“Reducing the Digital Gap and vulnerability of indigenous communities by using Satellite communication”

(Euro Solar, Study case of Nicaragua)

United Nations/Austria Symposium

Access to Space: Holistic Capacity Building for the 21st Century

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Presentation Structure

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Starting Point

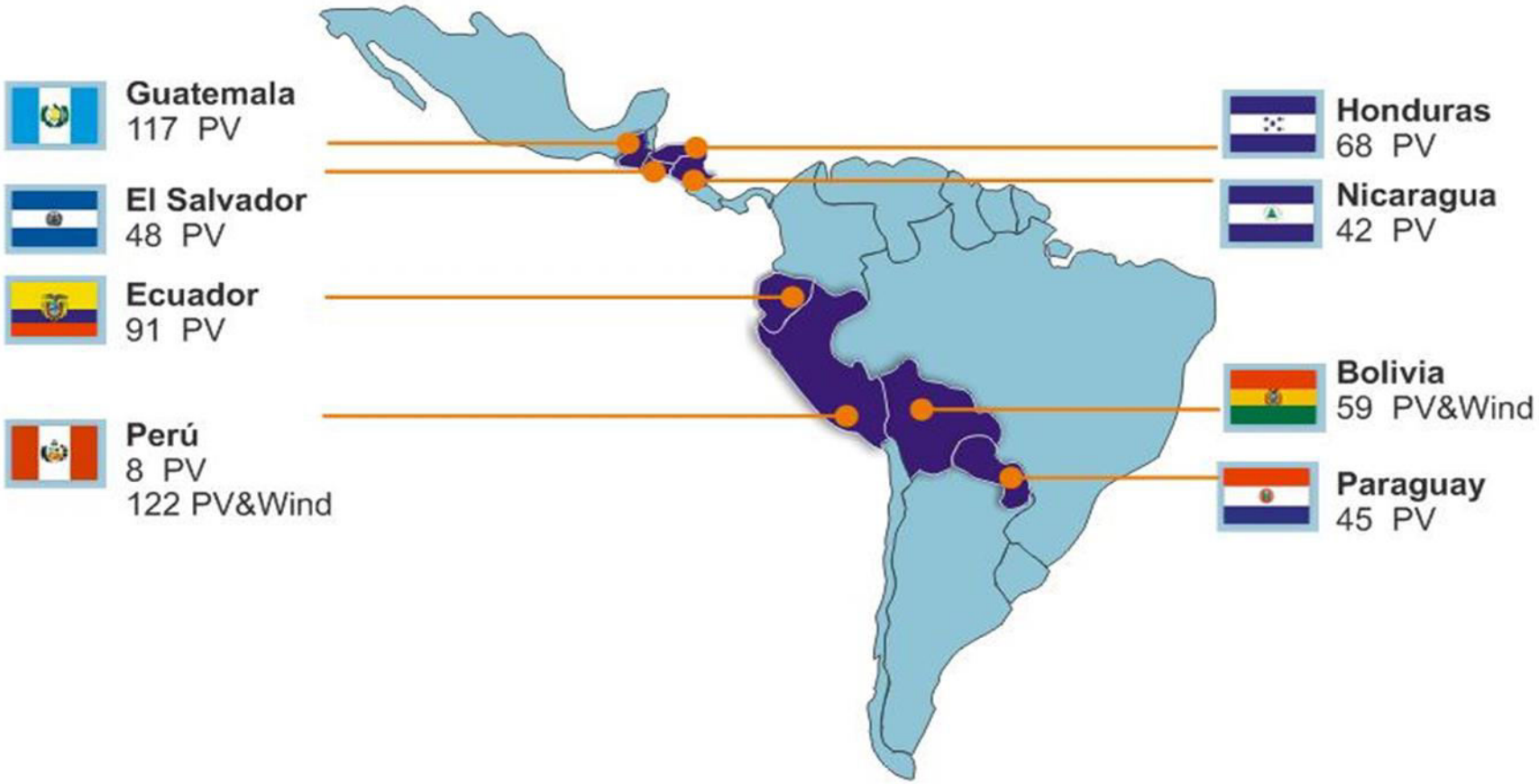
- The difficulties to access a stable energy supply and communication access (3.9 billion people remain cut-off from the vast resources available on the Internet, despite falling prices for ICT services)undermines the capabilities for an economic, social and human development in isolated rural communities in developing countries.
- Renewable energy technologies offer a feasible possibility for a sustainable energy supply without any external dependence.
- Renewable energy supply could allow the access to services such a communication inter communities and with the rest of the world, and provide other added values as well.

