

ITU
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**“A HANDMADE SOLUTION WITH
SOCIAL IMPACT TO CONNECT ALL
THE FOREST OF THE WORLD”**

MARANDU
COMUNICACIONES



A Handmade Solution with Social Impact to Connect All the Forest of the World

Opening Remarks

The project “Internet in the Jungle, a Handmade Solution with Social Impact to Connect All the Jungles of the World” emphasizes the importance of public-private associations to bring Internet to remote areas. Such partnerships can have different amplitudes, from a national to a local approach. This initiative is among the last ones.

In this case, the project highlights the importance of thinking the connectivity with local people and foregrounds the importance and entrepreneurship of the people in the area, in addition to the creativity they demonstrate.

The project described below differs itself from other achievements to offer connectivity that some technologists think from urban spheres and corporations perspectives; since they ignore the real the real possibilities of execution and needs of the inhabitants benefited with this type of programs.

Project’s Geographical Area

The display area of this project is Colonia La Flor, located at 40 km from El Soberbio centre, a town of 5,000 population in Misiones Province, Argentina, at 230 km from Posadas, the capital city of said province. Misiones is 1,100 km North from Buenos Aires City.

Colonia La Flor is an area of jungle vegetation and there are 10,000 hectares of virgin subtropical forest in its surroundings, and it is the only one in the country. There are 800 families including four aboriginal Guaraní reserves that live in the colony.

The main economic activity in the colony is the agricultural holding. The production units (*chacras*) have an extension of about 50 to 80 hectares with woods and

plantation of pine trees and other sort of bushes. This geographical setting makes the houses to be separated from each other. Therefore, the geography of the area makes it difficult to install telecommunications networks, both fixed and mobile.



Argentina, con Misiones remarcada

At the same time, the deployment of technologies like LTE [Long Term Evolution] by local operators is less attractive due to the small population and its economic status.

At best, the service of coverage of this area reaches a 3G signal, which is not

enough to have access to the Internet. The only option to have broadband access Internet are the fixed wireless networks. However, the abundant vegetation represents the main obstacle since it includes trees of more than 30 metres tall, which avoid or interfere with the signals transmission.



Municipio El Soberbio

The Project's Origin

Ramón Isidro Cardozo, an inhabitant of Colonia Las Flores (province of Misiones, Argentina), works as a doorman at *Escuela 664* [School 664], one of the few in the area. He was curious and interested in technology, and he wanted to have access to Internet at home. Thanks to a wireless link provided by the state-owned company

Marandú Comunicaciones SE, he was able to connect WiFi to his home. Using his means and creativity, Ramón created a structure of traditional antenna, of 50 metres, and a professional technician installed it. From that moment onwards, his adventure as technological entrepreneur began.

Soon after, Ramón's house turned into a centre of free Internet access for all his neighbours. The adults went to his house for help to make online paperwork for Social Security. Ramón bought two printers for those who needed to print the application forms, and he did it for free. The children also used the Internet to look up for information and to do their homework. There is one school there that also has Internet access, but it is limited to the school timetables.

“When I brought Internet it was a great value for the children. It was my will to help them. For those who live in a city, it is very hard to imagine such situation since there they have Internet access almost everywhere. But the scenario here differs a lot,” states Ramón. Such lack of resources makes the inhabitants of Colonia La Flor surf the Internet in order to read the newspaper, study and do paperwork online.

In this way, adults and children saved not only the connection but also the fact of walking up to seven kilometers and taking public transport to make the 40 kilometers to the center of El Soberbio, where is the only cybercafé with Internet access. Of course, there they have to pay for the connection.

