADS?
We found that there were MPs in the Northeast who weren't even sure of how much money there was in their fund. When we came to Delhi we decided to get to the bottom of the 'implementation mystery'. We asked the nodal ministry for a status report on how much money MPs had in their MPLADS funds and how the money had been spent.

We asked MPs for their opinion. Did they think funds were being appropriately spent? Many MPs vociferously criticised the implementation of MPLADS, saying it was riddled with impropriety. They wrote to me with suggestions of how this could be improved.

The Central Information Commission's (CIC) report of September 16, 2018 highlighted disturbing aspects of the scheme and the problems it faces at the operational level. It has made a number of suggestions including a legal framework for the scheme.

I thought the matter could cause an uproar. We should at least know the kind of schemes/projects that MPs are funding.

> 'Ultimately it is a governance issue. The MP can recommend that the money should be spent on a particular project. But the money is actually spent by the district administration. Governance at that level should be efficient and seamless so that MPLADS is spent the right way.'

So I wrote another letter to the MPs requesting them to sit together and discuss what shape and form the fund should take.

I examined the history of MPLADS. There had been MPs who were not in its favour at all. In fact, since 1998 there have been a series of reports that have been critical of the scheme and its implementation.

In 1998, a financial audit by the C&AG (Comptroller and Auditor-General) was critical of the scheme. Another C&AG report of 2010-11, a 'performance audit', pointed out systemic problems in implementation but they were not addressed.

The Programme Evaluation Organisation of the erstwhile Planning Commission studied the design, implementation and impact of the scheme and suggested changes.

The report of the National Commission to Review the Working of the Constitution, headed by Chief Justice M.N. Venkatachaliah, also examined the principle behind MPLADS, and raised questions about its very existence.

The Second Administrative Reforms Commission, headed by Veerappa Moily, questioned the legality of the scheme and said a decision should be taken on its continuance.

But the scheme is legal. A case was filed in the Supreme Court on MPLADS and its status. A five-judge bench headed by Chief Justice K.G. Balakrishnan in a unanimous verdict on May 6, 2010, said MPLADS was legal and statutory. It also stated that faults in the scheme should be monitored by Standing Committees of the Lok Sabha and Rajya Sabha and accountability mechanisms made more robust. I informed MPs that all studies related to the scheme pointed to systemic failure.

I pointed to a study by a former IAS officer, Rashmi Sharma, "District Collector - Superman or Stop-gap Solution?", as well as the 55th report of the Public Accounts Committee on MPLADS and the 61st report of the Standing Committee on Finance on Demands for Grants of the Ministry for Statistics and Programme Implementation, 2018-19.

We must rectify this. I have asked MPs to suggest how we can improve the workings of the scheme and use it for nation building. This money is, after all, the nation's wealth.

How do you think the funds could be used? It isn't a very big sum.
That decision will be a collective one taken by parliamentarians. In my mind we should set up a system that addresses systemic failures that our own MPs are pointing out. Ultimately it is a governance issue. The MP can recommend that the money should be spent on a particular project. But the money is actually spent by the district administration. Governance at that level should be efficient and seamless so that MPLADS is spent the right way.

Also, if all MPs get together and spend the money collectively we can address some of the more challenging problems that the nation faces. Take the water crisis. All MPs can get together and decide how we can use the fund to tackle the issue of water.

I must mention in this regard that MPs pool their funds for helping people affected by natural calamities such as floods (in Kerala), cyclones (in Odisha), earthquakes (in Bhuj, Gujarat), etc. in different parts of the country. Funds are pooled and sent to state governments for rehabilitating people.

Similarly, we can encourage MPs to contribute their funds, at least a certain percentage, for tackling issues of common concerns such as the water crisis and climate change.

I understand India is a large country and every state, every district has its own issues. Perhaps funds can be pooled to address state- or area-specific issues relating to water or education or some other developmental concern.

Gandhiji used to talk of village planning. We can talk of district planning. Three or four MPs can pool their funds and address the most difficult issue in their area in mission mode. I think the outcome will be very positive.

Continued on page 10

Continued from page 9

But with just ₹6 crore, in a large constituency how much can you really do? You talked earlier of strategic use. Please explain.

First, I should find out what I should be spending on in the district. Do farmers need training, exposure to all the latest agricultural innovations in agricultural universities? You might need a hostel for that – a building, an institution. I can ask the farmers to form a cooperative. The district administration will build the hostel. Farmers will be involved at every stage. The university can send its teachers. The scheme should be practical.

We are currently going through the Fourth Industrial Revolution. The earlier generation lived during the time of ideas. We studied the various revolutions. Gandhiji with his ideas and thoughts converted the Congress into a mass movement. But this is the era of the technological revolution. It is technology that is changing the world. Silicon Valley dictates where we are all headed.

'We have so many institutions of higher education. Is it not their job to solve local problems? Is it not their job to go to fields, train farmers?'

In our country we have so many institutions of higher education. Is it not their job to solve local problems? Is it not their job to go into the fields and train farmers, link them to credit schemes and ensure their lives change for the better?

How can we build institutions that cater to local area development? It is the duty of MPs to do so. This is clear in my mind.

Some time ago the prime minister had suggested that MPs adopt villages. What you are saying is somewhat similar.

I agree. The PM's scheme (Sansad Adarsh Gram Yojana) is an excellent one. You adopt one village and every year spend your entire Rs 6 crore on the village and its development. It has a demonstrative effect. Other villages begin to notice and emulate.

What I am saying is, let's put all this into policy. Alongside, let us ensure that the bureaucracy, in its implementation role, is absolutely efficient and participatory. The scheme's identity is linked with politicians. I have been telling my fellow MPs we are getting a bad name due to poor implementation. Let us find a way out.

You would then recommend a separate implementing agency for MPLADS and a separate policy?

I definitely think that MPs should think through the scheme and include our bureaucrats. Maybe we could set up a think-tank and then take a decision on what can be done to make it a role model of a scheme. We should have the best policy and the best implementation system. ■

A typical recharge well

KODAGU TAKES TO RECHARGE WELLS

Shree Padre
Kodagu

THIS summer was bitter for many homes in Kodagu. Their wells almost dried up before the monsoon broke. But 47-year-old Suraj Ajjikuttira in south Kodagu didn't have to worry.

His recharge well, probably the first one in hilly Kodagu, ensured that his open well had ample water during the dry season.

Buoyed by his success, Ajjikuttira made it his mission to spread his knowledge of harvesting rain through videos, workshops and meetings. People can even phone and ask him. As a result, awareness is spreading and the recharge well is increasing in popularity. Kodagu now has at least 40 to 50 recharge wells.

Ajjikuttira's interest in rainwater harvesting began two decades ago, when his 50-foot well, dug in 1979, started going dry. By 2002 he thought he had no option but to dig a bore well for drinking water. Then, fortuitously, he participated in a seminar on rainwater harvesting in Mysore. He picked up the nuances of groundwater recharge very quickly.

Ajjikuttira went home determined to apply his newly acquired knowledge by recharging his bore well. He dug a 10-foot-deep mini well around it. After filling up the mini well with aggregate matter, he diverted run-off from the nearby area into his bore well. The next year itself, the water level in his bore well rose considerably.

"That convinced me about the efficacy of groundwater recharge," reminisces Ajjikuttira. He doubled his efforts and started a serious attempt to catch all the rainwater he could on his estate. He turned his attention to rainwater falling on his roof, on the vast frontage of his home and the adjoining coffee-drying yard or '*kana*'.

Earlier, all this water used to disappear into a drain. Ajjikuttira now ensured that all run-off got collected at one spot and then flowed out. A leaf separator was attached at the exit point to prevent leaves from clogging this stream of water.

The usual custom is to make a rain pit for such run-off to percolate. But, in this case, the water that was flowing was excessive. After racking his brains, Ajjikuttira dug a recharge well, five feet in diameter, to catch this water. He placed concrete rings along the inner walls of the well 12 feet deep, to prevent its walls from collapsing. The diameter was then reduced. Another six to eight feet were dug and filled with stones to firm up the second stage of the recharge well.

Consequently, rainwater collected from about 1,500 square feet of space goes straight into Ajjikuttira's recharge well and is fully absorbed there. "At the most we get one inch of rain per day. I have designed the recharge well in such a way that even this one inch of water is captured," he explains. The water that is percolating is estimated to be around two lakh litres.

Ajjikuttira's well was 42 feet deep when his father got it dug in 1979. In 1994, when the well dried up, it was deepened by another eight feet and eight rings were fixed on its walls. After that the well never dried up. Even during the 2016 drought, Ajjikuttira's well had eight feet of water. Last year, when wells dried up in Kodagu, Ajjikuttira's well had 11 feet of water.

The recharge well is a new concept invented in Chennai in the 1990s. Later, the idea was embraced by residents of Bengaluru. The city now probably has around 50,000 recharge wells. The sole purpose of the recharge well is to recharge groundwater. The well can be very small in diameter, as low as three feet.

COFFEE AND RAIN: Kodagu district's main crop is coffee. Coffee plants are rain-fed. The first showers or 'blossom showers', received in February and March, are very important for coffee farmers. If it doesn't rain at this time, farmers have to pump up water from tanks and sprinkle or irrigate the plants.

After the blossom showers are over, coffee plants require a second spell of irrigation within 15 to 20 days. These showers are called 'back-up' showers. If the rains fail to arrive then farmers who still have water do a second round of sprinkling.

The water in Ajjikuttira's tank was hardly sufficient for even one round of irrigation. About 200 metres away from his tank is a huge seven-acre tank called Katibetta Kere. This water body belongs to the revenue department. It has a catchment of around 500 acres. But the tank's bund had breached in one area and it wasn't retaining water. Ajjikuttira built a check dam with sand bags in the catchment area so that the tank would retain water and help his own tank absorb some water.

Katibetta Kere is at a higher elevation than Ajjikuttira's irrigation tank. Subsequently, the department built a concrete check dam for Katibetta Kere. Recalls a happy Ajjikuttira, "Since then, this tank has enhanced water availability in my own tank. Now, even if we do three rounds of irrigation, the tank still has water."

Rainfall figures differ across Kodagu district. Ajjikuttira's place receives 54 inches — coffee planters still measure rain in inches — whereas not-so-distant Virajapet gets 70 inches. Wetlands here are dwindling and so is forest cover. Due to various reasons, water availability is worsening in the district. Unfortunately, awareness about rainwater harvesting and groundwater recharge is abysmally low.

Once Ajjikuttira succeeded in augmenting water availability in his estate, he started spreading the idea of water harvesting. In the last 15 years, he has conducted more than 300 awareness sessions on rainwater harvesting in schools, government departments, workshops for citizens and so on.

"In most Kodagu estates, the house is located at a higher level. In the past, the yard for drying coffee beans and paddy used to be built near the paddy fields in a lower area. But due to security reasons the yard is now constructed close to the house. So the typical house would have a large area in front with a drying yard close to it. This entire stretch is either built with concrete or lined with interlocking tiles. So a huge amount of clean water flows on this surface," says Ajjikuttira.

"We need a structure that can hold this run-off and make it percolate fast. I experimented with the recharge well. Although it is expensive, it does the job efficiently."

Suraj Ajjikuttira near a large tank which now collects rainwater

The recharge well is a new concept invented in Chennai in the 1990s. Later, the idea was embraced by residents of Bengaluru. The city now probably has around 50,000 recharge wells. Their sole purpose is to recharge groundwater.

Ajjikuttira is approached by people on the phone or in person for guidance in harvesting rainwater. "If we make arrangements to catch all the run-off from the front area and the drying yard, summer rains alone will ensure the well doesn't dry up," he says confidently. A recharge well costs approximately ₹60,000-70,000.

Ajjikuttira carries out a simple test to check whether the bore well can be artificially recharged. A few barrels of water are kept nearby and poured into the bore well one after another. If the bore well overflows, it indicates that it won't absorb water and recharge. The idea is then abandoned.

SPREADING AWARENESS: Ajjikuttira has put together a three-part video to spread knowledge on rainwater harvesting in Kodagu. Uploaded on YouTube, it tells people how to use rainwater directly, how to recharge defunct and working bore wells and how to use a recharge well for groundwater recharge.

After taking advice from Ajjikuttira, Tej Thammaiah Ajjikuttira constructed a recharge well 10 feet in diameter and 22 feet deep last year. The well is a big one because Thammaiah's bungalow, front yard and '*kana*' spread to about a hectare. The well has cost him ₹130,000.

Thammaiah's open well, 60 feet deep, didn't dry up completely. But by the end of summer it would have only four to five feet of water. Last summer it had 30 feet of water because he followed in Ajjikuttira's footsteps.

Rakshith of Sulagodu is another estate owner who sought Ajjikuttira's advice. He has an open well which is 100 feet deep. It used to dry up in summer and he found it difficult even to provide water to his labourers. He built a recharge well which cost him ₹70,000. Two years later his water woes are over.

"Now I have water up to 25 feet," he says. "By the end of summer, water levels recede by seven to eight feet. I don't have to worry about drinking water for many decades to come."

Soil in Kodagu collapses very easily. Ajjikuttira has noticed that many people dig a recharge pit quite close to the well. "This is highly risky. Many wells have collapsed because pits were dug very close to them. It's always better to locate the pits about 15 or 20 feet away," he warns.

He points out that each estate is endowed with expansive areas from where water can be easily harvested. "The shifting of the drying yard from lower areas near paddy fields to the area adjoining the house in an elevated area has also caused water scarcity in open wells. This is because we cement all these areas and never permit water to percolate." Planters who have realised this are taking corrective measures to allow for percolation.

Coffee estates require huge quantities of water for irrigation to induce flower blossoming. "There are several earthen tanks or *keres* in Kodagu. You can see these tanks on Google earth. But, unlike the old days, tanks are dug unscientifically. The selection of the site should be such that we can divert streams of water into it. Many new tanks don't have this."

Another important groundwater recharge structure in these estates is a legacy of British planters called '*thottilu gundi*' or cradle pits, so called because of the shape. *Thottilu gundis* were systematically and periodically dug and cleaned amidst rows of coffee. They would convert surface run-off from the hills into sub-soil seepage that would reach the tank after many months. "Due to the high cost of labour and poor labour availability, many of us have bid goodbye to digging of this very useful system," laments Ajjikuttira. ■

Contact Suraj Ajjikuttira at 9901012970

Anda Do gets 2 eggs, but says make it 5

Sidika Sehgal
New Delhi

THE Chhattisgarh government has decided to stick by its decision to include eggs in the midday meals in government schools, giving the *Anda Do Abhiyan* or 'Give an egg campaign' a major victory.

Schools in Chhattisgarh started giving eggs to children in February, but protests by the Kabirpanthi sect and the Jain community caused the state government to think again.

Now the government has made it clear it won't backtrack and children will get one egg twice a week in their midday meal.

The *Anda Do* campaign is celebrating its success, but it is also not relenting on its original demand that five eggs a week be given.

The campaign is part of the Right to Food (RTF) movement which has the support of 37 social organisations.

Fourteen states in India now provide eggs in school midday meals and *anganwadi* centres. The number of eggs varies.

Activists point out that the egg is a formidable weapon against child malnutrition, which is widespread in India. According to National Family Health Survey 4 (NFHS) 2015-16 estimates, in Chhattisgarh, 38 percent of children are malnourished. According to RTF, among tribal children, 44 percent are malnourished. Almost 83 percent of the population in Chhattisgarh eats eggs, anyway.

RTF activists have found that the response to the inclusion of eggs, twice a week, has been positive. Children are happier with the meal and eat more willingly. Attendance is higher because many students come to school hungry and look forward to the midday meal.

The case for giving five eggs a week is therefore a strong one. The National Food Security Act of 2013 mandates that the midday meal meet certain nutritional requirements. A primary student is entitled to 450 calories and 12 gm of protein per day, and an upper primary student should get 700 calories and 20 gm of protein. To meet such requirements, a cereal-based diet is not sufficient.

An egg a day keeps malnutrition at bay. All nutritionists affirm that eggs are among the healthiest of foods. They are an excellent source of proteins and contain most nutrients except Vitamin C.

Lentils, *paneer* and milk are cited as alternatives but in terms of nutrition the egg beats the competition.

Government schools in Chhattisgarh will serve two eggs a week to children in the midday meal

A single egg, weighing about 40 gm, has eight gm of protein, much more than 40 gm of lentils or *paneer* or milk. Dr Sylvia Karpagam of the Right to Food campaign in Karnataka points out that children eat small portions and one can't force them to eat more *dal* to get the same amount of protein. A single *dal* doesn't have all the proteins and procuring the right combination to meet nutritional requirements is more expensive than supplying eggs.

There are other problems with alternatives like milk. Milk can be diluted or contaminated and has a shorter shelf life. There is little to no possibility of contamination in a boiled egg and eggs can be stored for longer.

Sulakshana Nandi, a campaigner with the Right to Food movement in Chhattisgarh, says the inclusion of eggs in midday meals became possible because of the change in government after December 2018. The Congress-led Bhupesh Baghel government was more pro-egg than the former BJP government, although this wasn't an election promise.

Organisations like Akshaya Patra Foundation, who have resisted the inclusion of eggs, are not very involved in rural parts of Chhattisgarh. Most of the cooking is decentralised and done by women's self-help groups. Many of these women have young children who benefit from the inclusion of eggs. They are thus willing to cook them, so long as they get the allocated budget on time.

However, only 10 percent of districts in the state are actually implementing the order. There are many stakeholders who determine the menu for midday meals. After the state government's order, the menu needs to be approved at the district level and then at the school level. In most districts, the School Management Committees have not met to take a decision on the order.

There has also been some anti-egg resistance by other groups. On July 16, followers of the Kabirpanthi sect and the Jain community staged protests on the Bhilai highway against the inclusion of eggs. They warned the state government that if eggs are not taken off the midday meal menu, the Raipur-Bilaspur highway will be blocked.

But in states like Karnataka and Madhya Pradesh, the *Ando Do Abhiyan* has had to battle on. In Karnataka, the percentage of children under five years who are stunted is 36.2 percent. Madhya Pradesh and Rajasthan sit at 42 percent and 39 percent, respectively. In Jharkhand, the number is as high as 45.3 percent.

The ruling party is not the only factor. Despite having a BJP government, Jharkhand is supplying eggs to schools and *anganwadis*. Like Chhattisgarh, the state has a large tribal population.

But Madhya Pradesh, with a Congress-led government, is nixing eggs for school midday meals. States like Rajasthan and Madhya Pradesh have a large vegetarian population which resists the inclusion of eggs.

In Karnataka the campaign to include eggs has been going on for nearly seven years with no success. Despite pressure by the State Commission for Protection of Child Rights and civil society organisations, the government has not allowed inclusion of eggs.

The Lingayat community is influential in the state and runs a lot of government-aided schools. They have been lobbying against it and the Congress government was unable to pass an order in the one year it was in power.

