

# Satellites

and the

# SDG<sup>s</sup>

Sustainable  
Development  
Goals

## MAKING A DIFFERENCE

Since the first live satellite call to Africa in 1963 between John F. Kennedy and the Nigerian Prime Minister, Abubaker Balewa, the world has seen a global communications revolution.

Still, millions of people have yet to benefit from the technological advances of the last 50 years. The challenges of connectivity remain due to a lack of available communications infrastructure.

**Global Challenges | Satellite Answers**

# SUSTAINABLE DEVELOPMENT GOALS

In 2015 the United Nations (UN) adopted 17 Sustainable Development Goals (SDGs) that aim to address fundamental world challenges including ending poverty, promoting well-being and tackling climate change.

Hundreds of examples exist the world over where satellites are already contributing to the achievement of the SDGs. Whether by bringing education to rural areas or refugee camps, enabling digital financial inclusion or allowing citizens to participate in democratic elections, satellite communications contribute to many of the 2030 objectives, making the world a better place by giving people and organizations immediate access to the modern, digital world.



Joy and fascination - Mobile telephony comes to a Congolese village thanks to satellite backhaul / Source: Rascomstar

## Africa

### SOS Children's Villages - Benin

In September 2014, a telemedicine initiative tested remote healthcare for the benefit of around 1346 children and their families in Benin, West Africa.

Charity SOS Children's Villages Benin worked with clinics in two rural locations in the Abomey and Dassa-Zoumé regions to monitor, diagnose and treat adults and children. The clinics utilized the Safe Triage telemedicine application to gather the patients medical information on smart tablets, and send it in real time via a satellite BGAN Link to a secure server so urban hospital doctors could monitor and evaluate the villagers' health.

Within the first three months, remote doctors identified instances of diabetes, hypoglycemia, hypertension and other conditions in over 850 men, women and children and referred these patients for treatment. The technology enabled 258 consultations for people within the community that were not benefitting previously from SOS programmes. More than 70 individuals were identified with serious conditions that required immediate treatment - attention that they would not previously have received for weeks or months, if at all. Following the successful pilot, the project is still in operation today.

### Giving Voice to Heartland Communities - Democratic Republic of Congo

In 2012, two rural villages in DRC, Panu and Kalo, both approximately 800 kilometers from Kinshasa, were selected as pilot sites for connectivity.

Connecting the villages meant overcoming considerable logistical challenges. Four-wheel drive vehicles rode for three days over rugged terrain and jungle paths, sometimes crossing rivers, to transport equipment and technical personnel to the sites. The team carried with them the 'Skylinx' systems cabinets, antennas, ground infrastructure, 30m towers, solar panels, fencing for security, tools, building materials and basic provisions.

On the day the installations went live, the excitement in the community could be felt with spontaneous celebrations breaking out, communal dancing, singing and hand clapping. Locals queued

patiently with their children to make their first ever phone call, and it gave new meaning to the term 'community empowerment'.

The two pilot sites exceeded expectations in terms of traffic minutes and vividly proved the proposition that there are sustainable markets in rural areas previously 'off the grid' if the right solution is applied.

### Educating Marginalized Children - Kenya

Over one million children in Kenya do not regularly attend school, marginalised by societal issues including poverty and distance. Project iMlango was created to deliver improved educational outcomes in maths, literacy and life skills for 150,000 children, 68,000 of which were marginalised girls.

Rural and remote schools now benefit from high-speed Internet connectivity and tailored online educational content delivered via satellite. Electronic attendance monitoring with conditional payments to families to improve non-attendance and dropout rates is also implemented as well as real-time project monitoring/measurement. Satellite broadband connectivity powers the programme to ensure e-learning is successfully implemented in 205 remote and rural schools across Kenya.

A similar project exists connecting 262 schools in Tanzania, enabling 8000 teachers and impacting 180,000 students (Project iKnowledge).

### E-government - Burkina Faso

Satellite technology played a key role in the last Presidential Elections in Burkina Faso. Together with the National Independent Elections Commission (CENI) and key partners, satellite broadband enabled secure digital transmission of electoral results from over 18,000 polling offices across the country to 368 CENI offices in the capital, Ouagadougou.

