GSOA
GLOBAL SATELLITE OPERATORS ASSOCIATION

Satellite for SDGs

TRANSFORMING LIVES

The 2030 Agenda for Sustainable Development was adopted to provide a shared blueprint for peace and prosperity for people and the planet, now and into the future. And urgent call for action. Digital technologies and connectivity are key to achieving the UN Sustainable Development Goals.

Global Challenges | Satellite Answers

www.gsoasatellite.com

Satellite for SDGs - Transforming Lives

The satellite industry is going through a phase of unprecedented growth and innovation expected to bring an estimated $250 billion in social and economic benefits across the world by 2030.[1] Satellite technology is a powerful tool that contributes to the achievement of multiple SDGs by providing valuable data and enabling communications and connectivity in even the most remote and underserved areas. It plays a vital role in monitoring progress, improving decision-making, and facilitating sustainable development efforts worldwide.

Satellite technology plays a crucial role in advancing the United Nations Sustainable Development Goals (SDGs) in various ways. The SDGs are a set of 17 global goals adopted by UN member states in 2015 to address a wide range of social, economic, and environmental challenges by 2030.

Connectivity through satellite technology contributes to bridging the digital divide and accelerating digital transformation. The key to the future of connectivity relies in pooling the strengths of different technologies to increase cost efficiency and coverage, whilst simultaneously working together to deliver the exceptional resilience and greater availability of services. Enabling connectivity in remote and underserved areas, contributes to promote access to information and communication technologies (ICTs) and supporting economic development.

By nature, the satellite industry is committed to bridge and overcome barriers and challenges by providing connectivity and services to the most vulnerable, isolated and remote citizens and regions. Still millions of people and the planet are yet to benefit from digital technologies. 2030 is only a few years away and a goal by itself. However, GSOA members work daily to extend education, health, democracy, financial inclusion and improve the environmental impact, supporting climate change and therefore contributing to the achievement of the SDGs.

Satellites are able to collect data in many areas, such as climate change, deforestation, land use like air and water quality, deforestation, and changes in ecosystems, which also helps in disaster prediction, preparedness, and response, as it enables early warning systems for natural disasters like hurricanes, floods, and wildfires. They can also provide information on crop health, soil moisture, and weather patterns. This data is valuable for improving agricultural practices and for increasing food production and food security.

In summary, satellite technology is a powerful tool that contributes to the achievement of multiple SDGs by providing valuable data and enabling communication and connectivity in even the most remote and underserved areas. It plays a vital role in monitoring progress, improving decision-making, and facilitating sustainable development efforts worldwide.

1 The Socio-Economic Value of Satellite Communications. VVA & LSTelcom. https://gsoasatellite.com/reports_and_studies/the-socio-economic-value-of-satellite-communications/

EUROPE & MIDDLE EAST

Prevention & early detection of fires, monitoring of reforestation

Spain | Ku-band

Motor Verde is a partnership agreement to develop new high-end technological applications that will revolutionize reforestation and wildfire detection and tracking of 1,400 hectares in Las Hurdes, Cáceres, Spain.

The solution works with the latest satellite information generation technologies, including high-resolution Earth observation images and Internet of Things (IoT) solutions, as well as big data, blockchain and artificial intelligence for the analysis and processing of the data obtained. The sensors transmit the collected information via satellite.

The use of satellite technology ensures universal, efficient and continuous connectivity which will make possible to certify the amount of carbon absorbed by the trees over the years.

The solution has proven its value in critical situations. During the fire in Las Hurdes and Sierra de Gata - May 2023, even outside the range of terrestrial sensors, the use of satellite imagery detected the fire (hotspots) in the environment.

This initiative contributes directly to climate action, improving the life of terrestrial ecosystems, protecting biodiversity, driving innovation and resilient infrastructure.

Tusass

Greenland | C-band

Tusass, Greenland's sole telecommunications provider, serves nearly 60,000 people - many of whom can only leave their hometowns by sea or air. Although undersea fibre optic cables based in Europe reach some of the country's largest cities, Greenland's most remote communities relied on a series of relay radio towers to access lower generation wireless connectivity.

Switching to a satellite-enabled network improved the service availability and reliability and has significantly reduced Internet costs in Tasiilaq and Ittoqqortoormiit—which are home to more than 2,000 Eastern Greenlanders.

Reliant, Renewabble Energy

Europe | Ka-band & Ku-band

A European connectivity provider pushing to make Germany reliant on renewable energy. Serving connectivity via satellite to energy companies across 30 countries providing solutions in markets ranging from energy and plant engineering to logistics and security. Countries like Germany are heavily invested in wind and solar power as part of their mandate to make renewable energy the main power source by 2050. Yet, for green energy to be truly sustainable, it needs unwavering connectivity which satellite can best guarantee.

