We completed our first formal Shodhyatra in 1998 from Junagadh to Bhavanagar via Amreli, covering a distance of 250 km. One of the most remarkable aspects of this year's Shodhyatra was the discovery of more than two dozen innovations in different domains. It was fascinating to meet some of the innovators who had risen to the occasion during Covid and solved problems in real time, saving hundreds of lives. The interaction with several centenarian Dadi and Dada whose life portrayed wisdom, courage and kindness was equally inspiring. During the pandemic, some children missed out on online education because their parents did not own a smartphone. Others, however, took advantage of this gap and acquired traditional knowledge from the elders. Most shepherds were distressed because the wool of local breeds had no buyers, so they had to throw it away. In addition, meeting with rare collectors such as Salemanbhai, who has over 200 different models of old radios as well as a huge collection of cacti, made this Shodhyatra very memorable.

Anyone can join the twice-a-year Shodhyatra so long as they share the HBN values and wish to contribute to the grassroots innovation and conservation movement.

“Why don’t you also stand and speak, share your idea,” said Nisha, a third-standard student to her fourth-standard friend. She was encouraging her senior to answer a question asked to them about modifications needed for everyday items such as spectacles or a shirt. Boosting a senior’s spirit, surprising us with creative ideas in front of a large gathering fearlessly and not caring about how others might react are some of the expressions the Shodhyatra inspires. Unleashing the creativity of common people and sharing with them innovations and traditional wisdom scouted from elsewhere helps in the cross-pollination of ideas. For nearly a quarter century, the Shodhyatris have been searching for and spreading unaided innovations and outstanding traditional wisdom of the elders in different parts of the country. The Yatris walk in hot places in the summer and cold places in the winter. After a two-year interlude due to the Covid-19 epidemic, the Shodhyatra—discovery and learning walk—was resumed in 2021. The 46th Shodhyatra took place from August 6-11, 2021. Thirty-five Yatris, including students, professionals, entrepreneurs, innovators and farmers, walked around 92 km and visited 23 villages from Gavadka, Amreli district to Dudhala, Gir Somnath district.

Shodhyatra has always been a two-way knowledge sharing between the villagers and us. Most meetings were pre-
planned, but many were incidental. Even just talking to random people provided some interesting insights, thereby discovering unexpected innovators.

We organised meetings in primary schools, temples, farms or common areas of each village. All the villagers, including farmers, students, women, local veterinarians, innovators, and centenarians, were invited to attend.

The sarpanch (head of the village council) of each village was given a set of books, including *Hunar Mahasagar* and *Loksarvani*, to share in the village or school library.

During our journey, we experienced the culture and values of many people as they welcomed the Yatris and dignitaries. At Gavadka, the first village of the yatra, the villagers welcomed us with dhol-nagaras and offered the dignitaries handmade cards. The meeting began with lighting the lamp. Then, the female students dressed in traditional attire and sunglasses performed a welcome dance.

During the yatra, we discovered several innovators who have been experimenting with building mechanical machines or vehicles, helping out their local farmers and supporting students. Each one of them had some interesting innovations to share with us. Nikhilbhai Parmar believes that farmers and other workers should not be restricted due to the unavailability of tools. So he designs and manufactures devices that are not available in India. He also supplies tractor attachments for levelling stony farms and materials handling. Nikhilbhai's ideas can help farmers produce components that are difficult to obtain locally, as well as fabricators in villages who want to develop and sell similar tools.

There was a severe shortage of oxygen during the second wave of COVID. After much effort, local hospitals and doctors were able to arrange for the supply of oxygen cylinders from the industry. However, because these cylinders were never intended to be used in hospitals, they did not come with a regulator. Therefore, they could not be used without regulators and existing regulators were occupied in hospitals. In addition, a lot of patients required care at home. So, what Maheshbhai Joshi did was that he consulted the local doctors and obtained from them the specification of the valve that was needed for the cylinders. He also inquired about any variations in flow rate, pressure and any other parameters to be taken into consideration when designing the valve. After a few iterations of the design, he succeeded in making a real-time good design of the valve that satisfied the requirements of the doctors. He made 150 such valves and distributed them free to save lives during the severe second phase of COVID.
Kevalbhai Mehta, a teacher in Amreli, supports many bright students through his teacher network to work on their ideas and create their own experiments. He devised an attendance system, “Roll No. 1 hydrogen, roll no. 2 helium,” as a creative way to teach his students the periodic table. Kevalbhai has developed biodiversity centres in schools and opened accessible libraries and makerspaces. He plans to work with village children and youth to nurture creativity and leadership. His team of volunteers can engage village students with local HBN members to execute projects or experiments in fields such as steam, agriculture, nutrition, water and environment.

Over the years, the Shodhyatras have led to several unexpected discoveries, some through mere coincidence and others through the people. One such discovery occurred when a group of women noticed the Yatris walking and invited us for some tea. They requested we visit their home once they were given the lokasarwani and told about the purpose of the Shodhyatra. We discovered that the family were blacksmiths. They showed us various types of tools they had made from waste materials, wood, beads, etc. Vijaybhai Dhirubhai Luhar described his work with machines. He has created a potato cleaning machine and a chips making machine for various companies. He is currently developing a Samosa-making machine. Next, we saw a ironsmith, Kalyanbhai Barod, making Chulhas (stove) from metal sheets outside his house. He had also made toy carts for his children and lamps for arti. When we learnt that his children do not attend school, one of our Yatris, a teacher, requested Kalyanbhai to send his children to school. To convince him to start sending them to school, he suggested that they send them at least for the free meal offered by the school for its students. Two of the teachers who were walking with us in the Shodhyatra offered to help him admit his children in the school nearby so that they do not remain devoid of education.

Subsequently, after the Shodhyatra ended, we sent Kalyanbhai a mobile phone so that other people could send him orders and fulfil their needs.

Such unplanned visits help us discover such talented
minds and help them in any way we can.

One of the goals of the Shodhyatra is for the Yatris to meet the farmers and other community members and learn from them about any new or unique practices they have followed in the past or currently follow. The Yatris sought out those people who stood out in the field of farming and had conducted various experiments. We discovered many farmers who practise organic farming and have achieved effective results. We learned about the organic solutions/medicines used to protect the farm from animals and insects and how they are prepared.

