VOL. 16 NO. 7 MAY 2019 www.civilsocietyonline.com /civilsocietyonline ₹80

Civil Society

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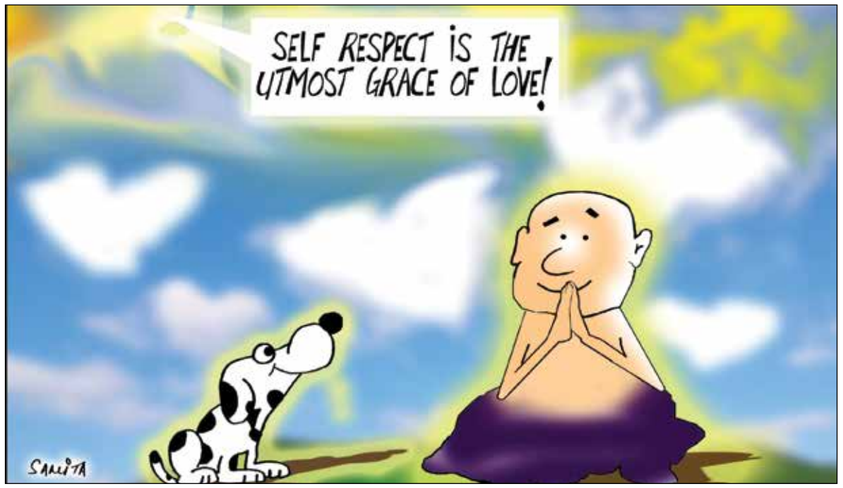
IN THE LIGHT

SAMITA RATHOR



LETTERS

Chikoo power

Thanks for the story, 'Rising chikoo!' I found it inspirational. It depicted the inventiveness and enterprise of our farming community. It is this quality that India needs to encourage to make agriculture remunerative for farmers and for India.

Somnath Das

After reading Shree Padre's story I was deeply impressed by the ingenuity involved in this visionary drive to help farmers make the best use of their produce. My brother-in-law has a farm in Telangana where we could use these ideas. I hope to visit one of the Chikoo Parlours and learn from Mahesh Churi and his family.

Padmini Raghavan

Young ventures

I read your interview with Ravi Venkatesan, 'A small business should be cool,' with great interest. His analysis and strategy to reach the youth in small towns and villages is very well researched. GAME could start a mass entrepreneurship storm. As per projections, India will continue to be one of the youngest nations in the world. The process of creating awareness about the scope of employment should have started a long time ago. I think the primary areas are biotechnology, agriculture, health, hygiene and infrastructure.

Anagha Sadavarte

After reading your interview I realised that many people think along the same lines as I do. I am now a social entrepreneur. I come from a lower middle class family. My father worked for the government. We were taught to study hard and get a good job. So I got a job. My entrepreneurial journey started when someone asked me, 'what is the purpose of your life?' Nobody had asked me this question before. There is no way I would go back to a job now.

My experience has taught me a few things I would like to share:

1. Unless I clearly understand 'why', 'how' will not work out. Hence massive sensitisation is needed to find out 'why' the young seek jobs and offer them entrepreneurship as a solution. Otherwise their parents and youth themselves will think, "since there are fewer jobs, these people are tempting us into doing business."
2. In school, children need to be taught how to become rich rather than how to merely survive. If they try to become wealthy, they won't only survive, but will most likely reach their destination.
3. Entrepreneurship should be taught in school by entrepreneurs, not by jobseekers or those with jobs. The Nano Unicorn programme — the brain child of Subroto Bagchi, co-founder of Mind Tree — is being piloted in Odisha. It needs to be studied, validated and value-added. I would love to be part of this mission of building our nation.

Ananta Prasanna Behera

CSR awards

I read your interview, 'There has been CSR learning and course correction' on the FICCI Awards. I was surprised to know that companies like Vedanta and Jindals are receiving awards! They are known for gross violations of human rights, environment and more. These awards mislead if they do not assess the business responsibility of companies but only look narrowly at charity-led projects rather than overall impacts.

Amita

Water Cup

Your magazine wrote about the Paani Foundation's amazing work in parched Maharashtra. This year my village, Wadali, in Jintur taluk, Parbhani district, is taking part. I am physically and emotionally involved in the competition. Whether we win or not does not matter. What I want to see is water in everyone's cup.

Dr Smita Jinturkar

Letters should be sent to response@civilsocietyonline.com

COVER STORY

QUIET SUCCESS FOR CAMPCO

Campco is a big producer of chocolates from its modern factory at Puttur in Karnataka. But it is really a cooperative of areca nut farmers. The story of how they turned entrepreneurial. 18

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The business of farming

COOPERATIVES come with well-known frailties. In many ways, Campco is no exception. It was set up to serve the interests of areca nut farmers in Karnataka and has had to survive the pulls and pressures of multiple interests being at play.

But Campco is also a really good example of how a cooperative can benefit farmers when it finds creative and purposeful leadership. Thanks to the late Varanashi Subraya Bhat, areca nut farmers learnt the advantages of hedging their bets by also growing pepper and cocoa.

Taking a big leap into addition of value, they also set up a factory for producing chocolates. It was difficult to imagine a factory let alone build one from scratch and get it into production. The more complex task of marketing the chocolates also awaited them.

Yet, in the face of innumerable odds, Campco has succeeded in becoming a significant maker of chocolates but has yet to pick up the more deft tricks of marketing them. In the process it has also given Indian cocoa a better reputation. Being a producer and a buyer, it has injected some beneficial realism into the price at which cocoa is bought from farmers.

In times when farm incomes are the reason for so much concern, we thought it would be useful for *Civil Society* to tell this amazing story of what Campco has achieved. We need more Campco-like efforts in India but to think that we can get them made to order is asking for too much. They are at best likely to emerge if fresh energy, ideas and resources are allowed to flow through the farm sector. Right now we are stuck in a time warp. The current concerns and aspirations of the farmer are little understood. Nor is there any serious effort to empower the farmer to deal with the world at large. While band-aid in the form of loan write-offs and so on is needed, what will really make a difference is a change in orientation. The sooner that begins to happen the better.

Dr Harivansh Chaturvedi has been a friend of this magazine for a long time. Interviewing him was therefore a different experience. A gentle but blunt person is what we have known him to be and we were delighted that he didn't disappoint us in his interview on the state of higher education in India. Dr Chaturvedi has recently edited a volume of articles on the importance of better rating and accreditation of higher education institutions in India. It is an important collection because with rampant privatisation and the rapid decline of government-run institutions some introspection is urgently needed.

Increasingly, businesses provide the social solutions we have been waiting for. Garbage disposal is one of them. We feature in our business section a Punjab-based company which has a machine for segregating and composting garbage at source. A trial is underway in the Delhi Cantonment. Could this be a model for other municipalities? There is a strong case for harnessing entrepreneurial energy for better governance. The socially driven entrepreneurs we come across in *Civil Society* have a lot to offer governments.

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Printed and published by Umesh Anand on behalf of Rita Anand, owner of the title, from A-53 D, First Floor, Panchsheel Vihar, Malviya Nagar, New Delhi -110017. Printed at Samrat Offset Pvt. Ltd., B-88, Okhla Phase II, New Delhi -110020

Postal Registration No. DL(S)-17/3255/2018-20. Registered to post without pre-payment U(SE)-10/2018-20 at Lodi Road HPO New Delhi - 110003
RNI No.: DELENG/2003/11607
Total no of pages: 36

SHREY GUPTA

Harivansh Chaturvedi: 'Some people are asking for advertisements and money to give awards and rank institutions. It is a marketing gimmick.'

'The higher education market has gone wild, needs better rating'

Harivansh Chaturvedi on why accreditation matters

Civil Society News
New Delhi

IS the proliferation of privately run colleges and universities in India a good thing or is it leading to a decline in the standards of higher education? More institutions are needed, but how exactly are they being managed? With a rising number of young people with degrees finding it difficult to get jobs, there is reason to be concerned about what is being taught and how.

Simultaneously, government-run institutions, which were at one time important centres of learning and research, are in decline. They are inadequately funded and their faculties have been depleted. In contrast, China has forged ahead in the quality of its tertiary education and research facilities to the extent that it now rivals the developed economies.

What India urgently needs is a transparent and authentic accreditation system, which relentlessly aspires to global standards. The current agencies have only recently emerged from direct government control and have much to achieve by way of rigour and independence.

Dr Harivansh Chaturvedi, who is the alternate president of the Education Promotion Society of India (EPSI), has frank views on the situation and the ways forward. He is also the director of the Birla Institute of Management Technology (BIMTECH) for whose courses and facilities he has sought out impartial accreditation.

He has recently edited a collection of papers titled "Quality, Accreditation & Ranking", which has been published by Bloomsbury. A public-spirited educationist, he has given a pronounced social orientation to BIMTECH even as he has ensured that it ranks among the successful business schools in India. Extracts from an interview with *Civil Society*:

Is lack of accreditation a major reason India's huge higher education sector doesn't provide quality learning, apart from a few centres of excellence?
Yes, I think so. From the data on accreditation, we know that out of 900 plus universities and 50,000 colleges hardly 20 percent have been accredited so far. The NBA (National Board of Accreditation) and NAAC (National Assessment and Accreditation Council) started working around 1994 and, even after 25 years, their progress is not very impressive.

Of course, the government has now thought of creating more accreditation agencies. The Education Promotion Society of India (EPSI), which I represent at the national level, has been asking the Human Resource Development (HRD)Ministry for the past 10 years for multiple agencies and for the government to withdraw from accreditation.

Globally, it is third party agencies and not government agencies that give accreditation. The government's involvement does not lend credibility.

So, I think the accreditation data tells us that a large number of institutions are providing average or poor quality higher education.

How empowered are the two government agencies?
Till recently, both were under direct government control. The NAAC was controlled by the University Grants Commission (UGC) and the NBA was under the control of the All-India Council for Technical Education (AICTE). They were given complete autonomy two or three years ago by the HRD ministry. Of course they have to first unlearn working under government control and they should demonstrate their ability to work independently.

Accreditation by NBA and NAAC was fundamentally wrong because the UGC and the AICTE were issuing licences to institutions and an agency under them was assessing the quality of the same institutions. There was a conflict of interest there.

Are ratings by Indian agencies accepted worldwide?
Yes. According to the Washington Accord, to which India is a signatory, all countries will recognise the degrees of the participating countries. It was based on the premise that they will recognise only accredited degrees. So Indian degrees accredited by the two agencies are accepted worldwide.

But informally what weightage does it carry?
I think international agencies are hardly aware of what we have been doing. In the US there is the Council of Higher Education, a non-government body that carries out accreditation. I find that there is no proper awareness among Indian policymakers as well as foreign accreditation agencies about the process being followed in India. There is no forum. They are not meeting each other. We have requested interaction because the government has ordered UGC and AICTE to give autonomy on the basis of accreditation scores.

UGC has given autonomy to 60 institutions, including colleges and universities. Similarly, AICTE has also decided to give autonomy to PGDMA (Post Graduate Diploma in Management) institutions because they are not affiliated, like our institute, to a university.

When we met AICTE two years ago, there was reluctance to accept international accreditation because of political reasons. The current NDA government was not in favour of allowing foreign universities to set up campuses here.

Would you say there is a case for rating the rating agencies?
Yes, I think the government, policymakers and the academic community should be given this opportunity. Accreditation agencies should be given comprehensive targets and assessed by a jury of independent people so that they are benchmarked with the best in the world.

For example, how institution-friendly are the accreditation agencies? This is not like a police inspector's job. You cannot ill-treat educational institutions. Your role is to be a catalyst for improving quality. Earlier, these agencies were behaving like UGC and AICTE. Do this otherwise we will punish you! There were also complaints about corruption. But now apparently there is no corruption. Guidelines have been issued and the giving of gifts has been disallowed.

But rating their processes could be a good thing to do to make sure of benchmarking with global standards?
Yes, I think there should be a national jury and they should evaluate all the accreditation agencies. Some more are likely to come up in the next two or three years. If we have to compete internationally we should benchmark our regulatory bodies like AICTE and UGC and our accreditation bodies.

So far I have not found any process for rating the rating agencies. But, I think the challenges of the future will require every autonomous body dealing with education to be benchmarked with the best agencies globally.

Some small countries, like Singapore and the UAE, have done very well in developing higher education and making their countries hubs for higher education. China has also done very well. They have their own rating and accreditation agencies.

I think India could benchmark its regulatory bodies and accreditation agencies with China's. The size of China's higher education sector and ours is almost the same. The issues and challenges are almost common. We have around 40 million students and China has perhaps around 50 million. Both countries are between developed and developing nations.

> **'We know that out of 900 plus universities and 50,000 colleges hardly 20 percent have been accredited so far. The NBA and NAAC started working around 1994 and, even after 25 years, their progress is not very impressive.'**

But in China the quality of higher education and the nature of basic research have reached the level of developed countries.
Yes. I agree. In China, it was the government that invested in improving the quality of education and research. There is no private investment as such. There are, of course, private institutions, but their number is not as high as in India. China is investing a lot of money in creating world-class universities and institutions.

Professors in China are publishing more research papers than in India. In 1952 both countries were almost at the same level. In 1949 when the People's Republic of China was established India was a little ahead in education. But after Deng Xiaoping, China surged ahead.

And simultaneously you see a decline in India's old centres of learning?
During the 30-year post-Deng Xiaoping period, when China began surging ahead, Indian higher education, which was doing good till the 1960s and '70s, went down because of the exponential growth of institutions in the private sector. After 1991, and this is very important, the centre and the states accepted the fact that they have no funds to provide for education. And here I would like to quote that quality in education is not without cost. In 1966, the Kothari Commission said India would have to spend 6 percent of GDP on education. We have reached only 3.9 percent of GDP though 52 years have passed since this recommendation was made.

It's the older universities like BHU, Calcutta University etc. that have declined.
These were eminent institutions, which have lost their glory in teaching and research. A large number of students from African nations used to come to India because it was politically convenient for them. But because of the erosion in quality and campuses, they don't come.

So would you say unregulated liberalisation has affected the quality of Indian competitiveness?
Yes. Although there has been regulation it hasn't looked into the core of education — of how the teaching-learning process is being done. It has mostly looked at physical infrastructure.

Also, with the shift to privatisation eminent institutions in the state sector start fading because of lack of funds.
In the post-liberalisation period the government adopted a policy that it would spend mostly on central government-run institutions which are the IIMs, IITs and central universities. There are about 100 such institutions. They are being given more money in the Budget. But you will be surprised to know that the total number of students being admitted every year to these institutions is only 200,000.

Simultaneously you have magazines and newspapers coming up with ratings that capture the public imagination much more than the actual rating agencies do. Isn't there a need for some restraint in what is going on?
I think there should be some sort of regulation. Some people are asking for advertisements and money to give awards and rank institutions. It is a marketing gimmick.

