COUNTING ON CARING

The setting up of a new cancer hospital in Tirupati reinforces an enduring Tata Trusts commitment

THINKING IN THE PINK
The India Health Fund has been a benefactor for innovators working to ensure a healthier country

BINNING THE BURNING
Farmers in Punjab are switching from burning crop residue to environment-friendly alternatives

THE LESSER HALF
It’s critical to have more women in India’s workforce, and they deserve dignified and rewarding employment
Upwards of 140,000 cancer cases are recorded in India every year and it would not be a surprise if at least as many go under the radar. It’s a full-blown cancer crisis that the country faces, made worse by the reality that lifestyle changes and lack of awareness and testing are causing the disease to afflict more and more people. This is a sorry situation and it will take more than governmental efforts to turn the tide. The Tata Trusts have pitched in to help and our cover story tracks how they are doing so.

The Trusts — and the Tata group as a whole — have for long played a sterling role in the fight against cancer in India, the best example being the renowned Tata Memorial Hospital, founded by the Dorabji Tata Trust back in 1941. That is the legacy and inspiration behind the establishment in Tirupati of the Sri Venkateswara Institute of Cancer Care & Advanced Research (SVICCAR) by the Alamelu Charitable Foundation, an associate organisation of the Trusts, in collaboration with the Tirumala Tirupati Devasthanams and support from the Andhra Pradesh government.

SVICCAR is set to become an important centre for patients in Tirupati and its neighbouring areas, but the more substantial component of the Trusts’ endeavour is the distributed model of cancer care, comprising accessibility; high-quality treatment; affordability; and awareness and early detection. Now unfolding in seven states, this is a model with the promise of transforming cancer care and treatment in India.

Health, in a wider context, is also the subject of our centre stage section, which explains how the Trusts-backed India Health Fund (IHF) is enabling innovative enterprises to seek out and cement solutions for tuberculosis, malaria and more. The emphasis here is on other communicable diseases and underserved sections of our society, and IHF has come a fair distance in fulfilling its mandate.

We have an eclectic mix of feature stories in this edition of Horizons: women-centred lac cultivation in Jharkhand; community-led action in Rajasthan to put menstrual hygiene on the agenda; skilling that leads to employment generation in West Bengal; delivering access to drinking water and toilets in tribal villages in Gujarat; and an initiative in Punjab through which farmers are ditching the toxic practice of stubble burning.

Additionally, we have an interview with C Sreenivas of the Sanjeevani group of hospitals, where the focus is on children with congenital heart disease, and articles by Malavika Chauhan, head of rural upliftment at the Trusts, about livelihood concerns in our hinterland and how these can be resolved, and social development expert Amit Malaviya on what can, and should, be done to provide a fillip to female participation in India’s workforce. To wrap it up, images score over words in our photo feature, which frames apricot farmers from tribal communities in Ladakh.

Christabelle Noronha

We hope you will help us make Horizons better with your valuable feedback. Please do write to us at horizons@tatatrusts.org.
Contents

Vol 5 | Issue 3 | October 2022

Cover Story

06 BUILT TO SERVE
The Sri Venkateswara Institute of Cancer Care & Advanced Research is primed to plug gaps in quality of care, accessibility and affordability for patients in Tirupati and beyond

22 THINKING IN THE PINK
The India Health Fund supports innovators trying to find solutions in tackling TB, malaria and other diseases that affect underserved communities

Interview

28 ‘GOOD TO BUILD HOSPITALS, NOT TO GO TO THEM’
C Sreenivas, founder of the Sri Sathya Sai Sanjeevani Hospital in Raipur, talks about the condition of children with congenital heart disease in India and the hurdles they face in finding timely treatment

Feature Stories

33 RESIN REWARDS
A scientific and women-centric effort has lifted tribal communities in Jharkhand who cultivate lac for a living

37 STEM THE STIGMA
Menstrual health is front and centre in 200 Rajasthan villages thanks to a project that involves the community as a whole

41 AN APP THAT’S APT
Connecting jobseekers with suitable employment is the aim of a Tata Trusts-supported skilling endeavour in West Bengal

Editor
Christabelle Noronha
Email: cnoronha@tatatrusts.org

Editorial Team
Philip Chacko
Gayatri Kamath
Labonita Ghosh
Shubha Madhukar

Editorial Coordinators
Kainaz Mistry
Sonia Divyang

Editorial Advisors
Debasish Ray
Laxman Sivasubramanian
FEATURE STORIES

45 PIPE-DREAM REALITIES
Access to drinking water and toilets and menstrual health awareness have benefitted a tribal pocket in Gujarat

49 BINNING THE BURNING
The burning of crop residue, a hot-button issue in Punjab for decades, is giving way to environment-friendly alternatives

SHOWCASE

53 AN ‘A’ FOR APRICOTS
The ‘apricot value-chain development’ initiative has in its folds about 1,000 tribal farmers in Ladakh’s Sham Valley

OPINION

59 WAY TO GO
India’s rural livelihood issues can be solved by mobilising and enabling local communities to develop a sustainable future

PERSPECTIVE

63 STRUGGLING TO HOLD UP HALF THE SKY
With female participation in India’s workforce on the plunge, the time is now to give women a fair shot at finding dignified and rewarding employment
The Sri Venkateswara Institute of Cancer Care & Advanced Research is primed to plug gaps in quality of care, accessibility and affordability for patients in Tirupati and beyond. By Philip Chacko

Nitturu Khadervalli was looking for reassurance, an inclination and a willingness by the other side to understand the predicament he was in and to explain the path ahead. A small-time contractor from Rajampet village in the Annamayya district of Andhra Pradesh, Mr. Khadervalli was not asking for much, but he had not found that sort of support during the initial days of the nerve-wracking period since his wife, 46-year-old Ameenamma, was diagnosed with breast cancer.

It was a friend who told Mr. Khadervalli about the then upcoming Sri Venkateswara Institute of Cancer Care & Advanced Research (SVICCAR), the state-of-the-art cancer facility in Tirupati in Andhra Pradesh that became functional in May 2022. Ameenamma has been undergoing treatment at SVICCAR for the last two years, from the time it was a day-care centre, and she is on the mend. The prognosis is a positive for her, as also the fact that the cost of her care is subsidised and, not least, that the hospital and its staff are every bit empathetic.

“The doctors, nurses and other staff members are exceptional,” says Mr Khadervalli. “Their approach is different and there is an emotional connect; hats off to them. Financially and mentally, we are
RISING TO THE CHALLENGE

Set up initially as a day-care centre for cancer patients, SVICCAR became fully functional in May 2022 — and to good effect

**SERVICES OFFERED**
Medical oncology; radiation oncology; surgical oncology; palliative care; radiology; laboratory services

**CAPACITY**
92 beds

**COST**
₹1.8 billion+

**STAFF STRENGTH**
78

**IN ADDITION...**
Financial support; help with insurance; counselling for patients; free accommodation
more at peace.” The expenditure factor, always a burden when cancer strikes, was fundamental for Mr Khadervalli, who has spent in excess of Rs1.4 million so far on Ameenamma’s treatment, a hefty chunk of it borrowed from friends and family.

Compassion, affordability and quality of care are the defining characteristics of SVICCAR, which was created by the Alamelu Charitable Foundation (ACF) at a cost of about Rs1.8 billion on a land parcel leased by the Tirumala Tirupati Devasthanams (the trust that manages the Tirumala Venkateswara Temple). Established by the Tata Trusts, ACF collaborates with various state governments and like-minded organisations to develop an all-inclusive cancer-treatment network that includes therapy, accessibility and top-notch infrastructure and personnel.

The setting up of SVICCAR is a big help for cancer patients and their caregivers from Tirupati and the wider Rayalaseema region. This was an expanse in sore need of such a facility and its coming has lessened the ordeal of people like Vineela Reddy, whose father, 59-year-old Janardhan, suffers from lung cancer.

Ms Reddy, who runs a mobile phone shop in Pileru town in Annamayya district, is struggling to cope with the reality that her father has stage-three cancer. The only relief that shows in her pained demeanour is from not having to travel far from home to take care of him. “The staff here are good and the hospital is nearby; that’s a respite,” she says. “The doctors are optimistic that he’ll survive for a further five years.”

Heartbreak and hope
Heartbreak stories of the kind are not uncommon in cancer hospitals, but hope springs eternal when the environment makes it easier for patients and their loved ones to deal with the psychological trauma caused by the disease. SVICCAR strives to do that and Ms Reddy is appreciative of the care and treatment her father gets. “I’m very close to him and there’s only me to be here for him,” she adds. “The chemotherapy he undergoes has side effects and he has trouble managing the pain. And I have these thoughts flooding my mind ... it’s so difficult.”

For all the dread that cancer evokes, there are countless instances of the condition being tamed and cured. Tirupati-based contractor Ratnakar Reddy (name changed), certainly expects his wife, who has early-stage stomach cancer, to be hale and hearty once again, and he is just as certain she is receiving the best care possible.

“I was at ease when I heard this is a Tata hospital; that’s why we came here,” he says. “I knew this place would not chase the money — not that money is an issue for me — and I knew my wife would be in safe hands. We were upset when we first heard the cancer news but not anymore. I just wish more people get to know of SVICCAR.”

Vijaykumar Naidu, an ex-serviceman from Cherlapalli
village, also in Annamayya district, is as sure about the hospital and what it offers. His mother, 61-year-old Sarojamma, is battling second-stage stomach cancer and her chances of making a full recovery are better than ever. “Everything is available here at a concessionary rate and its run like a military hospital, disciplined and efficient,” he says. “Also, unlike some big hospitals, the staff come to you, they speak to you, they explain things to you.”

Crafting a culture of treatment and care that stands apart is central to the objectives of SVICCAR. “Our aim is to bridge the gap in terms of accessibility and affordability in cancer care, to make the hospital a hub that caters to what has been till now an underserved region,” says Shivakumar Hiremath, the medical superintendent of SVICCAR.

**Contributing to the cause**

Dr Hiremath, who retired as a major from the Indian Army Medical Corps — he also had a stint with Tata Coffee — is steeped in the values that SVICCAR swears by. “We are not a corporate entity and that spares us the pressure of being profit-driven,” he notes. “Our focus is on meeting a felt community need and on contributing as much as we can, to helping this region and the nation in the fight against cancer.”

Spreading the cancer care net to cover Tirupati and its neighbouring areas is the immediate priority for SVICCAR, but Dr Hiremath foresees a time in the not-too-distant future when the hospital begins catering to patients from elsewhere. “We expect to be operating at full capacity soon and we expect to reach every last person who requires cancer treatment in this region,” he adds.

With 92 beds, 78 professionals on its rolls — 14 doctors and 25 nurses among them — the best of equipment and a spectrum of services, SVICCAR has started on a sound footing. The financial viability of the hospital is not in question and this will get a boost once it receives an approval for Aarogyasri, the health insurance scheme of the Andhra Pradesh government.

“Given the volumes we are anticipating, our revenues should enable us to be financially viable,” says Dr Hiremath. “The point is, we will not turn back patients. We intend to tap donors, just like we have with a local philanthropist who has given us access to a building that we use to accommodate, free of cost, patients and caregivers coming from afar. We need such patrons because our charges for the economically weak are nominal.”

A daunting challenge for SVICCAR is finding competent personnel in adequate numbers. “The non-technical professionals are not a problem but the actual healthcare providers — doctors, nurses and technicians — are a different and ever-challenging matter,” says Dr Hiremath. “It is difficult to get experienced professionals for hospitals in smaller cities and towns.

“Also, there are hardly any oncology-trained nurses out there. We control what we can, so we get people with reasonable potential and we train them. We try to match the best in terms of pay packages, but there’s no way I can compete with a hospital in, say, Ireland that pays five times as much.”

The salary balance applies to doctors, too, though perhaps to a lesser extent. “Again, it’s tricky. We are satisfied with our current team but we are facing challenges in expanding the team,” adds Dr Hiremath. “What helps are the fellowships we offer and the
that it’s not as if a person dies as soon as cancer strikes. This is a prolonged disease, a chronic ailment and a disabling condition. People have to understand that and awareness campaigns are critical in the context.”

