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## A HISTORICAL STUDY OF LAND-MINES IN ZIMBABWE, 1963-1995

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### Abstract

*Zimbabwe inherited around 1.5 million land-mines, mainly anti-personnel mines laid by security forces during the liberation war. These are in seven minefields, covering 766 kms along the Zambian and Mozambican borders. Efforts to clear these mines began in 1980, but so far have covered only 10% of the minefields. They run mostly alongside communal lands, where fencing and warning signs have largely been destroyed or removed, with devastating results. The paper looks at the history of laying the minefields, and the present status of each of the major minefields. Finally, it points to the prohibitive costs of clearing this dangerous legacy now facing independent Zimbabwe.*

THE HUMAN DEVELOPMENT REPORT, 1994, draws attention to 105 million unexploded but 'live' mines in 62 countries worldwide and from these devices, 800 people die every month.<sup>1</sup> These statistics, however, do not include mines planted in Zimbabwe's minefields from the second *chimurenga*, nor do they take into account local casualties, as most incidents go unreported. Further, this authoritative report does not take into account those people that are savagely maimed by the mines but survive.

Medical opinion is in harmony as to the damage mines cause to their victims.

Land-mines inflict ravaging wounds, usually resulting in traumatic or surgical amputation; damage is from blast, driving dirt or metal and plastic fragments into tissue or bone, also causing secondary infection. Damage is rarely confined to one leg, lesser but still severe damage occurs to the other leg, the genitals, arms, chest and face. Most affected are civilians from which a significant proportion is women and children.<sup>2</sup>

Locally, the horrendous nature of mines was illustrated in a report by *The Chronicle* on 4 February 1984, covering an investiture ceremony during which Mr C. C. Hilderband, a Burma Valley farmer, received a Bronze Cross for exceptional bravery when 'he lost a leg while saving a land-mine victim

<sup>1</sup> United Nations Development Programme (UNDP), *Human Development Report 1994* (Oxford, OUP, 1994), 56.

<sup>2</sup> *Ibid.*; 'Report of Proceedings of the Second Non-Governmental Organizations Conference on Land-mines' (Geneva, 9-11 May 1994), 105-6; 'Landmines: A worldwide epidemic', *International Committee of the Red Cross [ICRC]* (1994), II, 20.

on 6 December 1981'. At the same ceremony, Captain R. Cox received a Silver Cross medal and his citation still evokes sympathy and admiration when, ... after being told that a man had detonated a mine and was lying in the mine-field on 7 December 1981 ... it was already getting dusk and Cox, himself already a land-mine victim amputee, having been blown up twice before, decided to assist in extricating the injured man and in the process, detonated yet another mine, receiving injury to the eye and leg, but still managed to get both of them out.

The remaining mines are taking a heavy toll on newcomers to the mined areas. *The Herald* on 4 November 1992, quotes Mukachana Muchini, proprietor of Mbiza Store, being the last structure alongside the Crooks Corner minefield, asserting that the mines posed a danger to the local people but even more so to unwary travellers, most of whom appeared not to have heard of the existence of the minefield. Colonel Lionel Dyck, head of Mine-Tech (a private company involved in mine clearance), also confirmed that it is primarily newcomers to mined areas, now largely unfenced and unmarked, who fall prey to these devices after straying on to the minefields.<sup>3</sup>

There are an estimated 1,5 million mines in Zimbabwe, located in seven minefields, stretching for 766 kilometres along the Zambian and Mozambican borders. Since independence in March 1980, gaps and corridors, constituting only 10% of the total minefields, have been cleared. In the remaining 90%, all protective fencing and markings have been removed or destroyed resulting in a conservatively estimated 66 people killed while 402 have been maimed by the mines country-wide. Nine thousand and eighty four cattle and an unknown number of smaller domestic livestock as well as thousands of wild animals have also perished during the same period. Some of the larger wounded wild animals, especially rogue elephants, have posed a serious threat to local communities before they are put down. Furthermore, because mine warfare sought to separate the local population from the infiltrating guerrillas, 626 kilometres, representing 87% of the minefields, runs alongside communal areas, making this group still the most threatened by the continued existence of the mines.<sup>4</sup>