I should share with you that a leading newspaper that has been ranking business schools does not ask for data. When they ranked my institute without asking me for any data I asked them why. They said, we do not do this ourselves. We have outsourced it to another agency. You speak to them. When I contacted this small firm they said they had collected the data from secondary sources.

My institute is widely considered to be among the top 10 B- schools in India. But (in this newspaper) they were giving us a rank of 45 and lesser-known schools were ranked higher. What was the reason? It was to create a false credibility.

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When they did this the second time I complained to the chairman of the Press Council, Justice P.B. Sawant. He asked them to stop it.

So the market has gone wild.
Yes, the market has gone wild because there is a lot of money in education. The size of the Indian market is in billions of dollars. Huge sums are collected as fees each year.

Institutes are producing engineers you can't employ and management graduates who don't serve a purpose. How will all this play out?
A lot of churning is happening in higher education. Poor quality institutions are closing down. You are sitting here in the Knowledge Park area of Greater Noida where there are 60 colleges and half a dozen universities. You will be surprised to know that hardly 15 to 16 colleges are operational. The rest are struggling or closed. Several are offering their land and buildings to us. And this is happening across the country. AICTE has accepted that more than 1,000 engineering colleges and business schools have closed. Since the meltdown of 2008-07 there has been a severe crisis in higher education.

One would imagine it is in the interest of institutions to seek accreditation so as to be better positioned in this market.
The benefits of accreditation are long-term. Former businessmen and unsuccessful entrepreneurs who set up institutions look for short-term gains. Not all institutions are being run by educationists.

At BIMTECH we have invested as much as ₹20 crore in the last 10 years to improve the quality of education. We started approaching accreditation agencies in 2007. In 2008, we got our first accreditation from NBA. We accredited all our programmes because NBA, which was under AICTE, does programme-wise accreditation.

We first completed the accreditation of four of our programmes by NBA. Then we approached NAAC to accredit our institution in 2014. They accredited us in 2015 with an A+. The highest is A++, which isn't generally given in the first cycle. Our grade was more than 3.5 on a scale of 4. Similarly, NBA has given us its highest score for six years.

We have invested money in improving our facilities from the perspective of the accreditation agencies. They examine the research output, the teaching-learning process, and the infrastructure available, including both software and hardware. They define how many marks will be given to you on the status of your infrastructure, hardware and software.

More than money, a gigantic human effort was invested in getting accreditation. We had to work hard to be ready for the visiting teams from the rating agencies. Sometimes we did not have the requisite documents to back our claims. We learnt from our mistakes.

Since 2014 we have been working with the AACSB (Association to Advance Collegiate Schools of Business), an international agency of repute in America. Accreditation from AACSB is considered the golden standard in management education and takes two to four years to get. It took TAPMI, Manipal, 10 years to get AACSB accreditation. ■

Schoolchildren with placards speak up for Kolkata's trams

Will trams get a new lease of life in polluted Kolkata?

Subir Roy
Kolkata

Trying to save Kolkata's trams today seems an almost lost cause, suitably romantic but hopeless.

A small, dedicated group, stretching across generations, observed the annual Earth Hour late last month in Kolkata by gathering at the Ballygunge tram terminus with posters and banners in support of "Sustainable Mobility and Heritage". Their demand before the government was simple: take tram services forward, not back. And since celebrating weighty causes should also be fun, at the end of the hour the group took a joy ride in a tram to the Tollygunge depot!

The event served two goals. The first was to focus on energy consumption and its impact on the environment, which is what Earth Hour seeks to do. The second was to celebrate an icon of the city's heritage — trams. The two goals reinforce each other as the dedicated group wants to save the city's trams, the only ones left in the country, and trams are a marvellous enabler of non-polluting urban mobility.

Shrishti Hazra of Class 11 from Silver Point School said they encouraged their friends to travel by tram and thus save them as otherwise they would perish. Their teacher, Rahul Deb Sarkar, gave a call for more trams for a better environment.

Underlining the focus on being practical while highlighting a good cause, Anurag Mitra of Calcutta Tram Users Association, which had organised the event, offered the advice: Just as the best way to see London is from the upper deck of a doubledecker bus, the best way to see Kolkata is to take a window seat in a tram.

While covering this event I came up against a powerful contradiction. I had grown up in the city eons ago when it was another kind of city and one of my pleasantest memories is of taking a ride on Route 32. It went from Howrah, across the famous bridge, via Dalhousie Square, Esplanade, an incomparable part of the evergreen Maidan, upmarket Alipore, skirting Kalighat with the Kali temple, past the Tollygunge race course and ending up at the Tollygunge depot amidst pleasant suburbia. On the other hand, trying to save Kolkata's trams today seems an almost lost cause, suitably romantic but hopeless nevertheless.

There are any number of good reasons why Kolkata's trams need to be saved and we will get to them in a moment but it is only the government which can save and restore a dying piece of capital

PICTURES BY ANKIT DUTTA

Thousands of people continue to use trams for their daily commute


The tram driver


The tram conductor

intensive infrastructure and the West Bengal government appears to have given up the good fight long ago. There has been a steady decline in investment, from ₹5.5 crore in 2011 to nil in 2018. The last new tram built was in 1982. If the odd tram on the road now looks new, then it is a refurbished one.

The final blow came in 2016 when the West Bengal government decided to merge three loss-making state-owned transport companies into the West Bengal Transport Corporation. Thus died the Calcutta Tramways Company, founded in 1880, which had, well over a century ago, brought electricity-driven tram services to the city in 1902.

Here is a picture of the decline as the present decade draws to a close. Today (latest figures are for 2018) there are only eight routes along which ply less than 40 trams, carrying around 15,000 passengers a day with the operation run by 3,700 staff. In 2011, there were 37 routes which ran over 180 trams, carrying nearly 75,000 passengers per day with the operation run by 7,000 staff.

The only glimmer of hope for less polluting public transport facilities in the city is the recent decision by the state government to introduce trolley buses. A German firm, DIZ, has submitted a feasibility study on this. Trolley buses run on bus-type tyres, don't need steel rails like trams do but draw electricity from overhead cables through two poles. They are currently running in cities across the world like Berlin, Ankara and Shanghai. Jochen Weikert, the India head of DIZ, told a newspaper, "The tramways network is excellent though it needs some overhaul. Kolkata is the only city (in India) which has been able to preserve

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trams. They are environment-friendly and carry a lot more people than buses and taxis."

The case for trams is well known. They run on electricity and so are non-polluting for the urban environment in which they operate. Plus, they are supplied energy online and so do not use lithium-ion batteries like electric vehicles do. Disposing of a large number of these batteries when they need replacing, which will happen once electric vehicles become common, will pose its own environmental challenge.

Trams run on electricity and are non-polluting. Plus, they do not use lithium batteries as electric vehicles do. Disposing of lithium batteries will pose its own challenges.

The only negative point against trams is that they take up a lot of road space which is very scarce in a city like Kolkata. Plus, maintaining road surfaces with tram tracks is costlier than regular roads. Trolley buses, which have greater manoeuvrability than trams, provide a part of the solution. But they don't have the passenger-carrying capacity that tram cars do.

So the West Bengal government will not do away with trams but use trolley buses as an additionality in a multi-modal transport system. These may first be introduced in newer areas of the city like Salt Lake and New Town where there is comparatively huge road space. Trolley buses can be used as feeders for the city's expanding Metro network and even in the central business district.

A key intangible about trams is that they create an emotional connect wherever they have plied and Kolkata is no exception. A well-maintained tram car is a tribute to the age of heavy industries when products were made to last a lifetime. They convey a sense of durability, stability and grace in an age when a great deal of life has become virtual and lives in the cloud. A tram is a real thing that you want to hang on to for a sense of reassurance. ■

Chaitanya Malik:'We started the farm and then realised organic farming requires cow dung and urine'

Goan dream comes true with Gir cows

Derek Almeida
Panaji

WHEN Chaitanya Malik graduated from the Goa College of Engineering with a specialisation in computers, he mapped out a surprising future for himself. Instead of computers he decided he was going back to his ancestral village to practise organic farming. Five years later, he has a four-acre farm where he grows cluster beans and lady's finger or *bhindi*. He also has a dairy, which sells 100 litres of *desi* or superior A2 milk a day. The farm and the dairy make a profitable enterprise.

Chaitanya's choice of career is unusual given his background in engineering. A new airport coming up at Mopa is bound to bring in land sharks and Chaitanya feared there would be encroachments on his family's land.

His farm is located in the village of Chandel-Hasapur which is around 32 km from the capital city of Panaji. In this tiny village, almost everyone is a Malik. Chaitanya's family owns nearly 100 acres. Around 50 percent of their land is in forested areas, but the remaining, although dry with laterite soil, is waiting to be ploughed and planted.

As we sit in a fairly large shed with around 13 brawny Gir cows, three bulls and seven calves, Chaitanya, 25 years old and raring to go, explains how dairy farming became an essential element of his plan.

"We first started the farm and then realised organic farming requires cow dung and urine. So, we decided to rear cows," he said. "After doing some online research, I learnt that *desi* or indigenous cows are best suited for organic farming. They have a hump which absorbs sunlight and that, in turn, enriches milk and urine."

He says the *desi* cow's virtues are documented in ancient Indian texts. But through modern science it is known that A1 and A2 are different proteins in the casein family.

Most cows produce A1 milk, but *desi* or indigenous cows do not come out of cross-breeding and give A2 milk, which is healthier and easier to digest.

The dairy unit started in June 2016 with three cows purchased from Gujarat. For the first month milk was sold to Goa Dairy for ₹24 per litre. Chaitanya quickly discovered that there was a huge demand for A2 milk. "A2 milk can fetch up to ₹120 per litre in Mumbai and in parts of Hyderabad it is sold for even ₹150 per litre," he said.

Having figured this out, Chaitanya redrew his plans. He named his dairy Dr Malik's Farms. "We sent WhatsApp messages on a broadcast group and on July 5, 2014, we received an order for five litres per day. By the end of July, we had orders for 25 litres and we now sell 100 litres of milk per day to customers in Mapusa, Panaji and Porvorim."

PICTURES BY DEREK ALMEIDA

The Gir cows

Milk in packets from Dr Malik's Farms

As demand grew, so did the number of cows. Buying cows for ₹60,000 to ₹70,000 an animal has an element of risk. Some cows yield milk for three months and then dry up. Others produce less milk and have to be sold off to local farmers for one-third the price. Gir cows, which are native to Gujarat and Rajasthan, are accustomed to temperatures as high as 45 degrees. Goa's more temperate climate is cool for them but they quickly acclimatise to local conditions.

After delivery, cows generally produce milk for at least eight months and, in rare cases, up to one and a half years. Pointing to a cow which had just delivered, Chaitanya proudly said, "She produces up to 17 litres a day."

Given the high cost of feed and the fact that most of it has to be procured from outside the state, cows have to give a lot of milk to justify being in the dairy. Even seven litres of milk a day is too little.

"Dry fodder and maize have to be procured from Belgaum while mountain grass is gathered from around Mopa airport area," he explained, "and once the airport comes up, access to grass will be cut off." Chaitanya has built a poly-house of around 2,000 sq m at the farm to grow fodder for the cattle. He buys cottonseed cake and ground maize from local distributors.

Input costs for the dairy unit are around ₹1 lakh per month, but the high price that A2 milk fetches — ₹90 per litre — makes it profitable.

For the two farm workers and two helpers who transport the milk to customers, the day begins around 3 am when the vehicle is loaded. The first doorstep delivery is made at 4.30 am to customers in Mapusa, followed by those in Porvorim and by 8.30 am the last delivery is made to households in Panaji. Cows are milked at 5.30 in the morning and evening, and today's milk is packaged and sold the following day after freezing.

Musing on his decision to switch to organic farming, Chaitanya said, "After getting a degree in computer science the only option for a Goan is to migrate to larger cities in search of jobs. Since we had land here and we realised that once the airport was built encroachments would begin, I thought the best way to protect our land was by utilising it."

Besides, there was no compulsion to take up a job to provide for the family since his parents hold good jobs. His father is a PhD in organic chemistry and teaches at PES College while his mother is headmistress at a government school in Porvorim.

"Initially, they thought my decision to get into farming without any background was fraught with risk, but they eventually came around when the farm became a success story," Chaitanya proudly recounted.

A few hundred metres from the dairy unit is the farm, which has an electrified fence to keep bison, monkeys and wild boar out. A natural spring runs through the middle and on one side is a canal which brings water from the Tillari irrigation project. Here, water is not an issue. Chaitanya has installed a small filtration plant to remove sediment so that smaller pipes of the drip irrigation system, which is spread all over, don't get clogged.

The drip irrigation system, set up with 70 percent subsidy from the government, was his choice for two reasons. One is that the soil sucks up water at an alarming rate and water supplied through traditional flow systems does not reach all parts. The second was labour.

Work started in 2014 soon after Chaitanya completed his engineering studies. Out of four acres, around 2.5 acres are under cultivation and the main crop is lady's finger. "We chose lady's finger because it is a sturdy crop suitable to Goa's environment and fetches a good rate," he explained.

Practically all the produce is sold to the Goa Horticulture Corporation which pays between ₹35 and ₹40 per kilo. At present three crops of lady's finger are grown per year with cluster beans planted in winter. "We are benefitting from the demand for organic food," he said. Since Goa is small and the distance between farm and customer is not much, middlemen are eliminated.

It took Chaitanya around two years to start earning profits. And this was made possible since his input costs are negligible. The cow dung produced at the cattle shed is used as manure while urine sprayed on the plants acts as a natural pesticide. "We also spray a mixture of garlic, chilli and tobacco ground in equal proportion," he added.

Chaitanya has also created a revenue stream by renting out a tractor, purchased again with 90 percent subsidy from the government, to farmers in the area. "Although the government provides a tractor for ploughing, only one vehicle is available for Pernem taluka which is not adequate. During the ploughing season from June to August our tractor is fully booked," he said.

This 25-year-old IT graduate has plans for growth and his motto is, if you want to succeed in agriculture you have to treat it as a business, not a hobby. ■

Samita's World *by SAMITA RATHOR*

GET A DENSE FOREST IN 3 YEARS

PICTURES BY SHREY GUPTA

Rwit Ghosh
New Delhi

The core team, left to right: Adeel Arshi, Sunny Verma and Shubhendu Sharma

A miniature natural forest is coming up on the floodplains of the polluted Yamuna river in Delhi. The saplings planted are indigenous to the region of Delhi. You can see the forest growing on a drained swamp behind the Sun Dial Park in Sarai Kale Khan in southeast Delhi.

This forest of 700 square metres is being raised by Afforestt, a for-profit venture which grows forests in just three years. It uses a method developed by Dr Akira Miyawaki, a famed Japanese botanist.

