

# Airborne detection of minefields:

## Preliminary results Buzi, Mozambique

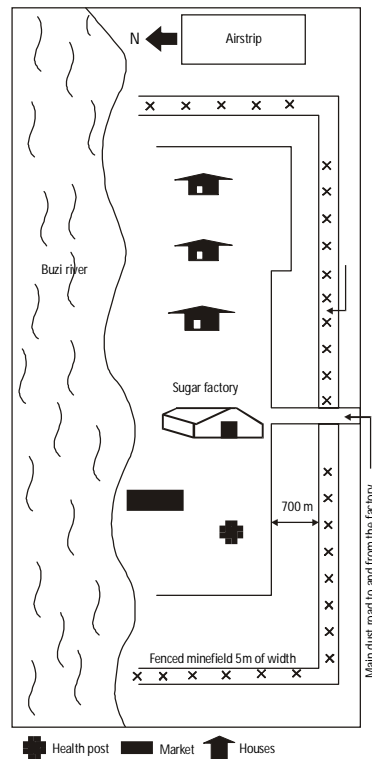
The minefield shown is situated within the lowland area, adjacent to the Buzi River, about 30 kilometres south west of Beira, one of the main coastal towns. The identified minefield can be classified as a defensive minefield ring, surrounding a then important sugar cane processing factory and a landing strip. Both limbs of the minefield extend towards the Buzi River which marks the end of the minefield.



The minefield, constructed in 1982 by Frelimo, consists of anti-personnel mines like POMZ-2 (with trip wires and fragmentation sleeve), PMN and PMD-6 and is believed to be a high-density minefield. The PMN and PMD are typically shallow buried and the POMZ appears above the surface. Due to the fact that the whole minefield is flooded annually the local population is afraid that the mines will be washed away by the floods passing through the minefield. Two accidents have been reported.

The minefield is demarcated by markers on both sides. These bars (railway tracks) are placed upright into the soil at a regular interval of about 5 metres. The rail track is nearly 2 metres high and its maximum dimensions are 6.5 cm. by 7 cm. The width of the minefield is about 5 metres. The minefield could be detected and mapped over a length of about 3 kilometres. The area around the minefield is intensively used for agriculture and as such only a few trees are found. Because of regular burning, even within the minefield, a dense vegetation cover only exists at a few places. Mostly the minefield is covered by grass.

The colour aerial image has been enlarged to a scale of 1:70. It shows a portion of this minefield. The railway tracks demarcating the minefield along both sides are clearly visible. The vegetation consists mainly of grass which after the rainy season is over two metres high. The barbed wire marking the boundary of the minefield could be positively identified using a metal detector when doing a more detailed field survey.



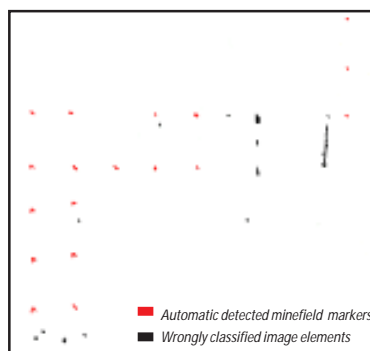
PMD - 6 (H x L x W: 64 x 191 x 89mm)



POMZ - 2 (diameter 60mm, L=130mm)



PMN (diameter 112mm, H=56mm)



Minefield markers are used by the local population as construction material.



Rice is cultivated up to the edge of the minefield.



Survey to determine the edge of the minefield



Minefield, central view, image taken during dry season.

Level 1 survey information of 1994. This was used to plan the airborne mission. The discrepancy between the level 1 survey and actual minefield is obvious.

The minefield is indicated wrongly as well as the airstrip and the Buzi river

Shown above are the automated extraction results of the enlarged portion of the minefield. The railroad track and accompanied shadow result in a typical V-shaped feature which can be observed at regular intervals.



The barbed wire (see arrow) can be identified from the large scale aerial photographs taken during the airborne campaign.

Buzi river

Uncontrolled photo mosaic Buzi Minefield  
..... Minefield

### References:

**Final Project Proposal:**  
Pilot project for airborne minefield detection (May 1997).

or

<http://www.itc.nl/ags/conference>  
<http://www.itc.nl/ags/projects>

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