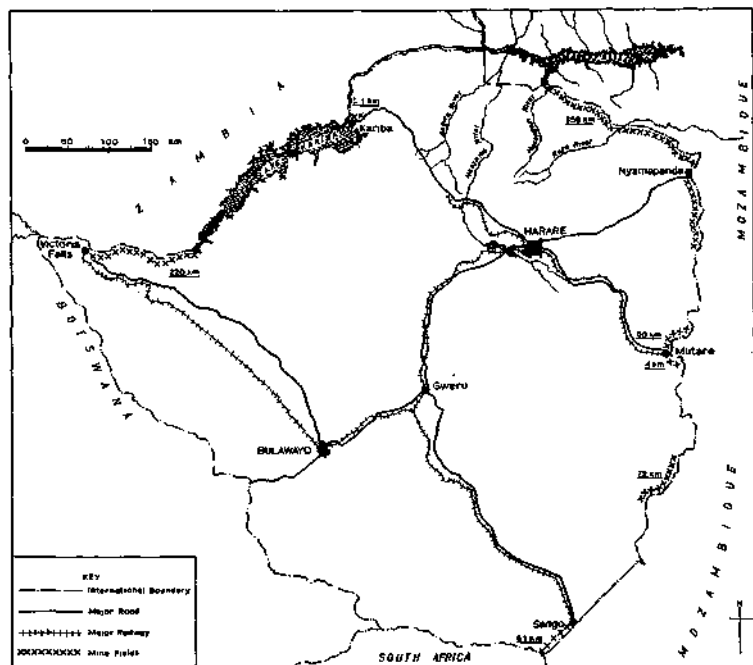
### MINE WARFARE AS A STRATEGY

Despite the universal acknowledgement of the devastating effects of mines, mine warfare still forms an important part of the doctrine of most armies.

<sup>3</sup> Interview with Col. Dyck, Harare, 23 Dec. 1994.

<sup>4</sup> Mine-Tech, Zimbabwe, *Zimbabwe Minefields Survey Report* (Harare, Dec. 1994), 5. This report, commissioned by the European Economic Community on behalf of the Zimbabwe government to ascertain the type of mines, extent of minefields and suggest best possible clearance methods, admits its figures could be understated by as much as 40%.

## TYPES OF MINEFIELDS IN ZIMBABWE

**1. Cordon Sanitaire (Corsan) Minefields**

The 220 km Victoria Falls to Mlibizi Minefield; the 359 km Musengezi, Nyamapanda to Ruenya Minefield; the 72 km Junction Gate, Jersey Tea Estate to Muzite Mission, have this basic construction.

**2. Reinforced Plough-share Minefields (RPSF)**

The Stapleford Forest to Mutare 50 km minefield and the 61 km Malvernia to Crooks Corner Minefield.

**3. Anti-Personnel (AP) Minefield**

The minefield around Kariba Power Station, measuring  $\pm 1$  km.

It is therefore unlikely that this facet is going to disappear from their offensive and defensive repertoires. Mines are used primarily to 'mould terrain' as obstacles, as well as to reduce the need for manpower in retaining control over certain areas, where mines can be supported by covering fire from a much smaller force.<sup>5</sup> The United States has retained mine warfare in its doctrine which holds:

Mine-fields are used to produce a specific effect on the enemy manoeuvre, create vulnerability that can be exploited by friendly forces, disrupting the enemy's command and control, inflict damage to personnel and equipment and to protect friendly forces from enemy manoeuvre both in Defence and Offensive operations.<sup>6</sup>

In the recent Gulf War, both the United States and Iraq used mines extensively. Zimbabwe is one of three countries in Africa producing mines, from an industry which emerged after 1974; the others are Egypt and South Africa.<sup>7</sup> Zimbabwe is therefore likely to maintain mine warfare as an option.

#### MINE LAYING IN ZIMBABWE BY GUERRILLAS

Initially, nationalists from Zimbabwe secured base sanctuaries in Zambia and Tanzania for training combatants before re-infiltration. In support of their overall strategy, guerrillas initiated mine warfare along the border areas from which they were entering the country. Before 1972 they initiated mine warfare in the north-eastern Musengezi, Mukumbura, Nyamapanda and Ruenya areas, bordering the Tete Province, in what was then Portuguese East Africa (now Mozambique).

The Zimbabwe African National Union (ZANU), through Herbert Chitepo and others, accepted the offer by the Mozambique Liberation Front (FRELIMO) to use the latter's bases as well as lines of supply to prosecute the war. The Zimbabwe African National Liberation Army (ZANLA) strategists then sub-divided the new area into four operational sectors of Rubatsiro, Nehanda, Chaminuka and Takawira, making the zone an important funnel of men and equipment through the Chiweshe Tribal Trust Lands into the rest of the country. The geographical location of Chiweshe, lodged between the rich White farming areas of Centenary,

<sup>5</sup> Carl Von Clausewitz, *On War* (London, Routledge and Kegan Paul, 1982), 249; J. K. Cilliers, *Counter-Insurgency in Rhodesia* (London, Croom-Helm, 1985), 115; 'Report of Proceedings on Land-mines', 6-7.

<sup>6</sup> 'Report of Proceedings on Land-mines', 6.

<sup>7</sup> United Nations/ICRC Poster, *Land Mines in Africa*, 2/95.

