# CONNECTING AFRICA

**Satellite operators enable development of the world's remotest and poorest regions where the lack of terrestrial infrastructure prevents connectivity and all the socio-economic benefits that come with it. The EMEA Satellite Operators Association brings together all satellite operators active in providing communications solutions to the African continent.**

For much of Africa, terrestrial networks are clustered around urban centres, leaving thousands of rural and remote citizens and businesses without voice, let alone data, connectivity. Studies show that in some areas, more than 100 million people in Africa don't have access to communications. In Nigeria alone it is estimated that more than 20 million people are not covered by any kind of network.

Yet one satellite can provide ubiquitous communications over one third of the earth's surface - so connecting multiple continents! Today all of Africa is covered with satellite communications, operating mainly in C, Ku and Ka frequency bands, delivering affordable, reliable and robust services across the entire territory.

Through satellite services, the continent has immediate access to some of the world's most advanced technologies - such as broadband connectivity and 3G communications - which are taken for granted in developed countries.

## Delivering essential services via satellite

Bridging the Digital Divide : Satellite operators enable multiple applications and services that significantly improve the welfare of African citizens. ESOA members provide tools that allow African countries to enhance their democratic processes and civil governance, plan and build new infrastructures, provide access to education, establish health and disease management processes, revitalise social and cultural life, and as a result reduce the crippling disparities created by the Digital Divide.

### ▶ Education

One of the key educational issues in Africa is to ensure that teaching is in line with required standards. Satellite communications is making a huge difference to educating both teachers and students in schools and colleges, especially in remote and rural areas.  With teaching levels still falling short of adequate standards, many African countries still see large numbers of children emerging from school functionally illiterate. It is therefore essential to ensure both pre-service and in-service teachers are trained on the new curricula many African countries are using. Proper teacher training has a huge multiplier effect in improving the overall education system but it is costly and complex. Master teachers travel around the country to deliver training to local teachers. Here eLearning through Satellite communications helps by making the process fast and cost effective, ensuring at the same time high quality standards everywhere, even where terrestrial networks are not available.

## Case study : **Ghana**

Ghana is implementing an Instructional Leadership Programme for Head teachers in schools in Eastern Ghana. The project will train Head teachers to become Instructional Leaders, first face to face, and then through a distance-learning program, made possible by satellite multicasting. The project aims to improve teaching practice through interactive, activity based learning; to improve teachers' subject knowledge; to create more equitable classroom environments; and to support the development of a more accountable monitoring system of teaching quality. The project is ongoing and will train 5.000 teachers in the next 2 years at a cost of 179€ per teacher per year.


*Master teachers record teacher-training classes*


*Satellite dish installed on a remote school roof*


*Remote teachers follow on-line class thanks to satellite communications*

### ▶ Enabling voice and data connectivity

Satellite communications offers entrepreneurs in Africa equal access to the global marketplace, allowing Africa to participate in the global industrialisation process. ESOA members are working with new African businesses in sectors as diverse as finance, oil and gas, manufacturing and IT. In doing so, ESOA members support the emergence of new local service providers, that will deploy satellite communications in their own communities.

## Case study : **DR Congo**

Satellite operator Rascomstar has independently brought mobile telephony to remote villages in the DRC. Such villages often have populations of up to 20 000 people, no stable electricity supply and no GSM coverage as the population density is too low to make commercial sense for mobile network operators. The satellite operator therefore bears the cost of securing the installation of a tower, solar panels, BTS and GSM antennas and satellite antennas to backhaul the traffic. The result is an immediate social impact – calls can be made from the village to any fixed or mobile phone in the world. First users are doctors, teachers and local businessmen, with higher traffic than expected even though the average calls are less than 2 minutes long. Despite the lack of electricity, people are able to recharge their batteries through local vendors.

As High-Throughput-Satellites come to Africa, isolated villages can also have access to mobile broadband services noting, once again, the important lack of interest of mobile network operators to connect areas with low population densities.


*Village joy at first use of mobile phone*


*Secure installation of solar-powered, satellite-enabled, mobile base station*


*New local business sells 'calls by the minute', SIM cards, repairs phones & charges batteries*

## ▶ Health

A shortage of trained medical workers in isolated communities, as well as a lack of healthcare infrastructure, severely limits access to quality healthcare. As well as helping to counteract a lack of healthcare infrastructure, satellite services can be used to support an under-skilled workforce, control the spread of communicable diseases and record the increase of manageable conditions such as diabetes.

