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Civil Society

HALL OF FAME 2018

FIVE CHANGE LEADERS WORKING FOR INDIA

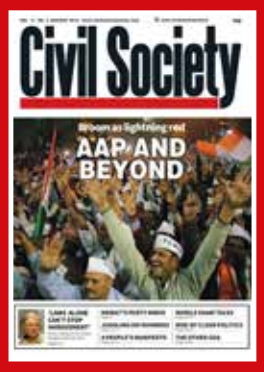
ANNIVERSARY ISSUE

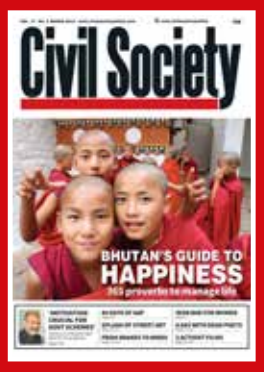
15 years of original journalism

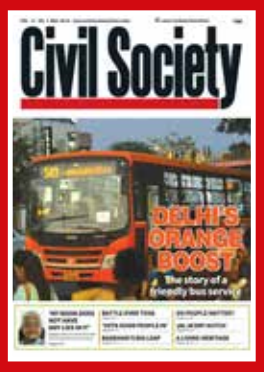
LOOKING BACK & AHEAD

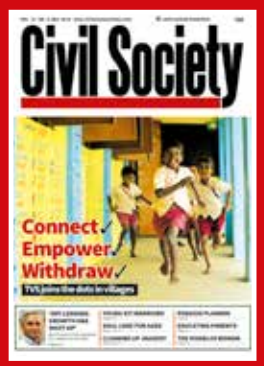
RAJIV KUMAR | R.A. MASHELKAR | ARUN MAIRA
SANJAYA BARU | VIJAY MAHAJAN
DILEEP RANJEKAR | R.S. PRAVEEN KUMAR
RAJ SEELAM | CHETAN MAINI | OSAMA MANZAR
V. RAVICHANDAR | HIMANSHU THAKKAR
PRERNA BINDRA | RAHUL RAM | POONAM MUTTREJA
CHERYL HICKS & SANDY RODGER

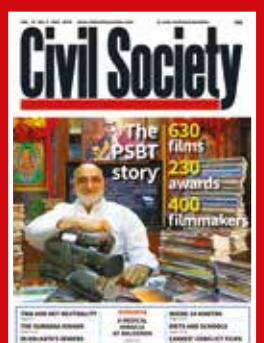
IN CIVIL SOCIETY EVERYONE

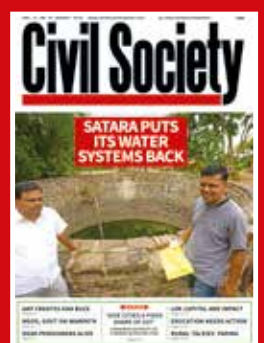


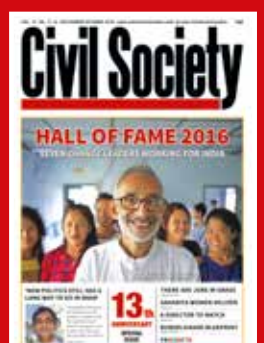


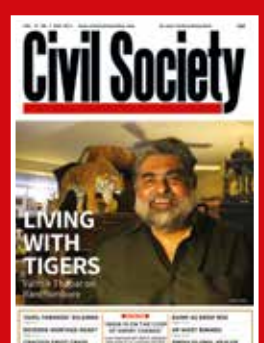


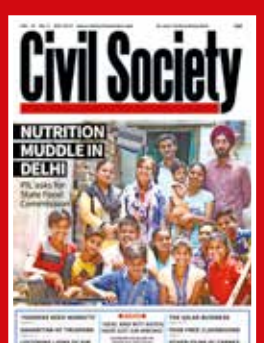


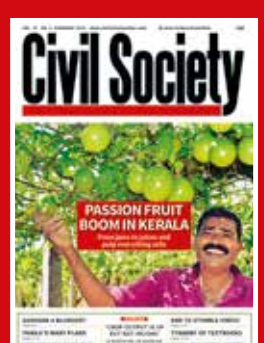


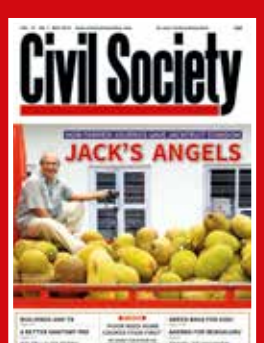












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In a perfect world, children lead happy, carefree childhoods. They spend their days learning in school, while their free time is spent at play with friends. However, for the children of Nuh in Haryana, this is but a distant dream. The culprit - a severe shortage of potable water.

While most of us cannot even begin to imagine how crippling this can be; the residents of Nuh suffer the consequences every day. Over-salinated water and a lack of safe and assured water supply has created a trail of chronic issues that impact the health and well being of school children. This lack of potable water has affected the attendance rate at schools, with children going back home to refill their water bottles. More often than not, they never make it back to school.

DCB Bank stepped in to support an innovative plan using rooftop rainwater harvesting and bio-sand filters in three schools, which resulted in a number of positive changes. Access to drinking water has led to a decrease in absenteeism from schools. Mid-day meals are also cooked using this water, ensuring the children are healthier and happier.

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IN THE LIGHT

SAMITA RATHOR

LETTERS

Mayyil rice

Thank you for your cover story, 'Mini miracle with rice in Mayyil'. Shree Padre's story is really appreciative of the immense hard work we put into our Mayyil Total Rice Campaign.

Radhakrishnan P.K.

Currently, Coorg faces the same issues that Mayyil faced with regard to paddy cultivation and milling. Around 65 percent of paddy fields in Coorg are fallow due to low prices, lack of labour and an intransigent monsoon. It would be wonderful if this experiment can be replicated here.

Brigadier Muthana

Wonderful story. I just hope the Mayyil miracle sustains.

Mustafa

Social horsepower

Thanks for the story, 'Social horsepower in the saddle.' I really appreciate this method of raising the self-esteem of the underprivileged.

Devendra Oza

The best way to throw down the gauntlet is to help Dalit children do everything their parents and grandparents were persecuted for. Brilliant initiative by Praveen Kumar.

Kabir Kumar Mukherjee-Mustafi

Milk and more

Your interview with R.S. Sodhi, managing director of the Gujarat Cooperative Milk Marketing Federation (GCMMF), was very interesting. The public sector and the cooperative sector can thrive if they have visionaries like Dr Kurien right from the beginning and successors like Sodhi. Leadership is half the battle won and it is a battle that India is losing because we have well-educated but socially incompetent managers.

Siddhartha Banerjee

Very noble and inspiring work by R.S. Sodhi. Way to go! God bless you and the farmers of GCMMF.

M. Jayaraman

MFI impact

This is with reference to Ratna Viswanathan's review of Subir Roy's book on Ujjivan. Customer centricity has been the hallmark of Ujjivan's success. This is the reason the MFI has been able to overcome unforeseen challenges and become so hugely successful.

Girish Dikey

Excellently written review on Ujjivan. It was insightful and made some valid points on the MFI sector.

Samir Alam

Water Cup

Your story on the work of the Paani Foundation, 'Winning the Water Cup,' had detailed information. I would request you to update the current status of this important project. It takes time to assess the results of a water campaign. Data from the past few years, current status of water and future patterns must be assessed.

Upendra Dhonde

Pancheshwar Dam

The Pancheshwar Dam will have a massive reservoir that will submerge not only the homes of people living near it but their emotions as well. Most people have migrated from the villages which are likely to be submerged.

Life there is very tough. Children travel several km to school.

Mayank

ANNUAL DOUBLE ISSUE

This September-October issue of Civil Society marks completion of 15 years of the magazine.
The next issue will be in November.
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15-YEAR JOURNEY

HALL OF FAME

LOOKING BACK & AHEAD

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15 YEARS AND A NEW MENU EVERY MONTH

Great stories from all over India

RITA & UMESH ANAND

WHEN we are asked to talk about our magazine, which is more often these days than in the early years, we sometimes compare ourselves to a gourmet restaurant with original recipes and faithful customers coming back for more.

To be small and accountable and free of mega ambitions is a welcome return to basics in times when we are besieged by fake news and fictional 'likes' and 'views' on the Internet, not to speak of doubtful numbers for TV viewership and print circulations.

Civil Society was dreamed up in the belief that small media is needed to drive new ideas and look at our world differently. If journalists could revise their notions of size and reach, they could gift themselves the freedom to do meaningful and engaging stories and thereby be more useful to society.

The 'gourmet approach' calls for innovation, quality and integrity. For skilled journalists it is an opportunity to refurbish the standards of our profession in much the same way as a passionate chef raises the bar for good cooking.

In 2003, when we began, we could see the civil society space emerging in an impactful way. Agents of change, in NGOs, businesses and government too, were coming forward to fill gaps in the country's development. As journalists we felt drawn to telling these stories using our big-media skills and created a magazine which sought to be lively and anecdotal in style and visually powerful. It was decided that we would look at problems but focus on solutions. Our search would be for what was working and why.

We decided to celebrate change and the lives of people making it happen. We wouldn't ignore what was wrong and the many inequalities that existed around us, but we wouldn't dwell on them because enough was already known about them and there was little that we could add. Instead, we chose to put our energies and our extremely limited material resources (think money) into examining ideas and initiatives that were delivering results or had the potential to do so. If written up simply and packaged attractively they could be easily shared. Going forward, such ideas and initiatives could perhaps be emulated, adapted and scaled up.

It concerned us that as India went through economic liberalisation, our lives had come to be shaped by information that flowed from a few chosen sources. There was less and less that journalists were telling India about India. Success was being narrowly defined. Achievers were of a kind. Anyone outside this circle had, for all practical purposes, ceased to exist. We were of the view that as a country we were closing our options and becoming less competitive. Managements in big media houses preferred to conform and opted for the tailored look. Readers got what advertisers wanted. Elsewhere in society — outside the media — only a few chosen and predictable positions prevailed. You either had to be 'this' or 'that'. If you weren't on TV or on a few editorial pages you counted for nothing.

LAKSHMAN ANAND

But democracy is strengthened by small voices and efforts. Journalists are needed to capture them so that they don't go unheard. We felt we should step out and lead by example. In the past 15 years, appearing as we have month after month without missing a deadline, we have produced a few thousand stories which might never have been otherwise written. The faces on our covers are those that would never had made it into print. The people we get to are mostly surprised that we want to spend time with them and publish their stories.

We are delighted to have been able to do this. Our journalism has taken us to the furthest corners of the country and, through this magazine, the most improbable of connections have been made between rich and poor, empowered and powerless.

An example is the Mind Cafe, pictured here, and to which you are cordially invited. We found the Mind Cafe in Tezpur. And what were we doing in Tezpur? We were there to check out a certain Dr

Nilesh Mohite, who at 32 is a young psychiatrist and a Maharashtrian, but instead of pursuing a career in a big city like Mumbai with wealthy patients, he works among tribal people of Assam. Two of Dr Mohite's patients, both young women and suffering from schizophrenia, supervise the cafe, which is the sum total of a few tables with coffee and tea and Maharashtrian snacks on offer.

Dr Mohite hopes that at the Mind Cafe mental illness will come out in the open, be discussed in daily interactions and finally lose some of its stigma. It is a tiny initiative but important nevertheless. Tezpur has a mental health hospital and college and yet large numbers of poor tribal people go unserved for want of psychiatrists. It gives us some idea of the huge challenges in public health that India faces and has hardly begun to address.

Dr Mohite has joined Dr Sunil Kaul, who for the past 18 years has led the Action Northeast Trust or Ant. Among other wonderful initiatives, Dr Kaul has for the past 10 years run a mental health camp in the remote and strife-torn Chirang district where Bodo tribes have been seeking a homeland. Dr Kaul, who is a general physician, has bravely kept the camp going without a psychiatrist. Dr Mohite is the psychiatrist he has been looking for.

Ant and Dr Mohite are in this year's Civil Society Hall of Fame whereby we celebrate ordinary Indians trying to make a difference. Others in the Hall of Fame are Dr Prakash Vinjamuri and his wife Dr S.V. Kameswari from Telangana, Dr Jogesh Kumar from Rajasthan, and two agricultural scientists from Kerala, Dr C.R. Elsy and Dr Prasanna Rajendran. The five are profiled in this issue.

Dr Vinjamuri and Dr Kameswari have, for the past 18 years, been campaigning in rural Andhra Pradesh/Telangana against the widespread medical malpractice of conducting hysterectomies when they are not needed, especially in young women for whom it means being condemned to early menopause. The couple go from village to village (for many years on their own and now with the support of the Telangana government) explaining to rural women the importance of the uterus and why its removal is justified only in very few circumstances.

At the other end of the country, in Rajasthan, Dr Jogesh Kumar has transformed a primary health centre (PHC) of the government at Gida in a remote corner of Barmer district. He was sent there five years ago on his first posting and found the PHC in a state of collapse. Today it is a shining example of what state-run healthcare can be like. Such is the demand for quality healthcare that Dr Jogesh is a local hero.

We found Dr C.R. Elsy and Dr Prasanna Rajendran in Kerala. Both have featured in our magazine before becoming entrants to the Civil Society Hall of Fame. They are examples of what agricultural scientists working in the government can achieve for farmers through vision and persistence.

Dr Elsy, who heads the Intellectual Property Rights (IPR) Cell in Kerala Agricultural University, has worked with just a couple of young assistants to help farmers get Geographical Indication (GI) status for eight unique crop varieties such as the much loved Chengalikodan banana, Pokkali and Kaippad rice and the Vazhakulam pineapple. In the pipeline are Marayoor jaggery, the Kuttiyattoor mango and others.

Dr Rajendran has brought about sweeping changes at the agriculture research stations in Malappuram and Wayanad. Both were beset with the problems that afflict government facilities. Dr Rajendran has transformed their work culture and made them generate revenue. With a young team of professionals, he has reached out to farmers to extend agricultural services and has created livelihood opportunities.

At Wayanad, Dr Rajendran has successfully started a flower show which generates almost Rs 1 crore in entry ticket sales from thousands of visitors. Wayanad has now been declared a 'Special Floriculture Zone'. Under him, the agriculture research station has done extensive water harvesting and taught farmers as well.

Agriculture and healthcare are burning issues of the day. Seminars and conferences have experts wrestling with solutions. Theoretical frameworks and policies are important but there can be no substitute for action. Many of the bigger solutions we need are to be found at local level where purposefulness and pragmatism deliver results.

The Civil Hall of Society Hall of Fame has completed eight years. It is perhaps the most perfect expression of our magazine's slogan: 'Everyone is Someone'. It reaches out to thoe who are routinely overlooked. The exceptional people who are this year's entrants should be feted and consulted for the valuable experience they have and the bigger role they can play in taking India forward.

The Civil Society Hall of Fame is designed to find achievers who aren't good at promoting themselves or their work. To be in the Civil Society Hall of Fame, the first condition is that you can't want to be famous. And of course you can't apply. You just have to be identified — which we do through our multiple networks.

Our partner for the Civil Society Hall of Fame since its inception has been the Azim Premji Foundation. We also have a wonderful jury: Dr R. A Mashelkar, Aruna Roy, Nasser Munjee, Harivansh,

This magazine has made the most improbable of connections. Rich and poor, empowered and powerless.

Dr D.P.S. Toor, Vir Chopra, Gautam Vohra and Darshan Shankar. They are each public spirited individuals who have had a long and affectionate association with our magazine.

In addition to the Civil Society Hall of Fame we have in this issue 16 special articles by on the voluntary sector. The contributors come from diffrent walks of life. They come from government and industry and the social sector itself. So much has happened in the past 15 years that it is difficult to be comprehensive. We've settled for an eclectic collection of articles well aware of the fact that some areas haven't been covered.

We are especially touched by these writers, all busy people, setting aside time to pen serious and insightful pieces for this anniversary issue. And delivering on time too! Together they make a rare collection.

Making a magazine like *Civil Society* sustainable takes time and even with 15 years under our belt it isn't easy. We remain always inches away from business failure. But we measure success in innumerable ways. It gives us great satisfaction to have paying subscribers and advertisers who see merit in our mission. The advertisers have been persuaded by us to go beyond mere numbers and put a value to original journalism. It is great that decision makers in companies have gone the extra mile for us.

Journalism for us is all about connecting with people — those whom we write on and those who read us. We draw our strength from both. It has taken time but *Civil Society* has grown into a large community. In an old fashioned way it is a business that goes beyond commercial considerations to take journalism back to its social moorings.

Being small and under-capitalised has been a strength because it has forced us to be alert and inventive at all times. But the lack of money has also been frustrating and prevented us from hiring, increasing coverage, shooting videos, marketing ourselves more widely and so on. Yet, when we weigh it all up and ask ourselves whether it has been worth it, the answer is yes. ■

15th Anniversary

CIVIL SOCIETY HALL OF FAME 2018

IN ASSOCIATION WITH THE AZIM PREMJI FOUNDATION

- Nilesh Mohite & Ant
  ASSAM
- Prakash Vinjamuri & S.V. Kameswari
  TELANGANA
- Jogesh Kumar
  RAJASTHAN
- C.R. Elsy
  KERALA
- Prasanna Rajendran
  KERALA

Dr Nilesh Mohite sees a patient at the Ant camp

NILESH MOHITE & ANT

Mind doctor on call

IT is very early in the morning on the campus of the Action Northeast Trust or Ant, the lovely acronym by which it is known. We are somewhere in the strife-torn Chirang district of Lower Assam, close to the border with Bhutan. This is where the Bodos have been asking for a separate state.

The Ant campus usually comes alive early. But at 5 am it seems we are up earlier than early in our eagerness to see what happens at a monthly mental health camp that Ant has been holding for 10 years.

The camp begins at 10 am, but people are known to begin arriving much in advance because as many as 500 or 600 patients turn up and the big hall where they converge gets really crowded. They come on foot, on cycles, in three-wheelers and in the odd car. They are young and old and accompanied by families. Some belong to very nearby villages and there are others who come from 50 km or 100 km away, switching buses and walking the last bits of the distance.

The Ant camp is just about the only place in these remote parts of Assam that someone with a mental health issue can hope to get

PICTURES BY LAKSHMAN ANAND

The Ant camp in Chirang district is just about the only place that someone with a mental health issue can hope to get attention.

attention and medicines. One could go to the Tezpur Mental Health Hospital, but that would be a stretch in more ways than one for someone with little money and a fear of big institutions. The Ant campus is more accessible and friendly and the fee of ₹300, which includes medicines, makes the treatment affordable.

By the time the camp is set to begin, it seems some 300 people have turned up, almost all of them holding yellow cards which means they are registered patients.

They make up a sizeable number, though not the 500 or 600 we were told were likely to come, and there is a rush as the files of patients are fished out of rows of cardboard boxes lined up on the floor of the central hall. Once fees are paid and tokens with large numbers printed on them are in hand, it is time to wait in queue to see one of four doctors. There are cases of schizophrenia, addiction, epilepsy and depression.

Ant's founder, Dr Sunil Kaul, is a general physician who once served in the Indian Army. He set up Ant in 1990 in this remote part of Assam to contribute to development here. A weaving unit at Ant gives tribal women employment and from their efforts has come about a brand of clothing called Aagor. It has generated wages of more than ₹2 crore.

Ant has some community health programmes as well, but mental

It is difficult for families to take mentally ill patients to faraway hospitals. They can't afford private clinics. A new approach is needed.

illnesses were way off its radar till 2000, when an NGO called Ashadeep came along and asked to use the Ant campus for a mental health camp because people in the area were in need of attention.

Dr Kaul agreed and the monthly camp attracted patients. Over time, however, Ashadeep withdrew, perhaps because it had run out of funding. Nevertheless, the patients continued coming and Dr Kaul was faced with the dilemma of either turning them away or assuming the full responsibility of holding the camp and giving them whatever treatment was possible.

He chose the latter, rolling up his sleeves to deal with psychiatric cases. He was helped by two other general physicians, Dr Debnath and Dr Mintumoni Sarma. It was difficult to find psychiatrists though the Tezpur Mental Health College had 20 on its staff and there were others graduating from there, but none of them wanted to come to the violence-prone Chirang district, nor did they see themselves treating poor patients in a camp. The odd psychiatrist who might have been willing to come wanted more money than Ant could afford.

So Dr Kaul soldiered on till a year ago when Dr Nilesh Mohite, a young and public-spirited doctor with a specialisation in psychiatry, came along. He had done his basic medical degree from a college in Mumbai, but for his specialisation in psychiatry he had come to the Tezpur Mental Health College.

A Maharashtrian, with his parents in Mumbai, Dr Mohite chose to stay on in Assam and give back to the state, where he could see psychiatrists like himself were needed. It wasn't out of character for him, because he had always had a different perception of what a doctor's role should be.

After acquiring his MBBS degree, he had taken time off to introspect on what he should do as a doctor. Using medicine to get rich didn't interest him. As he looked around, he discovered Dr Abhay Bang and Dr Rani Bang in Gadchiroli and spent time in their fellowship programme. He then decided to become a psychiatrist and the common entrance exam brought admission to the Tezpur college.

Ant and its public-spirited environment with the energetic and well-meaning Dr Kaul at the helm was just the place for him. He was ready to work for Ant for ₹10,000 a month because he believed that psychiatry in India needed to be redefined to serve millions of poor people who have mental problems but never get to see a psychiatrist.

According to the National Mental Health Survey in 2016, about 11 percent of the Indian population or about 150 million people suffer from mental illnesses. For them there are just 4,500 psychiatrists. Most of them are city-based and it is costly to consult them. There are state-run mental hospitals like the one at Tezpur, but they are at a great distance from patients. It is daunting to enter such institutions and almost impossible to relocate for the period of treatment. A new approach was needed, Dr Mohite felt, in which psychiatrists could go to patients who needed them.

Just 32 years old, Dr Mohite has an intense but collegiate manner about him. He wears a stubble and on the days we spent with him, first in Tezpur and then at Rowmari village in Chirang district, where Ant is located, he was invariably in jeans with a scruffy shirt and a bag slung across his chest. He could, at first sight, pass for a student, but as he gets talking it is clear that he is purposeful and insightful.

We ask him if it is possible at all to seriously treat psychiatric patients in such a flood as at the Ant camp. Dr Mohite explains that in the Indian situation, where patients far outnumber psychiatrists, there is no other way except to create an alternative model. The Ant camp has ways of flagging patients according to the attention they should get. There are patients who are doing well and only need to

Waiting to register and pay fees

Patients' records are fished out of files

From early morning people begin coming to the camp

collect their medicines every month. Then there are those who need to be reviewed by a general physician. A much smaller number, among them new patients, requires a psychiatrist to interact closely with them.

The Ant camp is an important achievement because the systems developed here can be replicated all over Assam. Many more camps and sub-centres will have to be opened if a larger number of patients are to be served.

"We have developed a self-sustaining model in Assam by charging ₹300 per patient, but we do realise that we are doing this in one corner of Assam. We perhaps end up serving four districts. But there are so many more districts," says Dr Mohite.

Getting to patients in these areas will mean creating facilities and training local people and persuading the closest psychiatrist to attend a facility at least once a month while Dr Mohite himself can provide overall supervision.

A programme called MITA or Mental Illness Treatment in Assam has been devised with Ant to give this initiative shape. Mita also means friend in Assamese.

Another centre has been opened by Ant in Dhimaji district, which is in a remote corner of Assam on the border with Arunachal Pradesh, 800 km away. At the first camp in Dhimaji, 100 patients came for treatment. Working with a local NGO, Dr Mohite has trained 20 people to serve as support staff by visiting patients' homes and spreading awareness.

He says similar centres are planned at 17 other locations in Assam. Ten of these will be through Ant and seven through Parivartan, an NGO founded by the late Dr Narendra Dabolkhar and Dr Shaila Dabolkhar in Maharashtra. Parivartan has been working in mental health and has had a presence in Assam since 2011.

"Dhimaji district would have about 70,000 patients, just going by the statistics for mental health problems in India, and in fact, the number could be higher," says Dr Mohite. "Before we started a centre there it took 13 to 14 hours to take a patient to the Tezpur Mental Health College for treatment."

Patients can be aggressive and disturbed and very often get refused

It can be a long wait for patients and family members

At the first camp in Dhimaji 100 patients came for treatment. They no longer had to travel for 14 hours to get to Tezpur.

public transport. A car has to be hired and they have to be accompanied by three or four family members. In Tezpur there is the problem of where to stay because hotels turn them down. At the Tezpur Mental Health College even if one registers at 9.30 am one may not get to meet a psychiatrist before 4 pm. Families end up spending ₹20,000 or more on just one visit.

"By starting the Dhimaji centre we give these patients everything for just ₹300. It would take them an hour or two to get to the camp. This is a huge improvement over going all the way to Tezpur. It takes some time to develop a camp and, as the number of patients increases, we will have the resources to pay a psychiatrist in a nearby district to come to Dhimaji once a month. It will need some convincing but there are socially driven doctors. Also, when they see a psychiatrist from Mumbai coming all the way to Dhimaji, perhaps they will feel motivated to do their bit."

At Ant, Dr Mohite joined a programme that had been bravely kept running by Dr Kaul and his team. A lot of work had already been done, but a professional psychiatrist was needed and Dr Mohite was just right for that role.

Going forward, the setting up of additional centres and holding camps there will be a much larger effort. It remains to be seen whether an alternative model for broad-based mental healthcare will emerge from this initiative. But, in the meantime, at least some patients who didn't have a chance to see a psychiatrist now literally have one on call. ■

Umesh Anand and Lakshman Anand travelled to Assam to see the work done by Ant

Dr Sunil Kaul with a patient

Medicines being dispensed

PICTURES BY LAKSHMAN ANAND

Dr Kameswari and Dr Vinjamuri work as a team to explain complex reproductive health issues to village women

PRAKASH VINJAMURI & S.V. KAMESWARI

The womb crusaders

IF you sit in a district bus, every fifth woman doesn't have a uterus, Dr Prakash Vinjamuri says to us quietly at the village of Vasalamarri, a couple of hours by road from Hyderabad.

It is a stunning statistic, but Dr Vinjamuri and his wife, Dr S.V. Kameswari, should know. They are responsible and public-spirited physicians, who have since 2001 been educating rural women about the importance of the uterus and why it should not be removed except for the most compelling medical reasons.