The impact of the Shodhyatra has a profound and long-lasting impact. On the first day of our journey, one of the Gavadka villagers, Rameshbhai Gondaliya, showed us the letter which we had written way back in 1996 nominating him to the committee. We had requested him to take initiatives to activate the committee again. He recalled how he was still a member of the taluka committee formed by SRISTI in 1996. He still had the Loksarwani that had been given to him back then.

He then cracked a joke, saying, “The professor’s surname is Gupta, so he should be keeping all this knowledge Gupt (secret), but instead, he is searching for it and spreading it to everyone.” He suggested that the yatra be called Shodh of Shodh as we were searching for the knowledge that somebody had already discovered.

Ganubhai Lakhani of the Taravda village uses technology to make his own pesticide, saving money and preventing toxic residues in the soil. He told us about his successful experiment with Ajma no ark (carom seed distillate) for controlling molomasa (aphids) in his farm. He mixes 100 L water, 500gm Ajmo (carom), 500gm Haldi (turmeric) and 1 L milk and leaves it for 24 hours (until it gets fermented) before using 500gm in a 15 L pump within 48 hours. (Ref: Honey Bee, 6(4):13, 1995 for more ways to control aphids)

He also shared a method to make organic fertiliser that he learned online. Ganubhai mixes 1kg Dhatturo (Datura stramonium), 1kg Jamfadi (guava), 1kg Limo (neem leaves) and 1kg Sitafadi (custard apple) in 20 L water and boils it until it becomes 15 L. He uses 300ml of this solution in a 15 L pump. This way, he saves around Rs. 20,000 spent on fertiliser alone. Ganubhai also believes that we must create employment for the people of the village by using local knowledge and processes. The Yatris also learned about Navneetbhai, who plants haldi in his farm using only Gov Krupa Amrutam (bacterial culture).

Throughout the Shodhyatra, we learned about the various methods villagers in each village use to preserve grains and crops. Some people shared their innovative and effective organic preservation methods. However, some simply stated that they use chemical preservatives. To avoid such harmful chemicals, we shared with them alternative organic and natural methods for crop protection from our Honey Bee literature. (Ref: Honey Bee 24(2) 16, 2013; Honey Bee, 6(2):3-5, 1995; Honey Bee, 4(2-3):1718, 1993)

At our meeting in Gavadka, Mr Dhirubhai Sambubhai Pethani told us how he preserves his peanut crop by leaving the mud around it as it is. It protects the crop from insects. This method can be similarly used for other such crops like chana (chickpeas). Khumiben Khehaiya described how she preserves mung (green gram) by making multiple layers of mung and sand one on top of each other.

We sought out and honoured Pashuveds (local animal healers) in every village. We hoped to learn from them as well as people who do cattle husbandry about various herbal healing methods to cure various diseases in animals.
At Gavadka, Mr Dhirubhai Sambubhai Pethani told us how Pashu-vaalo (cough and cold) can be cured by burning kantan (gunny sack) and letting the cattle inhale the steam produced by it. Kharva-movasa (foot and mouth disease) can be cured by making the cattle walk on hot sand. Aafro (bloating) can be cured by feeding them two boondi ladoos (indian sweet).

We learned several herbal remedies in our meeting at Wakiya, including how to use haldi with oil to cure Aafro in cattle, Sitafadi leaves with sugar to treat insect problems in cattle and tobacco with oil to get rid of Chachad (ticks). (Ref: Honey Bee, 10(2):14,15; 1999)

We met an innovative cattle caretaker on our walk from Babaput to Taravda. He had built a drinking water facility for cattle inside the tabela (stable) at a comfortable drinking height for them. He had made the innovation such that it automatically fills up so that he does not have to refill it every time the water runs out. Several villagers believe in herbal medicine and treating themselves naturally. We also learned about some interesting herbal healing methods for treating various health diseases and injuries in humans. We met Ujiben Chavadiya at Gavadka, who told us about the benefits of Mamejo (Green chiretta) for treating fever and stomach ache, which we usually treat with medicines but can be easily cured by such plants in our surroundings. (Ref: https://www.dzarc.com/index.php/phytology/article/view/28)

Hansaben at the school in Taravda told us how they use spider webs to cover wounds to help them clot faster. (Ref: https://pubs.acs.org/doi/abs/10.1021/acsami.8b05853)

The Shodhyatra inspires everyone we meet, especially the children, to think out of the box. We carry out activities such as idea competitions to teach the children about the power of creative thinking, how it can solve various problems and what it can mean for the future.

In all of our meetings at the schools, we asked the students to come up with any ideas that could benefit our surroundings and to write them down. We used to select the best ideas and honour them in order to encourage the children for such great thoughts. Some of the ideas captivated the Yatris as well. We were left wondering how these kids came up with such good ideas without first considering constraints. Whereas we, the elders, due to our education, have filled our brains with constraints that prevent us from having such creative thoughts. The kids were so clear-headed that they drew prototypes of their ideas. Some students even devised solutions to real problems that they or their families had encountered.

Many students participated in an idea competition we held at Babapur, and we awarded some of the ideas. One child, Solanki Mayur, came up with the idea that the vehicle should automatically call the ambulance on meeting with an accident. Such ideas, if implemented, have the potential to save so many lives. Rahul Bagog proposed an adjustable desk/table which could be comfortable for people with different body physics. Akhil Suvrat suggested that an alcohol sensor should be installed inside every car, which will not allow vehicles to start if the driver is intoxicated. Once again, a lifesaving idea that can benefit a lot of people. Narendra Vala proposed installing a dustbin in the school that plays music on throwing garbage in it and also thanks the user. This smart idea will encourage students to throw the garbage in the dustbin rather than in the open, forming a habit of using the dustbin as they grow into adults. Hardik Bhakda saw the need to build a low-cost crop collector in order to eliminate the need for farm workers in the farm as there was already a shortage of workers.