The forest is part of a larger effort by the Department of Biotechnology (DoB) to clean up the Barapullah, a drain which carries 30 percent of Delhi's sewage and disgorges it into the Yamuna. Historically, though, Barapullah was a creek which carried rainwater into the river. It was part of Delhi's complex web of rainwater harvesting systems. DoB invited Afforestt to help convert this marshland of sewage into an urban forest.

Afforestt began by draining and cleaning the swamp created by the Barapullah. The saplings, which were planted in July 2018, are now around six feet high and on their way to greening a small part of the floodplains of the Yamuna.

After clearing the area, Afforestt began the work of preparing the soil. It enriched the soil using shredded straw, husk and manure mixed together. The species of saplings were chosen carefully. Afforestt's process is to first understand the kinds of trees, plants and shrubs that should be grown. "We do a study of what was growing here naturally in the past before the area got degraded. We try to identify the species that disappeared from the local ecosystem," says Sunny Verma, executive director of Afforestt.

Afforestt then quantifies the number of plants that will be assigned to different species in different layers of the forest. For instance, what should be the ratio of the shrub layer, the tall tree layer, the fast-growing species and the slow-growing ones.

The shrub layer plants are *vajradanti, gugal, adusa, harsingar* or *parijatak*.

The smaller trees that have been planted are white mulberry or *shahtoot*, drumstick, Indian date, *khair* or Red Cutch. The next layer of trees are Indian gum Arabic, *ardu*, *siras* and *amaltash*. The canopy trees are *kadamb*, banyan, fig, *desi* mango and *bahega*.

After preparing the soil, the saplings are planted and mulch placed on top. In the first year of growth, the plants need to be watered once a week. "Everything else nature will do," says Verma confidently.

Dr Miyawaki discovered that if trees and plants are grown exactly as they existed minus any human interference, they show remarkable ecological resilience. In Delhi, this is not easy to bring about. Verma says that several indigenous species have simply vanished. He points to a coppice of trees some distance away, "Those are Mexican trees," he says. "The city is full of all kinds of invasive species."

He says that Afforestt's idea is to create a dense forest that stays forever. Most natural forests have dense patches which are difficult to get through and where even sunlight doesn't get a chance to penetrate. Afforestt designs their forests so that after some initial care, they too can grow densely.

The forest near the Yamuna has grown considerably since 2018

But natural forests aren't static either. "There is a lot of competition and natural selection that happens as these forests grow," says Verma. Some saplings will survive and others may not. But they will fulfil a certain ecological function.

"This is a drumstick tree. It will stay for seven or eight years because that's the life of this tree. But as soon as it dies it will create space for other species. Most man-made forests take 10 years to mature. And then we hope they will begin to spread. Our forests grow rapidly in three years and spread on their own." Afforestt also ensures that their young forests are kept free of weeds and invasive foreign species.

Most of Afforestt's clients are companies like L&T, Samsonite, and Saint-Gobain that like to raise small forests near their manufacturing units. People with large holdings also contact them. Afforestt also grows forests for small homeowners. The smallest patch they grew a forest on was just 100-150 square metres.

Afforestt has attracted the attention of state governments. They are partnering the West Bengal government in skilling workers to raise forests under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS). "We can train people in our methods. It is a skill. The aim is to train local people and help them create patches of forests in their villages under MGNREGA," says Verma. Afforestt generally uses machinery and less labour while working with corporate clients. But for the MGNREGS tie-up with the West Bengal government they will ensure more workers are employed.

Afforestt will be working with the Maharashtra government which is keen to plant some 500,000 trees this year. It has also picked up forest-planting projects for the Chennai Metro authorities and the Bengaluru airport.

Afforestt claims that 98 percent of the species it plants survive. The forest department's survival rate is a mere 10 percent, says Verma.

"We plant indigenous species. The forest department plants species that require a lot of care. Secondly, the combination and density of our saplings work really well," says Verma. "We understand that the forest is a connected system. There is a web underground connecting all species. What is important is to ensure that a cycle of nutrients is maintained."

Afforestt is also happy to share its expertise and methods. You can download the entire Miyawaki system from their website. "We document all our work across states and even abroad and share it with people. If you want to know which family of species grows well together, you can get that information from us," says Verma. ■

Tibetans put back village's water

Arti Das
Hubli

THE Doeguling Tibetan Refugee Settlement is around 50 km from Hubli in the Mundgod panchayat in the Uttara Kannada district of Karnataka. It is the largest Tibetan refugee settlement in the world inhabited by 17,000 Tibetans and has a cluster of seven monasteries, a Tibetan Medical and Astro Institute, 20 schools, two homes for the elderly and a cooperative society.

North Karnataka is a challenging place to stay for the Tibetans with its hot and arid climate and a scarcity of water.

Reimagining Doeguling Tibetan Settlement Project (RDTS), aims to make Doeguling a thriving sustainable community by empowering Tibetans. It also seeks to convert Doeguling into a tourist destination by promoting it as a centre of Buddhist learning and traditions.

To tackle the water crisis, Reimagining Doeguling and the Geluk International Foundation, which preserves Buddhist heritage, successfully implemented a rainwater harvesting project in their settlement which recharged their bore wells.

Then they decided to reach out to parched villages nearby and help them recharge their bore wells using the technique they developed.

Tenzin Thakpo, who chairs the water committee of the RDTS, says they surveyed 12 villages and six hamlets. "We focused on how many bore wells there are in neighbouring villages and how many are yielding water. We found that Koppa village was the worst affected," says Thakpo. The Mundgod taluka receives 900 mm of rainfall in four months during the monsoon but rainfall is declining every year, he explained.

Koppa has 300 households, where bore wells had run dry due to severe depletion of groundwater levels. Every summer villagers have depended on water tankers. Thakpo got full support from the panchayat and villagers. Their method involved harvesting rainwater to recharge bore wells.

First, pits sized 10x10x10 feet were dug around the bore well casing pipe. Tiny slits are made into the casing pipe which is then wrapped with nylon-mesh.

Reinforced cement concrete rings of 4.5 feet in diameter and one foot in height, are laid one upon another around the pipe thus creating a circular structure in the centre of the pit. The rest of the pit is packed with natural filtration material like stones and sand.

Tenzin Thakpo

Adjoining this pit, referred to as the primary percolation pit, a large pond is excavated. During the rains, rainwater from the plot is directed to this catchment pond via a series of trenches or piping. The water then enters the primary percolation pit and after undergoing filtration through the stones and the sand it seeps in through the gaps between the cement rings. After a final round of filtration by the mesh, the water enters the casing pipes through tiny slits thus going back underground to replenish the water table and aquifers.

The total cost of the project in Koppa worked out to ₹184,130. Dr Anita Dudhane, a medical practitioner, helped along with friends, to financially support the project. The water harvesting unit has been constructed outside the village school which provides education to around 200 students.

The unit was formally inaugurated in January with the villagers and members of the Tibetan community collectively performing rituals.

Thakpo said the unit will save five million litres of water in 1,000 square feet of catchment area during the monsoon. "The number of dry bore wells are increasing every year due to the lack of a proper monsoon combined with the failure to conserve rainwater. The goal of the project is to conserve rainwater and meet the demand for water," says Thakpo.

"We are hopeful that this project will solve our water problems," said Basuraj Devikoppa, a panchayat member. Villagers were very happy that the Tibetan community had taken note of their problem and come to their assistance.

The RTDS has identified Nandikatta village and another three settlements for their next project. "Around 3,000 people will benefit," said Thakpo, who left his corporate job in Bengaluru to work for the community.

"According to a report by the NITI Aayog, Karnataka is the second state after Rajasthan where water levels are depleting at an alarming scale. North Karnataka is the worst affected. More awareness needs to be created at the grassroots on rainwater harvesting," said Thakpo. Apart from ameliorating water shortages being faced by villagers, the project has fostered fraternity between the two communities, remarked Dr Dudhane. ■

Sweet water in saline villages

Bharat Dogra
Ahmedabad

ROOFTOP rainwater harvesting is proving to be the most effective method of tackling saline water ingress in the coastal areas of Gujarat. The water collected is directed to traditional underwater tanks called *tankas*, constructed specifically for storage and maintained using carefully formulated norms.

Salt water ingress is a serious problem in coastal areas and is likely to worsen with the rise in sea levels caused by climate change.

Coastal areas all over the world are vulnerable. So there is interest in ways and means of checking this phenomenon.

The success of several villages in coastal Gujarat in recent years to effectively combat this problem could serve as a model for similar villages elsewhere in the world.

This effort has been led by the Aga Khan Rural Support Program (AKRSP). The state government has come forward with subsidies and friendly policies. It has collaborated closely with voluntary organisations.

A woman pumps up rainwater from her tanka

Nearly 7,500 tankas have been built

Apoorva Oza, CEO of AKRSP, explains that salt water intrusion in coastal Gujarat is caused by excessive extraction of groundwater and aggravated by limestone mining.

Porous limestone deposits help groundwater conservation but indiscriminate mining of limestone increases the space for saline seawater to rush into inland zones.

Umesh Desai from AKRSP who has been involved in several efforts to tackle this problem says that rooftop rainwater harvesting and storage in *tankas* has become a tried and tested way of tackling groundwater salinity.

Raman Patel, a coordinator of the AKRSP water programme, says in the past 25 years nearly 7,500 such structures were constructed. The AKRSP, the state government and the Water and Sanitation Management Organisation worked together in the three districts of Junagadh, Devbhoomi in Dwarka, and Gir in Somnath.

"When I came to this village after my marriage I saw this new problem of saline water which did not exist in my maternal home. I was not used to it," says Vijaya, a woman who lives in Kotda village in Mangrol block.

"Now I suddenly needed to traverse two km, carrying three pitchers. I returned carrying 25 litres of water in these pitchers. I also had to wear a *ghunghat* (veil) to cover my face with my sari as I was newly married. So I fell down a few times and my pitchers broke."

Hansa, another woman of this village, says, "Sometimes we had to bring water from a ditch. Animals too drink water there. We had no alternative as water in this village was so saline."

Vijaya adds, "My family took the initiative to construct the tanks. First of all, ours is a big joint family and our consumption of water is high. After seeing the success of our effort, other families, too, were inspired to take up this work."

Umesh Desai from AKRSP says that rooftop rainwater harvesting and storage in *tankas* has become a tried and tested way of tackling rainwater salinity in coastal villages of Gujarat.

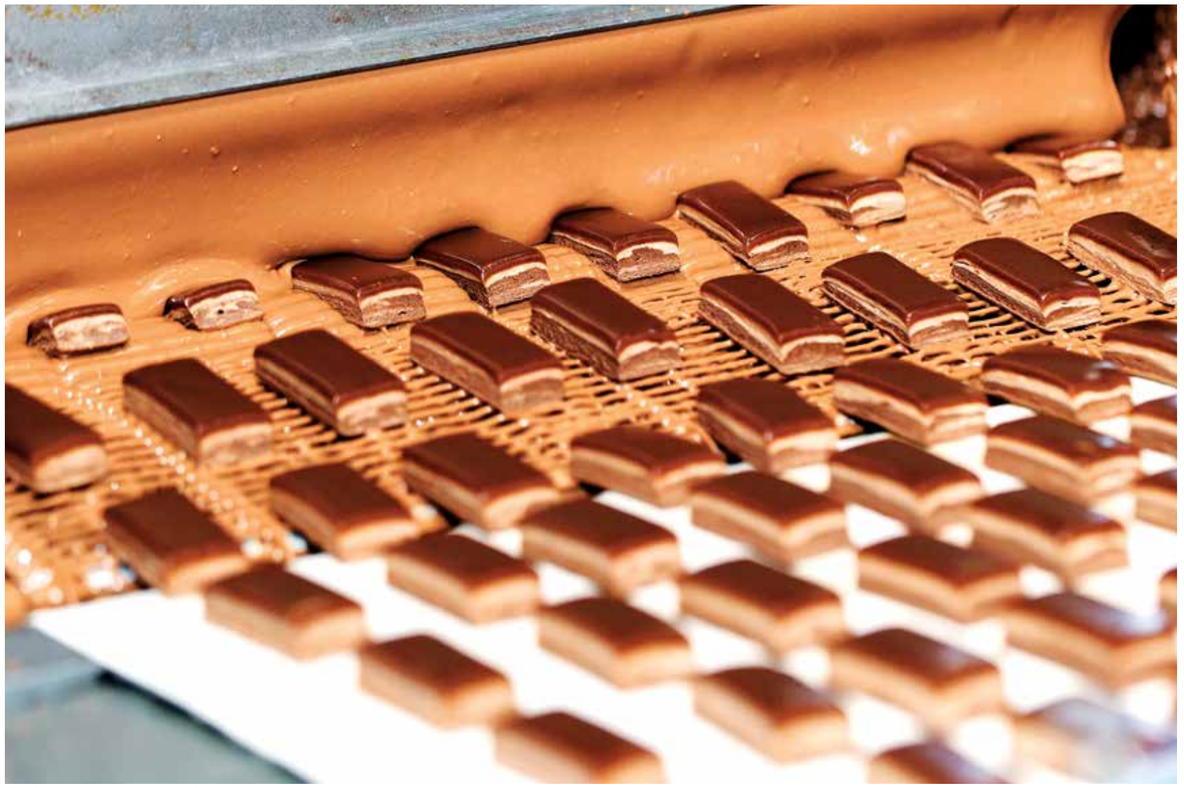
By now almost all families have constructed a *tanka* in their homes.

In addition, this effort is now supported by a piped-water scheme. Sudha, a social activist, says, "Here also the AKRSP played a helpful role by motivating people to make some contributions for this water scheme to become operational in our village."

Jariyawara is another village which has derived much relief. Hallo, an ASHA health worker based here, says that when people were drinking saline water, cases of kidney stones were very high and now this has decreased to a large extent. Other health problems have also decreased with the construction of *tankas* in village homes, she says.

Raman Patel adds, "Just the construction of *tankas* is not adequate by itself. These tanks have to be properly maintained and we conduct training for this. Without proper maintenance the ability of a rooftop rainwater harvesting structure to collect water will be much less and short-lived."

Agriculture also needs to be protected from salt water intrusion. So check dams and water recharge works have been created and these have given encouraging results. In particular, the success of such efforts in helping the rejuvenation of the Meghal river in Junagadh district has provided hope, says Patel. ■



The factory is a sophisticated facility

Quiet success for Campco

How areca nut farmers built a chocolate company

Shree Padre
Puttur

THE aroma of chocolate wafts past as you drive into Koornadka, a suburb of Puttur, a town 52 km from Mangaluru in Karnataka. Follow your nose and you will arrive at the source of this seductive redolence — the Campco Chocolate Factory.

Though unknown in the north, Campco is the third biggest producer of chocolates in India after Cadbury and Nestle.