**Modest beginnings**
SVICCAR will surely overcome this challenge, just as it has so many since beginning its existence as an ad hoc day-care centre in January 2020. “Back then we had limited facilities and, right after, we were hit by the Covid pandemic, which made the situation worse,” says Nageswara Reddy, a medical oncologist who has been with the hospital for more than two years. “Now we have the exposure and we have created an identity for ourselves.”

Dr Reddy is at pains to emphasise that SVICCAR is but one piece in a much larger cancer-care ecosystem. “As a country, we have to fight against cancer unitedly. The toughest challenge is the attitude of people, and this is seen in each and every aspect with cancer patients. Take the attitude towards risk factors; so many of us make light of these or ignore them altogether. But one must remember that it’s not as if a person dies as soon as cancer strikes. This is a prolonged disease, a chronic ailment and a disabling condition. People have to understand that and awareness campaigns are critical in the context.”

Dr Reddy is positive about SVICCAR’s potential and its ability to deliver on that potential. “Firstly, we have the Tata name and that’s a big plus. We will, in time, have in place a range of modalities in treatment and care under one umbrella, from complex surgeries to bone marrow transplants to clinically oriented research. And we will add to our outreach efforts in cancer prevention and early detection.”

On the nursing front, SVICCAR has already made significant advances, despite the
disadvantages of location and a relatively paltry talent pool to choose from. “Finding competent nursing personnel is hard and Tirupati being in an extreme corner makes it more difficult still,” says Jeslin Sneha Prabha, who is SVICCAR’s nursing superintendent and previously served as a captain in the Indian Army’s Military Nursing Service. “We have to depend on local recruits mainly and we have to seek out nurses with experience of caring for cancer patients, which is easier said than done.”

Specific nursing skills
The nursing fellowship programme run by the Tata Trusts cancer care initiative feeds a critical need for SVICCAR, but there’s more to it than that. “Oncology demands specific nursing skills,” says Ms Prabha. “It’s not just about theory and practice; there is an extra amount of compassion required because the treatment of cancer patients is typically an extended process. Also, few want to be oncology nurses; the distress and the deaths can be overwhelming.”

The ‘advanced research’ slice in SVICCAR’s name has not got off the ground as yet but this will shift into gear sooner than later. “The technology advances happening in cancer care are extraordinary and this aids research in diagnosis and treatment,” says Dr Hiremath. “We will definitely play our part here. Tirupati has a lot of research institutions and that makes it ripe for collaborative endeavours.”

SVICCAR could also, down the line, get involved in postgraduate medical education in niche areas such as radio diagnosis and radiation oncology. “With research itself, I don’t think of it as a way to increase our income, but as a way to get new lines of treatment for patients who cannot afford expensive procedures,” says Dr Hiremath.

As for how SVICCAR will evolve in the years ahead, there is a second phase in the pipeline. That translates into an expansion of facilities and services. “There will come a time soon when there is a space crunch and we have to plan for that,” adds Dr Hiremath. “Additionally, we are looking at treating blood cancers and paediatric cancers and we want to build accommodation facilities for outstation patients and their care givers and, of course, for our doctors and nurses.”

Many patients treated at SVICCAR have returned home to lead healthy lives.
There is no shortage of things to say about what’s wrong with India’s health sector. There’s no shortage of silver linings here, either. One such instance is a potentially transformative cancer care initiative that is at once singular and inclusive, comprehensive and strikingly effective.

In the works since 2017 and now at various stages of rollout in Assam, Andhra Pradesh, Jharkhand, Karnataka, Maharashtra, Odisha and Uttar Pradesh, the cancer care programme of the Tata Trusts is built on four pillars: accessibility; high-quality treatment; affordability; and awareness, early detection and palliative care. Put it all together and you have the ‘distributed model of cancer care’.

Sadum Veenavati, a 35-year-old from Kongavaripalli village in the Tirupati district of Andhra Pradesh, does not understand the details of the programme, but here she is at a mobile screening camp that is part of it. “The head of our village told me about this camp and I wanted
An outreach team from SVICCAR with students of the Sree Vidyanikethan Engineering College, Tirupati; the students were trained to carry out community mobilisation for cancer awareness and screening.
The distributed care model, which is at different stages of rollout in Assam, Andhra Pradesh, Jharkhand, Karnataka, Maharashtra, Odisha and Uttar Pradesh, rests on four pillars:

- **Accessibility**
- **High-quality treatment**
- **Affordability**
- **Awareness and detection**

An outreach initiative by SVICCAR in Tirupati district to boost awareness during breast cancer month.
to get screened,” says the mother of two. “I thought it best to have this done because my mother died of cancer. I went through the three tests and I’ve come out clean.”

The three screenings are for oral, cervical and breast cancer, the most common manifestations of the disease in India. Ms Veenavathi was keen to take the tests but, unlike her, many people in small towns and rural reaches are disinclined to. “There is fear and then there’s the stigma of cancer,” explains Hemant Kumar, a district programme manager with what is known as the catchment outreach programme.

**Specific nursing skills**

The initiative is part of the awareness and screening efforts of the Sri Venkateswara Institute of Cancer Care & Advanced Research (SVICCAR), the cancer facility in Tirupati that became fully operational in May 2022. Mobilising villagers and organising the camp is Mr Kumar’s responsibility and there is plenty that goes into it.

“We start with a recce of the village and we meet the key influencers there,” says Mr Kumar. “We also coordinate with the local government health workers. At the camp itself, we don’t screen just for cancers; we also check blood pressure, sugar levels and for hepatitis B and C. We don’t call it a cancer-screening camp, because that could mean fewer people showing up for testing.”

The awareness component is crucial in the mix. “We gather groups of about 30 people and explain the tests we do and we talk about tobacco use and its risks, about oral, breast and cervical cancers,” adds Mr Kumar. “We go through women’s self-help groups and we go to schools and colleges. All this motivating and mobilising is to drive home the message of cancer awareness.”

At the heart of the distributed model is accessibility, the objective being to bring cancer care closer to where patients live. A step-down framework and human resource development are the essentials here. The step-down structure operates at four levels, from apex centres with the entire range of cancer-care services and equipment to outreach initiatives that include community awareness events and screening.

In human resources development, the endeavour is to create a cadre of top-notch professionals that will ensure the success of the distributed care model. These professionals are recruited from medical and nursing colleges, referral networks and recruitment portals. Oncology fellowships and certificate programmes are also part of the mix, as are cross-skilling and up-skilling initiatives.

In affordable care, the distributed model concentrates on connecting patients to various state and central government health insurance schemes. Additionally, the National Cancer Grid, a network of cancer centres, research institutes, patient groups and charitable institutions, lends a hand and provides guidance.

Quality of care is a given in the programme, while the prevention, detection and palliative care part works to reduce the cancer burden.
through a slew of measures, from screening to diagnosis and treatment. Kiosks at government hospitals and mobile medical units — to reach people in the interiors — add muscle to the awareness and screening agenda.

With more than 1.4 million reported cancer cases a year and countless ones that remain unreported, there is no understating the reality that India is confronted by a cancer crisis of gargantuan proportions. The value and potential of the distributed care model — to aid governmental efforts and protect a wider spread of the populace — is clear in the circumstances.

“We began with this utopian dream in Assam and we figured that if we could pull it off there, we had a shot at replicating the [distributed care] model across India,” says Sanjiv Chopra, who helms the Tata Trusts cancer care programme. “Gap interventions is what we do and our primary goal is to improve awareness about cancer and early diagnosis.”

The expertise and the experience that the Trusts have acquired over the course of the cancer care journey give the distributed care model a chance of succeeding on a greater scale. The rationale for it is solid. “Most of the cancer hospitals in the country are in big urban centres, but as far as towns and villages are concerned, cancer care facilities are almost non-existent,” says Dr Chopra.

The expectation is that the distributed care model can make a difference where it counts, in accessibility, affordability, treatment and awareness, but realising its promise will take much more than just the Tata Trusts.
That explains the need for collaboration and a coming together with the central and state governments, public and private corporations, philanthropies, NGOs and medical institutions.

There is no better partner than the government, for sure, and Dr Chopra emphasises the criticality of this. “Many states have listened to us and local government functionaries have been very helpful, supporting us with much-required assistance to set up tertiary cancer care centres and cancer institutes,” he says. “We also have like-minded organisations and companies joining us. We could not have expanded the way we have without such backing.”

**Ground realities**

What happens on the ground is, in the final reckoning, what matters most. “I’m thankful for the treatment I’m getting and for being able to live a longer life,” says B Sampoornamma, a 76-year-old villager from Satturabailu in Tirupati district who was diagnosed with breast cancer eight months back. Ms Sampoornamma’s cancer was detected following a chance visit to the kiosk run by personnel from SVICCAR at a nearby community health centre.

This was another instance of the distributed care model percolating to a person who would otherwise have fallen through the cancer crack. And it is in helping people like Ms Sampoornamma that the worth of the Tata Trusts’ cancer care programme shines brightest.
Schooling the cadre

Fellowships for doctors and training programmes for nurses are a critical component of the Tata Trusts cancer care programme, the intent being to build a corps of skilled professionals who can serve the underserved. The need for such professionals is acute, given the low cancer specialists-to-populace ratio in India and the challenge of finding talented medical personnel willing to take up jobs in smaller cities and towns. The Trusts have in place an exhaustive sourcing mechanism for this purpose, with oncology fellowships and certificate programmes for professionals at apex partner institutes, and customised courses to cross-skill and up-skill nurses and technicians.
(clockwise from opposite page bottom left) **Nursing programme** trainees at a classroom session in Ranchi in Jharkhand; a **team of** doctors, fellowship programme incumbents among them, after completing the first surgery at SVICCAR; a **screening initiative** for jail inmates in Chandrapur in Maharashtra (doctors in the fellowship programme were part of organising team here); two **fellowship** programme doctors going through patient reports; **a fellowship** programme doctor with a patient.
Nursing fellowship incumbents (above) examine a person at an outreach camp in a village near Tirupati; nursing fellows (left) get ‘application training’ on an echocardiogram machine.
A demonstration for nursing fellows of Ryle’s tube insertion and feeding (this enables access to the stomach and its contents).

nursing fellows assisting the doctor during a surgical procedure; a senior nurse in a discussion with fellowship nurses.
Thinking in the pink

The India Health Fund has been a benefactor for innovators working to find solutions in tackling tuberculosis, malaria and other neglected communicable diseases that affect underserved communities

Long before Prime Minister Narendra Modi announced, at a global dairy summit in mid-September, that all of India’s cattle would be vaccinated against deadly zoonotic diseases such as foot-and-mouth and brucellosis, technopreneur Maroudam Veerasami was at work in this field.

The founder-director of CisGEN, a Chennai-based biotechnology company, Dr Maroudam’s primary interest is bovine tuberculosis (BTB). That’s a field of study focused on finding ways to detect cattle infected with TB, for which there is no vaccine as yet. The World Health Organization says as much as 28% of all TB cases in humans is of zoonotic origin, primarily BTB, which is usually transmitted through the air, close contact or the consumption of unpasteurised milk and partially-cooked meat.

CisGEN has developed a pen-sized test kit that combines various antigens to tell if a certain infection in cattle is from TB-causing bacteria. Typically, it takes a veterinary doctor three days and multiple visits to diagnose this. The CisGEN kit will do it faster and cheaper. The company is now planning to create combo kits for other zoonotic diseases.

“TB in cattle causes economic loss through reduction in milk and meat production to farmers, and the pain felt by the infected animal is neglected,” explains Dr Maroudam. Lack of knowledge among farmers about BTB make them less interested in diagnostics. The idea is that combo kits of
BTB, with other zoonotic diseases such as brucellosis—which leads to loss of calves—will make them more acceptable.

CisGEN has found a staunch and steady backer in the India Health Fund (IHF), financially and for product development. A not-for-profit organisation, IHF was set up in 2017 with funding from the Tata Trusts and strategic support from the Global Fund to identify science and technology-driven solutions to tackle India’s infectious diseases through primary healthcare.

TB and malaria have been an important area for IHF because of the high disease burden, mortality and suffering they cause. “The Tata Trusts saw that communicable diseases had suffered from market failure,” says Madhav Joshi, IHF’s chief executive. “There was no capital available to take promising technology—that would aid in the diagnosis, treatment and prevention of communicable diseases—from the lab to the market.”