Sangeeta, a student at the primary school in Medi, had observed wastage of water at school at drinking water spots. So she suggested a simple yet effective solution. She wanted the wasted water to be collected and utilised to water the plants in the school. At the Chadiya primary school, Makvana Gopi Sanjaybhai suggested that broken
bangles can be used to make home decoration items. Dhabi Jay building a robot to straighten tilted trees in jungles. Hisha Gatiya saw the need for wastewater from the gutter to be collected in one location, filtered, and reused in the village to save water. Rathore Priyanka proposed creating a robot capable of sensing and locating starving animals in the jungle in order to save their lives. To prevent injuries, Mahek suggested that sensors be installed to detect obstacles such as fingers when the door is closed. She would have had no idea that such sensors already existed, but because she must have experienced such a situation, she must have come up with such an idea that was totally new for her.

In the idea competition conducted at Chalala school, so many eager students submitted their ideas that the entire Shodhyatra team had to help evaluate them and select some unique entries that could be awarded. Gohil Hitesh's idea was to install a dynamo in the cycle to generate electricity. Solanki Sujal suggested building a canal with the help of local farmers to divert water to the river with less effort. These students had first-hand seen these problems and the amount of effort their parents put into farming, which is why they came up with such ideas. Thumbar Neerav suggested that plastic waste should be used in road construction to strengthen it and reuse waste. Susra Kisan proposed putting a sign near the gutter to prevent people from falling in during rains when the roads are flooded and the gutters are not visible. Balod Najid suggested that wastewater should be put back into the land (recharge) to raise the water level in wells as it is getting lower every year.

That so many different concepts were put forward shows how creative young minds are and how nourishing such creativity can be beneficial to their communities as well as the world at large.

dA large number of women actively participated in many of our meetings in the villages. We came across some creative and talented women with incredible traditional craft skills and a strong entrepreneurial spirit. They have been role models and inspirations to many other women in their communities.

On the Shodhyatra's first day at Gavadka, when we talked to a group of women sitting in a corner in the meeting, we learned that they had formed a group in the SBI office called 'Ek Vikas' to provide loans of Rs. 25-35 thousand to the women of the village, which they could use for a variety of things, including starting a local business, farming or building a home. The ladies also have an organisation called the 'Gopi Milap Mandal,' which has around 200 members. They collect money, gather once in a while and conduct activities to relax and enjoy.

The women's group in the Wakiya village was very interactive. The meeting was held at Mr. Ashwinbhai Akbari's farm. Renuka Ashwinbhai Akbari, his wife, showcased her craftwork made using wool, beads, etc., during our visit to their house. She told us that she had
made the majority of it for her daughter to give to her at her wedding.

Along the entire journey, the Yatris got to taste and experience some of the most delicious and nutritious traditional dishes prepared by the village women. We learned about the health benefits of the dishes and how they are prepared. At Gavadka, Vaishali Vaghela made and served Jadariyu, a very healthy sweet, to the guests. It was prepared by mixing crushed Pok (wheat) with a warm mixture of jaggery and ghee, then adding dry fruits to it and cooking it until it turns green.

We learned about some new bhajis (vegetables) that the villagers of Wakiya eat regularly. The list went long and included Tanjaliya, Ruda-Rudi, Bhoi patri, Luni, Kanajro, Tanjariyo, Faan and Kharkhodi. The recipe competition at Babapur received the best response in our entire journey. We were lucky enough to taste various local healthy and delicious dishes prepared by the women of the village. The dishes included a sweet called Thli (like sheera), Jadriya (pok), Methi filled mirchi, Kadhi gathiya sabzi, Sathva (whole wheat grain), Bharelo rotlo (stuffed bajra roti), Orvu (wheat grain halts), Kachdi (made of chebhada) and Barfi churmu.

Following our meeting in the Moti Garamdi village, some women served us some of their best recipes. They had prepared Jhuvar rotlo, Jungle Tindora kachdi and Adad daal without oil, which according to them, is very good for people suffering from acidity. The Yatris also honoured the lives and practices of several centenarians, both men and women, whom they met along the way. We sought to learn from their wealth of knowledge and experiences in life. We took their blessings and learned lessons about how to live a life.

On our first day in Wakiya, we met one dadi at ‘Shri Krishna Krupa’. She could hardly open her eyes and could barely hear. However, when her family members told her about us, she recited a Bhajan in our honour. Such was her hospitality. She recalled liking to work on the farm and at home when she was younger. She believed that staying active, eating healthy and being content was the key to living a long life. When we asked her what message she wanted to give us, she said, “Sadbudhi rakho.” She meant that everyone should feed poor people first and then eat. She also told us that being selfish is wrong and that we should think about how we can help others.

On day three at Kaner, the Yatris honoured Bachubhai.
He told us about his life, such as how he used to spend a lot of time playing *Gillidanda*. For the past many years, he has been eating only one meal a day, in the afternoon, consisting of *rotlo* and milk. He urged everyone to eat healthy and clean food at all times. When asked which time period he preferred, his olden days or the present, he responded that he preferred the present because life is much easier now, whereas people had to do a lot of work in his olden days. He later told us about his dreams in which God holds his hand and tells him that he will live for more than 200 years. Bachubhai seemed very happy while telling us about them.

On our way to Lakhapadar, the Yatris got to meet a brave 98-year old grandmother, Labhumadi. She told us about how her father had raised her as a boy and how proud she was of it. When we told her what the Shodhyatra is about, she shared with us a remedy to cure *Galpachodia* (Mumps) by rubbing *Gandharo* with water on it. This is what keeps us going during the Shodhyatra: personalities like these ones.

One of our goals was to find teachers who had used their creativity to teach children in a novel way rather than the traditional method. We lauded such teachers and shared some of the methods we knew they could use to teach their students. One of them is that when a teacher takes attendance, instead of saying “present” or “yes sir,” students can speak an alphabet and a word beginning with that alphabet. We had picked up this method from another teacher during a previous Shodhyatra. This can be implemented anywhere with zero cost and is a great way to make learning fun for the children. Therefore, this yatra was an opportunity to look for more creative ideas from teachers and schools. The SRISTI team had also discovered many of them prior to the yatra. They were recognised and honoured for the excellent work that they were doing. Dr Pranav Janardhanbhai Vyas was one such teacher. He started making puppets in 2003 to help make education more interesting.

