Walking the Talk with the Internet
COMMUNITY NETWORK XCHANGE 2022
(CNX 2022)

14 Case Stories
13 Locations
5 Series
13 Locations
5 Series
13 Locations

Organised by
DEF
Internet Society

Principal Partners
Introduction

In 2021, the second wave of the pandemic intensified the fundamental issue of inaccessibility. Much of the pandemic's management, such as vaccinations and movement tracking, depends on being digitally connected. As a result, the vulnerability of billions of people escalated.

Today, nearly half the world still has no Internet access. The majority of the people who lack access are in developing and least developed countries. For them specifically, the need to be online is even more urgent. In recent years, community networks have played a significant role in connecting and empowering rural and underprivileged populations and providing access to information, education, healthcare, and much more.

Community Network Xchange (CNX) enters its sixth year in 2022. CNX Asia Pacific was first organised in 2017, focusing on bringing together community network practitioners and enthusiasts of community-driven Internet connectivity to exchange ideas and serve as catalysts for the grassroots connectivity movement. This year’s CNX is jointly organised by Digital Empowerment Foundation (DEF) and Internet Society (ISOC) in partnership with the Asia-Pacific Institute for Broadcasting Development (AIBD), APNIC Foundation, Association for Progressive Communications (APC), Alliance for Affordable Internet (A4AI), A-CODE, Action for Hope, Media and Information Literacy Expert Network (MILEN), Broadband India Forum (BIF), World Association for Christian Communication (WACC) and of course several communities of practices. The series of events organised in 2022 has highlighted the stories of network builders on the ground foregrounding how their labour of love and passion contributes to bringing the Internet to their communities. Further, CNX 2022 also brings out the stories, challenges, and successes of diverse community networks from different parts of the world. Through these events, we intend to share our collective knowledge and learnings to empower a movement of large-scale implementation of community networks for Internet access. This year, keeping in mind the evolving nature of the pandemic, associated travel challenges and online event fatigue, CNX has been spreaded across five sessions between June and October.
CNX APAC 2022 took place over the five series from June 2022 to October 2022, with 31 panelists from the Asia-Pacific region joining us online. The event was hosted by DEF and ISOC with support from the APC, A4AI, APNIC Foundation, AIBD, Action For Hope, Landscapes of Hope, Broadband India Forum, Wireless for Communities, MILEN, WACC, and A-CODE. We are grateful to our partners for their support in the lead-up to and during the conference. Our panelists joined us from across continents, with some making special arrangements to connect at odd hours for their time zones. Their participation enriched the discussions and added nuanced perspectives. We would like to express our gratitude to each one of them.

We would also like to thank Joly MacFie from the ISOC New York Chapter for assisting the organising team with live-streaming the sessions across various digital platforms and for providing technical assistance.

We have exciting plans lined up for CNX 2023, and we look forward to seeing all our community network partners, organisers, and well-wishers joining us in 2023!
PROFILE OF SPEAKERS

1. Osama Manzar

Osama Manzar is a global leader on the mission of eradicating information poverty from India and the global south using digital tools through an organisation he co-founded in 2002. With over 25 years of experience, Osama has worked in the areas of journalism, new media, and software enterprise before he established DEF to digitally empower the masses (so far 20 million directly) with a footprint of 1000 locations and 9000+ digital foot soldiers across 130 districts in 24 States. Osama writes a weekly column in Mint and tweets at @osamamanzar.

2. Rajnesh Singh

Rajnesh Singh is the Regional Vice President for the Asia-Pacific at the Internet Society. In this role, he works with a broad range of stakeholders including governments, civil society, academia, the private sector, the technical community, and influencers in the Asia-Pacific region to promote technologies, policies, and best practices to keep the Internet open, globally-connected, secure, and trusted for the benefit of people all across the world. Prior to joining the Internet Society, he played founding and leading roles in several technology and private equity investment firms. He has extensive experience in business management and strategy development across multiple industries, including telecommunications, power infrastructure, agriculture, manufacturing, and real estate.
3. Shalini A

Shalini holds a Bachelor’s degree in Information Science and Engineering. For a decade she has been part of Janastu – a software NGO, and Servelots – an IT company that engages with local contexts for their research and development needs. She has been engaging with Community owned WIFI-mesh networking since 2015 by setting up a network and building mesh applications on Raspberry Pi.

Shalini has been closely working with the sheep pastoral groups in Karnataka since 2012 by developing apps that help track their nomadic routes while also capturing the land use data and helping document their lifestyle. She is also a systems admin and maintainer and manager of free software repositories. She has worked with low-literacy issues and groups that engage with policies and help facilitate the simplification of acts for differently literate groups.

Currently, she is engaged with low literates, women and youths in Halekote village of Tumkur, India advocating community-owned WIFI mesh and radio activities and sustainability aspects.

4. Sarbani Banerjee Belur

Dr Sarbani Banerjee Belur is currently the Asia Regional Coordinator for Association for Progressive Communications (APC) for the CNs Connecting the Unconnected project. She is a Senior Research Scientist hosted by the Spoken Tutorial project at the Indian Institute of Technology Mumbai, India. She has been working in the domain of rural connectivity for the past 6 years and has associated with the Gram Marg project in the Department of Electrical Engineering, IIT Bombay. She holds a PhD in Demography from the University of Groningen, The Netherlands. Her current work involves increasing digital outreach to remote and rural areas of India, deployment of new technology alternatives for the middle class and last-mile internet connectivity, development of sustainable models supporting Public-Private Panchayat-Partnership (4-P model), seeding the growth of CNs, gender and access developing community technologies and impact assessment studies of connectivity in the lives of people.
5. Duncan Macintosh

As CEO of the APNIC Foundation, Duncan is responsible for increasing support for capacity building to advance professional development in the APNIC community, particularly for network engineers. In addition to training and education, the Foundation supports technical assistance and community development activities. Priority topics for this work include the security of Internet and DNS infrastructure, the promotion and deployment of IPv6, the development of Internet exchange points and related infrastructure, and the promotion of best operational practices.

6. Kathleen Diga

Kathleen has worked for over 10 years in the information and communication technology for development (ICT4D) research space. In her previous work related to the current APC project, she has helped to coordinate research teams and individuals across the globe, including to bring together a panel around community wireless networks to Cape Town for the ICTD2013 international pre-conference. In 2008, she also had the opportunity to visit several community local access networks in Winneba, Ghana, White River, South Africa and Kabale, Uganda, as well as present on Wireless Africa and gender in a Johannesburg workshop. She has written numerous publications in ICT4D and has been a co-editor on several publications, including a special issue journal on ICT ecosystems (2016) and a book on poverty and ICTs in East Africa (2014). Her main focus of research is understanding the changing ICT asset portfolio within households in South Africa and how these items are contributing to well-being and wealth changes, particularly among the marginalised.
7. Isha Suri

Isha Suri is a Senior Researcher at the Centre for Internet and Society. Her areas of interest include Telecom Policy, Competition Law, Internet Governance, Intellectual Property Rights, and Privacy and Data Protection. She holds an LL.B. (Hons.) with a specialisation in Intellectual Property Law from the Indian Institute of Technology, Kharagpur. She also has a degree in Electrical Engineering that often comes to her aid when grappling with complexities of the techno-legal domain.

8. Anju Mangal

Anju is A4AI’s Regional Head of Asia and Pacific. Her work focuses on strengthening A4AI national coalitions and supporting stakeholder collaborations to advance our shared goal of affordable access across Asia.

Anju was affiliated with the Pacific Community (SPC) as the Digital Transformation ECM Specialist and Business Analyst Adviser. Anju was recently awarded the Obama Foundation leadership fellowship and the U.S State of Department International Visitor’s Leadership Programme on Digital Economy and Cybersecurity. She is currently the Vice Chair of the Asia Pacific Internet Governance Forum and the Vice Chair of the Pacific Islands Chapter of the Internet Society. Anju was a tutor for DiploFoundation’s ICT Strategy Course and a research expert in Internet Governance. She was an ISOC Ambassador, Commonwealth IGF fellow and APrIGF fellow. She was the first Pacific Islander to be elected as a Multistakeholder Advisory Group (MAG) member of the United Nations Internet Governance Forum. She has also worked for the UN Internet Governance Forum-Secretariat in Geneva, Switzerland.

Anju is passionate about Women and ICT and Cyber Safety for women, girls and persons with disabilities. She was a founding member of the Pacific Women and ICT. She continues to work with key stakeholders in the Asia Pacific region on various areas such as digital rights, digital inclusion, cybersecurity, privacy, security etc.

She holds a Master of Arts degree in Governance and a Bachelor of Science degree in Information systems and Geographical information systems and is certified in Internet Governance Capacity building programme, knowledge management and Business Analysis.
9. Shafali Jain

Shafali by training is a new media designer and a computer science engineer. She is currently building her practice in the space of Community, Technology and now, Policy. As a part of Janastu collective, she works with archives to bring out diverse narratives, stories and with young women in rural areas to explore feminist spaces. As a fellow with Harris School of Public Policy, Chicago she's pursuing research on community networks and how they can foster a space for co-creating the internet keeping feminist values and care practices in mind. As a new media artist and designer, her work critically questions the existing systems in place and looks beyond the horizon.

10. Gayani Hurulle

Gayani is a Research Manager at LIRNEasia, where she researches digital policy and regulation, and the future of work. She is also an external consultant at EY, where she is conducting World Bank Digital Economy Assessments for Sri Lanka and Maldives.