Its history is most unusual. Campco is a cooperative of areca nut farmers and stands for Central Areca Nut Marketing and Processing Cooperative. In 1986, the farmers decided to set up a chocolate factory with an investment of ₹12 crore. The farmers knew absolutely nothing about making chocolate in those days.

Yet today their factory makes over a dozen brands of chocolate. It also manufactures chocolates for companies like Milma, KMF, Luvit and Nestle. Campco's bestseller is a drinking chocolate which it exports majorly to Africa. In India, this drink is sold under the brand name of Winner.

Campco is also a market leader in semi-processed cocoa products which it supplies to the biggest names in the food industry — Amul, ITC, Britannia, Lotte India, Hershey's, Baskin Robbins, Vadilal, Unibic, and the Himalaya Drug Company, to name a few.

It wouldn't be an exaggeration to say that there is a bit of Campco in nearly every biscuit, ice-cream or chocolate-infused product you bite into.

The chocolate factory did face tough times. But its parent, the areca nut unit, gamely absorbed the early setbacks. No minimum support price was required. Now the chocolate factory makes a profit and adds to Campco's bottom line.

"Our founder president, the visionary Varanashi Subraya Bhat, understood the importance of value addition three decades ago. Farmers investing in a mammoth chocolate factory and steering it to success is an amazing initiative. There is no other industry in India that buys cocoa beans from farmers, converts it into chocolate products and markets it," says S.R. Satishchandra, president of Campco.

Importantly, Campco plays a key role in regulating the price of cocoa beans. "Before our factory started, multinationals would reduce cocoa prices according to their whims and fancies. Whenever global prices came down, they would slash prices. This sort of irregularity stopped once we entered the market. Other companies can't offer farmers less than what we offer. We can control the market," says Suresh Bhandary, managing director of Campco.

Campco is today a multi-state farmers' cooperative with a turnover of ₹1,800 crore. Out of this the bulk comes from areca nut, but the chocolate factory contributes a significant ₹300 crore.

The factory is a sophisticated facility. Machines have been imported from Italy, Denmark, West Germany and Switzerland. Chocolates are made without

PICTURES BY APUL ALVA

Drinking chocolate does well in India and as an export to Africa

Campco Bar, Turbo, Cream and Melto are fast movers

Bhat understood the importance of value addition three decades ago. He also advised farmers who were growing areca nut to go in for intercrops like cocoa, pepper.

any human handling. The factory is also a tourist attraction. People come to take a look at it.

COCOA IS ADDED: So how did an areca nut cooperative of farmers get into the complex business of making chocolate? To understand that we have to first turn the pages of Campco's history.

Campco was set up in 1973 when prices of areca nut touched a record low. It was the late Varanashi Subraya Bhat, an agriculturist, who started Campco to ensure price stability for distressed areca nut farmers.

Bhat repeatedly warned the farmers not to depend only on areca nut. His suggestion was to grow intercrops like cocoa and pepper. Areca nut farmers began to grow cocoa under the shade of their areca trees.

At that time the Kerala government and Cadbury were promoting cocoa cultivation by offering plants for free. In the late 1970s, Cadbury and Amul, in a small way, were the only buyers of cocoa. In May 1980, when international prices of cocoa collapsed, Cadbury, all of a sudden, stopped buying cocoa without forewarning farmers.

In 1979, wet cocoa seeds were being bought for ₹13.65 per kg. The next year prices slumped to ₹5.30. After a while, buyers disappeared. The loss to the farming community was significant.

At this juncture, Campco stepped in. It began buying cocoa beans to help out farmers. But it didn't know what to do with the huge quantities of wet cocoa beans it had bought. Campco had entered unknown terrain.

Between 1980 and 1985, Campco bought 337 tonnes of cocoa beans and paid ₹9.25 crore to farmers. It tried to sell the beans in the domestic market without much success. At that time, entrenched business interests created an impression among farmers that Indian cocoa beans weren't good enough for making chocolate and had to be blended with imported beans.

Bhat got the beans analysed at an independent lab in France. The lab's report clearly said that the Indian beans were on a par with international standards. This endorsement helped Campco export 164 tonnes of its beans and earn ₹3.64 crore. "This was the first ever export of Indian cocoa beans. It helped wipe out the wrong notion internationally that our cocoa beans were inferior," recalls K. Ganapathy, deputy general manager, accounts, at Campco.

It then occurred to Campco that the best way of doing justice to its beans was by starting a chocolate factory. No one in the cooperative knew anything about making chocolate. But the board and a few farmers endorsed the decision though Bhat was being severely criticised for venturing into uncharted waters.

In 1986 Campco's chocolate factory was inaugurated by the then President of India, Giani Zail Singh. With its investment of ₹12 crore, Campco's factory at that time was the biggest chocolate factory in Asia.

"Campco learnt everything the hard way," says A.S. Bhat, former managing director. "The institution had to undergo hardship and losses to support cocoa farmers. Overcoming all technical problems, Campco exported dry beans in those years, a testimony to its dedication and hard work. In fact, after Campco ventured into cocoa it never ever let the farmers down."

Campco was again tested two years ago when the international market crashed due to over-supply of cocoa beans. Buyers vanished. But not Campco. The price of cocoa beans nosedived to around ₹35. Before the crisis Campco was buying beans for ₹50 to 60 per kg. It stuck to ₹50 and ended up buying 3,000 tonnes in two months, a quantity it would have bought in an entire year under normal circumstances.

Processing and drying mountains of beans was tough. The wet beans had to be rushed to Darapuram in Tamil Nadu and Sira in Tumkur for drying. Around three kg of wet beans are required to make one kg of dry cocoa beans.

But Campco's farmer-friendly stand turned out to be a boon. The very next year global prices touched ₹73 per kg. Campco had a stock of 1,200 tonnes of dry beans which it had bought for ₹50 per kg as wet beans. The company made money thanks to this stockpile. The profit helped its financials for two years.

"During our meetings with cooperative societies, many farmers openly acknowledge that it is only because of Campco's support that they have retained cocoa cultivation," says Bhandary.

NESTLE PACT: Bhat's tenure ended in 1990. But before he left, he signed a 10-year agreement with Nestle under which the multinational would manufacture its chocolates at the Campco factory. Many old-timers say this was another visionary step he took.

Surplus capacity is used to make products for other companies

Campco kiosk: Retail outlets are few and marketing hasn't been a strong point

"By using the factory's surplus capacity, it was steered to viability," says S.R. Rangamurthy, former president of Campco.

Between 1987 and 1990, Campco was manufacturing its own products but it had surplus installed capacity at its factory. To augment revenue, in 1990, Campco offered their facility on lease to Nestle. At that time Nestle wasn't producing chocolates in India but it was planning to. The Nestle team surveyed the Campco factory and signed a 10-year lease.

The agreement was wisely drafted. It said that if Nestle did not use the entire stock it had agreed to lift, it would have to pay a commitment charge to Campco. Secondly, Nestle had to buy cocoa beans only from Campco. "If these two clauses had not been included, Campco would not have gained so much. Nestle could have imported cocoa," says Bhandary.

From 1990 to 1997, Nestle produced all their chocolates at the Campco factory. Later they started their own unit at Ponda in Goa. Yet, the goodwill between the two is such that Nestle still gets some products made at Campco.

Both the Kerala and Karnataka governments had invested ₹37.5 crore in Campco's areca nut wing in 1973. Therefore, the managing director was nominated by Karnataka and the secretary by Kerala. The downside was that taking timely farmer-friendly decisions became difficult for the board.

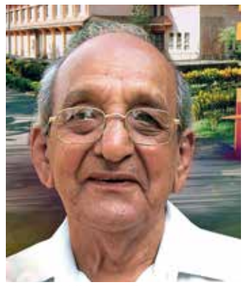
So, in 2005, Campco repaid the share capital of both state governments and nominated their own managing director. The first to be appointed in this way was Madhusoodan Rao Perodi. "It was during my tenure that the Campco chocolate factory began making a profit," he says.

At that time Campco was under considerable pressure to sell its loss-making chocolate factory to an MNC. Members were worried that money from areca nut was being used to fund the chocolate factory.

S.R. Rangamurthy, president of Campco, appealed to the board to give him a year to find a solution. Demand for semi-processed cocoa products — cocoa mass, cocoa butter and cocoa powder — was rising. After brainstorming it was decided to prioritise production and marketing of semi-processed cocoa products. This decision turned around the fortunes of the chocolate factory.

The semi-processed chocolate products bring the most business to Campco. The chocolates it sells as its own brands are secondary. In the past five years the company has sold semi-processed products more than double the weight of its chocolates. In 2017-18, for instance, it sold 1,683 tonnes of its own branded chocolates valued at ₹48.65 crore while sales of semi-processed products touched 6,352 tonnes and were valued at ₹134.66 crore. In addition it produced 5,666 tonnes of chocolates for other companies as job work. Totally it produced 13,701 tonnes of chocolate, earning a profit of ₹2.72 crore.

The chocolate factory's account is finally clubbed with the accounts of the acreca nut, pepper and rubber divisions. Taken together, Campco's turnover in 2017-18 was ₹1,743 crore and its profit was ₹46 crore, which includes the ₹2.72 crore from chocolates.



Varanashi Subraya Bhat

Suresh Bhandary

Till 2007, Campco was content with average sales of ₹5 crore from semi-processed cocoa products. But it noted that use of chocolate was increasing by 25 percent every year and the demand for customised cocoa products was also going up.

"Apart from our three basic cocoa products we now make at least 50 cocoa products. We have seven to eight types of chocomass which is used in ice-cream. In dark chocomass we make eight types. And we have seven types of milk chocomass," says Prabhakara Holla S., product manager for planning and semi-finished products.

Campco provides semi-processed cocoa products in specific customised form to the food industry. For instance, it makes chocolate in liquid form for Lotte, an MNC which manufactures Choco Pie, a biscuit coated with chocolate. Cocoa in slab form would cost the company ₹4 more per kg.

Campco also makes white chocopaste for chocolate *paan*, a new innovation that's now popular in Mumbai and Ahmedabad. A *paanwallah* from Mumbai buys five tonnes of white chocopaste every month from Campco. He gets orders in advance for chocolate *paan* for weddings in rich families.

Another product Campco retails is industrial chocolate in half-kg and one-kg slabs. Most clients are artisanal chocolate makers in Madikeri, Ooty and other tourist areas. They melt the slab, mix their own additives, reshape the chocolate and sell locally.

Campco also makes chocolate chips. It recently imported a cocoa chips making machine from Turkey. The machine can churn out seven tonnes of chips per day.

Explains Anitha Jesumas, AGM, Industrial Cocoa Products, "South India is our main target for semi-processed products. Transportation costs to north India are very high. About 175 institutional buyers buy different types of semi-processed products from us. Trends are changing. Earlier, industrial slabs were much in demand. Now everyone wants this too in further ready form. That's how the biscuit industry started preferring cocoa chips."

MARKETING SNAGS: Campco has 12 brands of chocolates. It has an annual turnover of ₹36 crore out of which 60 percent comes from the four south Indian states of Kerala, Karnataka, Tamil Nadu and Andhra Pradesh.

The general impression is that the chocolates are good but they are not promoted aggressively. Campco hasn't been able to enter the premium chocolate segment. Their main market is farmers and rural areas.

In the chocolate industry, marketing centres are divided into A, B and C class outlets. Big cities and malls are considered A class outlets. Bakeries are categorised as B class while C class denotes rural areas. "We could reach only B and C class outlets. In fact, most of our clientele is in C class," explains Bhandary. "This is because no other company has reached out to this class. We reached the B segment only after a series of advertisements in the media."

Out of the dozen chocolates it makes, Campco Bar, Turbo, Cream and Melto are fastmovers. In fact, the credit for introducing Cream, a white chocolate, to

India goes to Campco which introduced it in 1987. Till then, white chocolates were imported.

Campco has made attempts to enter the A class market. Last year it introduced Dietier, a sugar-free dark chocolate for diabetics, made with maltitol, a sweetener which doesn't raise blood sugar level.

"Health-conscious women generally restrict eating chocolates and ice-cream. Dietier doesn't cause weight gain. Whoever tastes Dietier asks where it is available in the city. But it isn't available at all outlets. Though it has potential, unfortunately, we couldn't market it at that level," says Bhandary.

Another interesting chocolate that Campco invented in partnership with the Central Plantation Crops Research Institute (CPCRI) in Kasaragod is called Kalpa. It is made with sugar called Kalpasara which is extracted from coconut palm. Kalpasara has low glycemic index and is suitable for diabetics. The chocolate has a slight caramel taste.

"People liked the taste. But we could not continue producing it. The supply of Kalpasara is erratic and its price is high so the production cost goes up. Customers find ₹100 for a 60 gm chocolate too expensive. We had to create consumer awareness about the chocolate's health aspects. We couldn't place it in our normal retail market. So we have temporarily discontinued making it," explained Bhandary.

Another dark chocolate called Fun Tan has also been well received. These three chocolates are all premium 'pure chocolates' say insiders in Campco because cocoa butter is used. They are also more expensive since cocoa butter costs ₹550 per kg.

Most of Campco's inexpensive chocolates use vegetable fat and are called 'compound chocolates'. Vegetable fat costs around ₹120 per kg. Another reason for using vegetable fat is that chocolates with cocoa butter melt easily but those with vegetable fat don't.

Campco provides semi-processed cocoa products in customised form to the food industry. For instance, it makes chocolate in liquid form for Lotte's Choco Pie.

"Our major setback is that we don't get the top retailers to stock our chocolates. We have to settle for next in line professionals," says Bhandary.

"We also realised that we have made some mistakes. We sold chocolates worth ₹36 crore this year. Three years ago, we sold chocolates worth ₹67 crore. We upgraded our products. Yet our turnover went down. Why?"

Three years ago the company spent ₹1.5 crore to advertise its chocolates on TV channels which children watched like Pogo and Disney. Then issues of cost control cropped up. It was decided that the company would spread their advertisements across regions, a move that proved counterproductive.

The second mistake was to stop giving credit to retailers. Due to the credit facility, sales representatives promoted Campco products, showcasing them prominently to get the money back. That facilitated better sales.

"We have to advertise strategically and develop our brand by employing impressive brand ambassadors," says Francis D'Souza.

It is surprising that Campco hasn't been able to create a stronger brand identity. The company has only three kiosks, one each on the factory premises at Puttur, Puttur city and Bengaluru. The kiosks offer 20 percent discount and are earning ₹5 to 6 lakh per month without publicity.

Campco also hasn't capitalised on its popularity among the farming community. It was only after farmers complained they weren't being able to buy Campco chocolates that the company installed refrigerators with chocolates at 22 retail stores. Recently, in a single day, ₹35,000 worth of chocolates was sold from a store. So Campco could tap into the rural market and offer to supply chocolates to farmers for weddings and other functions.