The characters have been inspired by current and historical events. The artist uses his art of puppetry to convey his message, tell folk tales, and raise awareness on various issues. We saw him perform twice during the yatra, once in Amreli and again at the Chalala school, where he put on a show for the students. Everyone was impressed by this initiative to combine education with entertainment.

During the lockdown, many parents complained that their children were spending all day on their phones,
playing video games, and watching television because of online education. So Hareshbhai Gohil, a teacher in Amreli, prepared a checklist called the "Home Learning Monitoring Card" to help the parents keep track of their children's non-studying activities and keep an eye on their progress. Niravbhai Jiyani had created the first ever Sanskrit learning app in Gujarat, known as 'Sanskritwala.' Nidhiben Sutariya initiated 'One Step for Quality Education' at the school level to enable students to participate in educational, co-curricular and value-oriented activities, as well as experiment with innovative technology.

Raghavbhai Katakiya, a teacher from Jafrabad, did not want any child to be deprived of education during the pandemic. Therefore, he decided to convert his bike into a "moving school." After assembling the necessary teaching materials, he visited three farm-dwelling students and began providing in-person education. This experiment has caught the attention of educators around the world, including those in the surrounding villages. Another teacher, Pratik Kumar Rudani from Mota Samadhiyala, decided to make online teaching during the pandemic fun and creative for his students. He created and sent various education-based online games to entertain children. Children participated in a variety of activities, such as weekly activities, self-paced computer courses, and more. It is laudable that children were given this hands-on education.

Purviben Luhar from Vadnagar was named the Best Teacher by the Matrubhasha Abhiyan from Ahmedabad. She pioneered the idea of a book stop, which is held every Sunday and in which 2 books are given away free to readers from book stops along the highway. The book stop, which has been running for 6 years, has regular readers now. They return the books they have read and replace them with new books. This innovative idea for inculcating the culture of reading in the society is proving to be very successful.

Yogeshbhai Kathaniya from Kunkavav has developed a low-cost system called Modern Agrotech, in which farmers can control and operate the drip irrigation valve from anywhere using their mobile phones. As a result, farmers can save manpower while also making it easier to harvest fruit trees. This reduces the cost of production and increases profit. He has also created a product that uses a computer program to detect whether or not people are wearing masks and determine whether proper social distancing is maintained in public places. Tejalben Raviya from Savarkundla runs Dr. A.P.J. Abdul Kalam Youth Scientific Centre. It is a government-run centre that aims to instil an interest in science in children at a young age, as well as a scientific attitude in them. More than 200 experiments have been conducted at this centre. Children from standard 6 to 10 are involved in this centre, where experiments are conducted for ten to twelve hours every Sunday for children. Science project activities, seminars, etc., are also organised. The centre's students have also done well in science fairs and various competitive examinations.

Simaben Vyas of Kunkavav has successfully reversed the flow of children going to cities for education. Students from rural areas typically migrate to cities in search of quality education. But not in this case. Children from surrounding talukas come to study here in the village school, Talali School. It is located in a small village with a population of 850. But in terms of school facilities like quality education, Gyankunj projects, personal tablets, vehicle facilities, working teams, etc., the school has been ranked and recognised among the best schools in the taluka.

During the Shodhyatra, we discovered many such excellent teachers. At Gavadka, the principal, Mr Piyushbhai Jotaniya, gave us an overview of the school and discussed its various achievements. The school received an A1 grade in education quality ranking and was awarded the 'GCRT Shodhyatra | 9
Swachhta Award'. We learned from a teacher that the principal is a writer in the 'Pathya Pustak Mandal,' and has written the 'Dhingli-a-Dhingli' book. He has also received the best teacher award in the district.

On the morning of the journey’s second day, the school had organised the inauguration of the Atal Tinkering Lab (ATL) for the students of the school at Babapur. It had robotics, 3D modelling, human anatomy, and other facilities for children to learn and experiment in order to keep up with the modern world. This is an initiative that many more schools should look into. During our meeting at the Dharjivandasji primary school in Taaravda, we noticed an open-air theatre classroom concept with alphabets and numbers written on the steps. It also had traffic signal signs painted on the walls so that the students could quickly learn what they meant. This kind of environment encourages children to learn subconsciously while simply playing around the school.

Bharatbhai of Medi attempted and suggested reducing waste by treating it in the school so that when the school is cleaned, all of the garbage is not thrown out to pollute other areas. Kanchanben Dolasiya, a teacher from Amruthpura, shared with us her experiment with her school's students. In order to improve her students’ English skills, she made them recite spellings starting from 'A' when they entered the school and from 'B' in the afternoon. Occasionally, they were asked to recite the spellings of vegetables, animals, etc. In this manner, Kanchanben hoped to make learning easier for her students. We met some interesting people on our journey who not only inspired us but kept us entertained with intriguing tales and experiences.

On reaching Chalala, after we learned about Mr Sulemanbhai Dal, some of the Yatrīs went to meet him at his home. He had retired 25 years ago, but his ‘keep learning’ attitude has kept him working and learning ever since. His main interests have been pencil sketching and photography. He displayed a collection of photographs of various types of Vanaspati. Because the cameras used to have reels, he made a jugad (a hack) to convert them to digital softcopies. He also showed us his collection of various cactus species.