However, even though resistance to supplying eggs in schools is strong, Karnataka supplies eggs to pregnant and lactating women in *anganwadis* under the Matrapoorna scheme.

There are alternatives like bananas and milk for those who don't wish to eat eggs and no one needs to compromise on their religious beliefs. Surprisingly, there has been little to no resistance from children and parents who don't eat eggs. They don't mind others availing of the benefit of the *Anda Do Abhiyan*.

Dipa Sinha, a campaigner with RTF since 2001, says that funds are not the problem. States which want to implement the order have found ways to fund the supply of eggs. Chhattisgarh tapped into the District Mineral Foundation's funds for the scheme in June.

Within the existing budget for the midday meal, two eggs can be given each week. The midday meal costs ₹4.87 for primary students and ₹6.46 for upper primary students per day. These are modest sums, investments for a healthier generation of children. ■

Rajokri's lovely wetland is also the STP it needs

Pond and tanks treat sewage in a model many cities could use

Rwit Ghosh
New Delhi

A natural facility created at a cost of just ₹1.8 crore is treating 600,000 litres of sewage each day at Rajokri, a village on the border of Delhi and Gurugram.

This innovative project is a solution for cities struggling to deal with the problem of wastewater and not having the money to set up expensive sewage treatment plants (STPs).

A traditional, mechanised STP gets built for anything between ₹7 to ₹62 per thousand litres of sewage to be treated. In contrast, the natural system at Rajokri comes for just a little over ₹1 per thousand litres — ₹77,19,499 for the treatment part of it and ₹92,47,788 for the architecture and landscaping.

Led by Ankit Srivastava, an environmental engineer and technical adviser to the Delhi Jal Board (DJB), the project was personally monitored by Chief Minister Arvind Kejriwal. It is an example of what can be achieved through political will and scientific inventiveness.

The Rajokri pond is the DJB's pilot project, a template for an ambitious task it has set itself — to revive 159 water bodies and create six new lakes that will raise plummeting groundwater levels in the capital city. The rejuvenation of the Rajokri pond is the first step. The DJB started working on it in 2017.

Rajokri is in a peri-urban locality close to the Delhi-Gurugram border. It suffers from the usual intractable problems associated with unplanned expansion — illegal constructions, encroachments, dumping of waste and local interests resisting change.

All these have been successfully dealt with to transform a derelict pond into a thriving water body, which has also become a recreation spot where the young and old can happily go.

All work on the ground was undertaken by the Irrigation and Flood Control (I&FC) department while the intellectual manpower was provided by the DJB. "On-ground execution, monitoring and troubleshooting were handled by the I&FC," says Srivastava.

The DJB drew up plans, consulted experts and estimated costs. No aspect of the plan was outsourced. But, in a departure from set norms, the DJB approached the National Green Tribunal (NGT).

"When we finished designing the entire project and before starting work, we took our plans to the NGT. We explained what we wanted to do and asked if the NGT had any recommendations for us or any objections," says Srivastava. "This is probably the first time that *suo motu* (on its own) a government department has approached the NGT. asking for approval and their inputs."

The DJB's first step was to clear the pond of historical waste. Dirty water was drained and the sludge that had settled at the bottom was removed. Initially, encroachers were obstructive and hostile. The I&FC faced problems getting excavation machines to the spot and transporting waste.

PLANTS AND A WETLAND: The Rajokri system recreates a wetland based on a model developed by the National Environmental Engineering Research Institute (NEERI). As in a wetland, the system uses stones, plants and microbes to treat water. The DJB chose this method because it is inexpensive and requires little maintenance. Just one person is required on-site to ensure the system works.

The system is divided into two units — the bio-digester and the constructed wetland. Earlier, many small drains would weave their way into the pond. Now, pipelines have been put in place to ensure the waste from the drains leads to a large drain, which in turn goes into the wetland system.

There is a mesh to filter out plastic and other material before the wastewater enters the drain, which leads into the underground bio-digester where finer solids, which haven't been caught by the mesh, are treated. This is done by allowing the water in the bio-digester to stay stagnant for a while before moving on. Gravity does the rest. Fine faecal matter, crushed organic solids, sand and small stones all eventually settle after the water has been resting for a while.

The organic and inorganic matter that settles at the bottom of the bio-digester becomes sludge. The organic portion is digested by a special kind of bacteria in the bio-digester. The inorganic sludge is cleaned every six months. After the water has shed its impurities, it is pumped into the gravel bed of the constructed wetland. Sixty percent of water treatment happens in the bio-digester.

The artificial wetland cleans up the remaining 40 percent of impurities that remain in the water. Dissolved pollutants include heavy metals, kitchen waste and urine. The water passes through the gravel bed, which winds in a zigzag fashion and moves up and down thanks to the engineering of the system. It is important to design the wetland this way to prevent flooding in the system.

A bird's eye view of the Rajokri pond

Ankit Srivastava

Within the gravel bed, unseen to the naked eye, there is a multitude of reactions that happen simultaneously. First, physical filtration. Due to the gravel, any solids which weren't caught in the bio-digester are filtered. The gravel ensures that pollutants like heavy metals stick to its surface. Specific microbes form a bio-film on the surface of the gravel and consume the pollutants.

Different chemical reactions also take place which help in the reduction and removal of nitrate, ammonia, phosphate, heavy metals, antibiotics, pesticides and even old medicine as these are often flushed down the toilet by people.

There are plants at regular intervals in the gravel bed which act as another filter in the wetland. These plants, like yellow canna, red canna, spider lily, cattails, common reed, pampas grass, elephant ear, soft rush and bull rush, are found in natural wetlands. They deal with bacteria through a natural process.

The pond has become a recreation spot for young and old

Biochemical oxygen demand (BOD) is used to gauge the effectiveness of a water treatment plant. A higher BOD indicates a high volume of pollution. At Rajokri, wastewater enters at 250 BOD. Once it has gone through the bio-digester, the BOD level drops to 120. After the water has gone through the constructed wetland and is released into the pond, BOD levels drop to 20, the target figure that the DJB had set for itself.

The DJB plans to lower the BOD even further so that fish can be put into the pond. "We've been instructed by the chief minister to polish the water further, so we will be taking the BOD from 20 to 5. The legal norm is 10, but we will be lowering it much below that," said Srivastava.

To do so the DJB plans to reduce phosphate in the water. That will prevent algae from growing. The current standard, according to the law for phosphate discharge in treated water, is two whereas the DJB plans to bring it down to less than one.

According to DJB estimates, between 20 and 30 percent of treated water percolates to recharge groundwater. Treated water is also used for horticultural activity around the water body. The Rajokri water body and the 9,000-square-metre area which constitutes the Rajokri Lake Revival Project is the only green patch in the surrounding area.

THE UPSIDE OF REVIVAL: What came as a surprise to the DJB and to Srivastava was that the local community decided to involve itself in the redevelopment of the water body. "While work was in motion, the community came forward and requested us to create a partition wall between the main water body and the amphitheatre we had created," says Srivastava. They wanted to keep a part of the pond for performing Chhath Puja. Keeping in mind local sentiments, the wall was built.

Interestingly, prior to redevelopment, residents would use sewage water in the pond for Chhath Puja. "There was a psychological barrier," remarks Srivastava. "They didn't want to use treated sewage water for religious reasons though before that they were okay with conducting their ceremonies in raw sewage."

The barrier has proved to be a wise decision. Prior to redevelopment, the local Chhath Puja only drew 200 to 400 people. After redevelopment, the *puja* attracts a crowd of some 1,800 to 2,000 people.

There have been other desirable outcomes. There is no stagnant water which means that mosquito breeding has been eliminated. The pond no longer smells and no sewage is visible. Thirteen to 15 species of birds have returned to the area.

PICTURES BY SHREY GUPTA

Plants help clean up the water

Apart from the well-manicured garden, landscaping has been designed to prevent flooding. Rain gardens on two ends of the pond ensure that water drains into the pond. Bioswales have been added.

Apart from the well-manicured garden, landscaping has been designed to prevent flooding. Rain gardens on two ends of the pond ensure that water drains into the pond. Bioswales, which are architectural elements designed to remove debris and pollution from rainwater while directing it into the pond, have been added. In addition, a tender has been released by the DJB which includes provisions for a children's play area, an open gym for adults, funds to hire a security guard, a gardener and even cleaning staff.

The community has taken to the redeveloped place quite actively. Forty-three-year-old Ram Kumar comes to take care of the plants at the Rajokri pond every day. "I've been coming here ever since they finished the redevelopment work. If we as a community don't take care of this place, then it'll go back to being the way it used to be. I don't want that to happen."

This is exactly the kind of impact that the DJB was hoping to achieve. "Like our *mohalla* clinics and *mohalla sabhas*, the pilot aimed to empower citizens to run their own civic facilities," says Srivastava.

He is most proud of the fact that the DJB has proved that rainwater harvesting and groundwater recharge in an urban area can be done. What is also impressive is that though the I&FC had never constructed an STP or worked on a water revival project, it plunged into the task and implemented it successfully with the DJB.

Going forward, the kind of sewage system to be built will be determined by the size of the water body. "In Timarpur, we're creating an STP that will take care of 35 million litres per day (mld) of raw sewage. In Rohini, we are creating a 67 mld wetland," says Srivastava. ■

New inventions for disability

PICTURE BY SHREY GUPTA

Winners of this year's NCPEDP-Mphasis Universal Design Awards

Rwit Ghosh
New Delhi

THE winners of this year's NCPEDP-Mphasis Universal Design Awards created devices or services that were scalable and inventive. Some of them were Aneesh Karma's knee ankle foot orthosis which improves gait, Prashant Gade's inexpensive prosthetic arm, Kunaal Prasaad's app which tells visually impaired people what is happening in a movie and Big Bazaar's quest to make shopping more disability-friendly.

At the award ceremony held on August 14, Arman Ali, executive director of the NCPEDP (National Centre for Promotion of Employment for Disabled People), underlined the importance of access for all. He praised the efforts of the awardees. Ali was especially appreciative of the Union Ministry of Information and Broadcasting.

"We would like to appreciate the ministry for playing a proactive role on accessibility and setting an example for other ministries to follow. It's high time people acknowledge that persons with disabilities are not secondary citizens. We have every right to seamless access to all kinds of information," said Ali.

The awards were given in the following categories:

PERSONS WITH DISABILITIES: Aneesh Karma and his wife were both diagnosed with polio and required low-cost drop-lock callipers. Unfortunately, the callipers were uncomfortable and restricted mobility as they didn't allow them to ride cycles, climb stairs or board vehicles. Aneesh designed a knee ankle foot orthosis that improves gait for people with knee-extensor weakness and allows people with weak knees to walk, run, climb stairs and ride a bicycle.

Nekram Upadhyay established the first Department of Assistive Technology at the Indian Spinal Injuries Centre in 2006. He currently heads the department.

Upadhyay has been providing assistive technology services to people with disabilities to ensure that they can live as independently as possible.

Rajesh Sharad Ketkar is hearing impaired and has post-polio paralysis in both limbs. He is a computer science graduate who has taught English and digital literacy to deaf youngsters through Indian Sign Language (ISL). He plans to launch a Gujarati and ISL dictionary online and booklets on deafness with QR codes ensuring linguistic accessibility for deaf persons.

WORKING PROFESSIONALS: Rajni Kant Singh, a physiotherapist for over 25 years, has developed innovative appliances for people affected by leprosy, elephantiasis, podoconiosis and diabetes. When micro cellular rubber footwear was introduced it did not fit those affected by leprosy. Singh introduced the 'Mobile Foot Care Unit' which provides protective footwear close to a patient's home.

Prashant Gade, a young entrepreneur, has invented an inexpensive prosthetic arm after three years of experimenting. It is being used by around 1,000 people. When Gade realised that 85 percent of people without an arm couldn't afford a prosthetic one, he quit his job to create it.

Kunaal Prasaad and Dipti Prasaad invented XL Cinema, an application with a feature called 'AD Movies' which provides an audio description to the visually impaired of what they are watching. They have made their own proprietary glasses that have a non-intrusive system which shows or removes subtitles from screens.

Ankita Gulati is the founder of TouchVision, a social enterprise incubated at IIT Delhi, which designs and develops inclusive learning resources for visually impaired people. Their flagship product, the TouchVision multisensory kit, narrates the content in a picture when a visually impaired person touches it.

Gulati has received a National Award from the president of India for her work.

COMPANIES/ORGANISATIONS: SM Learning Skills Academy for Special Needs has developed CogniAble — an online platform for non-experts to detect autism and ensure affordable behavioural intervention for autism and other neuro-developmental disorders.

People can simply upload a video using the internet. The video is analysed by the academy's proprietary algorithms to make autism screening predictions. An 'intervention service' is also available for parents and schools.

The National Institute of Open Schooling (NIOS) has developed videos in sign language in six subjects at the secondary school level. The open school has 150 videos on English, Hindi, Social Science, Home Science, Painting, Yoga and Data Entry Operations. They plan to develop more videos for the remaining subjects for senior secondary. An ISL dictionary is also available on their website.

Big Bazaar has introduced accessible trial rooms and washrooms. Through their programme, codenamed 'Sab ke Liye', the superstore chain has sensitised their staff to the needs of shoppers with disabilities. They provide shopping assistance, priority queuing and home delivery. Big Bazaar has also conducted India's first Quiet Hour for people with autism across 23 stores.

Robert Bosch Engineering & Business Solutions has designed a Multi-Point Audio Switch (MPAS), an audio device for managing computers, mobiles and desk phones. One of the challenges that persons with visual impairment face to be effective in their jobs is to manage the screen reader when they are on a phone call. MPAS provides a hands-free headset switch that helps you to interact on the phone and manage a screen reader at the same time.

The company is designing a smart headband for the visually disabled which can detect obstacles using feedback from bone conductors (devices which bypass your eardrums).

BleeTech Innovations, founded by Janhavi Joshi and Nupura Kirloskar, has created a wearable band which connects to the user's smartphone and converts sound signals to vibrations and visual notifications. Last year, they launched BleeTV — a digital platform which provides access to information and learning-based content in ISL.

JAVED ABIDI PUBLIC POLICY AWARD: Smitha Santhakumari Sadasivan, a disability rights activist with multiple sclerosis, worked as a consultant with the Election Commission to ensure that persons with disabilities could cast their votes in the general election. She has collaborated with Delhi's Public Works Department to ensure infrastructure is made accessible. Sadasivan also made sure that the UGC provided a Braille question paper to NET candidates who were hearing or visually impaired.

JURY AWARD: The Union Ministry of Information and Broadcasting has been one of the first ministries to make sure television is accessible to persons with hearing disabilities using sign language and closed captioning.

The Rights of Persons with Disabilities Act, 2016 directs governments to take steps to ensure that all content available in audio, print and electronic media is accessible by providing audio description, sign language interpretation and closed captioning.

The Ministry has already added deaf commentators. They were broadcasting live on Doordarshan TV during the quarter-final and semi-final matches that India played in this year's cricket World Cup. ■

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LOOK WHO IS CHANGING INDIA

RITA & UMESH ANAND

THE work of bringing out a magazine is ceaseless and deadline driven. We go from one issue to the next while trying to give readers something new and interesting each month.

Over the past 16 years, *Civil Society* has met and reported on thousands of people all across India. Defined as we are by our motto, 'Everyone Is Someone', we look for those seemingly ordinary folk doing great things.

These are people with ideas and passion. They are invariably focused on the impact they can see and have little interest in the larger significance of their efforts and the possibility that there could be others elsewhere interested in replicating them. Publicity certainly is the last thing on their minds. In fact, their stories might just have never been told if *Civil Society* magazine hadn't turned up.

We immerse ourselves in these stories while doing them, but people and events soon fade from memory. As journalists we are wired to move on. It is always the next story that interests us. It really can't be otherwise.

Even when we have wanted to, it has been difficult to keep track of people we have covered. For instance, with an event called 'Game Changers' we brought cover stories alive for Delhi audiences long after they were published. It provided an opportunity to know how these stories had progressed since the time they had appeared.

Game Changers was hugely popular and drew packed halls at the Habitat Centre. But, as a small organisation, we lacked the stamina to continue. It was a whole lot of additional work for which we had neither the staff nor the money.

With the Civil Society Hall of Fame we have been more consistent. It was started on impulse and has grown in association with the Azim Premji Foundation. The idea came out of this magazine's frustration with the government's national awards, which seemed vacuous and narrowly selective. We wanted ordinary people to be recognised for the good work they were doing. The Hall of Fame was a device by which citizens could felicitate citizens — a warm and affectionate hug.

The Hall of Fame was started when we were six years into publishing *Civil Society.* Now it is all of 10 years since we got it going. Each year an independent jury has chosen six or seven names from a much longer list. It has always been a difficult choice.

The few who get chosen are featured in our special anniversary issue and feted at an event. But, to be quite honest, we don't know much about what happens to them after that — though almost certainly they have gone on to do much more and would be worth following.

It is against this background that we have decided to do a Mega Hall of Fame this year. A decade of the Hall of Fame is a good juncture to create a record of all those who have figured in it.

It is also an opportunity to remember people who were not in the Hall of Fame but whose work we admired and wrote on. Some of these remarkable people have passed away and may soon be forgotten. We would like to keep their memory alive because they were significant change leaders in their own spheres.

Anupam Mishra, for instance, did invaluable work in understanding traditional water harvesting systems. He died in December 2016. He couldn't figure in the Hall of Fame because he was always a member of the jury and was on the advisory board of *Civil Society.*

But Anupamji spent a lifetime exploring and documenting the ways in which communities meet their own water needs. His work was invaluable and he would have been the perfect resource as the country embarks on a water mission. While he lived he had many admirers throughout India. These were individuals and community groups and activists who espoused his ideas on water harvesting and decided to propagate it. But not so much governments and, of course, there was no Padma award of any kind for him.

At this Open House in Hyderabad anyone can walk in for a meal

The Hall of Fame is an attempt to provide a snapshot of change. People from all walks of life are featured. In these multiple small efforts lie the solutions to larger problems.

Dhrubajyoti Ghosh passed away virtually unnoticed though he made a huge contribution to Kolkata by vigorously demanding and getting environmental protection for the wetlands on the eastern draining board of the city. Dhrubajyoti was a friend and we did a cover story on him. His efforts to preserve the wetlands of East Kolkata will have a relevance to waste disposal in Indian cities far into the future. He was a visionary.

Dipankar Chakraborti, similarly, was a scientist way ahead of his time. He was presenting data on urban air pollution in the 1980s and his latter years were spent in an exhausting confrontation with the West Bengal government on arsenic in groundwater.

There was also Gyarsi Bai from Rajasthan who fought for the land rights of the Sahariya tribal community. She was in our second Hall of Fame and passed away recently from a heart attack. Though a courageous and remarkable woman, there was scant mention of her death in newspapers or on social media.

The past 16 years have witnessed innumerable important social initiatives. The right to information became a law, rural employment guarantee arrived, the right to education and food became a reality. These were major outcomes from campaigns that sought balance in an economy that was rapidly moving in the direction of market-based solutions.

