Landmines and Spatial Development
Appendix II
History of Landmine Clearance *

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Abstract

This appendix presents a detailed account of the demining operations in Mozambique. Mine clearance in Mozambique was a difficult, 24-year-long task that involved the government, the main warring parties, several international NGOs, commercial operators, international agencies (United Nations), and donor support. The section is organized along the three phases of landmine clearance: (*i*) initial phase (1992 – 1999); (*ii*) limited coordination phase (2000 – 2007); (*iii*) completion phase (2008 – 2015).

*Additional material can be found at www.land-mines.com

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1 First Phase (1992-1999)

1.1 Initiation (1992-1994)

1.1.1 Conditions in 1992

Demining planning and operations start with the signing of the General Peace Accord in Rome of October 4, 1992, ending conflict between FRELIMO and RENAMO. After more than thirty years of warfare (war of independence and civil war), dealing with landmine contamination was considered a pillar for the peace building process. The two warring parties, FRELIMO and RENAMO, agreed with the Peace Treaty that they would take an active role in landmine clearance activities. To implement the obligations of the agreement, the United Nations established an Operation in Mozambique (UNOMOZ). This was a peace-building operation, involving $6,400$ soldiers and UN workers, that oversaw the transitional period leading to the first elections in the fall of 1994 (United Nations Development Programme (2016)). *"UNOMOZ helped to monitor and verify: the cease-fire; the demobilization of armed forces and paramilitary groups; the collection, storage, and destruction of weapons; and the withdrawal of foreign troops" (United Nations (1995)).*

Among its other duties, UNOMOZ *"mandate was to work with the national authorities and coordinate the surveying of contaminated areas and clearance*" (GICHD (2005)). A preliminary landmine action plan, with funding from the international community (United States, France) was developed in late 1992; however, FRELIMO and RENAMO agreed with the plan's provision almost a year later, in November 1993 (GICHD (2004)). And "*even after agreement with the plan, beurocratic tangles slowes the preparatory phase.*" (Roberts and Williams) Conditions in the country were devastating; millions of refugees and internally displaced people were trying to return to their birthplace towns/villages, poverty was rampant, and the country's countryside lacked any state authority. As an early Human Rights Watch (1992) report, put it "*parts of the country had returned to stone-age conditions.*" At the same time, there was still violence and insecurity. The peace accord looked fragile as militias, rebel groups, and thugs were still operational. Reports specified that RENAMO not only didn't assist in landmine clearance (by providing information on the location of minefields), but it continued planting landmines close to their main bases in Gorongosa in central Mozambique (HRW (97)). UNOMOZ aim for the emergency operations was establishing a "*well-defined prioritization processes during the initial phases of demining, focusing particularly on clearance of transport routes*" (O'Reilly, Friedman, Dinsmore, Storr, and MacPherson (2012)) for the repatriation of refugees and internally displaced people (Smith (1996), GICHD (2005)). The United Nations Organizations for Humanitarian Assistance Coordination (UNOHAC) estimated that, in the first years of demining operations, there were approximately 2 million landmines across the country (Millard and Harpviken (2000)), though this number was soon revised to 1 million.

Figure 1: **Mozambique**

1.1.2 Demining Programmes/Operators

Several international and African NGOs and commercial operators established bases in Mozambique to assist with landmine clearance (GICHD (2004)). After some back and forths, three main demining programmes morphed across the main Mozambique regions: The HALO Trust's programme in the Northern Provinces, the Norwegian People Aid (NPA) programme in Tete and other Central region, and the United Nations Development Programme (UNDP) in the form of the Accelerated Demining Programme (UNADP) in Maputo province and other Southern provinces.

- **South - United Nations.** Upon the conclusion of hostilities, UNOHAC established a mine clearance training centre in Moamba, between Maputo and the South African border (Komatriport), to train demobilized soldiers in demining. In July 1994, the UNDP initiated the Accelerated Demining Programme (ADP) modelled along the Cambodia's Mine Action Centre with German government's financial and technical support. The UN-ADP established itself as the main demining actor in the Southern provinces covering Maputo, Inhambane, and Gaza. UNADP focussed on training staff and by 1998, it appeared staffed (employing 500 deminers), funded and ready to proceed with clearance. The United Nations initially wanted to be directly involved with landmine clearance across the country. But donors appeared skeptical; and soon the ADP contracted with commercial firms to clear specific areas mostly in the South.