What got them started back then was the discovery, while running a rural clinic in unified Andhra Pradesh, that all 300 women in a spinning mill had had their uteruses removed.

The doctor-couple initially found it difficult to believe, but as they probed further they discovered to their dismay that a large number of rural women, the majority of them in their twenties and even as young as 18, had been through hysterectomies. In many cases the ovaries too had been removed.

Widespread medical malpractice had condemned these village women to early menopause and ill-health. The unequal relationship between doctor and patient had prevented them from asking the right questions and seeking better advice.

The uterus and ovaries are essential to conceive and have babies. But they are also linked to the overall health of a woman. The ovaries, for instance, produce estrogen, a female hormone, the lack of which leads to heart problems, weakened bones and lack of libido.

The odd infection in the reproductive tract or white discharge or perhaps a little bleeding could have been easily treated. Instead, in the hands of manipulative doctors, women have been subjected to the violence of surgeries and left minus an organ so essential to womanhood.

Over the years, a few million women in Andhra Pradesh, now split into Telangana, have perhaps been operated on wrongly. The exact number could be anyone's guess, but without doubt it is huge. Women continue to be victims of this malpractice because in the absence of awareness they get pushed into surgery by doctors who are either out to make money or just happen to get a diagnosis wrong.

For several years Dr Vinjamuri and Dr Kameswari campaigned in villages on their own. It was a meaningful but small effort. Given the size of the problem, working independently, they could at best have had a limited impact. However, they have now been enlisted by the Telangana government which had heard of their crucial campaign and reached out to them to work with the state health department.

The current programme with the government is for nine months and began in January 2018. For an awareness drive in Yadadri-Bhuvanagiri district, the government has drawn up a list of 72 villages, to be visited one by one.

"Every village is new to me but in a very short time I have to get connected. I reach out to the elderly and children. We begin by talking about food and what they are eating and move on to what they should be eating. The uterus is a sensitive issue and we can't begin talking about it straightaway. We have to get the women

Engaging with the women and capturing their attention is important

‘We begin by talking about food. We have to get the women thinking. In rural areas people start talking when they get thinking.’

thinking. In rural areas people start talking when they get thinking. We can’t straightaway talk science to them,” explains Dr Vinjamuri.

While Dr Vinjamuri gets the women engaged in a discussion, Dr Kameswari talks to them about their bodies and goes into details about reproductive systems. We watched the couple in action at the village of Vasalamarri, one of 12 villages that the couple was visiting in Thurkapally *mandal,* which has 23 villages. Even with the support of the state machinery, it is too much to visit each village.

Including the village of Vasalamarri, Dr Vinjamuri and Dr Kameswari had done 88 sessions with students, health workers, government functionaries and village women. They took a break in May when it is just too hot to be out in the open. But otherwise, every day it has been early to bed and early to rise and off to a new village.

From ASHA workers to village mobilisers and block coordinators, multiple functionaries of the government are now involved. While Dr Vinjamuri and Dr Kameswari take no money for themselves, their NGO, Life HRG, is reimbursed expenses such as car travel.

It helps to have the support of the government, but communicating with village women on matters of reproductive health is not easy. It won’t do to be academic or official or too casual, for that matter. The subject of the uterus, in particular, is extremely sensitive. It involves explaining bodily functions and many of the women who have wrongly had their uteruses and ovaries removed don’t want to hear about the mistake they have made.

Dr Vinjamuri and Dr Kameswari have a great act going between

Women who have had their uteruses removed raise their hands

them. Having spent long years of talking to rural women and getting them to view their empowerment in relation to the uterus, the couple know what to say and how to deal with the opposition they run into.

At Vasalamarri village about 50 women gather and sit on the floor in the open to hear the couple. The village coordinator has convinced them to stop the work they are doing at home and come here.

Dr Vinjamuri takes the lead. He begins by talking about food and the importance of nutrition. Like a scooter needs petrol and tyres air, the human body can’t do without food, he says. Women need to eat well to stay healthy. There are traditional greens all around which provide the body with iron and other nutrients. He plucks some from nearby and shows them.

Emphasising a balanced diet, Dr Vinjamuri gently takes up the topic of women’s reproductive health. Many of the problems they face are because they don’t consume the right foods. They would not have to go to doctors if they were careful about what they ate. It is because they don’t eat the right things that they have problems with their

Dr Vinjamuri holds up a replica of the womb

reproductive organs and end up in the hands of exploitative doctors.

Displaying a wooden replica of a woman's reproductive organs, he talks about the functions of the uterus, the ovaries and the vagina. He holds the wooden replica over his lower abdomen. Dr Vinjamuri then asks the women listening to him how many of them have had their uteruses removed. About one-fifth of the hands in the group go up. It is the same percentage that, he says, you would find on a district bus.

A few of the women are very old. But mostly the women are in midlife. For us it is difficult to tell what they are going through or what age they are. We have been told by the doctors that the average age of women who have had their uteruses removed is 28.5 years. These women don't look so young and so, perhaps, they have been through surgeries some years ago.

Dr Vinjamuri then launches into the subject of removing the uterus and that surgeries are needed only in a few cases. Just as he seems to be making good progress, a slightly stout and elderly woman to his right begins making a ruckus. She and many others had their uteruses removed many years ago and so what is the point of this lecture, she wants to know. Dr Vinjamuri's advice means nothing to her. Her banner of revolt prompts others to speak up. They want to know what they are supposed to do when a doctor tells them that they either have to remove the uterus or die. How do they make a choice?

As the questioning gets louder, Dr Vinjamuri is joined by Dr Kameswari. The women who don't want to listen are told that they can leave. A good number get up and go and the audience is a little smaller now but all ears as Dr Kameswari seamlessly takes over from her husband. She gets into the specifics of gynaecological problems, which Dr Vinjamuri as a man could not take up. She talks about blood loss during periods, white discharge and smelly white discharge, spotting, bleeding while delivering a baby and so on.

She points out that many of the conditions for which uteruses are removed — such as white discharge — are really not cause for concern. White discharge can, in fact, be good as with bleeding. The only conditions in which the uterus must be removed are those in which the life of the woman is in danger such as heavy bleeding after childbirth or cancer.

"We are giving them basic knowledge. Eighty percent of the surgeries are being done because of white discharge. The women don't know that white discharge can be good for them. They don't know the difference between healthy white discharge and unhealthy white discharge," explains Dr Kameswari to us later. "They will go and talk to a rural medical practitioner who will take them to an allopathic doctor and from there to a nursing home or hospital."

"In any health issue, the government has a 33 percent role, the practitioner 33 percent and the patient 33 percent. We are making them aware so that they can play their role as patients," says Dr Kameswari.

A study was done in Munipally block of Medak district by Dr Kameswari and Dr Vinjamuri with institutional support from the National Institute of Nutrition in Hyderabad. They looked at the cases of 173 women who had been through unindicated hysterectomies and had registered with their NGO. Additionally, a questionnaire was distributed among 265 women who had gone through hysterectomy or not.

The study goes into great detail, but the main takeaways present a worrisome picture of exploitation, poor medical ethics and the health of women. The average age at which hysterectomies were performed was 28.5 years. Of the sample, 60 percent had hysterectomies below the age of 30 and for them the average age was 24.6 years.

The ovaries of 33 percent of the women, for whom detailed information on the surgeries was available, had been removed. More than 90 percent of the women went to private hospitals.

Other interesting findings are that the women were all married at the average age of 14. The first child was born at the age of 16.

Dr Vinjamuri says: "We have divided this programme into three phases. In the first phase, from January to April, we talked about life and women's health. In the second phase, which is now, we are talking about food and women's health. In September, October and November we are going to talk about medicine and women's health."

In nine months they expect to cover a population of 200,000. But is that enough? Will government functionaries take over? It will be difficult to be as effective as the couple.

For one, they are both doctors. Dr Vinjamuri is also a gifted communicator and makes the audience laugh and answer questions. They also personalise their presentations, talking about themselves as husband and wife, and emphasising the importance of fidelity for sexual health. "I talk to them about myself and say that I have only had sex with my wife. Multiple partners leads to infections and disease," he says. For a bigger campaign to be impactful it will have to replicate much of this charisma. ■

Umesh Anand and Lakshman Anand travelled to Hyderabad and to Vasalamarri village with Dr Prakash Vinjamuri and Dr S.V. Kameswari

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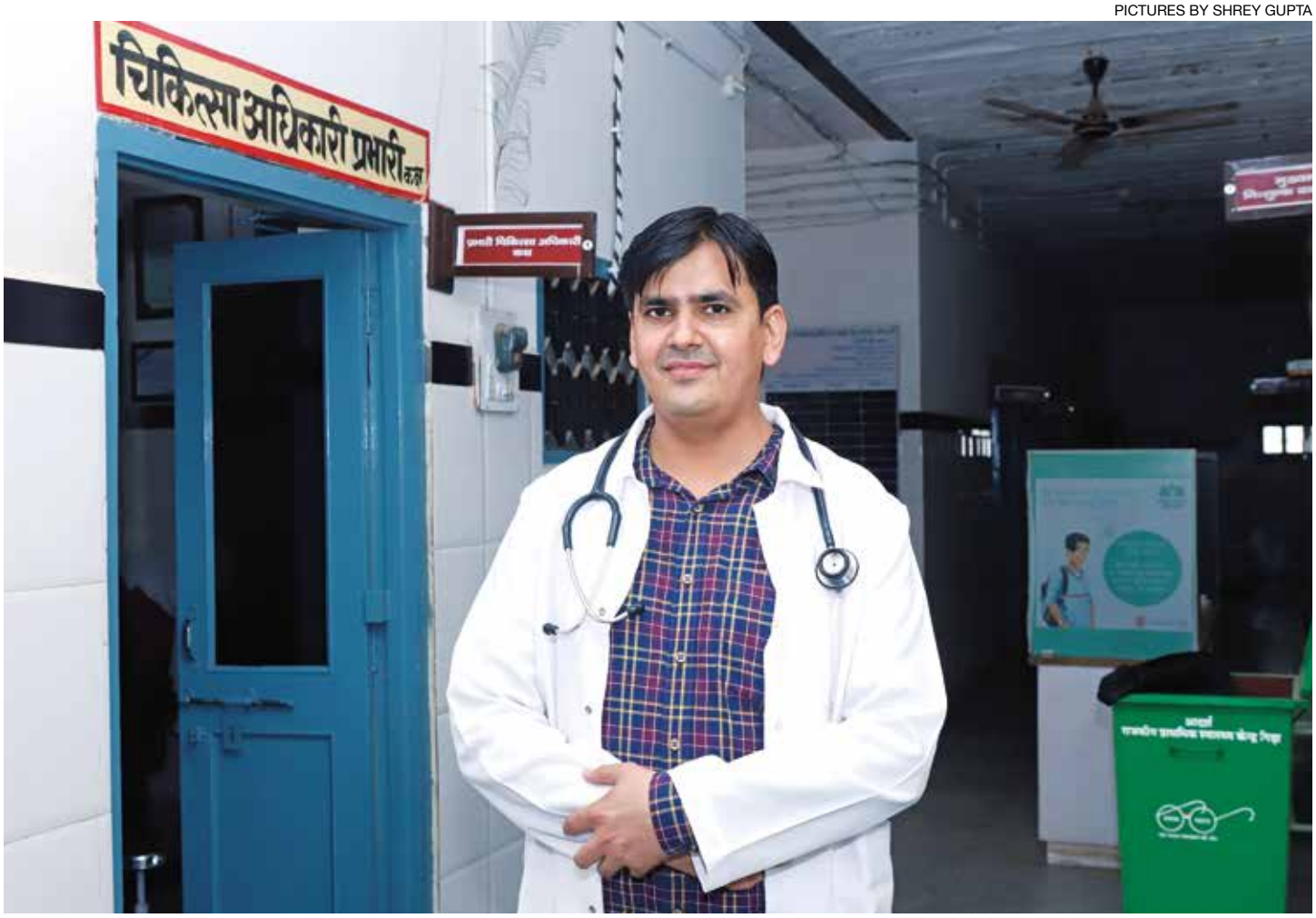

Dr Jogesh Kumar at the primary health centre

JOGESH KUMAR

Gida PHC's saviour

WHEN Dr Jogesh Kumar set foot in the Primary Health Centre (PHC) at Gida in Barmer district of Rajasthan, he found himself in calf-deep water in the reception area. The facility was dank and dilapidated and the water remained stagnant for all of five days.

It is not uncommon to have a few heavy showers towards the end of the monsoon in this desert region where Gida is located. There have even been floods in Barmer. The PHC's problems, however, had more to do with long administrative neglect than the rain. No one had tried to manage it properly.

As government-run PHCs went, it undoubtedly ranked among the worst in Rajasthan. Its daunting conditions were enough to drive medical talent away. But it was here that Dr Jogesh (as he likes to be called) had arrived on his first posting as a medical officer of the government on August 28, 2013.

It is a date he can't forget. All of 25 years old, and brimming with enthusiasm, he had done the 100 km from Barmer town to Gida village alone on his motorcycle. The conditions at the PHC were depressing, but he chose to stay. And, moving into his living quarters behind the PHC, he began the seemingly hopeless task of turning the place around.

Five years later, the results of his efforts are worth seeing. The Gida PHC has been transformed into a shining example of a modern, low-cost public health facility. It has clean wards and beds. The toilets are usable. You won't find litter.

The labour room is sanitised and has two delivery tables and two baby warmers and a digital clock shining on the wall to record the exact time of birth. Biomedical waste is systematically collected and disposed of. A laboratory at the PHC conducts 15 tests and provides results almost immediately. Vaccines are preserved in a deep-freeze with the required temperature recorded and maintained.

Patients register at a counter at the entrance and their personal case histories are computerised. There is a counter for dispensing free medicines. Stocks of medicines are warehoused, accounted for and replenished on time.

As the PHC's reputation has grown, it has begun attracting patients from far away. Last year, it treated 36,000 patients, which is about five times the number it used to get. It has handled 70 deliveries in a month compared to just 10 earlier. Since the catchment it serves has increased, it is now poised to become a Community Health Centre, which means it will have more doctors, with at least one of them a specialist, and more nurses and support staff. An X-ray machine will also arrive.

The improvements haven't gone unnoticed. The PHC has won recognition from the Rajasthan government for handling the largest number of deliveries in the district and treating the most patients in the state among PHCs. It also tops in distributing free medicines.

Before Dr Jogesh arrived, people would come to the PHC because they had nowhere else nearby they could go to get treatment. Gida has a population of just about 2,500 and they are mostly poor people with small landholdings or employed as labour. For a major health problem

The sanitised labour room with everything in place

they would use their savings and somehow make it to Jodhpur or Barmer. But for a fever or a stomach infection it was the PHC they turned to. They had no alternative despite its poor condition.

"I didn't anticipate what I would find in Gida, but it was my first posting and in my mind I wanted to do a good job wherever I was posted. I wanted to do such a good job that people would remember me for my contribution," said Dr Jogesh, when we meet at the PHC.

Three months before we met him at the PHC, he had been transferred to the district hospital at Barmer. *Civil Society* persuaded him to take a couple of days of leave and come to Gida to be interviewed and photographed. His presence loomed large and neither staff nor patients had forgotten him.

Raza Devi, 85, a patient with blood pressure problems, spotted him and said affectionately: "You, what are you doing here? Have you come back?" She was at the PHC for her regular blood pressure check-up and medicines. "He is a very good doctor," she tells us. Her son, Ghamma Ram, endorses that and says to us: "All the facilities that you see have come because of him. He changed this place completely."

Indra Singh, 20, also happens to be at the PHC. He had diabetes for many years till it was diagnosed here by Dr Jogesh. He was put on insulin, which he gets from the PHC. "Dr Jogesh showed me how to manage my diabetes. I learnt to take insulin injections," says Indra, who is short and frail.

"Basically I am from this area — Barmer district. I understand the people and wanted to do something good for them," says Dr Jogesh. "I wanted them to experience the benefits of having a functioning government health centre."

"I don't have words to describe the love and affection I have received from patients. When I was transferred from here to the district hospital, some of the local people gave me farewell gifts of silver utensils, a ring, a chain. It was from their hearts with love and affection. I felt that I had done my job well as a doctor," recalls Dr Jogesh.

"Money has its own place in our lives. It does matter. But compared to what I could have earned in private practice, the appreciation I received is worth much more to me," he says.

As the PHC's reputation has grown, it has begun attracting patients from far away. Last year it treated 36,000 patients.

Government doctors are allowed to see patients privately outside their official duties. Dr Jogesh chose not to because he wanted patients to go to the PHC and have faith in the government system.

"If I had opened a clinic, many patients would have preferred to spend a hundred rupees and come to me directly. Instead I focussed on making the PHC functional so that people could see what the government system could give them. Once people become part of a functioning system, they prefer it," Dr Jogesh explains.

For the first six months of his tenure, Dr Jogesh petitioned officials in the health department and local district officials to help improve the facilities. He waited several weeks but got no response. He then decided to involve the local community.

He identified several reasonably well-off people who had begun coming to the PHC for treatment and took their mobile numbers. Then, with the help of a social worker, he invited them to a meeting.

"I told them that I wanted to improve the PHC, which would benefit all, but I didn't have the money. If they could make donations, I would use the money to repair the roof, which would make the PHC more functional," recalls Dr Jogesh.

"People had seen me working in the PHC and attending on them despite the terrible conditions. They had seen me making an effort. So, when I asked them for their support, they readily came forward," says Dr Jogesh.

In that first round of donations he collected ₹6 lakh. He used ₹4 lakh to repair the roof and tile it and the remaining ₹2 lakh he put

Patients queue up to see the doctor

Medicines are properly stocked

A laboratory conducts 15 essential tests

away for other incremental improvements, which began with tiling the walls of the labour room.

Fixing the roof was a big achievement. It took about 25 days and transformed conditions inside the PHC. He hired a local contractor and told him to use the best materials so that it never leaked again.

"When people made the first donations they might have had some doubts about the use to which I would put their money. But once work on the roof was completed, and the contractor being a local man told people I hadn't spared any effort to spend their money well, people were convinced," says Dr Jogesh.

Over five years, Dr Jogesh raised ₹14 lakh from local people. There were the well-off locals who gave as much as ₹30,000. But there were also those who were poor who wanted to give ₹50 or ₹20 as their contribution.

"I didn't stop them," says Dr Jogesh, "because I wanted everyone to have a sense of involvement. The well-off people could afford private doctors and did go to them, but they realised the need for a reliable local public facility. They sought nothing in return except occasionally sending a patient and asking me to pay special attention, which I would readily do."

Transparency was also important and accounts were provided for all the expenditure. The names of the donors and the amounts they gave were also put on standees at the entrance to the PHC, thereby providing identity and a sense of ownership.

Dr Jogesh wanted the PHC to be respected for its professionalism. He put systems in place. He set timings for seeing patients. General consultations could only be done in the morning till noon. Cases which came in the evening would have to be emergencies. Earlier, people used to walk in at any time. He also enforced a charge of ₹10 and set up a counter at the entrance where patients had to pay and register.

After fixing the roof, Dr Jogesh employed donations to make innumerable other improvements such as painting the PHC, installing an RO system for drinking water, having battery back-up for power failures, rainwater harvesting which provides 15,000 litres of water in reserve, a solar water heater for the maternity room, a

garden and a paved area to reduce the sand around the PHC.

A washing machine was bought with a donation so that the linen used at the PHC could be washed there itself. As a result, the beds all have clean white sheets. For a car park, he got ₹5 lakh from the development fund of the MLA of the area.

A PHC plays an important role in the country's healthcare system, being the lowest tier and located in the midst of the community. People tend to go to a PHC first because it is near them. If the facilities are good and the doctors are efficient, a PHC can identify diseases in their early stages and help patients find treatment at bigger general hospitals and specialised institutions.

At a PHC it is possible to deal immediately with snakebites and dog bites and small injuries. A fracture can get interim attention till the patient is taken to an orthopaedic in a bigger hospital.

A well-functioning PHC also increases the number of institutional births. By being in close touch with a woman through her pregnancy it makes sure she is in good health and that she gets to the maternity room in time. Likewise for child health. A PHC will be able to know if a child is underweight and malnourished and can counsel the mother.

So, when it comes to improving maternal mortality and infant mortality, a PHC is quite indispensable. The Gida PHC has eight sub-centres and eight auxiliary nurse midwives. A woman is tracked from the time her pregnancy begins. Since the PHC has a well-equipped labour room and a clean and well-attended maternity ward, women come to it for their deliveries. Its success on this score shows in the growing number of deliveries it handles.

"You will find every kind of disease at a PHC," says Dr Jogesh. "There will be hypertension, diabetes, tuberculosis, cancer and so on. The problem is that patients get diagnosed, go to some distant facility and don't come back. I began stocking medicines so that patients would come back for check-ups and to replenish the medicines. It was all available through the government. All we had to do was to maintain stocks, indent on time and follow up with the place from where the supply was to come. When patients were assured that they would get medicines and attention they would come back."

The PHC's role as a sentinel can't be emphasised enough. In a rural area someone with a cough may not realise that it is tuberculosis, but a doctor at a PHC can at least suspect tuberculosis and send the patient to a bigger hospital. Sputum tests are also done at the PHC in Gida.

Dr Jogesh recalls the case of a patient who came to him with a nodule on his neck. He had gone to several big cities for treatment and had been prescribed antibiotics which would have some effect but the nodule would return.

Dr Jogesh sent him to Jodhpur Medical College to be checked for cancer. It turned out that he had cancer of the larynx. From Jodhpur he called Dr Jogesh to ask him what to do because the specialists there were asking him to undergo chemotherapy and radiotherapy.

"Patients develop bonds with their local doctor at the PHC," explains Dr Jogesh. "I had to reassure him about the treatment and explain to him that if he didn't take the treatment his problem would get worse. Finally he was successfully treated and is living a normal life. He became one of the regular donors to the PHC whenever money was needed."

Can every PHC be transformed the way the one at Gida has been? Dr Jogesh is sceptical. He believes that a lot depends on circumstances and individuals. There are problems and the risk of upsetting people in authority by being too pushy.

"There is no simple answer. I might not have been able to do the same thing elsewhere — in Bihar for instance. So much depends on one's family background and personal life. Someone from a big city would have found it very difficult here. It is 70 km from the highway," says Dr Jogesh.

He feels it is important for the government to allow doctors to work where they are most at ease so that they can be effective. Someone could choose the city, someone else the village. A city-bred doctor may not be successful in a remote village.

Dr Jogesh's replacements are Dr Satya Narayan and Dr Amit Tak, both enthusiastic young physicians. Dr Tak was sent as an interim measure till Dr Satya Narayan was posted to the PHC but the chances are that he will stay on. They have inherited a working system. As patients pour in, they have their hands full.

Blood pressure readings from a bangled arm

Fixing the leaky roof was crucial. Now it is properly tiled

Over five years Dr Jogesh raised ₹14 lakh. Well-off locals gave as much as ₹30,000 but the poor also contributed small sums.

Mooli Devi, 25, is nine months pregnant and arrives saying she has labour pains. Dr Tak has her checked and tells her family that these are false pains. She doesn't need to be admitted just yet.

Paku Ram, 20, has had a fever for several days. He has come from Danpura, 15 km away. A sub-centre of the PHC had given him some tablets for three days but they didn't help. Dr Tak suspects typhoid and sends him for a blood test to the PHC's laboratory. In minutes it is confirmed that he has typhoid and now Paku Ram's correct treatment will begin.

Polu Ram, 60, has come from Kokhsar, which is 50 km away. He has been feeling unwell and doesn't know why. A test shows he has high blood sugar and is diabetic. He is a new patient. Pallu Devi, 55, is a regular with hypertension, but she hasn't been taking her medicines and so her blood pressure reading is 164/100.

Till noon, the PHC buzzes with activity. Rajaram, the young laboratory attendant, who works on contract, is a busy man doing blood and urine tests. Sunita Jangir is a nurse but her duties include ensuring that vaccines are kept in the cold chain and attending to the reception where she registers patients. Ghanshyam looks after the warehousing of medicines and Rakesh doles them out. ■

Umesh Anand and photographer Shrey Gupta travelled to Gida in Barmer district of Rajasthan to meet Dr Jogesh Kumar and see the PHC

LAKSHMAN ANAND

Dr Elsy with farmers who grow the Chengalikodan Nendran banana in Erumapetty

C.R. ELSY

The GI hunter

THE Intellectual Property Rights (IPR) Cell in Kerala Agricultural University (KAU) is sparse and innocuous but its outstanding work over the years has earned it an enviable reputation. Led by Dr C.R. Elsy, the IPR Cell, with a shoestring budget and a small team, has been scouting fields and farms in search of unique plant varieties which might otherwise have become extinct.

The cell has ensured that as many as eight such varieties now have Geographical Indication (GI), a recognition which raises the status of those crops and helps farmers earn more money.

The Chengalikodan's logo

There is Pokkali rice and Kaippad rice, which grow in a saline ecosystem, two fragrant rice varieties, Jeerakasala and Gandhakasala, the distinct Vazhakulam pineapple, the flavoursome Chengalikodan banana of the Nendran variety, Central Travancore jaggery and Nilambur teak.

The IPR Cell has submitted a GI application for Marayoor jaggery, noted for its sweetness and taste. Another six products are in the pipeline — the Kuttiyattoor mango, Tirur betel vine, Attappady Thuvara (red gram), Attappady Amara (Dolichos bean), Kodungallore pottu vellari (snap melon) and Edayoor chilly.

Kerala is perhaps the only state in India that is tracking its unique varieties of crops and bringing them under IPR protection. Twenty-three crops now have the GI tag. Eight of those were identified by the IPR Cell.

Dr Elsy's job is a demanding one. She has to detect the crop, study all its unique qualities, explain IPR protection to simple farmers and help them apply for GI recognition. The job means combining the science of plant genetics with human psychology and an understanding of IPR laws.

"We first inform locals that their community has a right over the product. We assure them that the university will support them if they want to protect it. Farmers, we find, are keen to protect their IPR. We advise them to form an association, which then applies for the GI tag. The IPR Cell only facilitates this process," says Dr Elsy.

KAU started the IPR Cell in 2001. The Vice Chancellor of KAU, Dr K.R. Viswambaran, is the chairperson of the IPR Cell and scientists from different faculties are its members.

What impact does IPR protection have on a crop? To find out we travel 45 minutes by road from Thrissur to Erumapetty, home of the famed Chengalikodan banana which now has a GI tag thanks to Dr Elsy and her team.