At *Civil Society* we had a ringside seat on these developments and reported on them as they unfolded. Our first issue in September 2003 was on RTI and it had the then unknown income-tax officer Arvind Kejriwal on the front cover. He had taken leave from the revenue service to experiment with activism. Aruna Roy and the MKSS were part of that story. Aruna, in fact, wrote an essay on democracy, which appeared on the last page of the issue.

We were quick to figure out Special Economic Zones (SEZs) for the disguised land scams they were in most instances. We reported that SEZs were a costly mistake and that is what they turned out to be.

But less visible transformations were also taking place and adding up. Liberalisation was encouraging people to think differently as the economy opened up and globalisation connected India to the rest of the world. Companies were becoming more socially aware and accountable, the spirit of voluntarism was growing and an increasing number of entrepreneurs were trying to build socially impactful businesses.

India was changing in more ways than one. As we looked around we found architects, doctors, lawyers, government officers and teachers seeking to make a difference through their own lives and professions. A much needed sense of inclusion and fraternity was emerging.

The Hall of Fame is an attempt to provide a snapshot of this change. People from all walks of life are featured. Many of them belong to remote corners of the country. Others swap the good life they have in big cities to work at the grassroots. All of them pursue their goals against great odds.

In these multiple small efforts lie the solutions to the larger problems of development. Allowing social innovators to flourish, learning from them and helping them learn from each other is to everyone's advantage. Governments, which invariably fail when it comes to connecting with people, would do well to embrace problem solvers in the social sector as a creative force.

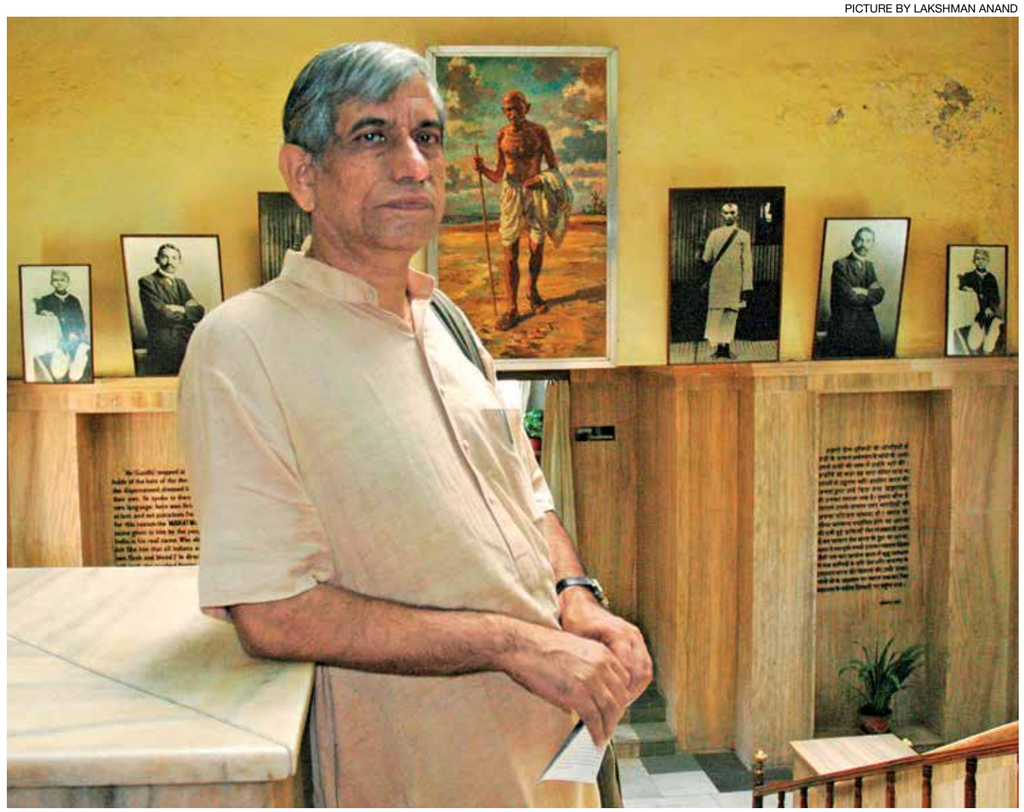
We have found that our readers are keenly interested in solutions. They want to know what works even if it is at the other end of India. It could be a water harvesting system, something to do with garbage disposal, shared transportation or primary healthcare. Such is the governance deficit across the country that people are increasingly finding their own solutions and looking to each other to know what works.

The Hall of Fame puts the spotlight on such successes in the belief that celebration of a small effort could mark the beginning of a big solution.

We are often asked why there is very little about politics in our magazine. We don't want to be providing the same coverage that is all over TV and newspapers. It is by bypassing the establishment and commonplace media interests that we find our stories. So it was that we were talking to Zakia Soman long before triple *talaq* became a headline. We had stories on affordable healthcare and housing when private hospitals and developers hadn't yet got the bad name they now have. Similarly, we were on to public transport and electric vehicles much ahead of others in the media.

Development needs to break free from stereotypes. It should be bipartisan given the catching up that has to be done. The best results have been coming from creative partnerships involving the government, NGOs and the private sector. It is a pooling of skills and resources that is required. The Hall of Fame is full of such examples. ■

PICTURE BY LAKSHMAN ANAND



WATER GURU

Anupam Mishra

1948 - 2016

"Water harvesting is not some ATM into which you can put a card and get water," said Anupam Mishra in what was perhaps his last big interview to *Civil Society*.

He was a serious man with a wacky sense of humour. He knew how to strike that balance — always downplaying the dedication with which he pursued his valuable research into traditional water systems in India.

As India struggles with the contradiction of conquering water scarcities and coping with floods, it is the research that Anupam did over three decades that is more relevant than ever. His book, *Aaj Bhi Khare Hain Talab*, is a water-harvesting manual which has been translated into innumerable languages and distributed in tens and thousands of copies.

A believer in small efforts, he found the extraordinary in the ordinary. He looked closely at the wells and tanks and other structures that people in villages created. He went deep into their lives. Communities were as water-rich as their lifestyles permitted.

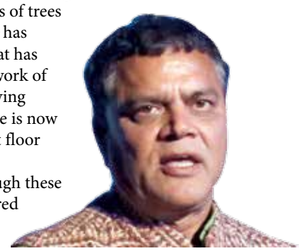
His room at the Gandhi Peace Foundation in Delhi was an extension of his personality, as indeed it had to be because it was here that he spent a lifetime. It was full of interesting bric-a-brac derived from all over. A collage of Gandhi images covered the cupboard. A mirror in a frame of discarded waterpipes hung on the wall. On his chair was a sticker from somewhere saying: 'Power without purpose'.

It was from this room that he brought out the simple and beautifully laid out *Gandhi Marg*. He would labour on each article to shape it to perfection, reading the proofs with wife Manju and then seeing to the mailing.

PEOPLE'S FORESTER

Sachidanand Bharti

Uttarakhand's hillsides are cursed with forest fires in the dry summer months. But not so in Ufrainkhal in Pauri Garhwal district. The reason is that Sachidanand Bharati, a college teacher, has encouraged villagers to grow local species of trees instead of pines. He has also led an effort that has brought back a network of water bodies of varying sizes. The forest here is now dense and the forest floor moist.



Bharati has, through these interventions, ensured that rainwater no longer just flows away. He mobilised the community to dig 12,000 *chaals* in 136 villages in which rainwater could collect. It was the perfect solution and relatively easy to do.

The Doodhatoli Lok Vikas Sansthan was founded by him in 1982. It is financed and driven by the community. The first three members of the organisation, a postman, an Ayurveda doctor and a shopkeeper, helped Bharati spread ecological and social messages.

Bharati's solutions are not new, only forgotten. Today, Ufrainkhal's forests are better than those maintained by the forest department.

ENVIRONMENTAL SCIENTIST

Dipankar Chakraborti

1943 - 2018

In the 1980s, long before India had woken up to the problems of automobile emissions, Dr Dipankar Chakraborti, then a young professor of chemistry, was out on the streets of Calcutta collecting air samples. He would test the samples during his teaching stints in Europe and bring the worrying results back.

He warned of cancer and asthma and the generally debilitating effects of air pollution. Back then no one was listening, but many of his concerns came true for Calcutta.

Dr Chakraborti was an insightful and public-spirited professor. He forayed far out of the classroom and into the real world, fearlessly shaking it up.

He sounded alarm bells over the presence of arsenic in groundwater in West Bengal and Bangladesh. Later he also found eastern Uttar Pradesh to be affected. He was pilloried by politicians who didn't want a problem they didn't know how to fix.

When he died in 2018, he had withdrawn from the School of Environmental Sciences that he had turned into a powerhouse of inquiry and useful research. Most tragically, he had begun losing his memory, but he was fit enough to dance in the rain on his terrace months before his end came suddenly.

PICTURE BY PRASANTA BISWAS

ENGINEER-ECOLOGIST

Dhrubajyoti Ghosh

1946 - 2018

If the magical East Calcutta Wetlands are surviving, in whatever truncated form, the credit should go to Dr Dhrubajyoti Ghosh. For more than three decades he tirelessly campaigned for the wetlands to be recognised as a priceless resource recycling system — taking waste from the city in the form of sewage and giving back food in the form of fish and vegetables.

When he took up this cause, he was a civil engineer in the Public Works Department. For someone on that dry and constricting perch, he surprisingly also saw the world in its many complexities. Visiting the wetlands extensively, he unravelled their value as he went from fishery to garbage garden. For him, theory was all about practice. In east Calcutta he immersed himself in the science of a traditional system.

RAIN MAN

Laxman Singh

The village of Laporiya in Jaipur district, Rajasthan, gets just 300 mm of rainfall in a year, but it is not deficient in water. How does that work out? It is thanks to conservation and controlled community-based consumption.

It wouldn't have been possible if Laxman Singh, more than two decades ago, hadn't decided to save his village through water harvesting, growing appropriate crops and stopping the use of pesticides.

He saw survival in restoring nature's balance. In bringing back the water cycle. Trees were needed. So too animals and birds.

Since Laporiya needed its pastures and there wasn't the space to build too many tanks, Laxman Singh devised the *chauka*, which consists of ridges of mud in a rectangular shape, to keep rainwater standing and allow it to percolate into the ground.

Laporiya's fields are full of crops. From its tree cover you wouldn't imagine that it lives in constant combat with drought. Laxman Singh has shown what communities with very little water can do to get nature back on their side.

PHYSICIAN

Ravikant Singh

When calamities strike anywhere in India, almost always it is Doctors For You who turn up. It has been so from Chennai to Kashmir, to Uttarkashi and Bihar. These are good physicians who literally put their lives on hold to be where they are needed.

Dr Ravikant Singh, or Ravikant as he prefers to be known, started Doctors For You in 2007 when he was still a medical student at KEM Hospital in Mumbai. There was a dengue and leptospirosis outbreak and platelets were needed.

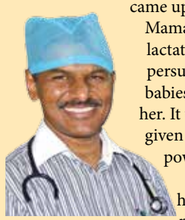
Ravikant ran a campaign that brought in blood donors and the lives of 30 or 40 patients were saved. He has since been in campaign mode and Doctors For You has grown and attracted passionate physicians to its ranks. It is all about practising medicine for people.

PHYSICIAN

Damera Yadaiah

It was Dr Damera Yadaiah's team at the Special Care Newborn Unit at the Nalgonda District Hospital that nursed 650-gramme Mamatha back to health. She was a premature baby and it took six long months for recovery.

It was the first case of its kind and Dr Yadaiah came up with creative solutions. Mamatha's mother was not lactating enough and he persuaded mothers of newborn babies to donate some milk for her. It was essential that she be given breast-milk and not powder milk.



Rules at government hospitals do not allow newborn babies less than a kilo to be admitted. But Dr Yadaiah believes that medicine is about serving society. He is dedicated to serving ordinary folk who can't pay fat bills in private hospitals.

The care that would have cost Mamatha's family a tremendous sum at a private hospital cost them nothing at the district hospital. The Special Care Newborn Unit was set up at his insistence and he has been able to provide high quality neonatal care to over 7,000 babies since 2008.

LIFE COACH

Sathyanarayanan Mundayoor

There are many surprising things about Sathyanarayanan Mundayoor aka Uncle Moosa and often just Uncle Sir to many. First is that he is a Malayali who has spent his life with the tribal people of Arunachal Pradesh. Second is his frail bird-like presence and frugal subsistence — he literally carries his world with him as he goes from home to hostel in Arunachal's towns and beautiful villages. Third is the lasting impact he has had on educating and empowering girls and boys through his Lohit Youth Library Network, which serves to promote books and a sense of community at the same time.

Small libraries at remote locations reach deep into Arunachal where rivers and valleys make access difficult. So, the smaller and more distributed the better. Often, the books go home in search of readers instead of the other way around. But there are also the biggish locations such as the Bamboosa Library in Tezu where a new building has just been inaugurated. There are also the libraries at schools.

A library comes with many possibilities. It provides opportunities for bonding, book-reading sessions, enacting of small plays. It helps young people discover themselves and grow in confidence.

Uncle Moosa arrived in Arunachal as a young man in 1979 to work at one of the schools run by the Vivekananda Kendra. In 1998 he decided to grow the libraries as a social movement. The libraries are supported by donors and the books too are donated.

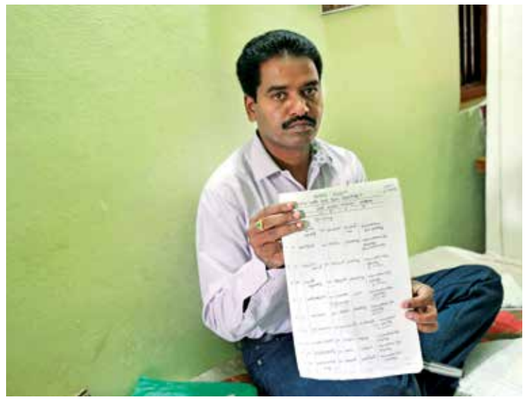
REFORMER

Zakia Soman

There is the Triple Talaq Bill and much before that there was Zakia Soman, fighting for the rights of Muslim women. Back then she was a trenchant critic of the BJP. But currently she is a champion of the bill moved by the Modi government. She also believes a codified Muslim family law is the need of the hour. She is among the Muslim women who are happy with triple *talaq* being made a punishable offence.

Soman became the champion of Muslim women's rights when she founded the Bharatiya Muslim Mahila Andolan (BMMA) in January 2007. "I realised that Muslim women need to be empowered to combat communal forces and fight the patriarchal, fundamentalist and feudal forces within their community."

Soman has been able to successfully mobilise Muslim women to fight for their rights. In the past dozen years, 70,000 women have become members of the BMMA. It plays an extremely important role today given the consistent attempt to drown out Muslim voices. Zakia Soman's voice is still loud and clear.



SUICIDE LISTER

Puli Raju

Puli Raju, a government schoolteacher in Medak district in Telangana, has been keeping track of farmer suicides since 2004. With proper documentation like the death certificate, his list of farmers who took their own lives sits at 1,800. However, many farmer suicides go unreported and the figure could be as high as 3,000. When he filed an RTI application, he found that the official figure is 1,474. Why were such a large number of deaths not in the official records? "The government prefers escapism. It gives smaller numbers because it does not want its reputation tarnished," says Raju.

Raju is more than a record-keeper. He tries to do as much as he can to help families shaken by the distressing death of a breadwinner. The families have to deal with moneylenders and banks. There are bills to be paid.

When a farmer named Kishtaya committed suicide, his wife, Yadamma, wanted her sons, Sandeep and Sandesh, to stop going to school and help her in the fields. A teacher at the school, Papi Reddy, stepped in to pay the boys' fees.

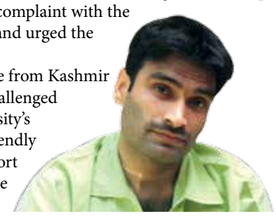
The government is far removed from such personal trauma and it is people like Puli Raju and Papi Reddy who help in their individual capacities.

DISABILITY ACTIVIST

Javed Tak

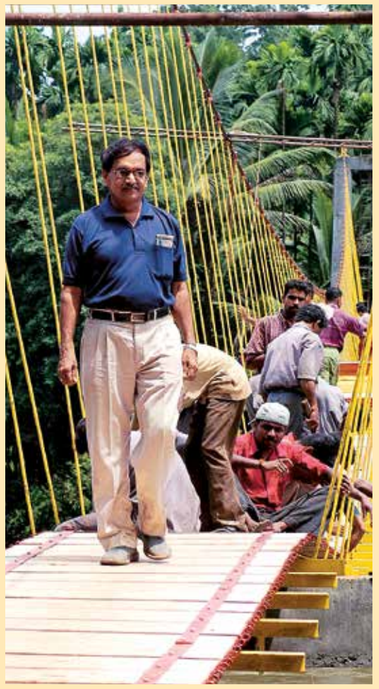
Javed Tak's journey after a bullet hit his spine in 1996 shows just how much one can do whilst in a wheelchair. After the accident, he dedicated himself to the welfare of people with disabilities.

When he found that the state government was not doing much to help leprosy-affected people, he filed a complaint with the State Human Rights Commission and urged the government to act on it.



While pursuing a master's degree from Kashmir University, he helped physically challenged students form a union. The university's infrastructure was not disabled-friendly then but due to Tak's persistent effort now there are ramps at the entrance of all buildings. A PIL filed by Tak resulted in implementation of Jammu and Kashmir's Disability Act.

Tak is from a low-income family and his parents had expected him to become a doctor. "I was keen to help others at that age," Tak says. He hasn't diverged from this mission — he has been running the Humanity Welfare Organisation Helpline since 1999 and runs a school for children with disabilities.



BRIDGE BUILDER

Girish Bharadwaj

An engineer can transform lives. Girish Bharadwaj learnt that by sheer chance and stayed hooked. When he got his mechanical engineering degree as a young man he hoped to find a good job and settle down in a big city. Things didn't work out that way. Instead he had to set up a workshop in his village in Karnataka's Dakshina Kannada district.

One day a forest officer asked him to build a small hanging bridge in Kodagu district. Despite having no experience in building bridges, Bharadwaj took on the work and hasn't looked back since.

He saw for himself what a difference a bridge makes to the lives of people. Many villages in Karnataka and Kerala used to spend months in isolation because they were unable to cross rivers. It means the inconvenience of long detours and the loss of livelihoods. It is even difficult for families in such villages to get marriage proposals.

Bharadwaj's first low-cost suspension bridge was built in 1989. After that he has built many. He has found ways of bringing the cost of constructing a bridge down. Community labour is one of them.

His work as a grassroots engineer has got him a lot of appreciation from villagers whose lives he has changed. His bridges allow them to take their produce to the market, drop their children to school and so on. In 30 years, Bharadwaj and his team have worked untiringly to build over 120 bridges across the country.