The solution allowed citizens in the most isolated regions to participate in full transparency, in the democratic election process. Each remote site was equipped with a VSAT station, allowing rapid transmission of data towards the collection server at the central CENI office. RTB, Burkina Faso's public broadcaster was also able to use the raw data to broadcast the evolution of the results in near real-time.

Satellite capacity provides the full end-to-end solution, including wireless terrestrial communication and integration with the available optical fibre backbone. Thanks to satellite technology, voters' voices, even from isolated or remote regions, could be heard.



## Empowering Women to run Local Businesses

Satellite operators are frequently involved in training local communities in the installation and operation of satellite terminals. One such program is ELEVATE, a two-day course designed to train local women and young people to become satellite installers while, at the same time, improve quality satellite TV installations in Africa. The Certificate awarded after the course opens up job opportunities and provides the skillset required to empower women to become financially independent.

On Day 1 the course introduces practical health and safety concerns, how to manage customer care and how to interact with a customer, as well as the basics about satellite TV and installation - for example how the LNB works, and how a satellite transmits a signal.

Day 2 involves a marketing workshop, which shows students how to build a business plan and how to run their business successfully.

Finally, the students do a practical exercise where they have to install a DTH antenna, connect it to a set-top-box, obtain a signal from the satellite, interact with a customer, and explain to them how to set-up the set-top-box. At the end of the training, trainees receive Satfinders, basic tool kits, marketing tools (business card templates, brochure templates, etc.) and a certificate so that they have sufficient knowledge - both technical and business - to run their own business. There is also a "Train the Trainer" programme, where installers are taught to become a trainer themselves - so they learn how to stand in a room full of students and transmit that knowledge to others.

To date, the program has resulted in more than 8,000 installers across 15 countries being trained, including Cameroon, Cote D'Ivoire, the Democratic Republic of Congo, Ghana, Kenya, Mali, Nigeria, Tanzania, Senegal, South Africa, and Tanzania.

## Latin America Mexico Conectado - Mexico



Internet bringing everyone together / Source: Mexico Conectado

Mexico Conectado is a Government project that contributes to achieving the constitutional right to broadband access, as decreed in Article 6 of the Mexican Constitution.

México Conectado aims to deliver free Internet connectivity to 250,000 public spaces, including schools, health centers, libraries, community centers, parks and in the three spheres of government: federal, state and municipal, by 2018.

Through the México Conectado project, more and more students and teachers have access to broadband in schools and universities; more and more doctors and health workers have connectivity in their clinics and health centers, and more and more citizens enjoy free Internet.

The program uses both wired and wireless terrestrial and satellite technology. Satellite technology is used to provide Internet services to rural communities located too far away from fiber optic telecommunications networks, typically communities with an average size of between 500 and 2,500 inhabitants, living in marginalized areas.



Internet Access - a window on a world full of opportunities / Source: Avanti Communications

## Kioscos Vive Digital - Colombia

The "Kioscos Vive Digital" are community Internet access points enabled by satellite. They allow children, youths and adults in the remotest areas of Colombia with more than 100 inhabitants, to connect to the Internet and receive free training in the use and appropriation of ICTs.

So far at least 5,524 "Kioscos Vive Digital" have been installed in family homes, community halls, drugstores, shops and schools, where in addition to the Internet, users can access other services such as telephony, scanners, printers and photocopiers. The project has been running successfully since 2014.

## Education for All - Panama

In Panama, the Ministry of Education took the initiative to issue a call for tender to connect 450 schools in different regions including remote and isolated communities. Those schools are now connected to the Internet via satellite. As part of the program, local technicians receive training focused on the installation, working and maintenance of satellite links and equipment, providing a sustainable solution that can be run by locals for locals and enabling education and skills to be transferred simultaneously in rural communities.

## Asia SATMED - Philippines

Many communities on the island of Mindanao in the Philippines are marginalized with very limited infrastructure and services.