Core elements

Objectives:

- The main goal of the Program was to foster the use of renewable energy as a driving force of human development in rural settlements of Bolivia, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Paraguay and Perú. (total budget of €36 million, of which the EU contributed €27.8 million)
- The programme is a good example of an action combining poverty alleviation and low-carbon development, because it offered a fully comprehensive vision, linking development, energy, and environment as the basic elements for fighting against climate change.
- EURO-SOLAR proposed a novel approach to traditional rural electrification projects by mainstreaming renewable energy. This involved linking power generation to a series of goals including communication access, improvements in education and health, development of productive activities, skills building within the community taken into consideration a gender approach.

EURO-Solar Programme
Beneficiary communities

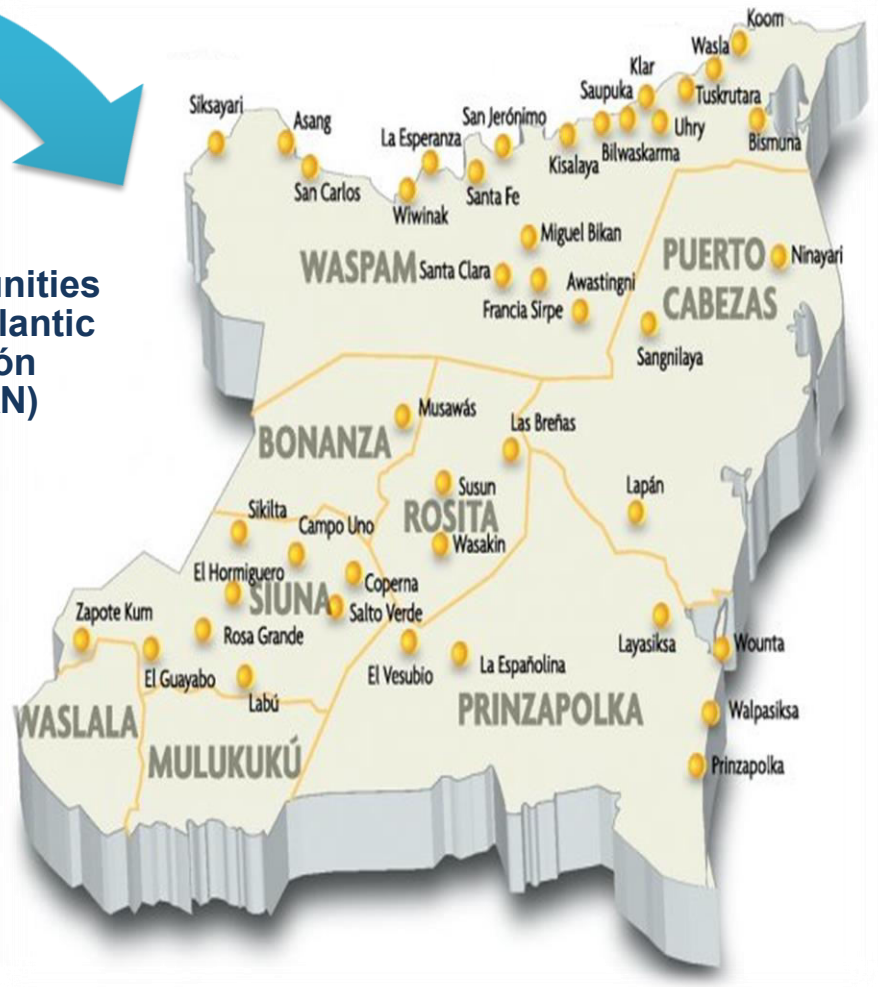


Beneficiaries of Euro - Solar Program in NICARAGUA

62,000 Hab.