ARCHITECT

Ratish Nanda

Humayun's tomb and other monuments in the Nizamuddin area of Delhi have been elaborately restored in an effort that would do any world-class city proud.

It has taken all of 15 years, but the historic structures, together with their gardens and water systems, have been uniquely brought back to life.

The Aga Khan Trust for Culture (AKTC) has collaborated with the Indian government for this initiative. There has been private sector funding as well. But driving the idea and brilliantly making everything happen has been the public-spirited architect Ratish Nanda.

Nanda has led a team of diverse modern talents. He has also ferreted out traditional craftsmen. Jointly they have recreated long-lost nuances in construction techniques and design. Nanda has shown entrepreneurial resolve in getting government permissions, raising funds and garnering social support.

Nizamuddin is the cradle of Hindustani culture. Its architecture, food, music and poetry speak of India's inherent pluralism. You will find Mirza Ghalib's tomb here. But the Nizamuddin *basti* over time had become a crumbling slum. The project has brought to the *basti* education, livelihoods, better sanitation and healthcare. It has thereby taken conservation into the complex terrain of urban renewal. "We see conservation as a tool. It is not an end in itself," says Nanda.

SCIENTIST

Prasanna Rajendran

Agricultural research stations of the government are normally so mired in neglect and sloth that no one bothers too much with them. With Dr Prasanna Rajendran it has been different. He has gone much beyond his calling as a scientist to turn two agricultural research stations in forgotten corners of Kerala into profit centres bustling with activity.

First was the Annakkayam Cashew Research Station in Kerala's Malappuram district. Then was the research station at Ambalavayal in impoverished Wayanad district. It took 10 years, but both stations became profit centres and began reaching out to thousands of farmers. They also began generating jobs for the local people.

PHYSICIAN

Evita Fernandez

Evita Fernandez is literally married to her profession — she chose to remain single so that she could focus on her work. By the time she was eight, she knew she wanted to be a doctor. At 16, she decided she would dedicate her life to caring for pregnant women.

Fernandez inherited this passion for medicine from her doctor parents who ran a modest two-bed nursing home in Hyderabad. Fernandez expanded the nursing home to a 225-bed hospital. Today, Fernandez Hospital is at five locations in Hyderabad. She also devotes her time to a training programme for nurses and midwives.

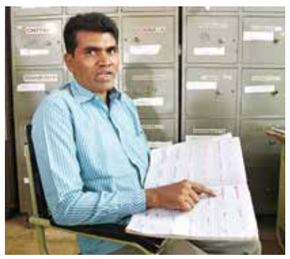
Fernandez has been immensely successful, but she doesn't just run the hospitals for profit. Her ethical foundation is also an inheritance from her parents. At her hospitals, patients are not given unnecessary medicines or treatments.

Fernandez has been known for making her patients feel special and safe. She strongly believes in the need to make good quality healthcare accessible to all. HIV-positive women are treated for free. Patients who can't pay are not turned away.

Fernandez's rare brand of medical care goes beyond good quality treatment. It is ultimately defined by empathy for her patients.

RIGHTS MAN

Beeram Ramulu



In Warangal district of Telangana, Beeram Ramulu uses the Right to Information law to access government records on farmer suicides. The issue is close to home. Ramulu is a farmer himself. He has become an activist fighting for farmer rights and helping families affected by farmer suicides.

He has been maintaining a register of farmer suicides in Warangal district since 2008. His number is much higher than official records due to his diligence. There is much that the State can do but doesn't.

However, until then Ramulu's assistance to the people of Warangal is invaluable. He is helping families cope with the challenges they face after these personal tragedies. With civil rights groups like Caring Citizens' Collective, he has been pivotal in spreading awareness about the government's support schemes and helping farmers transit to more sustainable farming practices.

Ramulu is slightly better off than other farmers — he is educated, has four acres and is more aware of the implications of farmer suicides. But, most important, being a farmer himself, he understands what needs to be done and is doing it.

INVENTOR

Chintakindi Mallesham

Chintakindi Mallesham has revolutionised the way the famous Pochampalli silk sari is made in Andhra Pradesh. He has invented and patented a machine which has cut to one-third the time needed for processing the thread for weaving a sari on a loom.

It was his mother, Lakshmi's plight that moved Mallesham to invent a mechanised version of the traditional Asu machine which women weavers used to process the thread.

Lakshmi lost vision in her right eye and has a severely damaged shoulder because weaving the sari the traditional way is an arduous task and puts immense pressure on the shoulder and the eyes. When it was time for her sons to start working, she told them to find another career.

Mallesham had studied only up to Class 10. He took on the work of an engineer and put together the machine after failing multiple times. Mallesham has replaced the woman's arm with a mechanical one which winds the fine silk thread on the pins and offers a choice of settings. A sari can now be completed in three days instead of five.

The weavers of Pochampalli are happy — they can produce more saris and their incomes have gone up, all thanks to Mallesham who now has his own company called Shanker Engineering Works.

GHAT GUARDIANS

Archana Godbole & Jayant Sarnaik

Archana Godbole, a botanist, and Jayant Sarnaik, a public-spirited nature lover, have redefined the economics of conservation. Their organisation, Applied Environmental Research Foundation (AERF), pays families to conserve forests that grow on their land.

Godbole and Sarnaik work in Ratnagiri district of Maharashtra in the North Western Ghats, a region replete with sacred groves, rambling forests and hoary trees. Vast slopes are privately owned. When families are in need of quick cash, they cut trees. AERF pays them the same amount they would have earned had they felled those trees.

"For conservation to be successful it has to make economic sense," says Godbole. Their unique approach has worked. Till 2017, more than 5,000 acres of forest land was secured. The aim is to secure 10,000 acres by 2050.

The Western Ghats are one of 34 biodiversity hotspots in the world. Godbole and Sarnaik are ensuring that it retains its priceless status.

SEED-KEEPER

Begari Lakshmamma

In Humnapur village of Telangana, no farmer buys seeds from seed companies. They don't need to, because Begari Lakshmamma's seed bank has 60 to 70 varieties of native seeds. The objective of the seed bank was to reduce dependence on seeds manufactured by companies and to conserve native varieties. Nearly half the village borrows seeds from her. Some from adjoining villages also make the journey to her doorstep to pick up seeds.

Lakshmamma's seed bank was set up in the early 1990s with the help of the Deccan Development Society (DDS). When the villagers were looking for the custodian of a seed bank, her name was recommended with overwhelming consensus. She is a single mother and a Dalit and respected in the village community.

Her seed bank is her first passion. Filmmaking is the second. She combines the two by making documentaries on farming practices. Lakshmamma has worked on more than 300 documentaries and has travelled to film festivals in Canada, Thailand and Germany.

SCHOOL EVANGELIST

R.S. Praveen Kumar

As secretary of Telangana's Social Welfare Residential Schools, Praveen Kumar is much loved and admired. A tall, lean man with a shaved head, Praveen radiates positive energy. He cuts an inspirational figure for children at the schools.

They particularly identify with him because he comes from grinding poverty like they do. Praveen's mother was a labourer. But he studied at a social welfare school, like the ones he now administers, and went on to become an Indian Police Service officer. He had a distinguished service record.

Now at the schools by choice, he strives to help children from poor homes realise their potential and compete in the world on equal terms.

It is important that they speak only English. Girls and boys get the same opportunities. They learn horse riding and public speaking.

Funded entirely by the Telangana government, the residential schools are drivers of massive social change.

To forget their marginalised past, the students call themselves Swaereos — social welfare plus aero or someone who can fly. Each morning they recite the 10 commandments of a Swaereo and at night before sleeping they say: 'I shall not give up'.

Their transformation shows up in multiple ways. It could be climbing Mount Everest or getting admission to Delhi University.

PHC SPECIALIST

Jogesh Kumar

Most young doctors dislike working for the government health system in rural areas. But at the age of 25, Dr Jogesh Kumar embraced the challenge of working in a remote corner of Rajasthan. In five years he turned around the derelict primary health centre (PHC) at Gida in Barmer district into a sparkling, efficient facility. The local people could now get dependable primary level care here.

When his tenure ended after five years and he finally left to work at the district hospital, his patients showered him with gifts and wished him a tearful goodbye. It was an emotionally charged parting. And when he goes back now, they greet him warmly.

The PHC had a leaking roof and no systems when he took over. But under his supervision, the health centre got a modern delivery room, a pharmacy and a path lab. Patients' records were put into a computer. They were assured of medical assistance even at odd hours. There was also much that he did that went beyond the call of duty as a physician. For instance, he got the PHC's roof repaired and tiled. A water harvesting system was installed — crucial in water-deficient Rajasthan. "I wanted to do such a good job that people would remember me for my contribution," he says. He has and they do.

TEACHER

Ramesh Gharu

Ramesh Gharu is a charismatic teacher and his classroom at the government school at Siyani village in Rajasthan is always packed with children hungry to learn. He knows how to keep them hooked by using an array of self-made toys for learning such as doughnut rings from polythene to explain weight distribution.

Gharu's teaching style is far removed from the compulsions of a syllabus. He is innovative and passionate and connects completely with children. He is both a teacher and a performer.

Gharu is from the lowest rung of the Scheduled Castes. His parents were *safai karamcharis* and when he was young, he helped his parents when they went out to clean toilets. Education has emancipated him, and he understands what it can do for his students.

HEADMASTER

Gautam Sharma

A school needs good teachers to serve its purpose, but it also needs good administrators. Gautam Sharma is that. In Bool Gaon, in Rajasthan's Barmer district, Sharma is responsible for the transformation of a government school.

Sharma has made sure that the school has a compound wall, running water and separate bathrooms for boys and girls. These contributions may seem small but they have gone a long way in improving the school's infrastructure.

Getting teachers to plan how they are going to teach courses over the year, and setting up a system to review their progress have improved the quality of education. Students no longer travel 20 km to a private school. With leadership and simple solutions, Sharma has brought Bool Gaon's government school on a par with a private school.

LABOUR LEADER

Gyarsi Bai

1960 - 2018

When Gyarsi Bai died in 2018, Baran district in Rajasthan lost an important local leader. She belonged to the marginalised Sahariya community, but she overcame this disadvantage to fight for the rights of Sahariyas, who lost their land in the absence of records to prove their ownership.

She symbolised the aspirations of her community and their longing for a life of justice and dignity. She fought for the right to work, the right to food and the right to know. Gyarsi worked with officials at the district and state levels to ensure that the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) was implemented and the Right to Information secured.

It was Charumitra Mehru and Moti Lal, two social activists with Sankalp, who recognised Gyarsi's skill in communicating with people. They were responsible for Gyarsi's interest and engagement in social issues. In 2002, when the Jagrut Mahila Sangathan was formed, Gyarsi was made its treasurer.

She married young and into a debt-ridden family. At a young age, she became responsible for running the family. Her activism was fuelled by the immense hardship she underwent.

In later years, she devoted herself to freeing bonded labour, unafraid to challenge the traditional centres of power.

HERBALIST

Boya Pedda Rajanna

Boya Pedda Rajanna is a traditional veterinarian with vast knowledge of animal medicine. The fact that he dropped out of school after Class 3 doesn't matter. He learnt animal medicine from his father who had learnt it from *his* father.

Villagers of Golla in Andhra Pradesh turn to Rajanna when their animals fall sick even though there is a government veterinary clinic with a qualified vet nearby. Perhaps it is because he never says no, even if they knock at his door in the middle of the night. He travels 200 days a year to villages around Golla to treat sick animals, for no fee.

Rajanna holds a patent for his cure for mastitis and has been honoured by the National Innovation Foundation. Formal education has not stood in his way. His family is obviously not happy because they are a farming family and his absence doesn't help. But Rajanna selflessly trudges on to far-off villages to ensure that the animals are healthy.

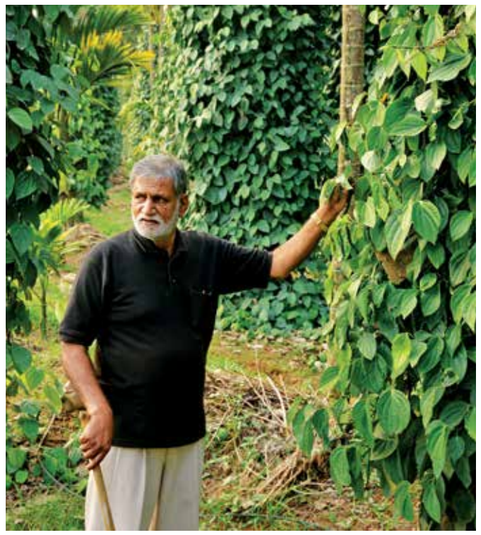
RURAL SURGEON

Sitanath De

Dr Sitanath De, a Fellow of the Royal College of Surgeons, could have earned crores. But his early childhood experiences of assisting his doctor uncle in their native Jhargram lured him back.

In 1971, when he realised that he was meant to serve the ill in a rural area, he moved back from England and rented an abandoned bungalow which was to later become a nursing clinic. There was no X-ray, no ECG machine but Dr De never felt that things were too difficult. During his stint in the UK, he had learnt ways to operate with minimal equipment.

"Our physicians and surgeons should be trained to meet local conditions and needs," he says. The Association of Rural Surgeons of India (ARSI) was born of the need for a forum to find better ways to deliver safe and affordable surgery in rural India. He has shown the way with his successful practice of over 40 years.



SCIENTIST

M.N.R. Venugopal

Dr Madhugiri Narayana Rao Venugopal, a scientist with the Indian Council of Agricultural Research (ICAR), was living a retired life when a farmer urged him to share his immense knowledge with people who needed it.

Dr Venugopal then stepped in to not just help but also play a transformative role by showing how pepper could be profitably grown on coffee and areca nut plantations. He began travelling 12 to 15 days a month across five districts in Karnataka. With his guidance, farmers have been able to increase their yield and income. He has also helped farmers set up gene banks and improve the quality of plants.

In return for all his help, Venugopal expects nothing from the farmers. He is a humble man and says that his pension is enough for his family. But the farmers have always felt indebted. So, when he fell seriously ill in 2015, farmers contributed to pay the hospital bill.

SPEECH THERAPIST

Aziza Tyabji Hydari

Aziza Tyabji Hydari was teaching in schools for deaf children for nearly a decade when she left her job in 1986. The centre she set up, Aural Education for the Deaf (AURED), was an experiment with auditory aural therapy.

A cochlear implant or a hearing aid is not enough because the child doesn't recognise sounds. At AURED, therapists help develop recognition of sounds and reactivate the circuit between the ear and the brain.

The leap she took has been hugely beneficial for children with hearing disability. She began in her kitchen, but now AURED is a proper facility at Mahalaxmi in Mumbai. More than 800 children have been helped to speak and live normal lives. Their success stories abound. Many of them come from the poorer parts of Mumbai. No one is turned away.

PARENT AS THERAPIST

Kim Chaddha

In 1994, when Kim Chaddha found that her daughter was quite deaf, she was devastated. When her daughter was four, she discovered AURED in Mumbai and through auditory verbal therapy her daughter can now hear and lives a perfectly normal life.

Chaddha is a therapist herself today, but the journey from a devastated parent to a therapist was not easy. It was Aziza Tyabji Hydari who convinced Chaddha to train as a therapist. There was no therapy centre in Hyderabad then and she would be giving deaf children access to therapy that could change their lives.

Since then, Chaddha has worked with her patients on a one-to-one basis. She's worked with over 150 children. She brings her experience as a parent to bear on her practice. She can understand what the parents are going through, and acts as a sounding board for them.

Chaddha runs an AURED centre in Hyderabad today. She was reluctant to become a therapist but her work has been very fulfilling.

RTI CAMPAIGNER

Shankar Singh

Shankar Singh has played a key role in spreading awareness about the Right to Information (RTI) law in the villages and cities of Rajasthan. In 1997, when the Mazdoor Kisan Shakti Sangathan (MKSS) rolled out the Ghotala Rath Yatra in Jaipur it was Shankar's brilliance as a performer that brought RTI alive for ordinary people. Along with Aruna Roy and Nikhil Dey, he is a founder of the MKSS. While others lobbied the system, Shankar showed how to happily take the message of transparency to the streets.

Shankar gave up the opportunity of being a government schoolteacher so that he could be an activist. In 1994, he came up with the concept of a public hearing or *jan sunwai* to communicate information regarding public funds to the ordinary citizen. Communication is obviously essential to public life, but Singh is truly a pioneer in conveying complex political and social ideas at the grassroots.

PHYSICIAN

Chiranjeeb Kakoty

Dr Chiranjeeb Kakoty began the Northeast Society for the Promotion of Youth and Masses (NESPYM) in Guwahati to spread awareness about AIDS. He has helped form collectives of women. The NESPYM has worked closely with sex workers. He is also providing geriatric care. He has shown that a doctor can provide a healing touch for society's ills.

INFORMATION ACTIVISTS

Chetan Ram & Rawat Ram

If the ordinary man gets his due in Nokha in Rajasthan, it is because of the Soochna Kendra that Chetan Ram helped set up. Chetan Ram is the founder of Urmul Jyoti Sansthan and an old warhorse of the right to information movement. Chetan's enthusiasm inspired Rawat Ram to join the Urmul Jyoti Sansthan in a full-time role.

At the Soochna Kendra, people come to file complaints and RTI applications. Making a law is not enough, the people must be empowered to use it. The Jagruk Nagrik Manch is an initiative to encourage people to become aware.

Sometimes, people come to the Soochna Kendra to seek help for filling a form correctly. This is not an insignificant role. Raj Kanwar, a widow, managed to send her son to school because the Soochna Kendra helped her fill out the relevant forms.

The common man often feels helpless when faced with the state machinery. The Soochna Kendra helps him navigate it. The Kendra is also a repository of information on the benefits available for widows, people with disabilities, pensioners and below poverty line citizens. The duo's work makes sure that the people of Nokha know of and exercise their rights.

Implementation of RTI at the grassroots depends on activists like Chetan and Rawat. Similarly spreading digital access means being available when people who have never seen a computer and can't read or write need the government system to to work for them.

PICTURE BY LAKSHMAN ANAND

MGNREGA HERO

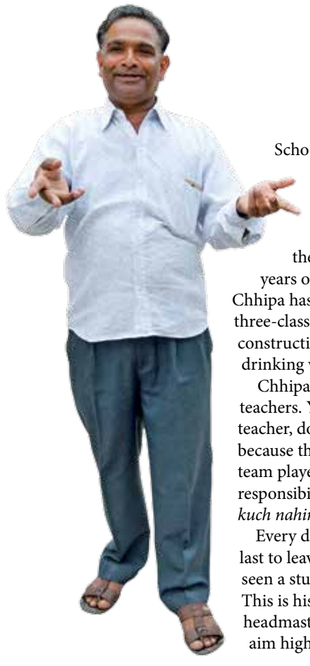
Sanjay Sahni

When Sanjay Sahni used a computer for the first time in August 2011, he didn't know that he would be at the helm of a people's movement in Bihar. In a cyber café in Delhi's Janakpuri, he typed 'NREGA Bihar' into Google and found that the payment records for his village, Ratnauli, in Muzaffarpur district were fabricated. He had heard people in Ratnauli complaining that they didn't get work under MGNREGA or were not paid for the work they had done. What he had on the computer now was proof of this wrongdoing.

