

Back to Contents 

Call For Papers 

Submission Guidelines 

E-mail the Journal 

Journal Staff 

Editorial Board 

Other Issues 

The Journal of Humanitarian Demining



Biosensor Applications

Henrik Westander

Arms trade researcher and freelance journalist

Issue 2.3 | October 1998 | Information in this issue may be out of date. [Click here](#) to link to the most recent issue.

The biosensor, or artificial dog nose, which identifies mines has now a new and civilian owner, Biosensor Applications Sweden AB, based in Orebro. The company has considerably strengthened its financial resources, currently by 5 million US dollars, and intends to raise further capital on the stock exchange.

Bofors, the arms company, started development of the biosensor in 1995. Investing about 5 million US dollars, within two years the company quickly developed the first prototype. In this prototype, an apparatus collects 100 litres of air which are then concentrated to a drop of water. The biosensor then "sniffs" the drop to tell whether it contains explosives. Finally, a computer gives the results.

Biosensor Applications plans to have a second generation prototype ready in 1999, which will then be subjected to extensive testing and verification. The prototype can identify TNT, the explosive in by far the most anti-personnel mines in the world.

"There are many mine fields where it is known that all the mines contain TNT," says Lennart Wetterholm who is responsible for a project with Swedish mine dogs in Cambodia. "Equipment which can smell out TNT would be a great help," he adds.

During the autumn of 1998, Biosensor Applications intends to pursue development of the capacity of the biosensor to also identify the explosives RDX and PETN. This would increase its serviceability considerably.

United Nations mine clearance work focuses increasingly on "area reduction" (i.e., to identify mine-free areas and at the same time demarcate the real minefields).

Mine dogs are very useful but have drawbacks. The dogs must be trained, they can make mistakes and they can work for only a short period at a time. This is where the artificial dog nose comes in--equipment which can be used round the clock and with falling production costs. The biosensor is estimated to cost around 30,000 US dollars.

Biosensor Applications have begun cooperation with the mine clearance company Mechem in South Africa, but the system will also be available for purchase by Non Governmental Organizations (NGO) and governments.

"I think this project is very promising," says Staffan Abrahamsson of the Swedish Defence Research Establishment, FOA.

Abrahamsson is participating in a project at FOA to develop a complete mine clearance system, a multisensor, where the artificial dog nose is one of the ingredients.

"If they succeed with the dog nose it will be an enormous break-through," says Abrahamsson.

His opinion is shared by Bjarne Haugstad, research chief of the Norwegian Defence Research Department, FFI. "The project has excellent prospects of leading to a mine detector; they are working very purposefully," says Haugstad.

It is an advantage that the company is wholly civilian. Sweden's largest peace organisation, The Swedish Peace and Arbitration Society, intends to become a shareholder in the company and to support its work.

Biosensors technology can also be used to detect narcotics and the kinds of explosives which may be used by terrorists at airports, for example. These applications will probably be more lucrative for the company. But the first artificial dog nose is designed to identify mines.