SATMED connectivity has been installed in Buda Hospital, the main hospital located in the center of the island. SATMED is a high quality, e-health platform enabled by satellite that is open, easy-to-use, readily available and accessible anywhere.



This connectivity serves to connect so-called 'rolling clinics' where medical teams visit local villages to treat patients on-site and offer prevention measures and health monitoring. Patient data is collected and analyzed via mobile health information management systems connected to Buda Hospital.

In addition, since this area is frequently hit by natural disasters such as typhoons, the satellite system may also be used for two-way SMS messaging to help health workers during such events. There are also plans to strengthen future training and education of local health professionals, using the e-learning tools of SATMED.

SATMED has been deployed 10 times, making a difference not only in Asia: in the Philippines and Bangladesh but also in Africa: in Benin, Sierra Leone and Niger, among others.

### Sustainable Fishing - Indonesia

The Indonesian fishing sector is a critical driver of the economy and society, but environmentally unsustainable fishing, including illegal and unreported fishing, harms the entire value chain resulting in huge economic and ecological losses with far-reaching consequences.

A program has been launched between a satellite operator and the Indonesian Ministry of Marine Affairs and Fisheries to equip fishing vessels with onboard satellite systems for real-time electronic voice and data exchange while at sea, to meet Indonesia's reporting requirements. Enhanced connectivity will help reduce illegal fishing and support fishers to monitor and share fish stocks. This technology will help fishing fleets to locate fish faster, improve voyage planning and reduce operational costs. Better ship-to-shore communication will enable captains to instantly track weather forecasts, thereby ensuring safer sailing and quality of life at sea.

The project directly contributes to key SDGs by driving more sustainable fishing practices; more secure livelihoods and improved socio-economic welfare in the affected fishery communities.

### Reliable Energy Distribution - Australia

Energy networks require reliable and secure connectivity that is impervious to natural disasters. In Australia, Ergon Energy maintains and manages the electric distribution network across the territory of Queensland, serving over 720,000 homes in isolated and vulnerable communities where fixed communications infrastructure is lacking. Satellite terminals allow 24/7 remote monitoring, control and management of the network, allowing minimal outage time and immediate response in case of problems.

Satellite networks are increasingly being relied on due to their inherent resilience and security including cyber-security. The point-to-multipoint architecture of satellites mean that there are orders of magnitude fewer points of entry into satellite networks than terrestrial networks, meaning that satellite connectivity directly contributes to making critical infrastructures such as power grids more resilient and secure.

## Europe & Middle-East

### Elementary Schools - Greece

Greece is characterized by numerous islands and isolated or small communities that are often difficult to connect. Valtessiniko is one such village, lying at an altitude of 1160m, in an area of luxuriant vegetation in the region of Arcadia, Greece. With a population of only 675 persons and one elementary school for local children, Valtessiniko relies on satellite broadband to ensure it can provide the same opportunities to its children as those in urban areas. The connectivity also serves the local community, providing socio-economic advantages to families and their businesses and preventing depopulation of this precious countryside village.

The southernmost Greek island of Gavdos counts only 50 citizens. With only one elementary school and education for the first three grades of high school, the small number of pupils in these schools rely on Internet access via satellite to access information and be part of the digital society.

### Connectivity for refugees - Turkey, Syria, Macedonia, Serbia, Greece

Numerous world areas are facing refugee crises for varying reasons. These crises bring with them a host of challenges, including food security and sanitation, lack of education opportunities, enhanced inequalities when refugees arrive in foreign countries and a huge impact on the health and well being of displaced persons who are often in transit for numerous years.

Since 2000, Telecoms Sans Frontiers (TSF) has used fixed and mobile satellite equipment in more than 70 countries to support its missions. For example, restoring links between families in Turkey; providing "lungs of communication" for medical organizations and hospitals across Syria and Lebanon; or enabling communications and education in refugee camps in Serbia, Macedonia and Greece. The use of quick-to-deploy, portable satellite communications equipment allows NGOs such as TSF to provide as "normal" a life as possible for displaced citizens.



Satellite connectivity - a 'sense of normality' for displaced persons even in extreme circumstances / Source: Télécoms Sans Frontiers