Kerala's native Nendran banana is a familiar household fruit. But the Chengalikodan variant of the Nendran, distinguished by a red stripe on its skin, though traditonally favoured, lacked GI status.

A range of crops now have the GI tag

LAKSHMAN ANAND

"It is a unique banana, sweeter than other Nendran varieties and quite different in looks and properties," says P.V. Sulochana, a retired agriculture officer who served Erumapetty panchayat for 15 years.

Banana farmers plant the Chengalikodan so that its harvesting time synchronises with the onset of the Onam festival. We find farmers here in a cheerful mood.

"Thanks to the GI tag, the Chengalikodan banana is now known all over Kerala. Demand for our bananas has gone up. A lot of people come here to buy them," says A.V. Johnson, secretary of the Chengalikodan Banana Growers Association. The media, both print and television, also spread news of Chengalikodan's newly acquired GI status.

The Chengalikodan is grown on about 2,000 hectares of Thrissur district and demand now outstrips supply. Customers specifically ask for this banana. Last year, the ordinary Nendran was selling for ₹100 per kg. The Chengalikodan, on the other hand, was priced at ₹130. When the Chengalikodan banana didn't have GI status the difference between the two was nominal. So farmers now earn much more.

They have also got together and formed the Chengalikodan Banana Growers' Association. They pooled ₹10 lakh and invested in a small building which now serves as an office. This year, the association is planning to sell bunches of Chengalikodan from their newly acquired premises. "In the long term we plan to do some value addition and sell packaged Chengalikodan products from here," says N.K. Vijayan, Vice-President of the Association.

Marayoor jaggery hasn't as yet received its GI tag but word has spread via the media. Farmers say the number of trade enquiries they receive has gone up this year. The jaggery is produced in the high ranges of Idukki district. But the downside is that farmers don't have the expertise to cater to a bigger market. They are posting small parcels of jaggery to interested customers. Agriculture Minister V.S. Sunil Kumar has promised the government will help them improve their marketing skills.

Dr Elsy has built the IPR Cell from scratch. When it started, it had no computers, assistants or infrastructure. Dr Elsy, then a 'coordinator', didn't know where to begin. But over the years she has mastered all

Dr Elsy with her assistants in the IPR Cell

the nuances of IPR and her cell now files applications minus any assistance from costly lawyers.

Dr Elsy is, actually, a rice breeder. She did her PhD from Tamil Nadu Agriculture University (TNAU) in hybrid rice breeding. Her guide was Dr M. Rangaswamy, then Director, School of Genetics. He once asked her to do a presentation on IPR, she recalls, and that stood her in good stead when she was put in charge of the IPR Cell in KAU. For a while, Dr Elsy taught and did research. She became head of the plant breeding department in KAU. In 1999, the Kerala government gave her the Young Scientist award.

In the initial stages the IPR Cell couldn't make much headway. Dr Elsy started reading on the subject and attending seminars. She read about Darjeeling tea and how it got a GI tag in 2004. It struck her that Kerala was blessed with so much biodiversity. Why couldn't the IPR Cell identify unique varieties and get them IPR protection, she thought.

The first crop she selected for filing a GI application for was Pokkali rice. The cell undertook the fieldwork and the scientific evaluation.

Proud snap melon farmers pose for pictures

By 2013 the IPR Cell had shown its worth. It had won GI tags for five products and 12 Plant Genome Saviour awards.

For drafting the application, it approached a lawyer. He asked for ₹60,000 as his fee. Dr Elsy was shocked.

"Farmers can't afford to pay that much," Dr Elsy recalls, "Neither could the university. We had all the information. All we needed was a lawyer to draft the application."

The dedicated professor didn't give up. She bought a copy of the IPR Act and studied it closely. She had friends who had worked with the GI Registry. She talked to them and to a few friendly lawyers. In about a year Dr Elsy understood all the procedures. She began drafting and redrafting her first GI application with all the passion of a poet writing his first poem.

The GI registration process is a long one and takes about a year. After the IPR Cell has identified and validated a unique crop variety, it holds a public meeting in the village, however far away, with all stakeholders. The first step is to get IPR protection and the GI tag. The second is to help farmers use this new recognition to market their crop and get better prices.

Dr Elsy explains in simple terms why IPR is essential for farmers. "It's like your landed property. If you don't put a fence around it, someone can encroach on it. Throwing them out after that will be a big headache. Secondly, you can use the GI tag to augment your income. If you plan properly, you can get a higher price. You can also prevent others from using the name of your product."

Another sensitive issue that crops up is whether the identified variety should be registered in an individual farmer's name when it is being grown by an entire community in several villages.

The cell takes all stakeholders into confidence. The main problem that arises is identifying the areas the GI should cover. The cell liaises with the Principal Agriculture Officers (PAOs) in the agriculture department. Agriculture minister Sunil Kumar is also well versed in IPR and gets involved.

"His suggestions are mature and always in the larger interest of communities. He believes that farmers shouldn't insist that the GI be limited to one area. It should be fair to all areas," says Dr Elsy.

She handholds farmers through the entire process. For example, take logos. The GI Registry accepts applications even without logos. But Dr Elsy takes the trouble to get a well-designed logo and she files it along with the application. All eight crop varieties that got GI recognition through the IPR Cell have their own logos.

For Marayoor jaggery, the cell even organised a logo-designing competition. A press release was issued and the media publicised it. This strategy also helps the product acquire a distinct image. For the Marayoor jaggery logo, the cell received 87 designs.

When the cell started, members of KAU's faculty questioned whether it was the university's job to get GI tags for farming communities. They didn't think a professor's valuable time should be spent on such an exercise. "Gradually, they began understanding why we should get involved. We now get financial support from KAU and the state government," says Dr Elsy.

The turning point for the IPR Cell's fortunes came in 2013, after it had already shown its worth. By then it had got GI for five products and 12 Plant Genome Saviour awards, given to farming communities, farmers and breeders who are conserving and propagating unique plant varieties.

Dr Elsy was invited to make a presentation at a high-profile meeting in Thiruvananthapuram. She proposed a 'Centre for Intellectual Property Rights' (CIPR) be set up to vet IPR applications from other agencies and see them through.

Subrata Biswas, the agricultural production commissioner, was very impressed and he immediately promised to sanction ₹25 lakh for setting up the centre. The IPR Cell started getting more government funding. The CIPR was set up for a year. A fresh proposal is made each year. The CIPR complements the objectives of the IPR Cell but is wholly funded by the state. The agriculture department also uses it for GI registration.

Dr Elsy not only handles the cell but is also continuing her work as a rice breeder. This year KAU released Manu Rathna, a new rice variety.

The IPR Cell has also succeeded in getting 18 Plant Genome Saviour (PGS) Awards which are given by the Protection of Plant Varieties and Farmers' Rights Authority. This year, the cell has sent 11 nominations for the PGS awards. This is the highest number of nominations the IPR Cell has ever made.

Once the awardees are announced, a ceremony is held — generally in New Delhi. The problem is that Dr Elsy is informed just a week in advance. Getting train tickets at the last minute is a Herculean effort.

The organisers pay for an air ticket for Dr Elsy and second-class train travel for the awardees. The farmers can't travel alone because they don't know Hindi. So Dr Elsy travels with them. "Even if they reach New Delhi railway station, they won't be able to find the venue on their own," she says with concern. Despite her best efforts, things haven't changed in the past six years.

She recalls the advice Dr Rangaswamy, her teacher, gave her when she was leaving TNAU. "Do something good for farmers. You can't help them by working out of an air-conditioned room. Go to their farms, understand their problems." Dr Elsy conveys the same advice to her own students: "There are many farmers who don't know about the plant genome awards. Help them."

The IPR Cell plans to make short documentaries on each of the GI products it got registered. A film on the Chengalikodan banana has already been made. "Such films will help us give a proper picture of the variety to the consultative committee that assesses the product," explains Dr Elsy. Farmers can use the film for popularising the crop after it has received the GI. Dr Elsy hopes the documentaries will be seen by students and motivate them to help farmer groups to protect their unique varieties and get IPR.

For the past six years, the IPR law and the GI process are also being taught at KAU. "One question which is always put to students is, how will you file an application for a unique variety at the GI registry? This question prompts students to understand the procedures involved," says Dr Elsy.

Dr Elsy's work has brought her recognition. KAU was recently awarded as the 'best institution in GI facilitation and registration 2018' by the Union ministry of commerce and industry.

Cheruvayal Raman of Wayanad has conserved 45 varieties of rice. He is a past winner of the Plant Genome Award. A poor farmer, he lives in a mud hut. "Imagine the time and money he must have spent to conserve so many rice varieties. When I meet such unassuming achievers, I feel very happy that I helped to get them recognition at a national level," says the earnest Dr Elsy. ■

Shree Padre travelled with Lakshman Anand to Erumapetty and Thrissur for this piece

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LAKSHMAN ANAND

Dr Rajendran with his plants

PRASANNA RAJENDRAN

Scientist on a mission

TEN years ago Dr Prasanna Rajendran, a senior scientist at the Kerala Agriculture University (KAU), was posted to Anakkayam Cashew Research Station in Malappuram district. The place was in such a dilapidated state that the general opinion was that it would be shut down soon.

The station had 25 acres with no water. Rain-fed cashew was grown, earning the station a measly ₹4.9 lakh annually. Even drinking water was scarce. Scientists dodged being sent there. It was seen as a punishment posting. Local people ridiculed the station as a mere 'cashew factory'.

Dr Rajendran knew what awaited him. Yet, in 10 years he turned around this derelict station and scripted an amazing success story. The station now provides services to thousands of farmers and livelihood opportunities to women and unemployed youth in its catchment area. By 2011-12, it was earning KAU ₹2.5 crore.

So in 2013 Dr Rajendran was given additional charge of another sinking ship, the Regional Agriculture Research Station (RARS) at Ambalavayal. Located 120 km away in Wayanad, a backward tribal district, the region was reeling under drought and totting up a list of farmer suicides. For two and a half years, Dr Rajendran, then Associate Director of Research, managed both stations — running from one to the next.

RARS did no research and wasn't of any use to impoverished farmers. It had an expansive 265 fertile acres which earned a meagre ₹60 lakh annually. Dr Rajendran introduced floriculture and began Poopoli, a spectacular flower show which boosted tourism and local livelihoods. RARS helped farmers offset water shortage and get good planting material. This year RARS earned ₹5.2 crore.

Agricultural agencies run by the state in the districts aren't known to be saviours for farmers or for research. Earning profits for the state is considered unthinkable. But, working within the system, Dr Rajendran has accomplished both and earned the affection and trust of people.

What is Dr Rajendran's formula? "Teamwork," is his cryptic answer. He comes from a farming family in Malappuram district. After a brief stint at Kerala's agriculture department, he joined KAU in 1983. He was then posted to KCEAT (Kelappaji College of Agricultural Engineering and Technology) in Tavanur where he taught horticulture for 15 years.

After Dr Rajendran did his PhD in bio-technology from TNAU (Tamil Nadu Agriculture University), he went to work in Saudi Arabia for three years. "At King Faisal University, it was a totally different working experience," he recalls. "They had all facilities — a well-equipped lab, state-of-the-art research wing…everything. Whatever you wanted was provided in minutes. You could even get ₹1 lakh in five minutes. Their only problem was human resources. They rewarded hard work. My stint there was a turning point for me, a great lesson and a firm foundation for my subsequent career."

In stark contrast, the Anakkayam Cashew Research Station was practically extinct. It had just 10 staff members and six workers. Soon

after taking charge, Dr Rajendran added 30 farm workers and got 24 women from Self-Help Groups (SHGs) involved. "The idea of involving SHGs in full strength was started in Anakkayam to ensure a quality workforce," says Dr Rajendran.

There were other radical ideas that Dr Rajendran introduced. To put a team in place, he started a six-month Vocational Higher Secondary (VHS) course in agriculture during the holidays. Team members who wanted to work for the government registered and entered into a profit-sharing agreement with the station.

Another idea was to train a 'hi-tech army' which could carry out agricultural operations speedily using technology. They could take up farm operations on contract. Young people between 25 and 40 years old were taught grafting, tissue culture, precision farming, terrace gardening, value addition of vegetables, fruits and spices and the creation of rainwater harvesting structures for irrigation and fishing.

To combat water problems, Dr Rajendran implemented rainwater-harvesting techniques. A large pond was dug and lined with plastic. It collected nearly two crore litres of rainwater, sufficient for irrigating the nursery. Then another two ponds were dug. Nursery activities were speeded along with value addition of crops.

This station now has a tissue culture lab and a processing centre apart from a huge amount of vegetable seeds and planting material. The Anakkayam station started producing 500 tonnes of vermicompost every year and selling the excess. It also produces a remarkable variety of fruits, ornamental plants and vegetable seedlings. Even during the non-planting season, 50 farmers on an average visit it to buy planting material or seek expert advice.

In 2007 RARS' net income was ₹4.9 lakh. In five years it rose to ₹2.5 crore. ('Kerala's Wonder Farm', *Civil Society*, August 2013.)

Dr Rajendran encountered a different set of problems at RARS in Ambalavayal. Malappuram district, where Anakkayam is situated, has relatively better-off farmers. But Wayanad was reeling under poverty, hunger and drought and he felt his services were required there much more.

"I never saw people starving till I was posted to Wayanad. Tribals comprise 70 percent of the population. At least 30 percent are deprived of one meal a day. Nobody discloses this, but it is a reality," he says. In the tribal hierarchy, the Paniyas were the most penurious. Neither education nor development had reached them, noted Dr Rajendran. These people didn't have any hopes of the defunct research station.

The station had 10 staff members and 80 labourers on its payroll. It earned only ₹60 lakh from its 265 acres. This is really shameful, Dr Rajendran thought. Anakkayam was saddled with dryland yet it was earning ₹2.5 crore. What moral right do we have to teach profitable farming if our own station's income is so dismal, he asked himself.

Dr Rajendran convened a meeting with his small staff and labour. He tried to boost their morale by speaking of Anakkayam's success and teamwork. Next, he met local farmers. "We will start a new chapter here," he assured the disbelieving farmers. "If we work together, we can improve the station and it can help you."

To combat unemployment Dr Rajendran met SHGs, unemployed youth and housewives. He suggested three employment avenues: value addition of local crops, nursery production and a hi-tech army.

"The hi-tech army became our biggest tool to fight unemployment. We offered unemployed youth a six-month training course in how to fabricate poly houses, set up a nursery, cultivate crops in poly houses, and floriculture. After that the station helped them to get work," says Dr Rajendran. The initial batch consisted of 50 men and 40 women. After training, they were given work in-house like setting up a garden, beautification of the flower show grounds, value addition of fruits and vegetables, propagation of plants, seed production and so on.

People Dr Rajendran had trained in Anakkayam were brought to Ambalavayal as master trainers."Some of them were very hardworking. They would work 24 hours if needed. Such candidates got assignments in Africa and were very successful there. In fact, the highlight of our success in Anakkayam was the visit of the king of Dubai to our campus by a chartered flight. That created real history," says Dr Rajendran.

The hi-tech army training course carried on for two years and trained 200 people. It came in handy for the Poopoli festival.

LAKSHMAN ANAND

Large rainwater harvesting ponds were built

A tissue culture lab was set up in Anakkayam

The Anakkayam research station now produces a variety of fruits, plants, vegetable seedlings and it gives advice to farmers.

Dr Rajendran's first effort in both stations has been to increase the quantity of stored rainwater. "Wayanad gets less water than Malappuram but it is sufficient. The problem is the topography. Since the place is hilly, water escapes down the slope." RARS now has 15 ponds which store 300 crore litres of rainwater.

But digging ponds and lining them was an expensive exercise which local farmers would not be able to afford. So Dr Rajendran thought of cement- and jute-lined ponds. RARS has two or three such ponds which work well. These were cheaper to build and farmers could easily repair them.

The second issue people face is access to good planting material, says Dr Rajendran. Not only are plants from private nurseries expensive, their performance is also doubtful. "If you give farmers the best planting material, production and income increases. They used to go to Gudalur in Karnataka to get plants. Now they come to us, sometimes from faraway places," he says.

The third issue was that a considerable percentage of crops grown in RARS was wasted. Dr Rajendran intensified value-addition activities. Machinery of various types was bought and a building constructed. Value addition is now providing work to 50 women from two SHGs and training local people. Sales of value-added products earn RARS ₹25 lakh a year. The women, too, earn an

LAKSHMAN ANAND

Dr Rajendran and his energetic team

The Poopoli flower show has become a tourist attraction

The flower show is more than recreation. By attracting tourists it is creating livelihoods and promoting floriculture.

income. The most notable example was a young lady called Shiji who, with her husband, Shaji, opened India's first jackfruit restaurant in Manjeri city in Malappuram (*Civil Society*, July 2018).

Dr Rajendran is never complacent about his achievements. "Wayanad is the best place for research and trials," he says. "Keeping this in mind, we have planted many commercial horticulture crops grown globally. Often, research is not carried out because of lack of germplasm pool collection."

RARS now has an enviable germplasm collection — 30 accessions of avocado, 67 of jackfruit and six of passion fruit. Also available is germplasm of mango, banana, citrus, ginger, turmeric, chillies, tuber crops like tapioca, sweet potato, amorphophalus, colocasia and more.

Dr Rajendran's most eye-catching achievement is the Poopoli flower show which he started in 2014. It is becoming a landmark event for local people and for tourists.

This year the flower festival was spread across 12 acres. It attracted an estimated 500,000 visitors across Kerala. Poopoli watchers believe it has all the potential to become an international event. Revenue from entry tickets alone was ₹94.2 lakh. The total income earned from rent of stalls, pay-and-use toilets, amusement park events, sales of processed food and so on came to ₹1.75 crore.

"We have shown that a public sector organisation can hold an event of this magnitude. It is up to the people of Wayanad to take this festival forward," says Dr Rajendran. Just five years ago, the exhibition grounds of the flower fest were a wild forest.

The flower show is more than just recreation. By attracting tourists it is helping create livelihoods. For the past three years its wonderful display of flowers is encouraging farmers to take to floriculture.

Poopoli proved that flowers like roses, jerbera, and gladioli can flourish in Wayanad. Kerala Agriculture Minister V.S. Sunil Kumar has launched a spate of initiatives to promote floriculture. Last year, Wayanad was declared a 'Special Floriculture Zone'.

"After the first Poopoli, the people of Wayanad were eagerly awaiting the next one," says Dr Rajendran. "It was a livelihood opportunity. Poopoli is conducted with an eye on eco-tourism so that everyone, from taxi drivers to hawkers, benefits."

Farmer suicides have ceased in Wayanad. It isn't only because of RARS, says Dr Rajendran. The agriculture department has resurrected itself, the agriculture minister is very dynamic and several schemes have been launched, he emphasises.

RARS now gets thousands of visitors — farmers, students, researchers — every year. And technology is given free of cost. ■

Shree Padre travelled to Malappuram and Wayanad to meet Dr Rajendran. Lakshman Anand photographed the work in Wayanad

15-YEAR INSIGHTS

LOOKING BACK & AHEAD

16 PERCEPTIVE OBSERVERS EXAMINE CIVIL SOCIETY TRENDS IN THE PAST DECADE AND A HALF AND TELL US WHAT THEY THINK.

Pages 32 to 65

VOLUNTARISM FINDS NEW WAYS

But some self-regulation, introspection would help to make useful efforts more credible

RAJIV KUMAR

I would like to imagine the voluntary sector in India as an ocean of creativity and endeavour across the vast spectrum of economic and social activity that touches the lives of nearly all Indians in one way or the other.

As a young boy in Lucknow, during the late 1950s and '60s, I used to participate in 'sports competitions' organised by local Puja committees. I once even participated in the Ramlila organised by one of the Kumaon Parishads. These truly voluntary efforts, organised year after year, reinforced social capital and contributed to the syncretic culture of the city by bringing together children from all communities to participate in local 'competitions'. I am sure this continues today.

The reach of the voluntary sector extends from such local efforts to running health services for islands in the mighty Brahmaputra, setting up a public health system for the indigenous people of Gadchiroli in north Maharashtra, putting in place a chain of a thousand primary and secondary schools and organising small and marginal farmers in hill districts for improving yields and lowering costs.

Voluntary activities have complemented and very often filled the yawning gap left by the government and the corporate sector not only in the delivery of public services but also in livelihood generation and building of critically needed public assets.

Livelihood training, nutrition for children and women, innovations in agricultural practices, taking care of leprosy-affected people and the disabled, environmental protection, making cities safe for women and children, pushing for legislation for causes ignored by political processes, making our villages drought-proof…there is an unending inventory of voluntary sector contributions to India's ongoing economic and social transition.

Volunteers, through sheer commitment, creativity and conscientious effort, have bolstered our institutions in a myriad ways, some almost imperceptible in the public domain. Activists in the voluntary sector have, for the most part, carried on not for recognition but because of their passion. No incentive structure, pecuniary or festooned with accolades, could have produced the dedication, diligence and drive that has often characterised this sector.

But there is still a vast number of activists 'waiting to be discovered'. Arun Maira, another quasi-volunteer in his several avatars, once described them as 'fireflies' who are hidden behind innumerable social sub-systems and make these spaces more bearable and often even beautiful. This was in a conversation in 2005 when we were together hosting and interacting with the visiting team of 'seekers of social change' under the aegis of the International Futures Forum.

While wholeheartedly agreeing with Arun on his characterisation of voluntary sector activists, I had a minor technical disagreement. Fireflies, I had pointed out, shine only in the last short phase of their life. But voluntary activists sustain their efforts over long periods of time. The issue, we had all agreed, was to somehow bring together these 'fireflies' so that they could illuminate a much larger space that could then be visible to all and serve as an exemplar to others. *Civil Society* magazine, in print and on the Internet, serves the necessary role of reporting on these activists so that their efforts and successes can be visible and available to all those who would like to emulate them but don't really know where to start.

But, as with all social phenomena, the voluntary sector, unfortunately, also has its unsavoury side. It has grown in different directions and gone through several mutations. It has grown out of all proportions in terms of sheer numbers today. Recent estimates put the number of 'registered' civil society organisations, commonly referred to as non-government organisations or NGOs, in the country at an incredible two million or one for 600 Indians. Their number is surely larger than schools, colleges, primary health centres and hospitals put together! To my mind, this must be by far the highest number anywhere in the world.

Volunteers, through sheer commitment and conscientious effort, have bolstered our institutions in a myriad ways.

Voluntary activities fill the gap in public services

The humungous number of CSOs in India must prompt us to question the very purpose and credibility of these entities that have virtually spawned into a thriving cottage industry. An attempt was made as early as the mid-1980s to bring some order and a light-handed regulatory compliance for this sector when it was first discussed in the Seventh Five Year Plan document. Unfortunately, this attempt to regulate and cleanse the sector of its black sheep, which some argue could well be in a majority, came to no avail.

It is fairly well established that today a very large number of 'shadow units' exist in the voluntary sector. They exist only on paper, but with complete up-to-date financial, regulatory and activity records. They are put to the rather distasteful use of laundering ill-gotten money or even acting as conduits for cash to finance anti-national activities or left-wing extremism.

A standard practice is to 'buy' a readymade CSO with complete compliance documentation as a cover for generation of unaccounted incomes in the past. 'In-house CSOs' are often used to claim credit for CSR activities, on which it has now been made mandatory to spend three percent of corporate profits, without actually incurring the expenditure.

TO TAKE INDIA FORWARD

Some are used as front organisations for political formations that challenge the Indian Constitution and threaten to overthrow the republic by fair means or foul.

Therefore, platforms like *Civil Society* should, in my view, lead a campaign to rid the voluntary sector of its black sheep. This would be a major contribution because the sector, with its credibility and legitimacy duly restored, could play a critical role in protecting and indeed strengthening our democratic institutions.

This would, in effect, imply a movement for self-regulation and soul-searching within the voluntary sector. A course correction could not come at a better time. Society is in the throes of rapid and raucous transition along many dimensions. Ongoing urbanisation is breaking down any remaining bonds of kith and kin that could be relied upon to provide social stability and behavioural norms. There is inter-state migration, generally from the northern, eastern and northeastern states to states in the west and south of India. Also, there is upward mobility with the neo middle-class struggling to find its bearings in new environments. The youth and young employment seekers are impatient as ground realities often don't meet their high aspirations.

In these turbulent times CSOs can play an important and positive role. But to be able to do so, they must first establish their own legitimacy.

In these turbulent times CSOs can play a critically important and positive role. But to be able to do so, they must first and foremost establish their own legitimacy and credibility in the public domain. Without such credibility, their ability to intervene in the evolving social situation and promote non-sectarian, non-communal and non-discriminatory dialogue is rendered very marginal.

We will lose an important segment of our polity and social fabric if we permit the voluntary sector to be obliterated. Not only does the sector prop up the public delivery system with its leakages and vested interests, it has the potential to keep an eye on the media, which in recent years has somewhat dismantled its standard operating procedures. But to be able to do that, the voluntary sector must burnish its own credentials by deep introspection, diagnosis and self-remedy. It will be impractical and perhaps dysfunctional in the medium term to expect or ask state governments to supervise and regulate the sector.

The NITI Aayog has followed up on the implementation of re-registering CSOs with their PAN card numbers and Aadhaar numbers of their promoters on its Darpan online portal. At last count only about 43,000 CSOs had availed of this opportunity.

Registering on Darpan has been made a necessary condition to receive any government funding for the voluntary sector. Given the relative lack of enthusiasm for registration, one must assume that financial resources are certainly not a binding constraint on the voluntary sector.

With the mandatory CSR requirement becoming the new normal in corporate behaviour, an expected Rs 20,000 crore is slated to flow into this sector. The government has taken some necessary steps to try and curtail the flow of 'dubious foreign funds' to this sector. This has been done principally on security grounds. Unfortunately, as often happens, some 'genuine' and well-performing organisations may also have been affected. This, once again, underlines the need for self-regulation.

Increasing globalisation is making this world a fiercely competitive village. Only those nations will rise which have all their stakeholders pulling in the same direction with effective convergence on national interests. This will require building strong bonds of trust and bringing all stakeholders together with their diversity and varied world views.

The voluntary sector has often acted as the balm to overcome strong antagonism. I saw and participated in this action in the wake of the 1984 riots. Others have done so across the country at different times. But the need of the hour is for the voluntary sector to provide the glue that will hold divergent views and various stakeholders together as India continues with its efforts to regain its position in the global community.