42 Comunities North Atlantic Región (RAAN)

Siuna (7), Rosita (3), Bonanza (3), Waspam (22), Puerto Cabezas (3) y Prinzapolka (4)



COMPONENTS

- EURO-SOLAR was set up as an integrated programme: it entailed not just the installation of equipment but had also capacity building/development actions aimed at community members to ensure equipment was well managed and maintained and to support the development of services for education, healthcare and information technology, as well as social and productive activities. Every community was provided with a EURO-SOLAR kit consisting of three systems:

- Electricity generation: photovoltaic panels were installed in 70% of the communities, while in the remaining communities, 30% solar power was complemented by wind turbines
- Communication: **This was an essential element of the Programme that enabled the beneficiary communities to connect inter-communities and with the outside world. The system consisted of a satellite antenna (for VSAT communication), a modem for satellite or Wi-Fi connection, and an Internet access subscription; five laptops, a projector, a multifunction station (printer, fax and scanner),.**

- Healthcare: This system comprised two basic healthcare measures needed by communities: a water purifier to supply fresh water and a refrigerator for medical use, so that vaccines, serum and medicines could be kept at the correct temperature.

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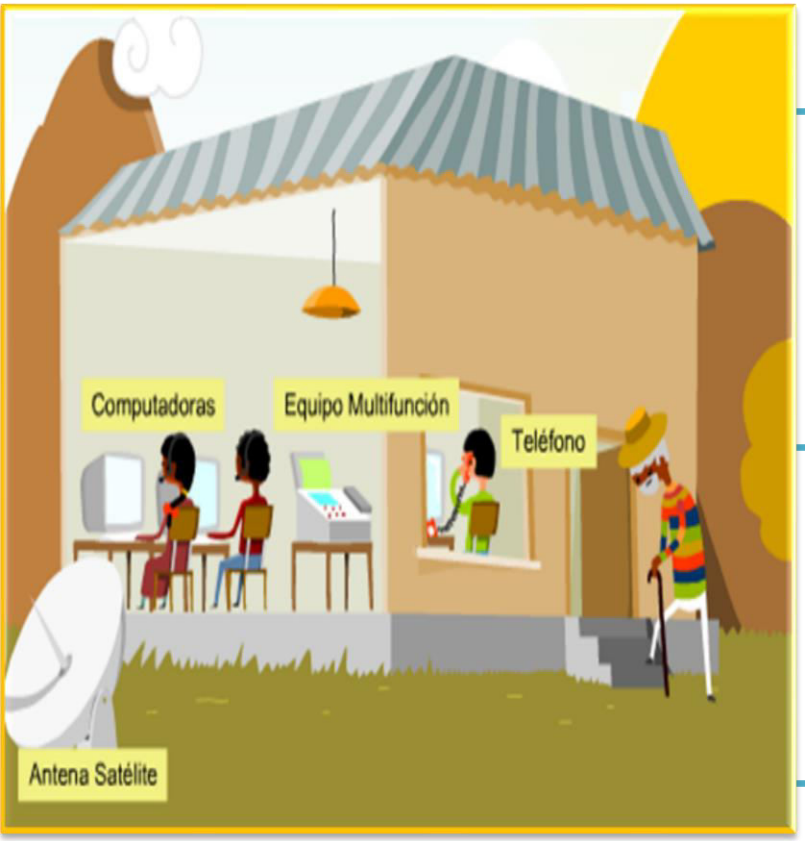
Residents of communities in which EURO-SOLAR was implemented used these systems to develop the three components of the Programme:

- Education and information and communication technologies: Facilitating access to quality education. EURO-SOLAR reduced the digital divide and isolation in the entire communities. The ultimate objective of this component was to alleviate the region's perennial problems, such as early school withdrawal, illiteracy, poor academic results and child labour.
- Health promotion: Promoting real improvements in healthcare through responsible participation at community, individual and family level, increased awareness and adoption of healthier lifestyles. An Internet connection reduces the healthcare isolation of communities by providing them with distance learning on health promotion and by enabling consultations on line (for emergencies situations). Moreover, the presence of electricity and the kit's health system means that medical refrigerators could be used to maintain the cold chain needed for certain medicines and vaccines, and clean water was available for treating patients.
- Social and productive activities: Each of the kit's three systems interacted with this component in a synergetic manner. Electricity allowed many of the community's tasks to be performed faster, which gave people more time to take part in other social and productive activities. Also, access to information and communication technologies facilitated access to information to explore new market (for local production) or employment opportunities.