Mount Darwin, Umvukwes and Bindura, resulted in these areas immediately becoming contested zones during the opening stages of the war.

Mines were used during the attack on Altena farm on 21 December 1972, an incident now recognized as the specific point when the 'war' in the east started.<sup>8</sup>

As part of ZANLA's strategy to restrict the mobility of the Rhodesian Security Forces, roads were liberally mined as were the approaches to established base areas.

Guerrilla movements secured mines mainly from the Eastern Bloc and China. A series of TM57, TM46, TMH46 tank mines with an anti-handling device and wooden TMD-B mines as well as POMZ type anti-personnel mines were used. As the war dragged on after 1974, guerrillas also lifted mines from the established Rhodesian minefields and employed these against their owners. The reverse was also true as Rhodesian Security Forces used captured guerrilla weapons, including mines during the conflict.<sup>9</sup>

As early as 1974, the Rhodesian military authorities were already beginning to express disquiet about the heavy toll guerrilla mine warfare was exacting on vehicles and lives. This led to the introduction of special vehicles partially to withstand mine blasts.

Guerrillas also used mines in unorthodox ways, such as when they laid booby traps in shopping centres in Salisbury, containing two TM46 mines. A similar device was later found and disarmed at the Salisbury Station 'Left Luggage'.<sup>10</sup>

Finally, guerrillas laid mines around some of the Assembly Points following the ceasefire in December 1979 as a precaution against possible attack by the Rhodesian Security Forces.

#### MINE LAYING BY THE RHODESIAN ARMY

The country's oldest minefield, consisting of 3 000 PMN wooden box anti-personnel mines laid over an area measuring approximately one hectare, covers the approaches to the Kariba Power Station and switch gear. This was established without much debate. The minefield was completed on 11 November 1963, a few weeks before the formal distribution of Federal assets at the Victoria Falls Butler Conference in December 1963. The

<sup>8</sup> A. Verrier, *The Road to Zimbabwe 1890-1980* (London, J. Cape, 1986), 175.

<sup>9</sup> B. Cole, *The Elite: The Rhodesian Special Air Service* (Transkei, Three Nights, 1984), 123, 129, 345, quoted in Human Rights Watch, *Land-mines in Mozambique* (Washington, Human Rights Project, 1994), 33-34.

<sup>10</sup> H. Ellert, *The Rhodesian Front War Counter-insurgency and Guerrilla Warfare, 1962-1980* (Gweru, Mambo Press, 1989, revised 1993), 75.

minefield was meant to hinder Zambian post-Federal moves towards asserting physical control of the jointly owned assets, as well as to thwart sabotage attempts by guerrilla units.<sup>11</sup>

In contrast, the decision in 1973/4 to engage in mine warfare against guerrilla infiltration along the north-eastern border was preceded by much soul-searching in efforts co-ordinated by the existing Joint Planning Staff. They first considered planting sisal along the border to restrict the passage of guerrillas. This idea was soon found unworkable. Next, aerial and regular vehicle patrols were assessed but were also found to be expensive and impracticable. Finally, mines were selected, to be coupled with the establishment of 'no-go-areas'. Villagers residing in the areas in which minefields were to be established were to be re-located elsewhere, after which anyone found in the designated zones was to be shot on sight.

Following this decision, a Cordon Sanitaire (Corsan) Committee chaired by the Deputy Prime Minister, was appointed to co-ordinate civil and military aspects of mine warfare within the Rhodesian national war strategy. This committee included senior representatives from the Army, Air Force, Police, Treasury, Internal Affairs and the Department of Tse-Tse and Trypanosomiasis Control. These provided specialist support for the construction of the minefield expected to start in the west from Victoria Falls, Mlibizi and Musengezi, through Mukumbura, Nyamapanda, to the Ruenya border with Mozambique in the east.

The minefields along the Zambezi were placed at fordable and narrow river points while the vast water expanse was policed by a radar system based on the home side. Stretches of water from the Mlibizi narrows, past the Kariba Dam and Chirundu, terminating just below Kanyemba, had this system installed with sub-stations at intervals supported by fast armed boats, equipped to bear upon any water-craft from the Zambian side attempting to cross.

In support of these efforts on the Zambian stretch of the border, Rhodesian efforts were augmented by South African troops deployed as early as July/August 1967. By the early 1970s, South African Defence Forces had three helicopters and two Cessna aircraft and an unspecified number of troops divided between Victoria Falls and Kariba. Their main aim was to keep the South African guerrillas of the African National Congress north of the Zambezi in response to the latter's attempts to operate with the Zimbabwe People's Revolutionary Army (ZIPRA) at this time.