She has engaged in external consulting for two government agencies in Sri Lanka— Ministry of Digital Infrastructure and Information Technology and the Ministry of Finance. Notably, she has contributed towards the drafting of Sri Lanka’s National Digital Policy (2020-2025). Gayani has also worked extensively in Myanmar, where she has led research projects, and coordinated capacity-building programmes.

She holds a master’s degree in Public Policy from the Lee Kuan Yew School of Public Policy, National University of Singapore, and bachelor’s degree in Economics from the University of London.

11. Bikram Shreshta

Bikram is the President of the Nepal Internet Foundation. He was the first ICANN fellow from Nepal. He is also the Co-chair of Cooperation SIG in APNIC. He started an ISP when he was only nineteen, from his native place. He has been serving the communities of Nepal with connectivity for the past two decades. In Series II, he is the person behind the CN in Khalte, Nepal which is one of the cases in our Walk the Talk Series. He is also the Treasurer of ITSERT-NP, and the Coordinator NGO/INGO NJC, GLC – JCI Budhanilkantha.
12. **Indri Sri Sembadra**

Indri has been working at Institut KAPAL Perempuan (Women’s Alternative Education Circle) since 2008 when she joined the organisation as part of the administrative and Management Information System (MIS) staff. From 2010 to 2012 she was a member of the Gender and Pluralism staff team. Since 2015 she has been the coordinator of the Resource Centre, including coordinating the implementation of the Women’s Community Radio Development Programme.

Before joining the staff of the organisation, she completed the Feminist Education training offered by Institut KAPAL Perempuan in 2003 and then became a facilitator for education on gender equality and justice for students and grassroots women at the Women’s School. Since her days as a college student, she has had an interest in gender and pluralism issues. A graduate of the Faculty of Usuluddin and Philosophy, State Islamic University (UIN) Jakarta, she chose her vision of life to make social change, especially for women and minority groups.

13. **Gustaff H. Iskandar**

Iskandar graduated from the Fine Arts Department, Bandung Institute of Technology, in 1999. After finishing his study, he ran Poros Art Management and actively curated, wrote, and organised visual art exhibitions until 2000. Furthermore, he initiated the publishing of Trolley Magazine (2000–2001), a local independent magazine that focuses on art, culture, music, and fashion. By the end of 2001, he co-founded Bandung Center for New Media Arts together with Reina Wulansari, R. E. Hartanto, and T. Reza Ismail and strongly engaged with the development of media arts and multidisciplinary artistic practice in Indonesia. By the year 2004, he developed the Common Room Networks Foundation (Common Room), an open platform for art, culture, and ICT/Media. Later on, he initiated an urban/rural platform for collaboration to ignite creativity, innovation, and social transformation in 2013. Working together with his wife, Reina Wulansari, and other colleagues, Iskandar currently lives and works in Bandung, where he continues working on his art and develops the organisation to manage certain projects and initiatives that integrate arts, science, and technology. He also writes and speaks at discussions and symposiums, besides running a small farm in Sukabumi, a small town in West Java, Indonesia.
14. **Halil Ibrahim Bilgich**

Bilgich joined the Internet Society in April 2019 as a Project Coordinator of Community Network. As Project Coordinator, he organises and leads aspects of the Internet Society's work in advancing the development and deployment of open standards and promoting the Internet's collaborative development and operational management model. Furthermore, Ibrahim helps to install wireless internet in highly remote areas. Prior to joining the Internet Society, at 17, Ibrahim installed radio receivers for the wireless internet on his own in the most remote area in Kyrgyzstan, Suusamyr. He is a young genius who studies at the Kyrgyz State Technological University.

15. **Sylvia Cadena**

After ten years of managing the Information Society Innovation Fund (ISIF Asia) at APNIC, Sylvia was appointed Head of Programs at the APNIC Foundation in December 2016. As Head of Programs and Partnerships, Sylvia works on the management, design and implementation of collaborative programs and projects to expand APNIC Foundation activities in the region, including the ISIF Asia program, one of the region's most established Internet development programs, as well as the Seed Alliance, which supported innovative Internet development across the global south. Over her 25 years of experience in Internet Development in Latin America and the Asia Pacific, Sylvia's work has focused on the strategic use of the Internet for development with an emphasis on capacity building and infrastructure deployment. Since her early years as a UN Volunteer, she has worked across the multistakeholder spectrum of organisations with technical, training and advisory roles, mainly about information systems, access provision and innovation coordinating projects and teams across the global south. She has served in many selection committees and working groups focused such as the Multi-stakeholder Advisory Group of the Internet Governance appointed by the UN Secretary-General, the ICANN CCWG on new gTLD auction proceeds, the APrIGF Multi-stakeholder Steering Group and the Policy Network on Meaningful Access among others.
16. Amrita Choudhury

Amrita serves as the Director of CCAOI, Treasurer of Internet Society India, Delhi Chapter and the APAC Lead of SIG Women. She is also part of the organising team of the India School of Internet Governance (inSIG) Her work focuses on a wide range of issues which includes empowerment of the Public Internet Access providers (Cybercafés and CSC''s), assisted internet users and non-users; promoting Internet awareness through Digital Literacy and vernacular Internet; Safe surfing, at the grass root levels of India. She is involved in conducting studies and research on issues related to Internet Governance (IG), capacity building among communities, conducting events and seminars, etc. Besides, she keeps the community updated on events, initiatives, policies and opportunities related to IG through a monthly newsletter on IG, which is the only one in India and South Asia.

17. Adrian Wan

Adrian Wan is the Senior Manager, Policy & Advocacy at the Internet Society. He focuses on issues affecting the Internet's openness, connectivity, trustworthiness, and security, with an emphasis on Asia-Pacific, and leads the global Community Networks project.

A former business and technology journalist with the South China Morning Post based in Hong Kong and Beijing, he found interest in technology policy and engagement in Asia-Pacific, having worked in organisations including the Asia-Pacific Economic Cooperation (APEC), Microsoft, and Huawei.

18. Mike Jensen

Mike Jensen is a South African ICT expert currently working as APC's internet access specialist. Mike has assisted in the establishment of internet-based communication systems in more than 40 developing countries over the last 20 years, mainly in Africa. He provides advice to international development agencies, the private sector, NGOs and governments in the formulation, management and evaluation of their Internet and telecommunication projects, ranging from national ICT policy development to international fibre and rural wireless telecommunication feasibility studies.
19. Amer Hayat Bhandara

Aamer Hayat Bhandara is a farmer. He is the Co-Founder of Agriculture Republic. (The Agriculture Republic is recognized as a small farmer support network for finding innovative policy and practical solutions to national food security and climate change challenges. As an open, inclusive and multi-stakeholder policy discussion and consultation community, it is influencing agricultural policies.) Aamer is a farmer from the district of Pakpattan, Punjab in Pakistan. He was an elected member of the district council (third-tier of the government in Pakistan) between 2016-21. Prior to joining his family farming business, Hayat Farms, he studied politics and journalism at Bahauddin Zakaria University, Multan. He has also attended a course in “Pro-Poor Market Development in Rural Areas” at the University of Queensland, Australia. He is a Fellow of Leadership for Environment and Development (LEAD) under LEADership Development Program. And has received a certification on Women Leadership in Trade Policy by Pakistan Regional Economic Integration Activity (PREIA).

20. Gary Loh Chee Wyai

Gary Loh Chee Wyai has been a senior lecturer and researcher for over 10 years in the field of ICT for Rural Development (ICT4RD). He was formerly an IT project manager handling the projects at ISITI, UNIMAS, which include the multi-award-winning eBario project, eLamai, eBakelalan, eBuayan, eLarapan and the Telecentre Programme for the Orang Asli (TPOA) in the Pahang and Kelantan States of Malaysia. He is a Human Resources Development Fund (HRDF) Malaysia certified trainer of trainers and also a certified CyberSec First Responder™ (CFR). He successfully organised and participated in many Makerfest/Hackathon events in his own and other universities, which involved participants ranging from lower secondary school students to university undergraduates. Currently, he is actively involved in research and consultation on a project that combines ICT4RD, renewable energy, service learning and broadband over power line (BPL) technology in the central region of Sarawak. He was also involved with the SHARE project in collaboration with TTC (Japan) and UNIMAS to explore the oneM2M internet of things (IoT) platform for research on possible integration of existing IoT systems.
21. **Emani Lui**

Emani Lui is the owner of MakaNet, the first Pacific owned Internet Service Provider in New Zealand. He is a tech entrepreneur with roots in the Pacific where he co-founded and developed the first Free WiFi country in the world in the late 1990s.

He is part of PICISOC, the Pacific Island Chapter of the Internet Society, that advocates for better internet connectivity and policies for the Pacific region to international and regional bodies. At PICISOC, he has served as Secretary, Vice-Chair and recently stepped down as Chairperson of the Board. He is currently in his second year as Vice President of IUSN Foundation, a nonprofit organisation registered in Delaware, US that manages funds assisting development of the internet on the island of Niue.

22. **Anshu Shivam**

Selected into the Gandhi Fellowship program, which is a program designed to bring out one's entrepreneurial thinking and leadership skills in order to create lasting changes in society.