**Continuum of care**

**Add**s Jayeeta Chowdhury, programme director at IHF: “Philanthropic entities at the time were largely tackling these diseases through a service-oriented approach, not cultivating innovative tools and solutions in the country. IHF’s goal is to bridge the gaps in continuum of care in neglected infectious diseases like tuberculosis, malaria and others by integrating science and technology-led innovations.”

It was mainly global institutions in infectious diseases which funded development of novel solutions and accelerated technology development for market access. Indian research in health sciences and technologies needed a similar boost with funding, technical and ecosystem support.

Apart from a few government initiatives, there is a meagre amount of money coming in for infectious diseases. Which means even the most effective science- and technology-led innovations, those worthy of being funded, adopted and deployed on the ground, struggle to find support. “Infectious diseases were not getting the attention they needed and that’s why IHF came into existence,” says Ms Chowdhury.

“IHF came into our project as a fairy godmother,” says Suman Laal, chief scientific officer and director at Stellar Diagnostics. “Not only has it provided us with additional funds when most needed, but it also backed us with advice, connections and reviews. Their understanding of the TB ecosystem in India and their consistent, positive and pragmatic support have brought a lot of clarity on strategic approaches that could help deal with the challenges in this venture.” With IHF backing, Stellar is developing a point-of-care triage test that identifies a TB patient quickly and costs less than $2 (₹160).

IHF is still committed to TB and malaria, but its mandate has been expanded. “What we have been able to do is establish proof of concept, to show that these
technologies exist, and that it’s possible to facilitate their development with patient capital,” says Mr Joshi. “Crucially, we have been able to provide evidence, with proven outcomes, of what these technologies can do in terms of improving the ability of the healthcare system to serve the poor.”

IHF has shown that, besides facilitating the development and validation of cutting-edge medical technologies — as well as their adoption and scaling up — it is possible to create a platform where public and private players can engage and bring greater attention to communicable diseases. That was not happening earlier.

“This has been enabled, to a large extent, by the increased attention that Covid has brought to infectious diseases,” says Mr Joshi. “It has revealed to all of us in the last two-and-a-half years the consequences of living [with an infectious disease].”

IHF views itself as a multiplex platform. Even within the infectious diseases space, it wants to support innovations that look beyond one or two diseases and provide solutions for several related ailments. The intent is to ensure that technicians and healthcare providers will not have to use multiple tests for multiple diseases.

Testing becomes difficult when users have to switch from one device to another. This is challenging enough when there is a trained technician at hand; it becomes impossible in a remote primary healthcare centre that has no testing facilities or adequately trained medical professionals. Also, multiple tests mean more money, which may render detection and treatment unaffordable for a large portion of India’s population.

“We will concentrate on identifying platforms which are enabled by deep science or deep technology, which can then be adapted for one or more diseases,” says Mr Joshi. “We have a preference for solutions which are fungible across a number of diseases. In that sense, we are disease agnostic, but we remain true to our original purpose.”

At IHF this has translated into an increase in the number of innovations it supports. “We have 11 at the moment and that number will go up,” says Ms Chowdhury. “In 2020 we had searched and screened 300-plus innovations; in 2022 that number has already crossed 1,000. This has been made possible because we employ different methods to scout for novel solutions.”

Till recently, IHF used to conduct Quest for Innovations, an open call to startups to provide viable and scalable solutions to specific healthcare problems in infectious diseases. But now IHF has forged key partnerships to actively find more such novel science and technology-based innovations. This helps create a pipeline for the future and also promotes much-needed discussion and concerted action.

**Tracking a menace**

For instance, among IHF’s grantees is a startup called TrakITNow, which has created a mosquito ‘trap’ called Moskeet that can, using artificial intelligence, identify various species of mosquito from their wing-beat frequency. This AI and IoT-based platform is able to differentiate between mosquitoes carrying malaria, dengue, chikungunya, zika and Japanese encephalitis, and also determine their hotspots for more effective vector control and surveillance.

The platform goes the extra mile in helping control the disease.

“Mosquito-borne diseases infect 40 million Indians every year,” says Satish Cherukumalli, the chief executive of TrakITNow. “Moskeet collects real-time data and provides analytics for efficient control of mosquito populations, disease outbreak and risk analysis.”

IHF has also provided funding to Hemex Health, which has...
SenseDose Technologies is a recent grantee of the India Health Fund (IHF). Cofounders Nishad Halkarni and Rahul Doshi came into the IHF ambit when they participated in Quest 2019 and responded to the challenge of patients not adhering to their prescribed medication regimen.

The result of that association was TMEAD (tuberculosis monitoring encouragement adherence drive), a ‘smart pill dispenser’ that helps TB patients manage their medication while making sure they don’t miss any doses.

“If you have to take 10, 12 or 15 tablets a day, it’s hard to keep track,” says Mr Halkarni. “The medication regimen keeps changing and then there are people who are older or cannot read. It’s difficult for them to keep up.”

TMEAD, says Mr Halkarni, has three parts. At the heart of this is an Internet of things-enabled pill dispenser, a reusable device that can hold up to 15 days worth of medication segregated by dosage, and is powered by a rechargeable battery. The device alerts patients with a reminder when they need to take their medicine. When the pills are finished, the patient or the caregiver can top it up with another fortnight’s worth of medication.

If the patient forgets to take her medication, the TMEAD system also alerts her primary caregiver. If that alert goes unheeded, a signal is sent to the government-designated field worker known as the TB health visitor (TBHV). This interventionist may be in charge of 50 or even 100 patients and would find it impossible to monitor their medical regimen individually. An alert when a patient has missed a few doses usually leads to a quick call by the TBHV to the patient.

The third piece is a web dashboard that is linked to every dispenser and collates big-picture data on usage and trends. This enables the patient’s pharmacist to keep refills ready before the current lot runs out. In on-ground trials conducted by SenseDose in Nashik and Ahmedabad, the medication monitoring has been done by local NGOs who have taken the responsibility of installing the smart dispensers in patients’ homes and topping them up. The dashboard also provides data to officials monitoring TB over large areas (like a city).

“IHF’s grant to us is divided into three parts,” explains Mr Halkarni. “The first was for clinical validation and to conduct independent assessment of the TMEAD device. The second was to seek assistance from the Indian Institute of Public Health in Gandhinagar to actually conduct clinical trials. And the third part was for something called design for manufacturing, which helped us create a device that could be manufactured at scale.”

Mr Halkarni adds that IHF went above and beyond the scope of their relationship to help SenseDose with deployment of TMEAD. “They connected us to crucial stakeholders in the TB ecosystem, NGOs and on-ground officials who could help with adoption and deployment.”

When TMEAD was deployed in Nashik, it was found that patient adherence rates had increased to 92%, compared to the India average of 62% adherence. An estimated 85% adherence is needed to reach global TB goals. These improved patient outcomes achieved by TMEAD also prompted the district TB office of Ahmedabad to use the device among 350 drug sensitive TB patients there. This will be followed by a roll out across Gujarat.

In keeping with IHF’s mandate, SenseDose is exploring the option of multiplexing TMEAD. “We want to see if the pill dispenser can be used for other ailments that require long-term medication, such as geriatric care,” adds Mr Halkarni.
Healthy and impactful on the ground

Since its inception in 2017, the India Health Fund has...

- Evaluated more than 800 potential innovations
- Funded and supported the development and adoption of 11 innovations
- 5 of 11 projects have now entered the public health system
- Established 15 partnerships to enable innovation development, validation, evidence generation and market access
- Helped IHF-supported innovations secure co-funding commitments

developed Gazelle, a one-minute test for malaria. All that this device needs is a single blood sample to detect the presence of plasmodium falciparum or plasmodium vivax, the two most common types of malarial parasites found in India. And the test costs just $1 (₹80).

Another beneficiary of IHF’s support is OmiX Laboratories. This company’s offering, iAMP, is a diagnostic platform that uses a specific technology to distinguish between Covid, TB and influenza. These three diseases have similar symptoms so a patient has to undergo multiple, costly and time-consuming tests to figure out which disease she has. One test to identify the condition would be a game-changer.

“Poor healthcare outcomes correlate to socioeconomic status, and it begins with lack of access to accurate and early diagnosis,” says Sudeshna Adak, who heads OmiX. “Imagine being sick and the nearest laboratory is 50km away, or the cost of a test is equal to a week’s wages.”

Thanks to IHF, many technologies that may have fallen by the wayside are now being used to support underserved communities. An example is Molbio Diagnostics, which in 2020 launched Truenat, a polymerase chain reaction-based test that can tell within 90 minutes if a patient has TB. This is ideal for rural areas where inadequate testing facilities lead to a large numbers of cases going undiagnosed.

**Proving its mettle**

In the early days of Covid, when testing centres were struggling with a huge load of cases and were unable to provide quick results, Mumbai’s municipal corporation employed Truenat to carry out, according to an IHF report, “India’s largest bi-directional testing initiative for TB and Covid-19... without the need for additional manpower”.

Five years in existence, the obvious question for IHF now is, will it also begin to look at noncommunicable diseases (NCDs)? “Our emphasis will remain on platforms that address infectious diseases,” says Mr Joshi. This is not a priority as yet for IHF because “there is still so much to be done in the communicable diseases space and NCDs actually get more support”.

IHF is currently exploring the option of setting up India’s first dedicated incubator for neglected infectious diseases. “The present incubation ecosystem is centred on NCDs and we want a shift there,” says Mr Joshi. “A lot of our work involves first-time entrepreneurs or early-stage startups who know the technology well but have no idea how to set up a business. Often, they only want to concentrate on the science.” Such startups will certainly benefit from IHF.

“We will need many partners to come together because we are not an implementing organisation,” says Ms Chowdhury. “Our job is to be a catalytic fund that enables the lab-to-last mile journey.” Adds Mr Joshi: “For us, innovation is a means to an end; it’s not an end in itself. That’s the biggest value add that IHF provides.”

By Labonita Ghosh
when Qure.ai first came in contact with India Health Fund (IHF) four years ago, they were a fledgling startup with a great idea: an image-recognition algorithm that can read chest X-ray scans using artificial intelligence for fast and accurate interpretations. IHF urged them to submit a proposal on how they could make tuberculosis detection and treatment better using the algorithm. Qure.ai won a grant from the organisation for a tech called qXR.

IHF’s problem statement also showed Qure.ai a crucial place where their technology could make a difference – in the remotest corners of the country where primary health centres often lack testing facilities and trained staff.

“You take an X-ray scan to a clinic or hospital where it is read by a radiologist,” says Prashant Warier, the chief executive of Qure.ai, “but there is a tremendous shortage of radiologists and trained technicians in India, especially in the last mile. Our technology can automatically process a chest scan and tell you whether you have TB or any other pulmonary abnormalities within a few seconds.”

As of now, the process requires a digital X-ray. But Qure.ai has been working with IHF to see how analogue X-rays can be digitised. The company has now developed and deployed a mobile phone-based application, qTrack, that can take a photograph of the analogue scan. “Because the X-ray is digitised, we can help interpret it better and it can also be sent to a teleradiology group or a radiologist who can read the results remotely,” states Mr Warier.

Praising the association that has made it all possible, Mr Warier says: “IHF recognises the value of this technology and they have been very supportive in introducing us to the right people, including the Central TB Division in the Indian government’s Ministry of Health and Family Welfare and other organisations in the public sector.

The technology has proved useful for diagnosis of other ailments as well, among them lung cancer and heart failure, all of which can be detected through a chest X-ray. “TB does not get diagnosed early. It’s a low- and middle-income country problem,” says Mr Warier. “Lung cancer is hard to diagnose because the symptoms are often innocuous or not present in the early stages.”

The Covid crisis provided an avenue for qXR to showcase its strengths. Within weeks of the pandemic outbreak, Qure.ai repurposed the algorithm to create an ‘infection score’, reading X-rays to see if a person is at high, medium or low risk of the virus, or does not have Covid because the X-ray does not show any coronavirus-related abnormalities.

“Each and every one of our products caters to the underserved, not only in India but across the world,” says Mr Warier. “Today we have some 700 hospitals across more than 60 countries using our algorithm.

