

↓ **GSM connectivity Via Broadband IP for Laos**
IPSTAR Solutions for Sustainable Development



Laos has a small population scattered throughout a vast, mountainous, and heavily forested territory with little or none communication infrastructure in place. About 80 percent of the population (approximately 4 million people) lives in rural areas where most communities subsist on agricultural production.

As for remote communications, Laos depends on a few analog and short wave transmission links in rural areas that were installed in the 1950's. While only 10 - 15 percent of all Laotian households have access to telephones, no public telephones are available in most of the country's villages, let alone access to modern telecommunications. In addition, the Laos' telephone infrastructure suffers from poor reliability.

Calling a doctor in case of emergency or keeping in touch with relatives and family members can be a problem. Besides, many families in Laos depend on communication with family members and relatives as their only safety net. The lack of efficient telephone infrastructure has an impact on the rural economy as money transfer from foreign countries is a fact of life and important for the livelihood of recipients in Laos. However, without telephone, transmitting remittances is difficult.

Another case in point is access to market information: as rural areas in Laos usually lack access to modern means of communication, farmers usually obtain prices much lower than the market price from urban traders.





IPSTAR applied

The IPSTAR Mobile Trunk over satellite solution was designed as a low cost application to deliver affordable and reliable rural mobile telephony services where access to terrestrial infrastructure is an issue.

While deploying GSM backhaul over satellite has been the norm for quite some time, the successful deployment of GSM connectivity over a Broadband IP (Internet Protocol) shared satellite infrastructure using MF-TDMA modem technology is an IPSTAR first on a worldwide scale. The IPSTAR Mobile Trunk solution is made possible by the IPSTAR network and Memotec CX Gateway equipment-which connects the GSM BTS to the IPSTAR-and IPSTAR satellite modem technology.

What makes the IPSTAR GSM Backhaul solution truly unique and economically viable is the combination of two unique technologies: the high bandwidth efficiency of the IPSTAR IP-based backbone, which dramatically improves the economics of using satellite transmission, and GSM Abis processing which connects the BTS TDM interface to the IPSTAR modem Ethernet interface and MF-TDMA technology. This results in a total GSM operating cost reduction of up 50 percent while at the same time reducing bandwidth requirements.

IPSTAR supports rapid telecommunication deployment

Laos Telecom [LTC] deployed 58 BTSs in 2004 and in less than six months, providing access for roughly 100,000 people, while another 105 BTSs were deployed in 2005, covering over 85 percent of the country. Such a rapid deployment would never have been possible with terrestrial or conventional satellite network technology due to the high cost of deployment. IPSTAR helped reduce CAPEX of the LTC project to one third of a conventional network such as Microwave. LTC was also able to deploy the service in only a few months time, which was critical for their business model.

Bottom-line is that IPSTAR is creating a new business paradigm for rural telephony using GSM technology over satellite. More than 100,000 residents in Laos' rural areas have now access to reliable and affordable telephony services, which otherwise would not have been possible for years without IPSTAR. As a result, the Laotian government is considering the implementation of IPSTAR eLearning and eGovernment applications.