- **North - HALO Trust.** The HALO Trust, a Scotland-based British and American NGO, started as a small organization and later became the major demining operator in the Northern Provinces. With funding from Japan, the United States, and the British Overseas Development Administration, Halo Trust started operating in 1994 in Quelimane (Zambezia) with 5 vehicles, 4 officers, and 20-30 local trainees. The following years it expanded its operations northwards, in Niassa (1995), in Cabo Delgado (1996), and in Nampula (1997). By 1999 Halo Trust was employing close to 200 deminers and supervisors (United Nations Development Programme (2016)).

- **Centre - NPA and HI.** The NPA was the first operator to build demining capacity as early as 1992. The NPA had been running development programmes in the Tete province (bordering Zimbabwe) since the mid-1980s, well before it officially began demining operations. NPA's work was concentrated in the central regions of Tete though later it expanded to Manica and Sofala. The United Nations Human Rights Council (UNHRC) co-financed with the Norwegian government NPA's operations during their initial years, as clearance focused on facilitating the return of refugees from Malawi (around 1 million) and Zimbabwe (around half a million). By 1994, NPA had trained two 32-person teams (US Department of State (1994)). Handicap International (renamed in 2018 Humanity & Inclusion (HI)), an international network focusing on inclusion and assistance of people with disabilities, also played a key role in the Central

provinces. HI started mine action in Mozambique in 1992 with a focus, however, on Mine Risk Education (MRE) and victim assistance rather than on clearance. HI opened orthopedic centres with the Red Cross across the country (United Nations Development Programme (2016)). In $1994 - 1995$, HI run large awareness campaigns across the country with funding from the US Army's Humanitarian Demining Programme. Together with local organizations, it called for the destruction of stockpiles of landmines, as (at the time) it looked likely that their use will continue (HRW 97). HI started demining activities in 1998 in Inhambane.

- **Other Players.** A few commercial operators also established bases in the country after the end of hostilities $(1993 - 1994)$. Commercial companies signed contracts with the government, the United Nations, and USAID and played a key role in the early stages. For example, Gurkha Security Guards (GSC), a British company, was awarded a pilot program to clear areas in Central Mozambique with the financial backing of the European Union (HRW 97). Mechem (Minerva), a South African firm began the clearing of roads in 1994 using vapor detection technology (with financial support from South Africa). MineTech, a Zimbabwean firm, cleared roads, powerlines and railroads in FRELIMO-controlled areas in Manica and Sofala (United Nations Development Programme (2016)). RONCO used canine detection to clear roads in Morrumbala in Zambezia and in Tete. "*From May 1994 through July 1995, RONCO cleared* $2,177$ *kilometers of roadway in Central Mozambique with* 84 *deminers and* 32 *mine dogs/handlers*" (Ronco (1996)).

The geographical focus of the three largest players (with HALO Trust working exclusively in the North, NPA in the Center, and UNADP in the South) arose from a situation of non-coordination. HALO established itself in Zambezia to support British NGOs (Save the Children, Oxfam, and later Trocaire) and then expanded its activities to the other Northern Provinces, north of the Zambezi river that effectively cuts the country. NPA focused on the central Provinces, locating itself in Tete, as it was running already a development programme there during the civil war. Likewise, HI presence in the central provinces dates back to 1986, when they were providing orthopedic assistance, physiotherapy, and rehabilitation to landmine victims. UN ADP focused on the southern Provinces around Maputo because this is where the initial UN mission was located, as security concerns were not that high in the South. As observed by the Geneva International Centre for Humanitarian Demining (GICHD), *"the division of the country into three distinct regions complicated the task of national coordination, but it also minimized concerns over duplication and unhealthy competition among the three large "humanitarian" operators"* (GICHD (2005)).