It is tapping a marketing opportunity at its factory premises. Campco now charges ₹50 per visitor and gives a ₹50 pack of chocolates to each person. In this way, the company's products reach households.

Campco employs a dedicated staff of 250 including about 150 ITI graduates. Another 350 work on contract basis in the packaging section. "The ITI graduates were unemployed. We trained them and put them to work. They wouldn't have got this opportunity in Bengaluru," says Bhandary.

So far ₹89.77 crore has been invested in the factory. Around ₹65.88 crore was spent buying machinery. Out of its total crushing capacity of 4,200 tonnes of dry cocoa beans per annum, the factory is now grinding 3,600 tonnes. In the last 10 years, Campco made an average profit of ₹3.89 crore per annum. They made a loss only one year.

"We shouldn't forget that Campco's sole objective isn't only to make profits," clarifies Rangamurthy. "We have to see to the interests of our farmers and stabilise cocoa prices. This is what makes Campco's job more challenging."

Satishchandra says the success of the chocolate factory has given them confidence. They are now planning to venture into coconuts.

"We will start a coconut factory shortly. Our plan is to utilise 100,000 coconuts per day in three shifts. We intend to make a big range of products, out of which 60 percent will be for export," he says. ■

Contact Campco Chocolate Factory: (08251) 230207; email: camchoc@gmail.com

A green factory

Campco has installed windmills in distant Chikkodi

Campco realised the importance of green energy early on. For over a decade it has been generating electricity from windmills located hundreds of kilometres away in north Karnataka's Hoovinahadagali and Chikkodi districts.

Through a wheeling arrangement, Campco is able to use wind energy in its Puttur factory. Out of its annual requirement of 68 lakh units, 75 percent is met by wind energy. The rest is drawn from KSEB.

Suresh Bhandary, managing director, says Campco saves ₹10 lakh per month by using wind energy. It costs ₹3.40 per unit whereas conventional electricity from KSEB costs double at ₹6.80 per unit.

Campco requires about 40 to 60 tonnes of steam per hour. Steam generation is very expensive. Conventional furnace oil was being used for the boilers. The price of furnace oil fluctuates, depending on the international price of crude oil. In 2000, Campco changed to bio-fuel boilers which run on briquettes, then priced at ₹3 per briquette. Now briquettes cost ₹5. Switching to bio-fuel boilers is saving the company ₹1.2 crore annually.

Campco was also paying a lot for electricity for its air conditioners. The company switched to VAM — Vapour Absorption Mechanism — which creates air conditioning by using steam. Now their entire air conditioning requirement is met by two VAM units installed three years ago. The company saves ₹1.38 crore per annum on electricity charges.

The chocolate industry needs lots of water too. Campco's daily requirement is 300,000 litres. For over a decade they faced acute water stress. Each bore well would run for two or three years and then go dry. Only three bore wells out of the 13 they had yielded water. They were afraid they would have to stop production. A tanker was bought and kept ready to ferry water from outside.

In the past four years the story has changed. In 2015, they dug a large pit and diverted all rooftop rainwater to it. The results were positive. So they intensified their groundwater recharge efforts.

M. Avinash Rai, AGM, engineering, explains, "We now have four rainwater percolating points. Two are huge ponds. Rainwater doesn't flow out of our 13.5 acres. Rain falling on our 8,500-square-metre roof area is also channeled for recharging. Water from the rooftop alone yields 30 crore litres which meets our needs for 100 days." Now the tanker is diverted for other work. Many small industry owners have visited Campco and adopted some of their green technologies. ■

PICTURES BY SHREY GUPTA

Jasmeet Kaur: 'The idea is to reduce the garbage being sent to dumping sites'

Punjab firm has waste solution

Delhi Cantt. pilot could be game changer

Rwit Ghosh
New Delhi

THE Delhi Cantonment area could be on its way to becoming a model for municipalities wanting to separate wet waste from dry and compost it easily at source if the Xaper Mark II 10 machine invented by E3 Waste Solutions lives up to its promise.

The Xaper has been used in a pilot in the cantonment since September 2018 and a report on its performance is expected soon. The machine was invented in 2016 and is a patented technology. E3Waste Solutions has smaller, cheaper versions of it and is hoping resident welfare associations, hotels, factories and other places where a lot of waste is generated install them.

"The primary issue is that waste is not being segregated due to which centralised waste disposal plants are failing," says Jasmeet Kaur, co-founder of E3Waste Solutions, which is a unit of Palta Engineering Works, based in Jalandhar.

The advantage of the Xaper machine is that it can be installed in colonies, markets and hotels where waste is generated.

The Xaper has a large open drum into which all the waste is loaded. Both wet waste and dry waste slowly circulate in the drum and get segregated. Recyclable waste is disgorged and collected by waste-pickers.

The biodegradable material is slowly churned into fine dry compost due to the air that flows through the drum. This dry compost is ejected through 12-millimetre slats at the end of the drum. Once enough dry compost has been collected, it is put into pits and over 21 days it becomes compost rich in nutrients and minerals.

Under the current system of waste management in Delhi, dry waste and wet waste are collected together, the recyclable material is picked up by rag-pickers and the rest is collected by the municipality and sent to dumps or landfills.

The advantage of the Xaper machine is that it can be installed in colonies, markets, hotels or any place where waste is generated and needs to be disposed of. "The idea is to reduce waste at this level by 70 percent and thereby drastically bring down the amount municipal corporations pay for transporting huge amounts of garbage through the city to dumping sites," says Kaur.

Despite awareness campaigns, orders by the National Green Tribunal and even laws, people just don't segregate their garbage in households. Delhi, for instance, produces close to 11,000 tonnes of waste a day and none of it is segregated at source. Instead, it turns up at landfill sites or is burnt, adding to the city's notorious air pollution levels.

The 20 tonne Xaper machine installed in the Delhi Cantonment area

The dry compost before it is placed in pits to make it nutrient rich

"The Cantonment Board will be buying this machine and another three to process all the waste that is generated in the Delhi Cantonment area," says Kaur. "We've also given them recommendations on how Delhi Cantonment can become a zero waste disposal area and a model for the rest of Delhi. Currently, the Delhi Cantonment area produces 65 tonnes of garbage per day. We have advised them to buy three 20-tonne Xaper machines and install them across the area so that day-to-day waste can be dealt with."

The company's first pilot was actually in Nawanshahr, a small town in Punjab. "We approached the municipal corporation of Jalandhar but that didn't work out. There are more than 25 municipal corporations in Punjab. We went to 12 of them in the beginning. We installed our first prototype in the Nawanshahr municipal corporation because it had an IAS officer who was looking for waste processing technologies. He gave us a chance to test it out," explains Kaur.

Up to that point, Kaur and her team had tested Xaper only in laboratory settings. To see it work on the ground the way it was designed to, was something else.

"Watching your machine work as per your expectations is a different feeling altogether. We became more confident after that," she says with a smile.

The Xaper machine chewed through Nawanshahr's garbage with ease. Unfortunately, after four months of testing, when the time came to take a decision about whether the Xaper machine could stay on, the IAS officer who had first approved it was transferred.

Apart from the Delhi Cantonment Board, the company has found other buyers for Xaper. Their largest machines can handle a load of 30 tonnes of waste per day. The smaller prototypes can handle between 25 and 200 kg of waste per day and are being bought by kitchens and messes, particularly those belonging to the Army and Air Force.

"We've sold about 25 smaller variants to different customers," says Kaur. "We still get queries for smaller machines but we want to put up larger machines because they are visible on the ground at community level."

So far E3 Waste Solutions has mostly pitched its products to the public sector, but it will also be targeting colonies, hotels and factories.

Kaur was involved in designing Xaper's machine function parameters and process optimisation. The investment in creating the machine came in-house from a senior member of their team whose family runs a business in rubber products.

The drum rotates and separates dry and wet waste

'We are looking for transportation and collection partners and want to team up with NGOs and SHGs to change attitudes.'

The fledgling company hasn't turned in profits as yet but they do break even thanks to sales of their smaller machines. The 25-kg Xaper machine costs roughly ₹100,000 while the 30-tonne Xaper costs between ₹1.5 and ₹2 crore.

Kaur says their company isn't looking for investors. It is instead seeking partners. "We are looking for collection and transportation partners, like the Delhi municipal corporations. Secondly, we are looking for processing facilities. We can provide the technology. Finally, we are hoping to partner NGOs. We don't want people to stop segregating simply because there is a technology to do it. We want NGOs to help bring about behaviour change and create awareness among residents of how to segregate waste the right way," says Kaur.

E3 Waste Solutions also wants to partner rag-pickers and self-help groups (SHGs). "Rag-pickers usually trawl through garbage dumps to find recyclables that can be sold. But the moment any recyclable material is soiled or has moisture, it loses its resale value. Through manual sorting, rag-pickers are able to recover about 25 to 30 percent of recyclables. But if the material is dry, they can recover 90 to 95 percent of recyclables," explains Kaur.

An improved recovery rate enables rag-pickers to earn three times more than what they would make through manual sorting. Currently, at Delhi Cantonment, rag-pickers get paid ₹12,000 per month plus whatever recyclables they identify. Kaur says they hope to tie up with SHGs for vermi-composting.

"We want to be able to work with organisations who have the space and can further mature the compost we create. We can provide the compost and some compost enhancers and they can sell it on their own," she says.

Ideally, she says, they would like their machines to be operated by rag- picker communities who live near garbage dumps and have an SHG affiliate. Any compost that is created can then be sold by them. ■

Upcycling plastic the Lifaffa way

PICTURES BY SHREY GUPTA

Kanika Ahuja: 'Lifaffa creates bags, but the material can be used to make lampshades, table mats, blinds and even footwear'

Rwit Ghosh
New Delhi

KANIKA Ahuja is the CEO of Lifaffa, an enterprise that converts plastic waste into sheets and then crafts them into fashionable products. Lifaffa is training smaller groups down the value chain so that they can become micro-enterprises.

Kanika is not just upcycling plastic but also upscaling the work of Conserve India, an NGO founded by her parents, Anita and Shalabh Ahuja, in 1998. The NGO initially focussed on energy efficiency and then moved on to tackling the plastic menace in Delhi.

They zeroed in on thin plastic bags. These bags don't have any resale value so they become an environment nightmare and leach into soil and water. Cows eat thin plastic bags and die.

Conserve India experimented with a process which converted plastic into sheets from which they made products like seat belts, life jackets and even tyre tubes. Mostly, these would be exported to countries in Europe where environmental consciousness was high.

But over the years, the Ahujas felt that Conserve India had simply become an export company. That wasn't their objective when they started. For a while, they shut down their factory and began to work on other projects their non-profit was involved in.

"In 2017 we noticed that the market for sustainable products was picking up in India," says Kanika. "So we launched Lifaffa as an independent social enterprise." They thought things through and decided that they wanted to revive their plastic project but would now train groups in upcycling discarded plastic bags and decentralising production in India.

Lifaffa also got funding from Ashoka, an international non-profit that identifies and helps social enterprises round the world. "Lifaffa is now the marketing brand for the three groups that we train in converting plastic into saleable products," says Kanika.

Lifaffa has recently started working with Afghan refugees

Currently Lifaffa makes accessories such as handbags, notebooks, laptop sleeves and wallets at prices from ₹600 to ₹4,950.

Lifaffa uses low-density polythene bags and multi-layered plastic bags like discarded chips packets to create fabrics. The plastic is collected, washed and sorted according to its colour. No dyes are added.

The plastic bags, according to their colour, are then layered on top of each other and compressed by a machine. The final product is a sheet of thin plastic fabric. This is then cut and stitched into attractive bags.

"For now, Lifaffa creates bags, but the material can be used to make lampshades, table mats, blinds and even footwear," says Kanika.

Selling their finished products is not a problem, says Kanika because in the past 15 years Conserve India has developed a network of likely buyers. "We had our buyers — retail shops which would take products from us. We would train groups and then market their products under the brand name of Lifaffa," she explains.

Lifaffa is training three groups: rag-pickers, a tribal group in Nashik in Maharashtra and Afghan refugees in Delhi. The rag-pickers convert plastic waste into fabric whereas the tribal group and the Afghans craft the fabric into products. Their training extends to a year. Lifaffa's parent organisation, Conserve India, undertakes training of the groups.

The Afghans were first trained to make bags from cloth. "That's because cloth is the easiest material to work with. We gradually trained them to work with our handmade recycled plastic, which is on the same level of complexity as leather," says Kanika.

The process of creating the handmade recycled plastic isn't complex. "We train them in collection, sorting, washing and then using the machine," says Kanika. "Training them to create fabric takes three to four months."

Conserve India ensures that the group learns the procedure and is able to work independently. "Only when they become entirely self-reliant, like being able to get their own orders, will we move on," says Kanika. That process could take two to three years.

Earlier, Conserve India would pay rag-pickers according to the amount of plastic bags they brought in. But now they don't since their objective is to create a network of sustainable businesses. Instead, Conserve India trains them in accounting, marketing, networking and client interface.

"Our biggest challenge is changing mindsets. Everyone wants to be paid immediately. Building a business takes time. Creating an entrepreneurial mind shift is most challenging," says Kanika.

Rag-pickers make ₹40 per kg if they sell only plastic bags. But if they learn how to make sheets of plastic fabric, they can earn ₹220 from every one square metre sheet.

Both Conserve India and Lifaffa receive grants for their work. But Lifaffa is well on its way to becoming a sustainable business. Last year, Lifaffa earned ₹20 lakh out of a total revenue of ₹1 crore. And it is just a two-year-old business.

Kanika is looking for investors or funds to the tune of ₹2 crore to help Lifaffa upscale. She is also considering licensing the technology that they developed 10 years ago to interested parties across the globe. "In those days, the vision wasn't about scaling, but about ensuring people earned a livelihood," she says.

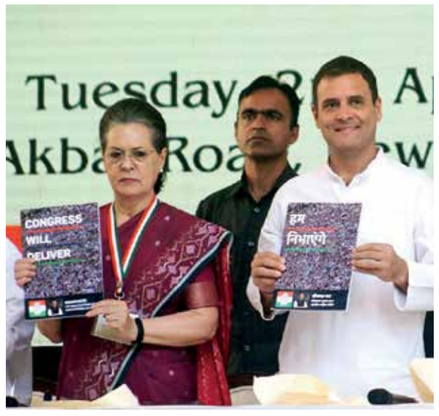
"I need roughly ₹80-90 lakh to reinvest in R&D and to hire skilled people, consultants for marketing as well as for automating our technologies and processes. Nobody wants to fund R&D. People think there aren't any returns on it," she says. ■

What's manifest in manifestos

DELHI DARBAR

SANJAYA BARU

A party political manifesto is supposed to impart distinct brand identity to a political party and its leadership so that voters, as consumers of ideas, can take their pick. So what distinguishes one party manifesto from another? It is a difficult question to answer when so much in most party manifestos appears in so many others. Consider the manifestos of the two major national parties, the Bharatiya Janata Party (BJP) and the Sonia Congress. Substantial portions of each manifesto overlap with the other. Indeed, it was not an unfair comment or an exaggeration when Arun Shourie dubbed the BJP platform as "Congress plus cow"! That distinction, however, has been blurred after Rahul Gandhi turned the Sonia Congress into 'Congress plus cow plus *janeu*' in search of upper caste votes in Madhya Pradesh.