Services of the telecommunication component

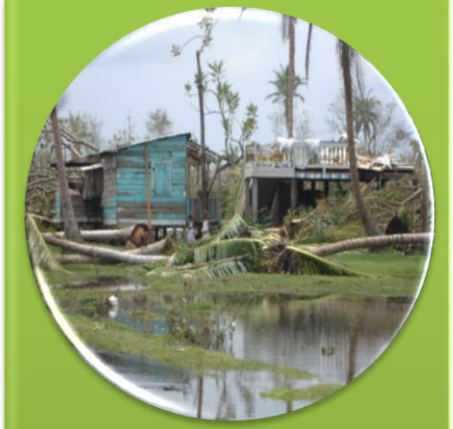


WIFI
printing

Access to Internet

Telefonía
Voz IP

Education

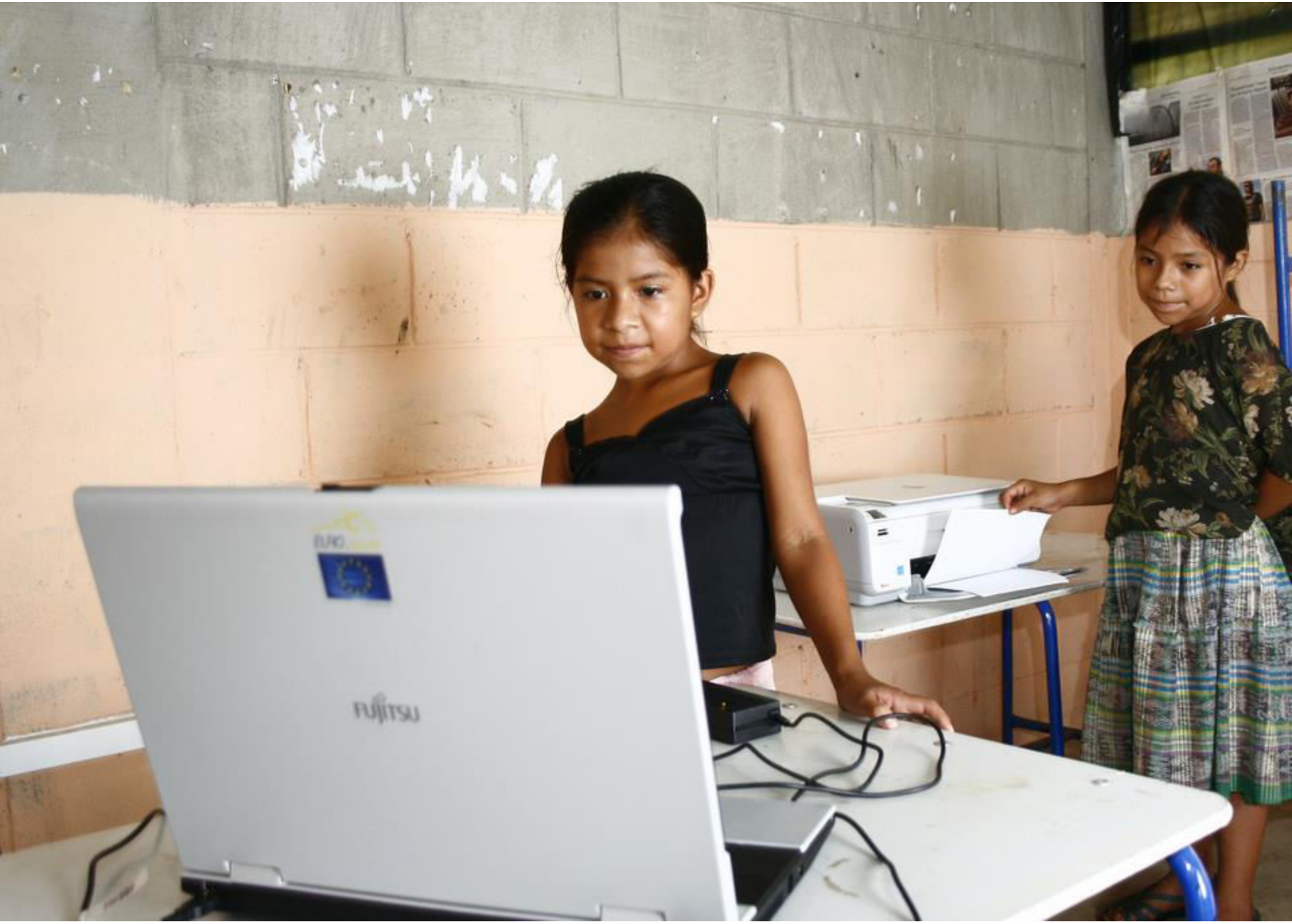


Early Warning Systems

Agriculture Development

Comunication

Impact of telecomunication components in EUROSOLAR target communities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IMPLEMENTATION APPROACH

- EURO-Solar was a pioneering global initiative organized by the Europe Aid Cooperation Office focused on 8 countries of Latin American.
- The implementation of the EURO-Solar Programme was carried out in collaboration with local partners, in particular governmental institutions linked to energy, telecommunication, education, and health sectors of the different countries involved, as well as with the support of the corresponding Delegations of the European Commission and some ONG and local Universities.
- The EURO-Solar kit was installed in the communities by selected suppliers, through an international bidding procedure organized by the EC. The program´s counterpart participated in the selection of the local INTERNET provider-
- Set-up of Institutional and Community committee to manage and follow-up the program

CONCLUSIONS

- So far, there has been a great effort to ensure not only the proper functioning of the system, by all the agents involved in the EURO-Solar Programme.
- The energy generated by these systems was used in part to facilitate communities the access to new technologies: access to Internet and information technology were key parts in the philosophy of this Programme
- EURO-SOLAR was an integrated program that also included training beneficiaries in the management and maintenance of the equipment and support in the development of basic services in the areas of information technologies, education and health as well as fostering productive activities
- These installations were intended to provide energy and communication for community uses, rather than home and private usage (the project aimed to increase the degree of development within the communities)

Lessons learnt!