I worked with Piramal Swasthya on the Anamaya Project, a multi-stakeholder initiative of the Tribal Affairs Ministry supported by the Piramal Foundation and the Bill and Melinda Gates Foundation (BMGF). It aims to converge the efforts of various Government agencies and organisations to improve the health and nutrition status of Indian tribal communities.
23. **Ritu Srivastava**

Ritu Srivastava is a Director at Jadeite Solutions. She closely works with Community Networks, understands their challenges, engagement of communities, and designs specific learning methods/frameworks for Barefoot women wireless engineers to sustain these models and further takes to policy-level discourse. She has 12 years of experience and expertise in project and process management, monitoring & evaluations, project design and implementation, program development for bilateral and multilateral funding for NGOs, strategic alliances; fund-raising, policy-level discussions and research.

24. **Jane Coffin**

Jane Coffin is the Chief Community Officer at Connect Humanity. She has previously worked with the Internet Society (ISOC) for seven years, leading their Internet Growth project teams focused on Community Networks, Internet Exchange Points (IXPs) & interconnection, peering, and community development, and a new critical project on measuring the health of the Internet. Her work also focused on access and development strategies for expanding Internet infrastructure, access, and related capacities in emerging economies with partners. Prior to joining ISOC, Jane worked on Internet and telecommunications policy issues for the Office of International Affairs at the National Telecommunications and Information Administration – U.S. Department of Commerce. She was an active participant in Internet discussions in the ITU, OAS-CITEL, and OECD, working closely with the five regional Internet registries (RIRs) and other Internet technical community stakeholders.
25. Dr. Syed S. Kazi

Dr. Kazi heads Council for Social and Digital Development (CSDD) as the Director & Chief Executive Officer. He has experience working in the development sector since 2002. He was associated with the Centre for Agriculture and Rural Development, One World South Asia and Digital Empowerment Foundation. He has worked in key programmes of ITU, NISG, UNDP, BMGF, EU, NASSCOM Foundation, Govt. of Telangana and others. He has also founded the North East Development Foundation (http://nedfindia.org/), a not-for-profit society, working for sustainable development in North East India. He has founded ‘eNorth East Award’ (http://enortheast.in), a regional platform for digital innovations and practices in North East India. He has a masters, an MPhil and PhD from Jawaharlal Nehru University (JNU), New Delhi.

26. Mohd. Niyaz

After a Post Graduation in Management with a specialisation in HR & IT, Mohd. Niyaz's passion for social work and the dream to bring positive changes in the lives of the needy drew him to the development sector. Niyaz has worked as Project in Charge with Digital Empowerment Foundation. As the head of Talent Acquisition, at Digital Empowerment Foundation he has won wide acclaim for handling the Manthan, Asia's biggest award for Information Communication Technology. He has also worked with Smile Foundation as Assistant Manager (HR), Prognosis Capital Advisors as Assistant Manager and Micro Clinic Private Ltd also as an Assistant Manager. He is one of the founding members of DISHA and is now its Secretary. Niyaz's background as an IT and HR personnel is helping DISHA understand the changing job market requirements and the right training and education to be imparted to children in order to ensure a bright future for them.
27. Sree Divya Vadlapudi

Sree Divya Vadlapudi is the Digital Communication Strategist at DEF. A researcher by heart, an advocate of STEM (Science, Technology, Engineering, Mathematics) and entrepreneurship by passion, and an entrepreneur by choice, Sree Divya has over 14 years of research and development experience in Power systems/Power engineering. She has been awarded the Limca Book title of India’s “Undergraduate researcher with the most number of International Research publications”. Current area of research is Demand Side Management in power systems and conservation studies. Her areas of research interest include Demand Side Management in power systems and conservation studies, design of non conventional units for production of energy, load balancing, voltage stability, minimization of I2R losses and service restoration in electrical distribution systems using ANN, Fuzzy logic and non conventional energy resources.

28. Fauziya Nasim

Currently the Network Engineer Specialist Trainer at DEF, Fauziya Nasim has previously worked as Innovation Engineer in Nex-G Exuberant Solutions in Noida, Production Engineer at Bhagwati products Limited (Subsidiary of Micromax Pvt. Ltd.) and also the Technical Support Engineer at the Phoen Support, Jaipur. She is a BTech graduate in Electronics and Communications and also has received training in automation in Allen Bradley and Siemens.

29. Nani Monya

Nani Monya is the coordinator of DEF at Ziro Valley, Arunachal Pradesh. She has been spearheading the activities in the village for a long time now, setting up an Internet centre at the village and connecting schools in the region.
30. **Amir Rahman**

Amir Rahman is a Project Manager Network at DEF, and has been a Network Engineer with the organisation since 2013.

31. **Austin Macklin Kawa**

Austin works with DEF, under the project Internet Roshni (BOLT). The project he works with intends to work with the Adivasi Community residing in the Tea Gardens of Assam in order to leverage the existing limited mobile data networks in the garden, data to be boosted by booster devices and channeling in concentrated Community Internet libraries (CILs) with access to network, information and resources.
## Format of CNX 2022

<table>
<thead>
<tr>
<th>TIME</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>5 minutes</td>
<td>Introduction by the moderator</td>
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<tr>
<td>2-3 minutes</td>
<td>Opening move of CNX2022</td>
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<tr>
<td>5 minutes</td>
<td>Introduction to Community Networks Case1</td>
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<tr>
<td>10 minutes</td>
<td>Screening of CN Case1</td>
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<tr>
<td>15 minutes</td>
<td>Interaction with CN practitioners and other experts</td>
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<td>10 minutes</td>
<td>Summary for the local communities</td>
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**Break for 5 minutes**

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<tr>
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<tr>
<td>5 minutes</td>
<td>Introduction to Community Networks Case2</td>
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<tr>
<td>10 minutes</td>
<td>Screening of CN Case2</td>
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<tr>
<td>15 minutes</td>
<td>Interaction with CN practitioners and other experts</td>
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<tr>
<td>10 minutes</td>
<td>Summary for the local communities</td>
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<tr>
<td>10 minutes</td>
<td>Consolidation and wrap-up</td>
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Date and thematic themes of CNX 2022

29 June 2022

The focus of the Series I was “Walking the Talk with the Internet, Community & Networks”

Case 1: The CN of the refugees from Myanmar in India
Case 2: The CN of the Meo community, Nuh, Haryana in India

29 July 2022

The focus of the Series II was “Last Mile Access: Policy vs Practice”

Case 3: The COW (Community-Owned Wireless) Mesh of Tumkur, Rural Karnataka
Case 4: The CN of the Earthquake Displaced Community in Rural Hills of Nepal

29 August 2022

The focus of the Series III was “Community Networks- Frugal Technologies and Communities of Practice”

Case 5: The ‘KAPAL’ Community Radio of Indonesian Islands and Mountains
Case 6: Nurturing a 21st Century Community Through Common Room Networks in Indonesia
Case 7: The Suusamyr Community Network in the Remote Mountains of Kyrgyzstan
**29 September 2022**

The focus of the Series IV was “**Community Networks - Scaling up Solutions and Sustainability**”

**Case 8:** Helping Farmers Harvest Better with Internet: Digital Dera Community Network of Pakistan

**Case 9:** Modernity Meets Tradition: The Community Network of the Iban Longhouse in Malaysia

**Case 10:** Challenges in Setting up a CN: Insights from Chhattisgarh

**29 October 2022**

The focus of the Series V was “**Community Network - Local Ecosystem and Social Entrepreneurship**”

**Case 11:** Apatani Tribes Ziro Valley Community Network, Arunachal Pradesh, India

**Case 12:** The Fishermen Community Network of Chirala, Andhra Pradesh, India

**Case 13:** Internet Roshni - CN of Indigenous Tribes of Tea Gardens, Assam India

**Case 14:** CR Bolo: IVR Enabled CN Mesh with Community Radio Bolo, Odisha India
## Schedule

**Date:** 29 June 2022  
**Time:** 1000 hrs - 1200 hrs IST / 1230-1430 SGT / 0430-0630 UTC

<table>
<thead>
<tr>
<th>Time Slot</th>
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<td>Introduction by the moderator -</td>
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<tr>
<td>Opening movie of CNX 2022 -</td>
<td>2-3 minutes</td>
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<tr>
<td>Introduction to Community Network (CN) <strong>case one:</strong> The CN of the refugees from Myanmar in India -</td>
<td>5 minutes</td>
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<td>Screening CN <strong>case one:</strong> The CN of the refugees from Myanmar in India -</td>
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<td><strong>— Break for 5 minutes —</strong></td>
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<tr>
<td>Introduction to CN <strong>case two:</strong> The CN of the Meo community, Nuh, Haryana, India -</td>
<td>5 minutes</td>
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**CN Practitioners and Experts Panel:**
- Osama Manzar, Digital Empowerment Foundation  
- Rajnesh Singh, Internet Society  
- John, ASORCOM  
- Sarbani Banerjee, Association for Progressive Communications  
- Fauziya Nasim, Wireless for Communities  
- Duncan Macintosh, APNIC Foundation  
- Shalini A, Janastu and Servelots

**Principal Partners**
Case 1: CN by Burmese Refugees in India

The first network was presented by Michael Suantak from a small village bordering Myanmar in Manipur. Being a refugee, the challenges imposed in building CNs are more and hence prove to be a good testimonial of finding local solutions through and through. The CNs were set up by Michael and his friends in the community to serve the people who migrated from Myanmar to the villages in India where their close relatives live. 500 such Burmese refugees, whose main occupation was farming in Myanmar, learnt to weave and set up a weaving community to earn a living by making the traditional dress for the indigenous communities. Suantak recollects that as the political situation is quite different, it took almost a year to understand the needs of the community through interactions.