“When we first received the IHF grant about three years ago, we had not started commercialising as much. We were a young firm, and we appreciate IHF for creating these kinds of opportunities for startups to launch their products, have them validated and get access to the market.”
Congenital heart disease is the primary cause of child mortality in India, but till recently there were very few hospitals dedicated to treating it. C Sreenivas wanted to make a difference on this count and that was the impulse that drove him to set up, in November 2012, the Sri Sathya Sai Sanjeevani Hospital (SSSSH) in Raipur in Chhattisgarh. SSSSH is the first dedicated paediatric cardiac care hospital in India and Mr Sreenivas cites his guru, the late Sathya Sai Baba, as the inspiration behind it. Mr Sreenivas has guided the Sanjeevani group to establishing similar hospitals in Haryana and Maharashtra, as also maternal- and infant-care centres and training institutes.

‘Good to build hospitals, not to go to them’
Why does India have such a high prevalence of congenital heart disorders among children, and how does this compare with global figures?

It is estimated that 300,000 children are born every year with congenital heart diseases (CHD) in India. The figure could be higher because a large number of these cases stays undetected and few make it to hospitals to get cure and care. Our larger population may account for the higher prevalence but an alarming number of cases go untreated. According to some estimates, there are 30 million people living with CHD in India — that’s more than the population of Australia — and the numbers are growing every year.

Our experience over the last 10 years shows that CHD in children has multifactorial causes, particularly poverty and the resultant malnutrition. Other causes include poor antenatal care, which puts many women at the risk of infections post pregnancy; inadequate vaccination for women and children; pollutants in the air, water and food; and drinking and tobacco use by parents. Another telling factor is the early marriage of girls.

Of the 30 million living with CHD, are there children who have grown into adulthood and carried the disorder with them?

When a defect at birth stays undetected and if the child grows into an adult, then it becomes adult congenital heart disease. In many of our centres we see those who are 20-plus with CHD. This is also a result of not seeking timely treatment. If you survive, you have a relatively poor quality of life.

For those who manage to somehow live for longer periods, CHD becomes a way of life. But treatment can improve the quality of life of these people. There are certain types of CHD which may need repeat interventions, but these are far and few between. Otherwise, the beauty of treating CHD is that it’s a one-time fix.

What sort of hurdles do you face with regard to awareness and timely treatment? Do parents readily accept the course of treatment recommended?

We have thousands of families coming to us with children who have CHD. The Indian government’s health ministry declared this to be the commonest defect at birth among newborns. But, 10 years ago, we did not...
have a single dedicated child heart centre in the entire country. That was our point of entry in 2012. We wanted to make a difference by addressing a problem that was being largely unaddressed.

Those coming to Sanjeevani today are children who already have CHD. At this point you cannot talk preventive healthcare to the family; you have to cure the child. Since it begins with the foetus and the pregnant mother, we have now ventured into maternal and child health as well.

Universal screening is a distant dream in India due to the lack of equipment and skilled professionals. Foetal echocardiography, one of the best methods of detection, is available only to a fortunate few who can afford it. At Sanjeevani we do these free of cost.

How did SSSSH come to be set up in Raipur?

In 2011, I went around the country meeting people from the medical fraternity to understand the space where a new movement could be started. Two sides of the picture emerged for children with heart problems: there was preventive healthcare, or detection and screening, and then there was the curative.

A model then came to my mind. I ran this by a friend, an eminent cardiac surgeon, who advised me to embark on a rural child healthcare programme. So that’s how we came into this space. But it was my founding father, Bhagwan Sai Baba, who guided me to go to Chhattisgarh.

The state, as you know, is largely rural and tribal. It has its own challenges and is disturbed for many reasons. People asked me to rethink my decision about Chhattisgarh but I was on a divine directive. We set up the Sanjeevani Hospital in Raipur in less than a year. It’s a state-of-the-art, heart-shaped hospital, something uncommon in hospital design. Today that’s a distinctive feature of all Sanjeevani centres.

What makes the Sanjeevani model unique?

I’d like to answer that in two parts. Health is not about going to hospitals; it is about promoting wellness. This encompasses the first, which is about preventive, promotive and educative measures of healthcare, training and skilling. The second part is curative healthcare. These are our verticals of work at Sanjeevani.

In the curative part, after you open a hospital you cannot immediately talk about prevention and education. When you have a large number of children with CHD, you need to cure and serve. You can’t talk about health policy to a dying man; you need to treat him first.

We began from there and decided to ensure healing and care to everyone. Further on, learning, teaching and training became integral parts of the process. We had to integrate with the healthcare system of the state and find the best cardiologists, anaesthesiologists, intensivists and nursing staff to provide quality curative care. A year later we added a centre for research into CHDs in Palwal, Haryana.

“A newborn can only cry when it is in pain, and children cannot fend for themselves, so you have to be two steps ahead when treating them.”
Healthcare is viewed as a budgeted expense by a family. But as a healthcare provider your approach needs to be different: from seeing health as an expense to making it an investment. However much we have to spend — and the fact is we do — we consider it an opportunity of investment to save a child’s life.

There are multiple gains to be had from such thinking. You have given goodness and gratitude to the child and the family, and that explains how Sanjeevani has grown from a child heart hospital into an integrator of goodness in the community. We are more than a child heart hospital; we are a public service institution making a contribution to national development.

Your hospitals famously have no billing counters…
Initially there was doubt about whether we could do this and, if so, for how long. We didn’t have all the answers but we believed that if we could save one dying child today, we would be able to save a hundred kids next year. That is the power of free-of-cost treatment. We at Sanjeevani do not distinguish by economic status in patients. It is inhuman to allow a child from a poor family to die in front of your hospital gate for lack of money.

You do have to incur hefty expenditures to provide such free-of-cost treatment. Where do you get the funds for that?
Volunteerism is the bedrock of our functioning. We do not receive salaries and everything that comes in is spent on healthcare. Much of our work begins with personal contributions, and a small circle of contributors has grown into a much larger one today. Also, while we try to bring awareness about the work we do, we don’t solicit funding.

Normally Sanjeevani is discreet in accepting funding from the government, but if you go to a district or a remote region you have to first align with the government system there.
Of late corporates have begun to see us as a partner of integrity, engaged in community development. Many of them have invested in our ‘gift of life’ programme, where donors can give anything between ₹125,000 and ₹500,000. We are also seeing a steady increase in overseas entities willing to fund our programmes.

The poorest and most remotely-located communities are often the most underserved. What can India do to address this issue? While the southern states are better placed in terms of education and healthcare institutions, north and central India have fewer pockets of excellence. Today, when healthcare is viewed as a business, new opportunities tend to converge in geographies where — in the name of high-quality or specialised care — you serve the community but you also serve a financial goal.

Congenital heart ailments directly connect us to pregnant women and adolescent girls and their nutritional issues, which, in turn, is affected by their poverty. Sanjeevani has embarked on a concept of mother and child health which will commence with 10 hospitals located in the underserved parts of India. I believe that a hospital is not a place to go only when you’re sick; it can also be a wellness centre. Our fundamental approach is to ensure that our patients stay well and never have to visit a hospital. It’s good to build hospitals but not to go to them.

India ranks among the highest in the world in heart attacks and heart diseases, both in children and adults. How can we manage this better?

There’s a world of difference between paediatric congenital problems and adult congenital problems. A newborn can only cry when it is in pain, and children cannot fend for themselves, so you have to be two steps ahead when treating them. While adult and paediatric cases need be to addressed differently, the skew today is heavily in favour of adult diseases. Far more needs to be done in paediatric and maternal and child health.
A tiny insect, with assistance from human hands, is helping change lives in the remote tribal districts of Khunti and Hazaribag in Jharkhand. The hero here is Kerria lacca, a creature that feeds on the sap of certain trees and secretes a resin known as lac, a valuable ingredient for a variety of industries.

Cultivated by farmers in central and eastern India, many of them from tribal communities, lac’s worth stems from its extensive use as shellac and dyes in businesses ranging from paints and electricals to cosmetics, automobiles, furnishing and more. For Samkumari Sawasi, a tribal resident of Binda village in Khunti, this scarlet resin has opened the doors to a better future.

Farming entrepreneurship
Ms Sawasi is one of about 3,250 women farmers — entrepreneurs among them as well — who have bettered their lives through a lac value chain programme supported by Collectives for Integrated Livelihood Initiatives (CInI), an associate organisation of the Tata Trusts that has dug in deep with social and community development initiatives in the central India region.

A mother of two, Ms Sawasi grows grain and tomatoes and rears chicken while
supplementing her family’s income through lac cultivation, from which she garners around ₹70,000 a year. That’s meaty money for Ms Sawasi and she has had to ward off the bane of farmers everywhere to get on firmer financial ground.

Bug attacks were the villain and, as Ms Sawasi found out, spraying pesticides was not the solution because the Kerria lacca insect also perished in the process. “It was only after joining the lac programme that we learned how to be rid of pests,” she says.

This was one of a host of things Ms Sawasi learned as she adopted a package of scientific practices that enables her family to now cultivate “five-to-seven times more lac”.

Upping lac production is the key in an initiative that has, since its launch in 2015, been an income boon for the local Santhal and Munda tribal communities, especially their womenfolk. Family earnings from lac cultivation have multiplied and farmers have profited thanks to a combination of training, the creation of a market-led production hub, fair-price mechanisms and critical on-ground backing by CInI.

The lac initiative has expanded to span 44 villages and has recorded a 30% jump in productivity over the course of its seven-year timespan. The average annual income of farmers taking up lac cultivation has increased from ₹12,000 a year to ₹32,000 over the period.

CInI has set up three handicraft units where women can earn salaries of at least ₹60,000 a year by making lac bangles and other items. A group of 22 women have become ‘lac entrepreneurs’ — suppliers of insect broods — and each makes upwards of ₹90,000 a year from the effort.

Sirshendu Paul, regional manager with the Tata Trusts, says that the lac initiative is one of the highlights of CInI’s Lakhpati Kisan programme, which works to help the most indigent farmers in its operational zone earn ₹100,000 or more annually.

Taking a shine to lac

Becoming an entrepreneur has opened the doors to an improved world for Philomina Bodra. This native of Bundu Mamail in Jharkhand’s Khunti district is one of 22 ‘lac entrepreneurs’ who have flowered under the umbrella of the lac value-chain programme seeded by Collectives for Integrated Livelihood Initiatives (CInI).

These lac entrepreneurs are tribal women who supply the Kerria lacca nymphs to lac cultivators in their villages. A lac farmer herself, Ms Bodra was surprised to see that focusing on the brood lac aspect of lac cultivation could be so profitable. With net earnings of more than ₹100,000 last year (besides what she makes from lac cultivation), Ms Bodra is on a lucrative streak.

“I don’t have to ask my husband for money anymore,” says Ms Bodra, who uses the extra income she now makes for household expenses, with some even left over as savings. “We can now afford to hire labourers for our farm,” she adds.

CInI’s decision to support local lac entrepreneurs in supplying brood lac is based on solid logic. Introducing lac insects to host trees is a time-sensitive affair, and carting in brood lac on trucks from miles away carries risks of damage, delays and higher costs.

Having quality brood lac available through local entrepreneurs makes all the difference to profitability. “Training locals to create and supply brood lac to other farmers creates a sustainable ecosystem within the rural tribal economy,” says Sirshendu Paul, regional manager with the Tata Trusts.
through different livelihood options. “A tenth of the lac farmers we are involved with earn that much from lac alone,” he says.

It’s a rosy picture and a potential game-changer for lac cultivators in India, a major global producer of the resin. Lac grows best on young branches of the palash, ber and kusum trees. Cultivating lac is complex but it is less labour intensive than regular agriculture, and the payoff — up to ₹600 a kilo depending on variety and quality — makes it a good second-income source for rural communities.

**Then to now**

Farmers in Jharkhand have collected lac from the jungle for ages and, more recently, have begun cultivating it on their farms. Output and quality are often compromised, though, by logistical issues and the farmers’ lack of scientific know-how.

Before ClnI stepped in, farmers struggled to procure quality brood lac (insect nymphs) locally. The broods often had to be brought in from other districts or from nearby Chhattisgarh. Since a fresh brood has to be transplanted onto new branches within a narrow 36-hour window, the smallest delay or carelessness could cost farmers dearly.

