

COMMUNITY NETWORKS

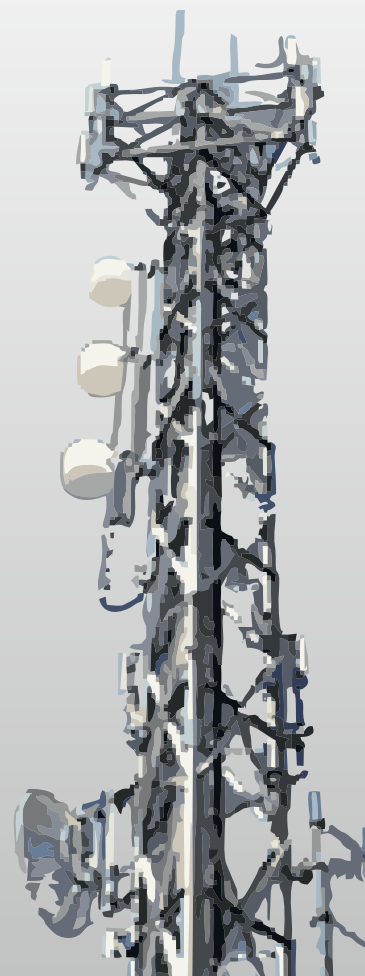
A boon in times of pandemic and lockdown

Story of a rookie computer engineer who brought digital entrepreneurship and wireless technologies to his tribal village in India to connect people living in remote areas through Community Networks

By Kriti Singh and Osama Manzar

Kriti Singh was a lead Communication Team member at Digital Empowerment Foundation at the time of writing this story.

Osama Manzar is Founder & Director of Digital Empowerment Foundation.



“I used to attend Award functions organised by Digital Empowerment Foundation (DEF) where innovators from across the world participated. There I came across Magsaysay Award winner Mahabir Pun from Nepal who worked in the field of connectivity. I got motivated and thought I should do something in Gadchiroli because if a company from outside does business here, they will be more interested in profits rather than development,” expressed Nasir Hashmi in an exalted manner.

It was after the training in Chanderi village of Madhya Pradesh, in 2008, that Nasir Hashmi, an ISP (Internet Service Provider) franchise owner, started a digital centre providing digital services and established the first wireless mesh network in Kurkheda block of Gadchiroli - a tribal area, bordering Chhattisgarh and Andhra Pradesh which is also heavily infested by Maoists. Bharat Sanchar Nigam Ltd (BSNL), an Indian state-owned telecommunications company, was the only telecom provider then, reaching the district office till 2015.

The training in the weaving town of Chanderi was conducted by Mahabir Pun who was the Guest of Honour and a keynote speaker given his experience and exceptional expertise in the field of community networks at one of DEF's annual award ceremonies. With an overarching goal of creating a common

platform – for all kinds of digital interventions aimed at socio-economic development and empowerment of people and communities – for recognizing the best practices, facilitating collaborations and initiating dialogues between experts and individuals from varied fields with a similar goal, DEF conducts annual award ceremonies which are recognised internationally. These include Social Media for Empowerment, mBillionth Award and eNGO Challenge among others.

Pun was involved in training the first set of trainees of community wireless networks from DEF, including Hashmi, who was one of them, and also helped in establishing networks in Chanderi and Guna in Madhya Pradesh. Since then, Nasir Hashmi has connected over 600 households in his hometown of Gadchiroli, one of the most backward and tribal districts of India.



Remote area Fiber Restoration in Katakwada GP from Kurkheda block of Gadchiroli District. Curious tribals asking questions during splicing works.