Shourie's dig apart, the fact is that many of the major programmes taken up by the Narendra Modi government since 2014, like Make in India, Swachh Bharat and so on, were initiated by the Manmohan Singh government. What Modi can claim is that his implementation was better. So should one judge political parties on what they say or what they do? Manmohan Singh would often say that a political party should not be judged on what it says when in opposition but what it does when in government. How do political parties fare on such a comparison? What, for example, is the key differentiator between the Manmohan Singh and the Modi governments?

The economy performed much better during Singh's first term (2004-09) than Modi's, though it began faltering during Singh's second term (2009-14) and picked up only slowly during Modi's. On foreign policy and national security much is said on both sides in their respective favour but the bottom line is that there is no significant difference. If there has been a change it appears so far to be more episodic, as in the attack on Balakot terror camps in Pakistan. It remains to be seen if this episode marks a strategic shift.

While most of the text of the two manifestos run parallel to each other the visible differentiator is the focus of the first chapter of each manifesto. Chapter One in the Congress manifesto is on employment. Chapter One in the BJP manifesto is on National Security. The campaign thus far has kept the focus on these two topics, with the BJP emphasising public concern with terrorism and national security as the key issue and the Congress campaigning on the promise of more and better jobs. However, when it comes to dealing with the two challenges — of terrorism and employment — the solutions offered by the two national parties are not very different. Thus, even when they disagree on prioritisation of what is important to the nation and the voter they do not disagree radically on how to deal with a given problem.

An important issue that does distinguish the BJP from the Congress is, alas, the approach towards the Muslim community. The BJP dispenses with all minorities, including the Muslims, with a single sentence: "We are committed to the empowerment and 'development with dignity' of all minorities (Muslims, Christians, Sikhs, Buddhists, Jains and Parsis, etc)." This sentence may as well have been dropped since it means nothing and certainly does not address the concern often expressed by the Muslim community across the country of being treated as second class citizens. The legitimacy of that concern is not the issue. The fact that it exists and needs to be addressed is and it is time the BJP faced the issue fairly and squarely since it is emerging as a pan-Indian national political party of government and is no longer the party of just 'Hindu and Hindi'.

Just as the Sonia Congress has to end the domination of one family — of Sonia, her children and grandchildren — if it wishes to be regarded again as the Indian National Congress, a normal national political party and not just another feudal outfit, like so many caste-based regional parties, the BJP must normalise its approach to the Muslim minority if it wishes to be regarded as a truly normal national political party. I know it's a tough call. The Sonia Congress cannot think of life without 'The Family'. The BJP does not know of life with the Minorities. The Congress needs a new imagination to throw up new leadership. The BJP needs more imagination to genuinely reassure minorities.

So, while the Congress and the BJP may have similar views on economic policy, foreign policy, social welfare and national security, both suffer from the burden of the past — the legacy of the Nehru-Gandhis in one case and the memory of Muslim rule in the other.

What of the manifestos of the many regional parties? Does it matter? Is there much to choose between the DMK and the AIADMK in Tamil Nadu, the CPI(M) and the TMC in West Bengal, the TDP and the YSRC in Andhra Pradesh? Tweedledums and Tweedledees. Odisha and Telangana are different because in neither state is there any opposition party of any consequence. Bihar may be the only exception. Nitish Kumar scores over Lalu Yadav's family.

So on what issue will this year's national election turn? It seems the decisive factor is leadership. The BJP has a leader of national standing. Others do not. The non-BJP parties refer to 2004 and how Manmohan Singh emerged out of the shadows to lead a non-BJP government. Will that be a possibility on May 23? The answer would depend on the numbers. So far the bets are that the BJP and its friends will have the numbers to return Modi to power. If the BJP falls short on numbers, a Deve Gowda Mark-II or a Manmohan Singh Mark-II will have to step out of the shadows. ■

Sanjaya Baru is a writer based in New Delhi

Some genuine issues

BACK TO SCHOOL

DILEEP RANJEKAR

THE journey from Raipur to Dharamjaygarh block in Raigarh district of Chhattisgarh on a hot and dry April day seemed endless. The sun was blazing with all its might, announcing the arrival of summer. Leafless trees, a few paddy fields along the banks of the Mahanadi, the longest bridge in Chhattisgarh and dry forests were some of the highlights of our drive to Dharamjaygarh.

The mirage on the expressway appeared real. Despite the heat, our vehicle was comfortably cool. It was past 1 pm and we were hungry, since all of us had eaten breakfast before 8.30 am.

My colleagues, who were familiar with the route, had warned me that there wouldn't be a decent restaurant on the way.

Suddenly, at around 1.30 pm, out of nowhere, we spotted a *dhaba*. We instantly parked outside the dilapidated eatery with plenty of apprehensions about the quality of food. The bare-bodied cook, sweating profusely due to the intense heat under the tin roof, agreed to prepare some *bhindi* and yellow *dal* without spices. He almost met our expectations of minimum oil and no chillies. As a bonus, he also served a dry vegetable-potato preparation and a salad of cucumber and onion. There were several drums filled with water and a young man stood with a steel jug, offering us water to wash our hands since there were no basins.

On the route, there were several government schools where work was going on like normal despite the temperature being around 42 degrees Celsius. Many children were even playing in the sun.

At 4 pm, we entered the lovely premises of the District Institute of Education Training (DIET) at Dharamjaygarh where the DIET principal had invited us to use three rooms for our Teacher Learning Centre. Around 35 teachers had gathered and discussions began around half-past four.

After brief introductions by the teachers (an almost equal proportion of men and women), we asked them why they had come to visit our Teacher Learning Centre after already spending nearly seven hours in school. The summary of their responses was: "The members of the foundation treat us with respect. We get an overall perspective on education and its strong link with society. We now view children and their learning process differently. We understand the purpose of teaching a particular subject. All this has given a meaningful purpose to our work as teachers." They also said they got useful suggestions on how some difficult elements of subjects could be presented to the children.

They peppered their conversation with talk of playing badminton in the small court that the foundation had created outside the Teacher Learning Centre and how a particular woman teacher could play for a full hour without tiring.

There was significant discussion on a moot question — whether there should be just one teacher teaching all subjects from Classes 1 to 3, or different teachers for languages and maths. While the house was divided, most of them felt that there should be different and specialised teachers to teach these subjects. Many of us recalled how we had just one teacher for the full year teaching all subjects and we did not feel there was any problem with this system. It helped the teacher develop a comprehensive understanding of each child and establish close relations with the children as well as their parents.

One of the primary class teachers challenged middle school and high school teachers to come and experience how exhausting the job of a lower primary school teacher is.

However, many other teachers felt that these formative years are the most important learning phases in a child's development and a lot depends on how they cope with ability in literacy and numeracy for building subsequent understanding. They maintained that the job of teachers is critical and difficult during this phase, given that most children do not have parental support or a learning environment at home.

One of the primary class teachers challenged middle school and high school teachers to come and experience how exhausting the job of a lower primary school teacher is. The typical question asked is — "How do you familiarise a child with numbers or words and sentences in the absence of any prior exposure to literacy or numeracy?"

The problem gets compounded when one teacher has to teach children from several grades together in one room. Multi-grade teaching is the norm in more than 60 percent of government schools today. One of the teachers learnt that I am a member of the Central Advisory Board of Education and asked me why, at policy level, the government is not taking a decision to have a separate classroom for each grade and one teacher for each classroom.

I informed him that this is precisely what the sub-committees appointed for 'Improving the Quality of Government Schools' have recommended. Teachers expressed a lot of frustration about the government not solving basic issues and not honouring commitments made in the Right to Education (RTE) Act of having a certain teacher-pupil ratio in every school.

Are these not very genuine issues? That teachers must be treated with respect. That teacher education ought to create an essential perspective of the important role of teachers in child development, of why education is organised into subjects, of the purpose of teaching each subject. That sufficient intellectual challenges ought to be created for teachers to think through in-service teacher training. That we must recognise the criticality of primary school teachers and the difficulties that they face. That we must fully equip them to fulfil their role by not burdening them with multi-grade teaching.

It was so clear to us that the majority of teachers have the willingness and ability to understand the importance of child development and appreciate their role in contributing to such development. Their work is tough and without adequate support, they struggle to contribute. Despite extreme heat or cold, political stability or upheaval, the school is one institution that keeps functioning, braving constant change. If society and the education system would enable teachers through infrastructure, budgets, an encouraging environment and recognition of the challenging situations under which they function, our teachers could do wonders for the children and the nation. ■

Dileep Ranjekar is CEO of the Azim Premji Foundation

The trust deficit

VILLAGE VOICES

R. BALASUBRAMANIAM

A few years ago, I was in Bengaluru to attend a meeting called by the government of Karnataka. On my way to the venue, the taxi I was in stopped at a traffic light. Within a few seconds, a young lady with a child strapped to her shoulders came up, seeking alms. She explained that she was a single mother whose child was sick and she needed money for the baby's medical treatment.

My thoughts immediately raced back to an article that had recently appeared in a national daily about how one- and two-year-old babies were rented out to professional beggars. And how these babies were usually given cough syrup regularly to ensure that they were drowsy and slept through the entire day. Without waiting to think, I immediately confronted the young woman with questions. She retreated in fear. Not for a moment did I consider that what she narrated could be true and that this child may need medical treatment. As I sat thinking about this incident, I wondered how I had based my views on a newspaper article and concluded that she could be a con-woman. I was also sad and ashamed that I had wired myself into not believing that she could be telling the truth.

A different kind of incident happened a few months later on another of my visits. I was walking down a busy street in Malleswaram, a bustling middle-class suburb in Bengaluru. Unable to bear the traffic and jostling crowds, I was looking forward to leaving the place as soon as I could. It was then that I noticed a woman, around 25 years old, walking in the middle of the street. She suddenly looked at me and asked if I could help her reach the nearby bus stand. It was then that I noticed the white cane in her hand. Holding her hand, I started leading her across the street towards what I thought was the bus stand.

I politely asked if I could help her onto the pavement instead of walking in the middle of the street. She told me that she preferred to walk on the street as she found it easier to negotiate than the uneven pavements. She recounted how she had fallen many times on the pavement and realised that it was wiser and safer from her point of view to walk on the carriageway. She just couldn't trust the local civic authorities to ensure a safe pavement that people like her could use confidently.

She was humming as we walked along, and I found her happy face fascinatingly different. Engaging her in conversation, I learnt that she was planning to complete her graduation and was confident of doing so in the next few years. As I helped her along, a strange thought hit me. I wondered how she could trust a complete stranger to help her. I asked her and the reply left me dumbfounded.

She said that at least three to four people helped her every day. Her logic was simple. Despite all the evidence and news of women being abused and harassed, she had not come across a single instance when the trust she placed in complete strangers was ever misplaced. She said that she always received trust and goodness from people whom she trusted completely. She could not understand how it could be otherwise.

What a wonderful explanation this was for a person like me. Society and its complex demands have resulted in many of us being brought up not to trust people today. Children are told to be wary of strangers. We have come to believe that the meter in every auto or taxi that we hire will be doctored. We believe that every vendor selling fruits, vegetables or flowers by the streetside is out to cheat us. People and governments are increasingly growing wary of NGOs and the trust deficit only seems to be widening. Trust has, indeed, become such a rare commodity that it was wonderful to hear this lady's simple deposition. What a wonderful world it would be if we could all learn to trust each other and allow ourselves to be trusted. For only when we trust can we expect people to be trustworthy.

As I sat thinking about these incidents, I realised how easily we build and sustain images of others and ourselves in our minds. Over time, we soon start stereotyping them and expect them to behave exactly as we expect them to. Any variance — physically, emotionally or intellectually, always seems strange and we cannot come to terms with any movement away from the benchmarks that we set for them.

A recent study by the Centre for the Study of Developing Societies (CSDS) in Delhi and the Azim Premji University, Bengaluru, has brought out the pattern of trust and trust deficit in several organs of the State. What is disturbing is that people seem to trust our politicians the least. Public representatives, who in a democracy are endowed with the mandate of legislating and shaping policies and programmes on our behalf, seem to be the least trusted. With elections around the corner, several senior politicians have told me in private that the electorate cannot be trusted to vote for them even after doling out money and other freebies.

What a wonderful world it would be if we could all learn to trust each other and allow ourselves to be trusted.

The institutions of democracy and governance need high levels of trust amongst their several stakeholders for human development to be inclusive, equitable, just and fair. Without trust in these institutions and in citizenry, the consequences will be immeasurably negative and possibly irremediable. What we now need is for each one of us to work together to create an ecosystem where every relationship begins with trust, similar to the young woman's trust in me on that hot summer day. And this needs to begin with each one of us. We need to take the first step in what will be a long journey of learning to trust others and allowing ourselves to be trusted. ■

Dr R. Balasubramaniam, founder of the Swami Vivekananda Youth Movement, Mysuru, is a development activist and author. www.drrbalu.com

What job resumés reveal

HERE & NOW

MAJA DARUWALA

WE recently put out a call for a deputy head of a small non-profit start-up involved in promoting legal literacy. With that came the joy of ploughing through some 300 applications for a single post that required "minimum 15 years' experience in law or relevant field; salary negotiable".

Applications came from all kinds of people: chartered accountants, retired civil servants, chief financial officers, men in public relations, statisticians and even an NRI or two, who unabashedly felt "the country needs people like me".

In line were a surprisingly large number of agri-business specialists, water and sanitation experts, health professionals and office administrators — all of whom seemed to be having a hard time in the job market.

There were the overqualified ones too — bank managers, professors in finance and biometrics, who probably did not get a look-in because I don't understand words like MNHPH. There were the dreadfully underqualified ones who had just completed some diploma in social work. A slew of retired civil servants with 'vast knowledge' too seemed to feel that they had missed their calling over the last 35 years and were now ready to 'control an efficient team'. A hospital administrator just knew 'she would be appreciated for her long experience with compassion'.

An 'experienced banker' intrigued us. Mid-career, he suddenly wanted to be 'meaningful' and who can blame him. Young and enthusiastic when he first joined his profession, I wondered as I read his covering letter, if he was now a cynical husk of a man disillusioned by crass commercialism, leaving his post before he was made redundant or because he didn't want to be the small fish caught in the net of some NPA scandal even as the bigger ones swam off to their margaritas under the palm trees of Mauritius.