"I had heard that if you went on the internet and asked Google anything you would find the answer," he says.

That is exactly what happened. Armed with printouts, he returned to Ratnauli to confront the local authorities. "People are now aware of their rights and have learnt to ask for them," he says.

Sahni is a Class 7 dropout. But he is a natural leader and a self-taught campaigner. He leads the Samaj Parivartan Shakti Sangathan in Bihar and works to spread awareness about MGNREGA and the public distribution system among the poor. It is not as easy as it sounds of course. His efforts to ensure 100 days of work to every villager have meant surviving many a violent confrontation.



HEADMASTER

Mohammed Gafur Chhipa

Schools need good leaders. Mohammed Gafur Chhipa is a visionary. When he was made headmaster of the Government Upper Primary School in Titri, Rajasthan, he knew the school had a lot of potential. Over 13 years of uninterrupted service to the school, Chhipa has added five classrooms to the once three-classroom school. Building a courtyard, constructing toilets, ensuring access to safe drinking water have transformed the school.

Chhipa has built a small team of dedicated teachers. Yogesh Chander, the maths and science teacher, donated ₹15,000 from his savings because the school needed some repairs. He is a team player and has inculcated a sense of responsibility in everyone. He says, "*officegiri se kuch nahin hota*. It won't do to issue orders."

Every day, Chhipa is the first to arrive and the last to leave. In his time at the school, he has seen a student join the IAS and another the IPS. This is his reward. From his humble place as headmaster in Titri, he enables his students to aim higher.

CHURCH LEADERS

Kyrsoibor Pyrtuh, Zambolis Sawkmie & Moody Lyngkhoi

In 2005 in Shillong, Kyrsoibor Pyrtuh, Zambolis Sawkmie and Moody Lyngkhoi, pastors with the Presbyterian Church, started asking questions about the functioning of the Martin Luther Christian University (MLCU).

They found many discrepancies — the MLCU claimed to be associated with the United Evangelical Lutheran Churches in India and also claimed to be the owners of properties which actually didn't belong to it.

The pastors have been champions of the Right to Information (RTI) law, showing how it can be used to bring accountability and transparency in government decisions. Their concern revolves around the standard and future of higher education in India. They dream of a just society.

SOCIAL WORKER

Bashir Ahmad Mir

Bashir Ahmad Mir's life is marked with tragedy. It is that experience which pushed him to help others who have suffered similarly. Mir's father was an active political worker of the National Conference in Kashmir in the 1990s. Over the course of a few months in 1998, Mir lost his father, two uncles and his brother to militant violence. He was shot in the face multiple times and recovery took a year. In November 1999, he set up the Human Aid Society (HAS) to help other victims of violence in Kashmir.

The first donation for HAS came from Mir himself who sold his family's apple orchards to raise ₹7 lakh. Now HAS sponsors the education of needy children and helps provide skills and assistance to widows and the destitute — in an amazing act of forgiveness, they belong to the families of militants.

The saying goes that violence begets violence. But in Mir's case, violence has led to love and the will to serve. His compassion and generosity have made him an icon for those he has helped.

HEALTH EDUCATORS

Prakash Vinjamuri & S.V. Kameswari

How best to spread the word about medical malpractices? Nothing can be better perhaps than getting doctors to talk about them and educate people about what is right and wrong.

Dr Prakash Vinjamuri and Dr S.V. Kameswari, a husband and wife team, have been doing just that, focusing on the pernicious practice of performing hysterectomies when they aren't really needed.

The practice has been rampant in erstwhile Andhra Pradesh, now Telangana. Working in rural areas, Vinjamuri and Kameswari came across an increasing number of women whose uteruses had been removed at a young age. As they probed further, the scale of the malpractice shocked them.

Since 2001, they have reached out to thousands of women in the villages, telling them about the importance of the uterus, how to assess symptoms like a harmless white discharge and the very few conditions under which a hysterectomy is really needed.

ONCOLOGIST

Sudha Sinha

Children with cancer have a good chance of surviving. But where do you find a pediatric ward and that too in a government hospital, that everyone can go to?

Dr Sudha Sinha took the initiative to set up a pediatric ward at the MNJ Hospital in Hyderabad. Somehow space was carved out for 13 beds in 2008 and today there are 86 beds. Dr Sinha had trained and practised in the US. She worked in a private hospital when she returned to Hyderabad. But it was in the government-run MNJ Hospital that she made a lasting difference.

She learnt to work with the government system. The pediatric ward would not have become a reality if it weren't for creative partnerships such as with the St Jude Children's Research Hospital in Memphis, Tennessee, US. Local donors also played their part.

Dr Sinha is now working with the American Hospital in Hyderabad. But the MNJ facility survives.

TEACHER

K. Loganathan

K. Loganathan has been successful in driving out the fear of mathematics from his students. His ability to bring maths alive is rare. He invented Angle Tangle, an interactive software that teaches geometry through body language.

In 2009, he was made headmaster of the Government Girls' Middle School in a village seven km from Puducherry. He changed the ambience of the school completely. The school was next to a dumpyard but Loganathan made sure that the school's premises were clean, with working toilets, neat classrooms and drinking water.

Loganathan is doing all the right things — he has introduced extra-curricular activities, regular parent-teacher meetings and counselling for students. The teachers at his school do not beat or threaten the children. They believe that reasoning it out with the child is a better solution.

Almost all his students clear their maths papers. This is remarkable because many of his students are from very poor families, some even first-generation learners. He is the teacher every child deserves.

JACKFRUIT MAN

Kaittally Raman Jayan

Kaittaly Raman Jayan spent 11 years working in Dubai but the jackfruit tree which had given his family food security beckoned him back to his village in Kerala's Thrissur district. He came back to find people cutting jackfruit trees for timber.

He then started a campaign to plant jack trees. He bought himself a tempo in which he carried jack plants, a spade, sickle and a watering can. He would plant a tree wherever he found a suitable spot.

There was a time villagers used to call him crazy but now eco-clubs of various schools often invite Jayan. He also wrote a booklet on the jackfruit which is now a textbook for students in Class 8.

HUMAN RIGHTS ACTIVIST

Parveena Ahangar

In 1990 in Srinagar, when Parveena Ahangar's son went missing because he was mistaken for a militant, the question was, "Where is my son?" After she shed the fear of standing up to authorities, the question became "Where are our sons?"

Ahangar founded the Association of Parents of Disappeared People (APDP) in 1994. The organisation has been fighting impunity laws and advocating the repeal of the Armed Forces Special Powers Act (AFSPA) in Kashmir. The APDP is somewhat of a solution to the lonely struggles of parents of disappeared people. Together, the parents play the role of psychologists or counsellors for one another.

Ahangar's 29-year search goes on — her son is still missing. But she is not just fighting for herself. She is fighting for the thousands who have gone missing. She has not allowed her lack of formal education or her grief to immobilise her. Her fight for human rights in highly militarised Kashmir is far from over. She is rightly called the Iron Lady of Kashmir.

GI CHAMPION

C.R. Elsy

Indian farmers are invariably at a disadvantage when it comes to protecting their intellectual property rights regarding their crops. They are simple folk, who don't know where to begin.

But in Kerala, with Dr C.R. Elsy at hand, it has been much easier for several groups of farmers to assert themselves. Thanks to her efforts at the IPR Cell of the Kerala Agricultural University at Thrissur, eight crops now have Geographical Indication (GI).

The Chengalikodan banana is an example. It is a favourite during the Onam festival and is distinguished by its sweet taste and a red stripe on its skin. It was a well-known banana, but formal GI status puts it in another orbit altogether. To begin with, it sells for more and the growers have an identity that cannot be usurped.

Other crops that have got GI status are the Pokkali, Kaippad, Jeerakasala and Gandhakasala rice strains, the Vazhakulam pineapple, Travancore jaggery and Nilambur teak.

Before she retired recently, she had put another six products in line for GI status. They included the Kuttiyattoor mango, Marayoor jaggery and the Edayoor chilli.

Dr Elsy has shown how scientists need to go into the field and work with communities. She combined plant genetics with social activism in getting the farmers together and giving them an understanding of intellectual property laws.

PICTURE BY LAKSHMAN ANAND

MENTAL HEALTH PROVIDERS

Nilesh Mohite & ANT

More than 150 million people suffer from some form of mental illness in India, but there are just 4,500 psychiatrists in the country — and almost all of them are in cities, running expensive clinics. How then should psychiatry be practised in a country like ours?

Dr Nilesh Mohite believes the psychiatrist needs to go to the patient. He has set an example by relocating from Mumbai to remote villages of Assam. Here he works with ANT or the Action Northeast Trust, whose founder, Dr Sunil Kaul, is a general physician.

Dr Kaul was already running a mental health camp at ANT's campus in the Chirang district when Dr Mohite came along and since then there has been much progress.

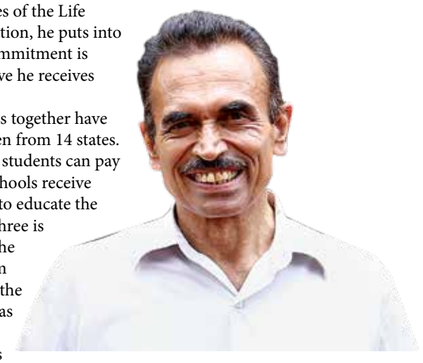
The demand is huge as can be seen on the day of a camp at ANT's campus in Kokrajhar. Five or six hundred people pour in. In what seems an impossible feat, they are all attended to either by way of a consultation or by dispensing medicines in continuation of their therapy. It is a whirlwind of activity which begins early in the morning. But this is how a psychiatrist in India has to function to reach the people who need attention, but do not even know what mental illness is.

ANT charges a patient just ₹300, which includes medicines. It is a sustainable model which it is replicating at 10 other camps.

EDUCATOR

Honnesara Paniyajji Manjappa

A child labourer on a coffee plantation is now an assistant engineer in a power corporation in Karnataka, because of 'Manjappa Mama', as he is lovingly called by many of his students. Honnesara Paniyajji Manjappa runs three Vanashree schools in Shimoga district of Karnataka. Whatever he earns from selling policies of the Life Insurance Corporation, he puts into his schools. His commitment is rewarded by the love he receives from his students.



The three schools together have about 1,000 children from 14 states. Only 20 percent of students can pay tuition fees. The schools receive enough donations to educate the rest for free. Vanashree is home for most of the students. Risa, from Meghalaya, joined the school when she was eight. Everything she needed, clothes or slippers or books, was provided by the school. Her attachment to the school runs deep. At Vanashree, the slogan is, 'My school is my home.'

As a young child, Manjappa battled many serious illnesses like polio and jaundice. It cultivated in him a mental strength to withstand life's vagaries. He passes on the same strength to his students who flourish under his mentorship.

PICTURE BY LAKSHMAN ANAND

ARCHITECTS

Kabir & Preeti Vajpeyi

School buildings mostly end up being either boring or daunting. But what if they could be designed to be attractive to children and make learning enjoyable?

To this end, Kabir and Preeti Vajpeyi, both architects, devised BaLa or Building As Learning Aid. Since 1998, working through their design firm, Vinyas, they have taken BaLa to state governments to enliven public schools and make infrastructure part of the learning process. More than 200,000 schools have been reached.

In addition to schools, they have been working on redesigning *anganwadis* which are in particularly bad shape though they play a key role in promoting child health and early learning.

It was in 1992 that Kabir began working as an architect with the Lok Jumbish programme in Rajasthan. The challenge for him as an architect was to redesign dilapidated village schools without changing existing structures. The budget was small and he was expected to stay within it so as to be relevant to a government school.

Some of the innovations are simple: put numerals in grills, alphabets on the floor, angles with doors. A coat of bright paint adds to a school's appeal. Lowering a window brightens up a classroom.

But these are not just architects dishing out designs. The success of BaLa is in its spirit of inventiveness. It requires the involvement of teachers and students. For instance, the idea of shaping grills into numerals came from a teacher saying that children were confused between numerals in Hindi and English.

Transforming *anganwadis* and motivating employees on a significant scale will be a yet more challenging task.

JONGKSHA'S BRAVEHEARTS

Fatima, Acquiline & Matilda

When Fatima Mynsong, Acquiline Songthiang and Matilda Suting came to *Civil Society*'s Hall of Fame, they sang an anti-corruption song. The energy in the room was electric. They pursued social justice with the same enthusiasm in Jongksha in Meghalaya.

Fatima was the community coordinator of the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and she found that the money for payment of wages had been fraudulently withdrawn. Her enquiry did not go down well with the male village heads. The three women were ostracised and their rations were stopped.

Though they were afraid of challenging senior functionaries in their village, they knew they were on the right path because they were fighting for what was promised to them. The Right to Information Act was a crucial weapon in their struggle. It gave them a voice. Before, only men had the right to speak in the village '*dorbar*'. But the trio fought hard to be heard.

TRIBAL LEADER

Sumoni Jhodia

Sumoni Jhodia presides over the Ama Sangathan, a federation of several tribal groups in Odisha. It makes brooms and deals in minor forest produce and other local products.

In 1991, Jhodia fought her first battle against hunger in her village, Siriguda. She talked the villagers into starting a grain bank. Moneylenders objected. And then joined it too.

Forests were controlled tightly by the forest department. Jhodia, with 450 women from 10 districts, successfully petitioned the then chief minister, Biju Patnaik, into granting the women access to minor forest produce. That's how the Ama Sangathan got access to grass and started making brooms. They also got a licence to buy, sell and market brooms.

Jhodia has battled the liquor mafia in her district and ensured development works were implemented honestly. Her village has a school, a fair price shop, a community centre and a dam they built across a stream. It is spotlessly clean because everyone composts their waste.

PEACE ACTIVIST

Govind Desai

The communal riots of 2002 in Gujarat scarred relations for both Muslims and Hindus. When Urja Ghar was set up in 2004 in Sabarkantha in North Gujarat, the attempt was to heal some of those wounds. It was envisioned as a space where different communities could talk or mingle. Govind Desai is the man behind this vision.

Their strategy was simple. They engaged people in activities like watching films, reading the news, writing stories, etc. After *Sholay* was screened, Urja Ghar came alive with a discussion on why Amitabh Bachchan was killed in the end. The conversation led to the issue of widow remarriage.

With Sanjay Raval, who was a member of the Bajrang Dal when he became a part of Urja Ghar, it took two years to make a breakthrough. He finally left the Bajrang Dal. Hindus and Muslims questioned fundamentalism within their own communities.

Desai has now taken a backseat and plays the role of a mentor. Youth leaders have emerged from the early participants of Urja Ghar. Over the years, funding has been a problem because measuring the result of a peace project is not easy. But Urja Ghar has slowly changed interpersonal relationships in Lambadiya village.

FARM ENTREPRENEURS

Women of Bundi

"I am the chairperson of my company," said Savitri Gaur to loud applause from the large Delhi audience gathered to celebrate the Civil Society Hall of Fame.

Weeks earlier we had visited her in Bundi, Rajasthan, where, standing in a warehouse, cell phone clutched in her hand, she said to us: "We were selling on adverse terms and buying from the market at a premium. So we thought to ourselves, why not set up our own company and save on the margins that traders and shopkeepers make."

Empowerment of Bundi's women farmers began with scientific ways of cultivating soya and then marketing the produce directly through the Samriddhi Mahila Crop Producers' Company.

"We didn't even know what a Self-Help Group was, let alone a company. Our lives have changed in so many ways. We didn't know to express ourselves," said Gaur about the change they had experienced.

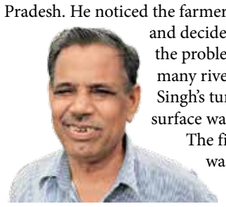
They were helped by Padam Jain and Himanshu Bains, two activists from Srijan, an NGO based in Delhi. It took six years, but change came.

INVENTOR

Mangal Singh

Mangal Singh is no engineer, but one doesn't need to go to engineering college to create something. Singh is a bona fide inventor. In 1987 he came up with a low-cost turbine that could help irrigate agricultural land.

Singh is a small farmer from Bundelkhand in Uttar Pradesh. He noticed the farmer's dependency on rain and decided to find a solution to the problem. The region has many rivers and rivulets and Singh's turbine harvests this surface water.



The first model of the turbine was made with local material and the machine is easy to operate. The efficiency of the machine lies in its simplicity. It saves on electricity and diesel. His low-cost machine is a viable option for many small farmers who can't afford diesel pump sets to irrigate their fields.

When his machine was noticed by the government, he ran into many problems. Corrupt officials and disloyal people got in the way. But Mangal Singh has soldiered on with integrity and a sense of mission.

DIGITAL CRUSADER

Osama Manzar

As India goes digital, equality in access becomes crucial. It is what makes the difference between giving people the benefits of growth or letting them fall behind.

It was with this thought that Osama Manzar founded the Digital Empowerment Foundation (DEF) in 2002 and has since worked with craftsmen and microenterprises to help them reach markets and customers.

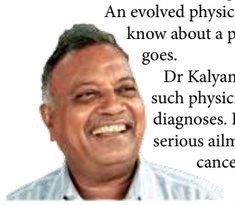
DEF has through annual awards encouraged digital initiatives that have promoted inclusion and helped shape an ecosystem in which technology is used to serve the marginalised.

"A simple piece of information has to traverse at least 10 layers before an entitlement gets into the bank account," says Manzar. So DEF has created SoochnaPreneurs to help people get their dues. And Mera App tracks 2,000 government schemes. Manzar makes photocopying, emailing, lamination, filling up forms, and follow-ups available for the rural citizen.

PULSE READER

K.P. Arjunan

In traditional medicine, reading the pulse is a part of diagnosis. An evolved physician will find what he needs to know about a patient from the way the pulse goes.



Dr Kalyani Parasuraman Arjunan is one such physician widely respected for his diagnoses. He is known to have identified serious ailments like kidney failure and cancer through pulse reading.

He is a practitioner of Siddha, one of the oldest forms of medicine known to mankind. In fact, he is the 47th descendant of Puttu Maharishi, the first guru to start a school to teach this branch of medicine.

Revered by thousands of students, Dr Arjunan has treated innumerable people for free, setting up medical camps and travelling to remote regions to see patients.

He has spread awareness of Siddha and earned respect for this stream of traditional medicine. Today, Tamil Nadu and Kerala offer postgraduate degrees in Siddha medicine.

PLANT FRIEND

Ganesh Babu

A garden shouldn't be just a visual delight, believes Dr Ganesh Babu, a botanist at the Foundation for Revitalisation of Local Health Traditions (FRLHT) in Bengaluru. Flowers and plants should enhance your health and environment, he says.