Initiating Community Networks model in India

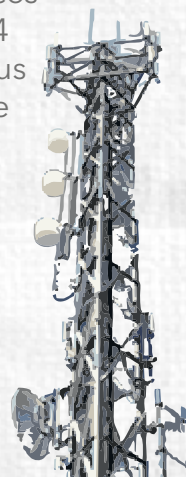
The need for connectivity and digital infrastructure has become as important as food, housing and clothing (Roti, Kapda aur Makaan) to be able to access information, healthcare, education and government schemes. To enable this DEF, which has been working towards helping vulnerable communities fight information poverty for over 18 years now, has been pushing for establishing community networks through its Wireless for Communities (W4C) programme in collaboration with Internet Society (ISOC) in last mile areas. It was 10 years back, somewhere in 2009, that DEF and ISOC had partnered, and started experimenting Community Wireless Networks and year after year established several Community Networks across India.

This was done six phases starting with a pilot in Chanderi village of Madhya Pradesh. The impact of establishing the network was that it enabled communities 'access to the Internet through the Chanderi Weavers Information Resource Centre, which has helped to create new weaving design patterns and enhance the Chanderiyaan e-commerce platform to market local produce and handicrafts of Chanderi. Apart from connecting the key institutions like schools, local government offices, business premises, a health centre and a community radio station, the weavers reported 20%-40% growth in their income. Today, Chanderi is a worldwide known weaving cluster and a hotspot for the film industry as well. Due to this success, the programme saw South Asian outreach where the model was introduced in Bangladesh and Bhutan. The third and the fourth phase was focused on capacity building to develop relevant online content and services and supported 50 women in five communities to create Internet-based social enterprises that are owned and managed by women. The fifth phase experimented with connecting three

separate community networks to each other through the intranet to share local content with each other. A Digital Smart Village Resource Centre was established in each location with broadband connection, managed by the local community, in the final phase.

This mission has found its importance even more in the Covid-19 era when the world is forced to go online and the country is struggling with a gaping digital divide due to lack of basic infrastructure. Osama Manzar, Founder and Director of DEF, said, "As the world embraces greater access to information and services online, the excluded individuals are being further excluded -- almost to the level of being disenfranchised. Therefore, we cannot solely depend on telcos or their model of business to connect the 70 per cent of the population that is yet to access the Internet. Through the dedication and efforts of digital foot soldiers like Hashmi we have been able to extend this access through community networks to the remotest corners of India."

DEF's W4C adopts a holistic approach to empowering communities with digital skills and tools - the wireless networks are managed by the community for the community and relevant usage of the Internet are introduced through training. The programme started in a village in India, and has now expanded to 146 access points throughout India. DEF's W4C uses the low-cost wireless devices and unlicensed spectrum band of 2.4 GHz and 5.8 GHz, has adopted various models ranging from Hub-and-Spoke model and Wireless on Wheels to Internet-in-a-Box, making the rural communities resilient.



Hashmi's journey from micro-entrepreneur to 1000 customers

"We started at a small scale in 2015 through our Community Information Resource Center (CIRC) using RailTel to provide connectivity to the local community using wireless radio. It was hard to convince people initially that a company apart from BSNL was providing the Internet connection," said Hashmi.

To reduce its dependency on BSNL, the Indian Railways built their own communication system and over the years in a bid to improve the systems they formed RailTel, a public sector enterprise of Government of India, in 2000 with the objective of creating nationwide broadband, telecom and multimedia network, to modernise train control operation and safety system of Indian Railways. RailTel's network passes through around 5,000 stations across the country, covering all major commercial centers.

Started with four customers as micro-entrepreneur, Hashmi's network has now employability opportunity for over 10 local young boys. In the last five years, he has become wireless and fiber-based network provider with increased demand for BSNL and RailTel, laying out 45 kilometers of fiber connecting four blocks - Armori, Wadsa, Korchi and Kurkheda of the district. He also got Government of India's ambitious BharatNet, also known as Bharat Broadband Network Limited (BBNL) franchise with the responsibility of management and troubleshooting the networks of his areas of operation. BharatNet's a telecom infrastructure provider for the establishment, management, and operation of the National Optical Fiber Network (NOFN) to provide a minimum of 100 Mbps broadband connectivity to all 250,000 gram panchayats and reach the campaign goal of Digital India.