Prior to the networks in Manipur, Suantak had some experience in setting up an offline network in Myanmar as an alternative solution to rural communities. Looking back on his journey, he highlighted two aspects to support the need for a CN. He says, “Complete decentralised CNs ensure that it is not exploited for
other purposes apart from the needs of the community which encourages me to continue my work. Along with this, I believe that users should not only be content consumers but also creators. In reality, in the internet context, if you are not producing, you become the product as your information is being sucked by content creators through cookies etc. Why shouldn't we create the local content and present the rich indigenous information out there? This can happen only through CNs.”

Putting his beliefs into practice, Suantak started off by requesting donations from people in the form of used devices like computers etc. He was supported by many people wanting to donate and participate. With a hand-made tower set up on top of the mountain along with a centre adjacent to it that houses the routers and operating networks, he has connected 20 villages so far, by managing to collect microchips to control, optic fibre, a battery and an inverter to support the setup. Talking about the sustainability of the network, he explains that selling the products of the weaving keeps the network running. Michael also highlighted that setting up of the CN in the porous bordering villages of Manipur to Myanmar, got critical support from APC to be able to erect the network for the community.

Taking away the key aspect of “the important thing is to just start” as pointed out by Michael, cases like these help in getting a deeper feel about what CN means and aid in more practical ways of networking and co-learning. Dr Sarbani has closely watched Suantak’s work and elaborated on his efforts and characteristic features of CNs in a disaster prone area, “Suantak’s story is that of determination. He has faced a lot of challenges and still does in terms of connectivity. We don't have a systematic model to build CN in disaster-prone areas or refugee camps. Owing to a lack of legal documents, procuring sim cards, data connections etc is challenging. So, his initial steps are different from the rest. He first looked into setting up a local area network: an offline mesh network. He gained confidence in that and then worked on bringing the connectivity. That was the sustainable model he was working on in these weaving centres. Now women are enabled to creatively use the internet. Another challenge he has faced all along is the unavailability of devices because of the dearth of financial resources. One of the key lessons from his work is the need to localise the technology and find alternatives to depending on external sources for devices and technology.”

Although these case stories appeal emotionally, a business model that would attract more investors who are looking for a more structured framework hasn’t been fully developed. Speaking further about this, Rajnesh Singh suggests some possible ways forward from his 15 years of experience in bringing connectivity to the unconnected. Stressing on the point that the burden of the cost should not be
put on the communities, though they benefit from them, help is needed instead of relying on a business model that may not exist in this context. Looking at the local scenario, the Universal Service Funds could be tapped into and tweaked as per the requirements by opening these funds to those working in the fields rather than limiting them to Telcos, despite the additional overhead costs that get tagged along. Along the same lines, in some developing countries, there are Rural Development Funds or Regional Funds available that talk about connectivity without bringing it into effect. There might be a positive and sustainable outcome out of working on Universal Funds in conjecture with Regional Funds.

Looking specifically at the disaster-prone regions, Shalini adds that the CN in such areas or villages might be termed illegal. Including CN in the policy framework will make the path towards integrating it with the economic model easier and more sustainable.
Case 2: CN by Meo Community in Nuh, India

The next case story is from a district called Nuh which is about 65-70 km from Delhi where there is a network of 100 to 200 villages with the help of 11 towers. Each of these 11 locations helps around 8000 houses to benefit. This case story gives the CN usage perspective in the backward communities that rely on the internet to gain access to basic needs and entitlements.

The network is set up within the framework of the Community and Information Resource Centre (CIRC) which works on a hub and spokes model providing digital services around health, education, livelihood, banking and governance at each centre.

Samar showed the set-up of the CN with the main tower situated at the hub centre from where the internet is broadcasted to other centres with the help of point-to-point (P2P). The primary connection is accessed from BSNL cables which are transferred from about 5.5 kilometres away from the hub centre. Considering the population of these 11 locations, the internet from these networks would reach around 60,000 people.

Setting an example for linking connectivity in a meaningful way by integrating it
with community development, the social entrepreneurs from these service centres explained the kind of atmosphere and benefits around this setup. Mustkeem, who serves around 30-40 people per day by withdrawing money or updating KYC to avail benefits from the PM Kisan project, explains the use of ‘hopping’ to distribute the connection to the centre from the main tower. Speaking from another centre, Munfaid gives the background of the community, “Because of lack of education in the village, people here are not so aware of the online services and CNs that are available. People did not know that they could avail services like PM Kisan online. With the help of the centre, we make these services available to them which they use. Now they don’t have to travel to other villages to get their work done.”

These networks have solar panels to power through and the maintenance is done by the locals following training. One of the challenges in training the locals, as Nagma points out, is that many understand only Hindi language with no familiarity with English which makes it hard to explain technical terms. Instead, they are demonstrated practically in real-time or with the help of photos or visuals.

The way these networks are used play a key role in driving the development in this sector which eventually draws national attention. Speaking of structured efforts, Duncan suggests that for a countrywide application, such a framework would be necessary. But in terms of pulling the funds from impact investors, who look for ventures that can maintain themselves over the years, he leans more towards linking these efforts to community service-oriented initiatives that would sustain the networks, be able to replace the worn-out hardwares and compensate the one maintaining it.

Dr Sarabani takes this example further by saying that “Sharing and reuse infrastructure is a crucial aspect of CN. Nuh is an example of using optical fibre by Bharat Broadband (government provider) to connect such places which should be considered at the policy level. Another aspect is the meaningfulness of the connectivity. This CN enables people as the training is organised by the women within the women community and this meaningfulness helps in adding value to CN which should be shown to the government.”

Gender inclusion is yet to catch up in this sector, especially in backward communities like Nuh where girls are not allowed to go out and even if they do, they are obliged to wear a hijab. Girls are not allowed to use a phone and have no participation in education. But this scenario is slowly changing as they are getting more engaged in education through STEM programmes that are conducted with the help of CN.

The digital era expects the internet to be made available as a basic need. Hence, it
is no longer a functional advantage but a necessity and is very much interlinked with community development. Hence, providing internet in a meaningful way through these networks has to be taken up by recognising the local champions who will further drive the initiatives without which the efforts would remain short-lived.

On the policy front, the government has been sending mixed messages in terms of making connectivity available. On one hand, certain government policies are such that a smartphone with access to certain apps is needed to mark the attendance in MNREGA, etc while on the other hand there hasn’t been a stronger involvement in making these devices and connectivity affordable. One such recent initiative was PM Wani which commercialises ISP and delicensces the ISP regime so that anyone is legally entitled to buy and sell connectivity. But the movers and shakers of CN, although driven to bring solutions to the challenges faced by the community, haven’t been able to create an enterprise out of it except for one or two examples. The possibility of treating CN as an infrastructure which links to the service of the community might help in this direction on a larger scale.
## CNX Series II Schedule

**Date:** 29 July 2022  
**Time:** 1000 hrs - 1200 hrs IST / 1230-1430 SGT / 0430-0630 UTC

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<td>Introduction to Community Network (CN) Case Three: The COW (Community-Owned Wireless) Mesh of Tumkur, Rural Karnataka</td>
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**Expert Panellists and Discussants:**

- Osama Manzar, Digital Empowerment Foundation  
- Rajnesh Singh, Internet Society  
- Kathleen Diga, Association for Progressive Communications  
- Isha Suri, Centre for Internet Society  
- Anju Mangal, Alliance for Affordable Internet - World Wide Web Foundation  
- Shafali Jain, Janastu Collective  
- Gayani Hurulle, LIRNEasia  
- Bikram Shreshta, Nepal Internet Foundation

**Principal Partners**
The first case was presented by the community media activists T.B Dinesh, Shalini and the Janatsu team who is running a CN in Tumkur of Karnataka, India. Tumkur is 70 kilometres from Bangalore city, but the villages where the Janatsu Collective is helping run the community Network is a place where you’ll have to travel far to get coverage or even get an OTP. Like most of rural India, caste is an existing reality in these villages too- there is an upper caste village and a lower caste one. The CNs have been set up in both of them; Shafali from Janatsu pointed out how caste and patriarchy emerges as important components while setting up these technologies. If one is not careful of the nuances, the injustices become deeper and more entrenched.

In Tumkur, the hills, with small antennas, turn into nodes that broadcast connectivity to the surrounding villages. It forms a mesh, called the COWMesh.
or the Community Owned Wireless Mesh, where the ownership of these local communications stays within the communities, while also reducing the costs. A very small computer, called the Raspberry Pi is part of what makes this possible. As small as an ATM Card, it embeds well with a mic and the recordings are communicated to one central place where there is a team of women who listens, edits, adds the acknowledgments and either makes it into a program or archives it. There are Libre Routers, open source routers that do long hops giving wifi range to a local area network, forming part of the mesh network.

Moving to how it has benefited the community, Dinesh explains it was primarily in online education. TVs with Raspberry Pis were provided, enabling the teachers to provide lessons to the community. This was crucial in the pandemic lockdown. Teachers were unofficially coming to the community space and teaching classes. All it needs is someone with slight technical skills to manage it. Dinesh mentions how, initially when the community radio was set up, there were many young girls who were enthusiastic but had hesitant parents who were not that keen. This has changed after people grew used to the things on radio. This makes the CNs a possibility for these women to go beyond their homes and schools, and fight early marriages, alcoholism and other social issues. Destroying social constructs, people are surprised how the girls from their village are able to speak or sing like they do on the network.