There were other issues, too. Farmers were unaware of important steps in the lac cycle — proper pruning, harvesting and spraying of trees — and, therefore, ended up with lower-grade produce. They were also at the mercy of the unfair prices set by local traders, which further dented their incomes.

ClnI was sure from the start that the programme’s principal need was for a science-based and market-linked lac value chain that would diversify and secure rural incomes. This was also a chance to give tribal women, a vulnerable subgroup within the scheduled tribe population, a shot at financial independence.

“Traditionally, women here were not involved in crop-related decision-making and planning. Lakhpati Kisan didn’t just involve them; it empowered them to become independent decision makers and entrepreneurs,” says Mr Paul.

ClnI began by partnering the Namkum-based Indian Institute of Natural Resins and Gums (IINRG). The team at the Institute designed the package of practices that ClnI then took to the farmers and
tribal women through field training sessions and pamphlets. “We set out to educate farmers from scratch about each stage of the lac cultivation cycle: from inoculation and pruning to harvesting and storage,” says Praful Patmanjhi, a technical officer at IINRG.

In 2018, ClnI mobilised the programme’s women growers into two farmer producer companies (FPCs). Formed and run by the women themselves, these are critical elements in the lac value chain. They buy brood lac from locally-trained entrepreneurs and supply it to farmers, and they disburse the technical equipment provided by ClnI (solar-powered tree-branch pruners, sprayer machines, pesticides, etc) at subsidised rates.

Marketing the produce
At the vending end of the value chain, the FPCs aggregate the cultivated stick-lac from farmers and get it processed for sale. The lac is then sold to pre-selected vendors who offer the best rates for the produce. In the last four years, the FPCs have sold lac worth ₹2.9 million to vendors. Dealing directly with the FPCs enables them to sell in bulk and bypass unscrupulous traders.

The handicraft centres established by ClnI train artisans to use lac to create bangles, pen stands, idols, etc. For this they are paid monthly salaries of ₹5,000 or more and ClnI also takes them to exhibitions and helps them market their wares online.

Extra money in the family kitty has led to the accruing of collateral social benefits and the realisation of objectives that may once have been considered farfetched. “My financial difficulties have eased and I can now afford to send my children to a private school,” says Fulmani Purty, a resident of Jate village in Khunti.

Rising income levels have also arrested outward migration for jobs. “At the start of the programme menfolk in 12% of the households were leaving their villages to find work elsewhere. Today that number is down to around 3%,” says Somnath Das, a lac thematic anchor with ClnI.

The programme is set to add 800 beneficiaries by 2024 through a new ClnI project funded by the government-owned National Bank for Agriculture and Rural Development, or NABARD. The intent is to get farmers to cultivate lac on semialata plants in fallow upland areas. Compared with traditional lac trees, semialata grows much faster and is easier to maintain. “We expect the project to add about ₹70,000 to each farmer’s annual income,” says Mr Paul.

For all the progress made, there are challenges left to overcome. What ClnI’s lac value chain has crafted, however, is a blueprint for progress that infuses modern knowledge into livelihood initiatives, such as to enable marginalised rural communities to grasp a financially secure future.
Menstrual health has been brought front and centre in about 200 Rajasthan villages thanks to an effort that involves the community as a whole

Conversations about menstrual health are uncommon in traditional pockets of India. It was worse in tiny Dhawali, a village in Rajasthan’s Sirohi district, where the topic had long been taboo. That reality caused 48-year-old Sharda Devi Meghwal a lifetime of silent suffering.

“We used to wear a ‘timepiece’ during our monthly cycles. It was horribly uncomfortable,” says Ms Meghwal. The timepiece is what local women call an improvised menstrual pad made of thick towel-like material.

So prevalent was the stigma that Ms Meghwal didn’t even talk to her own daughters about menstruation. “Before they got sanitary napkins through a government scheme, my girls somehow managed their menses,” she says.

Like Ms Meghwal, most of the women in Sirohi’s villages would suffer stoically through period pain and shame, but those days are much rarer now. Hanja Devi Parjapat, a 28-year-old with a young daughter, is clear there will be no hesitation on her part when the time comes.

Being vocal about periods is routine for Ms Meghwal and Ms Parjapat as both are menstrual health advocates for girls and women in their community. A big factor in their social transformation is the Tata Trusts’
students themselves, chosen for their ability to understand and explain the concepts of menstrual hygiene to younger adolescents. They also train the next lot of peer mentors and the cycle is expected to continue even after the Trusts project is completed.

The Trusts have also worked to make menstrual health products available through local self-help groups. Among these are reusable cloth pads stitched by local women entrepreneurs trained under the programme.

“Just four years ago, it was impossible to imagine women talking about menstruation,” says Pankaj Papnoi, who anchors the WaSH programme for the Trusts in Rajasthan. “Today they discuss it like experts, with zero inhibition.”

The MHM initiative is a massive effort involving multiple Trusts-run programmes, in maternal and child health, WaSH and in skilling. In Rajasthan the initiative is led by the Centre for MicroFinance, an associate organisation of the Trusts.

The programme was kickstarted in 2018 under a wider water, sanitation and hygiene (WaSH) initiative in Sirohi and Pali districts.

Feedback from the ground was what made menstrual health a focused intervention for the Trusts. Teams working on WaSH realised that this demanded immediate attention, in the wider context of community health and particularly because village women were largely unaware of the role hygiene plays in reproductive health.

**Extensive reach**

The MHM initiative was rolled out across eight Indian states by the Tata Water Mission. In Rajasthan alone the programme has reached more than 51,000 women and adolescent girls in around 200 villages across Sirohi and Pali districts.

Many couples have received counselling and some 800 ‘peer mentors’ have been trained to build menstrual health awareness among students. These peer mentors are students themselves, chosen for their ability to understand and explain the concepts of menstrual hygiene to younger adolescents. They also train the next lot of peer mentors and the cycle is expected to continue even after the Trusts project is completed.

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The programme was kickstarted in
Sirohi and Pali districts, tribal-dominated regions where awareness of menstrual health was once abysmal. “We were working on WaSH initiatives and found that many women didn’t wear pads during their cycles,” says Parikshit Singh Tomar, who leads the MHM programme in Rajasthan. Rajasthan is not unique in scoring poorly on menstrual health awareness, but the problem has been especially acute in the state. Even where modern menstrual products or healthcare services are available, ignorance or embarrassment leads numerous women to shrink from using these products or services (in some communities women are still confined to their homes during their periods).

**Shying away from the subject**

Tackling the situation was a challenge. The team wanted to build awareness in the community — among both women and men — but early attempts to discuss the topic were a dampener. Those who cared to listen were painfully shy and many avoided the subject altogether.

It took the team more than six months and an integrated, four-module approach to break through the wall of resistance: the science of menstruation; hygiene and menstrual product usage; myths and taboos; and the need for open conversations.

A variety of outreach projects came into play. Going door-to-door, team members shared their own experiences and the challenges they faced. They also explained the science of menstruation and why it is a biological process and not an ‘impure’ thing. Talks on MHM were held in 160 schools, where girls and boys were roped in for fun games and learning activities.

In the villages the team spoke to women, individually and in pairs: mothers and daughters, husbands and wives, and daughters- and mothers-in-law. Village gatherings were organised and MHM-based

Sheela Soni, a resident of Swaroopganj in Rajasthan’s Sirohi district, was a regular housewife with no great ambitions, especially not of the entrepreneurial kind. A meeting organised under the Tata Trusts’ menstrual hygiene management (MHM) programme changed all that. The MHM team was looking for village women willing to be trained to stitch reusable cloth pads for commercial gains. Wanting to set up her own business, Ms Soni volunteered for the training. “The Trusts team took me to villages to interact with local women and I saw that there was considerable demand for sanitary pads.”

Sourcing raw material for the pads locally was difficult, so Ms Soni and her husband travelled to Gujarat to buy the stock they needed. To control costs and keep the pads affordable, Ms Soni tied up with a wholesaler. She also got smart with marketing, canvassing in areas where women cluster — village council meetings, local factories employing female workers, etc — and hiring saleswomen to work on commission.

Ms Soni has made a profit of more than ₹100,000 in the two years she has been in the pad-making and selling business. This has encouraged her to diversify into cloth bags and she plans to soon launch readymade women’s clothing as well. Ms Soni puts her success down to the personal connections she has forged with buyers. “Customer satisfaction comes first for me,” she says. ■
events, games and activities were conducted to spread the word in easy-to-grasp ways. Progress was gradual as the rural women at the centre of the programme felt emboldened and slowly opened up to the MHM workers. Says Ms Parjapat, “It was a relief to talk about our problems to someone who could understand and help us find a solution.”

Once the women were convinced about the need to use sanitary pads, the question of sourcing these arose. While the Rajasthan government had a scheme to distribute branded sanitary napkins for free in schools, there was no disposal mechanism in villages (women would often keep the pads somewhere out of sight).

The sustainable solution lay in reusable, biodegradable, easily-washable and affordable sanitary pads. In addition to being eco-friendly, the idea to switch to cloth pads also presented the opportunity to augment incomes of local women by turning them into entrepreneurs. That’s how, in September 2020, the MHM team launched an entrepreneurship programme to train women in pad-stitching.

In excess of 1,650 women have been trained in pad-stitching workshops over the past two years. While most women pick up the skill to make pads for themselves, a handful have taken it up as a business. For the latter group the MHM team subsidises the cost of raw materials until the women are able to run the show on their own.

**Taboo no more**

There’s no doubting the impact the MHM initiative has made in the four years it has been in operation. Pooja Kumari, a 20-year-old from Dhadali in Sirohi, says the programme has taught women like her about their own bodies, things that neither their parents nor schoolteachers had ever discussed with them.

“Women should know exactly what’s going on in their bodies,” she adds. “It’s simply nature at work; nothing to be ashamed about.” For Ms Meghwal, conversations about health issues with her husband are much different now. “I have a better understanding of the science and can explain things to him more accurately,” she says.

Men, too, have stepped up to support the menstrual health cause. Where earlier male members would prevent their womenfolk from attending MHM meetings, today they themselves participate in counselling sessions.

The change in mindset has also helped dismantle sundry curbs on women’s freedom. For instance, women in Sirohi are no longer forbidden from entering temples while menstruating. Many still prefer to stay away but that’s a personal choice. “It takes a very long time to change attitudes,” says Mr Papnoi.

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*By Kalpana Shah*
An app that’s apt

Connecting jobseekers with employment that best suits them is the aim of a skilling endeavour involving the West Bengal government and the Tata Trusts

B achchan Mondal had always wanted to join the Indian Army but the 29-year-old from Karimpur in West Bengal’s Nadia district could not pass the mandatory entrance tests. “I spent years trying for a job in the defence services,” he says. “I kept failing the tests and became disheartened. I began feeling I wasn’t qualified to do anything at all.”

Then earlier this year two friends told Mr Mondal about an opportunity — a ‘game’ that could tell him what kind of profession he was best suited for. “They had played the game and, as per the results, realised becoming security guards was the best possible employment option for them,” says Mr Mondal.

The name of this ‘game’ is Karmadisha and it is actually an app created by Tata Strive, a skill-development initiative of the Tata Community Initiatives Trust, which is a part of the Tata Trusts. Karmadisha was crafted for the West Bengal government, specifically the state’s nodal skilling agency, the Paschim Banga Society for Skill Development (PBSSD), to help young jobseekers understand how they can find employment that is in line with their interests.

A group counselling session being conducted by a counselor from Utkarsh Bangla
Karmadisha addresses the pressing need to skill India’s youth for employment and entrepreneurship. For people like Mr Mondal, who have repeatedly failed to get into a profession of their choice and go into deep despair over that, the app shows them the light at the end of the tunnel—an alternative career they may not have considered which can be both successful and fulfilling.

In March, Mr Mondal played the game and his results indicated that he too could become a security guard. If he completes his current, on-the-job training satisfactorily, he should find gainful employment soon.

“Our research shows that when people choose courses in which their interests lie, they stay on the job for longer,” says Anita Rajan, the chief executive of Tata Strive. “We have even created an ‘interest inventory’ that gives evidence of this. Candidates click on responses based on whether they like something or not, and out comes a code which puts them into a specific category and enables us to then advise them further.”