By building trust across dividing lines of all hues and shades and across the spectrum of social formations, the voluntary sector is destined to play an increasingly important role in the rise of Shreshta Hindustan.

Without a fully legitimised, credible, resonant and vibrant voluntary sector, India cannot hope to ensure that its democratic institutions continue to flourish, its people receive their material dues and all of us, each one of us, is guaranteed her or his liberty and freedom to choose and lead our l ives as we wish to, while constantly serving the national cause. ■

Rajiv Kumar is Vice-Chairman, NITI Aayog

INNOVATION HAS BEEN LINKING PROFIT WITH SOCIAL PURPOSE

Young entrepreneurs are more keen on bringing change through their businesses rather than with moneymaking alone. What we are seeing is CSR 2.0

R.A. MASHELKAR

A new vocabulary is doing the rounds. Bill Gates talks about 'creative capitalism'. Michael Porter talks about 'creating shared value'. Others are talking about 'compassionate capitalism'. All these pertain to 'doing well by doing good' or in other words creating profits with purpose, and purpose really means the bigger purpose and that is social change, indeed social transformation.

To me, what is heartening is that young entrepreneurs are motivated by purpose over profit, according to new research published by HSBC on June 26 this year. In fact, the findings of the HSBC summary are striking. One in four entrepreneurs aged under 35 said they were more motivated by social impact than by moneymaking, compared to just over one in 10 of those aged over 55!

CSR is not new to India. Perhaps it is not widely known that the world's first charitable trust was set up by Jamsetji Tata in 1892, a long time before the Andrew Carnegie Trust (1901), Rockefeller Foundation (1913), the Lord Lever Hulme Trust (1925) and the Ford Foundation (1936).

The establishment of the Tata Trusts was driven by the Tatas' belief in giving back to the people what came from the people. In CSR 1.0. part of the surplus wealth goes back to people, either by free will (as in the case of charitable foundations or trusts) or because of the need to comply with government legislation (like India's CSR law). We could consider CSR 1.0 as 'doing well and doing good'. This means after one has done 'well' by amassing wealth, one turns to doing 'good' by setting up charitable trusts or foundations.

What one is seeing now is CSR 2.0, which does not replace CSR 1.0 but complements it and brings a far greater impact by touching the lives of millions. One can call this 'doing well by doing good'. This means 'doing good' itself becoming a 'good business'.

I have direct evidence of this. Look at the winners of the Anjani Mashelkar Inclusive Innovation Award — an award I instituted in my mother's name for innovations that will do good for society at large. All the eight award winners are young start-ups, begun by founders in their late twenties or early thirties. Let's look at a couple of examples.

One award winner was UE Life Sciences led by young Mihir Shah, who developed a handheld device that is used for early detection of breast tumours. It is simple, accurate, and affordable. It is painless because it is non-invasive. Mammography and radiation are eliminated. Screenings are safe, pain-free and private. They have also deployed an innovative pay-per-use model — instead of targeting direct sales — which can empower doctors in every corner of the country to start screening women for breast cancer at the earliest. The device is US FDA cleared and CE marked. It is operable by any community health worker. And it costs only around ₹65 per scan.

The government could act as the 'first buyer' and 'early user' for innovative firms, thus providing the initial revenue and feedback.

And mind you, UE Life Sciences is making 'profit', besides serving a bigger 'purpose' of doing good for society.

Another winner is young Rahul Rastogi, who created a portable matchbox-sized 12-lead ECG machine. The cost is just ₹5 per ECG test. This high-tech innovative solution for personal cardiac care — the 'Sanket' electrocardiogram (ECG) device — has captured the imagination of society. Tata Trusts funded him to build an advanced version of his device, which became a 12-lead device, and not just the original six-lead one, for which we awarded the prize. Most recently, they partnered with the Tata Trusts to deploy 45 devices in clinics in Tripura for quick screening and diagnosis of cardiac diseases. In the remote and hilly state of Tripura, regular screening would have been virtually impossible.

There are examples galore to show that India's youth power is all set to bring societal transformation through innovation. Here is an example of young undergraduate students.

The Hult Prize India Chapter 2016 threw down the challenge of coming up with strong, scalable social enterprises to double the income of millions residing in crowded urban spaces.

Team Aces, comprising four final-year students at IIT Kharagpur, came up with an idea for employment of urban slum-dwellers during a canteen conversation that was quite counter-intuitive to the prevailing fear about technology-led jobless growth due to robotics and artificial intelligence (AI).

AI involves machines learning technology, and that in turn needs initial training data to be provided manually. This data requires millions of inputs from people before machines can interpret and learn it.

Team Aces decided to crowdsource people who had time on their hands or a job without a set nine-to-five schedule. They could be maids, drivers or shopkeepers, who can do this inputting in their free time.

The team was ranked first in the India Chapter of the Hult Prize Challenge. The initiative was evoked by the desire to do something socially while believing in creating a sustainable social enterprise without the need for any grants.

The main challenge is to ensure that such ideas are nurtured and supported through CSR or other funds, just as the Tata Trusts did for Rastogi's portable ECG device. And that is exactly the initiative taken by Pune International Centre (PIC). I happen to be its president while Dr Vijay Kelkar is vice-president. It was Dr Kelkar's idea to start the first ever National Conference on Social Innovation (NCSI). It was structured around the enabling themes of Sahajta, Samvedna, Saralta, and Sampreshan. The NCSI covers urban, rural and tribal social innovations.

The NCSI has an action-oriented approach. It has created a platform for social innovators to present their innovations and the results to the CSR cells of various investors, academia and media. Social innovators are now able to find media outreach, support and resources.

Finally, I must emphasise that the government has a big role to play in scaling social (or socially

Will the digital dispensary be the future primary health centre?

relevant) innovations. What can it do? Let me elaborate just one aspect.

Innovations are products of creative interaction of supply and demand. Besides supply-side initiatives, we need aggressive demand-side initiatives — and public procurement is an obvious choice. With large procurement budgets, the government can not only be the biggest, but also the most influential and demanding customer of these innovations.

The government approach could be based on three pillars. First, the government could act as the 'first buyer' and an 'early user' for small, innovative firms and manage the consequent risk, thus providing the initial revenue and customer feedback needed to survive and refine the products and services so that they can later compete effectively in the global marketplace.

Second, the government can set up regulations that can successfully drive innovation either indirectly through altering market structure and affecting the funds available for investment, or directly through boosting or limiting demand for particular products and services.

Third, the government can set standards that can create market power by creating demand for innovation. Agreed upon standards will ensure that the risk taken by both early adopters and innovators is lower, thus increasing investment in innovation.

People call me 'dangerously optimistic'. Why am I so optimistic? Because I have no doubt that social innovation in India is safe in the hands of the young.

Let me explain. I co-chair the Maharashtra State Innovation Society. We had a Maharashtra State Start-ups Week recently. Start-up after start-up was asking one question: What can I do for society?

I met young Akshay Saini, who is bothered by the fact that people don't segregate waste. So his start-up, Binner, has a mobile app for waste management that rewards! He expects the app will make Indians habitually dispose of and segregate waste at source by rewarding them, along with a sustainable revenue model.

Then there was young Maitri, a differently abled girl who has a start-up which is creating technologies to help other differently abled! I continually get both touched and reassured every day, when I meet such young people.

I am convinced that compassion, innovation and passion in this young India is going to drive our rapid yet sustainable social transformation, if our society only trusts them and invests in them.

I take a broad working definition of social innovation. To me, it is any innovation that does good for all members of society, not just a privileged few. It could be a technological innovation, business model innovation, system delivery innovation, work flow innovation, process innovation or their combination. Policy innovation plays a big role in making social innovation scalable and sustainable.

But how do we ensure success in innovation in general and social innovation in particular? My K.R. Narayanan Memorial Oration was titled 'Dismantling Inequalities by ASSURED Inclusive Innovation'.

I defined an ASSURED framework as one where success in innovation is assured. ASSURED stands for: A (Affordable), S (Scalable), S (Sustainable), U (Universal), R (Rapid), E (Excellent), D (Distinctive).
A (Affordability) is required to create access of a technology or a service for everyone across the economic pyramid, especially at the bottom.
S (Scalability) is required to make real impact by reaching out to every individual in society, not just a select few.
S (Sustainability) is required in many contexts, environmental, economic and societal.
U (Universal) implies user-friendliness, so the innovation can be used irrespective of the skill levels of an individual.
R (Rapid) refers to speed. Rapid inclusive growth is the need of the hour. It cannot be achieved without the speed of our action matching the speed of our innovative thoughts!
E (Excellence) in technology, product quality, and service quality is required, not just for the elite few but for everyone in society, since the rising aspirations of resource-poor people also need to be fulfilled.
D (Distinctive) innovation is required because there is no point in creating 'me too' products and services.

ASSURED can be a 'one-word innovation policy statement' for India, helping it achieve accelerated inclusive growth.

To ensure that each element of the ASSURED framework is successfully met, CSR can play a big role and this is being widely recognised now.

Coincidentally, the July 2018 issue of *Civil Society* magazine has a cover story on the role of CSR in bringing about social change.

It details how Piramal Foundation's CSR efforts in Araku Valley of Andhra Pradesh have brought maternal mortality down to zero in some remote tribal villages. This was done by using technology, trained human resource and the government's own infrastructure.

It is a good model which should be replicated elsewhere in India to enable access to healthcare to unserved communities in far-flung locations. This is a brilliant example of how CSR funds can be innovatively used for social transformation. And, indeed, this is the sentiment that Ratan Tata expressed in his recent interview about the future of CSR, when he said, "CSR could become an avenue for innovative thinking about how you can improve the quality of life of the people of India." ■

Dr R.A. Mashelkar, FRS, is National Research Professor

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CSOs SHOULDN'T TRY TO BE LIKE

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

ARUN MAIRA

Shortly after he launched *Civil Society,* Umesh Anand asked me to write a book to introduce 'civil society' to business leaders. The book I wrote, *Transforming Capitalism: Business Leadership to Improve the World for Everyone,* became an appeal to business leaders to broaden their vision of responsibility to the world, rather than an explanation of the role of civil society. However, I became more curious about the concept of civil society and since then I have been engaged with many 'civil society' organisations.

The concept of civil society includes any form of organisation that is not a 'government' organisation or a 'business' organisation. It covers a diverse set of organisations who are 'not-for-profit', nor are they wings of the government. They operate between, on one side, 'the people' who they represent and serve, and, on the other, organisations of government and business. By this definition, the judiciary would not be a part of civil society since it is essentially an institution of formal governance. Nor perhaps would large, profit-maximising businesses in the media sector.

Civil society organisations (CSOs) broadly speaking, contribute to society in three ways. Some represent the rights of people to governments and business. Others are deliverers of relief to people when there are calamities, such as famines, earthquakes, and forced migration. The third group of civil society organisations works on 'development' matters, like improvement of education, health, and livelihoods, and the integration into society of people disadvantaged by their gender, age, physical disabilities or social discrimination.

CSOs who concentrate on advocacy, the so-called 'activists', must speak the truth to the powers in governments and business corporations. CSOs who deliver relief in emergencies provide capabilities on the ground to governments and philanthropists who provide the money. Activists perforce must oppose. CSOs delivering emergency relief, when it is a matter of 'do or die' and no need to question why, are naturally aligned with their resource providers. Unlike the 'black or white' relationships that advocacy and relief organisations have with governments and businesses, CSOs working on development must develop more complex relationships. They cannot just be opponents. Nor can they be extensions of others' missions. They must work as equal partners with governments and businesses: collaborating with them and yet challenging them.

The need for stronger CSOs has become greater since I wrote my book on the responsibilities of business — which was before the global financial crisis; the mass migrations and reactions to them, in Europe, South Asia and America; and the increasing evidence of environmental damage, water scarcity, and pollution being caused by the prevalent paradigm of economic growth. All the nations of the world have signed up for the Sustainable Development Goals (SDGs) in 2015 which aim to change the ways in which economies and societies work. If the goals are achieved, there will be less need for humanitarian relief; also there will be less need to advocate on behalf of people in distress. Partnerships between governments, businesses and civil society organisations will be essential to achieve all the goals as the final, the 17th SDG states. Moreover, to achieve those ambitious goals, the paradigm of development will have to be transformed. Business as usual will not get us there. CSOs working on the 'development' agenda will have a crucial role to play.

Investors in a social enterprise should get their money back but not seek profit and invest again to help other social enterprises grow.

In 2013, the Planning Commission of India, of which I was a member, hosted an introspection amongst some of India's most successful CSOs, along with the United Nations Development Programme (UNDP). The question was, what could they learn from each other to have greater impact in their common mission which was to make the world better for everyone and especially those who are being left behind by the present paradigm of progress. In the opening meeting, an elderly leader of one of the organisations told a poignant story. His organisation led a people's movement which had been taking the causes of India's rural poor to parliamentarians in the capital city. Buses would be arranged, and the villagers would pay their own shares to come along to protest. The organisation had achieved some notable successes, such as the passage of India's landmark Right to Information Act, which gave the villagers the right to know what was happening with the money that was allocated for their welfare. At a rally recently, he reported, a poor old woman who once again produced her few rupees to ride the bus to Delhi, said that she had been coming to these protests for years, and she would continue to. But when would her poverty end, she asked.

The meetings amongst the civil society groups continued. They distilled insights from their collective experience. They concluded that what the poor and disadvantaged need most of all and want is the right and ability to stand on their own feet, to meet their own needs. They do not want to suffer the humility of remaining at the receiving end of charity. They know that laws granting them more rights — the right to vote, the right to information, the right to education, health and so on — are ultimately worth nothing to them if matters don't improve on the ground for them. Therefore, the question is: how can CSOs assist people in their communities to become self-reliant? And how can CSOs engage governments and businesses in a mission to work with the people and change the conditions on the ground?

CSOs may have saintly missions. But they are not always seen as saints. Authoritarian governments in many countries see them as threats. It has not helped the NGO sector that widely publicised scandals, of sexual abuse and failures in internal governance, have sullied the image of some of the largest brands of international CSOs. The International Centre for Civil Society convened a meeting this April in the UK of the chairs and CEOs of a score of international CSOs to discuss the problems and solutions. (I participated as the chair of HelpAge International, the network of organisations around the world working for the care of the elderly.)

There is need to rethink three fundamental concepts concerning the governance of CSOs.

The first is the drive to 'scale up'. The ambition to produce 'impact on scale' is laudable. However, it becomes confused with a drive to 'scale up' the CSO's own organisation (ostensibly to increase impact). With that, the progress of the CSO is measured mostly in terms of its budgets, and the funds it raises. Which distracts the board and the executives from the intellectually difficult task of discovering how to increase the scale of external impact with less resources in command which should be the reason for the existence of CSOs, as distinguished from conventional 'business'

COMPANIES IN SCALING UP

LAKSHMAN ANAND

Scaling up with a one-size-fits-all model is inappropriate for the development sector

enterprises for whom a principal *raison d'etre* is to accumulate more wealth for their investors. The drive to become bigger, as many corporate governance scandals have revealed, affects the culture within business enterprises too. At their meeting in the UK, the chairs of CSO boards admitted that blind acceptance of some concepts of management from the corporate business sector has been distracting them from their core missions.

A drive to 'scale up' a solution that has worked in some places and apply it everywhere, which developmental organisations get drawn into, is an industrial model for scaling up. This model works for producing standardised hamburgers. It also works to deliver standard doses of pulse polio vaccine, impregnated mosquito nets, or standardised mid-day meals. It is an efficient model for delivering only a limited portion of a complex combination of ingredients that must grow together in a community to produce sustainable development. Standardised classrooms and toilets can be produced on an industrial scale. However, merely building better classrooms will not improve education outcomes. And, merely building more toilets does not change sanitary practices. Scaling up with one-size-fits-all solutions, an industrial approach to scaling up, is an inappropriate model for the development sector.

A concept of 'social enterprises' has entered the development sector. Along with the concept of 'impact investing', it brings together the worlds of business and finance and the world of CSOs. A simple definition of a social enterprise is an enterprise that produces environmentally friendly products or socially useful services such as affordable education and healthcare. There are profits to be made at the bottom of the pyramid. The question is, who makes the profits — the investors, or the people who buy the products and services? When the conventional business model is applied to the production of socially desirable products, the people pay and the profits flow up to investors whose wealth increases. This does not help poor citizens to increase their wealth or build their own capabilities. When the performance of managers of such business enterprises cloaked as 'social enterprises' is judged by investors in conventional business terms, the managers deserve handsome compensation.

The notion of investors and managers getting very rich off the backs of the people they claim to be serving, has led to several scandals that has affected the image of CSOs; such as the scandal in India's microfinance sector when the CEO of a firm was found to be compensated in millions of rupees, which brought the sector to a standstill; and a nasty controversy in the UK which smeared the image of a respected charity when a social enterprise it ran to raise money for its work was reported to be making profits from the services it sold to the people the charity was supposed to be assisting.

Social enterprises must be of the people, run for the people, by the people. The beneficiaries of the social services must also be the owners of the enterprises, and thus the wealth produced will accumulate with them.

Genuine impact investors in such social enterprises should not have to donate their money. They must get their capital back (without expectations of profits) so that they can invest it again to help other social enterprises to grow. This is a sustainable way to keep spreading around the money and scale up sustainable development through genuinely social enterprises.

A new form of organisation — less 'corporate' and more 'networked' — is required to produce large-scale social impact. The achievement of the SDGs requires partnerships between diverse institutions — governments, capitalist business enterprises, CSOs, and people's own enterpri+ses. These institutions are set up for different purposes; they also have different forms of governance suited to their own requirements. They cannot be placed under a centralised command structure. Yet they must coordinate their work to achieve the common goals.

The question the heads of CSOs, who have an aspiration to make the world better for everyone, must ask themselves is, what should be the role of the 'centre' in such networks? How can the centre induce change in the behaviour of the networks' members when it does not control them with financial and legal power? How can it induce cooperation amongst them so that they can collectively achieve goals for the progress of humanity?

Finally, let's not leave the challenge of improving the world for everyone to CSOs alone. Leaders of business corporations and financial institutions have great power in the world today. They too could lead the formation of networks of stakeholders, promote social enterprises of the people for the people, and spread change across a large scale — if they want to. ■

Arun Maira is a former member of the Planning Commission

SOCIAL ACTIVISM OR POLITICS BY

AAP and Lok Satta set out to reform the system, but activists who think they can mould the system to their will are soon disappointed

SANJAYA BARU

After India won independence from British colonial rule, the principal architect of that great civil society movement, Mahatma Gandhi, wanted the organisation that enabled this historic achievement, the Indian National Congress, (INC), to be dissolved. He would have preferred a new political party created that would contest elections and seek to form a government. In the event, the INC chose to convert itself from a movement into a party and form the first elected national government of Free India.

Other such civil society movements chose different routes into politics. The Hindu Mahasabha and the Rashtriya Swayamsevak Sangh (RSS), created the Jana Sangh as a political arm of their movement which would participate in electoral politics.

Whether a civil society movement should directly participate in electoral politics or support from the outside such political formations that favour their cause has remained an open and important question in the political life of democratic societies.

This question came up in a big way in Delhi when Arvind Kejriwal chose to convert the India Against Corruption (IAC) campaign into a political party, the Aam Aadmi Party (AAP) and seek office in the state of Delhi. Many IAC idealists opposed the move, while others supported it. Before AAP there were other such attempts by civil society organisations to become political parties. Lok Satta, a Hyderabad-based organisation led by a former IAS officer, Jaya Prakash Narayan, was one such. The answer to "bad politics is not 'no politics' but good politics", declared Lok Satta, justifying the creation of the Lok Satta Party.

The Lok Satta Party declared that it was a political party with "a back-to-basics, pro-citizen ideology that stands for individual rights, economic freedom, and social justice. It is a party that is not trapped in the legacy of the system. It is a party with a comprehensive approach to politics and governance using transparency, decriminalisation, electoral reform, a citizen's charter, and legislative and judicial reform."

Apart from the direct entry of a civil society organisation — commonly referred to as a 'non-government' organisation (NGO), or a voluntary organisation — into such direct political engagement with governance, we have also witnessed the spectacle of several civil society activists opting to become "advisers" to mainstream political parties with a view to influencing government policy and governance systems. The most important such experiment at the national level was the National Advisory Council (NAC) set up by the United Progressive Alliance government in 2004, under the chairpersonship of Sonia Gandhi. Prominent NGO activists like Aruna Roy, Dr Shantha Sinha, Dr Jaya Prakash Narayan and Dr Jean Dreze were members of the NAC.

It is not surprising that all these experiments have brought to the fore the question of the politics and political motivations of civil society groups. The present Bharatiya Janata Party (BJP) government has focused on this question, seeking information on the funding of NGOs. While the BJP government has been more forthright in pursuing this issue, the issue itself is an old one.

The interesting political question is whether a new national political formation can come out of the current phase of NGO activism.

In the early 1980s, Prakash Karat, who went on to become the general secretary of the Communist Party of India (Marxist), wrote a seminal essay questioning the very credentials of the NGO movement, especially such NGOs as receive financial support from outside the national border. Karat alleged the foreign-funded NGOs were implicitly, if not explicitly, promoting the agenda of imperialism.

To quote, "There is a sophisticated and comprehensive strategy worked out in imperialist quarters to harness the forces of voluntary agencies / action to their strategic design to penetrate the Indian society and influence its course of development. It is the imperialist ruling circles, which have provided through their academic outfits the political and ideological basis for the outlook of a substantial number of these proliferating groups in India. By providing liberal funds to these groups, imperialism has created avenues to penetrate directly vital sections of the Indian society and simultaneously use this movement as a vehicle to counter and disrupt the potential of the left movement. The Party has to take serious note of this arm of imperialist penetration while focusing on other instruments and tactics of imperialism. An ideological offensive to rebut the philosophy propagated by these groups is urgently necessary, as it tends to attract petty bourgeois youth imbued with idealism." (Prakash Karat, *The Marxist*, 1984.)

Several non-Marxist radicals active in civil society organisations rejected Karat's interpretation and sought to provide social justification and intellectual legitimacy to NGO activism. There was much self-criticism on what NGOs ought to be all about and in an influential essay on this issue scholars D.L. Seth and Harsh Sethi argued: "The last two decades have witnessed a veritable mushrooming of NGOs in India. What, however, is inadequately appreciated is that the conversion of voluntarism into primarily a favoured instrumentality for developmental intervention has changed what was once an organic part of civil society into merely a sector — an appendage of the developmental apparatus of the state. Further, this process of instrumental appropriation has resulted in these agencies of self-activity losing both their autonomy and political-transformative edge. What is required, therefore, is to reorientate voluntarism from a framework of subserving the needs of delivery to one promoting self-governance in the widest sense." (D.L. Seth & Harsh Sethi, *Voluntas,* an international journal of voluntary and non-profit organisations, November 1991.)

These two-decade-old interventions remain relevant even today, even as several other views on the role of NGOs have emerged. This debate will continue. The fact is that the so-called "NGO sector" is not a homogenous social entity. There are literally hundreds of thousands of NGOs across the country with varying agenda and they will continue to sprout and dissolve. Questions will continue to be raised on their funding, on organisational transparency, and so on. The fact is that NGOs have emerged as an element in India's social, economic and political life and will not go away.

At least one important reason for the mushrooming and growth of NGOs has been the generalised disillusionment with party politics at the gram and mohalla level. Apart from the Communists and the BJP, few political parties have grassroots cadres actively engaged in socially meaningful work. Regional and caste-based parties are even worse. In

OTHER MEANS?

LAKSHMAN ANAND

The AAP experience shows the capacity of the Indian state to absorb new parties into the system

states like Tamil Nadu, Andhra Pradesh, Uttar Pradesh and Bihar, the state-level political parties, mainly caste-based, do not inspire young people. This dismal situation is unlikely to change though the national parties have been trying to build a politics of social engagement at the grassroots. Initiatives like Swachh Bharat can be important catalysts for social mobilisation at the community level, drawing young people into mainstream politics. However, if this model does not succeed, new generations of political activists will remain attracted to locally active NGOs.

There is no point in going into the rights and wrongs of this phenomenon. The fact is that NGOs have come to exist. Many have become politically active and will remain so. The fact also is that all governments, irrespective of their ideological orientation, will subject NGOs to greater and closer scrutiny. If civil society won a victory against the State through the Right to Information Act, the State has responded by seeking greater transparency in the funding and functioning of NGOs.

Going forward, the interesting political question is whether a new national political formation can come out of the current phase of NGO activism. After all, the Congress party and the BJP were products of civil society activism of a different era. There are other political parties that came out of civil society activism in different parts of the country and have remained confined to small pockets of influence. In recent times, the best example of such stunted growth is that of AAP. It tried to grow out of its Delhi base, contesting elections in Punjab, Haryana and Goa but these efforts have only been partially successful. AAP has not shown the ability to grow beyond its base in Delhi.

Neither Narayan's Lok Satta Party experience nor Kejriwal's AAP experience will discourage other political activists in future from using the civil society route to political relevance.

Given this reality of Indian politics, what civil society organisations will have to be mindful of is their manner of functioning. Mainstream political parties and the agencies of the State will demand greater transparency in the functioning of NGOs. Especially such NGOs as have links to international NGOs, foreign funding organisations, global corporations, religious organisations and the corporate sector.

The changes in company law requiring Indian firms to devote a certain percentage of their profits to 'socially responsible' activities have created a new bridge between the corporate sector and NGOs. How this evolving relationship will influence politics and social activism remains to be seen.

What the AAP experience in Delhi tells us, as indeed the experience of the INC did in the early 1950s, is that when an activist enters government one has to function within the parameters set by the Constitution and the institutional codes and rules. As Prime Minister, Jawaharlal Nehru had the same problem dealing with many Congress party activists, especially the hardcore Gandhian Satyagrahis, as the institutions of governance have had in dealing with AAP activists in government. Nehru drew a line between social activism and the running of a government. Kejriwal has not been able to do so.

Civil society activists who imagine that once in power they can mould governmental institutions to their will are soon disappointed. The Indian State has evolved to a level of maturity and stability that sees newly elected political parties who come to power promising radical change in the way government functions being soon absorbed into the system and finding their options limited.