Some had definitive services to offer without reference to whether they were wanted or not: "I am willing to join your organisation as a tax officer." Humbler ones were sure we would "benefit greatly" from their long experience in increasing the market share for chemical fertilisers. Foolishly, I could not make the connection with legal literacy, but that's me — linear thinking and lacking imagination. Then there were those who would boldly go where angels might fear to tread: folks who had worked their entire careers on government grants swore they could raise lakhs for our non-profit enterprise.

A surprising number of enterprising onion cultivators wanted to switch their field to law. A special favourite of mine was the guy who felt he was particularly suited to 'grassroots' work because he had ground level experience in geology. There was even one who couldn't decide on his/her gender but spoke of his/her self in the third person, insisting that "he/she is efficient, competent and responsible for all aspects of administration". About 60 percent had "visionary leadership skills". Some, though, had 'vizonary' leadership skills that set them apart from the misspelling herd. Sadly, it did not. He had a lot of competition in the misspell arena. Then there was the lovely whose "pleasure" it was to offer me "many briefs I have." Why not, I say, why not? In a world of innovation, what selection panel can refuse such allurement.

My heart went out to this diverse crowd of jobseekers. Most were small town folk with big degrees in useless subjects from worse universities.

A good proportion felt that the essential requirement of 15 years' experience in the job description was just me kidding and would quite naturally be waived because they had just got a very fresh degree in social work that year. One person who wasn't going to waste my time came straight to the point: "I'm earning 15 Lakh p.a. how much you are giving" (no question mark). Another was even more direct and ended his covering letter with the threat "I want words with you now." There was love in them letters too: a woman whose skill set involved poultry development began her letter with a sincere wish for my "wellbeing and happiness". You gotta give credit for good intentions even though in this case they paved the way to the waste basket.

Finally, there were those who just wouldn't take no for an answer. Even while I admire their grit, I do curse with a vehemence — that will ring through the cosmos — those who sent in more than one application to vet. For the ones who sent not one, not two, but three, there is a special place in hell.

Everyone, almost without exception, knew for sure they could contribute to the "noble work" of our "esteemed organisation". But it was equally clear that 90 percent had not troubled to understand the specs or go through the simple precaution of reading the website before offering to raise our profitability, agri-output, or market outreach.

It was easy to dismiss with heartless cruelty those who capitalised all adjectives and nouns nor kept to a modicum of consistency — even when being grammatically wrong.

So a word for the job applicant. For the just-out-of-college ones I say: read the job description. If it says 15 years' experience it is essential not to read it as 15 days. If it says you need some legal knowledge don't emphasise you can read and write Chinese. While suggesting you have field and grassroots experience don't say you 'know bottoms up'. It's not nice and makes me worry about a visitation from the #metoo movement. Try to avoid saying you are sending your "updated cv only for your eye" because it makes you sound like an out of work spy, more needy for cloak and dagger work than you really are qualified for. Finally, for the Lord's sake and your own, use the spell check.

But beyond the private indulgence of a small chuckle my heart went out to this diverse crowd of jobseekers. Most were small town folk with big degrees in useless subjects from worse universities. Each — even the cut and paste ones who copied off the net — had probably spent hours of effort to present themselves well. There was so much hope in their letters and so much desperation. What a cruel joke we play on our own when we half-educate them and leave them to face an impatient competitive world.

I can only wish them well and let them go. ■

Maja Daruwala is Senior Advisor, Commonwealth Human Rights Initiative, New Delhi

A nursery for a Sunday bazaar

Earth Collective brings organic growers together

PICTURES BY SHREY GUPTA

Rwit Ghosh
New Delhi

WHEN Arjun Sahani, a mountaineer, found farmers growing crops organically in the upper reaches of Himachal Pradesh, he started a company called Nature's Soul with the idea of selling their produce in cities. It didn't work out quite as he had envisioned and he took to outsourcing organic agriculture to farmers on the outskirts of Delhi.

Sahani now has a shop for organic products in Defence Colony's tony C Block Market, but even so the logistics of reaching customers is daunting for growers, particularly for those with less money and social heft than him.

For the past several Sundays, however, small growers have gained access to the salubrious environs of Sunder Nursery, where the Earth Collective, encouraged by the Aga Khan Trust for Culture (AKTC) organises a market to bring buyers and sellers together.

Started in 2016 by Meenu Nageshwaran, a vegan chef, the Earth Collective has only recently moved to Sunder Nursery.

With a flowing scarf wrapped around her and a mug of tea in her hand, Nageshwaran says, "I used to wish that organic farmers would find a place to sell their produce. It's funny how I ended up creating that platform."

The market offers a variety of products — fresh fruits, vegetables, pickles, pashmina shawls and more. There are live cooking stations that rustle up vegan meals.

Prior to the formation of the Earth Collective, organic farmers in the Delhi-NCR region would sell their produce at *melas* or pop-up markets. Sales were poor and sometimes they would pay as much as ₹15,000 per stall just to get some visibility.

Small farmers and entrepreneurs aren't adept at marketing. More often, inexpensive organic fruits, vegetables and foods don't get sold because people just haven't heard about them.

So it's easy to see why they have found solace at the Earth Collective in Sunder Nursery. "Earlier, I'd find many organic farmers and entrepreneurs tucked away in small pockets of the city. The Earth Collective has become a concentrated space for all of them. We also take care of everything," says Nageshwaran.

The Earth Collective is now a fairly expansive market for farmers in the Delhi-NCR region. It is also sort of exclusive. Nageshwaran is choosy about who can join. "It's the easiest and at the same time most difficult market to get into. If you hand me a brochure, telling me how many shops you're in and that you're on Amazon, forget it. But if I see a glint in your eye, and hear the passion in your voice, I know that I don't have to ask too many questions."

Fresh fruits and vegetables come from organic farms in and around Delhi

Arjun Sahani at the Nature's Soul stall

Stall owners are more than willing to talk to you at length about their products. Some, like Nature's Soul, are doing better but the going wasn't easy, says Sahani. "It was tough in the beginning but, as word of the farmers' market spread, we started to get customers, though numbers were small. People would ask questions about our produce and how much we charge. But now I can definitely say that the number of customers who come to the market is growing."

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Earth Collective's founder, Meenu Nageshwaran

Anish (left) and Indrani (right) from the House of Nino

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With more farmers turning organic, prices have come down. "Around five years ago I used to buy organic apples for ₹400. Now I personally sell them for ₹280 per kg. So, definitely, prices have been decreasing year on year," says Sahani. Nature's Soul was one of the first to join the Earth Collective. The company was founded roughly four months after Earth Collective began.

Interestingly, Nageshwaran has also ensured that stall owners don't compete with each other for customers. "She sorts out the vendors so that two people don't sell the same things. This way, we don't cannibalise each other's sales, everyone has sufficient produce and there is minimal waste," explains Sahani.

Many stalls at the Earth Collective, like Sahani's, participate regularly but there are others who come on a rotating basis. Most stalls that sell fresh produce are regulars, while the ones that sell freshly cooked food, household objects, or fresh fruit juices, rotate on a weekly basis.

The House of Nino is one such rotating vendor. Its owner, Indrani, sells pashmina garments that she has sourced all the way from Ladakh. Indrani works with the Changpas, a nomadic tribe that lives in southeast Ladakh.

"We wanted to tell people where and how pashmina comes from. It was important to us to bridge the gap between the producer of pashmina and the customer," says Indrani.

Profits are given back to the community though not always in the form of cash. Instead, House of Nino provides the Changpas with what they lack like solar powered rechargeable batteries or books for their children. "We ask them what they need. Practical things are what they benefit from the most. We give them books but they don't always relate to them."

The prices of House of Nino's pashmina garments — shawls and stoles — range from ₹3,000 to ₹5,000. These are reasonable prices. "People really appreciate the work we do and are always surprised at the prices," smiles Indrani. "Some stores charge up to five to eight times the price of these items. It's very similar to how the diamond industry works by creating an artificial scarcity."

Greens fresh and wholesome

Many stalls at the Earth Collective participate regularly but there are others who come on a rotating basis.

Like Sahani, Indrani says she chanced on Nageshwaran. "We just happened to meet one day. She invited us to one of her exhibitions. We attended and we just loved it," says Indrani.

For Nageshwaran, Earth Collective is more than a market. "We're doing something on a much deeper level. I'm trying to help create memories and stories," she says. "There are children as young as five who wake up their parents on Sundays and drag them here. The children are the ones choosing apples and vegetables. That is what I want."

The Earth Collective's market resembles a close knit family. As fresh produce vanishes off the shelves, stall owners and customers fraternise, laughing, before they go home and return the next Sunday. ■

The Nizamuddin basket

THE Zaike-e-Nizamuddin, a lively women's collective that runs a catering unit, sets up a stall every Sunday next to the Earth Collective farmers' market. The stall is sponsored by the Aga Khan Trust for Culture (AKTC). The women cook foods that are traditional to Nizamuddin, a historical locality in central Delhi. Every Sunday they sell a range of foods, from kebabs to biryanis.

What attracts most attention is their personalised picnic baskets filled with delicious foods. A basket for one costs just ₹300 while a basket for two is priced at Rs 500. There are vegetarian and non-vegetarian options. Each basket has chicken or vegetable kebabs, *paranthas*, a refreshing drink, *kheer* in a clay pot, an orange, a *laddoo,* which is a specialty of Zaike-e-Nizamuddin, and a little gift from Inshah-e-Noor, another women's collective set up by AKTC. ■

A panoramic view of the historic site of Nalanda with the Great Stupa on the left

Nalanda alive in its ruins

But its repository of knowledge has been lost

Partha S. Banerjee
Patna

RUINS make great tourist attractions. Ruins of ancient palaces, of forts, temples. But ruins of a university?

As you wander about the red brick remains of Nalanda, you hear not the sound of trotting hooves or the fanfare of a royal court. It's not power and glory that the ruins evoke but the depth of ancient India's learning, of a vast campus humming with eager students, monks many of them, learning and engaging with the brightest minds of the land.

There can't be too many sites like Nalanda across the world, because there weren't too many universities back in the ancient world. And few, surely, as big as Nalanda. Sprawling across south Bihar's nondescript countryside, Nalanda Mahavira, as the university was called, flourished for some 800 years from the fifth century, as perhaps the greatest centre of learning in that age, before it was ransacked by soldiers led by the Turkic chieftain, Bhaktiyar Khilji, in the year 1193.

Nalanda is easily reached from Patna, about 90 km away. Most tourists combine a trip to the ruins with a visit to Rajgir, less than 15 km away, and Bodh Gaya, another 100 km to the southwest. The combined tour forms what is called the 'Buddhist circuit'. Nalanda was the centre of Buddhist learning. It was at Bodh Gaya, of course, that the Buddha attained enlightenment 2,500 years ago as he sat under a peepul tree, and it was at Rajgir, then capital of the Magadh kingdom, that he preached extensively and whose rulers, Bimbisara and Ajatashatru, revered him and became his followers.

It is in Rajgir, in fact, that most tourists camp when visiting Nalanda. The ancient capital, now a small, unremarkable town with a congested main street, is where most hotels are located. Nestling at the base of a hill range, Rajgir has its own attractions: a park called Venu Van with a prayer enclosure and a lake that King Bimbisara had gifted to the Buddha for his stay; Vulture's Peak (Gridhakuta), reached by a ropeway, where the Buddha meditated and where stands a giant domed stupa built by a Japanese mission; and the ruins of a snake cult temple called Maniyar Math and rock-cut chambers called Sonbhandar that were supposedly the treasury of the Magadh empire. A great way to do the rounds of Rajgir's sights is to take a horse-drawn tonga; the ride is fun in itself.

Most tourists head first to Nalanda, some 15 km away. The excavated ruins lie about 300 m off the road and, entering through a leafy path, you face an extended red brick wall, with no hint of the archaeological wealth that lies beyond it. A small unremarkable doorway leads you into a passageway and stepping in, you see on your right a vast complex of roofless rooms, and corridors, on multiple levels. These are the ruins of a monastery, Monastery Number 5. Eleven such monasteries have been unearthed in Nalanda, each comprising several rooms or cells where students, mostly monks, lodged and studied.

Two marble columns on the terrace of Temple 12

Ahead, at the end of the passageway, a second doorway opens up to a vast expanse of ruins, remains of huge red-brick structures, spread across clipped lawns (ASI-maintained) with neatly laid out pathways. Here finally, as you gaze in wonderment, is the campus of the ancient university, extending across a rectangular stretch about half a kilometre long and a quarter across.

Far to the left, at one end of the rectangle, rises a towering giant pyramidal pile with steps leading up to the top; it is a sight familiar from school history books. The most iconic of Nalanda structures, this is the Great Stupa. As you get closer, you notice two tall corner towers beside the giant pile, embellished with panels of stucco Buddhist carvings and a host of votive stupas all around. There are carved panels too on sections of the pyramidal pile.

With wooden barriers installed in 2016, when

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Nalanda was declared a UNESCO World Heritage Site, tourists cannot now wander around and explore the Stupa; they must content themselves with seeing it from the adjacent pathway. Archaeologists believe Temple Number 3, as they call it, was originally the site of the stupa (reliquary monument) to Sariputra, one of the Buddha's earliest disciples. A thousand years later, when the university began being established, it was built over as the main temple, and in the centuries that followed, it was successively built upon and enlarged.

Built upon and enlarged over the centuries also was Monastery Number 1, its ruins occupying one corner of the excavated Nalanda rectangle. It is now a warren of roofless cells where monk-students lodged, and a courtyard on a higher level with the ruins of a central temple in its centre, a colonnaded (only the column bases remain) hall for lectures (apparently) at one end, and another hall (its roof still intact) with arched doorways. Historians believe Monastery 1 was the oldest and largest monastery in Nalanda and was at least two storeys high.

Some of Nalanda's other buildings soared much higher. The university's famous library was housed in three edifices, one of which was nine-storeyed. The Chinese scholar-explorer, Hiuen Tsang (Xuanzang, in the new Chinese spelling), who spent over two years at Nalanda in the seventh century, wrote of "richly adorned towers, and the fairy-like turrets, like pointed hill-tops" in describing the university's buildings.

Much of what is known about ancient Nalanda, in fact, comes from the writings of Hiuen Tsang and another Chinese traveller, I-Tsing (Yijing), who spent 10 years at the university. Hiuen Tsang was much revered in Nalanda and was asked to teach at the Mahavira but he wasn't the only foreigner at the university. Nalanda, which at its peak had 10,000 pupils, drew students of Buddhism and philosophy from across southeast and east Asia, and even Persia, Afghanistan and Turkey. Indeed, a king from Sumatra (in modern-day Indonesia) even built a part of Monastery 1.

