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work of the deminers.

The lowest point on earth, at several hundred feet below sea level, the Jordan Valley is hot for most of the year and the terrain is often difficult to navigate. The minefield where the ceremony took place, situated on the banks of the Jordan River, is densely covered with very thick scrub. To locate and remove the mines, deminers must first carefully cut back the scrub. Anti-personnel and anti-tank mines, some of which were laid more than 50 years ago, have been found over a metre in the ground. Tree roots

Tourism and agriculture have both benefited from demining in the Jordan Valley.

have sometimes grown around mines, further complicating demining.

The handover ceremony began with an opening speech by Brig.-Gen. Yacoub Haddad, Assistant Chief of Staff for Administration, in which he expressed his appreciation for Canada's contribution to demining in Jordan. Lt. Colonel Atef Zawahra from the Royal Corps of Engineers gave a comprehensive brief about the landmine situation in Jordan.

There were 504 mine fields and more than 300,000 anti-personnel and anti-tank mines in Jordan before demining began. Most were located along the northern borders with Syria, in the Jordan Valley and on the south-western border with Israel in the Wadi Araba desert. So far, 177 minefields and 84,400 mines have been cleared, returning some 5000 hectares of land to agriculture. All of this has been accomplished with modest resources: the Royal Corps of Engineers has only 16 demining teams of 17 deminers each.

Senator Finestone commended Jordan for its courage in ratifying the Ottawa Convention. She highlighted the late King Hussein's role in promoting peace in the region and Queen Noor's role as the international ambassador for demining and victim assistance. She also thanked Jordan's deminers for their dedication. Senator Finestone noted that Canada's contribution in the Jordan Valley has reached $800,000 to date.

After the speeches, the delegation was shown the demining equipment that had been contributed by Canada in 1999, including protective suits and helmets manufactured by the Canadian company Med-Eng. The group was also briefed on landmine removal and viewed a number of cleared plots.

Tourism and agriculture have both benefited from demining in the Jordan Valley. The region's climate makes it possible to plant crops throughout the year, including high-value crops such as citrus fruits. The government is currently putting a great deal of effort into promoting Jordan as a tourism destination as part of the Holy Land. Clearing mined land that has significant archaeological value is part of this effort. ●

CCMAT:
Canada's centre of expertise in metal detection

The Canadian Centre for Mine Action Technologies (CCMAT) has established itself as a centre of expertise for testing and evaluating metal detectors and their use in detection of anti-personnel landmines.

For the past year, Canada has participated with the United States, United Kingdom and the Netherlands in an international trial to evaluate the performance of 29 different metal detectors.

The CCMAT's part in this collaboration was a highly controlled laboratory evaluation using the "Foam Dome", a self-supporting hemispheric structure made of polyurethane foam coated with gypsum and rubberized plastic. Within this low metal environment, a non-metal test rig was constructed to control variables such as the speed and height at which the detector passes over the target.

UK members of the team also conducted a human factor evaluation, looking at issues such as ease of operation and maintenance. Surprisingly, this was the first time a large number of metal detectors had been evaluated under the same, strictly controlled conditions.

The laboratory tests at the CCMAT and in the Netherlands were supplemented by in-theatre trials at the Cambodia Mine Action Centre (CMAC). Additional trials, scheduled for Mozambique, were cancelled because of severe flooding in the spring of 2000 and have been rescheduled for Croatia.

The results of the laboratory and field trials are scheduled to be published in October 2000 and will be the definitive study on metal detectors and a valuable source of information for those considering purchasing new equipment.

This project, a major undertaking by four nations, is a pilot project anticipating the formation of the International Test and Evaluation Program (ITEP). The mandate of ITEP is to develop universal standards for test and evaluation and use these to evaluate demining equipment. Canada is a founding member of ITEP and will be a significant contributor of expertise and capabilities for future projects.

In-theatre trials are an effective means of translating research data into practical help for the demining community. This year, technical experts from the CCMAT went to Afghanistan to participate in a trial of metal detectors. The primary role of the CCMAT team was to advise the Mine Action Program in Afghanistan (MAPA) on test methodology and interpretation of data.

The Foam Dome – a CCMAT low metal laboratory environment for evaluating metal detectors.

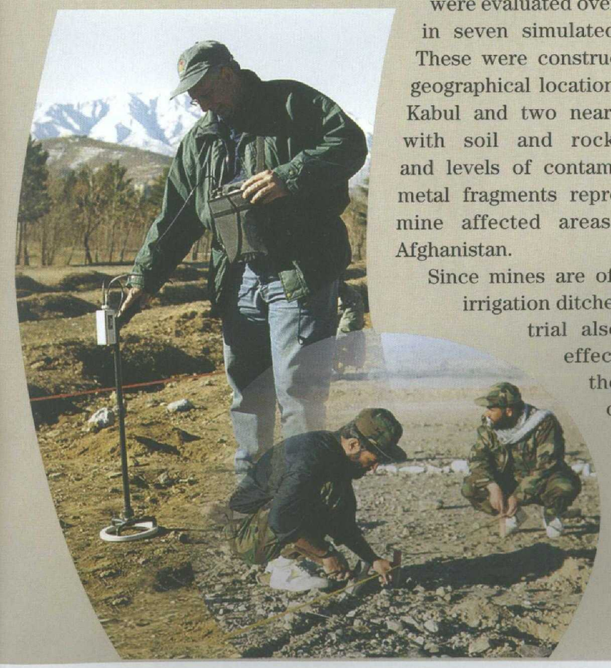
Six different metal detectors were evaluated over three weeks in seven simulated minefields. These were constructed in three geographical locations – one near Kabul and two near Jalalabad – with soil and rock conditions and levels of contamination from metal fragments representative of mine affected areas throughout Afghanistan.

Since mines are often found in irrigation ditches, the Afghan trial also tested the effectiveness of the different detectors in water-laden soil. Not all metal detectors perform well in these circumstances. The results of this trial will allow a valid comparison between the different detectors and will help MAPA select the equipment best suited to their particular ground and operating conditions.

While in Afghanistan and other mine-affected countries, CCMAT staff also has an opportunity to collect technical data. For example, while in Cambodia, Bosnia and Afghanistan, CCMAT scientists made measurements of soil conditions, such as mineral content and conductivity, which have a major effect on the performance of metal detectors. This data is used in the research and development program particularly in designing simulated minefields that reproduce conditions in the field.

On a more general level, frequent contact with the demining community provides an essential reality check for the R&D program at the Centre. When scientists and engineers can experience a problem first hand, the R&D program becomes much more relevant to the needs of the client. ●

Contact with the demining community provides an essential reality check for the R&D program at the Centre.



Testing detectors in a simulated, wet ground minefield in Afghanistan.

DRES Photo Instrumentation Group/DND