The ability of the apparatus of the State to absorb a challenge to its authority and ensure continuity is a sobering corrective to civil society enthusiasm — for 'politics by other means'. Which is one reason why many NGO activists prefer to function within the sphere of civil society rather than enter institutions of government. The decision of many such activists to withdraw from the NAC and return to their respective fields of social activism testifies to this.

In short, even as civil society activists will remain engaged with mainstream politics, entering the mainstream from time to time, a large number of such activists may prefer to remain within their chosen sphere of activity, challenging the institutions of the State rather than seeking to manage them.

What the AAP experience teaches us is that if mainstream political parties are unresponsive to the demands of civil society — be it on issues like corruption, or the environment — then someone or the other from among the activists will try to challenge the existing order and enter mainstream politics to effect change. How effective such intervention will be remains a matter of conjecture. ■

Sanjaya Baru is a writer based in New Delhi

NEW BASICS: LIVELIHOODS, MICRO-EQUITY, DIGI-TOUCH

Small banks and MFIs should build the rural market before they miss it. For all the talk of urbanisation, millions in rural India are underserved

VIJAY MAHAJAN

Microfinance began in India in 1974 with the establishment of the SEWA Bank in Ahmedabad by Ela Bhatt, as SEWA (Self Employed Women's Association) members found that nationalised banks mandated to serve the poor were not accessible. SEWA Bank was a cooperative and it extended credit out of its members' savings.

In 1976, two years later, Professor Mohammed Yunus set up the Grameen Bank as an experiment. Due to the tragic circumstances in which Bangladesh was born in 1971, poverty was endemic. Yunus' model focused purely on credit. The bank's source of funds in the initial decade was donor grants. So the Grameen Bank grew very fast, compared to the SEWA Bank model which was based on savings and using only member deposits for extending credit.

Both Yunus and Bhatt deeply cared for the poor and both institutions had a strong social agenda. Both tried to grow beyond their boundaries but Yunus was more able to convince Western political leaders and their aid administrators that the Grameen Bank microcredit model was the right answer to the problems of inequitable growth which had been unleashed since the 1980s.

The event which hailed Grameen Bank's arrival on the world stage was the Microcredit Summit in Washington, DC, in February 1997. The summit was organised to "launch a global movement to reach 100 million of the world's poorest families, especially the women of those families, with credit for self-employment, by the year 2005". The summit was attended by Hillary Clinton, then First Lady of the US, many heads of state, policymakers and senior bankers.

After attending the summit, I had written a critical article titled "Is microcredit the answer to poverty eradication?" I tried to follow an alternative path to the Grameen Bank and established India's first commercial microfinance entity — Bhartiya Samruddhi Finance Ltd (BSFL) as a non-bank finance company (NBFC) in 1996. In the initial years, BSFL had the benefit of low-interest loans from the Ford Foundation and the Swiss Agency for Development Cooperation, to prove the concept. By 1998 we were able to raise loans from banks and then by 2001 raise equity from international investors such as the IFC in Washington and India's ICICI Bank and HDFC. It looked as if scaling up was the only task left.

Before doing that, BASIX (the brand name we had then begun using for our group of companies) decided to carry out an impact assessment study of our microcredit work. We found that only 52 percent of our three years plus microcredit customers reported an increase in income, 23 percent reported no change while another 25 percent actually reported a decline.

> **I would advocate a broader approach in which MFIs offer financial products that meet the lifecycle needs of households with lower incomes.**

Our analysis showed that the reasons were unmanaged risk, low productivity in crop cultivation and livestock rearing, and inability to get good prices from the output markets.

BASIX then revised its strategy and decided to offer a whole suite of insurance products covering life, health, crop and livestock along with microcredit. For enhancing productivity of borrowers, a range of agricultural and business development services were offered to borrowers. For ensuring better prices, alternative market linkages were facilitated both on the input and output side. Producers were encouraged to form groups and cooperatives, which were then given institutional capacity building services to become more effective.

No one followed our example and we ploughed a lonely furrow.

Meanwhile, microcredit became the new magic bullet. On the one hand, Yunus asserted that due to microcredit in 25 years people would have to go to a museum to see poverty. On the other hand, Michael Chu, who had joined Accion as its CEO after a career on Wall Street, asserted that microcredit was a great new asset class which could be securitised and sold in secondary markets to raise more money and feed further growth.

The UN declared 2005 the International Year of Microcredit and in 2006 Yunus was awarded the Nobel Peace Prize. The resultant hype led an NGO MFI, Compartamos, working with the poor in Mexico, to make the world's first microfinance IPO in 2007, which was very successful. Soon, the world's investors were knocking at the doors of MFIs, many of which were in India.

Some of the MFIs were ambitious and grew very fast, throwing off due diligence and caution. Shortage of credit was replaced with over-lending and soon this led to many borrowers borrowing beyond their capacity to repay. Some MFI staff indulged in coercive recovery practices and in a few cases borrowers committed suicide.

Despite growing unease about high-growth microcredit, SKS, by then India's largest MFI, had an IPO on August 1, 2010. This was also a great financial success, over-subscribed 14 times. But within 75 days, on October 15, 2010, the government of Andhra Pradesh (AP) promulgated an ordinance whose stated objective was "to protect women's self-help groups from exploitation by MFIs". By then over 6.5 million women had borrowed from MFIs in AP and ₹7,200 crore was outstanding in micro-loans (average about ₹11,000 per borrower).

The ordinance, further fuelled by political leaders of all parties, led to mass default. MFIs never recovered most of the money which was outstanding and 6.5 million women became and even today remain defaulters in credit bureau records.

A 2013 study by Professors Renuka Sane and Susan Thomas of the Indira Gandhi Institute of Development Research (IGIDR) in Mumbai found that the monthly per capita expenditure of AP households fell by 19 percent. The household expenditure on food went down by 17.3 percent and on education by 43 percent. The AP MFI Act thus affected over one crore poor households adversely. The industry had a huge setback for three years.

LAKSHMAN ANAND

MFI clients will need help at least for the next 10 years to move from old style transacting to digital

Enough about the past! I will now turn to the future of microfinance in India and indicate what has to be changed for the sector to serve its original purpose and grow without crises.

Transit to livelihood finance: The title of my article in the *Economic and Political Weekly,* was 'From Micro-credit to Livelihood Finance'. In it I had pointed to the limitations of microcredit as an instrument for helping the poor overcome poverty. I had suggested how to go beyond those limitations using a broader livelihood promotion approach, combining financial services with promotional services like agricultural extension, veterinary services, skill training and market linkages, all around informal organisations of the poor.

Today I would advocate an even broader approach and urge MFIs to devise and offer a new set of financial products — a combination of savings, loans, insurance and pensions. These combined products would cater to various lifecycle needs of lower-income households. MFIs would have to move from loans for existing micro-enterprises to setting up new micro-enterprises for self-employment of youth. Later in life, they can be offered savings-based loans for acquiring consumer durables and housing. MFIs should also be encouraging long-term savings for self-financed pensions and offering a range of insurance products to manage various risks — to health, life and assets.

Go digital with a human touch: Microfinance as practised until 2014 had been 'high-touch' — involving meetings, face-to-face contact, paper-based forms and handling of cash, though much of this has changed in the past few years. The new-generation MFIs or DFIs (digital financial institutions) are, in contrast, high-tech, with everything done using apps, with no face-to-face contact between the customer and the service provider. I think what will work is neither high-tech digital nor high-touch, but a hybrid middle path which I call Digi-Touch. Microfinance clients will need help at least for the next 10 years to move from old-style transacting to digital. MFIs need to equip their field staff with high-tech but thereafter the service to clients can be face-to-face, with information being digitally captured.

Finance start-ups with micro-equity: One answer to the job crisis in India is to promote self-employment in a big way. But financing these youth to be self-employed through loans would be a disaster both for them and the banks. We know that start-ups have a success rate of barely 30 percent. So what is the solution? We need to come up with a product called micro-equity which would permit profit and loss sharing by the financiers, so that they could make up their losses from the 60 to 70 percent who are likely to fail, from their share of profits of those who succeed. This is the venture capital model applied to micro-enterprise start-ups. Of course, this requires a lot of detailing and this is not the place to do so.

Give larger and longer term loans: Low-income households need income enhancement, not cash flow smoothening. This needs investment in skills and in productive assets and in working capital. This implies that MFIs have to learn to give larger and longer term loans, which are used for investment in productive assets, rather than just today's cash flow smoothening loans, where the money moves in a fungible manner between household needs and business working capital. Those MFIs which have become Small Finance Banks (SFBs) can easily devise composite loans which are a combination of term loans and working capital facilities. MFIs which are not banks but NBFCs will have a harder time offering working capital as an overdraft facility but some innovations can still be made to take care of seasonal peaks and troughs to meet the financing requirements of micro-enterprises.

Build rural markets: For all the talk of urbanisation, rural India will continue to have over 150 million households and they are the ones underserved by financial service providers. Today, working in rural areas has become much easier due to better road connectivity and mobile/Internet connectivity. Thus SFBs and MFIs should build the rural market before they miss it. This requires new products as well as new channels and a different set of underwriting or appraisal techniques, which takes into account the high amount of undocumented data that exists in the social networks and interactions of rural people.

A note of caution: I want to end by reminding the microfinance industry that it has seen a crisis arising out of a combination of its own reckless ways and external circumstances, roughly every five to six years.

The first was the Krishna district crisis in 2005-06 which impaired about ₹100 crore worth of loans; the second was the AP crisis in which ₹7,200 crore worth of loans was impaired in 2010-11; the third was the post-demonetisation crisis in 2016-17 in which perhaps ₹20,000 crore worth of loans was impaired. Unless the sector mends its ways, we may see a crisis by 2021-22 amounting to possibly ₹50,000 crore. Only if the sector learns from its imperfect past can it move towards a less tense future. ■

Vijay Mahajan is CEO of the Rajiv Gandhi Foundation

IN SCHOOLS, A SILVER LINING TO

There have been some improvements but 'quality of education' has remained elusive

DILEEP RANJEKAR

After 26 years of corporate life, in 2000, when I decided to move to the education sector, I was viewing my experiences with a fresh pair of lenses. My very first official and elaborate travel was in the interiors of a block and the education secretary very kindly requested one of the senior education officers to accompany me. We visited 10 schools in a single day, followed by a meeting with community members in a village.

In one school, there was a teacher under the influence of alcohol — though he was completely sober. In another, we were informed by the children that the teacher had gone to the saloon he operated during school hours after logging his attendance. In yet another school, the teacher slapped a child who barred me from taking another child's notebook since the latter was from a Scheduled Caste. Most schools had no toilets and the drinking water was supplied by enthusiastic members of the community.

After completing our visit to 10 schools, we settled down in a dilapidated room in one of the schools where the panchayat was housed. During the discussions, I tried to persuade the community to ensure 100 percent enrolment since only 16 out of the 114 children were out of school! The community appeared upset. One of the more aggressive men stood up and asked me agitatedly, "Have you visited the school and seen the ceiling, walls, floor and the surroundings? Do you know that for 100 children there are only two teachers and when that teacher is absent, nothing happens in the school? Already 98 children are suffering, why do you want 16 more to suffer?"

Even today, I don't have the answer to that question.

The task appeared truly daunting. We had close to 59 million children not enrolled in schools. The quality and adequacy of schools and classrooms was a big issue. Almost 80 percent of schools did not have satisfactory toilet and drinking water facilities. The teacher-pupil ratio was grossly inadequate at 1:42. There was a huge inequity in literacy, enrolment and dropout rates between girls and boys, and between urban and rural populations. The gaps were almost 25 percentage points. At the national level, if 100 children were enrolled in Class 1, about 65 reached Class 5 and 55 reached Class 8. Only 37 reached Class 10, of whom about 55 percent would pass the examination. Around 12 percent would go on to college.

The Sarva Shiksha Abhiyan (SSA) or Education for All programme was launched in 2000-01 under the Atal Bihari Vajpayee government to create an all-India umbrella programme as compared to earlier programmes such as the District Primary Education Programme that was limited to 272 districts across 18 states. In many ways, the SSA significantly transformed public school education in India — at least in terms of access, improved infrastructure (additional classrooms), appointment of additional teachers, technology in education, promoting certain innovations, free uniforms and textbooks to children, providing dedicated funds for teacher professional development and research. For the first three or four years, there were huge unutilised funds, since the disbursement was based on proposals generated by the respective states. Culturally, the states were not capacitated to create such proposals. In fact, the Azim Premji Foundation helped certain states in writing eligible proposals to get funds allocation.

Fifteen years later, there has been a significant improvement in certain quantitative aspects of public education. The key ones are:

Enrolment and attendance: This was powered both by the concerted 'enrolment drives' and parents' realisation that the only way they could aspire to build their children's future was by educating them. The gross enrolment ratios (GER) are now almost 100 percent while for disadvantaged categories like SC/ST, GER is above 100 percent. The enrolment and dropout ratio differentials between girls and boys as well as urban and rural populations have significantly narrowed to between three and five percentage points as compared to the earlier 25 percentage points.

Access: Almost 98 percent of dwellings have a lower primary school within a kilometre and more than 90 percent have a higher primary school within three kilometres. Several thousand classrooms have been added in various schools. The look and feel of many schools have changed — in many areas, a government school is the only decent and brightly painted building. Construction of toilets and provision of drinking water has happened in a big way.

Literacy level: In the 2011 census, the literacy rate rose to 74 percent from the earlier 65 percent.

Nutrition: In a majority of schools, the Mid-Day Meal (MDM) scheme has been successfully introduced and has become established, providing a hot, cooked meal to children in elementary schools.

Teacher education needs overhauling

Teacher education: In the recent past, in addition to introducing a two-year (after graduation) and four-year (after Class 12) B.Ed. programme with revised curricula, the government has initiated serious steps to review the quality of existing (especially private) teacher education institutions.

Institutional reforms: Reforms such as evaluating the role of the National Council for Teacher Education and the University Grants Commission are underway and the concept of Institutions of Eminence has been introduced to promote universities with potential to rank among the top 100 universities in the world.

Yet, 'quality of education' has remained elusive! This includes quality of access, of the mid-day meal programme, teacher education, state of toilets and of the institutions created under the National Policy of Education, 1986. The implementation of the Right to Education Act, 2009, has left a lot to be desired. Progressive shrinking of the budget available for education is of utmost concern.

Despite clearly articulated aims of education and

DARK CLOUDS

LAKSHMAN ANAND

All education revolves around cramming the student with knowledge and rote learning with an emphasis on exam results.

high-quality national curriculum framework, almost all current education (public and private) revolves around merely cramming the student with knowledge and memory-based cognitive learning. Both parents and teachers emphasise the importance of results in examinations that assess primarily rote learning. Compared to 20 years ago, almost 25 percent more children have migrated to private schools. This is despite clear evidence that there is no qualitative difference in the learning outcomes of children in public and private schools. In short, the reputation of government schools has taken a massive beating without adequate reason.

If we do not help children develop independence of thinking, sensitivity, empathy, respect, understanding of constitutional values and an integrated sense of various disciplines, we as a nation are likely to lose the soul of our future society.

Education is a complex subject and several factors need to be addressed to achieve a sustainable higher quality of education. Since it is not possible to address all these facets in this column, I would choose three of the most important in my opinion — financial resources, teacher education and capacity enhancement, and the examination/assessment system.

Financial resources: For almost 50 years, Indian educationists as well as several Education Commissions appointed by the government have made a strong case for spending at least six percent of our GDP on education. Our current spend levels (before leakages and prudent utilisation) are around 2.8 to 3.2 percent.

The inadequate allocation has led to several maladies such as pathetic infrastructure, completely unsatisfactory teacher-pupil ratio in many states (causing an unprecedentedly high proportion of single-teacher schools — leading to a huge quality gap), and non-functioning of several academic institutions owing to absence of faculty, training infrastructure, and so on.

Let us examine the per child, per year expenditure in the three types of government schools. It is ₹19,000 for the state board schools; ₹52,000 for the Kendriya Vidyalayas; and ₹72,000 for the Jawahar Navodaya Vidyalayas (a part of this is due to the residential nature of the schools).

While parents vie to admit their children to the Navodaya and Kendriya Vidyalayas, the state board schools have witnessed nearly 26 percent migration. This tells a certain definitive story.

Teacher education and capacity enhancement: When the nation decided to conduct the teacher eligibility test (TET) for thousands of existing teachers across the country, less than one percent teachers could qualify. We need to radically overhaul our teacher education with a system of rigorous four-year preparation of teachers before they are certified to be teachers. As in Sweden and Finland, we must make it difficult for anyone to become a teacher.

Almost all attempts to improve the quality of teachers through in-service training have met with very limited or no success. Creating voluntary spaces for teacher professional development seems to be a powerful solution, based on the Azim Premji Foundation's own work. The state of faculty members in higher education institutions is even more deplorable since no particular teaching training is mandated. A faculty member may excel in a given subject/discipline but may have poor pedagogical practices that do not achieve the objectives of teaching.

Examination system: Any assessment system must aim at evaluating whether the goals of education are achieved. A good examination system must have the following features: (a) It must go beyond mere assessment of cognitive abilities; (b) It must be continuous and not one-time; (c) It must be development-oriented and not for pronouncing judgement on the student; (d) Teachers must develop intimate understanding of students.

As a prerequisite, teachers need to be thoroughly developed to understand the learner and the learning process. A significant part of continuous evaluation can be used by teachers for their own professional development.

It is often said, "What gets measured, gets done." Unless we reform the examination system and begin measuring the achieving of the overall goals of education beyond rote memory-based knowledge retrieval, the efforts to reform the education process will come to naught!

We boast of India being, at one point of time, the nerve centre of 'knowledge generation'. However, for centuries now, we have remained 'knowledge receivers'. We cannot become a truly developed nation if we do not commit ourselves to fundamentally overhauling our education system. ■

Dileep Ranjekar is CEO of the Azim Premji Foundation

WHEN THE GOVT BECOMES A CARING SUPER PARENT

Social welfare schools in Telangana are giving children from marginalised families a residential school education which sends them to the best colleges in India

R.S. PRAVEEN KUMAR

Mounika has boarded a train, the Dakshin Express, for the first time in her life. The special general compartment that was arranged for her and 80 fellow students does not have sleeper berths. So Mounika and her friends will have to endure a gruelling 36 hours without sleep. But the sheer excitement of travelling to New Delhi, the national capital, and securing admission into Miranda House, one of India's most sought-after colleges, has mitigated all the discomfort of a backbreaking journey.

Mounika is from the Manne-Kolavar tribe which is categorised as a Particularly Vulnerable Tribal Group, on the verge of extinction. As a student of Miranda House she will be rubbing shoulders with the children of Delhi's power elite.

Like Mounika, hundreds of other marginalised students from Telangana joined various colleges of Delhi University this year. Perhaps this is the largest contingent a single state has ever sent to Delhi University. An equal number has joined the IITs, NITs, the Indian Maritime University and Visva-Bharati University in Santiniketan, which is a record of sorts.

What has enabled students from utterly poor homes and marginalised communities to join the most prestigious institutions in India? Who funds their education? How do they handle social stigma, inaccessibility and inferiority?

Telangana currently runs 877 residential schools for talented and meritorious children from discriminated communities in villages and urban slums. In 1971 the Andhra Pradesh government started three residential schools based on the *gurukul* model of education. Successive governments began scaling up these schools and ensuring a certain level of quality education. Some students made it to well-known medical and engineering colleges in the state. Many of them migrated to the West, an act of silent rebellion against the bitter reality in their villages and communities. The percentage of students who enrolled in the state-run residential schools was abysmally low but demand for admission grew steadily.

When the state of Telangana was formed on June 2, 2014, Chief Minister K. Chandra Sekhar Rao, or KCR, as he is popularly called, launched the KG2PG Mission under which the State becomes the 'super parent' by providing quality education on a mass scale to millions of children.

During his 14 years of struggle for a separate state, KCR toured as many villages as possible to understand the problems that people faced. The indigent poverty that clipped the wings of poor families struck him. Parents had aspirations but the state did not have the capacity to provide quality education so that their children could take advantage of a dynamic economy.

The KG2PG Mission raised many eyebrows when it was started.

> **A home away from home, there will be one million students studying in these schools by 2022, a staggering number by any standard.**

State governments have been investing heavily in education, yet they lose students to schools run by the private sector. This exodus continues quietly although most states employ the best candidates as teachers.

Due to the rise of English as the medium of instruction and the tardiness of public sector schools in adapting to this development, many impatient parents rushed to admit their wards to English-medium schools. While teacher unions in education departments were caught in the Bermuda triangle of service rules, transfer and promotions, private schools mushroomed.

The lack of space and questionable quality of those schools were overlooked by parents because they didn't want their children to end up as refugees in the job market. Poor and lower middle-class families spent a lot of their hard-earned money paying for education in private schools. This situation required a solution.

In Telangana and Andhra Pradesh, social welfare departments wanted to share the burden of the education department. The tuition and maintenance fees of poor and meritorious children, who went to the best private schools, were reimbursed and a scheme for bright boys introduced. These steps delivered to some extent but the quality of instruction in such schools in Telangana and Andhra Pradesh went unchecked.

The government-run residential schools for marginalised communities continued to be lone islands of hope. They received end-to-end support from the government and did better than other state schools in the board exams. But the capacities of these residential schools remained woefully limited and they catered to a minuscule population. Some pundits in the education sector argued that residential schools created stratification among the most needy. They also questioned the promotion of residential schools at the cost of regular day schools run by the local bodies.

The Telangana government wanted to invest its money intelligently. As soon as the government was formed, a series of brainstorming sessions was held on how to bring every child under the care of the KG2PG Mission.

To fulfil his electoral promise of free and quality education to every child, Chief Minister KCR Rao announced the setting up of 187 new residential educational institutions for Scheduled Castes and Scheduled Tribes in the state. Another 200 institutions for religious minorities were also announced since they too lagged in education. Subsequently, 119 new residential schools were sanctioned for the most backward class category as well.

Many critics feared that these varied schools could lead to the compartmentalisation of education, dividing society along caste lines once again. But the government intelligently addressed this problem by carefully integrating every community in each residential school run by different welfare departments. By doing this the Telangana government managed to focus on the educational development of marginalised communities as well as

Students are nudged to acquire a new identity called Swaero and junk all symbols of oppression

their integration.

By 2022, there will be around one million students studying in these English-medium residential institutions upto graduation. This is a staggering number by any standard. But the systems and processes the state has put in place to earn the faith and trust of parents requires a little elaboration.

Residential schools in Telangana are a home away from home. The school complex essentially has seven components including an academic block, a dormitory, a kitchen-cum-dining hall, residential quarters for staff members and a playground. The minimum land required to construct a government residential school is seven to 10 acres, depending on the terrain.

Each classroom has not more than 40 students. The teacher-student ratio is 1:22. Every residential school can admit around 640 students from Class 5 to Class 12. There are separate schools for boys and for girls. The government lays a little more emphasis on girls' education since they are more marginalised among the marginalised. A few schools have been designated as centres of excellence. These schools are co-ed.

Telangana has also established 53 residential degree colleges for young women to break the cycle of early marriage and to connect them to universities. There are about 20,000 young women studying in these institutions today. The infrastructure for the schools and colleges is built in phases and the latest construction cycle is underway.

But it is not infrastructure alone that makes these institutions special. An operating system runs the schools seamlessly.

The Telangana government has given its residential schools a budget and autonomy. These schools are organised into different societies registered under the Societies Act and are headed by a secretary who is guided by a board of governors.

Students are nudged to acquire a new identity called Swaero and junk all symbols of oppression. Dalit, backward and similar markers are not encouraged by a strict 'Don't Ask, Won't Tell' policy. Students recite the Swaero Ten Commandments every day during assembly and are encouraged to apply those rules in real-life situations.

Every teacher is assigned the role of a dorm parent for a group of 40 students. He or she is expected to take care of the emotional and academic needs of every student in the group. Most teachers live on the campus along with their families, depending on the availability of accommodation. But excessive dependence on teachers and figures of authority has its own downsides.

By design, residential schools distribute authority among different stakeholders. There is an elected students' council, for instance. The council helps the principal in maintaining order and in the upkeep of the school. The council runs various clubs on its own even in the absence of teachers. In classrooms, teaching assistants supplement the efforts of teachers every day. There is a quartet system which acts as a platform for individual and collaborative learning. It consists of four students with varying levels of educational performance.

Teaching assistants, who are exceptional, are promoted as super students. They give lectures on live television for the entire state and quite a few of them work as green gurus or student-teachers in schools where there are challenges in teaching.

The Swaero way of life believes in self-learning and this is reflected in schools everywhere. For instance, most schools have huge mirrors in all possible corners where children talk to their images to reflect on themselves, their actions and to improve their language. Young Swaeroes chant their Tenth Commandment, "I shall never give up" before they go to bed.

The welfare residential education department believes that children must learn outside the classroom as well. Under the banner of Summer Samurai, field trips and summer camps are organised. Mostly university students and many knowledge partners act as teachers during summer camps instead of being on vacation. Students are taught skills ranging from horse riding to coding to making drones.

When students dominate the whole scene, what would the role of teachers be?

Teachers in residential schools, whose number is around 25,000, are happy to be guides and not perpetual sages on stage. They are selected after a rigorous examination which is held at three levels. Candidates are tested for their proficiency in English, in their subject, in pedagogy and for social sensitivity. Teacher training is carefully designed. It is called the 'sandwiched' model. At least 20 percent of training sessions are handled by students and parents, who try to sensitise teacher trainees about their real needs and how they feel neglected.

During training the lecture method is discouraged. Trainee teachers are helped to make classroom teaching an interactive and lively experience. After this, teachers are sent on an intensive immersion exercise where they visit the homes of students in marginalised colonies and spend time with their families for a couple of days.

This is immediately followed by an intensive debriefing session at the training academy. The trainee teachers are then attached to their mentors in districts for the next two years till they become proficient. All the mentors are carefully selected. Outliers are always rewarded with commendation letters, tours and additional points during transfers and promotions.

Fifty percent of teachers are promoted based on their performance and the rest by direct recruitment to retain vitality in the organisation. Teachers handle complex topics and leave simpler topics to students to tackle themselves. Students are expected to come prepared to class and contribute to conversations in the classroom. The teacher initiates the conversation and gradually encourages students to join in.