<sup>11</sup> *Zimbabwe Minefields Survey Report*, 54; Human Rights Watch, *Land-Mines in Mozambique*, 17, give a technical explanation of PMNs, i.e. 'a very common mine throughout the world. Although easily detectable, the mine has a large explosive content, 240 grammes of trinitrotoluene, commonly known as TNT, requiring as little as 0.25 kgs of direct pressure to initiate an explosion.'

The Corsan Committee looked at several types of minefields and visited South Africa's obstacles in South West Africa. They finally settled for an Israeli system constituted on the following lines:

A 25 metre wide barrier mine-field containing a very high concentration of anti-personnel (blast) mines was the first line of defence. This mine-field was fenced on either side with a great depth of barbed wire. On the home side a system of electronic sensors, divided into sectors and wired into sectorial control boxes, constituted the early warning system. Penetration of the mine-field would either be detected by detonations of mines, or by electronic indications in the control centres. Reaction to these incursions was by vehicle, to any part of the sectors within 10 minutes of a signal being received. In addition, artillery, sited well in-depth of the mine-field<sup>12</sup>, was on call to put down fire on pre-selected and ranged targets.<sup>13</sup>

Estimated costs of this system were put at Rh\$5 million per kilometre.<sup>14</sup> The Rhodesian economy, already burdened by international sanctions and manpower shortages to prosecute the war as well as the cost of that war, could not afford this intricate version. A downgraded system was then planned to be put in place. However, the recent survey has revealed that in practice, teams inadvertently tended to switch the ropes around or avoid particularly difficult ground.

Minefield construction drew on the expertise of each participating department. The Engineer Corp was responsible for clearing the 25-metre land strip of scrub with bulldozers as well as digging, laying, arming and covering up the mines while the Signals Corp installed the alarm system. The Tse-Tse and Trypanosomiasis Control department erected game fences, measuring 6-8 metres high and 25 metres apart. They were also responsible for providing back packs to spray the chemical HYVAR-X. Later, planners wanted to increase the chemically cleared area to 150 metres on either side of the minefield. But because of the expenses, they secured a cheaper chemical, TORDON 225, which was not effective, resulting in Rhodesia instituting court action against the producers in the South African legal system. All these three departments were subsequently responsible for maintaining their elements of the minefield.

The Corsan Committee authorized the procurement of Rh\$10 million worth of equipment, including dozers, vehicles and anti-personnel mines. Thousands of Portuguese M969 mines, which were readily available, were

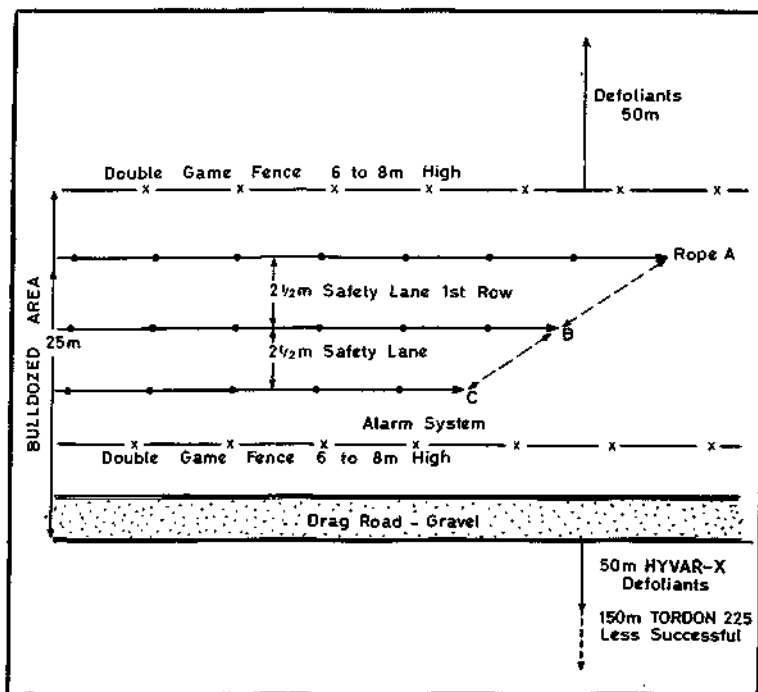
<sup>12</sup> This means the guns were positioned some distance away from the obstacle but within their firing ranges.

<sup>13</sup> *Zimbabwe Minefield Survey Report*, 9.

<sup>14</sup> Interview with Col. Dyck, Harare, 23 Dec. 1994.



## CORDON SANITAIRE (CORSAN)



Mine laying was carried out in patterns according to ropes marked with notes. Three ropes, each 50 metres long, were laid parallel to each other. These rows are ten yards apart within the 25 metre-wide strip. Ropes were designated 'rope A, B, and C'. Rope 'A' was knotted at 1 metre intervals while 'B' was at every 2 metres and 'C' at every 3 metres.

