

Highlight 1 Development of Demining Equipment

For the eradication of mine injury

Mr. Amemiya, president of Yamanashi Hitachi Construction Machinery, saw victims of mines in Cambodia when he was visiting there on business in 1994. For the thirteen years since then he has been developing demining equipment with his strong wish to restore land where children can play barefoot. He has developed demining equipment specific for the conditions of each mine-ravaged country. Six models of demining equipment, 52 units in total, are now working in five countries. However, we have barely set out along the way towards eradicating mine injury. Together with Mr. Amemiya we are actively developing demining equipment.



Mr. Amemiya with children in Cambodia

Unending mine injury

More than 300 million mines are said to have been used during World War II. Following World War II, the Cold War sparked many wars, such as the Vietnam War. Even after the end of the Cold War in 1989, many conflicts broke out between people of different ethnicity and religion all over the world, particularly in Africa, as many as former colonies gained their independence in the 1970s. As a result, it is thought that about 110 million mines are buried in 83 countries. Once buried, mines are active for fifty years. So there is unending mine injury in the countries where conflict happened. Even now, mines still kill more than seventy people every day.



Anti-personnel mine

Development of demining equipment based on site requirements

From the very beginning, Mr. Amemiya developed demining equipment to suit site requirements. After visiting minefields to see by himself the actual conditions where the demining equipment would be used and listening to the opinions of people in charge of demining operations, he decided to equip his first demining machine with a rotary cutter head. Then it was a continuing process of trial and error based on the test results at test site to complete the first demining equipment. After furnishing demining equipment, we have been improving it based on the using results at site, including higher torque by changing the motors, and better materials, shapes and attachment methods of cutter bit to prevent the damage and to raise wear resistance.



First demining equipment

Supporting steady operation of the equipment

Mechanical demining removes mines efficiently - about twenty times faster than manual demining, but only if they operate steadily. To ensure this, on delivery of demining equipment, we provide operation and maintenance training so that local people can operate it. We perform maintenance on each machine about once every two years, in principle, to check the parts, and provide emergency support for major engine or hydraulic system problems.

In FY 2006, we provided our regular maintenance service twice and emergency support three times (spending altogether six weeks) in Cambodia, Afghanistan and Nicaragua. As a result of our service, all 52 units of demining equipment which we have delivered since 2000 are operating smoothly.



Training on delivery in Nicaragua. Mr. Amemiya and Mr. Tokuno of Yamanashi Hitachi Construction Machinery, center.

Development of new model demining equipment

While providing support for the demining equipment which we supplied in Cambodia and elsewhere, we were requested to develop demining equipment to cope with more powerful mines and a model to remove mines from larger areas more quickly. In response, in 2002, we began development of the flail hammer type demining equipment and push type flail demining equipment, with financial aid from NEDO (the New Energy and Industrial Technology Development Organization). We tested the new demining equipment in Japan in 2004 and 2005, and then, in 2006, we conducted trials in Cambodia with financial aid from the Ministry of Foreign Affairs of Japan. The performances and durability against explosions of large mines of the new demining equipment were checked at a test site in Siem Reap from July 20 to August 31 in cooperation with CMAC (Cambodian Mine Action Center). The results were satisfactory, including the results of the critically important explosion resistance tests, with a machine requiring only a welding repair of the attachment. Subsequent field testing in a minefield in Battambang for about two months from October also yielded satisfactory results. So we have prospect to commercialize two new models of demining equipment.

A ripper attached to the rear of the new equipment for simultaneous demining and cultivation is the evidence of Mr. Amemiya's wish for recovery of local communities from the damage of war.



Explosion resistance test



Scattering fertilizer after cultivation with a ripper

Angolan order for two units of demining equipment

Angola, in southwest Africa, is expected to develop thanks to oil, diamonds and other mineral riches. A long civil war, on and off for 27 years, finally ended in 2002, leaving behind about 7 million mines. Most of the land is still devastated. We received an order from the government of Angola for two units of demining equipment with attachments for a flail hammer and a rotary cutter head. Scheduled for delivery at the end of June 2007, their first task will be removing mines for road construction.

The current situation of mine injury and demining shall be informed.

The most effective way to eradicate mine injury is establishing an environment where mines are not used. Mr. Amemiya feels that he has a duty to let ordinary people know about the current situation of mine injury and demining. He speaks out on the issue at every available opportunity.

In FY 2006, Mr. Amemiya gave 32 lectures, including 10 at schools and 11 at Hitachi Construction Machinery Group. The lecture organized by Hitachi Construction Machinery's Okinawa branch and Okinawa Hitachi Construction Machinery was attended by 136 students and teachers and was covered by TV station. The students who listened to Mr. Amemiya's lecture wrote to him to say that they wanted to do something for the world and to think about what they can do for society.

Mr. Amemiya's demining activities are explained in a high school textbook and in a TV documentary called "Door to the Dream".



High school textbook



With some attendees at the Okinawa lecture