- Renewable energy technologies offer a feasible possibility for a sustainable energy supply, but still is a constraint the equipment maintenance and sustainability without any external dependence.
- The grievances of the design of the Eurosolar Kit, due to the inflexibility of its standardization, have presented constraints to its adaptation in most of the countries participant.
- Some aspects of the design were not very adapted to the conditions of the target areas , Ex. the case of the water purifier that needs a whole process of changing habits. The purifier has been the weakest element of the Kit.
- The original idea of having a single internet service provider for the whole targeted countries was unlikely (there is no satellite covering the entire continent and licenses are needed in each country). The band KU required in the design represented at first a limitation (according to TELCOR the band C would have been preferable). This option initially represented a limitation since not all suppliers offered Band KU.
- The high-priced cost of satellite connections have being the biggest obstacle to maintain this service (200-220 US/Month/community).

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- Capacity building: It is necessary to develop a long term training strategy involving different stakeholders (national and local government, academia, OSC, private sector…). (Giving more opportunities to local young people from the communities).
- most of the communities selected for the implementation of Eurosolar in Nicaragua are indigenous (local languages), therefore some aspects related with their own community scheme and Cosmo vision was requiring more attention. (endogenous development)
- Despite all the efforts, there were a range of technical, organizational, social and financial barriers to their successful deployment, including lack of community integration, unrealistic user expectations and poor local maintenance capabilities, acceptance, adaptation of designs and organizational structures,
- In order to enhance the investment more added values have to be explored such as telemedicine-tele-education, EWS design. (users needs)