At each knot, three holes would be dug, one at 9 o'clock position, another at 12 o'clock and the last at 3 o'clock position. Following those digging would be a second team placing mines in each hole. A third team would then arm each mine before slightly covering it up. The operation of the teams was in sequence, as reflected on the rope diagram such that if teams came under attack, as was to frequently occur when they reached the eastern border areas, they could simply turn to the right and take cover over ground which had not been mined, before returning fire.

secured to plant the first 300 kilometres of the Musengezi minefield.<sup>15</sup> Later, during maintenance of the minefields, other types of mines were laid. These included locally produced mines to reduce costs, and mines supplied by South Africa throughout the war, in spite of the continuing international sanctions. These included the South African Mark I and II series<sup>16</sup>, the Italian VS 50, and local versions<sup>17</sup>, RAP Mark I, II and III also known as the Adams grenade. The local products managed to reduce mine procurement costs from Rh\$7 to Rh\$2,60 each, although there were serious problems with the quality. Local mines sometimes exploded while being armed. When construction teams reached the Gona Re-Zhou area, for example, during a period when the army in general was suffering from lack of manpower, the Engineers were forced to employ untrained Territorial forces and National Service men. A whole field was later found to have been littered with unprimed mines, forcing the regular sappers to re-work the field.

### MINEFIELD CONSTRUCTION

In conformity with the strategic calculations on mine warfare, before the teams moved in, 'the entire population of Chiweshe, 50 000 families', was resettled in Protected Villages to create the required 'no-go area'.<sup>18</sup> By July 1974, 187 villages were packed in 21 hastily established areas at Musengezi Mission, Hoya and Mukumbura. This development soon spread nation-wide. By late 1977, in the six areas where minefields were to be established, 203 villages with a combined population of 580 832 people were in the protected villages.<sup>19</sup> This hostage community was under the supervision of a guard force of 7 000 personnel led by Brigadier W. Godwin.<sup>20</sup> Mines were laid and exploded mines replaced from May 1974 until November 1979.

However, as the exercise got off the ground, political developments in the region deflected the main focus of the original thrust of mine warfare against incursions in the north-east. Following a coup by the armed forces

<sup>15</sup> This type is a Portuguese copy of the Belgian NR409 mine and almost entirely non-metal.

<sup>16</sup> Human Rights Watch, *Land-mines in Mozambique*, 23, describes the South African mine as made up of 50 grammes RDX/TNT, requiring 10 kilograms of pressure to detonate.

<sup>17</sup> *Ibid.*, 26, describe this Rhodesian mine as essentially a crudely modified version of the Portuguese M969 mine which had been initially procured.

<sup>18</sup> Ken Flower, *Serving Secretly: An Intelligence Chief on Record; Rhodesia to Zimbabwe 1964-1981* (London, John Murray, 1987), 122.

<sup>19</sup> *Ibid.*; H. Ellert, *The Rhodesian Front War*, 49, 52, 265, quoting the Catholic Commission of Justice and Peace notes that 'In 1974, Mukumbura Protected Village experienced mysterious deaths which medical experts believed were caused by eating vegetables tainted by the chemicals used to clear the border minefields which had entered the food chain.'

<sup>20</sup> P. Godwin and I. Hancock, *Rhodesians Never Die: The Impact of War and Political Change on White Rhodesia c 1970-1980* (Oxford, Oxford Univ. Press, 1993), 365.

in Lisbon on 25 April 1974, Mozambique was almost immediately delivered to FRELIMO. ZANLA quickly took advantage of this and expanded its operational provinces from Tete to the Limpopo in the south-east. A new Province, Manica, was established in the eastern border comprising sectors of Tangwena, Monomotapa, and Musikavanhu. Further to the south, the Gaza Province, with Sectors I, II, III and IV, emerged. Following the death of Herbert Chitepo, a fifth sector, Chitepo, was created in the old Tete Province. In sum, areas of guerrilla infiltration had expanded well beyond the planned mine-field areas.

#### MUSENGEZI, MUKUMBURA, AND NYAMAPANDA TO RUENYA MINEFIELD

The next minefield after the Kariba Power Station to be laid was a 359 km stretch, broken into three separate fields with an 8 km section jutting inside Mozambique. In the political environment of 1974, both colonial powers in the region had a common enemy in the form of restive nationalists, and so they co-operated closely. Consequently, one of Rhodesia's Corsan minefields was laid across the international boundary. A total of 1 796 200 M969 type anti-personnel mines and 35 900 plough-shares were laid.<sup>21</sup> HYVAR-X defoliants, normally used by the Railways to keep lines free of vegetation, were successfully used to destroy vegetation in the immediate vicinity of the minefield.

