

Community Networks: 'For the Community, by the Community'

By Mohammad Pervaiz Ansari

For most of us, Internet access is as simple and easy as the snap of our fingers. We often think that it is like that for everybody.

But what if I now tell you that over half of the world's population is still offline? Shocking, isn't it? According to information on the ISOC (Internet Society) website, half the world still lacks Internet access.

While the Internet continues to serve as a Lifeline during this pandemic, half of the world still has no access to it, leave alone reaping the social and economic benefits of the Internet.

This is due to various challenges such as remote locations, low population density, spectrum allocation practices, lower incomes, lack of technical skills, etc. Companies are not interested in investing as they don't see any profits in it.

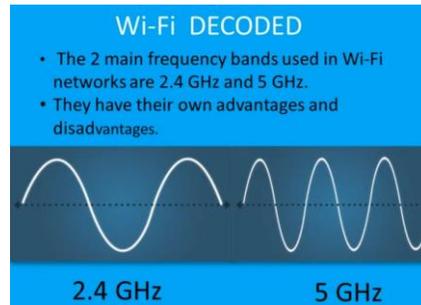
One way to close the connectivity gap is through the connectivity projects that are built, managed, and used by local communities. The people of the area come together, mobilize funds and technical skills, and set up the infrastructure for connectivity. Such projects are called Community Networks. Community Networks are built for the people by the people. They are self-owned and self-managed. Community Networks provide alternative connectivity to that provided by the ISPs (Internet Service Providers). They complement ISOC's vision, "Internet is for Everyone. "



ISOC partners around the world in projects that connect communities and supports them through direct project funding, small fellowships, grants, and joint training events. ISOC Mantra is 'For the Community, With the Community, By the Community.' There are Community Networks Worldwide that ISOC supports. W4C India, Guifi.net Spain, Wireless Leiden Netherlands and Bosco Uganda are just a few such networks to name.

Community Networks use Wireless Technologies because it is cheaper to roll out a wireless network. WiFi is the preferred Wireless Technology that is used to provide connectivity to Community Networks because it is cheaper than other Wireless Technologies. WiFi is cheaper due to its lower hardware cost, unlicensed spectrum - the ISM band (2.4 GHz & 5 GHz), and because the WCN Nodes often run on open source software such as Linux to reduce the cost of operation.

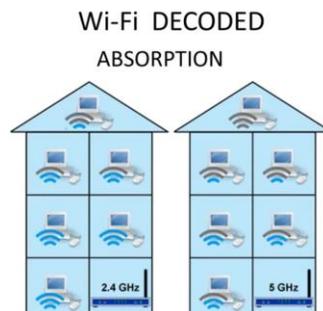
WiFi stands for Wireless Fidelity. IEEE 802.11 is described as the standard for "Wireless Ethernet." The name WiFi is now commonly used instead of "IEEE 802.11" or "WLAN. "



WiFi uses the 2.4 GHz and 5 GHz bands. Both have their pros and cons with respect to Interference, Absorption and Access Points.



Interference: The 2.4 GHz band has become very noisy in urban areas due to the high penetration of WLAN. Also, there is a lot of interference from other devices that are communicating in the same frequency range, such as microwave ovens, cordless phones, and Bluetooth devices. The 5 GHz band, on the other hand, gives the advantage of low interference.



Absorption: The 2.4 GHz band is less sensitive to absorption making it more effective where there are lots of obstructions, such as walls between access points and wireless clients.
The 5 GHz band is more sensitive to absorption making it less effective where there are lots of obstructions.



Access Points: The 2.4 GHz band might require fewer access points for the same amount of output power.

The 5 GHz band is restricted when it comes to the line of sight and more access points might be needed to cover the same area for the same amount of output power.

Therefore, a network using a 2.4 GHz frequency band is more suitable when there are a lot of walls.



Source: <https://www.wispa.nz/category/blog/>

Community Networks are usually powered by Solar PV cells to save on electricity costs.



Source: <https://www.apc.org/en/project/connecting-unconnected-supporting-community-networks-and-other-community-based-connectivity>

Community Networks are not just about establishing an Internet connection. It is more about the communities and how the Internet can help them fulfil their needs. The indigenous tribes in the Community Networks use the Internet to preserve and share their culture, local knowledge and practices.



Source: www.internetsociety.org

In India, an Indigenous tribe of 2,000 people in Maharashtra gained access to the mobile network and the Internet through a Community Network in December 2019. Gram Marg, an organization focused on empowering rural India digitally, helped build it. In the past, the indigenous villagers had to walk 12 km for banking services. But with connectivity and the appointment and training of a woman "banking correspondent" in the village who can provide banking services through a smartphone, there is a new lifeline for the community. With a lockdown imposed by the government and roads closed, the villagers have been dependent on the banking correspondent for banking and government services. Connectivity has also enabled the villagers to seek medical advice and aid online.

For those who are interested in getting involved in setting up or promoting Community Networks click here

<https://www.internetsociety.org/action-plan/2020/projects/>