In fact, DEF was a part of the high-level Advisory Committee of NOFN and was the single implementation partner at three pilot creations to show NOFN usage for village level digital literacy and empowerment. Further, for effective implementation, DEF has critically written about it and had conducted two consecutive spot check researches.

Hashmi, who has a Bachelor's degree in Computer Applications, has over 350 customers including businesses and industries and uses RailTel to provide Internet connection in Wadsa block of Gadchiroli. Another block, Armori, which is about 26 kilometers from Wadsa, has about 70-80 customers to whom he provides connectivity through wireless radio. On the other hand, in Kurkheda, 50 connections out of 125 are for Panchayats and in each of these 50 connections there are five connections. By having three networks, he is able to cover more areas.

In total, Hashmi has been able to garner a customer base of nearly 550-600 people connecting them through wireless radio and fiber which includes about 30% students who use it for online classes, 10% are businesses and 50% are high speed usage customers. Most of the users fall within the bracket of 20-50 Mbps, which costs around Rs 700-800 per month.



Remote area Fiber Restoration in Katakwada GP from Kurkheda block of Gadchiroli District. Curious tribals asking questions during splicing works.

Access to one, empowerment to all

The impact of his efforts is visible as Hashmi narrated about how his network helped one of his subscribers. Naresh Panch from Tulsi, about 11 kilometers from Hashmi's location, had got banking correspondent license but did not have internet connectivity to carry out services. Panch lived in a single-storey house. To assist him, a tower of 30 feet height was installed to connect him to the main server at Hashmi's location. For the past 3-4 years, Panch has had uninterrupted connection so much so that his turnover has crossed Rupees 10 million now. During the pandemic, he has further been able to help people by providing access to government schemes and relief packages.

Hashmi said, "I understood through DEF that connectivity is the future for an entrepreneur. We can establish ourselves in the areas where there is a need."

Interestingly, due to the pandemic, there was a sudden spike in the demand for connectivity. Hashmi and his team tried to meet these demands and connected over 200 people in just last two months. Many students who came back home were able to continue their online classes of competitive exams.

"Hashmi is a prime example of how community networks can help connect the grassroots institutions of major spheres like education, health, government and banking, along with providing employment opportunity as an ISP provider. Hence, this model helps to be independent and operate networks to suit their needs," said Manzar.

As part of his initiative, Hashmi also runs a Common Service Centre (CSC) which is a multiple-services-single-point model to deliver social welfare schemes, healthcare,

financial, education and agriculture services, apart from host of B2C services to citizens in rural and remote areas of the country. Through this centre he is responsible for the maintenance of the connections in local administrations that the government had started through BBNL. This includes five major institutions- Primary Health Centers, Anganwadis (rural child care centre), Village Council, Local Government schools and other Educational Institutions. Further, he has provided five connections to local Anganwadis and other local institutions like State Bank of India, which has been running for the past five years.

Currently, Hashmi, in partnership with BBNL, will soon cross 1000 customers out of which 500 will be in rural areas where he will provide bandwidth of 10 Mbps each.

"The government had provided connections here but we are going one-step ahead by providing last-mile connectivity. The benefit of this can be seen now as online education and work from home has started."

Moreover, people who cannot afford a Wi-Fi connection are able to use hotspot and connection sharing when required. Hashmi explained, "The people here prefer paying less and mobile hotspots are becoming popular so we give the community one connection with bandwidth of 50 Mbps which is then shared by 5-10 households. So we are able to give them what they need for the price they want to pay."