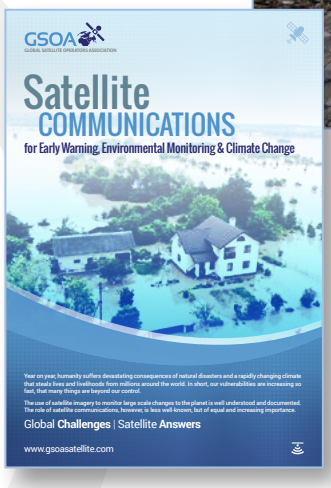
The need goes beyond just connectivity for controlling wind turbines and solar panels, including for the engineering marvel - wind turbines almost as tall as the Eiffel Tower with rotor blades as long as football fields that are vaulting up across Europe's shores. They require highly secure data transmission, increased bandwidth to power ongoing data transfer between company headquarters and energy assets, and data monitoring capabilities to oversee plant operations. They also need reliable back-up connectivity to remote energy facilities if fibre goes out. Satellite provides the connectivity back-up and resilience for these critical operations.

When disaster Strikes

Türkiye | Ka-band

In times of disaster, satellite communication delivers enduring value and the ability to set up connectivity hotspots quickly. When disaster strikes, every minute counts. And when relief workers, rescue teams, government personnel and medical professionals need to coordinate response efforts, satellite can get them up and running quickly to save more lives and help devastated communities recover. In disasters and crisis, It is necessary to provide reliable communication in the shortest time.

Before disaster strikes, preparedness is key; When disaster strikes, satellite connectivity is a lifeline.



[ITU Guidelines for National Emergency Telecommunications Plan]

AFRICA

Growth & Safety to Isolated Communities

DRC | Ku-band

The DRC is the largest country in sub-Saharan Africa, where more than 65% of the population, around 55 million of people, live in rural and remote areas. Collaboration between terrestrial and satellite connectivity, to jointly developed a practical business plan and customized commercial model that works for the mobile operator's unique business needs while minimizing implementation and operating costs enabling immediate reach and 3G connectivity to the highland villages of South Kivu. The availability of telecommunications service in more than 800 rural sites has opened the door for job opportunities, new business ventures and money transfers — enhancing the health and well-being of people across the region and improving security by making it easier to reach authorities.

Rural Connectivity Deployment

Sub-Saharan Africa | Ka-band & C-band

Sub-Saharan Africa has vast areas that are often very prohibitively challenging to connect using traditional terrestrial infrastructure, leaving millions of people unconnected and left behind. To meet the growing needs of citizens and extend services like boadcast, e-government, humanitarian programmes and other applications that require higher throughput, satellite connectivity is critical.

Satellite connectivity is now connecting ultra-rural villages to the Internet for the first time. The off-grid service enables the provision of cellular services to areas that are otherwise impossible to reach using traditional terrestrial infrastructure.

These sites are very hard to reach. The average travel time to reach these remote sites is 2.5 days from state capitals. The success of this project relies on getting the support of local teams to install and maintain the sites.

The satellite connectivity improves the day-to-day life of 1.5 million people improving security, and boosting the local economy. The project has also created over 200 new skilled field engineer jobs.

Connecting Maternity Clinics

DRC | Ka-band

Satellite services improve and extend the provision of healthcare services and safe lives. A recent project connected three rural maternity clinics to the district hospital a remote part of the the Democratic Republic of Congo.

74 million people will have access to telemedicine via satcom by 2030

The nurses and midwives working in these clinics are equipped with smart glasses. When a case in the remote centre requires the consultations of the doctors in the central referral hospital, the nurse starts a tele-consultation, using the smart glasses, between the nurse, the doctor and the patient. Because the nurse has both hands free while communicating with the doctor, she can concentrate on the patient and perform any clinical examination as requested by the doctor. The virtual consultations have led to a 40% increase in referrals to the district hospital.

Financial Inclusion

Côte d'Ivoire | Ka-band

Financial inclusion continues to be low especially in rural villages. These remote areas are not covered by 4G and in many cases the villages are not connected to electric grip. 18 rural villages have been connected via satellite in collaboration with microfinance cooperatives that provide loans to entrepreneur women in rural areas to fight against poverty, promoting solidarity, financial inclusion and social education. Connectivity has brought direct high-quality connection for data exchange with headquarters in the capital and real time transmission, making a difference in the villagers lives.

Educating Marginalized Children

Kenya | Ka-band

Over one million children in Kenya do not regularly attend school, marginalised by societal issues including poverty and distance.