**For the unlettered as well**

The app, which was introduced in November 2021, is simple enough to navigate, and it works for the unlettered as well. Once jobseekers download the app on their phone and register themselves, they go through a series of easily-identifiable workplace-related pictures and indicates her interest in each of them. This is followed by a few questions by a chatbot to validate their interests.

Once this is done, a code is generated based on their responses. This indicates their job aptitude and which profession they may be best attuned to. The PBSSD-Tata Strive team then provides additional counselling to the jobseeker and facilitates classroom and on-the-job training.

“In India many young people, especially those from disadvantaged backgrounds have no direction to their lives,” says Ms Rajan. “They don’t know what to do even if they’ve studied till Class X. How can they make decisions if they don’t know what they like doing?”

Typically, for this socioeconomic group there are no career counselling facilities available in the schools they go to. So, unaware of their choices, they may blindly follow others—or be pushed by their families, in the urgency of finding employment—to pursue a profession they are neither interested in nor have the talent for. The Karmadisha app aims to keep them informed and improves their self-awareness. 
on the possibility of various careers.

It is modelled on a scientifically proven theory called the Holland Code Career Test, named after American psychologist John L. Holland, who invented the RAISEC evaluation scale. This segregates candidates into broad personality types — realistic, artistic, social, enterprising and conventional — based on their responses to a detailed questionnaire.

Since the pen-and-paper model [of the Holland Code] would not have worked in India because disadvantaged children have a variance in education and literacy levels, Tata Strive created the picture-based tool where the visuals explain everything.

There may be a visual of a carpenter working with tools or a nurse checking someone’s blood pressure. The person seeing it has to respond with a ‘like’, a ‘dislike’ or a ‘maybe’. It must be an instantaneous response, made without too much of thought. The questions accompanying the visuals are currently in three languages (Bengali, Hindi and English) and can be customised depending on the demographic it is fashioned for.

Pan-India potential
The app’s visuals are generic enough for candidates all over the country to grasp. Those who can read could be served by having the questions and statements written in their mother tongue. The opportunities for the adoption and scaling up of the app across multiple states are immense. The lack of awareness about career options, thanks to the absence of counselling (except in the schools of the privileged), is widespread across India’s socioeconomically weaker communities.

In Bengal, candidates often refer to the Karmadisha app as a game, which makes them more amenable to play it. Poornima Haoli, who lives in Canning, a town about 60km from Kolkata, studied till Class III; she never finished school because she was married at 14. “I can read very little so the visuals in the game were helpful,” says the 27-year-old who has an 11-year-old son. Ms Haoli’s assessment outcome has led her to undertake training to join the housekeeping staff of a Kolkata mall.

More than 98,500 people have registered on the Karmadisha app and about 90% of them have responded to the questionnaire and completed the career counselling. User experience, coupled with the mobilisation process — where the government puts the word out and invites young jobseekers to congregate at a venue to use the app — have helped achieve these high numbers.

PBSSD focuses on placement-linked mobilisation, where enrolments are done and where there is an assurance of finding some sort of employment. Some 7,000 youngsters have been placed in jobs thus far, with the top three sectors being apparel, beauty and personal care, and home furnishing (which translates into tailoring, hand embroidery and sewing-machine operators); electronics and hardware (field technicians or in computing); and in the IT domain (mainly data-entry operators).
When Tata Strive approached the West Bengal government for Karmadisha, they decided to deploy it across the state. During the Covid pandemic a lot of youngsters had fallen out of the learning circle. Since physical meetings were unlikely to happen, the government urged Tata Strive to make this an online tool that could be operated remotely. The chatbot was used to replace face-to-face sessions with a counsellor and make it all the more digital.

Once the app was ready, PBSSD went into mobilisation mode, inviting jobseekers to specific venues to come and try it out. The government has, till now, organised several job fairs and, through local and district-level officials, gathered people in villages as well to try out the app.

Of the 89,030 candidates who have gone through the Karmadisha app, 38% are junior college students looking to get some direction — or confirmation — about the profession that’s best for them. Graduates and postgraduates comprise 27% of those taking the test and another 27% are, interestingly, students between Classes VIII and X.

Decades of businesses and capital taking flight from West Bengal to other parts of the country has bred a willingness among young jobseekers to relocate for employment. This may explain why 25% of male candidates and 17% of female candidates are ready to migrate to another state if they find a good job there.

Impact example

Then there are people like Arpan Das, a soft-spoken and educated 20-year-old who is training to become a security guard. Having done two years of college before being forced to quit for family reasons, the Kolkata resident is clearly overqualified to be a guard. Shortly after he dropped out, he became an insurance agent and later joined a forex firm. But the company he worked for closed down during the lockdown and Mr Das, being the sole breadwinner in his family, was desperate to be employed.

“I was floundering when friends told me about the Karmadisha app,” he says. He attended a mobilisation programme, took the test and is now on his way to getting a job. While grateful, Mr Das admits that this is perhaps a stop-gap arrangement. “I don’t mind being a security guard...for now,” he says. “I wasn’t able to find a job for a long time and I had to get something quickly because of my family’s financial situation.”

His parents are asking him to concentrate on the work at hand, but somewhere deep inside Mr Das believes he can do better. And he as a plan. “I could play the game again a few years down the line to see where I stand,” he adds. The outcome is unlikely to change, but at least Karmadisha has made Mr Das aware of a world of career possibilities out there.

By Labonita Ghosh
Pipe dreams come true

Access to drinking water and toilets and awareness about menstrual health have lifted a tribal pocket in Gujarat

Water was once so scarce for the residents of Kheriya, a tribal village in eastern Gujarat’s Dahod district, they had to make do with the muddy liquid that emerged after digging deep into the ground. The closest source of water was a nearby valley, where the groundwater was fed by an upland pond used for bathing and washing cattle and clothes. Kheriya was suffering more than just a water shortage — this was an existential crisis.

With little thought given to purifying or boiling whatever water could be secured by whichever means available, the health worries and everyday drudgery Kheriya — particularly its women — had to live with were constant. The desperation in the village over water was getting worse by the day when a solution that would previously have been considered improbable arrived at the doorstep of Kheriya’s grateful denizens.

Beginning in 2014, Kheriya became one of 11 villages in Dahod’s Limkheda
Here comes the sun

Sangitaben Bhuriya used to walk several kilometres every day to fetch water from an adjoining village. The daily drudgery and the time consumed were cause for heated arguments at home. “The menfolk in our village refused to help us fetch water. It was seen as a woman’s job,” says this resident of Chilakota, a village in Gujarat’s Dahod district.

Ms Bhuriya saw a change for the better after her village came under the ‘tribal area development programme’ of the Tata Trusts in 2014. Chilakota got its own hamlet-based drinking water system, but there was a hiccup. Since it depended on the state’s agricultural power grid, the village’s water supply was as erratic and unreliable as the electricity needed to run it.

“Every other week the power supply timings would be switched from daytime to nighttime and this affected us,” says Ms Bhuriya. Furthermore, voltage fluctuations caused mechanical breakdowns of the water-pumping machinery and that added to the financial burden of the community.

The issue was resolved after the programme replaced the electric pump with a solar pump funded by the Trusts. Harnessing solar technology eliminated reliance on the agriculture power grid and made life much easier for Chilakota’s residents. “Now we have water supply every day, in the morning and evening,” says Ms Bhuriya.

The solar-based water system has since become a staple for locals and an exemplar for other villages in Dahod.

subdistrict to get tap-water connections. A large percentage of homes in the village now get tap water and there is no overstating the value of this for the people here. The catalyst in Kheriya’s transformation has been a water, sanitation and hygiene (WaSH) programme funded by the Tata Trusts through the Tata Water Mission.

“Earlier we had to dig for water and we would filter this with a cloth before drinking it,” says Champaben Bamniya, a farmer in Kheriya. “Now we have regular tap-water supply and the quality is good. I have more time for everything now.”

Implementation overdrive

The water initiative in Dahod was steered by Collectives for Integrated Livelihood Initiatives (CInI), an associate organisation of the Trusts. The ‘tribal area development programme’ (TADP), as it was called, resulted in drinking water schemes being implemented in 114 hamlets across the targeted villages. Between 2014 and 2019, TADP provided drinking-water access to more than 6,000 households while increasing tap-water coverage in the project area from 9% to 83%.

There was more to TADP than water. Around 80 projects within the wider initiative use solar energy to pump water; support was offered for the construction of 10,500-plus toilets; 96 hamlets achieved open defecation-free status; and a menstrual hygiene management (MHM) effort reached more than 5,600 women, girls and boys.

In addition, the WaSH intervention fed into CInI’s Lakhpati Kisan endeavour, a livelihood programme aimed to boost the incomes of rural communities. Water was, and remains, vital in the context. “Water security is a key enabler in creating livelihoods,” says Amit Wajpe, a coordinator at CInI. “Moreover, by providing safe drinking water and better
sanitation and hygiene, TADP improved the quality of people’s lives by cutting down on health-related expenses.”

Dahod came under the Tata Water Mission lens because of its specific needs. The rocky terrain of the district does not support deep aquifers and there’s high water runoff during monsoons. Before the programme began, most villages in the region relied on community handpumps. When these didn’t work, women had to trudge long distances to fetch water from streams or ponds.

“The water shortage affected people’s personal hygiene and sanitation practices and water-borne and skin diseases were common,” says Mr Wajpe. The rainy season wasn’t all that much a relief, either, with the rainwater runoff resulting in dirty water contaminating water sources. “Many people used to suffer from cholera,” recalls Saburbhai Roz, a local village council head and president of the village’s water and sanitation committee.

**Collaborative push**

TADP was launched in Dahod as an integrated, hamlet-level water, sanitation and hygiene intervention. This was done in partnership with the Gujarat government’s Water and Sanitation Management Organisation (WASMO), an agency with long years of experience in community-managed water schemes. CInI was an able and willing collaborator in the effort. “CInI’s strong village-level contacts across Dahod helped us gain the trust and participation of end users,” says Dhiraj Modhiya, WASMO’s unit manager at Dahod.

Dahod’s hilly topography and scattered tribal hamlets made laying water pipelines a tough task. Beyond that, keeping the water flowing called for a holistic approach, which meant planning and structuring for sustainability.

Under the scheme, water is drawn from the ‘tribal area development programme’, with water, sanitation and menstrual health as its three pillars, has covered 11 villages in the Dahod district of Gujarat. The numbers:

- **6,000+** households reached with drinking water schemes
- **9% to 83%** increase in household tap-water coverage in the project area
- **10,550+** toilets built through the Swachh Bharat Mission
- **5,600+** women, girls and boys reached by the menstrual health project

**EVERY DROP COUNTS**

The ‘tribal area development programme’, with water, sanitation and menstrual health as its three pillars, has covered 11 villages in the Dahod district of Gujarat. The numbers:
borewells or open wells and supplied to communities via household tap connections. At the heart of it is the village water and sanitation committee (VWSC), or ‘pani samiti’, as it is known. Across Limkheda, these VWSCs oversee every aspect of the project, from design and construction to maintenance and collection of monthly water tariffs — ₹50-100 per household — from users.

While the technical management and hardware funding for the scheme came from WASMO, the CInI team mobilised the communities involved, formed and strengthened VWSCs, prepared project reports and ensured overall quality in implementation. The team helped VWSCs develop and execute plans for 114 hamlet-level water projects.

There were problems, seen and unseen, along the way. When electricity supply proved unreliable, CInI installed solar-powered pumps to ensure uninterrupted water supply (see Here comes the sun on page 50). Chlorine purification systems were installed to tackle water contamination. Internal community rivalries that could cause delays were deftly handled. “We had to ensure that the water projects were stable and sustainable,” says Mr Wajpe. “If we failed, the community wouldn’t have paid the water tariffs and the programme would have faltered.”

The TADP initiative also paid pointed attention to sanitation and MHM. The sanitation component, which included building toilets — and encouraging people to use them — was implemented by CInI in partnership with the state government under the Swachh Bharat Mission (SBM).