All teachers must present a seminar on topics given by the school's society once a year under the

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ORGANIC'S TIME IS NOW, IT NEEDS

The ICAR has grudgingly accepted that organic yields are on a par with conventional agriculture for many crops but farmers don't get the prices they deserve

RAJ SEELAM

India has the largest pool of organic producers in the world, according to the World of Organic Agriculture Report 2018. A total of 835,000 certified organic producers in India form 30 percent of the world's organic farming population. These numbers are very promising, but we are not yet there. India contributes only 2.59 percent (1.5 million hectares) of the total cultivated organic area in the world.

Organic is about economic, social and ecological sustainability. This is particularly relevant for India which has mostly small and marginal farmers and huge issues of income security. In an era of climate change, organic agriculture is climate smart. Organic agriculture with its focus on local relevance, adaptability and soil is an excellent production system that is an effective response to the uncertainty posed by climate change.

The Government of India (GoI) after many years of effort by industry and farmer organisations has started supporting organic agriculture in the form of the Paramparagat Krishi Vikas Yojana (PKVY) scheme. Though it is a small scheme, it is significant from a mindset perspective. Similarly, the Indian Council of Agricultural Research (ICAR) has also grudgingly accepted that organic yields are on a par with conventional agriculture for many crops.

To realise the true potential of organic agriculture we need to address four key issues urgently.

Benefit to organic farmers: In the past 10 years awareness about organic food has grown in India. Organic products are widely available. This has also attracted many players. Today there are some 30-plus brands and many more unbranded materials available in the market. Competition is always good if it benefits the stakeholders — farmers and consumers.

Unfortunately, there are very few organisations who work at the grassroots level. Most of these companies are dependent on so-called organic traders to source materials. These traders further depend on middlemen. This results in loss of traceability and opens up the system to fraud.

On the other hand, there are also activists and NGOs who have a loose definition of organic and who do not want any regulation. Both of them can be dangerous, as such a state of affairs distorts the market and affects genuine farmers and the trust of consumers. Because of this, genuine organic farmers are not able to get the price they deserve. This can lead to loss of interest amongst them and affect the availability of genuine organic raw materials in the future. Currently, about a million hectares are under certification. It is important that we strengthen systems and create consumer awareness so that all these farmers are able to market and realise a fair price for their produce.

Today organic farmers do not receive any subsidies from the government, unlike conventional farmers who get subsidised fertilisers and pesticides. There is a need for the government to give equivalent benefits to organic farmers.

Building trust: India's agriculture system is unique, since about 80 percent of its farms are small and marginal. To aggregate one truck of material the buyer needs to source from 10 to 20 farmers. Unless an organisation works with the farmers and maintains the traceability of individual lots from farmers and tracks it throughout the production system, it becomes impossible to assure organic integrity.

Also, farmers require intensive technical support to successfully do organic farming. There should be a system of incentives and disincentives so that the grassroots connect of organisations is strong and organic farmers receive their due. This is the only way to assure genuine products and create trust among consumers.

Create consumer awareness: For farmers to benefit, it is important that consumers support the organic movement. Hence, consumer education is very important. Consumers are confused between labels such as 'natural', 'pure' and 'organic'. The government has made a beginning by encouraging organic farmers but it should also start investing in creating awareness among consumers. Unless this is done farmers will not fully realise the benefits of doing organic agriculture.

Simple and effective regulatory system: In India, currently there are two certification systems. The first is 'India Organic', a Third Party certification system administered by APEDA (Agricultural and Processed Food Products Export Development Authority) under the Union ministry of commerce and industry and the second is the Participatory Guarantee System (PGS).

PGS was started by the Union ministry of

When the govt becomes a caring super parent

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New Quality Policy unveiled in 2016. The best are rewarded with bonus points. Teachers also perform the role of caregivers if a student falls ill in school or is hospitalised. There is a command centre called Panacea which monitors the health of every student on a 24x7 basis.

The engagement with stakeholders like parents and alumni has never been as good as it is today. This novel approach towards the community has changed the perception of the people towards the residential schools run by the state.

Knowing that the Swaeroes Network will help makes the entire effort sustainable.

The Swaeroes Network was launched on October 22, 2013, on IAS officer S.R. Sankaran's birth anniversary. He was known as an ascetic because he spent his life serving the poor. Around 100 alumni of state welfare hostels and schools gathered on this day to launch the Swaeroes Network.

Its aim is to reconnect with the grassroots, promote excellence in every field, saturate the community and schools with positive messages, and fight the social evils plaguing marginalised communities. The Swaeroes Network now has a 30,000-strong alumni network in Telangana and Andhra Pradesh. The network has been supplementing the efforts of the government and helping parents when their wards leave home in search of knowledge and opportunity.

"Swaeroism has been raising the bar for our children. Earlier, our boys used to worry about finding jobs and the girls were petrified of early marriage. Now they dream about great universities in the world. But for the government's vision this would have been just a mirage," observes Dr Sharada Venkatesh, the regional coordinator of Hyderabad-Ranga Reddy region.

For instance, Mounika is also a product of the STARS-30 mission, a programme that tutors meritorious students. It was started by R.C. Karnan, an IAS officer, and is modelled on Patna-based Anand Kumar's famed Super-30.

As I write this, news has come that Renuka, another girl escaping early marriage in her village, has reached the Central University of Punjab in Bathinda to pursue a master's degree. This news makes me even more confident about the system, officials and members of the Swaeroes Network with whom I work every day. It also pushes me to work harder for the people of the extremely marginalised communities that I come from and to pitch in every joule of energy that I have to serve the most deserving. ■

R.S. Praveen Kumar is Secretary of the Telangana Social Welfare Residential Educational Institutions Society

BOTH GOVT AND MARKET

SHREY GUPTA

For farmers to benefit it is important for consumers to support the organic movement

agriculture based on the assumption that it would be low-cost and easy for farmers. While any certification system has to be simple and effective, both India Organic and PGS have not achieved these objectives fully.

Also, organic food is the only sector which is regulated by three ministries — agriculture, commerce and the health ministry under whom comes the FSSAI (Food Safety and Standards Authority of India). There is an urgent need to bring organic food under one umbrella so that there is more effective coordination.

Till June 30 this year, organic food in the domestic market was not regulated. The FSSAI has notified that, from July 1, 2018, organic standards will be applicable for the domestic market. Anyone claiming an organic label will have to be certified under either of the two systems. Only farmers who sell directly to consumers from their farm in bulk are exempted.

This is a welcome move and can bring more discipline. We need to wait and see the effective implementation of this notification. It should not result in unnecessary harassment as certification is administered by two different ministries and implementation is done by the FSSAI which comes under the Union ministry of health. One way to overcome bureaucratic overreach is to frame unambiguous rules for food inspectors.

In summary, organic food can be a ₹1000,000 crore industry in India in the near future. This could lower financial risk, and provide better incomes and quality of life to millions of farmers, particularly in distressed areas.

The industry needs to fulfil its moral contract of encouraging genuine organic farmers and paying them fair prices. The government should allocate more funds to encourage organic agriculture and create consumer awareness. Lastly, the regulatory system should be made simpler and more transparent so that it inspires trust among consumers and farmers. ■

Raj Seelam is the founder of 24 Mantra

Samita's World

by SAMITA RATHOR

BUILDING THE REVA MEANT STARTING FROM SCRATCH

But now India is poised to seize its EV moment and lead a global transformation in clean mobility. We also have more than 100 start-ups emerging

CHETAN MAINI

The idea of electric vehicles to clean up the air in our cities has always been the right one. Back in 2001, however, when I first launched Reva, India's first mass-produced electric car, it seemed like it was ahead of its time. While we sold the car in 24 countries and created a certain level of awareness, the reduction in pollution and energy was not as impactful as I would have liked it to be. As I reflect on my journey as an entrepreneur and an agent of change, introducing a transformational technology, I have always been driven by this vision of a future when people commute with a mass transport solution powered by renewables — enabling a cleaner, less polluted world.

My tryst with clean mobility goes back to 1990 when I was just 20 years old, at the University of Michigan. Always hooked on cars, I had the opportunity to participate in a 2,500-km race across the US in a car we built, called the SUN Runner, that was solely powered by solar energy. We were fortunate to come first in this race which led to General Motors sponsoring us for the 1990 World Solar Challenge in Australia.

Again, we raced for 3,000 km across the vast Australian outback and came third, right behind Honda. Being able to cross a continent on just energy from the sun was an eye-opener for me. Oil prices were at an all-time low and there was little awareness of climate change. Electric vehicles (EVs) were really not on anyone's agenda.

On my summer holiday trips back home to Bengaluru I saw the city grappling with the challenges of pollution, congestion and transportation. Solar cars were very expensive, so it was clear that a more practical solution was required. It was then that the idea took root in me that electric vehicles using renewables could transform the world and be the much-needed solution for developing countries like India and China.

In the late 1990s, when I started to build the Reva, the situation was very different from what is happening today. There was lack of a supportive ecosystem. I am not just talking about funding. There was lack of a regulatory framework to certify vehicles. There was no clear government policy to work on. The VC (venture capitalist) community was not keen to invest in products since India was more into services, especially in the field of software. Moreover, suppliers were unsure about coming on board because they were concerned about the future of electric mobility. It was also difficult to get banks or insurance companies to consider supporting customers who purchased electric vehicles as they did not know how to finance such a product, in terms of value, depreciation, and so on.

The auto industry is over 7% of GDP. New investments will be required that will create new jobs in the supply chain, in manufacturing.

Finding talent was also an issue. In fact, not a single person we hired initially had ever worked on an electric vehicle before. This required us to train engineers and build teams for R&D, testing, manufacturing and service, in addition to setting up supportive infrastructure. We had to focus on not just addressing the challenges in developing cutting-edge technology, a lot of our energy went into creating an ecosystem and communicating across ecosystems. We had to ensure people understood how electric vehicles were going to impact society, pollution, the economy and the country.

Changing perceptions and attitudes about electric cars was equally important. Nobody had any idea about electric vehicles and they often wanted to know if something like this was run anywhere in the world before they would commit to it — be it a financier or a customer. People started taking us seriously only after the Reva was exported to countries such as Norway and the UK!

As Indians, we need to start seeing our differentiation and innovation in a more positive light and believe that we can also lead in such new areas.

Today, the EV landscape has gone through a huge makeover. Globally, EVs are growing at the rate of 60 percent year-on-year, propelled by climate change mitigation goals. The environment too is conducive for the adoption of EVs. Renewable energy prices are falling; battery technology has advanced, battery costs have dropped, and there are compelling reasons today to bring down our pollution and oil import bills. Consumers are also more aware and keen to look at electric mobility. All these conditions are coming together in an area where we can connect the dots and consider viable sustainable options.

Today, we also have more than 100 start-ups emerging in the electric vehicle space, attracting investments to the tune of millions of dollars. The Indian government is pushing for electric vehicles. State governments have started releasing their own policies. Subsidies and tax benefits around EVs and battery manufacturing exist. Finance and insurance companies understand EVs better as they have seen them running for 15 years. The supply chains for EV components are globally available and slowly building in India. There is a clear framework to certify vehicles. Investments in charging infrastructure are slowly happening. Customer adoption is also on the increase.

Shared mobility companies are introducing electric vehicles in fleets. Ola, Lithium, Smart-E have successfully deployed hundreds of electric vehicles. The government too has triggered demand by ordering 10,000 electric cars and around 500 electric buses. So, entrepreneurs today are operating in a more encouraging environment. Young companies can now focus a lot more on developing their products and solutions and reduce their time on marketing. They need to spend less effort in building an ecosystem. This is really going to help the EV revolution in the country and enable start-ups to be a huge part of this story.

In many ways, the seeds of SUN Mobility were sown when trying to run cars on solar energy back in the 1990s. After selling the Reva to Mahindra, I reflected on the barriers that were preventing mass

In India people started taking Reva seriously only when it was exported to countries like Norway and the UK

adoption of electric vehicles. The key concerns for consumers were high acquisition cost (primarily driven by the cost of batteries), range anxiety (limited driving distance) and long refuelling time.

Electric vehicles require five to eight hours for a normal charge or an hour for a fast charge. But, for a consumer used to a re-fuelling time of five minutes, anything more than that seems like eternity. The idea was to create a business model and a set of technologies that could truly address these challenges. By separating the batteries (and auxiliary systems like chargers) from electric vehicles, EVs could be priced similar to petrol vehicles and by integrating the energy and battery into a "pay as you go model" for customers, one could also get the cost of energy per kilometre to be lower than for gasoline. With customers being able to swap these batteries in a couple of minutes (faster than re-fuelling gasoline), one could address the issues of range anxiety and long refuelling time.

It was around this time that I reconnected with Uday Khemka, who is a strong advocate of combatting climate change and was setting up new businesses in renewable energy. Uday came from the renewable world and I from electric mobility, but we had a common vision to create a cleaner and sustainable future. We reflected on how just a small, exclusive population in the world was able to go green since it was an expensive proposition and how battery swapping could potentially change this.

Next, we looked at what would have the biggest impact on society. We realised that around 45 percent of people in a city like Bengaluru travel by bus and another 45 percent use two and three-wheelers. While the world's focus has been on developing electric cars for personal mobility, we decided to focus on public transport, shared mobility and two-wheelers. These vehicles are driven the most and create the maximum pollution.

SUN Mobility can impact over 80 percent of mobility in India. It is an Indian solution that can be globally deployed. Our smart mobility solution involves an interoperable energy infrastructure platform that will help accelerate adoption of EVs. Our solution is designed to scale and to provide a cost-benefit outcome to the customer and therefore can create a meaningful impact on civil society and the environment.

We need solutions fast because of rapid environmental decline in India. Our dependence on fossil fuels is also cause for concern. Another reason for pressing the green button is jobs: the renewables sector provides employment.

India has the opportunity to create a global differentiation and lead this transformation in mobility. Currently, we are looking at this conversion as a challenge, impacting jobs in the auto industry. But we need to consider the larger picture. After all, we have the right skills sets — we have led in small cars, electronics manufacturing and IT software. And, we have an expanding entrepreneur community full of zeal to change society.

Our renewable energy reserves are increasing rapidly with strong government backing. India is all set to achieve its target of installing 175 GW of renewable energy by 2022, on the back of new schemes like floating solar, manufacturing-linked solar, and offshore wind projects. Solar energy makes up 100 GW of this target. To put this in perspective, if all the 30 million vehicles produced in India in 2022 were electric, we would need only 25 GW of solar energy to power them, just 25 percent of the target that India is planning. Running mobility on renewable energy is no longer a scenario of the future, but a reality.

The auto industry is over 7 percent of our GDP and will go through major transformation as we go electric. New investments will be required that will create new jobs in the supply chain, in manufacturing and infrastructure. This will further augment the jobs created by renewable energy that will power electric mobility. By building the ecosystem in India we also have a large opportunity to become an EV export hub globally.

The current question is: given the right climate, resources and policy interventions, how do we integrate these agents of change into the ecosystem?

It is important, first of all, to create the right ecosystem, one that will include energy providers, mobility solution providers, OEMs (original equipment manufacturers), suppliers, policy bodies and so on — all coming together to drive this transformation.

We should not forget to integrate start-ups as we go along. If we create the right ecosystem, entrepreneurs will innovate and flourish.

In this big transformation, the government has a role to play — first, of providing the vision. India is ready to lead, but there needs to be a larger vision, which is beyond individuals and organisations. Along with vision, we need a set of policies to enable clean energy transportation. The automobile industry, growing at 9 percent, provides a great opportunity for us to pivot it and move towards creating a new India that is cleaner, green and safer. ■

Chetan Maini created the Reva electric car and recently founded SUN Mobility with Uday Khemka

LONG ROAD TO SMARTPUR COULD

For digital literacy, teachers, health workers and village officials need to be deployed in mission mode to build the digital capabilities of the poor

OSAMA MANZAR

People often ask us why we at the Digital Empowerment Foundation (DEF) are trying to impart digital literacy or create wi-fi hubs in villages when poor people need food, shelter and clothing.

The answer is very clear. Internet is not the end goal for us. It is merely a means to achieve the end goal. Allow us to illustrate. For a simple photocopy, we urban dwellers will find a service a few steps from our homes at Rs 1 per page. A poor person living in a remote village will, however, pay ₹240 for one page. If that surprises you, let us explain.

Imagine there is a man named Shivam who lives in a remote village in Rajasthan. He wants to apply for a government scheme. But he has to submit a copy of his government ID to avail of the scheme. To travel to the nearest village or town that has a photocopying service, Shivam will have to skip a day's work and forego his wages of ₹200. He will also need to pay about ₹0 for a two-way ride to reach this village or town. Given the low demand for photocopying services and the high cost of the machine, the shopkeeper, in all likelihood, will charge him between ₹5 to ₹10 per page.

As public distribution shops across the country become biometric-dependent, they need functional Internet connections to match the thumb impressions of their customers with the one stored on the cloud. Financial services, too, depend on an Internet connection. Banks require the Internet to connect with their servers and cloud to assess their data, ATMs require the Internet and eWallets need mobile Internet.

Digital tools and technology are critical for our marginalised communities. Today, all government schemes are available online and require an Internet connection for people to be able to apply.

And the onus of making this basic infrastructure available to the masses lies with the government. It is the government alone that has the resources to implement an initiative that can envelope the entire country.

India is a country of great paradoxes. This nation has contributed 101 Indians to the Forbes list of the world's billionaires. But more than 260 million Indians live below the poverty line. Officially, India has a literacy rate of 74.07 percent. But about 50 percent of Class 5 students cannot read texts meant for junior classes. Facebook has the highest number of users in India at over 240 million. But only 30 percent of Indians have access to the Internet. India is a country where one billion SIM cards are in use, yet, ironically, 72 percent of women don't have access to mobile phones.

In the past 71 years, subsequent governments have launched plans, policies, schemes and programmes to develop India and its people. There have been efforts in sectors like health, education, governance, finance and livelihood. Alongside, efforts have been made to provide access to digital infrastructure, most recently through the ambitious Digital India plan.

However, India is not known for effectively implementing its plans, policies, schemes and programmes. It is often hampered by population, geography, efficiency, corruption, information dissemination, budget allocation and other factors.

> **The critical task of actually making Internet available, functional and distributed has not been done in thousands of panchayats.**

These challenges are being faced by the National Digital Literacy Mission (NDLM) and the National Optic Fibre Network (NOFN) or BharatNet. The two government-driven programmes are the foundation of the Digital India vision, and so their importance and the need to ensure their effective and efficient roll-out can't be stressed enough.

More and more services and opportunities, both public and private, are going online and getting an impetus with the push for a Digital India. It is, therefore, imperative that people have access to digital tools and technologies, know how to use them and are able to leverage the opportunities that the Internet holds for everyone.

The mission of the government-driven NDLM is to provide digital literacy to every Indian. To promote the adoption of Digital India, the government revamped the NDLM in 2016 when it raised its goal to reaching 60 million individuals. Implementing partners began working day and night to meet this target but they did not all share the government's vision.

While the intention of the NDLM and the plan to scale up is correct, its approach isn't. Had the government taken an institutional approach to digital literacy rather than randomly training any 60 million individuals in rural India, the outcomes would have had greater impact and created a ripple effect.

To get a perspective, imagine these scenarios. Had the government trained teachers in digital literacy across India's 1.4 million government schools, the teachers, in turn, would have been able to train 227 million students and build digital capacities.

An institutionally targeted approach would have helped make our government officials, representatives, schoolteachers, frontline health workers, civil society representatives, the farming community and other institutional members digitally literate. They could then have used this knowledge to bring in efficiency and transparency in the public service delivery system and, at the same time, shared their knowledge with others. This would not only have created a pool of digitally literate individuals and institutions but also incentivised the penetration and adoption of digital tools and technology, thus creating a cascading effect.

We need to understand that merely meeting targets is not enough. If we chase numbers then the outcome will resemble our literacy standards where official literacy rates are far higher than functional literacy rates. Further, digital literacy will be of value if people have access to digital tools and technologies. What purpose will digital literacy serve if people can't use those skills in their homes or workplaces?

Given India's economic demographics, large population and vast geographies, there is dire need for low-cost, democratised and decentralised Internet connectivity. While the cost of mobile phones has come down significantly over the years, a large population still can't afford a feature phone, let alone a smartphone. Then there is the additional cost of an Internet connection. While Reliance Jio has changed that scenario considerably, there are still thousands of villages that lie in the dark regions of the telecom ecosystem.

BharatNet was supposed to dispel this darkness by providing broadband connectivity at 100 MBPS to 250,000 village panchayats. Previously known as NOFN (National Optical Fibre Network), BharatNet is a government project aimed at providing last-mile connectivity by extending fibre option from the block level to the village panchayats.

A special purpose vehicle, Bharat Broadband

BE MADE MUCH SHORTER

SHREY GUPTA

People need assistance to access government services and schemes

Network Limited (BBNL), was set up to implement and coordinate the project. This connectivity would have enabled timely, relevant and affordable access to welfare schemes and public information, which would have empowered and helped marginalised communities to develop.

BharatNet was originally supposed to meet its target for Phase I in 2014. It was extended to 2016. Since then, India has missed several deadlines, NOFN has earned a new name and millions of taxpayers' money has not been made accountable.

At the end of last year, the government finally declared completion of Phase I of BharatNet, making optic fibre cable allegedly available to 100,000 panchayats. However, when DEF's research team did a spot check of 269 of these gram panchayats across 13 states, the results were disappointing. Only 18.6 percent (50 locations) of the 269 gram panchayats had BBNL devices installed and 11.5 percent (31 locations) had a 'functional but slow' Internet connection.

This clearly meant that optic fibre cable has been laid, devices have been installed, and laptops have been allotted, but the critical task of actually making Internet connectivity available, functional and distributed has not been accomplished in thousands of panchayats.

Connecting all 250,000 panchayats across India's vast geography was never going to be an easy task. But if the government wants to force digital payments and digital identification in exchange for entitlements and public services to the most marginalised communities, providing functional Internet connectivity and the required tools to access it should have been a bare minimum requirement.

The two foundational pillars of Digital India — NDLM and NOFN — can transform India and pull millions of people out of information poverty and enable them to empower their own lives.

If government schoolteachers are trained in digital literacy across 1.4 million government schools and if these schools are provided broadband Internet, both teachers and students will be able to use digital tools and technologies for teaching and learning. They could even leverage technology to improve accountability and efficiency of school administration and management.

If the government takes digital literacy to all village council members across 250,000 gram panchayats and provides them with functional Internet connectivity, they would be able to have a comprehensive presence online. They could upload details of their annual allocated budget, expenditure, progress on rural development projects and even a repository of village information and updates.

If the government empowers 860,000 ASHA workers and 1.8 million *anganwadi* workers with digital literacy and digital tools, they will be able to leverage their skills and devices to improve health standards in their communities.

Realising this gap and learning from our 15 years of experience, DEF launched a project named Smartpur earlier this year under a Nokia CSR collaboration. The premise of Smartpur rests on the fact that mere availability of digital infrastructure is not enough. Rather, it is the efficient integration of technology in the daily lives of people that creates a smart and self-sustainable village.

The vision of Smartpur rests on the success of six development areas — education, health, governance, livelihood, finance and entertainment — that are powered by wireless Internet broadband connectivity.

The mission of Smartpur ensures that communities have access to affordable medical diagnoses and consultation through digitally literate ASHA workers and telemedicine services; students and teachers have access to digital content for learning and teaching; youth have relevant skills to find jobs or become entrepreneurs; people have timely and relevant access to welfare schemes or entitlements; households have access to digital financial services; and the community has access to quality audio-visual edutainment content.

India has leapfrogged digitally. It has made most of its services digitally enabled, forced Aadhaar-enabled identities, and pushed financial services through digital technology. So, it is only just and fair to concentrate all our efforts at digitally enabling the remaining 70 percent of our unconnected population that lives in rural India. ■

Osama Manzar is founder-director of the Digital Empowerment Foundation (DEF)

CONNECTING CIVIC DOTS IN PUNE, BENGALURU, CHENNAI

It's time to reimagine the way Indian cities are managed so that they can cope with their growing burdens. Here are 10 ways to improve governance

V. RAVICHANDAR

India is a rapidly urbanising country. Its 373 million urban population in 2010 is expected to touch 814 million by 2050. The built-up surface area used in urban India, estimated at 46,600 sq km in 2010, is expected to quintuple to over 258,000 sq km to accommodate the doubling in population.

We need to reimagine the way Indian cities are managed to cope with this vast expansion and its accompanying onslaught of problems like housing, sanitation, transportation, solid waste disposal, healthcare and so on.

What is needed is flexibility, speed, professionalism and consultation in dealing with problems. The current 'business as usual' model of managing our cities and towns is untenable if quality of life is to improve.

A government committee estimated that India needs ₹9.2 trillion (at 2010 prices) over two decades for basic infrastructure provisioning. There is, first, the challenge of finding the money. When and how it gets raised, we must ensure it is spent on infrastructure that makes our cities sustainable.

It is important for local governments to make up for their deficiencies by working closely with citizens to tap into fresh ideas and expertise. I have seen such initiatives deliver results across cities through the City Connect platform. (Disclosure: I was involved in catalysing them.) Three examples show that such public-private collaboration — where private involvement is pro bono — can yield good outcomes for the city.

Pune City Connect decided to hire urban professionals on its rolls and lend them to the Municipal Corporation to address its human capacity challenges. The successful ₹200 crore bond issue was enabled by one such finance expert working closely with the corporation's commissioner as they navigated the public bond issue with financial firms.

The new age Tender SURE roads, built around pedestrian and lifetime cost principles, is now a reality in Bengaluru with 50 km of roads under execution. This was evangelised by Bangalore City Connect which provided the design manual and the designs for the first seven roads and was implemented by the city's corporation.

Chennai City Connect worked closely with the government on revival of the Pallikarnai lake and on pedestrian improvements across the city. Today, the CEO of Chennai Smart City SPV is the former head of Chennai City Connect and one of the very few non-IAS officers heading a Smart City SPV in the country.

I would like to propose 10 gamechangers which can transform the way in which we think about and manage our cities and can, perhaps, save them from irreversible chaos.

> **It is important for local governments to make up for their deficiencies by working closely with citizens to tap into fresh ideas and expertise.**

Plan urban expansion sustainably: Developed countries face the challenge of a deteriorating inner city needing urban renewal while the suburbs tend to be planned in a more organised (though not necessarily appealing) manner. Many Indian cities experience uncontrolled expansion at their periphery with no overarching plans in place and weak administrative structures for plan clearances. Consequently, multiple projects materialise sans any concern for adequate road networks, connectivity, water, sewerage, and so on.