After the network, they realised the logical next step forward was to provide internet through the mesh - without it being school-based, government-based, or startup-based, but rather a community owned activity. Local content was created by the local community, especially women, and there was a lot of acceptance. The intersection of Community Radio and Community networks is something that needs to be explored further.
The second case was presented by Bikram Shreshta, of the Nepal Internet Foundation, who has worked with several CNs in Nepal. The temporary settlement, only around 115 kilometers from Kathmandu, where refugees from the disastrous earthquake in 2015 are staying, is also at a high risk of flood during the rains. The houses are made of Tin, making it hard to stay in extreme climates.

Khalte Village in Uttar Gaya, on the way to the China border, is a settlement with more than 600 people. Each router part of the network here connects around 60 people. Students use it for education, and there are also trainings held for women empowerment. Handicrafts were promoted using the internet. Other occupations are mostly agriculture, and then people travelling to urban areas for construction work. These people who travel use the internet to stay in touch with their families. The Internet is provided by World Link Communications. Before the CN, people used 3G and 2G networks, which were both costly and lacking good coverage. Technical support is being provided from Kathmandu, which helps out in case of technical issues, malfunction and for monitoring. The population is mostly Tamangs, an indigenous community, who were displaced in
the earthquake and came in temporary settlements. These have almost become permanent now. They are on government land.

In the discussion, Isha of Centre for Internet and Society mentions how the tangible impact of the work that is being done now is not something that is going to happen next year, but it will rather create a better world for the generation growing up- they will be more aware about climate change, displacement, land rights. All these efforts work together in bringing about this awareness. The discussion further went on to talk about issues of power shortages and backups when hit by disasters, and other hurdles faced in such situations. Nonprofits helped provide generators which powered the connections.
## CNX Series III

### Schedule

**Date:** 29 August 2022  
**Time:** 1000 hrs - 1200 hrs IST / 1230-1430 SGT / 0430-0630 UTC

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<td>Introduction to CN Case Six: Nurturing a 21st Century Community</td>
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<td>- Rajnesh Singh, Internet Society</td>
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<td>- Sylvia Cadena, APNIC Foundation</td>
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<td>- Mike Jensen, Association for Progressive Communications</td>
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<td>- Indri Sri Sembadra, Institut KAPAL Perempuan</td>
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<td>- Dr Sarbani Banerjee Belur, Association for Progressive Communications</td>
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### Principal Partners

![Partner Logos]

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The first network was presented by Indri Sri Sembadra from islands in the Jakarta region, Indonesia, to share their experience of community radio and the community network they operate. Kapal Perempuan is an Indonesian women’s organisation which was established in 2000 and stands for Alternative Women’s Education Circle. Originally, it was established to develop women’s empowerment in various regions and was expanded into developing two women’s community radios to respond to the COVID-19 pandemic. Since women are more vulnerable to COVID-19-related effects because of existing gender inequalities, the radio was developed as a medium for empowering women and minimising the impact of the pandemic on women and marginalised groups in remote islands and mountains.

The Radio Nina Bayan is a critical example of a grassroots, bottom-up community radio station which was established in 2015 to prevent occurrences of child marriage. The radio is located in a mountainous location with listeners
reaching nine villages, and the distance from the studio to the farthest village is approximately 15km. The implementation of the broadcast in the community also looks at protecting child rights and empowering elderly people with disabilities and other marginalised groups through radio networks. The broadcasting administers education about gender issues in order to promote equality in education and ensure that boys and girls will have equal opportunities to realise their full human rights and contribute to and benefit from economic, social, cultural and political development. The challenge that the community faces is that the sound quality is sometimes unclear and unstable because the antenna is not high enough. In addition, the weather is also an obstacle.

The second, Radio Sipurennu, is located on Sabutung Island. The radio can reach listeners in 6 villages across six islands and 3 villages on the mainland, with about 5,000,000 listeners. This radio is utilised as a communication tool that can reach the most vulnerable people of the community and connect the members who do not have access to the internet. Putting entrepreneurship in the limelight, the broadcast also helps businesses by giving them a platform to promote their products, promote education by providing school tutorials, provide the correct information and practices about the pandemic and spread awareness about child marriage and violence against women. In Radio Sipurennu, there is a new theme, namely weather information for fishermen, so they are very helpful for weather information so that they can anticipate if they will go sailing if the weather is bad.

Taking away the key aspect of information dissemination, the radio uses local languages other than Indonesian to maximise reach. Cases like these help in getting a deeper feel about what CN means and aids in more practical ways of networking and co-learning. While talking about the need for a broadcast station like this, Indri says, “This radio is very useful, especially for communities that are difficult to reach. In addition, this radio is easy to understand for the community because it uses local languages other than Indonesian.”

Although these case stories appeal emotionally, a business model that would attract more investors who are looking for a more structured framework hasn’t been fully developed. Prompted by Sylvia’s question about challenges that hinder the plans for the community radio’s future, Indri explained that this radio must obtain a licence from the Indonesian Ministry of Communication and Information. When the licence has not yet been issued, this Community Radio tries another way, namely using the podcast platform. The broadcaster records and then uploads it to major podcast channels. The broadcaster sends the recording to the listener through the mosque speaker, visiting the listener’s point. When the licence from the ministry has been issued, the broadcast continues in the radio
studio. Constraints in accessing the internet are unstable in the islands where the internet is very difficult. Indri gives the example of Lombok, where the internet is relatively stable, but it is still limited because not many people have smartphones and internet data packages. Indri further explained that KAPAL Perempuan first received funding from the INKLUSI Program, a cooperation program between Indonesia and Australia. There are seven priorities in this program that will run for five years. In addition, broadcasters and radio managers take the initiative to pay dues and support from APC in the form of adequate equipment and certificates.

Looking specifically at the way in which the radio tackles cases of violence against women, Indri adds that the radio is also a “Complaint Post” or Pos Pengaduan, where people can come forward and complain about violence experienced by women and children. After the victim reports, the broadcaster and manager will process it with Sekolah Perempuan, a forum for women’s communities at the grassroots.
The next case story is from a Ciptagelar village in the southern region of the province of West Java in Indonesia. The location of the centre in Ciptagelar village is on the border of West Java province and Banten province. Geographically, it is located in the hinterland of Mount Hallimun Salak National Park. While showing the view of Kampung Ciptagelar on Google Maps, Iskandar was able to highlight Leuit, or the rice where the Ciptagelar people used to store the rice they grew for daily consumption. While explaining the history of the development of the community radio program in Ciptagelar, Yoyo, another coordinator mentioned that the internet development started in 2014, and when the Common Room program came to Ciptagelar, there were only 153 houses with 500 people in the area, but since the Ciptagelar village is at the centre of Kasepuhan Ciptagelar, it oversees 568 villages and around 40,000 indigenous people. They stated that the community network development started in one village with experiments in around 2016 and 2018 and succeeded in developing an internet network together with AWInet, an ISP company based in Banten. After that, they started to conduct a series of workshops, training and capacity-building activities with the aim of empowering the community members to manage the internet independently.
When asked about the motive behind setting up the internet in the community, Iskandar explained that telecommunication operators had started to provide internet services in Ciptagelar village in 2011. However, at that time, the company was developing an internet network with subsidised funds from the Indonesian government. When the subsidy was withdrawn, the internet service was automatically no longer available. When they studied internet networks using government subsidy funding, they discovered that government internet networks were unsustainable and unstable. This prompted the group to hold a discussion with Abah Ugi, the Leader of the Ciptagelar Indigenous Community and discussed developing a better and more efficient internet network. In the initial stages, the community would lose connectivity since the electricity infrastructure in Ciptagelar is also limited. Owing to this, a topological study was conducted to understand the geographical conditions in the area and build internet infrastructure independently. The Ciptagelar community experimented with radio technology until, finally, the internet was available. This model was also later modelled and developed in other villages, especially those that did not have an internet network at all.

In order to provide the community members with an internet network at an affordable price, the members collaborated with ISP companies to build a safe network in legal accordance with government policies and regulations. Since the internet could not be accessed all the time, 24/7, an internet voucher business model was adopted. This internet voucher provided people with the internet at an affordable price and with sufficient bandwidth capacity.

The CN developed the community internet using 5L principles. The first is low-tech, or what they usually call ‘tepat guna’ technology. This technology must be affordable and easily accessible in Indonesia. The second is low-energy; because many areas in Indonesia have limited sources of electricity. Then it’s low-maintenance, easy to maintain and easy to manage. Fourth is the low-learning curve; technology must be easy to learn by the villagers. The last one is local support. They explain that local support is the most important thing. Building community network infrastructure requires support from traditional leaders, communities, and the community itself.

While initially, the network was bringing ease to everyday activities, information dissemination, access to public schemes and inclusion, setting an example for linking connectivity in a meaningful way by integrating it with community development, the Ciptagelar community has started to produce digital content related to their traditional culture and traditions. This makes them increasingly
recognized in Indonesia. The Ciptagelar community even has a Youtube channel and a community TV station that has been operating since 2000. They also have a radio managed by the community since 2008. When asked if the television content is created and produced by the community itself, Yoyo mentioned that the main content is usually the documentation of daily activities at Ciptagelar and that there seem to be a lot of television users because the parents want to show and teach the legacy of the community to their family. It was also highlighted that the community network is used by the indigenous people to preserve their cultures and traditions while also making space for new technologies such as the community network, internet and digital media platforms. Ciptagelar shows us that preserving culture can go hand in hand with technological developments and can actually add uniqueness and diversity to the culture itself. Talking about this further, Yoyo states, “The culture of the Ciptagelar Indigenous People is oral. Even many elderly people are not able to understand written language. Knowledge is passed down orally and directly. Television is quite important because it uses visuals and audio to convey any information that is happening at Ciptagelar. Voices and audio also help to convey the information to the people outside.”