Local youth like Chetan got trained and employment as Splicer and Field Technician

Tackling misinformation in Covid-19 era

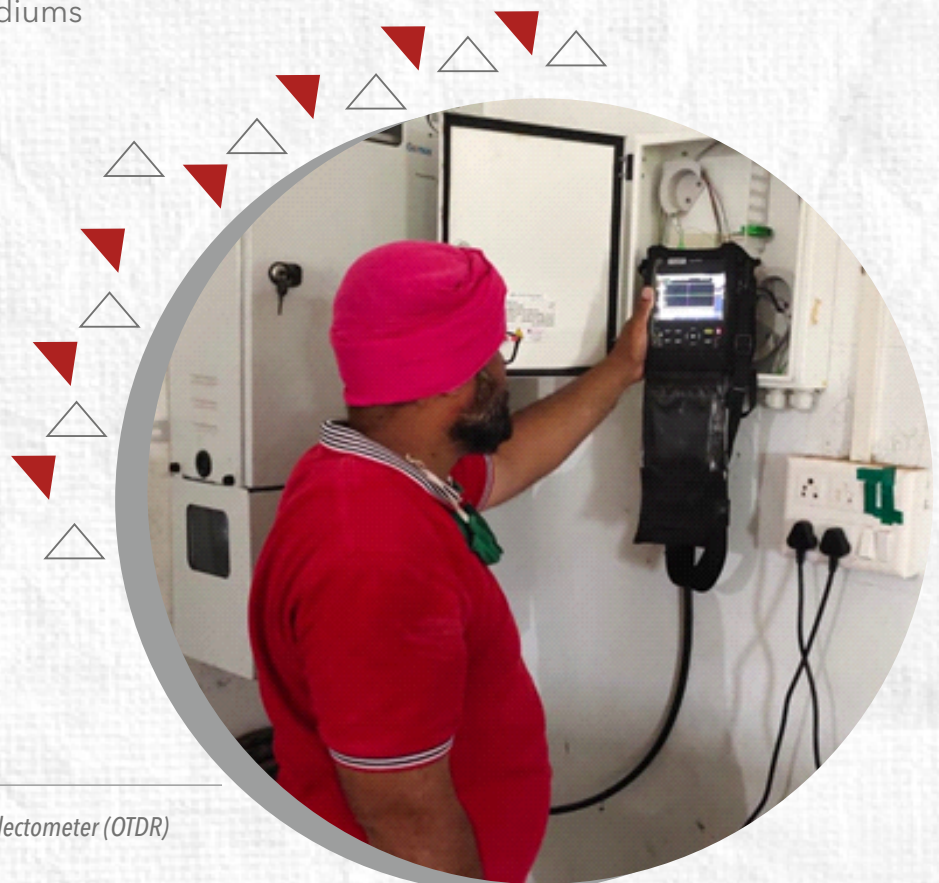
In times of Covid-19, Nasir has been playing a critical role in the region for providing and delivering door-to-door connectivity to the isolated communities in this tribal region. Although the district was one of the few which had the least number of cases and no deaths due to timely precaution and administration's tracking of the migrant workers who came back, the rate of unemployment rose drastically. Moreover, the pandemic had a social impact wherein people are falling prey to rumours and fake news so much so that the villagers barred health workers from entering and blocked roads.

Hashmi said, "Since I have worked in the field of journalism for few years, I saw that the way rumours were spreading and the impact it had was very negative. So much that it can turn into a social pandemic." On social media he and his team managed to tackle it to some extent by blocking the users or deleting groups, but it became difficult to counter the mass-level spreading of fake news when it came from mediums

like TV. The impact of this was visible on ground when people starting spreading rumours based on that and this impact will be long lasting.

"We tried to reach as many people as possible and told them how news should be fact-checked and everything should not be taken at face value and should be verified using online tools. We tried to raise awareness in communities by at least replying and commenting when people shared fake news," he said. The culture of forwarding without verifying has been very harmful he further added.

With a turnover of Rs. 150,000 every month and having the experience and responsibility of community networking through both fiber and wireless technology, Nasir has come a long way to be a successful digital entrepreneur who is not only an economic success but has also earned tremendous social capital in the society.



Fiber fault tracing with help of optical time-domain reflectometer (OTDR)



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The video story of Nasir Hashmi can be seen at: https://youtu.be/5ejOTYiO_R0

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