## Case study : **Nigeria**

Satellite operator Inmarsat has worked with international partners in Nigeria including Mobile Alliance for Maternal Action (MAMA), Praekelt Foundation, SURE-P, and Dalberg Global Development Advisors to deliver maternal and child health services to 50 physically and technologically disconnected rural communities.



*Healthcare worker examines patient and transmits data remotely to urban centre for monitoring.*

Clinics in these remote areas used portable satellite-Wi-Fi hubs to get access to online health information from MAMA in order to help improve maternal and child health outcomes. MAMA is a public/private partnership specialising in delivering localised health information to new and expectant mothers via mobile phones. The project started in 2015 and to date it has reached more than two million women, families and caregivers across a range of low and middle-income countries.

Inmarsat is delivering satellite connectivity services, alongside smart devices preloaded with the organisation's health application, to rural communities where mobile phone coverage is unreliable or non-existent. As well as encouraging women to take advantage of maternal care services and advice, the project is also collecting data to enable improvements in maternal, newborn and child health in Nigeria.

## ▶ Financial Services

Access to financial, banking and money transfer services is a prerequisite for economic growth in Africa but the lack of reliable and affordable telecommunications prevents the ubiquitous roll-out of financial outlets. Banks cannot count on traditional fixed or wireless telecommunication services which either are present with poor quality or are simply non-existent in remote regions in Africa. In these remote areas, satellite communications are enabling affordable, high quality solutions to connect money transfer, micro finance or bank agencies or even ATMs.

## Case study : **West Africa**



*ATM machines*

Satellite communications are used in West Africa by several micro finance, money transfer and banking institutions to connect their remote agencies and ATMs to their headquarters and to the Internet backbone.

Connecting remote points of presence is key to ensure services across the continent and provide equal access to all citizens. Modern, easy to install and maintain satellite communications terminals are now connecting small remote agencies or ATMs so they can benefit from affordable communications services to check and clear transactions.

## Case study : **Kenya**



Satellite companies have been working in partnership with banks to help deliver reliable access to banking services. In 2015 Inmarsat, working in partnership with the Equity Bank Group helped to deliver financial services to 200 sites across Kenya using portable terminals, including some of the most remote places in the region, and extend financial inclusion to the unbanked and unconnected.  Local agents can also use this connectivity to offer other data-based services, which increases business opportunities both for them and the wider community.  Each of the satellite terminals were provided with smart devices preloaded with information on banking and finance subjects, addressing local knowledge gaps and helping to drive economic growth.

The project was carried out as part of the corporate social responsibility remit of the bank's Equity Group Foundation to transform the socio-economic lives of African people by seeking partnerships to promote education, leadership development, financial literacy and access, entrepreneurship, agriculture, health, innovations and the environment.

### ▶ eGovernment

Governments are increasingly benefiting from enhanced connectivity which makes them more efficient, helps reduce administration and enhances democratic processes.

## Case study : **Burkina Faso**

Satellite technology played a key role in the last Burkinabe Presidential Election's process. Together with Commission Electorale Nationale Independante (CENI) and a number of key partners, SES provided a satellite broadband solution that enabled secure digital transmission of the electoral results. The main 368 electoral offices were equipped with satellite services and served as hubs for the collection and transmission of the votes from over 18,000 polling offices across the country to the central CENI centre in the capital, Ouagadougou.

The SES platform was at the core of the set-up to connect the electoral district offices, even in the most isolated regions. Each site was equipped with a VSAT station, allowing a rapid transmission of data towards the collection server at the central CENI office. The raw data was automatically sent to a specialized server for its process. Via a satellite terminal, the Public TV of Burkina Faso (RTB) could then collect the obtained graphs, showing the evolution of the results in near real-time, and broadcasted them live.



*Voters queue to vote outside remote school*

On top of the IP connectivity, the system also provided a Voice over IP (VoIP) service allowing each site to establish voice calls with the CENI headquarters. This voice service was also used for the technical support related to the processing of the election results. Thanks to satellite technology, voters' voices, even from isolated or remote regions, could be heard.