Project iMlango is a first of its kind e-learning partnership, created to deliver improved educational outcomes in maths, literacy and life skills for marginalised children. The project provides high-speed internet connectivity to rural and remote schools; tailored online educational content; in-field capacity in technology and support resources; and real-time project monitoring/measurement.

The satellite broadband connectivity powers the programme to ensure e-learning is successfully implemented in 245 remote and rural schools across Kenya. Students who have access to the individualised learning platform for 60 minutes per week improve their "maths age" by on average, 18 months throughout the lifetime of the project.

AMERICAS

Digital Classrooms

Panama & Ecuador | Ku-band

Digital transformation at a school in Chorcha, Panama, were two digital classrooms, equipped with laptops, tablets, smart screens and charging cabinets for the devices are implemented and connected via satellite internet. Teachers receive digital skills training to efficiently lead sessions and utilize devices. The entire community benefits from WiFi HotSpot. Solar panels and batteries sustain all components. The school can distribute knowledge in an efficient way, ensuring up-to-date learning regardless of gender or location providing digital skills in communities with difficult access to technological resources.

This solution has benefited 423 students in Panama, 2300 inhabitants, and more than 1500 internet accesses have been made, of which 48% have been to educational content.

The solution was also implemented in 5 schools in Ecuador, with 415 pupils and 9,046 inhabitants benefiting, with more than 2,500 internet accesses, 25% of which were for educational content.

By 2030 81 million students will benefit from satcom tele-education

Conectando Sueños - Connecting Dreams

Colombia, Chile, Ecuador | Ka-band

'Conectando Sueños' first launched in Colombia during 2021, under which people in rural areas beyond the reach of cable and fiber services can win free satellite internet for one year. By bringing internet access to rural communities, connectivity helps people realize their dreams – from connecting with family and friends to pursuing an education to fulfilling business goals. Through the Connecting Dreams project, satellite connects agricultural cooperatives in rural Colombia where local farmers learn digital marketing strategies from the Universidad de Ciencias Aplicadas y Ambientales (UDCA), iNNpulsa Colombia and CEmprende. In Chile, remote schools are connected as part of this program. Students at the Laguna Verde El Bosque School and the Aulín Rural School in the Region of Los Lagos have been able to enjoy all the benefits of internet access thanks to the program. Also, rural entrepreneurs in the province of Esmeraldas and neighboring towns are among the beneficiaries of Connecting Dreams in Ecuador.

SATCOM-as-a-Service

Colombia, Brazil | Ku-band

A 15-day journey aiming to support the brigades carried out by the National Civil Registry seeking to reach all corners of the country, including the most remote areas. Guainía translates to "land of many waters." It is the habitat of countless species of plants, fish, reptiles, and insects, providing life and sustenance to the region's inhabitants. Located in one of Colombia's most isolated, jungle-covered, and magical regions. Three planes a boat and more than 48 hours to reach the destination. Thanks to satellite connectivity and the latest antenna technology, he was able to support the work of three National Civil Registry delegates for eleven days, conducting the issuance of national identification cards, birth certificates, technical assistance to the community, and other activities.

Optimising Water Delivery to Cattle

USA | L-band

Water is the backbone of sustainable agriculture. In Arizona, 72% of its water is used for agriculture. With around 80% of the southwestern United States experiencing drought conditions in the past couple of years, water management has never been so important. Efficient water use is paramount to the ranchers. With cattle spread across large areas of land, the ranchers are under constant pressure to monitor water use. Managing this scarce resource helps ensure the survival of both animals and feed crops.

Through the adoption of a satellite-enabled IoT solutions the ranchers can remotely manage their entire water system and cattle thanks to sensors and cameras. Through an application on their mobile device, they can readily monitor water levels and control machinery, such as pumps to change levels remotely, without having to travel to each site and reducing wastage.

Rural Health

Ecuador | Ku-band

In collaboration with the Government of Ecuador and with satellite connectivity, a telemedicine service in Pastaza province at the Pitirishka health center has become a reality. This center is now linked to specialized doctors at the General Hospital of Puyo. With satellite connectivity, remote diagnosis of patients in the village is now possible, eliminating the necessity of extensive patient travel.

The telemedicine service counts with a specialized station at the central hospital with a HD video conferencing system and patient management software and in the rural assistance center various clinical examination devices are available such as blood pressure monitor, pulse oximeter, vital signs monitor, otoscope, stethoscope etc.

The Rural Care Center staff is trained to correctly perform the examination techniques.

In addition, the rest of the population benefits from a community Wifi HotSpot that allows access to the internet and therefore to global information. improving the services and infrastructure of the village.

Solar panels and batteries sustain all components.