Since 2020, they have started to develop the School of Community Network program in Indonesia together with APC and the Digital Access Program. In this program, they not only encourage capacity building of villagers and knowledge transfer regarding the development of community internet networks but also enhance productive and meaningful internet use. Currently, they’re developing the program in 9 provinces in Indonesia. Some of them are indigenous people groups since Indonesia has a very wide area with diverse cultures and conditions of society. Therefore, the need to explore various scenarios so that community networks can be developed, built, managed, and utilised by people who have various situations and challenges is being addressed effectively.
Case 7: CN by the Suusamyr Community of Kyrgyzstan

The digital era expects the internet to be made available as a basic need. Hence, it is no longer a functional advantage but a necessity and is very much interlinked with community development. Halil points out that they faced a lot of problems starting and running this project since their project is in Suusamyr, high in the mountains. The earnings of the people are low in the village. Their internet service is very cheap for local people to set up an account. They pay for one account, and then the whole family uses it. Bilgich further elucidates that community businesses also rely on the community network for their functioning. He reported the systemic functioning of the CN live from a small cafe where Bilgich’s team was fixing the internet connection. The community is 150km from Bishkek and in the high mountains.

When asked about the business model to sustain the ISP run, Bilgich commented that businesses pay them $6/month for the infrastructure, such as cables, routers and maintenance. The internet provided is bought from bigger ISPs that the clients pay for, and the ISP returns 10% of what they make at the end of the month.

The Suusamyr CN serves 1000 people in the village and has been successful in connecting 100 of them. When asked about their challenges, Bilgich mentioned that one server they installed could handle up to 200-250 clients.
The CN has four main lines spread around the town. Covering west, east, north and south Suusamyr. The towers are divided to ensure connectivity in all directions. In the Suusamyr community, since the families are large in number, it is normal for people to have 5-6 children in this village. Due to this, the families feel that the CN is money-saving if they connect to our network and just pay for one account.

When Indri asked how sustainable and accessible the model is for the community, Bilgich stated that 4G had reached Suusamyr, and most of the villagers have access to some kind of service. Because of access to the internet, the competition between ISPs is high, and consumers get the internet at cheaper prices. Bilgich pointed out a small town of 100 people where a new ISP was installed despite there being no electricity. They access the internet through portable solar chargers, and they send their smartphones to their relatives in locations where there is an internet connection, who then download content on their devices and send it back so they can consume it over a longer period of time. Singh further added that when they start building at a local community level and start sustaining themselves, it becomes obvious that people are being brought to the centre of sustainability policies and implementation practices. Iskandar agreed with the panelists and added that while viewing the geographical challenges that Kyrgyzstan faces, digital connectivity and internet structures have to be thought out while keeping the topology at the centre; he adds that starting small allows for constructive and more efficient growth.
Date: 29 September 2022
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Introduction by the Moderator
Opening Movie of CNX 2022
Introduction to Case Eight Helping Farmers Harvest Better with Internet: Digital Dera Community Network of Pakistan
Screening Interactive Live Recorded Video of CN Case Eight
Interaction with CN Practitioners and Experts
Summary of the Discussion for the Community in Local Language
Consolidation and Wrap-up

--- Break for 5 minutes ---

Introduction to CN Case Nine Modernity Meets Tradition: The Community Network of the Iban Longhouse in Malaysia
Screening of Interactive Live Recorded Video of CN Case Nine
Interaction with CN Practitioners and Experts
Summary of the Discussion for the Community in Local Language
Consolidation and Wrap-up
Introduction to CN Case Ten Challenges in Setting up a CN: Insights from Chhattisgarh
Screening of Interactive Live Recorded Video of CN Case Ten
Interaction with CN Practitioners and Experts
Summary of the Discussion for the Community in Local Language
Consolidation and Wrap-up

Expert Panellists and Discussants:
- Osama Manzar, Digital Empowerment Foundation
- Adrian Wan, Internet Society
- Mike Jensen, Association for Progressive Communications
- Dr Sarbani Banerjee Belur, Association for Progressive Communications
- Amer Hayat Bhandara, Digital Dera
- Gary Loh Chee Wyai, ASSET, University of Technology Sarawak
- Emani Lui, MakaNet.
- Anshu Shivam, Gandhi Fellow, Piramal School of leadership and Kaivalya Education Foundation
Case 8: Digital Dera, Punjab, Pakistan

The first case video is about the Digital Dera initiative by the organisation Agriculture Republic. The word ‘Dera’ denotes a gathering space in a village, common in many parts of South Asia. Agriculture Republic, co-founded by Aamer Hayat Bhandara, has adopted this concept to initiate ‘Digital Dera’ where farmers are connected through digital networks in order to find solutions to the issues related to farming. Digital Dera is based in the Pakpattan district, Punjab region in Pakistan, where smartphones and even 2G networks are rare. The lack of accessibility makes it difficult for farmers to connect with each other. As a solution to this, a tower is placed in the middle of five villages which are covered in its radius and thus will receive the internet through a wireless network. Getting into the details, Amir says that the network is provided by Pakistan Telecommunication Company Ltd. (PTCL) whereas Internet Society (ISOC) pays the monthly charges. ISOC has also contributed towards building the infrastructure such as computers and other gadgets; however, Hayat Farms run as a company by Amir and other farmers is a major source of income to meet recurring expenses. Aamer explains
the benefits that farmers are now able to use the network mostly to access content related to weather, markets, pricing, etc. while students can look up details of courses related to agriculture and so on. In a place where mobile phones, tablets, networks and other digital facilities are expensive for individuals to bear, Digital Dera facilitates accessibility to them to build collaborative support systems.

Responses to the case of Digital Dera highlighted the added value of the use of the Internet of Things (IoT), such as a tower in the farm controlling automatic irrigation, air/water quality sensors, etc. It was suggested that digital networks can be used not only to access the information already present on the internet but also to share some information newly generated by the farmers with other farmers, which Digital Dera is actually exploring. The tower is located on their farm and the tube well pump is automated. One of the lessons the COVID-19 pandemic has taught us is that we can live without anything but food. An increase in the productivity of land through the use of the right technology, right information and foresight, along with the minimised cost of production on crops and livestock would result in far better yields. Proper technology and timely information can lead to saving water, increasing productivity, and thus improving the lives of farmers. In Aamer’s perspective, access to the power to make the right decisions ultimately results in a safer world with food security. Agriculture Republic is working towards a sustainable model of collaboration among farmers who hold ownership over their assets in rural areas.
The second video story covers the case of Longhouse in Sarawak state on Borneo Island, Malaysia. A conversation with Gary and the team reveals that it was the desire to promote tourism in the area that led them to explore community networking through access to digital platforms. They created WiFi access points, initially building the network upon the existing electricity lines. As of now, nine Longhouses are situated around Sibu town, separated by a distance of around 300 to 700 metres. Conceptually, ‘Longhouse’ is a place where several families live together; at present, more than 150 people are living in each of these spaces built by people themselves, many of them government servants, employees of private companies and timber factories, along with farmers. Gary says that the licence fee for WiFi is 7500 Malaysian ringgit, costing around 2000 USD a year, which basically makes it difficult for them to provide WiFi in all the Longhouses. The bandwidth for the WiFi is about 70 Mbps download and 20 Mbps upload, which is satisfactory to the community. The backhaul is made available free of cost by a private telecom company named Sankofa. In the beginning, the ‘last-mile solution’ was in the place where electricity lines were used to transfer the backhaul from Kuching to Sibu, i.e. around 300 km, but now they are replaced by fibre cables.
Some of the major purposes for which the internet is used in Longhouses include the promotion of tourism in the region, schooling and learning requirements of children, communication with each other, as well as providing the general public with internet facilities for their varied needs. Longhouse puts forth a sharing model of technology rather than an individualistic one, not only sharing the resources but also shouldering the responsibility to care for them.

Following this, the need for organisations that can facilitate communities through the procedure of setting up networks, availing funds, capacity-building and so on came up for discussion. Also on the question of sustainability, Gary shared that at a point when the backhaul is no longer free, they may be able to sustain Longhouse with the income generated from tourism and marketing made possible through the same platform itself, meanwhile hoping that community networking will be gradually taken up by the government.
Case 10: Rainkhol, Chhattisgarh

Rainkhol is a village in Chhattisgarh state of India where no Internet Service Provider has spread its reach. Interviews of the villagers reveal that the lack of network results in denial of access to essential services such as medical emergencies, online learning, money withdrawal for pensioners, etc., despite cases of being cheated by fake service centres. They have to travel to the next village to place calls, avail of government services through online mode, and so on, spending a lot more time and effort. The villagers point out that exploiting the scope of tourism, ensuring speedy interventions in public issues, and protecting the environment through timely action in case of natural calamities such as forest fires can be done efficiently if they have a mobile network, apart from obviously improving living standards through increased employment opportunities. CN is looking forward to transforming Rainkhol village into a network-accessible place.

