Situation:

The Amazon — the world's largest rain forest — is home to 20% of the world's animal and plant species, as well as numerous indigenous peoples.

In addition to being a biodiversity hotspot, the Amazon rain forest plays an important role in significantly curtailing CO2 levels.

However, the National Institute for Research in the Amazon reports that over the last 30 years, the once five million square kilometer forest has lost some 660,000 square kilometers to illegal logging alone.

A number of other activities, including illegal settlements and poaching, also threaten this ecologically sensitive region — 70% of which lies within Brazil.

Challenge:

The Brazilian government and its law enforcement agencies are challenged to monitor and combat illegal activities in the Amazon rain forest due to its vast size. The area encompassed by the Amazon basin in Brazil alone is about eleven times the size of Japan.

These illegal activities include uncontrolled border crossing, tree cutting, poaching and illegal settlements in the jungle.

A Brazilian law enforcement agency, charged with identifying and locating radio communications to help monitor these activities in the Amazon, called on TCI International to propose a solution.

TCI previously worked with this customer to implement an effective monitoring solution in the 1990s. Those positive results led to this opportunity to enhance monitoring efforts with leading-edge technology to help protect the rain forest from unwelcome and threatening activities.

TCI, a part of the SPX portfolio of companies, provides radio frequency spectrum monitoring, direction finding and signal collection solutions to civilian government, military and intelligence agencies, as well as antennas for military communications and high-power radio broadcasting.

"The TCI monitoring solution offered a number of competitive advantages, including the latest generation of signal acquisition technology."

Solution:

After collaborating with the customer to pinpoint specific needs and challenges, TCI representatives recommended strategically locating three radio monitoring stations throughout the Amazon region.

Each station would include a Radio Intercept and Direction Finding (DF) System with the capability for fully remote receiver control, audio monitoring, digital signal decoding and audio recording, as well as direction finding and single site location.

Working together, these stations scan the radio spectrum automatically and alert the operators when signal activity is detected so it can be identified, assessed and then the appropriate action taken.

The Advantages

The TCI monitoring solution offered a number of competitive advantages, including the latest generation TCI 8060B Digital DF Processor and TCI's DF First™ signal acquisition technology. The TCI DF First™ technology detects and locates all signals in the HF or VHF/UHF frequency range in a matter of seconds.

In addition, the system's open, flexible client/server architecture allows signal data from all three systems to be available and shared on the system network by each station.

The Impact

Based on tests conducted on the system at TCI, the solution met the customer's key performance and operational specifications. The state-of-the-art TCI system from SPX will help Brazilian officials identify and monitor radio activity linked to potentially illegal activities in the rain forest so they can protect this valuable global resource.

TCI is headquartered in Fremont, California, and is a wholly owned subsidiary of SPX Corporation. For more information, visit www.tcibr.com.