As minefield construction continued, a review of its effectiveness was undertaken. This revealed that guerrillas, using small spades, were able to breach the 25-metre wide minefield in only two hours. The review recommended future minefields to be not below 300 metres wide. Secondly, the minefield needed to be strengthened by the addition of trip-wire which would detonate anti-personnel mines. As a result of procurement costs of mines, densities had to be reduced to rely more on the plough-shares with a new low density of 100 plough-shares and 300 anti-personnel mines per kilometre, a far cry from the 5 500 originally envisaged.

Soon after the completion of the minefield, there were numerous false alarms recorded through the early warning system, resulting in rapid responses which found no sign of the enemy. After expending inordinate

<sup>21</sup> Human Rights Watch, *Land-mines in Mozambique*, 23, gives a technical description of plough-shares as 'A concave shaped dish, approximately 250 mm in diameter, operated by trip-wire with a fragmentation portion constituting about 350 pieces of 6 mm chopped steel bars which are detonated by 150 grams of Pentolite/TNT' manufactured by various companies in Rhodesia. In maintaining and reinforcing this minefield, US type claymore mines, M18A1 were also used. Their technical definition is, 'directional fragmentation mine with 700 steel ball bearings projected in a 60 degree arc with a killing zone of 50 metres to a height of six feet'. These were produced in South Africa.

amounts of ammunition, this rapid reaction had to be curtailed from 1975 onwards. The on-going review then recommended the stripping of future minefields of the alarm system. The present condition of these minefields has to be seen against the background of:

- a) a prolonged lack of maintenance;
- b) heavy and pounding summer rains exposing, washing away and re-locating some mines; and
- c) veld fires snapping taut trip-wires thereby triggering off explosions or heating mines underneath the burning grass and detonating them.

These reasons combined explain the level of deterioration and reduction of initial mines deployed. Furthermore, both people and animals, unwittingly stepping on mines with tragic consequences, also contributed to the depletion of mines.

In the minefield running from Musengezi, Mukumbura to Ruenya, the effects of defoliants have disappeared as bush growth has recovered. The ZimCord Conference of 23-27 March 1981, envisaged that 'all areas not immediately cleared of mines would be fenced off to prevent accidents' although sadly this has not come to pass. Fencing along the entire length of the minefield has been stolen by locals or almost completely destroyed. Replacement would be futile given the general attitude of the local people.<sup>22</sup>

Since 1980 the areas along this minefield have played host to large population concentrations at Katarira, Mukumbura, Caetano, Musengezi and at Chidodo. Families have been forced to use cattle, driven across sections of the minefield, to open these areas for resettlement. Since independence in 1980, the Zimbabwe National Army Corp of Engineers has cleared several gaps on this minefield for commercial and cross-border activities. These are at Batoka Gorge for the proposed hydro-electric project with others at Mukumbura, Nyamapanda and Ruenya.

This area easily constitutes the biggest contemporary problem in terms of population exposure and lack of urgency by those involved in implementing mine clearance. There are 1 005 872 anti-personnel mines and 5 385 plough-shares and claymores still in place<sup>23</sup> in this minefield — approximately two-thirds of the total.

<sup>22</sup> ZIMCORD Conference Documentation, 23-27 March 1981 (Salisbury, Govt. Printer, 1981), 31-32. When calling for reconstruction funds for mine clearance, the document envisaged that mechanical clearance over three years would rid Zimbabwe of the problem of land-mines. The fact that these are still around and are not being talked about anymore merely reflects the low priority that the problem has now acquired.

<sup>23</sup> All present minefield statistics and conditions are from the *Zimbabwe Minefields Survey Report*, 43, 44.

### VICTORIA FALLS TO MLIBIZI

A second minefield stretches for 220 kilometres from Victoria Falls to Mlibizi with 66 000 anti-personnel mines and 22 000 plough-shares initially laid. The minefield closely resembles the one above except that no chemicals are reported to have been used. So far, the Zimbabwe National Army (ZNA) has created seven gaps around Victoria Falls, for both human and animal access to the Zambezi and to allow for the maintenance of electricity pylons in the area. In the larger Mlibizi minefield, running along communal and wildlife zones, ten official gaps have been cleared. Local people have added a few unofficial gaps. On this section of the minefield, little fencing remains.

### BURMA VALLEY JUNCTION GATE

A small 4 kilometre minefield was laid in Burma Valley by local White farmers, with the assistance of the Rhodesian Army Corp of Engineers and Police Reservists. The latter were responsible for booby trapping the minefield. One thousand two hundred anti-personnel mines and 400 plough-shares and claymores are believed to have been deployed. The ZNA Engineer Corp cleared many of these mechanically, and only 60 anti-personnel mines and 20 plough-shares remain in areas suspected to have been booby trapped. These small pockets have been fenced off, to be cleared later.