Further, the discussion observed how the digital network has become imperative now as the government itself has made it so. Ironically, state policies have changed over time, depending on the internet, while the internet policy in itself has not yet changed to become a household facility.
The question of the sustainability of community-level interventions is an important one to address. It was suggested that to ensure the scalability required for sustainability, contributions of the community towards funding the network can be sourced which would also in turn ensure recognition of regional diversities and community ownership. Another opinion also surged that funding would not be as much of a problem as layers of technical regulations, authentication procedures and limits of human capacity. Yet another challenge is that the licensing regime is largely oriented towards national suppliers, leaving out local suppliers. However, there are several community networks availing significantly low-cost coverage provided by the national operators such as the New York city mesh, and also private ISPs venturing to provide connectivity in remote areas. In the Indian context, the procedures of authentication and regulations regarding devices often make it difficult to set up community networks.

Adrian’s opinion was that to acquire sustainable business funding, we need to talk their language by setting up similar financial models. Gary and Aamer further emphasised the need for more bandwidth, active community members and capacity-building to widen their intervention in the coming years. The concerns regarding how the internet would culturally interact with every new community are still open to be approached from different perspectives, eluding a single answer. It needs to be further discussed whether to pursue alternative paths of networking or expect telcos to work on long-term plans of expanding networks while working on the understanding that having no single standard is the new standard to be adopted in order to address the diversities.
## CNX Series V

### Schedule

**Date:** 29 October 2022  
**Time:** 1000 hrs - 1200 hrs IST / 1230-1430 SGT / 0430-0630 UTC

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Duration</th>
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<tbody>
<tr>
<td>10:00</td>
<td>Introduction by the Moderator</td>
<td>5 minutes</td>
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<tr>
<td>10:05</td>
<td>Opening Movie of CNX 2022</td>
<td>2-3 minutes</td>
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<tr>
<td>10:07</td>
<td>Introduction to Case Eleven: Apatani Tribes Ziro Valley Community Network, Arunachal Pradesh, India</td>
<td>5 minutes</td>
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<tr>
<td>10:12</td>
<td>Screening Interactive Live Recorded Video of CN Case Eleven</td>
<td>5 minutes</td>
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<tr>
<td>10:17</td>
<td>Interaction with CN Practitioners and Experts</td>
<td>10 minutes</td>
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<td>10:27</td>
<td>Summary of the Discussion for the Communities in Local Language</td>
<td>10 minutes</td>
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<td>10:37</td>
<td>Introduction to CN Case Twelve: The Fishermen Community Network of Chirala, Andhra Pradesh, India</td>
<td>5 minutes</td>
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<tr>
<td>10:42</td>
<td>Screening of Interactive Live Recorded Video of CN Case Twelve:</td>
<td>5 minutes</td>
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<tr>
<td>10:47</td>
<td>Interaction with CN Practitioners and Experts</td>
<td>10 minutes</td>
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<tr>
<td>10:57</td>
<td>Summary of the Discussion for the Community in Local Language</td>
<td>10 minutes</td>
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<tr>
<td>11:07</td>
<td>Consolidation and Wrap-up</td>
<td>10 minutes</td>
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<td>11:12</td>
<td>— Break for 5 minutes —</td>
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<tr>
<td>11:17</td>
<td>Introduction to CN Case Thirteen: Internet Roshni - CN of Indigenous Tribes of Tea Gardens, Assam, India</td>
<td>5 minutes</td>
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<tr>
<td>11:22</td>
<td>Screening of Interactive Live Recorded Video of CN Case Thirteen:</td>
<td>5 minutes</td>
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<tr>
<td>11:27</td>
<td>Interaction with CN Practitioners and Experts</td>
<td>10 minutes</td>
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<td>11:37</td>
<td>Summary of the Discussion for the Community in Local Language</td>
<td>10 minutes</td>
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<td>11:47</td>
<td>Introduction to CN Case Fourteen: CR Bolo: IVR Enabled CN Mesh with Community Radio Bolo, Odisha, India</td>
<td>5 minutes</td>
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<tr>
<td>11:52</td>
<td>Screening of Interactive Live Recorded Video of CN Case Fourteen:</td>
<td>5 minutes</td>
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<td>11:57</td>
<td>Interaction with CN Practitioners and Experts</td>
<td>10 minutes</td>
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<tr>
<td>12:07</td>
<td>Summary of the Discussion for the Community in Local Language</td>
<td>10 minutes</td>
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</tbody>
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### Expert Panellists and Discussants:

- **Osama Manzar**, Digital Empowerment Foundation
- **Rajnesh Singh**, Internet Society
- **Ritu Srivastava**, Jadeite Solutions
- **Mohd. Niyaz**, Radio Bulbul
- **Jane Coffin**, Connect Humanity
- **Dr. Syed S. Kazi**, Council for Social and Digital Development
- **Nani Monya**, Ziro Wireless
- **Austin Macklin Kawa**, Tea Garden Wireless
- **Amir Rahman**, Digital Empowerment Foundation, Chirala
- **Sree**, Digital Communication Strategist

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### Principal Partners

![Partner Logos]
Life in the scenic village named Ziro has been going on, almost completely forgetting that the Internet exists. Airtel is the sole internet service provider in the region the use of which is not spread to all areas. They have to travel to the main town of Ziro to use the internet for any official purpose. The Digital Empowerment Foundation has set up an office at Ziro which is also a centre for giving basic computer training to students of the age group 7 to 25 years. They also use digital literacy kits by DEF such as START and NETU, using which students can experiment. DEF has reached out to five schools to install free WiFi connections which made blended learning possible through the use of audiovisuals, supporting the learning of various subjects.

The discussion further explored the benefits to students who use the Internet not only in a controlled environment but also for their own purposes along with teachers and parents. The team elaborated on how they had faced challenges in accessing the remote locations on top of irregularity in power supply. They
also grappled with convincing the villagers and faced cultural constraints that added to the challenges they faced. The backhole provided by Airtel which is being transmitted from Itanagar, Arunachal Pradesh is also not very reliable. The discussion brought into focus the lack of flexible business models from the part of most of the ISPs, leading to failure in providing network facility to marginalised communities. This raises the demand to develop and deploy new networking technologies and models. Even though many challenges resonate across lands, a model with the approach “with the community, by the community, for the community” only will ensure sustainability.
Case 12: Chirala, Andhra Pradesh

The Internet centre by ISOC at Chirala, 7 km from the main town towards the coast, is widely used by the villagers for purposes such as Aadhar enrollment, obtaining caste and marriage certificates, bank transactions, educational resources, entertainment and so on. The coastal area faces poor connectivity that forces the residents to go to the next town for availing internet facilities. The implementation of the project is located in internet dark zones which lack access to education, information, entitlements, and rights, and have successfully deployed wireless networks in Chirala Fisherman Community. Now, around 200 customers come to the Centre for these needs while 60-70 people use the computer systems and the WiFi at the Centre every day. Our major interventions were in the field of governance, finance, health and education. Placing receivers at various locations, the Internet is also used by the panchayat office and schools. Most significantly, a receiver is placed in the Chirala fishing village especially aiming at the fisherwomen. Using the Internet, they have learnt from ways to clean and cut fish in a better manner to update themselves with the latest market price and thus carry out the business profitably. It can be said that Chirala village is now well aware of the scope of the Internet.
As this case also highlights, digital economy-based policies are implemented in India without the required ground support. Making use of the existing infrastructure and skilled local human resources, permutations and combinations of methods, etc. are ways to overcome this, as the COVID time has shown us multiple possibilities to connect with each other. Financing these networks needs perusal since turning the benefits into profit and returning it in the form of investment will take time.
Assam has been providing India and the rest of the world with high quality tea for the last 150 years now. Any visitor going to Assam will experience the aroma and savor the unique malty flavor of Assam tea. The Internet Roshni project aims at digitally empowering tribes working and living in 50 gardens across the five districts of Tinshukia, Dibrugarh, Jorhat, Cachar, and Hailakandi in Assam, regions where more than half of the world's tea is produced and communities that do not have a script to their language. A Community Internet Library is set up in each tea garden, with WiFi service, envisioned as a digital access point. It is run by local youth and the fact that it is located within the premises of the tea gardens ensures better accessibility for the plantation workers. The project runs in a method where a community member, preferably a woman with a flair for entrepreneurship, is chosen in the first stage who would be the leader to digitally empower around 2000 members of the community in a year.