The regional authority needs to proactively intervene in planning the extended urban areas with environmental sustainability at the heart of its plans. This would typically involve an outline plan for road networks, open spaces, services provisioning and, most important, respect for land contours, water bodies, forests, and the like, protected through a Regional Structure plan with clear 'no development' areas specified.

Land use changes on a city's periphery need stringent criteria and restrictions on the powers of rural local bodies to grant development permissions. For starters, infrastructure provisioning must precede any development permission.

Fix civic problems with guidelines: City authorities tend to have an ad hoc approach to addressing the pressing problems of the moment. These are normally 'band-aid approaches' and the problems recur. The government needs to embrace sound guiding principles to address common civic woes. For instance, the government needs to invest in multiple modes of public transport, pedestrian facilities and motorable roads as its core focus to improve traffic flow. The emphasis must be on moving people, not vehicles. Unfortunately, most cities focus on catering to the rising demand of private vehicles which is unsustainable.

Further, governments need to give up their project obsession and adopt an outcome orientation. In resolving transport and traffic, this will result in setting up a Transport Authority to align all the agencies to a common goal. In a similar vein, garbage management needs segregation at source and decentralised waste handling and processing. One can lay out guiding principles for most civic problems that should guide government action.

Replace master plans with spatial plans: Existing planning frameworks for cities are land-use based master plans (static in nature), development control regulations (which are often violated) and have proved to be weak instruments to tackle the several challenges and needs of the city. Further, the current master planning exercise is unable to integrate activities across the various silos of government agencies be it water, sewerage, transport, energy or the environment, nor effectively provide space for citizen participation. They are merely regulatory in nature, imposing conditions on plots, but are not proactive or action-oriented to serve the needs of an area or neighbourhood.

Plans need clear outcome goals around sustainable living indices. At the city level, identify key strategic projects and align agencies and city priorities to make it happen through inter-agency cooperation. At a decentralised level we need negotiated plans between elected representatives and citizens starting at the ward level and moving

A road in Bengaluru improved with private sector collaboration

up the chain with zonal and corporation plans. The plans need to be updated on a regular basis based on changing dynamics and requirements of the city.

Design a city-region framework: If a city is to be liveable, its extended region must develop in a manner that reduces the pressure on the anchor cities. Else any incremental fix will lead to a further influx of people, resulting in deterioration of the quality of life. State government leaders tend to think in terms of satellite town development. It needs to go beyond just that. One envisions a 'rurban' (rural-urban continuum) area that encompasses six to eight other urban clusters within a region with the state being split into a set of contiguous regions.

The state will have a set of such regions, each with a major anchor city. The future lies in having 'live and work' clusters that are urban nodes within the regional network. Any two nodes in the network should have high-speed connectivity (rail and road) that allows travel (including airport access) within two hours. The political leadership and the system will need a huge mindset change since such a plan challenges all conventional thinking about jurisdictional boundaries, administration planning and more. The constitutionally mandated Metropolitan Planning Committee (MPC) should be the vehicle to manage the region.

Strengthen mayors: India's urban governance is stricken by a weak and fragmented administrative structure in which elected municipal bodies operate with little autonomy from the state government. The one-year, titular, revolving mayor (as the post exists in many cities) is detrimental to the management of the municipal corporation and should certainly be done away with.

Our municipalities are yet to become vibrant institutions of self-government. There is an immediate need to institute urban governance reforms that provide for political, administrative and economic empowerment of our city governments. A five-year mayoral term with the mayor as the head of the corporation with a mayor's council supported by the municipal commissioner is suggested. The mayors could be directly elected or be mayors-in-council elected by other councillors. City government empowerment is key.

Relook at archaic laws: Most cities in India are governed by a single Act for municipal corporations and a single State Town & Country Planning Act. And laws like Stage and Contract Carriage Acts are used to cement government monopoly on public transport, shutting out technological innovation. We need custom solutions (laws) to account for varied requirements across larger, mid-sized and smaller cities. A one-size-fits-all law will not work.

Reimagine governance, administration: Three-tier city governance and administration architecture is suggested for mega cities. Increased decentralisation at corporation and ward level and integration across multiple agencies across the city is necessary. The Greater City Municipal Authority (GCMA) headed by a directly elected city mayor needs to be the apex body at the city level which acts as a local planning authority and integrator/coordinator across corporations and parastatal agencies in the city space.

The city corporations are part of the decentralised solution so that elected representatives are closer to their constituents. Ward committees need to be representative and strengthened for deeper decentralisation and citizen participation. Given the multiple civic agencies involved, coordination arrangements are necessary at the city level. There is also need for a City Finance Commission to ensure equitable finance is available across the multiple corporations.

Develop human resources: The human resources required to manage our cities is in tatters. Most in-house employees lack urban expertise. Human resources are sent on deputation but their domain knowledge and commitment is low. City management needs urban professionals with high domain knowledge. This is a huge vacuum across civic agencies.

The key focus needs to be on setting up a professional cadre of human resources with specialists manning tasks that need deep domain knowledge. Training of existing resources is necessary but this will take time and considerable effort. Lateral recruitments at senior levels with professional qualifications and experience is imperative if the overall mission is to succeed. A separate cadre of professional urban services professionals is an idea whose time has come.

Set up a City Economic Development Agency: Cities are engines of economic growth. The global practice is to have a city-level Economic Development Agency as a Special Purpose Vehicle (SPV) in a public-private partnership. It draws on the private sector's know-how to attract investment and is assisted by the government at the backend. Economic development is about knowledge and skill-enhancing; it builds long-term assets. Providing basic services can be a tremendous economic development opportunity. The informal economy has high growth and development potential and must be encouraged for inclusivity.

Maximise land value: Mark Twain famously said, "Buy them land, they don't make them anymore"! The government must think about ensuring maximum value capture from land for public purposes.

There are multiple ways to facilitate land procurement for public purposes — town planning schemes, land pooling schemes, notified areas scheme, transfer of development rights, cluster development and joint development are some of them. An optimum hybrid mix needs to be evolved, based on local conditions.

These 10 points are not necessarily an exhaustive set of solutions to solve our urban conundrum. But they represent ideas that have not been tried in any meaningful manner across the country. Some can be addressed in the immediate short term and others will take much longer and face political obstacles in execution. Meanwhile, urban woes continue to mount daily. It's time to act now! ■

V. Ravichandar is a self-described civic evangelist who has engaged with urban issues for nearly two decades on a pro bono basis

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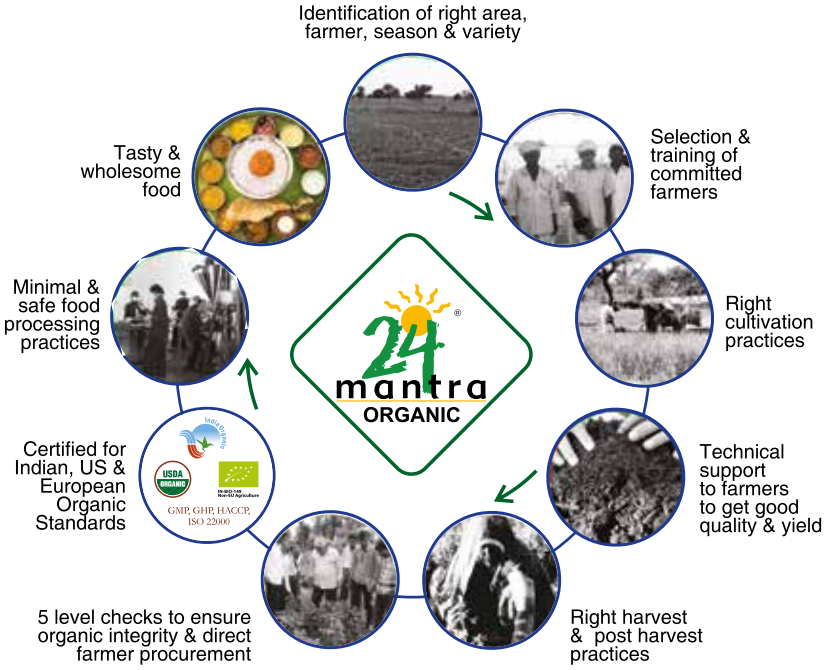

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CITIES HAVE ALL THE WATER THEY

From harvesting rain to reviving rivers and recycling sewage, the options for local solutions are many. Long-distance solutions only create disruptions

HIMANSHU THAKKAR

The great Mughal ruler, Akbar, built the city of Fatehpur Sikri in the 16th century to be his new capital. Within 13 years, he abandoned it. The reason? Lack of water. It's a story that the late Anupam Mishra often cited, saying, "Let us not be as foolish as Akbar!"

At the end of his TED talk in 2009 on Rajasthan's marvellous water-harvesting structures, Anupam*ji* received a standing ovation. He was then asked the relevance of those structures today. With his characteristic clarity, he replied, They teach us to use our local resources wisely. 'Harvest the rain that falls' is the principal lesson we learn that is relevant even today. And please don't insult everyone by saying that even dams like the Sardar Sarovar harvest rainwater!

Recently, the Government of India (GoI) think tank, NITI Aayog, came out with a rather dire water management report, warning that India is now suffering its worst-ever water crisis and it is going to get yet worse. That warning is timely and apt, although the report suffers from flaws relating to what it includes and excludes in deciding its Composite Water Management Index for various states.

The NITI Aayog report has not properly emphasised either rain or rivers. Regarding rain, the report asks the states: "Whether the state has any framework for rainwater harvesting in public and private buildings?" If yes, you get full marks; if no, you get zero! So 20 of the 22 states that reported on this got full marks.

No questions were asked about actual implementation!

The report says in three different places that at least 21 cities will have no groundwater by 2020, though all are based on media reports! Comparing the NITI Aayog report to the United States Geological Survey (USGS) report, which came out in the same week, shows how inadequate the former is.

Possibly, the NITI Aayog wanted to warn India of a Cape Town Zero Water day scenario. But its warning won't work since it isn't backed by any credible research. Besides, as we saw in the case of Shimla, we don't get any warning until the crisis is upon us. By the time we get to know, we are already in a soup since the water is over. And even then it's the high court that has to step in to give directions to the state government.

Himachal Pradesh Chief Minister Jai Ram Thakur was busy advocating a long-distance, high-energy and capital-intensive water scheme based on the Kol Dam on the Sutlej river, that the World Bank was also pushing. He was not interested in looking at harnessing local resources such as rainwater and local streams by implementing catchment protection for streams, ensuring treatment of sewage through decentralised Sewage Treatment Plants (STPs), taking demand-side management measures, reducing losses and stopping unjustified water use.

But Thakur is not alone. Most chief ministers and city managers are looking for the same easy, lazy, unsustainable, expensive and destructive options. Delhi, Mumbai, Bengaluru, Chennai, Hyderabad, Ahmedabad, Indore, Bhopal… every city looks for the same kind of long-distance, costly options that have massive impacts and cause conflicts. The Mumbai Metropolitan Region (MMR), in fact, wants a river link, namely, the Damanganga-Pinjal river link, at the cost of tribals, forests and the environment, when it has 2,400 mm of rainfall that it won't harvest, nor treat its sewage to recycle it.

Cities generate sewage equal to 80% of the water they consume. Instead of treating sewage they are asking for big dams, far away.

In 2014, SANDRP released a report, "Dams in Tribal Belt of Western Ghats for the Mumbai Metropolitan Region", asking if the MMR really needed more of these dams. The then Mumbai commissioner did tell NDTV in response to our report at the time that, indeed, Mumbai did not need any of these over-a-dozen new dams being proposed. But the current state government, that came to power on the bandwagon of Maharashtra's massive 'Dam Scam', is now pushing those same scam-ridden projects, egged on by the investment-focused Union Water Minister Nitin Gadkari.

The recent campaign in Delhi to save thousands of trees for infrastructure is very good news. But Delhiites also need to say that their city does not need the Renuka, Kishau or Lakhwar Vyasi Dams on the Yamuna or the Sharda-Yamuna river link. Delhi's then water minister, Kapil Misra, did say so at the inauguration of the biannual India Rivers Week in November 2016, but his government is yet to endorse that statement as its consistent official stand.

Bengaluru, as water activist S.Vishwanath argues, does not have to depend on water drawn externally "if it chooses to". Bengaluru receives around 3,000 million litres of rainfall every day on average and it draws 1,350 million litres externally per day. "So, even if we manage to harvest half the rainfall, we would be able to meet the city's need," he says. He has launched a million wells' recharging scheme in Bengaluru to make the city water-sufficient.

It is clear that India's urban water footprint is increasing in multiple ways. Rapid urbanisation, predicted by experts, is just unfolding and per capita demand is going up. Cities are also generating sewage equal to 80 percent of the water they consume.

City water managers are looking at big storages for dependable supplies of water, mostly far away from cities. Such storage created behind big dams has huge social and environmental impacts, besides massive economic costs and increased disaster risks. There is competition for water allocation from such sources, which are either existing, under-construction or to be constructed. Allocations for cities at a considerable distance thus creates conflicts and can cause potential disruption in water supply — as Delhi frequently faces, including in the summer of 2018.

It's not just in arid areas that cities are looking for long-distance water sources. It's happening in high rainfall cities like Mumbai too. Not one city in India is able to treat even half the sewage it generates. Not even the national capital. This mostly untreated sewage is polluting rivers and even groundwater in many places.

Usually, cities are unable to cater to the water demand so many people end up using groundwater through their own bore wells or indirectly through tankers who typically source their water from groundwater — mostly on the fringes of the city.

Alongside, cities cover up or concretise open spaces, destroy local water bodies and nearby forests. For example, the Delhi Ridge or Yamuna floodplain; in Mumbai, the city's mangroves, the Sanjay Gandhi National Park or the Mithi and other rivers; in Bengaluru, the lakes; and in Kolkata the East Kolkata wetlands.

NEED, THEY JUST DON'T SEE IT

CIVIL SOCIETY

Cities are unable to cater to water demand so people end up using groundwater or have to be sent water in tankers

The combined effect of groundwater overuse, concretisation and destruction of forests leads to depletion of groundwater levels, depriving water-scarce settlements of a fallback mechanism during times of water scarcity. Groundwater depletion can have wider implications on surrounding areas and rivers flowing through cities.

Alongside, cities are facing water-related disasters to illustrate, in recent years — Mumbai in July 2005 and August 2017, Surat in August 2006, Srinagar in September 2014, Chennai in December 2015 and November 2017, Shimla in December 2015 and May-June 2018, Patna in August 2016 and Ahmedabad in July 2017.

The neglect and deterioration of wetlands, lakes, water bodies, and floodplains, concretising of surfaces, reducing water percolation, encroachment, and silting and non-maintenance of the drainage system, reduction in flood-carrying capacity of rivers in cities, and the impact of climate change means that the frequency of such crises is likely to increase in the coming years.

The proposal that riverfront development, like what has been done for the Sabarmati in Gujarat, is the solution for urban rivers is clearly misleading and misconceived. The Sabarmati has not been cleaned or rejuvenated. Its pollution has merely been transferred downstream of the city. Concrete channels have killed the Sabarmati as a river. What is left is just a concrete channel, not a river. The water that is seen in this channel in Ahmedabad is not Sabarmati water but Narmada water, to which the city of Ahmedabad has no right. The encroachment of the riverbed and floodplain for real estate development is clearly an invitation to disaster. Globally, society is moving towards giving rivers more room. Reviving rivers is not a luxury. It is essential and possible to rejuvenate our rivers.

Even a city like Pune with at least five rivers flowing through it is considered hugely vulnerable to floods because all its rivers are facing silting, drainage congestion, pollution and encroachment — significantly, by the government despite repeated judicial orders.

At a recent meeting in Pune, participants emphasised that India urgently needs a National Urban Water policy that would guide our cities to manage different aspects of their urban water components in an optimal way. India's National Water Policy of 2012 is clearly unable to play that role, because it lacks necessary content. We need a policy that focuses on various aspects of the urban water sector and helps to meet current and future challenges.

The 'Twelfth Five Year Plan Working Group Report on Urban Water' correctly said in 2011 that rainwater, local water bodies, rivers, groundwater aquifers and treated sewage are key resources that need to be exhausted before any external long-distance water option is considered. In this range of components, reduction of transmission and distribution losses, disallowing unjustifiable and unnecessary water-intensive activities and demand-side management measures will also play a key role. Alongside, there is need to educate policymakers and decision-makers, including ministers and bureaucrats, that freshwater supply is limited, since a lot of people seem to believe and behave as if it is unlimited.

A key component of a Smart Urban Water Policy would be participatory, transparent, accountable governance and the right to water. The public health cost of the water pollution that cities create and leave untreated is unaccounted, massive and unacceptable. It is invariably borne by the poorest. Unfortunately, those responsible get away as if discharge of untreated sewage and its implied costs are normal and nothing to worry about.

It is clear from the experience of the past over four decades that the prevalent option of having massive, centralised STPs is not working. We have better options: decentralised sewage treatment and eco-friendly options such as bioremediation, constructed wetlands and in-situ treatment. Such options are not only low-cost, low-capital and land-intensive, but also help make recycling of treated sewage feasible.

The GoI has a Smart City programme with massive investments. One expected it to define a Water Smart City and come up with a National Urban Water policy that would provide a roadmap for cities to become water-smart. But the Smart City programme has no such norms or policies. The cities included in it are unlikely to become examples of a water-smart city. It is not particularly smart to underestimate or ignore the cost of this policy vacuum that our urban water sector operates in. ■

Himanshu Thakkar is with the South Asia Network on Dams, Rivers and People

CRUEL ROAD AHEAD FOR ANIMALS ON THE EDGE

Linear infrastructure in forests is killing wildlife in millions. An estimated 20 elephants, 25 leopards and one tiger died in just 100 days earlier this year

PRERNA SINGH BINDRA

Slumped on the road, the leopard attempted to rise, but fell. She hauled herself up only to crumple again. Somehow, she stumbled and crawled, every movement agony till she reached the forest across and collapsed under the shade of a tree.

Ordinarily leopards, the smallest of the big cats, are masters of stealth, making up for size with their versatility and agility. But this wild cat was broken. She was the victim of a hit-and-run case on May 14 on the recently widened Mul-Chandrapur road that skirts Maharashtra's Tadoba Tiger Reserve. The leopard lives — wounded, disabled and caged in a 'rescue' centre, until death releases her.

She is one amongst the many animals maimed and killed on this road — deer, tigers, a sloth bear, snakes, skinks, boars, birds, butterflies, frogs… innumerable in death, creatures that don't count.

The Mul-Chandrapur road is not the only hotspot for such high mortality. Vehicles are voracious predators. Highways, railways, canals and other such linear projects crisscrossing wildlife reserves and habitats as well as speeding vehicles running over wild animals are one of the main drivers of extinction, globally.

Roadkills, a crowdsourced 'Citizen Science' initiative launched by the Mumbai-based Wildlife Conservation Trust (WCT) to document wild animal mortality in India, estimated that 20 elephants, 25 leopards and one tiger were killed due to linear infrastructure in just 100 days earlier this year.

This is a conservative tally. It mainly enumerated large, charismatic animals. The regions covered were opportunistic, rather than exhaustive. Milind Pariwakam, a biologist with WCT, says the number of animals killed on roads across India annually "would likely be in millions". This isn't an exaggeration but probably an underestimation.

Railway lines are equally destructive. More than 1,200 trains crisscross India's Protected Areas (PAs) — national parks and sanctuaries. According to *Gajah*, a report by the Elephant Task Force appointed by the Union environment ministry, out of 88 identified elephant corridors, 61 have highways and railway tracks cutting across them.

The death toll is enormous. In April this year, four elephants were hit by a train in Odisha's Ganjam district. In December, five died while crossing a railway track in Assam. One of the worst accidents was in North Bengal in September 2010, when seven elephants were mowed down by a speeding train as the herd tried to save a calf that got stuck on the Sevoke-Rangpo 'killer track'. Over 2004-15, no less than 50 elephants met their death here. Yet the line is currently being expanded, meaning more trains, greater speeds and more fatal accidents.

The massacre is not always so blatant. Death comes by stealth. A telling example is of the Mughal Road which was upgraded and widened from a *kutcha* path to make a supplementary connect between Srinagar and Jammu. It cuts through the Hirpora Wildlife Sanctuary, home to one of the last viable populations of the Pir Pinjal markhor, a rare wild goat emblematic of these mountains.

Intrusions splinter landscapes and fragment thriving ecosystems. They cut off time-worn migratory paths of wildlife, enclosing them in patches.

Road construction began in 2007. The blasting, consequent soil erosion and dumping of debris destroyed critical markhor habitat. The markhor is a hardy animal, surviving harsh winters and negotiating sheer cliffs as well as tough terrain. Yet, it is unlikely that the markhor will survive the advent of the Mughal Road. In the past decade, markhor numbers in Hirpora have halved to about 30, and experts fear that the species may become extinct here.

There are other less obvious but equally lethal effects of linear intrusions. One implication is greater access. In the Hirpora sanctuary, the Mughal Road gave easy access to graziers who brought in sheep in truckloads. The sheep flocked the meadows, leaving no feeding grounds for the markhor, who risk starving to death.

Power transmission lines can be equally fatal, as in the case of the Great Indian Bustard (GIB) of which fewer than 150 survive in the wild. The GIB's last remaining habitats in the desert of Rajasthan and Kutch are where renewable energy projects are concentrated. Wind and solar projects, while critical as a clean source of energy, are land-intensive and can have fatal impacts on biodiversity. Five GIBs have been electrocuted by transmission lines since June 2017. When such a small population continues to lose its habitat to development, the loss of each bird is catastrophic.

Linear intrusions splinter landscapes, making tiny, dysfunctional fragments of a thriving ecosystem. Think of an heirloom Persian carpet which is priceless in itself but worthless if shredded into pieces.

They cut off time-worn migratory paths of wild species, enclosing them in small forest patches. The spill-over effects are visible on either side — thinning, dying trees, decaying vegetation, intrusion of invasive species and retreat of wildlife. Biologists call this the 'Edge Effect'. Species in such broken forests decline, and are more likely to become locally extinct.

Consider the Central and East Indian Tiger Landscapes, one of the finest, largest habitats of the big cat in the world. If wild tigers are to survive in the long term, this is one of the few places they will flourish, if we don't slice and snip through them. This landscape spreads over eight states and harbours about a third of the country's 2,226 tigers in a network of PAs connected by increasingly fragile wildlife corridors.

The Wildlife Institute of India estimates that in an inviolate space of 800 to 1,000 sq km a population of about 80 to 100 tigers is essential to ensure their safe future. A smaller space is not genetically viable on its own. By this yardstick, not even one sanctuary or park in this entire landscape can sustain itself. Hence connectivity between these small PAs is important to allow tigers to travel and retain genetic vigour.

Let's zoom in further to the region which inspired Rudyard Kipling's *The Jungle Book* — the tiger reserves of Kanha and Pench which straddle both

Roads that go through wildlife areas should be closed at night to give animals relief

Madhya Pradesh and Maharashtra. Pench's 411 sq km is inadequate for a viable tiger population. But it is connected to the more sizeable Kanha Tiger Reserve through a living corridor. The 200-odd tigers of this 16,000-sq-km landscape thrive because of landscape contiguity, which is now threatened by the expansion of National Highway (NH)-7 and the Gondia-Jabalpur railway line. Increasing fragmentation will irrevocably break up this vast landscape, confining tigers into isolated reserves, eventually leading to their extinction — poaching kills instantly, while in the long term, genetic decay over generations will annihilate the tigers.

Another example is the Mul-Chandrapur road that felled the leopard. It runs along the southern periphery of Tadoba, severing animal movement to Telangana's Kawal Tiger Reserve. Kawal is a young reserve, notified in 2012, and has been battered over the years by deforestation and hunting. Its tiger population is very low and needs to be secured, protected and nurtured. Vital to its survival is connectivity with Tadoba which has a 'source' breeding tiger population that can populate Kawal. Widening of the road, plus the recently approved Ambedkar Pranahitha canal project, further disturbs this corridor. For Kawal, such isolation is suicidal.

Roads and other projects are being pushed through eco-fragile areas, including national parks. The cruellest of cuts is the proposed National Highway that goes through the heart of the Corbett Tiger Reserve, which has 15 to 17 tigers per 100 sq km — amongst the highest densities of tiger in the world. Corbett is one of India's oldest tiger reserves. This is where Project Tiger, a pledge of the government to commit to protect its national animal, was launched in April 1973. If you can knowingly violate Corbett, what hope is there for other PAs?

Another controversial plan is the ongoing road widening of the 900-km Char Dham route in Uttarakhand. The road will cause untold pressure on the delicate Himalayan ecology. The blasting and denuding of mountains will increase the threat of landslides manifold and accelerate the devastation caused by natural disasters. The losses can be colossal, as witnessed during the floods and landslides in Uttarakhand in 2013.

The environment ministry's guidelines state that expansion of an existing highway less than 100 km does not require a green clearance. So, the ministry of road transport and highways has chopped the Char Dham road into segments of 53 stretches — all less than 100 km — to avoid the rigours of environment scrutiny. This means that the cumulative impact of cutting trees, blasting slopes, deforestation and disposal of debris has not been considered.

The road ahead looks grim. Yet the carnage can be minimised and animals allowed their right of passage.

One way is mitigation. Culverts, underpasses and overpasses can be built and maintained. Mitigation must be done keeping in mind the behaviour and ecology of the species concerned. For arboreal animals, artificial canopy 'bridges' at vital points allow for safe passage. So will maintenance of a natural canopy and green cover along the edges of roads. It is vital to build in ecological considerations at the planning stage with meetings and dialogue between all relevant stakeholders.

One simple engineering quick-fix is to create speed regulations in wildlife-rich areas and to deploy speed breakers.

Certain roads which go through important wildlife areas can be closed at night, giving the animals relief and room for movement. This is currently in place on the highway that passes through Bandipur Tiger Reserve in Karnataka and links the state to Kerala, though in a recent move the Union ministry of road and transport is putting pressure on Karnataka to open the road to night traffic and also proposes to widen it.

We need to question the social and ecological costs of roads. *A Global Strategy for Road Building* by W.F. Lawrance *et al* pinpoints areas with high ecological value that must remain roadless, and those where benefits to human beings in terms of agricultural development, employment and so on come with relatively little environmental harm.