Dr Babu has painstakingly collected some 1,400 medicinal plants from deep inside forests and nurtured them on the FRLHT's leafy campus. Adept and insightful in identifying plants and their medicinal properties, Dr Babu believes plants grow according to the feelings you have for them.

In Bengaluru he has been promoting the idea of planting medicinal gardens, instead of decorative plants. The FRLHT offers packages of plants for a nominal fee that can tackle routine ailments. A one-year course in plants which have therapeutic value is also on the cards. Dr Babu is developing a conservation park of red-listed medicinal plants in Bellary.

ENVIRONMENTALIST

Yaradi Krishna Murty

When the Andhra Pradesh government handed over 900 acres of a wetland or *beela* in Srikakulam district to a construction company to build a thermal plant, it was the soft-spoken local physician, Dr Yaradi Krishna Murty who became the guiding spirit of the agitation to stop the project.

The wetland was listed as a wasteland. The *panchayat's* approval had not been sought. Farmers would lose their land. The *beela* was an inseparable part of their lives. It provided water for two paddy crops, fish and grasses.

The farmers held their ground courageously, enduring beatings by the police. Two farmers died in police firing during a protest. Eventually, the National Environment Appellate Authority visited the *beela*, declared it was most certainly a wetland, and cancelled the environment clearance given to the project.

TEACHER

Rajkumar Sharma

In Rampurabas in Rajasthan's Tonk district, Rajkumar Sharma brought the government's upper primary school to the level of a private school. Many students had left to join a private school. The changes Sharma brought about pulled these students back.

Some of the land that belonged to the school had been encroached upon by powerful families. In the highly stratified society of Rajasthan, Sharma managed to get the land back. He did this by initiating conversations with women and changing opinions within families. Families willingly relented and vacated the land. No force was required.

When four of his students lost their parents, Sharma took up the matter with the Social Welfare department and got the children a scholarships. Sharma is no longer the headmaster in charge. But the school remains popular thanks to his efforts.

HEADMASTER

V. Ganesan

Puducherry's BR Ambedkar Government Middle School is in the middle of a slum and headmaster after headmaster had declared that the school could not be run efficiently. It took V. Ganesan a year to transform the school.

He installed a reverse osmosis (RO) plant so that children had access to clean water. They were also encouraged to carry water home so that they didn't fall sick. Ganesan organised mandatory parent-teacher meetings which helped improve the relationship of parents with the school. They understood that Ganesan was doing good work and supported him.

The school offered courses in book binding and recycling waste to make products. He designed the right combination of book learning and skill building. Under his leadership, the school became a healthy environment for students to learn.

SUPER SARPANCH

Naurti Bai

Everything about Naurti Bai is a departure from the norm. She was the Dalit *sarpanch* of Harmada, a Rajasthan village dominated by upper caste Jats. She is a widow but dresses in bright pinks and reds.

In 2010 when she was fighting elections to become *sarpanch*, all odds were stacked against her. Her rival had bribed people with alcohol and money. There were threats of rape. But she went campaigning door to door and women, across boundaries of caste and class, voted in her favour.

As *sarpanch*, she made sure that the funds for MGNREGA went into the right hands. The women were paid the same wages as men for their labour. Naurti's simple act liberated many women from financial dependence. Her struggle for equal rights goes back to 1981, when she fought for equal wages for men and women, and the Supreme Court gave a historic judgment.

When Naurti was 35, she underwent literacy training. Later, she learnt to use the computer. But, she says, "My mind is the best computer in the world."

PILOT PLUS

Indraani Singh

In 1995 when Indraani Singh became India's first female pilot to be Commander of an Airbus-300, she was an inspiration for young women. Yet the attractive pilot wondered how she could do more. A chance encounter with a vegetable vendor, who requested her to help him pay his daughter's school fees, motivated Indraani to start Literacy India, a non-profit in Gurugram that provides education and vocational skills to children, youth and women from low-income homes.

Indraani first set up a mobile crèche for children of construction labour. The going was tough but she persisted. Twenty-four years later, Literacy India has a campus at Bajghera in Gurugram with a full-fledged school, a vocational centre and a factory that rolls out recycled paper.

Women can learn driving, tailoring, block printing and more. Children have earned laurels in movies and sports. Digital Dost, educational software Literacy India developed with an IT company, helps children learn language, maths, social studies and science, and even tells them how to open a bank account.

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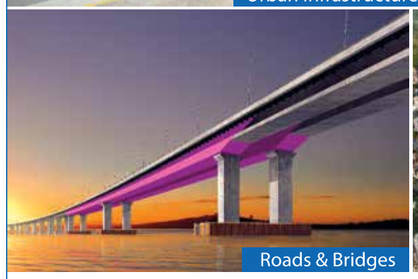
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POLITICS ROBS LOCAL LEVEL BODIES OF POWER, FUNDS

The 74th Amendment fails because while it promotes self-governance at the same time it gives almost complete control to the state government.

JAGDEEP CHHOKAR

ACCORDING to estimates India has around 4,000 cities and towns. The World Population Review estimates 40 of those have more than a million people each, 396 have between 100,000 and one million and about 2,500 between 10,000 and 100,000 people. The 74th Amendment to the Constitution, which came into force from June 1, 1993, lays down the provisions governing cities. Article 243Q envisages three kinds of urban areas: (a) a Nagar Panchayat (by whatever name) for a transitional area (an area in transition from rural to urban); (b) a Municipal Council for a smaller urban area and (c) a Municipal Corporation for a larger urban area.

Governance of cities or urban governance seems to have defied the Indian genius because the widespread impression is that no city in the country seems to be properly governed. While some cities may be considered better than others, residents of almost every city seem to be dissatisfied with the way their city is run. I say 'defied the Indian genius' because there are cities, even mega-cities, in some other countries which appear to be run much better. Their residents do not seem to be as frustrated with their city governance as the average city-dweller in India.

A very large population, diversity and social complexities of India apart, there does seem to be something different about Indian cities that makes them especially difficult to govern properly. I will confine myself to analysing the political aspects of urban governance.

Though both politics and governance are inextricably linked, it may be useful to distinguish between the two. Politics is often described as the 'dynamics of power', meaning that politics is the process through which power distribution in a group, society, and so on is decided. Understanding this in the context of governance is important because power is a prerequisite of governance. The one who governs must have power over the governed. In a country or state, power vests in the government and in a democracy the decision as to who should have power is decided through the process of voting and elections. In simple terms, whoever gets more votes wins the election. Getting elected means that citizens/voters have 'given' the elected person 'power' to govern them.

Based on the above discussion, it can be said that decisions about the distribution of power have to be made before governance can begin. This is also the reason why politics and governance are inextricably linked.

The legal framework for urban governance is contained in the 74th Amendment to the Constitution of India. The "Statement of Objects and Reasons" of The Constitution (74th Amendment) Act, 1992, says:

> **It can be said that decisions about the distribution of power have to be made before governance can begin. This is also why politics and governance are inextricably linked.**

"In many States local bodies have, on account of a variety of reasons, including the failure to hold regular elections, prolonged supersessions and inadequate devolution of powers and functions. As a result, Urban Local Bodies are not able to perform effectively as vibrant democratic units of self-government. Having regard to these inadequacies, it is considered necessary that provisions relating to Urban Local Bodies are incorporated in the Constitution…."

In addition, this amendment also added a 'schedule' to the Constitution, called the 12th Schedule, listing 18 functional items which will be the responsibility of Urban Local Bodies (ULBs). The often-stated aim of this Act is to revitalise and strengthen urban governments so that they can function as effective units of local government.

The amending Act also goes on to say: "The Legislature of a State may, by law, make provision with respect to — (a) the composition and the territorial area of Wards Committee; (b) the manner in which the seats in a Wards Committee shall be filled. …

(5) Nothing in this article shall be deemed to prevent the Legislature of a State from making any provision for the constitution of Committees in addition to the Wards Committees."

Article 243-I added by the 74th Amendment required the governor of the state to "constitute a Finance Commission to review the financial position of the Panchayats and to make recommendations to the Governor" on how "the taxes, duties, tolls and fees leviable by the State" be distributed among the state government, ULBs, and panchayats; which of "the taxes, duties, tolls and fees" be "assigned to, or appropriated by" the ULBs; and the amount of the grants-in-aid to the ULBs and panchayats from the Consolidated Fund of the State.

Once again, after having stipulated the constitution of a seemingly independent commission, the Act goes on to say: "The Governor shall cause every recommendation made by the Commission under this article together with an explanatory memorandum as to the action taken thereon to be laid before the Legislature of the State."

There are many other similar stipulations wherein power is seemingly devolved to the ULBs but almost in the very next sentence, the state legislature is bestowed the authority to overrule the decision of the ULB, whether it is providing for reservations "in favour of backward class of citizens", "all matters relating to, or in connection with, elections to the Municipalities," and many such issues.

It can thus be seen that ULBs are, in effect, far from being free to take action based on their own judgement.

To top it all, there is a provision for setting up a "District Planning Committee to consolidate the plans prepared by the Panchayats and the Municipalities in the district and to prepare a draft development plan for the district as a whole". The first effect of this provision is that the individuality of the ULBs is lost in the planning for the "district as a whole". More important, all provisions about the composition of the District Planning Committees (DPCs), filling of seats in the DPCs, their methods and procedures of working, are completely under the control of "the Legislature of a State".

A woman councillor literally takes the backseat while her husband addresses residents in a Gurugram neighbourhood. The municipality is the first stage in a political career

As if all this were not enough, the Act also says: "The Chairperson of every District Planning Committee shall forward the development plan, as recommended by such Committee, to the Government of the State."

Now, let's come to realpolitik. Given that the state government controls almost everything that happens and the way it happens, political parties active in the state take a lot of interest in elections to ULBs.

Taking the Municipal Corporation of Greater Mumbai as an example, as many as 2,275 candidates, representing something like 15 political parties, contested the 2017 election for 227 seats. It is, of course, a sad commentary that 13 percent of them had themselves declared under oath that they had criminal cases pending against them in courts of law and nine percent had declared serious criminal cases. Another indication of the importance of these elections is that as many as 30 percent of candidates were crorepatis, with the average assets per candidate being ₹1.93 crore.

The candidate with the highest assets reported that he had assets of more than ₹689 crore! The assets of the next nine candidates in the top 10 list were between ₹26 crore and ₹56 crore.

Elections to ULBs are often the first step in the electoral politics journey of an aspiring politician. That is one of the main reasons why these elections are watched with great interest by state-level politicians. Another reason is the opportunity to create vote-banks at city level. These aspiring politicians also become an integral part of political party structures.

This participation in political party structures takes several forms. At one end of this spectrum are some individuals who are party-agnostic. They develop their personal power base which helps them create vote-banks and then negotiate with different parties at election time to look for the best match between them and a party. At the other end of the spectrum lie party faithfuls who stay with the same political party, often all their active lives, regardless of whether the party does well or not and even whether the party treats them well or not. Many, of course, fall in between these extreme ends of the spectrum and are best described as opportunistic.

The actual conduct of elections to ULBs is more or less the same as elections to assemblies and Parliament and suffer from the same infirmities and maladies. There is, however, a major structural difference. The responsibility of conducting elections to ULBs lies with the State Election Commission (SEC) in which the ULB happens to be located and not with the Election Commission of India (ECI) which is responsible for conducting elections to assemblies, Parliament and for the offices of president and vice-president of India. This has major implications.

As against only one ECI, there are as many SECs as there are states. Article 243ZA of the Constitution, inserted as part of the 74th Amendment, says: "The superintendence, direction and control of the preparation of electoral rolls for, and the conduct of, all elections to the Municipalities shall be vested in the State Election Commission referred to in Article 243K.

(2) Subject to the provisions of this Constitution, the Legislature of a State may, by law, make provision with respect to all matters relating to, or in connection with, elections to the Municipalities."

Since the above mentions Article 243K, it is necessary to see what that says. It says: "(1) The superintendence, direction and control of the preparation of electoral rolls for, and the conduct of, all elections to the Panchayats shall be vested in a State Election Commission consisting of a State Election Commissioner to be appointed by the Governor.

(2) Subject to the provisions of any law made by the Legislature of a State, the conditions of service and tenure of office of the State Election Commissioner shall be such as the Governor may by rule determine…."

The provisions regarding appointment of the SEC put additional power in the hands of the state government to exercise control over the ULBs. The net result is that ULBs have very little, if any, autonomy to perform the functions assigned to them, ironically, by the Constitution itself!

DEVOLUTION OF POWERS: Devolution of powers is a devious phenomenon. Politics is all about power. People contest elections to gain access to and exercise political, constitutional, and administrative power. To expect politicians, and successful ones at that, to assign their power to someone else is actually completely unrealistic. Altruism, defined by one dictionary as "the principle or practice of unselfish concern for or devotion to the welfare of others", is not a characteristic found in too many politicians, if it is found at all!

So, the Constitution, in theory, devolved powers to ULBs but gave complete control to the state government to decide how these seemingly devolved powers were to be exercised by the ULBs. In practical terms, therefore, the 74th Amendment has not succeeded in achieving its objective, and ULBs continue to remain as "weak and ineffective" as they were before the enactment of the 74th Amendment.

Enactment of the 74th Amendment by Parliament was a political act and putting the ULBs under almost complete control of state governments was also a political act. The first one was seemingly positive and the second one, devious. The devil, in this case, lay in the details, or the wording, of the specific articles inserted in the Constitution. It can, therefore, be said that politics has prevented effective urban governance in India. ■

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DRONES TO TUNNELLING TECH LIGHTENS THE URBAN LOAD

As demand grows and expectations rise, governments will need to shop for new ideas and tools.

KIRAN KARNIK

MOHENJODARO, amongst the oldest urban settlements in the world and a part of the heritage of India, is probably the first city to have used technology for public utilities. Excavations show that it had a sophisticated and well-laid out system for underground drainage and water supply, over 4,000 years ago, pointing to the use of hydraulic engineering techniques. Given the state of many of our cities today, one wishes that those who designed these systems would be reincarnated as town planners today!

Over the centuries, as humans aggregated together, these early settlements developed into cities like Mohenjodaro becoming increasingly important economic hubs and wealth creators. Today, urban areas account for 55 percent of the global population. In India, long considered a rural and agricultural country, with its half a million villages, city-dwellers already account for over a third of the total population. The Delhi urban agglomeration alone is home to over 25 million people. Rapid urbanisation will result in the addition of over 400 million to our cities by 2050.

Fast-growing cities face severe challenges in the provision of public services to their residents, even as economic imperatives demand their smooth and efficient functioning. The list of such services gets longer, as awareness and expectations translate into need. It now includes: power, water, sanitation, safety, housing, roads, mobility, clean air, health, education, parks and playgrounds, cultural spaces and parking areas. The challenge of providing these can only be met through the use of technology. What follows is a broad outline of how new technologies can be used in our cities.

In any city, land is one of the biggest factors: its availability, terrain and location determine cost, use and growth of the city. This is one of the areas in which technology now plays an important role. Earlier, imagery from satellites was used to make maps that showed topography and land use. This facilitated urban planning by clearly identifying vacant land, floodplains, water flows, tree cover, etc. It also showed growth over time, encroachments on public land and sources of pollution in riverine and coastal cities.

Satellite imagery has seen vast improvements in resolution, enabling far more accuracy, but it has its limitations. More recently, it is being supplemented by pictures from drones, which can be used when required, with greater localisation and precision. Such imagery is a key input to urban planning – be it for location of public facilities, planning for roads or for rail/Metro lines, or for identifying suitable areas for further expansion of the city. Along with location-based demographic and other data to create a geographical information system, the imagery can be used to identify the most appropriate location for a school, a Metro station, a hospital or health facility, a park and other such facilities. Imagery has also been an input to easily identify offices or houses which have not paid property tax, thereby helping to increase the revenue of the municipal body.

One of the biggest challenges in all cities is mobility. Rapid growth and prosperity have clogged the roads with ever more two- and four-wheelers. The neglect of public transport in almost all Indian cities has accelerated the trend of personalised transport, even as public policy (despite some lip service to the contrary) and road hazards have decimated both cycling and walking. In this scenario, technology provides some solutions. Fast and efficient mass mobility systems — mainly Metros and suburban trains — have been facilitated by technological progress. Sensors, cameras and improved signalling systems have made it possible to increase the frequency and speed, thus transporting more people per hour and enabling a reduction in commuting time. The latter attracts more commuters, improving the economics of the system. If this is translated into lower fares, it will trigger a positive feedback cycle between lower costs, more passengers and higher revenue.

New technologies for tunnelling are faster, cheaper and less disruptive. This not only lowers costs for Metro systems, but makes it possible to take them into congested, core urban areas, which most require such mass transit systems. As an incidental benefit, tunnelling also improves urban aesthetics by not having ugly, noisy and intrusive (often looking into homes) above-ground rail tracks or roads. American visionary Elon Musk, ever looking for innovative new tech-business opportunities, and driven by his frustration with traffic in Los Angeles, has set up the Boring Company, seeing a strong future for tunnelling. As in other areas (electric cars, rocket launchers), his involvement and investments are bound to give a further impetus to this technology. Thus, technology not only improves the efficiency and ease of living of a city, but also furthers a major objective of urban public policy: a shift to public transportation.

> **New technologies for tunnelling are faster, cheaper and less disruptive. This lowers costs for Metro systems and makes it possible to take them into core urban areas.**

PICTURE BY SHREY GUPTA

Electric taxis recharge at a BSES hub in south Delhi

Technology is being used to create new app platforms for mobile devices. Apps like Google Maps are now commonplace: they not only show the route from one point to another (with detailed directions), but also indicate distance, the quickest route, the extent of traffic congestion along it, and time estimate for the journey (by two-wheeler, four-wheeler or walking); also the distance and time estimate of an alternative route. This convenience tool helps to save time and fuel, while decreasing pollution.

Data from such apps is of great value for traffic control and for longer-term planning of roads and mass transport systems. More immediately, it is used to detect and handle traffic jams. Instead of the conventional method (actual observation of traffic and improving its flow by manual changes of traffic signal timings by an on-the-spot policeman), automated on-line analysis of traffic data and remotely controlled signals make possible continuous optimisation — possibly even pre-empting jams.

A number of apps exist for locating parking spaces and these ensure a reduction in unnecessary driving to search for parking. Data on demand for parking in particular areas can be used for dynamic pricing of spots (a la airline seats). High rates can be used to discourage parking (and hence car usage) in certain areas and/or at peak times. This may incentivise car-pooling or use of public transport. The technology of apps-based taxis is another source of reduced use of private cars, of pollution and the need for parking space.

In some cities abroad, congestion charges are levied on cars entering the central business district (or other busy areas), reducing the use of cars. This requires the use of RFID tags, so that automatic identification of cars and a debit of the charge is possible as it drives through various entry points. In India, this technology is already being used at some toll gates and will soon be rolled out across all national highways.