However, late in 1993, the limitations of the mechanical clearance method were exposed in this area. Cattle passing over the soil mounds from the cleared minefield detonated mines while veld fires, sweeping over the same mounds later, also initiated explosions.

### THE MINEFIELD FROM SHEBA/STAPLEFORD FOREST TO JUST SOUTH OF MUTARE

Teams engaged in minefield construction were deployed to Umtali (now Mutare) as a matter of urgency in early 1976, since the perception then was that the north-eastern city was under imminent attack from both the new Mozambican government and ZANLA cadres from nearby Chimoio. A 'Modified Corsan' minefield was constructed along 50 kms of the border. This constituted three rows of plough-shares, reinforced with another row of anti-personnel mines and plough-shares which were placed between 3 to 5 metres forward of the main minefield. The improved minefield density was greater than that initially planned with 100 plough-shares and over 5 800 anti-personnel mines per kilometre. A total of 290 000 anti-personnel mines and 5 000 plough-shares or claymores were laid.

Soon after the establishment of this minefield, the review committee put forward several recommendations which were to be reflected in the subsequent minefields. Prominent among concerns raised was the cost of the 20-kilometre parallel road, which had cost Rh\$600 000, as well as the game fence. A decision was taken by Combined Operations Headquarters henceforth only to establish minefields parallel to existing roads, while the replacement of its game fences by a fence of cattle strand wire, erected on the home side only, was to be the future norm.

The Umtali minefield was also to host a number of booby traps in which mortar bombs, aircraft bombs, 90 mm anti-tank ammunition and crude home-made explosives were dug in the minefield. These were housed in 44 gallon drums filled with nails, nuts, concrete blocks and anything injurious but which could withstand the initial radio-detonated ignition. The materials in the sunken drums were also expected to precipitate fires.

Since the end of the war, little clearance work has been done on this stretch, except detonation of the radio-controlled drums, forcing commercial concerns to drive cattle over certain portions in a bid to reclaim land. The army has created six official gaps to allow cross-border activities to take place and smugglers have also holed the fence and breached the minefield in a number of places. To date, while the fencing still remains intact, largely because it runs through commercial farming areas, 246 500 anti-personnel mines and 4 250 plough-shares or claymores still remain.

#### FROM JUNCTION GATE TO SOUTH OF MUZITE MISSION

A 72 kilometre minefield, running alongside the communal areas, was initially planted with 21 600 anti-personnel mines and 7 200 plough-shares and claymores. This minefield was constructed at a time when the Umtali review had just been concluded. Because key tasks previously performed by other specialist agencies had fallen away, minefield construction became an all army affair. The army then formed a special task force, known as Six Composite Battalion so that it could undertake all the construction tasks.

To date 12 960 anti-personnel mines and 720 plough-shares remain in this field. Protective fencing, where it runs through commercial farms, has been maintained. However, in the communal areas, this has been removed for individual garden and cattle kraal construction. A limited area for a local Customs and Immigration point has been cleared and re-fenced for a distance of 500 metres on either side of the post. Kavira Forest has also been cleared to allow for grazing, as well as the area running through Tamandayi communal lands. However, as a result of pressure for land in the area, locals have resorted to using cattle to re-open certain areas for resettlement.

### MALVERNIA (SONGO) TO CROOKS CORNER (PAFARU)

A 61 km minefield similar to the Mutare/Vumba one was established with 353 800 anti-personnel mines and 6 100 plough-shares. To this day, the 2,46 metres game fence from the small town of Songo which has been maintained by National Parks people, is still in good condition. However, the cattle strand protective barrier running from south of the boundary with the National Park area has been removed, resulting in tragic consequences for wildlife. A disturbingly high 247 660, or 80%, of the original anti-personnel mines planted still remain on this particularly exposed minefield as well as 2 440 plough-shares.

### DUMMY MINEFIELDS

For students of strategic studies, a dummy minefield serves exactly the same purpose as an actual 'mined field'. A total of three such fields can be identified. The first is a portion of ground abutting the Junction Gate to Jersey Tea Estate<sup>24</sup>. This is followed by the Malvernia to Songo section which is 'laid out with pickets and trip-wires but no mines'. Finally, another dummy is also located in the same area over swamp land.<sup>25</sup>

With reference to the Rhodesian mine warfare strategy, although the minefields continued to be built and maintained until November 1979, the periodic reviews showed that the obstacles were not stemming the flow of guerrillas in any serious manner as initially envisaged. 1978 was to become a watershed for mine warfare as part of the national strategy. On March 3 1978, the Rhodesian government agreed to hand over power to a government led by Bishop Muzorewa. A component of their agreement was the opening up of protected villages. As a result, the links between mine warfare and the 'villagisation' programme were severed. By September, the inmates of 70 protected villages were allowed to leave, and more villages were opened up by the end of the year.<sup>26</sup> From this point on, mine warfare was to continue as a disjointed army operational initiative.