During the discussion, it was emphasised that along with good governance policies, government schemes such as PM-WANI should be utilised for last-mile connectivity at subsidised rates. Again, spreading awareness in the community that the Internet can help ameliorate a lot of the problems that they face is a step
as important as building a strong case in front of the government and enabling efficient use of the Internet at the government's end. This can lead to the holistic empowerment of the community. Internet Roshni is also exploring the scope of promoting the community's scriptless language through audio and video forms. Translations to their language would facilitate knowledge transmission and acceptance in the community.
Case 14: Community Radio, Odisha

Radio Bulbul in Odisha is born under the entrepreneurship of a previous DEF member who went back to his village with the determination to bring some change over there. Apart from a village school, he set up the community radio and also brought a community network to Bhadrak village of Odisha with the help of others. The Radio is broadcasting from their small office various content on agriculture, youth, education and also some special programmes, aiming at spreading the right information. An elaborate dial-in system has been developed where people can enter specific numbers and listen to content on any of the above with many subtopics, in either Odiya or Hindi. Basically, the radio programmes are converted into a portal on the IVR platform. This IVR is also running on a local network within 5 km of the radio station, which people can call through a webpage or the IVR number. Simultaneously, the community network established with the partnership of a local NGO is bringing people closer and enabling schools to access online resource materials. The interesting case of the person who was a school dropout but now manages the radio station and gives training to teachers on the use of the Internet itself is an instance of the empowering impact of the organisation.
The discussion further emphasised the need to maintain an alternative infrastructure to support any community network. The question was put forth for deliberation, how to scale up the widely dispersed regional innovations and networks across the globe to cover every possible community. For that, policy regulations need to be supportive while on the other hand proper funding also should be sourced.
Walk the Talk Video Case Stories

CNX 2022 saw a segment called “Walk the Talk Video Case Stories” which showcased short case stories from the different regions where community networks and community radio are deployed. These videos highlighted the impact of stories, experiences, and local contexts that should be considered in the deployment of community networks. The following is a list of videos and case stories that were showcased throughout the five series of CNX. Watch them.
Case 1: Community Network By Burmese Refugees in India

https://youtu.be/2A4VT-__lAgc

A group of refugees from Myanmar had to struggle to survive in the remote hills of Manipur, far away from their home. Among several adversities they faced, lack of internet to connect to the world was one. This video shows how this settlement managed to set up a reliable CN of their own through a community leader.
Nuh, a small village in Haryana is disadvantaged both economically and socially. The Smartpur initiative under the leadership of the Meo community has been connecting the unconnected for a few years now. This video shows how they collectively making it possible.

https://youtu.be/FHa9MIVfwQ0

Considering the population of these 11 locations, the internet would reach around 60,000 people.
The first case was presented by the community media activists T.B Dinesh, Shalini and the Janatsu team who is running a CN in Tumkur of Karnataka, India. Tumkur is 70 kilometres from Bangalore city, but the villages where the Janatsu Collective is helping run the community Network is a place where you’ll have to travel far to get coverage or even get an OTP. Like most of rural India, caste is an existing reality in these villages too- there is an upper caste village and a lower caste one.

https://youtu.be/zf0ad0lhKTw
The second case was presented by Bikram Shreshta, of the Nepal Internet Foundation, who has worked with several CNs in Nepal. The temporary settlement, only around 115 kilometres from Kathmandu, where refugees from the disastrous earthquake in 2015 are staying, is also at a high risk of flood during the rains. The houses are made of Tin, making it hard to stay in extreme climates.
A community network from the islands in the Jakarta region, Indonesia share their experience of community radio and the community network they operate. This video shows how they managed to run a CN to prevent child marriage, violence against women and bring COVID-19 awareness.
This case story is from a Ciptagelar village in the southern region of the province of West Java in Indonesia. The location of the centre in Ciptagelar village is on the border of West Java province and Banten province. Geographically, it is located in the hinterland of Mount Halimun Salak National Park. While showing the view of Kampung Ciptagelar on Google Maps, Iskandar was able to highlight Leuit, or the rice where the Ciptagelar people used to store the rice they grew for daily consumption. While explaining the history of the development of the community radio program in Ciptagelar, Yoyo, another coordinator mentioned that the internet development started in 2014, and when the Common Room program came to Ciptagelar, there were only 153 houses with 500 people in the area, but since the Ciptagelar village is at the centre of Kasepuhan Ciptagelar, it oversees 568 villages and around 40,000 indigenous people.
Case 7: Reaching the heights: the Suusamyr community network in the remote mountains of Kyrgyzstan

Suusamyr, a village of 4000 people tucked away in the high mountains in Kyrgyzstan, gets internet through radio receivers installed for the wireless internet. This is a story of their journey in building this network that reaches out to one of the remotest regions in the country.
The first case video is about the Digital Dera initiative by the organisation Agriculture Republic. The word ‘Dera’ denotes a gathering space in a village, common in many parts of South Asia. Agriculture Republic, co-founded by Aamer Hayat Bhandara, has adopted this concept to initiate ‘Digital Dera’ where farmers are connected through digital networks in order to find solutions to the issues related to farming. Digital Dera is based in the Pakpattan district, Punjab region in Pakistan, where smartphones and even 2G networks are rare.
The second video story covers the case of Longhouse in Sarawak state on Borneo Island, Malaysia. A conversation with Gary and the team reveals that it was the desire to promote tourism in the area that led them to explore community networking through access to digital platforms. They created WiFi access points, initially building the network upon the existing electricity lines. As of now, nine Longhouses are situated around Sibu town, separated by a distance of around 300 to 700 metres.
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Posts and Sliders

Series 1

ANNOUNCING CNX2022

The 6th Community Networking (CN) National Workshop

INOCOM 2022

Nikhil Haryana is one of the most disadvantaged regions in India. The CN community set up their community network (CN) to access information and social entitlements. This CN was instrumental in fighting Covid during the pandemic. On 29th June, it hosted four community members of Nikhil Haryana and the changes the CN brought to them.

JOIN US

On 27 June 2022

to hear Michael and the story of his CN.

Schedule

Date: 29 June 2022

Time: 9:30 AM to 5:00 PM

Introduction to the workshop

Opening remarks by CNX 2022

Session 1: Community Networking: The CN of the region from Haryana to India

Session 2: The CN that can change the lives of the community

Session 3: Interaction with CN facilitators and other experts

Session 4: Break for refreshments

Session 5: Homecoming for the community members

Session 6: Conclusion and wrap-up

CNX Partners and Sponsors

- Karnal Municipal Corporation
- Digimark Digital Empowerment Foundation

Venue: Navya Convention Centre, Karnal

Contact: +91 98111 50250
Series IV

CNX 22 - Series IV
Community Networks - Scaling up Solutions and Sustainability

Date: 19 September 2012
Time: 1000 hrs - 1200 hrs IST / 1300-1500 IST / 0900-1100 UTC

Schedule:
- 1000 hrs - 1030 hrs IST: Registration
- 1030 hrs - 1200 hrs IST: Welcome and Introduction
- 1200 hrs - 1230 hrs IST: Keynote Speaker
- 1230 hrs - 1300 hrs IST: Panel Discussion
- 1300 hrs - 1430 hrs IST: Session 1: Community Networks and Infrastructure
- 1430 hrs - 1500 hrs IST: Session 2: Scaling up Solutions
- 1500 hrs - 1600 hrs IST: Networking Session

Series V

CNX 22 - Series V
Community Networks - Local Ecosystem and Social Entrepreneurship

Date: 30 October 2012
Time: 1000 hrs - 1200 hrs IST / 1300-1500 IST / 0900-1100 UTC

Schedule:
- 1000 hrs - 1030 hrs IST: Registration
- 1030 hrs - 1100 hrs IST: Welcome and Introduction
- 1100 hrs - 1200 hrs IST: Keynote Speaker
- 1200 hrs - 1300 hrs IST: Session 1: Community Networks and Local Ecosystem
- 1300 hrs - 1430 hrs IST: Session 2: Social Entrepreneurship
- 1430 hrs - 1500 hrs IST: Networking Session

Expert Panelists and Discussants:
- [Names not visible in the image]
Social Media Outreach

Welcome to this year’s CNX! Join us on 28th June, 28th July, 25th August, 29th September and 29th October to know more about how remote communities across the globe are coming up with innovative solutions to #Bridge the #digitalgap.
#CNX2022
@internetsoociety @OsamaManzar

In the second session of #CNX2022, from the CN in the earthquake displaced community, Nepal.
#CommunityNetworkXchange
#CommunityNetworks

CNX is exciting because of the work by the people on the ground and the video that they record and share.
@OsamaManzar
#CNX2022
#SeriesIII
@internetsoociety
Nuh, Haryana is one of the most disadvantaged regions in #India. The Meo Community set up their #CommunityNetwork (CN) to access information & state entitlements. This CN was instrumental in fighting #COVID19 during the pandemic.

Register now: bit.ly/3m54TtZ

The first story in this series is from Arunachal Pradesh’s Ziro Valley. DEF plans to work on expanding connectivity from the school to the clusters and communities around the valley. #CNX2022

#CNX2022

Join us on 29 September at 10:00 AM IST to listen to three Community Networks from India, Pakistan, & Malaysia connecting rural farmers and indigenous communities.

New attendees, please register here: bit.ly/3m54TtZ

#CNX2022 @intomatociety
The event was live watched by thousands of people from diverse geographical locations, communities and culture. Many people living in the community and nearby areas of 1500+ DEF locations also witnessed the event.

Coverage of Community Network Practitioners @CNX2022

1. Myanmar
2. Nuh
3. Tumkur
4. Nepal
5. Indonesia
6. Kyrgyzstan
7. Pakistan
8. Malaysia
9. Chhattisgarh
10. Arunachal Pradesh
11. Andhra Pradesh
12. Assam
13. Odisha
Participants

CNX 2022 focuses on bringing together community network practitioners and enthusiasts of community-driven Internet connectivity to exchange ideas and serve as catalysts for the grassroots connectivity movement. From the diverse geographical locations, communities, and cultures, people participated in CNX 2022 which took place over the five series conducted from June 2022 to October 2022. Some glimpses from the Indonesian and Myanmar communities and their experiences in building community networks to cater to the needs of their community and bringing a digital revolution in the remotest spaces.
For any further information, please Contact:

**Digital Empowerment Foundation**

House No. 44, 2nd & 3rd Floor (Next to Naraina IIT Academy)
Kalu Sarai, (Near IIT Flyover), New Delhi – 110016

Tel: +91-74288-55244 / Fax: 91-11-26532787