Sulemanbhai told us that he had over 450 different types of cactus, but due to medical reasons, he had to stay in Mumbai for a year, so only about 150 of them remained in his collection. He had planted bonsai trees to fit more trees in a smaller area. Following his retirement, he began learning how to use a computer, which is helping him store all his collections. He also showed us his huge collection of radios which he has been collecting for 40 years. He owns more than 275 different models of radios, all of which are in working condition and he repairs them by himself. He was a fascinating and enlightening individual. We later invited him to Chalala for a meeting where we recognised his work and passion. As the name suggests, the Shodhyatra’s ultimate goal was to find and learn anything we could throughout the entire journey. While several Yatrīs joined and left in a few days, around 25 of them completed the entire journey. It was a common practice for us to organise meetings within ourselves whenever we had some free time and share what we had learned along the way, as well as any questions, suggestions or discoveries that came to mind. It was a new way of learning to see and understand things from the perspective of others. In our breaks from walking, Prof. Anil Gupta would tell us some interesting stories and ask us questions that helped us learn some important life lessons. During one such meeting of Shodhyatris at Dharagni, we were asked to discuss our learnings so far and offer any suggestions. Amitbhai Dave mentioned an incident where the village’s herbal healer
conducted all of his experiments on another villager. He also mentioned that experimenting on ourselves first can be a faster way to test experiments than going through the entire process and arrangement. He also suggested to the team that we design some games for children to check how sharp their senses are. Dixiben Patel suggested that the children receive local support from experts, such as village mechanics if they are good at experimenting with mechanical ideas. Kevalbhai discussed an earlier experiment in which he had asked kids to choose an application and explain why they use it. He made them create a counter-example of why they should not use it in order to make them aware of what they are doing with their phones. He also suggested that we prepare an idea box beforehand and leave it in each village we visit.

In the morning at Dharagni, Digvijay Singh Chudasama, who had joined the Yatris midway through the journey, introduced himself and the work that he had been doing. In the last three years, he has collected 713 different types of seeds. He also talked about the time during the lockdown when the Giloy plant was in high demand. So he had visited every school in his district and planted Giloy seeds. He also carried a bag full of seeds, which he distributed to the villagers along the way and threw on the sides where there was room for more trees to grow. After hearing about his work, Prof. Anil Gupta gave him a target to collect 7000 different types of seeds using the Honey Bee Network. All the Yatris had agreed to contribute to this initiative whenever possible.

At Babapur, the girls from the Sarvodaya Ashram welcomed the dignitaries with Samayya and dholnagaras, a traditional way of greeting guests. Bhajans were also performed during the evening meeting. Many outstanding students, artists, artisans and some distinguished farmers were also recognized. At the Gayatri Mandir in Chalala, the communities shared their insights about local farming systems and yatris heard bhajan by Dhirubhai. During the second leg of the Shodhyatra, we met several innovators who have been experimenting with building mechanical machines or vehicles, helping out their local farmers and supporting students. Each one of them had some interesting innovations to share with us.

The farmers in Kalpeshbhai’s village were fed up with animals, such as pigs and nilgai (bluebuck), destroying their crops at night time. Kalpeshbhai built a flickering torch to keep the animals away at night. The torches are made using electronic spare parts. Mansukhbhai Radadiya has transformed 7–8 bigha area of rocky ground where not even a sprig of grass used to grow into a park rich in trees. The communities now call it the Oxygen Park. According to Sanjaybhai, they first dug and replaced the foundation with black fertile soil. He then gradually started growing plants that are suitable for birds and useful for medicinal purposes. He fenced the entire space to protect it from animals.

Kalpeshbhai alongside the flickering torch he built to keep away animals like nilgai (Boselaphus tragocamelus) from farms.
Mansukhbhai Bhut’s innovations were inspired by an intriguing story. For many years, he had been repairing bicycles, scooters and tractors. As a result, he had a wealth of technical knowledge and experience. He has been thinking for years about how to generate electricity at a low cost. Like many other crazy thinkers, he came up with the idea of using a long lever to generate 20 HP against the 3HP energy provided to it, violating the principle that one can never generate more from less energy. He has spent approximately 30 Lakh on this vain experiment over the last 5–7 years. He told us that he will continue with this experiment whether or not anybody helps him. We did mention to him that we could never get more energy out of a system than what was supplied to it but there have been mavericks like him always in the history. We hope that he will realise his very costly folly some day.

Nileshbhai Sutariya of Rampur, Amreli made a pulley in 1994 to extract a motor from a bore. In the year 2000, he made a fully automatic double-roped pulley. There is no cost to unload the motor into the bore. This pulley can be used to reach depths of up to 1500 feet.

Mansukhbhai Radadiya and an aerial view of the Oxygen Park he has built.

Nareshbhai Nathabhai built a grain grinder to help fellow villagers.
When there was no electricity in his village after the Tautae cyclone, Nareshbhai Nathabhai had used his machine, Sanedo to grind grains. He also helped many others by grinding the grains at his own expense. To help himself and his friends in his village, Bhaveshbhai Sutariya designed a machine with a 6.5 HP diesel engine for inter-culture in farms. Bhikhabhai Bordamo is a farmer and also runs a workshop to make various farm implements. He makes equipment such as Saneda, Shati and Orni. With his own ingenuity, he has developed a machine for extracting groundnuts from the ground. The plants are harvested in such a way that soil does not become trapped in the plant's roots. The remaining soil is washed off. The process does not require much labour. Answering to the need of inexpensive tractors in his village, Bharatbhai Pethani of Gavadka built a small tractor for farmers using the engine of a motorcycle and old auto rickshaw. He has also made a small tractor himself out of old spare parts, which he uses on his own farm.

In our meeting at Devla, Kishorebhai Balubhai shared with the Yatris his work on a thresher that can be used directly to remove, collect and thrash mandvi (peanut) or any such crop (coriander, chana, chickpea etc.). Bharatbhai Jagani Rampura shared that he had built a machine to remove a motor from a well with a hydraulic system. He had made it four years ago and spent around 3–4 lakhs to make it. He then explained that the process requires less effort due to the hydraulic system and uses diesel to run pump when taking out the motor.

Bhikhubhai of Jira village shared with us how he experimented and successfully extracted water from a well using a battery pump at home. He was able to extract approximately 200 L per hour.

Bhimjibhai Sheladiya of Trambakpur has built a battery-powered scooter which is currently at the trial stage. The scooter that uses four 12v 28A batteries has cost Bhimjibhai approximately Rs 25,000. He also developed an innovative way to harness heat energy while using the chulha (stove). Bhimjibhai surrounded the chulha with RCC karkri (stones) and placed a water tank over it to boil the water. During Punjab Shodhayta, we had come across firewood chuiljhas with water jacket to heat the water. Earlier, Jyoti Ravi Shanker was awarded in 2005 by HBN and NIF for a similar design of stove (https://
One of the goals of the Shodhyatra is for the Yatris to meet the creative farmers and other community members and learn from them about any new or unique practices they have followed in the past or currently follow. The Yatris sought out those people who had conducted various experiments. Yatris discovered many farmers who practise organic farming and have achieved effective results.