In August of 1978, a major review by the Engineer Corp privately admitted that minefields had failed to halt guerrilla infiltration.<sup>27</sup> As if to confirm this view, in September of that year, ZANU's publication, *The Zimbabwe News*, published an account of their troops breaching minefields of the Rhodesian Security Forces.<sup>28</sup>

<sup>24</sup> *Zimbabwe Minefields Survey Report*, 29.

<sup>25</sup> *Ibid.*, 32.

<sup>26</sup> Godwin and Hancock, *Rhodesians Never Die*, 365.

<sup>27</sup> Cilliers, *Counter Insurgency in Rhodesia*, 113; Flower, *Serving Secretly*, 175; Interview with J. K. Cilliers, Johannesburg, 2 March 1995, citing the August 1978 Engineers Report.

<sup>28</sup> *Zimbabwe News* (Sept-Oct 1978), X, (v), 15, 17.

Some casualties were also experienced by the Rhodesian Security Forces, which may have had a bearing on the reluctance of the present forces to clear the minefield by hand. By November 1979 the Rhodesian army, through the Engineer Corp, had suffered a combined loss of 25 men killed and 91 injured while constructing the minefields. The majority of these casualties were incurred from handling of the locally produced mines.

In total, over 2 528 800 anti-personnel mines and 76 600 plough-shares or claymores, as well as those amongst the booby traps,<sup>29</sup> were laid in Zimbabwe's seven existing minefields. The Mine-Tech Survey teams have ascertained that 1 535 852 anti-personnel mines and 9 915 plough-shares or claymores remain in an area measuring 8 566 square kilometres.<sup>30</sup> The gaps and corridors created since independence by the ZNA with the support of the 1981 marshalled ZimCord Funds, make up less than 80 kilometres which have been cleared, presenting the nation with a monumental task of providing the initiative and commitment to remove completely the remaining land-mines.

#### DISSIDENT ACTIVITY AND MINE WARFARE, 1983-87

The last conflict to result in mines being brought into Zimbabwe was the 'dissident problem' as it evolved in late 1982 and early 1983. South Africa, anxious to exploit the cleavages which had appeared in the Zimbabwean body politic, supplied 'Super-ZAPU dissidents', between April to November 1983, with a total of 46 TM57 Russian type land-mines. Only one of these was planted, and it was later lifted by the army following indications from members of 'Super-ZAPU' in custody after they were handed over by Botswana authorities from their Dukwe Refugee Camp. Fortunately for Zimbabwe, the Unity Accord signed between ZANU and ZAPU on 22 December 1987 appears to have addressed the areas of discontent, resolving the political differences that had emerged.

#### CONCLUSIONS AND OPTIONS FOR MINE CLEARANCE

Several sectors of Zimbabwean society continue to be seriously affected by the existence of land-mines. These include communal areas, tourism, parts of commercial farming areas as well as forestry harvesting concerns. The department of Tse-Tse and Trypanosomiasis control is also having restricted access to Tse-Tse breeding areas in Mozambique as a result of

<sup>29</sup> Interview with Col. Dyck, 23 Dec. 1994. In the Mutare minefield, an average 100 explosive devices per day, made up of air-craft, mortar bombs and anti-tank vehicle 90 mm ammunition, were being laid at the height of the conflict.

<sup>30</sup> *Zimbabwe Minefields Survey Report*, 43, 44.



land-mines. In the continuing debate on the selection of the best mine clearance course in Zimbabwe, any method selected must be measured against the urgency of alleviating the suffering being experienced by residents in the communal areas. In terms of casualties, this community is bearing the brunt of the land-mines problem in this country.

Several methods exist for clearing mines which are dependent on the environment, the geography of the area, available skills and existing back-up infrastructure as well as a host of other minor considerations, not least of which is the safety factor for operators.

The ZNA has publicly advocated for a mechanical method, which they argue, would clear all the remaining mines in a period of 10 years, given Z\$30 million. However, a private contractor has argued that the task could be done in 18 months using combined methods of mechanical and hand-held methods at an estimated cost of about US\$40 million or Z\$324,1 million at prevailing exchange rates.<sup>31</sup> Considering the United Nations estimate of the average cost of removing each mine to be between US\$300 to \$1 000, for Zimbabwe's 1,5 million mines, the contractor's estimate<sup>32</sup> appears cheap but perhaps more research needs to be done. For purposes of this study, the question is not necessarily who is right but what effective option is available to rid the nation of the scourge of land-mines in the shortest possible time at minimum cost.

<sup>31</sup> *The Herald*, 7 Oct. 1994.

<sup>32</sup> This estimate was made against the background of the contractor having won United Nations international tenders in Somalia and elsewhere in Africa.