The team also helped villagers build affordable toilets. Under the central government-driven SBM, villagers get reimbursed by ₹12,000 per household for toilet construction. CInI got a prototype toilet designed to fit within this budget. Gradually, Dahod saw plenty of toilets being built. While CInI directly facilitated construction of some 4,600 toilets by the community, another 6,000 toilets were built by the district SBM unit with the organisation’s support.

**Menstrual hygiene initiative**

Another subject of concern for CInI was menstrual hygiene. The team reached out to local women and adolescent girls to tackle social taboos around the topic. A massive MHM awareness and training campaign was unrolled to get women and adolescent girls to open up on the topic.

Since 2019, TADP has stepped into a new phase with CInI partnering the government’s Jal Jeevan Mission (JJM) as an implementation support agency. The team is now using the learning from TADP to extend the Mission’s impact to around 500 hamlets in 47 villages across Dahod.

In its new role CInI will focus on capacity-building of the VWSCs in the 47 villages. Within this area, the team aims to connect around 22,000 households to drinking water schemes and cover 15,000 people through its MHM initiatives. That should ensure that the legacy of TADP, which has run its course, will continue to shine bright in rural Dahod.

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By Nikhil Menon
Binning the burning

The burning of crop residue, a hot-button issue in Punjab for decades, is giving way to environment-friendly alternatives

Every year when the *rabi* (winter crop) season drew close on the farming calendar, clouds of smoke would rise from the fields outside Daburji village in Punjab’s Tarn Taran district. Burning was the way local farmers used to get rid of straw left over from the paddy harvest of the earlier *kharif* (monsoon crop) season. Most considered the fire and smoke a routine part of the cycle of sowing, unaware of — or unwilling to acknowledge — just how much this contributed to air pollution.

Rajinder Singh Dhillon has changed his views on the practice of crop burning. For the last three years this farmer from Daburji has used a Happy Seeder machine to plough back the paddy crop residue into the soil, an efficient and eco-friendly alternative to crop burning. “Happy Seeder uses less fuel, helps reduce weeds and also minimises heat stress in the wheat crop,” says Mr Dhillon, who rents the machine from his village cooperative society. “It saves me time and money.”

India needs more farmers to think like Mr Dhillon and the reason is in the air. When winter comes, large parts of north India experience a lethal spike in air pollution. There is a jump in respiratory disorders and visibility drops drastically. A big factor is the estimated 23 million tonnes of crop residue burned each year in Punjab, Haryana and Uttar Pradesh.

Efforts to control this health hazard have been haphazard, but some solutions have worked. In August 2018, the Tata Trusts, through their Ludhiana-based...
Subsidies to the rescue

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o invest in the ‘crop residue management’ (CRM) machines requires substantial upfront capital, something most Indian farmers do not readily have. Although farmer cooperatives play an important role here, what’s really helped are government subsidies. Within Punjab, CRM equipment such as Happy Seeders, paddy-straw choppers and the straw management system are offered with 50-80% subsidies, and this is a more-than-useful benefit.

The Tata Trusts engages with farmers to offer information and advice about the equipment as well as how to fund them. Says Baljinder Singh Saini, executive director at the Tata Trusts’ RGR Cell, “Our team also works with farmers to facilitate the getting of subsidies and for capacity building on the use of the machinery.”

That’s not all. Within the CRM project area, RGR works to support small farmers by bringing them up-to-date on the range of government schemes available. For instance, the Rashtriya Krishi Vikas Yojana offers up to 85% subsidy depending on the project. The National Food Security Mission focuses on aid for improving machinery.

There’s also the Sub-Mission on Agricultural Mechanization, a scheme that assists small and marginal farmers by creating hubs that aid in the purchase of equipment. Additionally, loans are available from the central government’s NABARD (National Bank for Agriculture and Rural Development) to subsidise the buying of tractors.

In August 2022, the Punjab government launched a portal where farmers can apply online for subsidies. The idea is to make the process simpler for farmers applying for farm-equipment subsidies.

‘Adopted’ for adaption

CRM has, crucially, helped bring farmers on board. Around 540 villages, comprising 45,000-plus acres of farmland, have been ‘adopted’ for interventions in nine districts of Punjab and more than 170,000 farmers have been trained in CRM practices.

The bigger expectation is that air pollution can be reduced on a permanent basis by scaling up proven technologies and encouraging farmers to use sustainable agricultural practices. “With the support and collaboration of governments, research institutions, farmer organisations, policymakers and other stakeholders, we hope to see a substantial decrease in crop-residue burning in the project area by 2024,” says Mr Saini.

That would go far in tackling a peril that is damaging on more counts than one. The burning of crop residue is widely known as a terrible environmental hazard. It’s also bad for crops and soil health,
given that burning standing husks and stalks is a waste of precious nutrients that could enrich the soil.

“Burning rice straw is such a waste,” says Mahesh Narang, who heads PAU’s farm machinery and power engineering department. “That’s because rice straw contains many nutrients that are returned to the soil if left to decompose in the field. CRM machines like Happy Seeder help sequester carbon and restore soil health.”

Exploring alternatives to crop burning led PAU to devise, along with Happy Seeders, the ‘super straw management’ system. This contains equipment attached to the combine harvesters and it cuts the stalks of harvested paddy and spreads the loose straw on the field to act as mulch and preserve soil moisture. Happy Seeder sows wheat in the field by going through the loose straw and standing stubble.

Much of the Trusts’ endeavour has been about pushing farmers to follow the best crop-residue practices. The project area
was divided into clusters of 15 villages. In each cluster, five villages came under direct implementation by the Trusts and 10 were covered through community mobilisation for mass awareness.

Farmers were given demos and hands-on training and the Trusts have supported them and village cooperatives in renting the required machines or buying them at a subsidised cost. Gurbhej Singh from Bakkipur village in Tarn Taran is a farmer with his own Happy Seeder machine (he rents it out to other farmers as well).

“No-burn agriculture is good,” he says, adding that the CRM effort has not just improved the quantity of produce but also its quality. “Perhaps it’s because we use fewer chemical fertilisers now.”

Earthworm effect

Balwinder Singh, a farmer from Makowal village in Amritsar district, is another staunch supporter of CRM. “My crop grows normally and I barely have to add any manure since the straw provides adequate mulch,” he says. With seasonal yield increasing from 16 to 20 quintals, Mr Singh’s income has increased and he’s pleased to have his soil in better health. “I see plenty of earthworms there now.”

RGR’s consistent and tenacious efforts have been integral to the programme’s well-being. The CRM component is monitored by kheti doots (farm coordinators), who get the farmers ‘ready’ to adopt its methods. To create mass awareness among the farmers not directly reachable, the team designed digital posters and other content that was shared with the farmers through WhatsApp.

Positives aside, there is much distance left to cover. “Efficiency can be enhanced and we need to train technical operators and drivers in how to handle the CRM equipment,” says Mr Saini. The team also wants to explore how Happy Seeder can be employed for direct seeding of rice and other crops.

Mr Narang feels that sustainable change can only happen when policy support is extended to enforce no-burning agriculture. “Now that machines are available, there’s no excuse to burn crop residue,” he says.

Kudrat Singh, a farmer from Athwal village in Amritsar, sums it up best: “Giving back to mother earth is the best reward. She will reward us in return.”

By Kalpana Shah
There’s nothing quite like apricots. A multitasking fruit that can be eaten fresh, cooked or preserved, apricots are an excellent source of vitamin A and iron, and are high in natural sugar.

In Ladakh, the apricot is believed to have been introduced more than 100 years back from China or Central Asia. Known locally as chuli, apricots are widely cultivated in different areas of Ladakh and have become, as a result, a commercially crucial fruit crop and an integral part of the food culture of the region.

The local affinity with the fruit has been the big reason spurring the ‘apricot value-chain development’ programme introduced in 2018 by Himmotthan Society, an associate organisation of the Tata Trusts.

The programme has in its folds some 10,000 tribal farmers from 10 villages in Sham Valley. The expectation is that by June 2023 the programme will cover 50 villages in Leh and Kargil districts and benefit about 5,000 families.
From top: Sonam Yang Dol of Takmachik village in Leh district harvests her apricots; dried apricots being sorted and graded by a farmer group in Takmachik; apricots being dried in a solar dryer.
Dried apricots (above) and the packaged product, which goes by the brand name Julley Ladakh. The Himmothan team has strived to boost the incomes of the apricot farmers through a package of good practices aimed at improving quality and reducing wastage.
Rinchen Yangzes from Takmachik village (above) drying apricots; solar dryers — a version of which is seen at left, are widely used to dry the apricots.
Tashi Namgail (above left), who heads the Sham Valley Apricot Producer Cooperative, with a local farmer at the Chuli Mentok Apricot Festival of 2022 (organised by Ladakh’s tourism department, the festival takes place in spring and is a big draw with visitors); Tsewang Namgial, a farmer from Lasthang village in Sham Valley, spraying foliar fertiliser on his apricot trees.
From top: A stall at the Chuli Mentok Apricot Festival held in April 2022; the apricot flower, which is slightly fragrant and is pollinated by insects; dried apricots contain potassium and antioxidants and are known to lower cholesterol and improve digestion.
India’s rural livelihood issues can be solved, and it begins with mobilising and enabling local communities to develop a sustainable future.

Statistics from Asia Development Bank (2011) showed that 21.9% of India’s population, approximately 363 million people, lived below the poverty line. The rural poor accounted for about 260 million of this figure. A report by the Azim Premji University stated that an additional 230 million Indians fell below the national minimum wage threshold (₹375 a day) during the Covid pandemic. In parallel, pockets of rural India are trapped in an intergenerational cycle of chronic poverty owing to their geographical location and lack of access to services and opportunities. Lack of irrigation facilities, poor soil health, the inadequate use of modern farming methods, negligible post-harvest facilities and a shortage of market linkages combine to make agriculture a high-risk activity for small and marginal farmers.

Where there’s a will...
While the rural economy contributed almost half of India’s overall GDP in 2019-2020, employing 350 million people (68% of the total workforce), and while over the last five years the rural ecosystem has grown by about 10% a year, mounting job losses over the past few years have been hitting the sector severely. This is visible, for example, in the rising demand for work under the Mahatma Gandhi National Rural Employment Guarantee Scheme. Households dependent on the Scheme climbed from 54.8 million in 2019-20 to 75.5 million a year later, showing how important it was in helping the country’s returning Covid migrant labour force.

Yet, at the same time, some of the very same numbers also point to the enormous potential for future growth. Over the past few decades, multiple government, nongovernment and private sector initiatives have buttressed India’s rural ecosystem. Community mobilisation and poverty-eradication programmes, the National Rural Livelihood Mission among them, in collaboration with civil society organisations, have enabled the establishment of a network of sustainable practices and processes, catalysing local economies and building a framework on which development can be advanced.

Physical infrastructure and connectivity have improved in rural areas over time, while smartphones and internet penetration have increased rapidly. Access to credit and government schemes are also better. Development and support for farmer producer organisations (FPOs) are now at the forefront, resulting in these becoming access points for farmers, as well as generating the capacity to fuel awareness and support new initiatives.

**Enhancement efforts**

Overall, trends of this kind are producing a positive environment where progress can be accelerated through sustained efforts in training, skilling, innovation and entrepreneurship development. Furthermore, as newer generations of farmers and FPOs become digitally savvy, fresh business models are emerging across value chains, with information and transparency initiatives attempting to address existing inefficiencies.

‘Rural upliftment’ has been a key engagement area for the Tata Trusts for several decades, with programmes across agriculture, livestock and fishery, natural resource management, market development, technology and more. The portfolio’s core objective is to create robust livelihood opportunities that enable households to earn higher — and sustainable — incomes. These are based on integrated community-based interventions that anchor development activities.

Community-based organisations (CBOs) are the pivot for pulling together governmental schemes, credit activity, technology and market interventions. Crucially, community institutions bring villagers together and allow for a community-based identification of beneficiaries and activities. Most importantly, they help craft community
ownership and responsibility, vital for long-term planning and sustainability. Interventions are designed on the basis of need. They augment natural resources, while focusing on initiatives to increase productivity, such as promoting ‘packages of practice’ in agriculture, end-to-end value chain development for produce, setting up businesses and building high-value agriculture or micro-enterprises. An emphasis on sustainability, innovation, integration and transfer of ideas is at the heart of the programmes, from using more efficient agricultural machinery to popularising micro-irrigation systems and pushing alternate sources of energy.