On the way from Amruthapura to Jeera, yatris stopped at Madhav Nursery and met Tusharbhai, the owner of the nursery. He showed us different kinds of plants in the nursery and told us various interesting facts about them. Regarding desi and nutan kesar mango, Tusharbhai told us that 90% of the kesar mangoes in the market were not original. Farmers plant kesar mango and grafted kesar mango above it. He said that real kesar is the one where desi kesar is planted first and then kesar kalam is grafted over it. Tusharbhai told us about the price difference between a desi kesar and the one which was not so genuine. He explained that they have to keep removing the flowers of the nutan kesar mango for three years before it begins to produce mangoes. He also gave us a sample of bacteria from his nursery which can be sprayed with water.

Pravinbhai Paneliya came to our meeting at Jeera to meet and share his experience with organic/natural farming. He told us that he only uses jeevamrut (natural liquid fertilizer), which costs him nothing but results in the same amount of produce as others. He also stated that humid soil is more important than water the soil and keeping it wet. He uses Khati chaas (buttermilk), Limdo (neem), Gomutra (cow’s urine) to control worms in his crops. He mixes them all and uses 0.5–1 L per 100 L pump. He advises that the older the mixer, the better the compost. He uses Ajma (carom seeds), Haldli (turmeric) and Hing (asafoetida) to treat pink worms. Pravinbhai has successfully prevented animals from entering the farm by spraying a mixture of Khati chaas, Gomutra and phenyl. If one does not have access to jeevamrut, Pravinbhai suggests digging 15x15 pit, covering it with plastic and filling it with dung, 20–40 kg of jaggery, 40 kg of chickpeas flour and any other green waste. Allow it to compost and then use it on the farm. Pravinbhai also practices well recharging in his farm.

Another farmer, Laljibhai Virani, who practices organic farming and uses jeevamrut in his farm shared his experience at Heerva Primary school. To kill the insects, he told us about a solution he prepares by mixing 50 L water, 2 kg Limdo, 2 kg Sitafadi (custard apple), 2 kg Van Tulsi (Wild Forest Tulsi), 10 L buttermilk, 2 L Gomutra and leaving the mixture for one day. He sprays it through a pump. He suggests that Dhaturu (moonflower), Aakdo (sodom apple) or Karen can also be added to this mixture.

To make the Jeevamrut, Laljibhai takes 1 barrel of water, adds 10 L Gomutra, 10 kg Gobar (cow dung), 2 kg Kathod (beans) flour and 2 kg jaggery; and uses the mixture in a pump. He also educated us about the difference between mango trees. According to Laljibhai, if a mango graft is planted directly, the roots grow sideways, whereas if the tree is planted first and then it is grafted above it, the roots grow deep down vertically, benefiting the tree. Chandubhai of Trambakpur told us how he kept small cloth polis (packets) filled with Hing (asafoetida) in his farm to keep rats away.

A child shows the way

While one of the Yatris was on another route to refuel the car that accompanied us throughout the journey to provide water and other basic facilities to the Yatris, he met a little kid who told him that, “If you are looking for innovations and experiments, go meet Nareshbhai Radadiya”.

When that Yatri met him and learned about his experiments, he found his story captivating enough to make Nareshbhai meet the Yatris to share his knowledge. Nareshbhai was enthralled after learning about the Shodhyatra and came to meet us the same night at Devla. He shared with us some of the ideas he had tried and how he carried out the experiments effectively.

Nareshbhai told us that if alcohol is dangerous to the humans, it must be equally dangerous to insects and should help in controlling them on the farm. He shared the method he uses to make the solution to get rid of insects. He places a copper piece, 10 kg Mahudo (sapotaceae), 2 kg Jaggery, 1 kg Datura, 1 kg Sitafadi leaves, and 0.5–1 kg crushed Limdo (neem) seeds (0.5–1 kg) in a Bhatti (cooker). He takes the mixture’s Aatho (fermentation) (40 L) and keeps it covered and mixed with water for...
eight days before boiling it with a copper piece in a 50 L container. The solution is then distilled and collected using a pipe after he covers it with a pot. So, out of 50 L, approximately 15 L is retrieved, and the remainder is used as khaad. He uses 100 ml of this 15 L in a 15 L pump and sprays it. He also shared the process that he follows to make khaad, ‘potash’ mix. He uses White Aakdo (Calotropis Gigantea), 100 L Gomutra (cow’s urine), 10 kg Jaggery, 3–4 kg Kathod (Bean) flour, 3 kg Umramati (mud) and mixes them all and keep it as it is for eight days. He then adds 500 kg Eranda (castor) Khod, 10 kg Potash fertilizer (90% content), 3 kg Arihant bio-fertiliser and puts it all in a tight bag for 8–10 days. He uses this instead of potash fertilizer with good results.

Nareshbhai also suggested using the mixture in sulphur when popta appears. Mix together 500 kg Arendi khod (castor cake), 40 kg Chuno (Calcium), 100 L Gomutra (cow urine) and one bag of biofertilizer. Keep this mixture aside for 8 days, then add it to FYM and mix again. Place the mixture in a bag with some space left for gas to form and leave it for 10 days. When the land is wet, it can be spread like fertilizer.

Throughout the Shodhyatra, we learned about the various methods villagers in each village use to preserve grains and crops. Some people shared their innovative and effective organic preservation methods. Sartaben Jiyani of Garamali Moti village shared with us how she uses Aakda (Giant calotrope) leaf to keep insects away from wheat crops.

Geetaben Joshi of Jira village shared a way to preserve sugar by putting laung (clove) in it to protect it from ants. In each village we visited, we looked for the local Pashuved (animal healer) and paid them our respects.

