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Feet of steel

KENNETH HOWE

Amid political gridlock and the macabre reality that sees more landmines laid than cleared each year, a former banker holds in his Causeway Bay office what he believes to be a pragmatic partial solution: a unique combat boot designed to reduce the damage caused by anti-personnel explosives.

The United Nations estimates 100 million uncleared landmines occupy one-third of the countries in the developing world. Claiming more than 500 victims a week, landmines are a weapon of mass destruction in slow motion, an "invisible Goliath" detonated one step at a time, failing to discriminate between the foot of a soldier or that of a child.

The patented Blast and Fragment Resistant (BfR) boot ("making your next step safer") has 13 shock-absorbing layers in the sole that combine to create a tensile strength greater than that of steel, says FK Lee, chairman and CEO of its manufacturer BfR.

The sole is additionally comprised of aluminium and stainless steel, with both corrugated to enhance their capability to deflect high-velocity debris and hot gas streams, says Lee. And the boots, invented by Singaporean Andrew Vaz, are lighter than other combat options (900 grams on each foot compared with an average of 1kg), he says, pointing to the specifications of various models in a military catalogue. They sell for US\$168 (about HK\$1,300) per pair through catalogues and Web site www.BfRboots.com.

Lee makes no claim that a soldier will walk away from a blast but he believes the boot will mitigate soft-tissue and skeletal damage, possibly saving the wearer the added agony and trauma of amputation.

Independent tests conducted earlier this month for the first time appear to have corroborated BfR's assertions. In tests using mannequins, Britain's Royal Military College of Sciences found the BfR boots resisted up to 70 grams of explosives, double the amount used in an anti-personnel landmine, says Lee.

From behind his desk, Lee, 42, claims interest in the boots has been "enormous", and he holds up a folder five-centimetres-thick with correspondence letters. His own research indicates the potential market is big: there are nine million soldiers in the developing world and 16 million more elsewhere. Lee cites a confidentiality agreement with potential buyers, but says the US Government is testing the boot.

In 1998, at a trade show in Thai-land, the boot attracted global attention.

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Blast resistant: Fitting a pair of boots made for withstanding landmine explosion. F K Lee, chairman of BfR, the company that makes them. Picture by Dustin Shum

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When CNN and BBC filed news reports on the breakthrough, numerous countries ordered hundreds of thousands of pairs.

Yet only a small quantity of the first-generation boot was sold, as the mass production of such a unique and complex product turned out to be almost insurmountable.

That same year, Lee stepped down as managing director of the Hong Kong office of London-based merchant bank Hambros. After a 10-year tenure, Lee was ready for a change but had no immediate career prospects. So he went golfing at Shek O Country Club nearly every day for the next year.

Last July, a Singaporean friend put Lee, who was still largely unemployed, in touch with Vaz. A month later, Lee became the project's principal financier. He won't fully disclose his capital outlay, but says production obstacles are now being overcome by a US\$1.5 million German custom injection-moulding machine that will construct the boots' soles. Full-scale production, most of it in Singapore, is due to begin by the end of August with an initial run of 15,000 pairs. By 2002, the firm hopes to make 100,000 pairs a year. "Not many people are crazy enough to say: let's risk investing in this," says Lee. "It's not exactly your run-of-the-mill investment."

Although he previously knew nothing about boots, mines or military procurement, Lee says he simply analysed the investment opportunity by looking at the fundamentals. He believes the product has four hallmarks of success: no one else possesses the proprietary know-how to build the boot; the potential market is global; the patent protection serves as a natural monopoly; and the product is of humanitarian value.

"If you produce what is clearly a superior mousetrap and sell it for a comparable price, it is difficult to argue against it," he says.

A "genuine believer" in the boots' humanitarian component, Lee has stated that BfR will donate US\$1 per pair of boots sold to charities focused on the rehabilitation of victims of anti-personnel landmines, such as the Cambodia Mine Action Centre.

In Cambodia alone, more than 35,000 unprotected civilians have become amputees after stepping on landmines, the centre estimates. The statistic highlights the stark reality that nine out of 10 landmine victims are civilians injured after the guns fall silent, the UN says.

Though the BfR boot may one day be lauded as soldierly protection against man's perverse application of technology, the safeguard of civilians requires greater initiatives. Landmines, which also sabotage a country's social and economic development, were most notably recognised as a global scourge when, in 1997, the Nobel

Peace Prize was awarded to American Jody Williams for her work as co-ordinator of the International Campaign to Ban Landmines.

In the five years preceding her award, Williams saw her movement grow to include more than 1,000 organisations. The idea of an international political ban on anti-personnel landmines was seemingly transformed from one person's vision to a feasible reality.

Today, the outlook is less optimistic. Williams' efforts have proved futile as countries such as the US, Israel and China continue to reject the campaign's entreaty.






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