Monastery 1 is the first in a line of eight contiguous monasteries, built along the eastern side of the Nalanda rectangle. As you visit them one after another, you will find a similarity in layout: a central quadrangle lined on four sides with uniformly-sized rooms. The quads, you will find, all had wells and a set of neat elongated cavities that were apparently ovens. From the evenly spaced pillar base remains all along the sides of the quadrangle, it is evident that a verandah, with roof supported by pillars, ran along the court, onto which the rooms opened. The monastery buildings, as remains of staircases indicate, were at least double-storeyed, with 80 or more rooms. The rooms not only lodged the student-monks but also teachers, though one room on the quad's far side, facing the entrance, usually housed the monastery's shrine.

Opposite the monasteries, and in a line with the Great Stupa, are three huge mound-like ruins: these are the remains of large temples, and typically, you visit them after having finished with the monasteries, starting with the farthest of them, called Temple 14. Not as impressive or towering as Temple 3 (Great Stupa), 14 has a shrine (now bereft of any altar) at the top of its gently rising pyramid, approached by a sweeping staircase.

The most impressive by far of the three big temples is Temple 12. The walls of its vast square base are decorated with a series of panels housing bas-relief Buddhist carvings, and on the terrace, two carved marble columns still stand, marking the entrance of what apparently was a shrine. The western forecourt of the temple is crowded with votive stupas, some beautifully carved, with friezes of the Buddha.

The temples obviously played a central role in Nalanda. Descriptions left behind by the Chinese visitor, I-Tsing, speak of a strictly disciplined life at the university with the student-monks following a series of religious rites that included attending service at the temples each evening. Though founded by the Gupta emperor Kumaragupta (c. 415-455), Nalanda gradually turned into a centre of

Ruins of a monastery. It used to be lined with cells. A well and oven can be seen in the middle

Nalanda at its peak had 10,000 pupils. The famous library was housed in three edifices, one of which was nine-storeyed.

Buddhist learning, especially during the reign of Harshavardhana (seventh century), who had converted to Buddhism and took great interest in the university, building several additions and regarding himself as a servant of the monks.

Between the eighth and 12th centuries, Nalanda came under the patronage of the Pala kingdom of eastern India, where the reformist Mahayana Buddhism became gradually influenced by the magical Tantric cult to transform into what is called Vajrayana Buddhism. Nalanda, which over the centuries had emerged as the principal seat of Mahayana philosophy, embraced Vajrayana too, and many of its monk-scholars, among them Atisha and Santarakshita, travelled to the lofty plateau of Tibet, on the invitation of its kings, to help establish Vajrayana Buddhism there.

But Buddhism wasn't all that was taught at Nalanda. Grammar, logic, literature, mathematics, astronomy, medicine and astrology were all taught. Its famed library contained tens of thousands of manuscripts and texts on all these subjects, and it is said it took three months for it all to burn when Nalanda was ransacked in 1193.

Khilji and his soldiers initially thought Nalanda was a fortress but after killing all the "clean-shaven Brahmans", discovered a "great number of books", according to one account, and only then realised it was a "college". Nalanda did revive a bit, according to a Tibetan pilgrim visiting in the 13th century, after Khilji's pillage, but only for a short while, dying out eventually with the decline of Buddhism in eastern India, and it wasn't until 1847 that it was heard of again. That year, the archaeologist Major Markham Kittoe (who also excavated Sarnath) identified the mounds that surveyor Francis Buchanan had 36 years earlier reported on, as those of Nalanda, the ancient university mentioned in historical accounts.

The Nalanda site was subsequently surveyed in 1861-62 by Alexander Cunningham, the doyen of 19th century colonial archaeology, but it wasn't until 1916 that the Archaeological Survey of India (ASI) began excavating the mounds, the work continuing till 1937 and being taken up again over 1974-82. As the ruins were uncovered, many statues of the Buddha and other Buddhist and Hindu divinities were unearthed, and most of these are today exhibited at the small Nalanda Museum, just across the road from the ruins.

Leave an hour for the museum and you can complete your tour of Nalanda by visiting the Xuanzang (Hiuen Tsang) Memorial. Opened in 2007, it is situated about a kilometre from the Nalanda ruins, beside a shimmering lake. Built in Chinese pagoda style, the memorial's cavernous hall is presided over by an imposing seated statue of the pilgrim-scholar with panels narrating the amazing story of his travels in the seventh century from China to Nalanda (and elsewhere in India), to acquire greater knowledge of Buddhist philosophy, especially of the Yogacara school.

After the memorial, as you head back to your Rajgir hotel, it's the unbelievable story of Hiuen Tsang's 17-year odyssey — from China, through the Gobi desert, through Central Asia and Afghanistan, to India, surviving robbers, not to mention extreme terrain and climate — that will probably keep coming back to your mind. And the wonder that there once was a university in India that could inspire scholars to undertake such rigours to reach its hallowed portals. ■

Deep in the jungle

Susheela Nair
Bhopal

IT was pitch dark when I reached Reni Pani Jungle Lodge, a luxury lodge on the outskirts of the comparatively less known Satpura National Park and Tiger Reserve in central India. This forested village in Hosangpur gets its name from reni, a local berry. Dinner was in the Gol Ghar which has a unique design. It features a dining area, a bar, a library and a lounge in its various corners. Old and new photos grace the walls, and handicrafts and knick-knacks collected from around the world are on display.

Fixed meals are provided using fruits and vegetables grown in the kitchen garden of the lodge. The meals, featuring Bhopali cuisine, are excellent. Alternatively, dinner is also laid out outdoors near a scenic waterfront. And, sitting on roughly hewn benches and boulders, you can also sip your favourite drink in the evening under a starry sky by the light of old-fashioned lanterns slung from trees.

I was escorted to my cottage by a personal butler with a flashlight. To ensure safety, guests are advised not to loiter around without an escort after sundown since there are chances of encountering wild animals straying into the lodge's premises from the neighbouring woods.

Located in a 30-acre oasis of wilderness, with golden meadows, waterholes and a stream, the lodge features 12 luxury cottages symbolising three distinct architectural designs. The lodge gives visitors a real jungle experience.

The units near the property's seasonal stream, the forest units and the hill units are all built with indigenous material and furnished with local materials. Not a single tree was felled in this area adjoining the protected Satpura National Park for construction. And local villagers and artisans were engaged in the construction of this eco-resort.

The alcoves, viewing decks, verandahs and large lounging windows make the cottages feel cosy. Since the lodge is totally eco-friendly, there are no water-draining bathtubs. Instead, there is an outdoor shower. All the rooms are without televisions, music systems, telephones or 'room service' of the hotel kind. I was advised to honk the horn in my room in case of an emergency at night. The highlight of the lodge is its luxury tents strategically arranged around a watering hole which ensures sighting of animals.

Unlike most other national parks in the country, visitors are allowed to walk through this classic tiger country and engage more deeply with the forest. The lodge offers multi-day walking safaris with two- to three-day options under its Satpura Under Canvas programme. This is a mobile camping and walking experience that offers a unique blend of subtle luxury in an unspoilt wilderness.

The hike begins in Panchmarhi, the area's well-known hill station, and provides ample opportunities to sight animals. It is an equally rewarding trek for birding enthusiasts. There is also the option of spending a single night in the forest under a starry sky. The lodge organises night safaris in the buffer zone, with the chance to spot nocturnal animals. Visitors can also opt for canoeing and motorboat trips in the reservoir around the national park, offering an unusual experience of the forest and its residents.

SUSHEELA NAIR

A 'ghost' tree in Satpura National Park

SUSHEELA NAIR

Aly Rashid on a jeep safari in the park

SUSHEELA NAIR

The plush interiors of a tent in Reni Pani Jungle Lodge

I opted for the vehicle safari into the forest. As the river was dry, I had to cross over to the park on the opposite side by walking on a makeshift bridge. Vehicles were waiting to ferry us into the jungle. Many of them are donated by the lodges in the area. As only 12 vehicles are allowed into the tourism area at any given time, we rarely encountered another one, so it turned out to be a private game viewing experience.

Naren, the lodge's in-house naturalist, shared interesting snippets of information about the forest and its inhabitants. We learnt that this forest gets its name from the Satpura Hills that run horizontally across central India. Satpura means seven peaks. It is also Madhya Pradesh's largest tiger reserve with an area of approximately 2,200 sq km. Interestingly, it is the only park in central India in which you can find teak and saal forests. The Satpura Hills are historically believed to be the bridge between the Western Ghats and the Eastern Himalayas. This has made Satpura unique in central India and has resulted in rich biodiversity and occurrence of some rare species.

As our vehicle wound its way through undulating terrain, we spotted a variety of animals like *chital*, monkeys, *sambar*, and jungle cats, We also saw the Malabar giant squirrel, *gaur* by the dozen and peacocks strutting around. Though the sloth bear, which is endemic to the Indian sub-continent, is frequently seen in Satpura, I had only a glimpse of one with her cub from afar. Then she clambered over a rocky outcrop and disappeared into a cave. Satpura is a birdwatchers' delight and more than 300 species can be seen. We spotted birds in plenty, including a crested hawk eagle perched on a branch. But the big cat remained elusive.

Owner Aly Rashid, of the Bhopal royal family, is also an avid naturalist. He accompanied us on our wildlife safari and knew the jungle like the back of his hand. Thanks to his dedication and commitment to conservation, Reni Pani has established very high standards in environment-sensitive practices not only in the lodge but also in the neighbourhood. "We believe in low-impact tourism, aesthetically pleasing buildings, excellent guiding services, and our ongoing work with local communities as well as our support for the Satpura Tiger Reserve," affirms Rashid. ■

FACT FILE

Getting there: Reni Pani Jungle Lodge is 11 km from Satpura National Park and 135 km from Bhopal, which is connected by rail, road and air to major cities.
Contact: info@renipanijunglelodge.com www.renipanijunglelodge.com Telephone: +91 99819 97714

AYURVEDA ADVISORY
Dr SRIKANTH

The golden spice

Turmeric is a spice that has been used in Indian cooking for centuries. It is a rhizome of the leafy Curcuma longa plant, which is indigenous to India and cultivated in some tropical countries. Turmeric (haridra in Sanskrit) is bitter, astringent and pungent in taste.

Ayurvedic practitioners have been using turmeric for a wide range of purposes for ages — as a supplement that reduces inflammation, as an aid in treating intrinsic infections and as a healing agent for external wounds.

In India, a combination of warm milk and turmeric paste/powder (called haldi doodh) is quite popular as an early morning beverage, and as a pre-sleep meditative supplement. It is believed to help in boosting immunity and metabolism.

Turmeric has a wide range of actions. It is now known to be anti-bacterial, anti-viral, anti-inflammatory, anti-tumour, antioxidant, antiseptic, cardioprotective, hepatoprotective, nephroprotective among others.

Lab experiments show that compounds in turmeric, called curcuminoids, prevent inflammation by inhibiting the molecules that cause it. Research indicates that turmeric consumed regularly at levels of about 100 mg to 200 mg a day over long periods of time reduces the incidence of cancer.

Modern medicine has begun to recognise the importance of this spice. Over 3,000 publications on turmeric have come out within the last 25 years.

The active ingredient in turmeric is called curcumin. Laboratory studies have shown curcumin to stop the replication of tumour cells when it is applied directly to those cells. The studies are from laboratory conditions and it is not know if the effects are the same inside the human body. Studies on on the benefits of curcumin in addition to standard cancer treatment are ongoing.

BENEFITS

✓ **Limits inflammation:** Turmeric has traditionally been used to support the body's innate inflammatory response. Our inflammatory response system is a swift, natural mechanism that's designed to help our body heal and repair — and then return to normal. When that system is out of balance, turmeric supports it by doing what it does best.

Because inflammation is linked to a range of chronic conditions and diseases like arthritis, Alzheimer's, heart disease and cancer, researchers argue curcumin could help reduce the risk of those diseases by limiting inflammation in the body.

✓ **Antimicrobial & antibacterial properties:** For thousands of years, turmeric has been used in traditional Ayurvedic medicine for its antimicrobial and antibacterial properties.

✓ **Joint relief:** Curcumin is the phyto-ingredient that gives turmeric its distinct yellow colour; curcumin is very beneficial for joints and supports a healthy inflammatory response.

✓ **Antioxidant features:** Antioxidants like turmeric help to bolster our immunity and fight free radicals. The spice can help strengthen the nasal passages and respiratory system.

✓ **Promotes digestion:** According to ancient Ayurvedic texts, this golden herb helps to support a healthy stomach, digestive system, colon and liver.

Laboratory and animal research suggests that curcumin may prevent cancer, slow the spread of cancer, make chemotherapy more effective and protect healthy cells from damage by radiation therapy. Curcumin is also being studied for use in many other types of cancer.

Numerous lab studies on cancer cells and relevant clinical trials conducted in the last decade have demonstrated that curcumin has certain proven anti-cancer effects. These results show that curcumin can kill cancer cells, in addition to preventing more from growing.

Studies of curcumin in humans are still at the early stages. Clinical trials are underway to investigate curcumin to prevent cancer in people with precancerous conditions, as a cancer treatment, and as a remedy for signs and symptoms caused by cancer treatments.

All said, turmeric is indeed delicious. Chugging turmeric lattes can improve the quality of life. However, I personally do not recommend consuming extracted curcumin, as Ayurveda's focus is on the wholesome value of the herb. Isolates may lead to side effects! In addition, following healthy dietary patterns and other lifestyle factors are to be considered important. ■

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PRODUCTS

Art & a story

PATACHITRA is Bengal's traditional art of scroll painting, still largely done with natural colours. Patuas or chitrakars are a community of folk artists who are painters, lyricists and singers all rolled into one. While their paintings are called patachitra, the songs they sing that narrate the stories on the scrolls are called poter gaan. This vibrant and colourful oral-visual art form dates back to the 13th century.

Banglanatak.com, a social enterprise which works with traditional artistes has organised the chitrakars, helped them make their artwork contemporary, found them markets and boosted their income. Pingla village in West Midnapore is the best-known patachitra hub. Incomes of the chitrakars living in Pingla have increased to ₹30,000- ₹40,000 per month. In the old days, the chitrakars painted scrolls on traditional themes like tales from the Ramayana and Dashavatar (the 10 incarnations of the Hindu god Vishnu) and of Muslim saints. Now they produce their artwork on a range of products — coasters, bottles, saris, T-shirts and more. Patachitra is also being used by the government for social awareness campaigns. ■

Contact: Swarna Chitrakar - 9732799107 or Manoranjan Chitrakar - 9732731776 for patachitra products.
Website: www.ruralcrafthub.com

RNI No.: DELENG/2003/11607 Postal Registration No.: DL(S)-17/3255/2018-20.
Registered to Post without Pre-payment U(SE)-10/2018-20 at Lodi Road HPO New Delhi-110003.
Dates of Posting: 3 & 4 of May. Date of Publishing: 1st of every month. Total no of pages: 36.