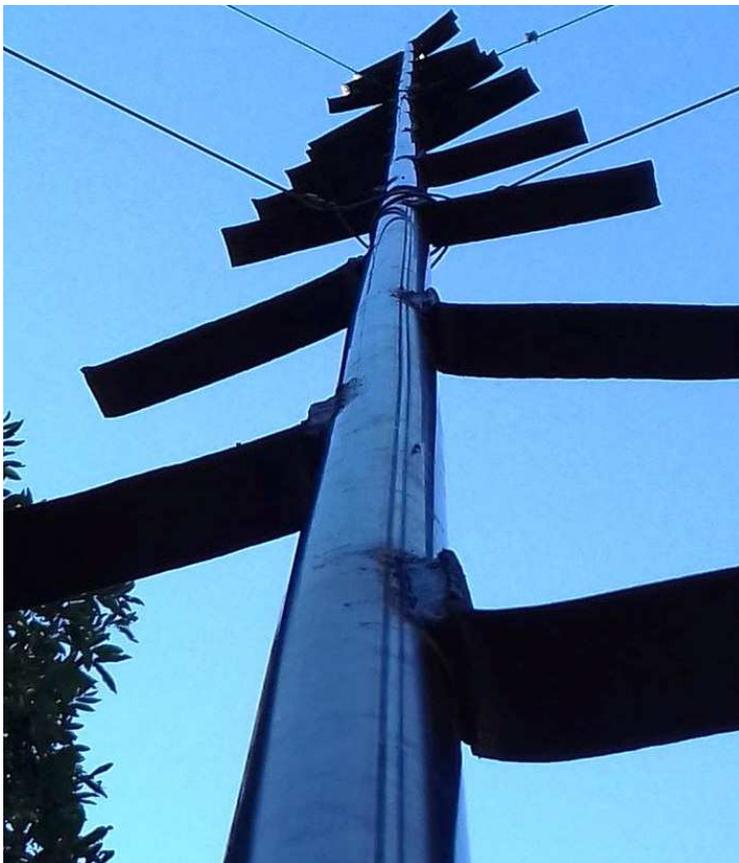
In spite of its low speed (3G) and low coverage, the inhabitants of Colonia La Flor and its surroundings used their mobiles to access the Internet. Moreover, as the mobile lines are pre-paid, to top-up balance is not only complex since the establishments to do so are far away, but also it is onerous to have access to the web.

The Invention

Ramón noticed the social need of having access to internet, so he designed a system to deliver Internet from his home to others in a wireless way with a speed of 2 Mbps. Since wireless is the only way to connect, Ramón invented an antenna

system with equipment that requires a line of sight, and, with all his knowledge, he understood that said equipment “must be visible”. The antennas are made out of simple and affordable materials: metal pipes, wires and tensioners.

The base consists of tubes of wider diameter, compared to the upper ones that are cut every three meters and are welded until it reaches 25 meters tall or more. The antennas are welded to the ground with tensioners and wires. It also includes small metal steps to reach the top of the structure where the equipment is placed. In other words, the antennas are cost-effective and of simple construction.



From the connection he received from *Marandú Comunicaciones SE*, Ramón installed said antennas to provide Internet to other homes. He also provided Internet access to other schools.

Ramón indicates the people who want to have Internet the materials they would need for such installation, and he is the one who manufactures and installs the antennas. In some cases, the purchase of the

materials is funded by *Marandú Comunicaciones SE*. Besides, Ramón advises the future Internet-users on the equipment they should buy. Generally, they use *Mercado Libre*, an e-commerce website with a presence in several market in Latin American, created in the likeness of eBay.

“You get to manage this. In the city everything is easier, if you happen to need something, you can easily get it. We aren’t that lucky, we have to invent the solution. It is possible for the first time to go wrong, but the second one will always be better. However, I have never attended courses, they are very far away from here,” says Ramón.

In Ramón’s neighbourhood there are two churches: a catholic one and an evangelist one, and there are about thirty private households. The connection for the households was easy thanks to the line of sight of the equipment.

The living in the forest is completely different. The leafiness of the trees and vegetation turns the connectivity into a difficult task. The longest direct connection Ramón installed was of 9 kilometres, however, he installed others of longer distance with up to three hop-connections so as to diver the signal due to the geography.



