Critical HF and VHF communications equipment for the Nepalese Army.

U.S. and Nepal Army command together with Mr. John Rosica President of NVIS Communications and Mr. Sivendra KC, Managing Director of Icchu Mati International Pvt Ltd the Barrett authorised Dealer in Nepal.

Barrett Communications has played a small but valuable role in improving the Nepalese Army's ability to provide communications in support of Humanitarian and Disaster Relief (HADR) operations, which was particularly timely in view of the recent earthquake.

In August 2014 the Nepalese Army hosted Exercise Pacific Endeavour (PE), an annual US Pacific Command (PACOM) sponsored event. One of the main objectives of the PE series is the development of common communications operating procedures to enable military forces in the Asia Pacific region to work collectively in the wake of a major disaster.

The scenario chosen by the Nepalese for PE14 was a major earthquake in the Kathmandu Valley, causing heavy casualties and widespread damage. The exercise included the establishment of High Frequency (HF) and Very High Frequency (VHF) radio links between the different disaster relief effort command and control elements.

The Nepalese Army was already in the process of procuring HF and VHF radios and associated equipment to equip base stations and mobile teams involved in HADR operations, in the event of exactly this sort of occurrence. After an extended competitive procurement process during 2014, in January 2015 NVIS Communications LLC, the Barrett Communications North American system integrator, was awarded a USD1.4 million contract by the US Army Corps of Engineers to provide 120 radio systems of various configurations to the Nepalese Army.

The equipment would be utilized by the Nepalese Army in HADR operations and was a gift from the US State Department to the Country of Nepal. The Office of Defense Cooperation (ODC) in the US Embassy in Kathmandu was to be responsible for coordinating the execution of the contract.

The contract included the following from Barrett's equipment range:

- PRC-2090 HF Tactical Manpacks. The PRC-2090 is a lightweight (5.2Kg including a battery) transceiver operating over 1.6-30 MHz with 30W Peak Envelope Power (PEP), capable of all transmission modes and with a fully automatic antenna tuner.

- PRC-2091 HF Tactical Mobile Vehicle systems. The PRC-2091 upgrades the PRC-2090 with a vehicle docking station and transmitter power amplification to 125W PEP. It can be installed in a wide range of vehicle types with a number of antenna options.

- PRC-2081 VHF Tactical Manpacks. The PRC-2081 upgrades the basic PRC-2080 VHF transceiver with a 25W amplifier to give a total weight of 5.5Kg including a battery. It operates over 30.2-87.775MHz at 25 KHz spacing, giving 2304 channels 10 of which can be programmed.

- PRC-2082 VHF Tactical Mobile Vehicle systems. The PRC-2082 adds a vehicle docking station and a 50W amplifier to the PRC-2080. The latter can be easily dismounted for use as a portable radio.

- Accessories. Among the accessories supplied were a number of antennas, including Barrett's Near Vertical Incidence Skywave (NVIS) equipment.

- A 10 day comprehensive training programme

PRC-2090 HF Tactical Manpack

One of the factors in the success in this contract is that a fundamental principle in the design of Barrett equipment is that it should be simple and intuitive to use, with a user interface that offers features that are familiar to the average modern user. The equipment is designed for users who do not have, or need, a lot of training. With five days of training a user will know virtually everything he needs to operate the radio effectively in the field.

PRC-2091 HF Tactical Mobile Vehicle system

HF is particularly suitable in mountainous terrain that is challenging for communications, where line-of-site links are difficult to achieve and where the expense of satellite communications is prohibitive. “HF can provide blanket coverage easily, predictably and reliably” notes John Rosica, President of NVIS Communications, LLC. The PRC-2091 can provide virtually continuous HF coverage to ranges in excess of 1000kms. For the Himalayan country of Nepal which includes some of the highest mountains in the world this is an ideal solution.

PRC-2082 VHF Tactical Mobile Vehicle system

PRC-2081 VHF Tactical Manpack

Barrett already has experience in providing emergency contingency communications in the event of a disaster. Following the 2010 earthquake in central Chile and the consequent loss of vital aeronautical communications Barrett worked with the Chilean Civil Aeronautical Authority to provide a reliable alternative communications solution and provided an HF voice, data and email system that can also be patched into any surviving operational telephone services.

And in the US the Arkansas Airport Operators Association (AAOA) is responsible for most of the 91 airports in Arkansas, which is susceptible to earthquakes. Between 2010 and 2012 Barrett installed an alternative HF system to the current fixed trunk communications system. This was first used with great success in late August 2012 over the three days it took for Tropical Storm Isaac to move through Arkansas.

The original delivery schedule for the Nepal contract was planned for the end of April 2015 with training to be conducted with the Nepalese Army in late summer 2015. On 25 April, the day the order was due to be shipped from Barrett Communications factory in Perth, Australia, a magnitude 7.8 earthquake hit Nepal causing significant widespread damage.

Rosica immediately made arrangements to deliver the training as soon as possible and assist in the installation and deployment of the Barrett equipment. Theoretical training for

over 30 non-commissioned officers and soldiers from the Signals Directorate of the Nepalese Army chosen for the course commenced on 18 May in anticipation of the equipment arriving on 20 May, it having been subject to various delays.
A further six days of practical training followed once the equipment had arrived, its delivery expedited by the ODC at the US Embassy. The training covered all aspects of the Barrett PRC-2090 and PRC-2081 radios for voice and data use. It not only gave the students a chance to use all of the features of the radios but also to participate in network setup and programming. The course culminated in a training exercise, with groups of students deployed to field locations with both HF and VHF equipment to test communications capabilities back to Nepalese Army HQ.

HF and VHF radio equipment arrives in Nepal

On the last day of the course and following a debrief on the previous day's exercise the students were tasked with setting up a complete HF network from scratch, configuring their radios, and validating all components were operating as designed. This was successfully achieved, with the students even incorporating changes to the network based on data gathered from the previous day's field test.

Following completion of the course the equipment was handed over to the Nepalese Army on 27 May 2015 and was immediately employed to support the earthquake recovery operations that were in progress. In due course it will be deployed as originally envisioned to meet the Army's HADR operations communications contingency plans, although these are likely to have been amended in the light of recent experience.

A bid for further equipment is already being prepared, notably for portable NVIS antennas which were not part of the original contract and for ruggedised laptops to ensure standardisation of hardware to support the passage of data.

Rosica is an active member of the US Army MARS (Military Auxiliary Radio Service), a US Department of Defense sponsored programme which utilizes amateur radio operators to support the Department of the Army. Since running the training course he has continued his association with the Institute of Engineering of Tribhuvan University in Kathmandu, helping the development of a University training platform for the Nepalese Army Signals Directorate and other Disaster Response and Resiliency organizations in Nepal and surrounding regions, and the creation of a disaster response and preparedness radio network. Barrett Communications have also donated HF radio equipment to the University to support this project.

About Barrett Communications:
Barrett Communications is the specialist designer and manufacturer of commercial and tactical HF and VHF radio communication systems. The Company's global distribution and customer support network in over 65 countries allows it to provide both OTS and turnkey network solutions to meet their client's exact requirements. Since 1976 Barrett Communications has provided HF communications solutions for military, government, security and peace keeping organisations around the world.

Additional information about Barrett Communications is available at
www.barrettcommunications.com.au