Savjibhai Chovatiya of Lakhapadar village shared his method for curing Valo in cows. He rubs haldi mixed with butter on the infected area to remove the chikas (stickiness). He also mentioned that Nodwale leaves can be applied to snake or scorpion bites to reduce the venomous effect (not to be used unless verified, till then consult doctor for anti-venom: Eds). Other Lakhapadar residents shared that once in the village, a buffalo ate a snake, so to get rid of it, they dug a pit and forced the buffalo to sit in it. Then they wrapped it in a wet kantan (gunny bag) and set it on fire, and as the snake felt the heat inside, it came out on its own. Such experiments are terrifying to attempt, but these people pursued it and reportedly saved both animals’ lives (this again is heresy and we mention here to only underline the kind of experiemnts people do, we don’t endorse such appoaches: Eds).

At Nagadhar, a villager told us that if ‘Jar no pade to’ (dropping of placenta) in cows, a palm-full of wheat and butter can be fed to them to solve the problem. Chandubhai advised us to clean a rash on an animal with hot water and rub thinner on it with cotton 4–5 times to heal it. To treat mastitis, soak Bovfadi leaves in water overnight and have the cow drink it on an empty stomach in the morning. Vallabhbbhai Karamshibhai told us that Jasud (hibiscus) flowers can be fed to cattle to reduce body heat and if need, Chanoti can be fed to cattle only once if ‘Jar no pade’. Jantibhai Laljibhai Vekariya of Devla told us that all the parts of the Singadiyo vaisnow plant (an upside down flowered plant), which grows in the Shravan month, can be made into a juice and fed to animals. This can reduce the heat in their bodies. He also mentioned that if the cow stops urinating, they can be given Ukado (boiled concoction) of 200 gm Lambdi seeds and they will begin urinating again.

In Amruthpura, we met Balibha, a Pashu-ved (local veterinarian). He shared many different herbal healing methods with us, such as treating Mastitis by feeding 1 tbsp. soda + 250 gm jaggery to the cow or rubbing and making the cow drink Rangari tree’s wood. For cough and cold, boiled concoction of Ajma (carom seed) and jaggery can be fed to the cow.
Creative children

The competition for new ideas was organized among kids to identify the potential of creative thinking and the positive impact it can have on their and societal future.

At Kanera, we had asked the children how we could enhance the efficiency of a match stick. Rather than simply suggesting that we add inflammable parts on both the sides of the stick, which was the response we received at other places, Neerav gave us plenty more creative ideas. He proposed putting the inflammable liquid chemical in a box. Neerav said that after using the matchstick once, we could dip it in the box and let it dry before using it again. The Y atris were surprised that such small children could come up with so many different solutions to a single problem. Jayneet and Vivek, two little brothers from Kanera, were among those crazy experimenters who liked to take things apart and put them back together again. They made a three-wheeled cycle out of two cycles. They discovered that by adding a small wheel in front of a punctured cycle, the bicycle moved more quickly than usual. When we asked why they did such crazy experiments, their response astounded us: “Just because we wanted to do it.”

We met two very bright girls in Nagadhar, one of whom was Pooja Vinubhai. She had answers to any of our questions about cooking, herbal remedies for various ailments, and vegetation. When asked how she knew all of this, she said, “During lockdown, there were no school classes going on, so I used to stand near my grandmother and my mother and see what they were doing and learn from it.” During lockdown, many students whose parents did not have smartphone were in the same situation, but none of them did what she did-to use the time to learn from her elders. She and her sister had moved to the front of the line to sit with the Yatrīs. It was interesting to see how confidently they answered the questions posed to them. She also told us that after the cyclone, the farm’s electric fence machine stopped functioning because there was no electricity for several months. To prevent animals from entering farms, Pooja suggested that we could encircle the farm with four poles, then tie copper wire around each pole and power it with a battery. This demonstrates, once again, what a sharp observer she is.

During our meeting at Jadivdi Primary School, the children were asked to provide suggestions for new types of clothing that could be made. The response was fantastic. One student proposed that we design clothing that would keep the wearer dry and protected from dust and sweat. Another suggested that we create t-shirts on which the speech impaired could write and convey their messages. Many more such ideas emerged, such as clothing designed for all weather conditions by Jadu Rajeshree, clothing that can detect any skin disease developing on a person wearing it, clothing that can change colour and pattern depending on the weather, and so on. On the last day of the yatra, we were joined by a group of girls from Babapur School. So, in addition to these ideas, we received suggestions from them, such as Dixita Nibadiya’s suggestion that we make shirts with magnetic buttons so that people with no hands can easily button their shirt. Soumita Biswas, one of the mvif investee at GIAN has been in touch with her to encourage her to design clothes for physically challenged people. It was Sonigra Sandhya’s idea to print t-shirts with numbers on them so that young children could use them to practise their counting skills. Another girl in the group suggested that we make clothes for farmers to wear while working on the farm so that insects do not bite them. Anshu Savaliya suggested that, in response to a question about possible designs for eyewear, we create glasses that can show us answers to questions we read while wearing them.

After hearing so many interesting ideas from the children in Jadivdi, we decided to hold a contest where they could submit any ideas that came to mind. We selected a few great ones and rewarded them for their innovative thinking. Savaliya Sindh, who submitted multiple ideas,
stood out for proposing novel solutions such as a rain cap that unfolds into an umbrella in the event of a downpour, restricting traffic around schools during rush hours, and installing a tire-pressure gauge on bicycles. Anshu Savaliya, too, had several suggestions, including erecting a wall alongside the zebra crossing to shield pedestrians from oncoming traffic and clothing that doubles as a life safety wear if the wearer falls into water. Gopal displayed a variety of beautiful traditional cloth and wool work for decoration.

Yashmiben, from Amruthapura, had brought some floor mats she had made out of scraps of sarees and other clothing. All those bright colours working together made for a visually pleasing design.

The Yatris paid tribute to the lives and traditions of several centenarians they met along the way. We gained valuable insight from their extensive experience and knowledge.

At our meeting in Devla, we learned about Bachubhai Gajera, a 95-year-old dada ji who is well-versed in many forms of plants. The villagers informed us that he treats cows with insect problems on their legs by tying a short stick around their necks. It piqued our interest, so the following morning we drove to his house to meet with him. Bachubhai was overjoyed to see us and greeted us.