Ramón configures the equipment by watching tutorials on YouTube. And in addition there is the help of Google Earth to know where to install the antennas, as well as his knowledge of the working area.

Since the antennas are manufactured by parts and with simple elements, they are easy to transport. So is that, that even Ramón has transported these elements in his motorcycle. The geography of the place makes it difficult to move about; the

transportation in the forest is problematic. There are many footpaths where vans and cars cannot enter.

It is admirable to see how the antennas are adjusted to the local environment. It is possible to build in that place where the structures practically do not invade the vegetation. Moreover, as the trees grow, it is possible to add new segments of antennas in order to keep the line of sight of the equipment.

Indigenous Communities

Apart from homes and schools, Ramón also provided the connection to the four existing Guaraní native reservations in El Soberbio. *Marandú Comunicaciones SE* supplied the materials and equipment since those communities could not afford them.



In order to install the connection in the indigenous communities, the approval of the caciques of each community was needed, plus the commitment of Ramón to provide such connection. “The caciques felt belittled with these projects. Many people promised them many things, took pictures of the situation and never came back or installed Internet. They failed them many times,” stated Ramón.

Without the signature of the cacique, it is impossible to work in their communities. It does not matter if a member of the community wants Internet, the approval of the cacique is compulsory. Eventually, Ramón was able to install WiFi with his system and the Internet provided by *Marandú Comunicaciones SE*, and the Guaraní people could access to the network of networks. Anyway, the caciques must know what the Internet is used for, the children have to use it for educational purposes and not for other intentions of common interest for the community. No one is allowed to use the Internet from 9 pm. “If you let them use it for any other purpose, they will lose their

time by playing video games or doing other distracting things, therefore, they won't learn what they are supposed to," explains Ramón.

Future

Marandú Comunicaciones SE recognized the inventiveness of their antennas since they were the solution to connect distant and difficult-access populations. The state-owned company has already begun the process to turn Ramón into an Internet Service Provider (ISP). Furthermore, Ramón became a representative of *Marandú Comunicaciones SE* in said communities.

Thanks to a personal initiative of full commitment and imagination, Ramón has already connected 48 homes and improved the inhabitant's quality of life by providing the goodness of the Internet.

Conclusions

This project reveals several issues. For instance, the need of knowing the local issues when it comes to offering distant populations access to the Internet. The proximity to the challenges to overcome and, most important, the proximity to the people who we have to help is unavoidable. The failed cases of connectivity due to the lack of knowledge of the land and the inhabitant's needs are questioned. Or, at best, they turn out to be very onerous to be sustainable over time.

Thanks to Ramón Isidro Cardozo's wit and will, as well as *Marandú Comunicaciones SE* contributions, the community was improved.

The creativity of the one who lacks resources is very valuable, we have to pay attention so as to discover the innovators, entrepreneurs and technologists who live in isolated locations and help them, just as Marcelo Rodríguez, chairman of *Marandú Comunicaciones SE*, did. From the centralised state/corporations, being an innovator for the solutions that, in addition, are economically unviable, is very difficult. Each place has its singularities and only the ones who live there know them.

The project “Internet in the Jungle, a Handmade Solution with Social Impact to Connect All the Jungles of the World” is relevant for the Sustainable Development Goals of the United Nations. The manufacture and the way the antennas are installed preserve the environment since it is not invasive to the vegetation of the place because, for instance, the woodcutting is not necessary for the connectivity.

A community with Internet access has more tools for social and economic growth. On one hand, adults can do paperwork from afar and be informed on the matters that interest them. On the other, children can do their homework easily and they can improve their education and knowledge.

It should be pointed out Marcelo Rodríguez’s “out of the box” point of view to identify in Ramón’s invention a low-cost and simple solution to connect the inhabitants away from the city. In fact, the antennas and the way of installing them can result in a replicable model in other parts of the world. Basically, it is about a simple public-private alliance of local level, but with such social impact on the community it serves.