> **Smart meters will automatically transmit power consumption to a central point for billing and make it possible to track consumption by time of day.**

A rapidly advancing new technology is that of electric vehicles. With their minimal pollution and noise, and increasing capabilities, they seem to be the future of mobility (autonomous — or driverless — vehicles are yet a long way off in terms of large-scale use). However, there are challenges with regard to the ecosystem, including the matter of charging stations. Also, for India and most other countries, there is the issue of a near-monopoly source of the rare earth minerals which are essential for batteries.

On the power front, advancing technology has considerably reduced the cost of solar cells, and increased their efficiency, making this renewable source of power more economical. In many cities, roof-top solar installations have become viable, especially with power buy-back by the grid. In addition, innovative business models mean that there are companies that bear the full capital cost of the installation and provide power to the home or organisation at a fixed rate per unit. For buildings with a large usable terrace area, this is an attractive proposition. It will see widespread adoption as further advances in solar cell technology drive costs even lower.

Smart meters will obviate the need to send people to each household to note their power consumption; the meters will automatically transmit the information to a central point for billing. More importantly, such meters will make it possible to track consumption by time of day. This will enable differential pricing of power supply, with higher rates serving to curb consumption at peak demand times.

On the supply side, apart from greater adoption of clean and "green" renewable power, technology is bringing about much improvement in the electricity grid. Increased efficiency, automatic detection and location of faults and optimised distribution mean fewer breakdowns and better service. It also helps to pinpoint areas of power theft, facilitating action (if there is political will).

Roads and rail have long been the important forms of connectivity in urban areas, apart from walking. In today's world, though, an equally vital means is electronic connectivity, with i-ways often being more useful than highways. Many cities in India have recognised this, and are working towards providing wi-fi connectivity in public places. People can use this to instantly access all kinds of information on their mobile devices, even as they are on the move. This increases people's (and the city's) efficiency.

Connectivity also links various public assets to selected nodes — for example, trains or buses to a central control room — to facilitate tracking, monitoring or relay of instructions. More sophisticated systems enable preventive maintenance: an engine part can be replaced before a bus breakdown, on the basis of data transmitted by an embedded sensor, and its analysis through AI (using a model created by using thousands of cases of breakdown). This can be done for all physical infrastructure, minimising problems for residents. Sensors and connectivity are also useful for more routine functions, like automatically switching on or off street lights, depending upon ambient brightness. Motion sensors can also be used to switch on these lights only when there is pedestrian or traffic movement.

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Drones to tunnelling tech lightens the urban load

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These, and a whole host of other applications of technology, including in the area of waste management and water, contribute to creating a so-called 'smart city'. It is, however, a blunder to think of technology as a magic solution for all urban problems. Technology can, at best, be an enabler. How it is used, for whom it is used, and for what purpose: these are key questions. Subsuming all this is the public policy framework within which it is used. Unthinking use of technology, without a clear policy guideline, can even be counter-productive. For example, the use of 'smart' traffic signalling technology to increase the efficiency of the road system will reduce travel time for cars but may well encourage greater use (possibly, greater purchase too) of cars. Facilitating the location of parking slots may do the same. This will be the antithesis of promoting the use of public transport. A clear enunciation of public policy and goals will avoid such pitfalls, even as full use is made of technological advances and their applications. Clarity is essential about public good being the objective — as opposed to individual benefit. Safer cities, cleaner air and

It is, however, a blunder to think of technology as a magic solution for urban problems. How it is used, for whom it is used, and for what purpose: these are key questions.

better utilities benefit all. Parks, playgrounds, cultural and entertainment centres are essential elements of a good city. Good housing, healthcare and education for all are obviously necessary. Any city that cannot provide these to all its residents is hardly 'smart'.

There are issues about city governance — particularly the multiplicity of agencies operating with little coordination and diffused accountability — that need to be remedied. Technology can help here, especially in increasing efficiency, transparency and accountability, and reducing corruption. However, its effectiveness will be constrained by structure, systems and governance mechanisms. Technology can certainly help to transform our cities. However, the human element is key. Intelligent cities need intelligent individuals in charge: people who are smart, sensitive and driven by concerns about public good. Only then will we have smart, intelligent and happy cities.

Four thousand years from now, when bio-beings of the future excavate Delhi, will they be as impressed with it as we are with Mohenjodaro? ■

Kiran Karnik is an independent strategy and public policy analyst. His recent books include eVolution: Decoding India's Disruptive Tech Story (2018) and Crooked Minds: Creating an Innovative Society (2016).

IT IS PRIMARY HEALTH CARE THAT PEOPLE NEED

PHCs, being local, are more accessible and take the load off big hospitals and specialty centres.

H.S.D. SRINIVAS

INDIA's disease patterns have been shifting as cities grow and pull in more people. Lifestyle diseases like diabetes and hypertension have come to replace communicable diseases. There are more heart attacks and strokes and fewer people die from cholera and malaria. Also, there are fewer cases of mothers and babies dying during childbirth.

Currently, urban areas are dominated by facilities in the private sector — clinics, hospitals and specialty centres. Pricing is unregulated. These private sector facilities have grown in the recent past and have come to be identified as the chief source of treatment.

The government sector, on the contrary, has witnessed neglect and decline. It has urban primary health centres (PHCs), maternity hospitals and hospitals attached to government medical colleges. It is an extensive system but its potential has not been fully exploited, particularly at the lower level like the PHC.

Like the rich, the poor use private facilities but much less than they should because of cost, access and availability factors. The result is they don't tend to seek or avail of treatment at the appropriate time. They also overload the tertiary hospitals either at the time of emergencies or with complaints that should be dealt with at lower levels of the healthcare system.

What is needed is a healthcare system designed to tackle changes in the disease burden and the growing numbers in cities as urbanisation continues unabated.

The solution lies in a primary care network, both public and private, that includes OPD consultation, basic lab diagnosis, medicine dispensing and a workforce that can run targeted outreach programmes to enable access to basic health services for the marginalised population.

The urban PHC needs to serve as a hub to educate people on all aspects of communicable and non-communicable diseases. Another important function for the PHC is to act as a 'gatekeeper' by identifying people who need treatment and sending only those who need secondary and tertiary care to the bigger hospitals.

Governments may also like to use a primary care workforce for disease surveillance and epidemic control, convergence with disease control programmes run by national and state governments, data collection and record management for effective monitoring.

The last few years have seen many innovations tried out by the centre and the states. These include innovations in telemedicine to monitor and support primary care in towns and cities of Andhra Pradesh through an outsourcing of out-patient services to private providers. Rapid response to life-threatening conditions like heart attacks in Tamil Nadu is being tried out nationally now. Mohalla Clinics in Delhi utilise the services of retired doctors for primary health issues and use health ATMs for supply of quality generic drugs. Basti Dawakhanas in Hyderabad are linked to free

The govt has urban PHCs, maternity hospitals and hospitals attached to government medical colleges. It is an extensive system but its potential has not been exploited.

diagnostics in a hub-and-spoke model in Telangana.

The latest effort by the centre to upgrade more than 125,000 sub-centres in rural and urban areas by transforming them into health and wellness centres offering comprehensive primary care services, as being demonstrated in some parts of Kerala, if executed properly could ring in huge benefits by making appropriate care in an appropriate setting accessible and affordable.

The private sector, with its significant management skills and strengths, can play a key role in augmenting the work of public health authorities by addressing distortions in supply of services, influencing right health-seeking behaviour among patients by making the right care available at the right cost in the right setting.

Some of the initiatives that have attempted to reduce fragmentation of private providers in health

PICTURE BY SHREY GUPTA

A primary health centre that has been upgraded in Nagpur

and improve access to good quality affordable care for the urban poor include the pyramid model of care followed by single-specialty hospitals like the L.V. Prasad Eye Institute.

Reliance Foundation uses mobile medical units in its Mumbai outreach programme to deliver primary care under the supervision of its specialists in its main hospital in Mumbai. Quality of care in primary care clinics set up by Swasth Foundation in the underserved neighbourhoods of Mumbai are monitored through a link to a command centre while Health Spring clinics in Mumbai have innovative health financing options for chronic care patients, and the like.

As a philanthropic effort to strengthen urban primary care, the Tata Trusts have been working with the Nagpur city administration to upgrade the urban PHCs to increase utilisation and give a better patient and provider experience. Numerous other philanthropic efforts, notably by faith-based organisations like the Ramakrishna Mission Hospitals, have ensured that a semblance of affordable, if not free, first-level care is made available to the urban poor.

There is, however, no single solution that fits all conditions and achieves all stated goals. To reach the multiple objectives of a rich primary care

By being data driven and using soft skills, the urban PHC needs to serve as a hub to educate people on diseases. It can also identify those who need secondary and tertiary care.

offering we can look at an integrated primary care model that includes elements linking upgraded infrastructure, new technology that makes specialist advice affordable and timely and cost-efficient chronic care management by making appropriate drugs available at an appropriate price.

A motivated and trained workforce would be at the heart of such a model. It is important to monitor quality and have soft skills to manage crowds. Data-based decision-making is essential. A team approach is required so that there is decentralised planning. A careful study of tasks should distribute responsibilities so that nurses and doctors can concentrate on delivery of care and other staff members can do much more than they are currently allowed to.

A source of reduction in unnecessary expenditure would be empowering patients through behavioural change communication among patients (and providers) for timely and appropriate treatment, empowering the generally literate urban population to self-manage their own illnesses more effectively and avoid unnecessary complications.

Most primary care efforts ultimately cannot sustain as standalone systems and need a large payer like the government to sustain the quality and timeliness of service. The other model is for a larger secondary and tertiary hospital to support primary care efforts for its own quality offerings and decongestion of its main hospital. Getting the equation between cost efficiencies and effective treatment remains the ultimate challenge in developing a robust primary care system for the country. Until such an alignment is perfected we will continue to have sub-optimal or unaffordable care. ■

H.S.D. Srinivas is Head, Healthcare, Tata Trusts

INFRA IS NEEDED BUT WHAT ABOUT SMART CITIZENS?

Solutions lie in governance and public attitudes. While investments are needed, citizens should be playing a bigger role in looking after their spaces.

SANJAYA BARU

WHEN Delhi's former chief minister, Sheila Dikshit, passed away there was a spontaneous outpouring of praise for her leadership role in the modernisation of the capital city. Most commentators drew attention to the roads, flyovers, public parks and other such infrastructure development that Dikshit presided over. The media also published photographs of her expressing solidarity with Delhi's women after the brutal rape and killing of the young woman known as Nirbhaya. If the parks, the flyovers and the Metro are a symbol of Delhi's modernisation, the high incidence of crime and lack of public safety and cleanliness symbolise Delhi's dark underbelly. Indeed, most cities present this dichotomy between the modernisation of infrastructure and the persistent lack of modernisation of governance and the quality of living. India is focused on building 'smart cities' but India's modernisation is held back by not-so-smart citizens.

The challenge and promise of urbanisation entered popular political discourse after the turn of the century. The first major national initiative to fund urban renewal and development was launched in December 2005 by the United Progressive Alliance (UPA) government and named the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). The objective of JNNURM was two-fold: first, to encourage state governments to undertake urban governance reform; and, second, to fund urban infrastructure development and improve delivery of public services. The mission was to be funded to the tune of ₹100,000 crore, with the central government contributing half and states the other half. The inability and, in cases, unwillingness of state governments to fork out so much money for urban development, a politically low-priority agenda at the state level in most parts of India, meant that the centre had to increase its share of funding to two-thirds of the planned mission budget.

The JNNURM was to be implemented over a seven-year period in 65 cities with the programme divided into two sub-missions, namely, (a) Urban Infrastructure and Governance and (b) Basic Services to Urban Poor. In other 'non-mission' cities funding would still be provided for identified infrastructure and housing, and slum improvement programmes. At the end of the mission period, in 2012, it was decided to extend the mission to 2015 because a large part of funds remained unspent and little had been achieved by way of governance reform.

Commenting on the implementation of the mission in November 2012 the Comptroller and Auditor-General (C&AG) of India observed that not only had the centre and states taken together failed over a seven-year period to spend more than a third of the planned budget for JNNURM, but many of the governance objectives were never met. The mission was then extended till 2015. Only a mere 10 percent of the 2,000-odd projects that had been approved were actually implemented. The only visible legacy of JNNURM in the nation's capital city are the regularly stalling public transport Tata buses that create traffic jams every now and then.

Like so many of the UPA's flagship programmes the JNNURM also transformed itself into a new programme under the National Democratic Alliance government and is called the Smart Cities Mission (SCM). Both in its scope and implementation the SCM has so far had a better track record than JNNURM. The SCM strategy aims to achieve 'area-based' urban development through (a) city improvement — dubbed 'retrofitting'; (b) city renewal — redevelopment; and, (c) city extension (greenfield development). The SCM has an even greater focus on 'modernisation' through infrastructure development than the JNNURM.

Taken together, over the past 14 years (2005-19), two successive governments with very different ideological orientation have defined urban development essentially in terms of infrastructure development and modernisation. This is, of course, very important and highly needed. However, urbanisation and urban development also require a concerted effort at modernisation of mindsets and democratisation of urban governance. What has been the record so far?

PICTURE BY SHREY GUPTA

Pedestrianisation arrives in Delhi: Cars have been disallowed in the once- congested Ajmal Khan Road in Karol Bagh

HARD AND SOFT: Building, development and redevelopment, IT-enabled public services delivery are all features of what may be described as 'hard infrastructure'. What about 'soft infrastructure' of urbanisation? By this I mean governance and public attitudes. The JNNURM had an explicit 'governance reform' link to central funding. The central government would fund a state government provided it agreed to implement urban governance reform along with investment in urban development and redevelopment. Few state governments showed any interest in governance reform.

With all major cities becoming state capitals, the chief minister had little interest in letting go of control over the capital city. If every capital city had an elected municipal council and a popularly elected mayor then those manning these institutions of urban government would emerge as influential politicians challenging the dominant position in provincial administration that chief ministers had managed to acquire with time.

Time was when cities like Bombay, Madras, Calcutta, Hyderabad and so on had prominent city politicians elected as mayors. As chief ministers became powerful and as control of urban land, its development and redevelopment became money-spinners for state-level politicians, they had an incentive to eliminate city-level political leaders. The politics and business of urban land use and misuse effectively ended the clout of the institutions of urban governance and made chief ministers and state ministers the arbiters of urban affairs.

Hence, there was no interest at the level of chief ministers and state governments to implement the governance reform agenda of the JNNURM which required rejuvenation of elected offices at the city level, including an elected mayor and a municipal council. Delhi was among the few cities that had a democratically elected city head but by turning a city into a state and a mayor into a chief minister, Delhi allowed a disservice to be done to its governance. Delhi's chief ministers are no more than city mayors. But because of the high-profile nature of such a position in the capital city, Delhi's CMs have had a fancy view of their political importance.

The second soft side of urbanisation is civic sense. The most important governmental initiative in this regard has been Prime Minister Narendra Modi's "Swachh Bharat" mission and the campaign to build and use public toilets and ensure clean and green city development. While this initiative has made good impact in some cities, especially where state and local governments have been active, in the end its effectiveness will depend on the civic sense of every citizen. This is where India still lags behind many countries at a similar level of development. And this is precisely the terrain for action of civil society organisations.

In the locality where I live in Delhi it is voluntary neighbourhood activism by concerned citizens that has transformed public spaces around my home. The locality has become more green and clean purely on account of voluntary work done by its residents in their free time. On the other hand, a small nearby market with around 10 or 12 shops catering to the neighbourhood remains filthy and badly maintained because none of the shop owners is interested in ensuring the proper maintenance of common areas. Within a span of a couple of hundred metres one can see the beneficial consequences of citizen ownership of public spaces and the negative impact of the lack of it.

In the end, urban governance has to be a compact between local government and citizens. Unless local governments are financially and administratively empowered they will not have the commitment or the capability to deliver to their citizens what is expected of them. In India, we have so far focused more attention on modernisation of the hard infrastructure of urbanisation and not enough on the soft dimension of public attitudes to it. To create and maintain smart cities we need smart citizens. ■

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Samita's World *by SAMITA RATHOR*

MUNICIPAL BONDS ARE THE LONG-TERM ANSWER

They compel civic authorities to shape up with better governance, improved revenue flows and make commitments they otherwise tend to shy away from.

VINAYAK CHATTERJEE

THE boom-bust cycle in Indian infrastructure in the last few years with incomplete projects, bankrupt promoters and the drying up of bank lending has focused attention on financing projects. It's clear that the overwhelming reliance on banks to fund infrastructure has inherent dangers–when the economic cycle turns down, bank financing can simply dry up.

So it was somewhat of a landmark move when Pune raised ₹200 crore from the issue of municipal bonds on the Bombay Stock Exchange two years ago to fund water supply projects. This was, in fact, just part of a much larger municipal bond issue of ₹2,264 crore to be raised in multiple tranches and pointed to the possibility that at a time of funding stress there were other sources of finance available for cities. The Pune bond issue was followed by one in Hyderabad in February 2018, also for ₹200 crore. And in August 2018, the government of Andhra Pradesh raised ₹2,000 crore to help it fund its new capital of Amravati. In one stroke, a single bond issue raised almost as much money as all municipal bond issues in India had raised till date.

Together, these bond issues pointed to a possible way out for cities faced with one of the biggest challenges in implementing the government's smart cities project–funding. It was clear from the outset that cities identified under the smart cities programme could not rely on cash-strapped state governments for funding the over ₹2 lakh crore worth of projects. Central government support would be available only up to a point.

To put the matter in broader perspective, estimates made in 2011 (by the government and McKinsey, the consulting firm) are that Indian cities would require between $800 billion and $1.2 trillion of capital over the next couple of decades to provide services to an ever-burgeoning urban population. It is not realistic to assume that current sources of funding, whether taxes, grants or borrowing from banks or national/state governments, could cover these requirements. Alternative sources will have to be found.

Globally, municipal bonds are an established and major source of funding to close that kind of financing gap. In the United States, for instance, the current size of the municipal bond market is over $3.8 trillion and is used to fund schools, transport networks, health facilities and airports.

In India, the municipal bond market has a history stretching back over 20 years before the Pune bond issue. Bengaluru was the first city to issue such bonds, backed by a government guarantee, in 1997. Between then and 2015, however, municipalities in India have been able to raise only $291 million, according to a report by the Janaagraha Centre for Citizenship and Democracy. Funds were raised by cities such as Chennai, Ahmedabad, Hyderabad and Nashik, mostly for projects related to water supply.

> **Indian cities need billions of dollars in investment and there is no reason why dynamic, big cities can't attract investors.**

Why has the municipal bond market in India been slow to take off? Basic building blocks were not in place. Cities did not have even the most basic requirement for a lender to lend — a transparent and clear balance sheet, compiled in accordance with accounting principles that investors could be comfortable with. As the Janaagraha report points out, "municipal bonds in India have not been able to attract potential investors due to the opacity in finances and operational outcomes".