Sustainable Development

Amazon | Ka-band

With the geographic challenges and extreme weather conditions being prominent in the region, reliable connectivity is essential to being more self sufficient and preserve natural resources.. Being off grid also creates difficulties for local nurses wanting to stay in contact with hospitals or emergency services while on the river. Outreach workers and researchers studying the environment here also need to stay in touch to do their work accurately and safely.

The provision of satellite phones brings us close to nature and has made possible

for students to continue their research and remain connected and supported the first largescale scientific expeditions in the area uncovering unprecedented data on the biodiversity and ecosystem of the Amazon. The next steps will be to design and to deliver a centre of excellence for research and education in the region to support the area's sustainable development, conserve the forest and improve the socioeconomics of the local population by helping the traditional population find sustainable alternative incomes. Its also been fundamental in times of pandemic serving hundreds of families.

Rapid Response

USA | Ku-band

In communities where Hurricane Ian rendered cellular networks unavailable, satellite connectivity was crucial in arming first responders with a data and communications solution to support the deployment of essential personnel and mission critical resources. Without satellite communications, surrounding communities risk losing internet, voice calling capabilities, and access to life saving and property protection when a hurricane strikes. In leveraging the fully integrated broadband solution, first responders and essential personnel leading relief and rescue operations on the ground were able to quickly setup and deploy high speed internet to manage fuel delivery operations, view high-resolution maps, and utilize data applications. Services are used to extend internet access to residents of affected communities, enabling them to stay connected with loved ones and begin mending the personal damage caused by Hurricane Ian.

Satellite communications is a cost-effective, immediate solution providing global coverage and is ever-more relevant for an increasingly vulnerable world.

ASIA PACIFIC

Bringing Connectivity to Dispersed Island Communities

Indonesia | C-band & Ku-band

Connecting the citizens on the dispersed Island Communities of Indonesia Is a challenge. Using overlapping coverage from two high-throughput satellites citizens can benefit from uninterrupted service to support the Indonesian government's ambitious goal of connecting the fourth-largest population in the world, dispersed over the Indonesian archipelago. "Halo Indonesia", in collaboration with a Data communication, internet and IT services provider, connectivity was provided to many isolated communities in Indonesia, while meeting wireless and backhaul standards paving the way for network expansion with resilient, high-performance connectivity.

4G Connectivity to Remote Regions

Japan | C-band

Providing reliable and fast connectivity in remote areas without adding complexity to a massive network is a current challenge. Utilising satellite backhaul solutions is key for MNOs to provide a solution that would connect thousands of cell sites in remote locations.

Working closely with the MNO to understand their user and service level requirements, the solution is fully managed satellite backhaul that extends the MNO's network to users in rural regions, ensuring network redundancy and guarantees the highest operational standards and continuity having a positive impact on safety, security and economics providing a cost-effective urban and rural solution.

Government operations

The Philippines | Ku-band

Satellite connectivity facilitates access to democracy, elections and official formalities. The largest VSAT service provider in the Philippines has relied on satellite-enabled Internet to successfully connect 43 Filipino Commission of Elections offices across Mindanao, the second-largest island in the Philippines. This model delivers government agencies with resilient and robust satellite networks to meet the growing connectivity requirements for mission-critical government operations and digital services in remote regions of the country.

4G+ Networks

Cook Islands | Ka-band

The Cook Islands experience 4G+ networks and high-performance internet connectivity across the outer islands using satellite bandwith which sets a new standard of high-performance services for governments and enterprises around the world. Thanks to this agreement, citizens receive increased access to online services in health, education banking, and commerce for the residents, giving the islands' tourism a major boost. Furthermore, it will also incentivise people to live and work in the outer islands.

With this agreement, residents on the Cook Islands, including those in some of the most remote locations like the outer islands, are able to enjoy access connectivity that is comparable to anywhere else in the world.

ANTARCTICA

Climate Force

Antarctica | C-band

Antarctica is the only continent unreachable by fibre. In 2022, thanks to satellite connectivity, the 2041 Foundation was able to reach audiences worldwide live from Antarctica with an urgent call to climate action from one of the most remote locations on Earth - for the first time ever.

2041 Foundation indeed has a bold mission: to prevent future exploitation of Antarctica's natural resources by oil rigs and mining, which could legally be set up once longstanding protections fall away in 2041. In March 2022, environmental activist and 2041 Foundation founder Robert Swan, 18 expedition leaders, and 80 crew led a marine voyage to Antarctica to raise awareness. Joining them aboard the Ocean Victory were 150 brave participants from all walks of life. While the foundation had run expeditions before, it was the first time they could rely on a dedicated satellite-enabled connectivity service for streaming real-time sessions with the outside world. For example, one of these sessions via an educational platform allowed over 30,000 school children to join a live stream.