**Partnership positives**

Developing sustainable livelihoods to alleviate poverty demands collaboration of the public and private sectors, as also civil society. The Trusts strive to bring this about through their associate organisations, which help implement ground-based projects. Furthermore, the Trusts collaborate with central, state and local government bodies across the country, as also with the corporate and social sectors, to scale up successful programmes.

The portfolio currently operates in 19 states of India, reaching more than 6 million individuals. Programmes are designed to meet the requirements of specific geographies. For example, initiatives in the central Himalayan region include Ladakh, Himachal Pradesh and Uttarakhand. These initiatives were consolidated in 2007 under the Himmotthan Society, an associate organisation set up by the Trusts.

Himmotthan initially grew while learning to adapt to the complicated landscape of the Himalayas, a difficult topography with minimal community resources, impossibly small agricultural fields located at dizzying heights, and with minimal water, electricity and market-based resources. Pockets of the region continue to be isolated, with scant external support in agricultural development.

There were many positives to work with, though: gentle and eager communities, a unique and healthy environment, rare and high-value species of plants and animals, and pockets of awareness and learning that have come about thanks to the persistence and patience of local organisations.

Well before the Trusts had any base in the region, the Tata group, with its ubiquity of products and services, had a strong and devoted base among local communities. This was an advantage for Himmotthan. That the Tata name evoked recognition and respect even in the remotest of villages helped the organisation get started.
Himmotthan began by tackling a perennial problem: the desperate need of local communities for drinking water (it is estimated that women in the Himalayas walk the approximate length of India in a year carrying water, fuelwood and fodder). Starting with a programme to develop drinking water schemes across villages, Himmotthan took on livestock and fodder issues, agriculture, menstrual health, education and much more. A three-point strategy guided project outcomes: feed a gap recognised by the state as a widespread concern; make the effort replicable; and ensure that it is owned and operated by the local community.

**Sustainability matrix**

These three points were central to the long-term sustainability of the activities, with or without the future presence of the Trusts or Himmotthan in the region. This is recognition of the basic democratic principle of ownership by the community, and of involving the state as a backer of social development programmes. While village women are catalytic agents of change in most activities, men and youth are actively involved in the programmes.

A bevy of external agencies, advisors and organisations provide the expertise required. Himmotthan’s programmes currently cover 15 districts and 2,000 villages across Himachal Pradesh, Uttarakhand and Leh. It has under its umbrella 5,300 women self-help groups with about 42,000 members.

Much of Himmotthan’s work now focuses on building risk-tolerant local income sources that are linked to local and regional markets. Planning for this means bringing in credit, insurance, support networks and technical knowhow. The foundation on which Himmotthan was built has resulted in the creation of community-owned institutions, including an apex institution, the Trishuli Producer Company — named by the women who own it — process innovations that have led to sustainable mountain economies, and a rural community that is versatile, vocal, skilled and independent.

The Tata Trusts are now increasingly moving into the ecosystem-level management of resources, conservation and climate impact mitigation, overlaying the ongoing work on enterprise development, value-chain sustainability, and the increasing use of technology and green options. The intent is to enable growth and a future where rural communities can manage and run their own enterprises. While the problems India faces are large, such pockets of excellence show a path forward, bringing in equity, equality and trust.
Struggling to hold up half the sky

With female participation in India’s workforce on the plunge, the time is now to give women a fair shot at finding dignified and rewarding employment.

Rani, 35, could no longer make ends meet; reluctantly, she left her village in Buxar in Bihar to join her husband in Delhi. It has been 15 long years since and, though it hasn’t been an easy life, she has “managed”.

But nothing had prepared Rani for the troubles that came when Covid-19 struck. Her life, the lives of her family members and her livelihood were upended. The pandemic brought Rani’s carefully choreographed existence to standstill.

The lockdown did more than just shutter businesses; it also pulled the plug on the job that had helped Rani keep a precarious toehold in the city. As her meagre savings dwindled, Rani’s only refuge was her village.

“When I returned there was no work for me; people were wary of allowing anyone from outside into their homes or offices,” says Rani with a wan smile. “When I eventually found work, it paid ₹9,500 a month, a big fall from the ₹20,000 I was earning in Delhi. There was little left, but when you cannot pay the bills you have to dig deep inside you. Going back was not an option, so I decided to stick with the job.”

Aditya Malaviya is a writer and researcher involved with a range of social development issues.
Little left? International consultancy Deloitte may beg to disagree. In its July 2022 report on India’s economic outlook, Deloitte pegs the country’s economic growth at 7.1–7.6% in 2022–23, making India one of the world’s fastest-growing economies. Meanwhile, the Reserve Bank of India has projected GDP growth of 7.2% for the same period.

So how can there be “little left” if India is the engine driving world growth? A paradox? Well, it’s complicated.

That jobs are hard to find for Rani and millions like her is true. What is also true is the historical decline in India’s female labour participation rate (FLPR). The International Labour Organization (ILO) pegged the country’s FLPR at 20.33% for 2020, down from 30.27% in 1990. In other words, almost four out of five Indian women are neither working nor seeking paid work. This effectively puts India among the 10 lowest-ranked countries globally in terms of women’s workforce participation (behind us are Egypt, Morocco, Somalia, Iran, Algeria, Jordan, Iraq, Syria and Yemen).

The ILO figures are corroborated by data from Centre for Monitoring Indian Economy (CMIE), which puts it more starkly: between March and April 2020, 26.6% women moved out of the labour force (against 13.4% men).

The Indian government’s recently-released Periodic Labour Force Survey (PLFS) for July 2019-June 2020 bolsters the above findings. There is a decline in FLPR, from 33% in 1993-94 to 18.2% in 2017-18, before an uptick to 24.7% in 2019-20. In comparison, for males it increased from 75.8% in 2017-18 to 76.8% in 2019-20. What explains the anomaly?

Ask Rani and she may think Covid is the cause, and she isn’t wrong. But that’s only half the story.

Rosa Abraham, professor of Economics at Azim Premji University, Bengaluru, found that 35% of men and 70% of women lost their jobs as a consequence of the pandemic-induced lockdowns. While 7% of men who lost work during the lockdown remained unemployed even after, the corresponding share for women was 37%.

Ms Abraham attributes this difference to “increased domestic duties, lack of childcare options after school shutdowns, and a surge in marriages”.

While the pandemic did widen labour market inequalities, existing gender biases and traditional socioeconomic barriers to women’s participation in the workforce played an equally significant, if not greater, role in the gradual retreat of women from the country’s workforce.

**Declining share of agriculture to GDP:** According to the 1983 National Sample Survey (NSS) report, 77% of rural households depended on the agricultural sector for their livelihoods. This dependency declined to 50%, as per PLFS 2018-19, and agriculture’s contribution to national GDP has also declined, from 34% in 1983-84 to 16% in 2018-19. This has had a corresponding impact on employment generation for the rural workforce, with the agricultural sector’s contribution to employment falling from 81% in 1983 to 58% in 2018-19.

**Change in occupational choices:** The declining share of agriculture to GDP prompted a shift in occupational choices in the rural workforce. Male workers engaged in agriculture declined from 78% (1983) to 53% (2018). Similarly, female agricultural employment fell from 88% to 71% over the same period.

On the other hand, workforce participation in rural non-agricultural sectors for male workers increased from 22% in 1983 to 47% in 2018, an increase of 25 percentage points, while female employment
actually increased from 12% to 29% over the same period.

**Smaller farm sizes, increasing mechanisation:** The size of agricultural landholdings has also shrunk with concomitant divisions within families, making agriculture increasingly unviable.

A McKinsey Global Institute report estimates that subsistence agriculture could be a factor in 28% of jobs lost by women by 2030, compared with 16% for men, given that the average size of operational holdings decreased from 2.28 hectares in 1970-71 to 1.08 hectares in 2015-16. Increasing mechanisation, as agricultural implements rapidly replace labour traditionally undertaken by women, could have nudged this decline.

**Working harder, but it’s hard to find work:** Data from NSO 2020 shows that the total working time per day for women was 9.5 hours as compared with 7.9 hours for men, which means that even as women worked 91 minutes more than men per day, they got 50 minutes less time for socialising or leisure.

The central government’s ‘time use survey, 2021’ reveals that 92% of women in India between the ages of 15 and 59 spent nine times more time on household duties compared with men, often shoudering the ‘second shift’: coming home from work only to take on the entire burden of cooking, housework and elder and childcare. Indeed, Kapsos et al (2016) suggest that 33.6% of rural working-age women in India cite domestic duties for not being active in the formal labour market.

Globally, women spend three times more time on unpaid care work than men but in India it is 9.8 times more (NITI Aayog, 2017). That may be one reason why there are fewer and fewer jobs for them.

A report by the economics think tank Nikore Associates states that while workforce participation in rural non-agricultural sectors for male workers increased from 22% in 1983 to 47% in 2018, it went from 12% to 29% for female workers.

Where does this leave women? Sacrifice of wages, careers, and educational opportunities in lieu of family responsibilities and unpaid work. Ask Rani.

**Social norms as hinderance:** We thought educating girls could help translate into employment opportunities. That has not happened. Though more girls in India finish their lower secondary education than boys — 87.6% to 82.7%, according to a study by the UNESCO Institute for Statistics, 2017 — female Labour Force Participation Rate (LFPR) continues to remain low.

*Source: International Labour Organization*
This suggests there could be other issues at play, such as sociocultural norms and patriarchal, traditional conceptions of gender. So long as these dictate that women’s duties lie in the household, it will be a long, hard road for the discriminated half of our populace to find dignified, gainful employment.

The crux is fulfilling employment. And it is hard to come by for women, as Mitali Nikore of Nikore Associates points out. She found that women are barely represented in new-age jobs — 17% in cloud computing, 20% in engineering and 24% in data/artificial intelligence — despite tertiary-level female enrolment rising from 2% in 1971 to 30% in 2019 (World Bank data).

Is this the end of the road or the beginning of a new one, Rani may ask. It’s a good question, but if economic growth alone cannot solve the problem, what can?

**Focus on manufacturing and tertiary sectors for employment-creation:** Women account for just 12% of jobs in India’s manufacturing sector, which employs about 27 million people. This emphasises the need for an increased focus on women’s employment in manufacturing and its tertiary sectors to not only increase gender diversity but also innovation by tapping into a new, talented and well-educated pool.

This is also one way India can meet the demand for digital and technology skills, which is increasing by leaps and bounds, and where the share of women’s employment in professional and technical roles stands at just 29.2 per cent (World Economic Forum’s Global Gender Gap Report 2021).

**Vocational training and upskilling:** Various demand-driven skilling and vocational programmes of the Ministry of Skill Development and Entrepreneurship leverage technology, incubation space, funding opportunities and upskilling centres to facilitate women’s participation in the fourth industrial revolution, and many such programmes are already in place.

The Economic Survey of India 2021-22 puts the proportion of skilling in the female workforce at 48.5%. Calculated as a percentage of the labour force, this is much higher than for male labour, even though women make up only about 25% in terms of labour force participation. Which demonstrates that women are beginning to come out in larger numbers to skill themselves and monetise their labour for the formal market, rather than opting to stay within the confines of homes, where there is no financial value for their labour.

**Taking the law into their hands:** India has implemented laws that protect women from gender discrimination. Some of these, like the Maternity Benefit (Amendment) Act, 2017, the Factories Act, 1948, and the Protection of Women against Sexual Harassment at Workplace Act, 2013, are well-established, while new ones, such as the draft Labour Code on Social Security, 2018, look to level the playing field further.

Which brings us back to Rani. By moving to Delhi, she had taken that intuitive first step against the patriarchal restrictions placed on women by society. But Rani needs support — investment in basic infrastructure like provision of child care, transport, water and sanitation — so that she has more time to pursue better skillling and training opportunities, thereby increasing her occupational choices.

That, in turn, would mean good-quality labour and better compensation. As Rani reboots her life, she needs to have the confidence and reassurance that the autonomy and agency she has tasted will not be short-lived despite the uncertainties of the future.