It was in 2015 that the Securities and Exchange Board of India (SEBI) gave a big fillip to the municipal bond market by issuing regulations which enable municipalities to issue and list bonds. The SEBI rules standardise eligibility norms for raising such bonds and aim at ensuring a minimum level of transparency on the part of the city raising funds.

In 2017, 94 of 500 proposed smart cities and those included under the AMRUT scheme (Atal Mission for Rejuvenation and Urban Transformation) were rated by credit rating agencies, a first step to enable them to approach the market. Fifty-five of these cities received 'investment grade' ratings. The Union government too has offered a two percent interest subsidy of the total size of a bond issue to any municipality tapping the market.

This conjunction of changes — standardising of norms for issuers, ensuring transparency in accounts, the preparation of such accounts according to accepted standards and the credit rating of potential issuers — are major comfort factors for potential investors. The SEBI norms say that only cities which have had a surplus in their books in any of the three preceding financial years can raise money from the bond market. Only cities who have received an investment grade rating will be able to access the bond market.

Thus, while less creditworthy cities will always need government support to a considerable extent, there is little reason why bigger and more economically dynamic cities should not be more attractive to investors and be less dependent on government finances. In an additional fillip to the market this May, the Reserve Bank of India (RBI) and SEBI have allowed foreign investors to buy municipal bonds in the Indian market.

The SEBI norms also make it clear that bonds which are to be publicly listed must earmark revenue streams into an escrow account to service debt payments. Bond issues which don't have a dedicated source with which to service debts can only be placed through a private placement with a high level of minimum investment. This ensures that only sophisticated investors with the risk appetite will be able to participate in riskier bond issues.

The success of the new norms is there for all to see — apart from the issues by Pune, Hyderabad and for Amravati, other cities which raised money last year included Indore and Bhopal. Over 2017 and 2018, a total of ₹2,900 crore was raised — more than what had been raised put together in 20 years.

In Pune, proceeds of the bond programme are to be used to fund an ambitious 24x7 water supply project. The project will involve smart metering of water consumption and, for the comfort of investors, a consumption-based telescopic water tariff for the next 30 years which will gradually increase revenues from the project to make it self-sustaining. In addition, a proportion of the Pune Municipal Corporation's property tax revenues have also been pledged toward debt servicing the bond issue.

The listing ceremony of the Pune Municipal Corporation's bond issue at the Bombay Stock Exchange

The Hyderabad bond issue was to be used to fund the construction of multi-layer flyovers across the city to ease traffic congestion. Again, a proportion of property tax revenues and other user charges and fees are to be escrowed to pay debt service.

And it's not just 'top tier' cities such as Pune or Hyderabad which are able to raise money. Smaller, but well managed cities have also been as successful. Indore, for instance, raised about ₹140 crore to fund urban clusters' development under its smart city programme last year. Bhopal raised ₹175 crore.

Even better, there is a way out for less creditworthy cities which may not be able to raise funds on their own. A bunch of such cities can come together and raise funds under a single banner, through a special purpose vehicle (SPV). A state-level SPV can be set up to raise funds with state governments and donor agencies acting to guarantee issues of debt from the SPV.

Such an SPV can raise more funds with a better credit rating than any of the individual municipalities comprising the SPV can. Way back in 2003, the Tamil Nadu government had introduced such a model under which a collection of 14 municipalities in the state had banded together and raised debt to fund water projects. Karnataka too has done the same.

> **It's not just top tier cities that have been able to raise money. Smaller but well managed cities, like Indore, have also succeeded.**

In fact, the urban development ministry has approved a Pooled Finance Development Fund (PFDF) to provide credit enhancement to such SPVs, enabling them to raise funds on good terms from the market.

Bond issues are not a quickfix for long-term structural problems, though. Take Bengaluru, for instance. There is little doubt that economically, the city is booming. But 20 years after being the first city to raise funding from a municipal bond issue, the city's finances are in a mess. It is still dependent on government grants for half its revenues.

Or take Pune. According to a news report, even a year after raising ₹200 crore through bonds, the funds remained unutilised and stuck in fixed deposits. Tenders for the water project for which the money was raised had to be cancelled because of charges by corporators that the bidding process was fixed. The fixed deposits earn the corporation less money than it is paying out in interest on the bond issue.

And unless cities also take measures to improve cash flows in general and increase the size of the revenue pie, the earmarking of funds to pay debts may cut off funds for other equally critical projects which are not funded by the bond issue.

While capital market reforms, central government subsidies and transparency in accounts are all necessary elements to get the municipal bond market to take off, the real problem lies far beyond — in the deep structural issues that plague all Indian cities, whether it is being able to raise property taxes when needed or managing urban politics. As Indian cities begin to fix those problems, bond investors will come running. Municipal bonds are not a replacement for the need to carry out major urban reform but they can often act as an impetus for it. ■

Vinayak Chatterjee is the chairman of Feedback Infra.

FROM VILLAGE TO CITY WITH HOPES AND DREAMS

An industrial model of development delivers numbers. But that is not enough for achieving the complex task of inclusion and social change.

R. BALASUBRAMANIAM

SIDDU had every reason to celebrate. He was the first person in his village to attend a college 35 km away. He dreamed of taking up a professional graduate course in the city of Mysuru. While his aspiration was not overtly unattainable, he had cause for worry. Most people in his village had not studied beyond Class 10 and he was the first to go to college in the nearby town.

The hardships he had to experience were many. From starting out early morning so that he didn't miss the only bus that went to town, to staying hungry the whole day, to trying to make sense of some of the English words that he was hearing for the first time, to being ridiculed by his family and friends for not focusing on agriculture and his family income — he had to endure it all. He knew that the odds were stacked against him and he had little chance of competing with the several million urban students who would also be writing the Common Entrance Tests to seek admission to professional courses. He cursed himself for his ill luck of living in a village and having to tackle life with all its complexities.

Siddu is not alone in feeling despondent that fate and an accident of birth had condemned him to face several barriers to social and economic mobility.

A few years ago, members of a tribal women's Self Help Group (SHG) met me to seek my assistance to prevent a Grameen (Rural) bank from being shut down. This was a rural bank sponsored by one of the larger nationalised banks. It had been operating for a few decades and was located around five km from their tribal colonies.

The banks were now being pushed by the Government of India to become profitable and hence were trimming their operations. This meant that all the branches not making profits were being closed down systematically and most of them turned out to be rural branches.

The women explained how difficult it would be to travel the additional 30 km to the nearest branch in order to continue to get banking services. It looked ironical that they now had to spend ₹40 each time they travelled to deposit their collective weekly savings of ₹100. I went to the chairman of this Grameen Bank and requested that he reconsider closing down the branch. He expressed his inability to do so and explained how their priorities had now shifted from social responsibilities to becoming financially viable. This would be possible only if their branches operated in urban areas, he explained.

> **More than half of the urban labour force works in the informal sector of low-skilled, low-productivity, often self-employed jobs in petty sales and services.**

Chikkaputti was one of the few tribal children I know who decided to break this geographical barrier early on. She was the first girl from the marginalised Jenukuruba tribe to complete Class 10. She decided that her prospects would be better if she moved to Mysuru city, 80 km away. Chikkaputti not only went on to complete graduation, she also found employment as a teacher in a school in Mysuru and is now married and settled with a wonderful family of her own.

Occurrences like these have now become the norm and it is no secret that people see little or no economic opportunities in our villages today. The dream of fulfilling their aspirations drives people like Siddu and Chikkaputti to seek greener pastures in nearby cities.

Rural to urban migration is by far the most major component of urbanisation. It is the chief mechanism by which urbanisation trends globally have moved. Studies indicate that most migration around the world is for education and better livelihood opportunities. As though the push of inadequate infrastructure and personal aspirations are not enough, urban-centric economic growth and rapid industrialisation work as strong pulls for migration. To make matters worse, several state policies incentivise and promote high-end industry which advertises high-paying jobs. This further amplifies the 'pull effect' and attracts migrants.

What is not spoken about much is that more than half of the urban labour force works in the informal sector of low-skilled, low productivity, often self-employed jobs in petty sales and services. Apart from education and employment, factors like droughts and floods also drive people from villages to cities. The increasing uncertainty of farm incomes due to soil and climate inconsistency further strengthens the resolve of people to seek livelihood options in urban areas and move away from traditional farming.

When poor, landless, illiterate and unskilled agricultural labourers and poor farmers from backward states move to Kolkata, Mumbai, New Delhi, Chennai, Bengaluru, Hyderabad and other big cities, what they can actually get is only minimal employment. These migrants have little or no access to housing and other formal social structures and end up living in crowded slums or on the footpath. Securing access to food, water, electricity, sewage and transportation becomes a challenge. Vulnerable and desperate, many are exploited and end up in low-paying jobs. Migration also places additional stress on already burdened and inadequate urban infrastructure. What most Indian cities are facing today is rapid urbanisation with unplanned or little growth in civic infrastructure.

The speed of urbanisation poses an unprecedented policy challenge — yet India has barely engaged in a national discussion about how to handle this seismic shift. The population of India residing in urban areas is expected to increase from 340 million to 590 million by 2030.

Urbanisation is not just about living in cities. It also alters the social and economic fabric of the nation. In 1995, India's GDP was split almost evenly between its rural and urban economies. Bengaluru, which accommodates close to 17 percent of Karnataka's population, is today credited with contributing close to 70 percent of the GSDP. The urban GDP of India in 2008 accounted for around 58 percent of the overall GDP and is expected to cross 70 percent by 2030.

Most migration is for education and better livelihood opportunities

Indian cities are already failing to provide a basic standard of living to their residents and life could become tougher if urbanisation continues unabated and unplanned. As the urban population and its incomes increase, demand for every key service will increase five to seven-fold in cities of every size and type. At the current rate of public investment in infrastructure that most Indian cities are making, most cities and towns will begin to decay and become unliveable.

India urgently needs to adopt a new approach to manage urbanisation and stop seeing urban development from a uni-directional lens. Our policy planners must move away from seeing India's rural areas as mere recipients of state welfare and explore how they can be integrated into the economic mainframe. Thriving economic ecosystems are not built overnight and what we need is a comprehensive and long-drawn strategy that operates on the paradigm of an integrated and interdependent economy.

We need to stop separating rural and urban development or seeing them as two distinct and separate processes. They are inseparably intertwined and urban development cannot happen in isolation. This paradigm will necessitate that the quality of life is nearly the same whether one lives in a village or a city. While this is easier said than done, the State can begin to facilitate this by providing infrastructure in terms of roads, markets, public transport, health and education facilities, power supply, water and sanitation, banking, and digital connectivity on comparable terms. The State needs to augment other governance structures like panchayats with enough finances, funds and functionaries and alongside strengthen the policing and judicial infrastructure. For this to happen seamlessly, rural development needs to move away from the current model of being 'sectorally driven' to being 'spatially driven'.

> **Our policy planners must move away from seeing India's rural areas as mere recipients of State welfare.**

The country now needs to move towards a 'Rurban' focus in its economy and explore how the rural economy can piggy back on its urban counterpart. Beyond providing systemic and infrastructural support, the State should consider providing incentives to corporates to explore setting up industries in rural areas. The modern economy demands an approach of 'clusterisation' and 'specialisation' and the private sector needs proper incentives to invest in them and build a supporting environment.

India is also well positioned to move the JAM (Jan Dhan, Aadhaar and mobile telephony) momentum to the next level. We need to build on the foundation that schemes like MUDRA, Startup India and Standup India provide. Lessons of reverse migration that Malaysia witnessed after the 'palm oil' revolution need to be studied and contextually applied in India too.

All this requires visionary thinking, political will and sustained investment over long periods. It also requires people in rural areas to shake off feelings of impotence, hopelessness and despair. It requires them to be more entrepreneurial, demanding but less dependent on the State, and the belief that one need not equate 'poverty' with rural India. It also needs their urban counterparts to see a stake in rural development and appreciate that it is in their own interests to have a developed rural India where opportunities for both good quality education and employment are not a byproduct but an essential prerequisite for progress.

And if this does not happen sooner rather than later, then people like Siddu and Chikkaputti will have to continue to live mediocre and poor-quality lives, irrespective of whether they stay back in their rural homes or move in search of the ever elusive 'better life' in the cities of India. ■

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LANDFILLS DON'T WORK, LEARN TO SEGREGATE GARBAGE

Keeping cities clean has to be a collective responsibility which starts at the level of the individual. It requires each and every one of us to 'think before we throw'.

SANDYA NARAYANAN

THE thought of an Indian city most often throws up images of teeming millions, traffic snarls, dust and noise and, of course, dirty street corners overflowing with rubbish.

As cities attract more people the problem of waste reaches its zenith. What was earlier considered a mere nuisance or an unpleasant sight resulting from a lack of civic sense has now become a problem of giant proportions.

The Ghazipur landfill in Delhi is now 65 metres tall which is just eight metres less than the height of the Qutub Minar. Bengaluru has so far converted six unused quarries into giant waste dumping sinks and is constantly on the quest for more.

Clearly, Indian cities have reached a point where the solution to their waste problems cannot any more be the work of municipal bodies alone.

Civic administrations lack the ability to enforce their own rules. They also lack the management systems, technologies and the financial resources.

Keeping cities clean has to be a collective responsibility which starts with the smallest action at the level of the individual. It requires each and every one of us to 'think before we throw'.

It takes passion, commitment and staying power. All of which has helped a small group of citizens who came together as the Solid Waste Management Round Table (SWMRT) in 2009 to change the discourse around the waste problem by pulling off changes, starting with policy and legislation, down to creating community participation leading to change in social behaviour. This effort is still ongoing. Notably, every one of the 20-odd individuals were either community leaders or social entrepreneurs who had exerted some level of influence in their communities to initiate projects and bring about real change in the way waste was managed.

So when they came together as SWMRT, their ability as a collective group was a real boost. Various members came with their unique set of skills and the synergy created has been crucial in bringing in different perceptions necessary to problem solving. The spectrum spans analysis, legal aspects, business principles, creating inclusive livelihoods and compulsory role modelling for change.

Creating change has meant having to pilot an idea and show proof of concept, and building goodwill with the community and with the elected representatives to carry out a pilot with the coordination and cooperation of all. The proof of concept has led to large-scale innovative city-wide campaigns or to policy advocacy strategy interventions, often by means of extended engagement through public interest litigation through the high court. This has helped to institutionalise the process, a crucial and necessary part of bringing about lasting change in the way the municipality operates.

A lot of effort has been made to improve design and aesthetics of the SWM (solid waste management) architecture to change public perception around waste handling and management. One of the key strengths of SWMRT has been to keep up engagement with all levels of the municipality from the ward to the city and state levels in a non-adversarial manner through cooperation and participation. This has helped to penetrate and alter the typical citizen approach of grievance airing to problem solving.

What was earlier considered a mere nuisance or an unpleasant sight resulting from a lack of civic sense has now become a problem of giant proportions.

A key strategy has been to increase the number of problem solvers in the community by creating master trainers or community champions who can continuously engage at their local level. They are mentored and provided models and tools for adoption and implementation. This has helped to increase the number of citizen change makers and raise the decibel level of the citizens' voice which cannot be ignored by any municipal or state government.

The most important policy measure is to enforce segregation at the household level

THE RIGHT TIME TO ACT: This is the right time for citizens to act. Municipal administrations have their back against the wall, dealing with growing landfills. Courts are taking a very serious view of the environmental impacts of the mismanagement of waste.

Waste has been raised as a national concern by the Union government through its flagship Swachh Bharat Abhiyan. The need for cleanliness and sanitation has become a cause espoused by the prime minister himself.

There is also awareness of the harm to public health. Waterborne and vector-borne diseases have been spreading. Burning of garbage and leachate from landfills have caused air and water pollution.

It is generally understood that cheap plastic has a toxic impact — not just on human health but also animal health and marine life. This understanding didn't exist so clearly earlier. Companies have come forward to put CSR money into cleaning oceans, beaches and seafronts. Toxins in plastic enter the food chain through cattle and fish.

WEAK PUBLIC POLICY: The biggest gamechanger to improving the waste problem is an across-the-board implementation of segregation at source. This simple change to the way waste is handled at source dramatically changes the way waste can be managed. However, most municipalities have not issued the updated bylaws, even though the central Solid Waste Management Rules 2016 mandate segregation.

Minimisation and recovery are the new buzz words. Banning use of single-use plastic disposables is a bullet that all municipalities have to bite.

Municipalities still spend crores of rupees collecting mixed waste and transporting it for dumping. The collection system and the underlying contractual arrangements are outdated. There is an urgent need for introducing data-based, technology-driven monitoring of daily collection systems. More importantly, infrastructure creation for setting up of decentralised processing of various waste streams has to be given a thrust.

WASTE AS A RECOURCE: Waste management has moved from being a linear activity to driving a circular economy. Minimisation and recovery are the new buzz words. Minimising strategies starting with banning of single-use plastic disposables is a bullet that all municipalities have to bite. Bans, enforcements and penalties have forced commercial and trade organisations to rethink their packaging options and move to alternatives to plastic or more lasting reuse options.

A plastic ban, coupled with a vigilant citizen brigade in the cities of Bengaluru, Chennai and Mumbai, have compelled food and beverage operators to move cheap toxic plastic cups, spoons, straws and plates to biodegradable options or reuse options in ceramic, glass and stainless steel.

Food takeaways are now experimenting with paper, banana leaf and sugarcane bagasse packaging and replacing the low-grade plastic and multilayer flexible pouches which are a complete no-no for serving any food.

The reuse potential of waste is now being better explored. A growing number of people in cities use compost made from kitchen, leaf litter and horticultural waste in their terrace gardens to grow organic food.

Improvements in biogas technology enable municipalities to look at managing large-scale wet waste processing units without the problems of odour. It is also possible to recover cooking gas.

Sorting and grading paper and plastic feeds the robust informal recycling market. Recognising this, more and more municipalities are seeing the merit in setting up dry waste collection centres and material recovery facilities using the natural skill of the waste-pickers and other informal sector workers.

CHOICES THAT ONE CAN MAKE: The waste problem starts at the point of consumption. The zero-waste home is an achievable goal. Conscious consumerism is the need of the hour. It is the individual's decision to carry a cloth bag for shopping, our own bottles or cups, switch to a plastic-free kitchen and adopt sustainable hygiene products like cloth pads and menstrual cups.

The municipality must set up zero-discharge wards by mandating segregation at source, adopting waste stream management and setting up processing infrastructure which will create zero-discharge wards. This will manifest at the larger level into a zero-landfill approach which is the ultimate goal for creating a waste-free society.

A growing new breed of social entreprenuers who are experimenting with alternative product uses, plastic-free packaging and other alternatives made possible through design and technology have helped consumers make the shift to sustainable practices. It is now upto each and every one of us to create the mindfulness which is necessary for lasting change. ■

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