A similar strategy for India with comprehensive mapping of wildlife habitats and corridors should form the basis on which road infrastructure is planned. PAs, pristine habitats, river catchment areas, wetlands, and crucial wildlife corridors should be left alone. Where roads must be built, the extent, width and type of road should be carefully planned. Scientific, ecological inputs must be inbuilt into mitigation plans.

As a member of the National Board for Wildlife (NBWL), we were overwhelmed by the number of proposals for road projects within and around PAs and prepared comprehensive guidelines in 2013. The thumb rule for PAs and pristine habitats was to avoid new roads and seek alternative routes. No upgradation and expansion was advised for existing roads in sanctuaries and national parks. The environment ministry accepted these recommendations, but failed to put them into practice.

For instance, an alternative route to the contentious NH-7 was recommended. It added another 80 km and about 90 minutes of travel time but it would save a forest, and its tigers. Similarly, when faced with the decision to allow construction of a road that would go through Kutch Wildlife Sanctuary and endanger the only nesting site of flamingos in the Indian sub-continent, an alternative route was suggested by the NBWL's Standing Committee. But the suggestion wasn't taken on board.

We do make and take bypasses through cities. Would we consider building a road through the Taj Mahal, which if, God forbid, is defiled could conceivably be built again. But a species lost, a forest destroyed, vanishes forever. Why then do we still consider forests expendable? ■

Prerna Singh Bindra is a wildlife expert and author of The Vanishing: India's Wildlife Crisis

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LYRICS, SCALES AND A MODERN

Indian Ocean occupies a unique position in India's music scene. After 29 years the band continues to hold audiences in thrall with its rare chemistry

RAHUL RAM

How did your band come up with the name Indian Ocean? This is a question we have been asked countless times. To many people the name perfectly captures the feel of the music of our band. In the words of a friend, "Fiercely Indian, effortlessly global."

The truth is that the name was suggested by A.K. Sen, the father of Susmit Sen. Susmit was a co-founder and guitarist of Indian Ocean from its conception in 1990 till 2013. Apparently, according to Asheem Chakravorty (our other co-founder), there was a *naamkaran* (naming) meeting over lunch at Susmit's house and lots of names were being thrown around, when Susmit's father suggested, a bit hesitantly, "How about Indian Ocean?" The name was accepted instantly!

So there was no great plan, and the name came about serendipitously. In a sense, this applies to the entire career of the band. We never really had a plan. We were and are pretty bad at the business part of running a band, and our PR is fairly non-existent.

So how did Indian Ocean come to be known as a band that seems to exemplify modern India? I think we represent that part of civil society in India that is very comfortable with its Indian-ness, without feeling the need to beat others over the head with it, or to shy away from the not-so-pretty side of our culture. We openly acknowledge the absorption of all manner of musical influences without getting hung up on roots and purity, as exemplified by our use of Western instruments.

Another small part of the answer lies, of course, in our sheer longevity! The band has entered the 29th year of its existence, and has performed over 1,100 shows across the globe. Thus, a vast number of Indians have heard us. Young people who heard us in the 1990s are now fairly senior in their professions. They bring their kids to our shows, and relive their college days! Our audiences range from people my parents' age to toddlers — many of whom force their parents to play Indian Ocean songs *ad infinitum*. I have had parents urge me: "Please bring out new material, we keep hearing the same songs over and over."

The main answer to why Indian Ocean is the best musical representative of civil society in India lies, of course, in the content of our music. Our music uses Indian scales, and very Indian-sounding melodies, for the large part, and our rhythm patterns are strongly Indian in sound and feel. Our lyrics are in a range of Indian languages (10 at last count), but mainly in Hindi.

But then, one can say this about a lot of Hindi film music as well. What does stand out, in my mind, is that, in addition to the relative complexity of our music, our lyrics speak to a range of emotions and issues in ways that most lyrics do not. I shall try to loosely transliterate a few lines from a couple of our songs to illustrate.

Dhoom machi, har nabh mein phootey ras ki phuharein

Anhad ke aangan mein naachey, chanda sitarey

Noise everywhere, the skies are full of emotions.

The moon and stars dance in the courtyard of the infinite (Khajuraho, 1999).

We sing songs of spirituality and philosophy, songs of history, songs that show our love for our fascinating complex culture.

These lyrics were written by Sanjeev Sharma for a song we performed at the temples of Khajuraho, a celebration of 1,000 years of existence of the main temple there.

Then there is our biggest hit, *Bandeh,* from the movie *Black Friday*, a song written by Piyush Mishra in 2004. The movie told the story of the serial bomb blasts that ripped through Bombay in 1993.

Arre ruk ja re bandeh, arre tham ja re bandeh, ki kudrat hans padegi ho

Arre neendein hain zakhmi, arre sapney hain bhookhe, ki karvat phat padegi ho

Stop, my man, desist, and nature will laugh. Wounded sleep, starving dreams, torn apart, tossing restlessly.

From spiritual contemplation of the infinite to horror at the carnage human beings can wreak… that's quite a range! There is a lot of spirituality in Indian Ocean's lyrics but very little overt religiosity. In fact, a couple of us are atheists.

While we have had quite a number of songs written for us specifically, we perform many versions of pre-existing songs and poetry. We sing two hymns: *Ma Rewa* (a song from the Nimad region of MP in praise of the Narmada) and *Kandisa* (a Syrian Christian hymn in Aramaic, believed to be over 1,900 years old); there are songs with Sanskrit *shlokas* from the Vedas and the Upanishads (*Khajuraho, From the Ruins, After the War*); a couple of poems written by Sant Kabirdas; a folk song from Karnataka (*Tandanu*); modern poetry written by activist-poets (*Hille Le* by Gorakh Pande, *Gar Ho Sakey* and *Chitu* by Shankarbhai Tadavala, *Boll Weevil* by Vahru Sonavane, *Zindagi se Darte Ho* by N.M. Rashid)…the spread of songs is wide, the content varied, and the fun singing them is, of course, beyond measure.

Of the songs written specifically for us, almost all are in Hindi, written mainly by Sanjeev Sharma, whose lyrics have a strong spiritual and Sufi-ish bent. Piyush Mishra wrote the three songs for *Black Friday* and Varun Grover has written the songs for *Masaan*. We tend to try and evade the verse-chorus format, and our lyrics are, by and large, sparse.

But this is still not the entire story. Indian Ocean, somehow, manages to do things with their songs that take history, culture and politics and make rocking songs out of these. We peer into forgotten nooks of our culture, and we tend to explore issues that nobody sings about.

My favourite story involves the song, *Chitu*. My good friend, Amita Baviskar, was doing research on the Narmada Bachao Andolan, and went to the national archives to look up the recorded history of the region. She found histories of the Bhils who had fought the British, and told these stories to Shankar Tadavala, who is a poet-activist with an organisation called the Khedut Mazdoor Chetna Sangath, which operates chiefly in the Adivasi-dominated Alirajpur *tehsil* of Jhabua district in Madhya Pradesh. Shankarbhai composed an extremely catchy song using these stories, and I learnt it from him one day in February 1993.

Chitu Bhil was a local chieftain who fought the British in 1857-59. When the British finally killed Chitu, they converted his small bungalow into a police station. Just two days after learning this song, I, along with another activist called Ashwini Chhatre, now a professor in an American university, was arrested and sent to Chitu's bungalow, to the police lock-up.

Amazed at this coincidence, we sang *Chitu* loudly in the lock-up. The *thanedar* was so impressed with our singing that he brought us wonderful warm food — *bajra rotis* with *ghee, dal* and jaggery — from his house!

More than 20 years later, we recorded *Chitu*. We had the amazing *kanjira* player, Selvaganesh, play

SENSE OF INDIAN-NESS

Indian Ocean performing with tribal musicians at Civil Society's Everyone is Someone Concert

this song with us, since we felt he would love the 10-beat cycle of the song. This is, I feel, the essence of what makes Indian Ocean stand out in contemporary Indian music. We have had audiences sing along to the chant that is an essential part of this song.

Another story involves the song, *Roday*. I had heard a song in Bhili sung by this extremely pretty Adivasi woman named Jimli, in the Gujarat part of the submergence area of the Sardar Sarovar Dam. This, too, happened in February 1993. For years, we tried to complete this song, but we were getting nowhere past the first three minutes.

One day, in January 2014 at our practice place in Ghitorni, a discussion between Amit Kilam and me led to the thought that we should look upon this song as relating to displacement, since Jimli's village now lies submerged under the waters of the dam, and her villagers are scattered. I felt that Amit, a Kashmiri Pandit, too is a displaced person, as his family fled the Kashmir Valley in the early 1980s, when Pandits were being threatened to leave while the government stood aside and watched this ethnic cleansing.

Soon enough, Amit's mother wrote some lines in Kashmiri, about a tree that had to be moved…it lived, but without all that had sustained it earlier. Then we approached Vishal Dadlani (Indian rock star and film musician) with this song, who said that he, too, came from a displaced community since he was a Sindhi, and they were forced to leave during Partition. Vishal came up with these extremely powerful lines and tune in Sindhi.

Thus was *Roday* born…a song in Bhili, Kashmiri and Sindhi, which is about displacement in modern India! I'm sure there is absolutely nobody in our audience who understands the complete lyrics of the song, but it is a powerful song, and totally rocking when played live!

So this is us. We sing songs of spirituality and philosophy, songs of history, songs that show our love for our fascinating complex culture. We also have instrumentals that leave the audience in raptures. In addition, individuals in the band have varied political, philosophical and religious attitudes. One of our members was very opposed to the idea that our music is political. We have people who vote for very different parties.

But here is what we have in common, a sort of common minimum programme, if you will: We never play for any political party; we are completely non-communal; we shall never make a song that is discriminatory about religion, gender, caste or colour; we work rather democratically, in that everybody contributes to the music; a song is never complete, it can constantly be reworked; our songs tend to be way longer than most contemporary popular music; we pay as much attention to the instrumentation and arrangement as we do to lyrics, so that no two songs sound the same, yet we have an instantly recognisable sound; we tend to sing in pitches that are a bit on the high side!

In short, we are proud of our culture, but not blind to its shortcomings.

We are also, by and large, surprisingly free of angst regarding our parents. Susmit's father gave us our name. All our parents encouraged us in our chosen careers. Amit's mother has written partial Kashmiri lyrics for two of our songs — another reflection of the Indian ethos, where generations live together relatively amicably.

In recent years, after Asheem died in 2009 and Susmit left the band in 2013, I feel the sound has tended to become more rock-like, with a touch of Carnatic (thanks largely to our guitar player, Nikhil Rao), our *tabla* parts have become more complex (thanks to Tuheen Chakravorty) and our vocals have a touch of the classical (thanks to Himanshu Joshi). Amit Kilam (drums, recorder, *gabgubi*, clarinet and vocals) and me (bass guitar and vocals) have now become the grand old men of the band (as has Dhruv Jagasia, our manager who has known us now for over 20 years), and we continue to love what we do, as apparently do our audiences. ■

Rahul Ram is a founder-member of Indian Ocean

FERTILITY DECISIONS SHOULD BE

Use of modern methods of family planning has been declining and it is extremely limited for women who belong to socially disadvantaged communities

POONAM MUTTREJA

In 2022, headlines across the world will announce that India has overtaken China to become the most populous country on the planet. The question to ask is: so what? The excitement or concern cannot be about population but the opportunities and freedoms that women and men enjoy. This alone will define the demographic advantage India has — or hasn't.

India's hopes are pinned on its young people. Today, our country's population is much younger than China's. The average age of India's population is 28 years; in China, it is 37 years. More than 50 percent of India's population is below the age of 25 and 65 percent is below the age of 35 years. Will India be able to capitalise on this demographic advantage in the coming years?

Can India do as well, if not better, than China? The answer is not clear when we look at the differences between China and India on health, and in particular reproductive health indicators. China reports an infant mortality rate of 12; India of 37 deaths per 1,000 live births. China reports a maternal mortality rate of 27 deaths per 100,000 live births, India of 130. Only 6 percent of babies born in China are of low birth weight. The corresponding proportion is 28 percent in India. China reports a stunting rate of 8 percent among children under the age of five years; India of 38 percent.

Clearly, the investments that China has made in enhancing the capabilities of its people are far more than what India has done. There is a lesson in this. If India wants to take advantage of its young population, it needs to urgently and massively step up investments in improving health, nutrition, and social conditions.

There is, however, good news on India's population front. There has been a dramatic slowing down in India's population growth rates over the years. India's total fertility rate (TFR) has fallen to 2.2 — very close to the replacement rate of 2.1. The TFR has reached replacement levels of 2.1 in 24 states. India's urban TFR at 1.8 is less than the replacement rate, and close to the European average of 1.6.

What accounts for this? It is progress along many critical indicators impacting sexual and reproductive health — child survival, age at marriage, literacy and education, women's agency and empowerment, fertility, maternity and delivery care, and awareness of contraceptive methods.

In 2005-06, for instance, nearly half (47 percent) of girls were getting married below the age of 18 years. By 2015-16, this proportion had fallen to 27 percent. Maternal mortality deaths have nearly halved from 254 per 100,000 live births in 2004-06 to 130 in 2014-16. This is a clear reflection of the success of the State's efforts in promoting women's health through initiatives such as the National Health Mission and in particular the Janani Suraksha Yojana that has encouraged women to give birth in institutions under the care of trained medical practitioners.

Underlying this overall positive story, however, is a sad reality. Young Indian girls and women remain denied many freedoms and opportunities. The shockingly low proportion of women in India's population and of children below the age of seven (captured by the adverse sex ratio) is a reminder of the strong anti-female biases and gender discrimination that is still prevalent in our society.

The number of men who use condoms is shockingly low at less than 6 percent in 2015-16. Male sterilisation has also fallen further to 0.3 percent.

India could be making much faster progress on the population front if women are further empowered to exercise choice and freedom especially in matters relating to reproductive health and rights. Recent evidence from the National Family Health Survey (NFHS) of 2015-16 reveals a large unmet need (13 percent) among currently married women for family planning. This includes 6 percent who had an unmet need for spacing births and 7 percent who had an unmet need for limiting births.

This is because a majority of Indian women do not have enough say or control over their fertility decisions. Many women do not want to become pregnant but, for many reasons, are not using or able to use appropriate contraception. For instance, as against a wanted fertility rate of 1.8, the actual fertility rate is 2.2. This may be due to limited women's agency and autonomy with regard to decision-making on contraceptive use.

Over the 10-year period between 2005-06 and 2015-16, the use of any modern method of family planning declined, even though marginally, for India as a whole and in 17 of the 28 states. Also, wide disparities and inequities in women's access to reproductive healthcare continue to persist. Access to health services still depends upon where one lives, how educated or rich one is, and to which community one belongs. Access to family planning, for instance, is extremely limited for women who are the poorest and most vulnerable and those who belong to socially disadvantaged communities.

The shoddy treatment meted out to such women especially during family planning camps is shocking. For instance, in the Bilaspur sterilisation tragedy in 2017, four of the 13 women who died belonged to Scheduled Castes, two were from the Scheduled Tribes, and the remaining were from the OBCs. Similarly, the fact-finding visit in 2010 by the Population Foundation of India (PFI) to Barwani following 26 maternal deaths over a period of eight months revealed that 21 of the 26 women belonged to Scheduled Tribes. Clearly, much needs to be done to improve the access of the poorest and most deprived to healthcare.

A large burden of family planning falls on women, not on men. Between 2005-06 and 2015-16, there has been a marginal decline in the use of female sterilisation — down from 38 to 36 percent and in the use of the intrauterine device (IUD) as well. The proportion of men who use condoms is shockingly low — less than six percent in 2015-16. Again, regrettably, male sterilisation, which has always been low, fell further from 1 percent in 2005-06 to 0.3 percent in 2015-16.

While the reduction in the share of female sterilisation, however small, is welcome, the drop in male sterilisation is a matter of concern. Clearly, the higher cash incentives offered for sterilisation by the Government of India to men than women is not making much of a difference. The rise in abortion is another cause for worry in the family welfare programme as this could be attributed to an increase in unplanned pregnancies.

Failure to take action in family planning affects both women and men, not only in terms of the ability to plan their families but also in their overall well-being. This includes their ability to continue the education of children and participate in the workforce, and affects their overall earnings as well as determines the use of health services. What we really need to recognise is that there are often complementarities among different actions and that resources are limited.

RIGHTLY LEFT TO WOMEN

The Bilaspur women

Had India achieved the goals of the National Population Policy 2000, the country would have averted many unintended pregnancies. The adverse public health impact of these as well as closely spaced pregnancies has manifested itself in high maternal and child morbidity and mortality with overall poor health outcomes.

Universal access to contraception is a priority target for the achievement of the Sustainable Development Goals (SDGs). According to the Post-2015 Consensus, this represents the best value for money. If India has to meet commitments to the SDGs, it is imperative that women's health and family planning receive priority focus. India will also need to expand the basket of contraceptive choices available to families. Only recently, in 2015, has the ministry of health and family welfare introduced three new modern methods in the national family planning programme: injectable contraceptives, progestin-only pills and centchroman.

Young people, especially women, must have a say in decisions relating to their reproductive and sexual health. We should note that access to family planning is likely to have an economic impact for families that extends beyond the reductions in fertility and improvements in health to many other aspects of their lives. Having the freedom to plan one's family is a matter of women's rights and gender justice — of treating women equally and with dignity.

The discourse on the engagement of men as partners in accessing family planning and health services needs to go beyond contraceptive use. Systematic and sustained engagement of men in health and family planning, not just as clients but as responsible partners to women, has the potential to improve access and use of family planning services to bridge the unmet need for contraception.

Male participation should not mean that women's decision-making powers are encumbered, and women are forced to accept the choices men make. Studies reveal that men often control contraception decision-making and decision of contraception of female partners, particularly in the context of prevalence of intimate partner violence. This can impede contraceptive use as well as increase risk of contraceptive failure. Male participation is about being responsible and respecting equality rather than just about decision-making. It should extend to the role of men as enablers and beneficiaries in the process of ensuring dignity, equal voice, and reproductive rights for women.

The stranglehold of adverse social norms is an under-recognised impediment to the advancement of women's health. For instance, despite the impressive increase in per capita incomes over the past decade, the proportion of women who agreed that the husband is justified in beating his wife fell only marginally from 54 percent in 2005-06 to 52 percent in 2015-16. We need to focus on strengthening communications for behaviour change, engaging with the audience, and above all, on creating an enabling environment for change to take place.

This is substantiated by Population Foundation of India's experience in leveraging the power of entertainment education to change social norms through its trans-media initiative, *Main Kuch Bhi Kar Sakti Hoon* (I, A Woman, Can Achieve Anything). Apart from the telecast cumulatively reaching close to 400 million, the series has triggered conversations (and change) in homes, local communities and the media on women's sexual and reproductive health, their rights and domestic violence.

In the ultimate analysis, however, women's health is not only about technical solutions, increasing the availability of contraception methods, or attempting to change people's perceptions and awareness. It is about women's agency, choice, and above all, the quality of reproductive health services. We need to address the systemic and structural factors that deny women their freedoms. As India moves towards providing universal health coverage under the new National Health Policy (NHP), the government should give a big push to ensure that services reach every home in every remote corner so that 'Health for All' becomes a reality. ■

Poonam Muttreja is Executive Director of the Population Foundation of India

THE SANITATION ECONOMY IS ON

Sustainable solutions are emerging as governments, businesses and NGOs learn to collaborate to find the funds and recover the costs of meeting hygiene targets

CHERYL HICKS & SANDY RODGER

Has the world ceded to sanitation being costly and difficult, a problem we must solve in familiar ways by pouring in more and more money? Early monitoring results have found that Sustainable Development Goal (SDG) -6, which targets universal access to safe water and safely managed sanitation, is making the least progress of all the SDGs, continuing the experience of the Millennium Development Goals (MDGs) where sanitation made the least progress overall.

A paper from UN Water titled, 'The World is Not on Track,' offers a summary of what exactly is going wrong. It concludes mainly that not enough money is being committed by governments, citing that over 80 percent of countries have insufficient finance to meet national water sanitation and hygiene targets. As a result, 4.5 billion people, more than half the world's population, lack access to safely managed sanitation. Water pollution is worsening, severely affecting human health, agriculture and ecosystems. This picture is bleak.

But we would like to present another view: That there is value — and potentially a fortune — in our sanitation systems, in places where no one has been looking. That there is financing from sectors of the economy where no one has been asking. And that the private sector is increasingly playing a new and important role in bringing innovative solutions to the sanitation sector. All this means the outlook for SDG-6 could turn around.

A group of leading global businesses, working with innovators and small businesses across markets where sanitation is most urgently needed, are building the Sanitation Economy.

Imagine a world where the provision of sanitation services for all is cost-recovering and the value that lies within sanitation systems (water, nutrients, health information) is monetised to be revenue generating, and delivered through an ecosystem of profitable business models which attract commercial investment.

This would be an alternative development pathway for governments and supportive NGOs, dramatically reducing the current enormous cost burden of the building and maintenance infrastructure of sanitation systems, while opening up new markets of business opportunity for the private sector.

Can we all agree with the inevitability that, for sanitation systems to be sustainable and resilient for future generations, infrastructure needs to be cost recovering and services have to be delivered in partnership with the private sector?

Business can be part of the solution to ensure that we achieve SDG-6 by joining forces with global governments and the global sanitation community to enable new models for sanitation systems that bring cost-recovery for governments and revenue-generating opportunities for the private sector and commercial finance sector.

The businesses of the Toilet Board Coalition are ready to lead to build the Sanitation Economy. The coalition is a business-led public-private partnership of businesses, governments and civil society that sees value (vs cost) in sanitation systems.

Imagine a world where the value in sanitation systems is monetised to generate revenue through business models attractive to investors.

We launched our vision for the Sanitation Economy in 2017 on November 19, World Toilet Day. We have created a Toilet Accelerator Programme where large businesses and small business work together on Sanitation Economy business solutions. The economic case is clear and there is new evidence that the Sanitation Economy is on the rise.

In the Sanitation Economy, sanitation is a robust marketplace of value generation, linking three areas of the economy:

The Toilet Economy: A vast diversity of products and services, providing toilets and multiple value-added services fit for different contexts and incomes, leaving no one behind.

Unilever, Kimberly-Clark and Firmenich are currently working with a small business in India, Saraplast, to develop new business models for public and community toilets across the city of Pune — including specific models that cater to women and girls, Ti: Toilets for Her. LIXIL Corporation has been working with the Indian SME, Tiger Toilets, on an innovative integrated toilet and waste management system for rural and peri-urban areas via the Toilet Board Coalition's Toilet Accelerator Programme. Manila Water has been working with the Toilet Board Coalition member companies to develop an innovative financing model to deliver sanitation to its most low-income customers in the Philippines via decentralised (non-sewered) solutions.

The Circular Sanitation Economy: Sanitation becomes a reliable and growing source of what are becoming scarce resources, such as nutrients, proteins, energy and water. Toilet Resources (our term for human waste) grow as the population grows. There are many examples of businesses creating valuable products which reuse water and replace chemical fertilisers and unsustainable wood burning for energy — all derived from toilet resources.

Veolia, the world's largest resource company, has joined the Toilet Board Coalition this year to help develop and proliferate circular sanitation business models. Braskem, at the World Water Forum in Brasilia this year, called on global businesses to look to sewage to address water scarcity for their businesses. Sanergy, a small business in Kenya, provides a public toilet service to residents of Kenya's slums while capturing and up-cycling the toilet resources into nutrient-rich organic compost. Sanivation, also in Kenya, produces fuel briquettes utilising toilet resources — providing a more sustainable alternative to wood-burning fuel. SafiSana in Ghana is producing energy by capturing and up-cycling a mix of various organic waste materials, including toilet resources, and selling the energy back to the grid.

The Smart Sanitation Economy: Improved sanitation, reducing pollution and infection, is the world's biggest preventive health opportunity according to WaterAid. It can also provide a wealth of data about human health and behaviour, becoming the early warning system driving preventative healthcare, more effective and efficient than is possible today. The Toilet Board Coalition is now collaborating with the European Space Agency to catalyse new technologies and business models to realise this possibility. In Pune we have partnered with the municipal corporation to co-create a roadmap for the development of Smart Sanitation Cities.

The Sanitation Economy, developed by the Toilet Board Coalition, is based on existing examples of business solutions and market opportunities

THE RISE WITH JOBS, NEW TECH

SHREY GUPTA

With a business model toilets will get smarter

captured by the Toilet Board Coalition's work since its founding in 2014. Our evidence shows that these markets are huge — an estimated $62 billion by 2021 in India alone — and that the business models can be profitable at scale. There is both a top line and a bottom line for business, making the Sanitation Economy a real economy investment prospect.

The Sanitation Economy has a three-point action plan developed by the Toilet Board Coalition:

- Support the creation of new business models, fostering innovation and entrepreneurship in the sector by working in partnership with large and small businesses towards scalable solutions.
- Facilitate commercial investor interest in the sector through the support of innovative investment mechanisms for the sector.
- Work together with governments and supporting NGOs to create the enabling policy environments to accelerate the societal benefits of Sanitation Economy business solutions.

Now is the time for action. Business has a vision for sanitation that could provide new solutions for SDG- 6.

What can governments do? They can open the door to innovative private sector solutions for sanitation by creating supportive policy environments. These include support for resource recovery from sanitation, standards for toilet resource derived products such as energy (to feed electricity grids), organic fertilisers (returning nutrients to the soil), and water recycled from sanitation systems.

There are many examples of businesses creating products which reuse water and replace chemicals from toilet resources.

This means removing legislative barriers to entry, allowing fair competition, equitable regulation of the sector at an affordable cost to the private sector and determination of the correct level of subsidy to allow the market to develop to become profitable without any further need for subsidies. Above all, sanitation system planning that, apart from building toilets, will also consider ongoing operations, maintenance and improvements.

What can business do? Industry can look beyond sanitation as Corporate Social Responsibility (CSR), and consider the many core business opportunities for innovative products and services, new consumer insights, new raw materials, renewable resources, data, information, the creation of new markets, and much, much more.

What can the UN do? It can recognise the private sector's role in providing sanitation solutions, by inviting it to the table as global policy recommendations are being written.

We must collectively roll up our sleeves and do much better. Let us make SDG-6 the target t hat achieves the most progress at the next monitoring session.

We can choose a different future for coming generations by creating new dialogues and new policy incentives that include business solutions to achieve the global goals and targets of SDG-6 today. ■

Cheryl Hicks is executive director and Sandy Rodger is Chief Operations Officer of the Toilet Board Coalition

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