Makwana proposed building a road so that no animals could cross it or walk on it. This would prevent any potential accidents related to animals. If you want to spray the farm with pesticides, Krisha Piraviya suggested building a bike that has sprayers on both sides. She also proposed the concept of a voice-activated book, in which the reader could give a command to have the book open to a specified section. She also suggested developing a comb that would prevent the discomfort typically associated with combing long hair. Vivek Jadeja proposed creating shoes that would prevent thorns from penetrating and hurting the wearer. Sadhan Kukadiya recommended securing the Naliya (thatched roof of a hut) so that it remains in place during strong winds. Namrata Savaliya came up with the idea of building an innovative RO plant from which people who are unable to use their hands can still drink water. Tanvi Nathani must have seen her mother working hard around the house and becoming exhausted, which is why she suggested they build her a bed that would massage her as she slept, relieving her aches and pains. She also proposed that schools invest in fireproof uniform fabrics to ensure that students are safe in the event of a fire. In order to prevent vehicles from hitting animals, Mendapara Janak proposed installing a sensor that can detect their presence. All of the children's ideas tended towards protecting human and animal lives. This demonstrates their compassion and respect for diverse life.

Many of our meetings saw a large number of women taking an active role. We met some remarkable women who had mastered age-old trades and were eager to start their own businesses thanks to their ingenuity and skill. During the evening ceremony organised by Miniben and her students at Babapur Ashram, Anjuben Hardada

Brothers, Jayneet and Vivek, who like to experiment and build solutions.

Students Pooja Vinubhai Daphada & Kiran Vasrambhai Daphada attending the Shodhyatra meetings and presenting innovative ideas.

Children with the most innovative ideas honoured with certificates.
with a huge smile. We learned that he can recognise 500 different types of trees and plants. He also shared some of his knowledge on how to cure illnesses, such as using Shipaksh tree datan (brush) to treat fever. To prevent lice getting your hair, warm 200 gm each of crushed Limbodi and Gothli in oil and then apply to your hair. He suggested eating Kuwadi leaves to help cure kamro (jaundice). When we asked him about the stick he tied around the cow's neck to keep the insects away, he said it was an Undhafuli stick. We have no idea how this operates, but more study and experimentation will shed light on its value.

We met Kashimaa dadi, who had come to our meeting at Gayatri Mandir in Chalala. She was unable to walk, so her family carried her on a chair and assisted her in attending the meeting. She talked about her childhood and how, at the age of 14, she came in third place in spinning yarn, 'Retio Kanta.' When we asked how modern life differed from the past, she said that people used to have to do a lot of physical labour, but now they do not have to.

We met another such dadi at her house at Jeera. She could hear and speak perfectly well for someone her age. Her smile was very calming and felt very wholesome. She told us about her childhood, when she used to play with Chanothi (rosary peas) and observe the Moravrat fast, which is no longer observed. She told us about how hard they used to work and how they had to walk long distances for work every day. When one of her family members asked her to recite Gitaji bhajan (devotional hymn) for us, she began reciting it for us, with perfect pronunciations of all the difficult words sung in the correct tone. We were captivated by the fact that she remembered this lengthy bhajan. We later facilitated her, took her blessing and moved on to the next village. On the way from Nagadhar to Devla, Professor Anil Gupta asked an interesting question to the Yatri while we stopped on the way to take some rest. He asked us to think of the benefits of 'Crack.' We got many answers from the Yatri such as crack helps to carry bigger things easily when cracked and broken to smaller pieces. Cracks help for better grip. Crack is good for water recharge and getting water too. Crack makes it easy to climb a hill. Crack helps seeds to go inside the land and grow. Crack can be home for snakes/reptiles. Crack helps to extract shilajit from stone. Professor then gave his own answer which was that crack is the reason and way to break open coconut or walnut and even seed needs to crack to start growing. He discussed how our brain thinks of the negative effects of crack on hearing it considering it to be a reason for breaking. He told us about the book 'The portrait of Crack' by Finkel, Mir Publications, 1985 (see page 192 https://archive.org/download/the-portrait-of-a-crack/the%20portrait%20of%20a%20crack.pdf) in which the author has mentioned the importance of compare and contrast the possible uses of crack.

During a meeting of Yatri at Devla, we discussed various kinds of observations we made that day. One Yatri remarked on how incredible it was to see the same river in such a variety of states each time they crossed it on their journey. Another Yatri spoke about Lakhumadi's courage and how her father had raised her to be strong and how the energy with which she spoke inspired him. One of the Yatri recounted how the kids in the village served us lunch with such warmth and kindness. It was realized that how the food is prepared is not as important as how it is served. One Yatri had observed a villager attending a meeting via video call. He suggested that we could go live using the local sarpanch's or any such person's page to expand our reach to people that cannot come to attend the meetings.

At Amruthapura Primary school, three women participants of the Shodhyatra were tasked by Amrutbhai with forming a bigger ‘Mahila Mandal’ to continue this work and share their knowledge.
with one another in order to empower themselves and their community.

Sureshbhai, one of the Yatris also discussed with us how he built his factory in an area surrounded by tribals and thus provided them with jobs in his factory and also a place to live. He also mentioned that he had begun recharging the water in his bore well after experiencing low water levels. To do this, he dug a new well some distance away from the one he uses for water extraction and allows all of the used water to flow into it.

Although Sureshbhai has been successful in increasing the water level in his bore well whereas the factories around him still face the problem. He shares his experience in the meetings where people mentioned about the same problem and also offered to help them with guidance as well as monetary assistance from a fund dedicated this purpose if necessary. He also promised to help Miniben from Babapur, who mentioned that the flow of potable water has decreased due to check dams, and thus the water from the bore well is salty. Sureshbhai promised her that he would return to Babapur after the Yatra and assist them in establishing facilities to recharge the water, which will reintroduce potable water into the wells.

On the last day of the Yatra, at our final destination, Dudhala, all the members were given certificates for their participation in the Yatra and all the volunteers were facilitated for their hard work in making the Yatra a success. Ramjibhai Dabhi, Maheshbhai Parmar and Kevalbhai Mehta deserve special recognition for their tireless efforts in organising and leading the Yatra. With final meeting at Dudhala, the yatris returned to our homes the next morning, full of knowledge and inspiration from the six-day Shodyatra.