1.1.3 The HALO Trust/UNOHAC Mine Survey of Mozambique 1994

The UN mission, donors, and development agencies soon realized that one of the main challenges was lack of information of the spatial distribution of landmines and unexploded ordnance (UXO's). Hence, in late 1993, after numerous negotiations with RENAMO and the FRELIMO government

that were delaying the process, UNOHAC contracted HALO Trust to conduct the first national, comprehensive survey of the extent of Explosive War Remnants (EWR) contamination. The United Nations Development Program (UNDP) provided funding (470,000 USD contract). The goal was to compile a list of suspected hazardous areas (SHA) that would be then used to target clearance operations.[1] Procedures and standards were not available at the time as this was the first ever Non-Technical Impact Survey (IS) charting the entire territory of a country. In less then six months, "*six teams in a total of* 5 *vehicles covered over* 110,000 *kilometers of roads and tracks*" (Halo Trust (2007a)) in all 10 provinces. The HALO Trust team conducted interviews with locals, NGO workers, former combatants and civil administrators to assess the problem. The teams complied a set of IS reports that gave details on suspected of contamination areas (SHAs); these geocoded reports were then stored in the SHAMAN (System for Humanitarian Assistance MANangement) database.[2]

Key Findings The HALO Trust team detected 981 SHAs. The suspected hazardous areas ranged from small stretches of tracks enclosed by a single (suspected) mine, to large minefields with hundreds (perhaps thousands) of mines and unexploded ordnances (UXOs). The survey revealed that land mines were widely dispersed across Mozambique. However, details of the extent of and exact location remained unclear. Figure 2 depicts the spatial distribution of the SHAMAN survey across the country, while Figure 3 zooms in the Niassa (North) and Sofala (Center) provinces. The reports recorded information about location characteristics, person(S) interviewed, and GPS information about the suspected of contamination area. Figure 4 reproduces a page of the entries in the Halo Trust Report. In some instances, a hand-written map was attached. However, even the HALO Trust that conducted the survey have not kept track of these maps. However, going over the United Nations archives (in New York City) we managed to extract the hand-written maps, as well as retrieve the original reports that in some instances provide more details. Figure 5 and Figure 6 give two examples. Typical entries from the HALO Trust (SHAMAN) dataset read as follows:

- *Chibabava, Chibabava District, Sofala Province*: "Information reported by Mangude RAA camp commander. AP and Anti-Group (AG) mines known to have been laid beside and on N1 road (main highway). Many exploded during rehabilitation but many more are left. Laid by FRELIMO."

- *Machado, Mandiba District, Niassa Province:* "Sapper Agistnho Nimala (resident). Abandoned school with one AP in front of each of the doors facing the road. RENAMO used to sleep in school while waiting to ambush traffic on the road."

- *Murraca, Caia District, Sofala Province*: "Information provided by MSF (Doctors without Borders). A mine accident was registered around the Air Strip of Murraca. Number of mines is

[1] The main objective was to "provide an overall assessment of the landmine situation in Mozambique for the benefit of all organizations and agencies".

[2] We are thankful to HALO Trust for providing us the original data of the 1994 report.

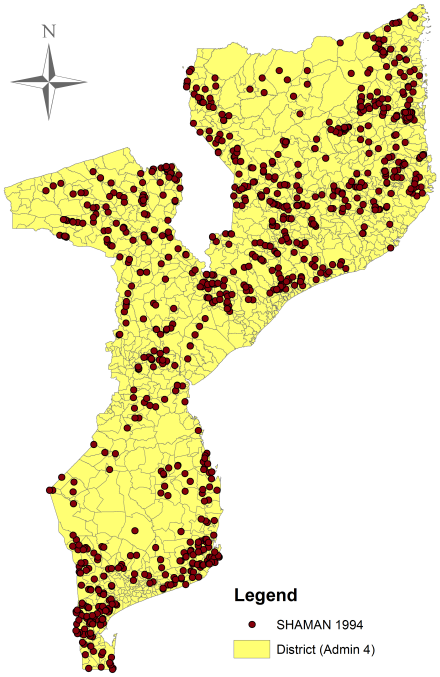


Figure 2: SHAMAN Survey

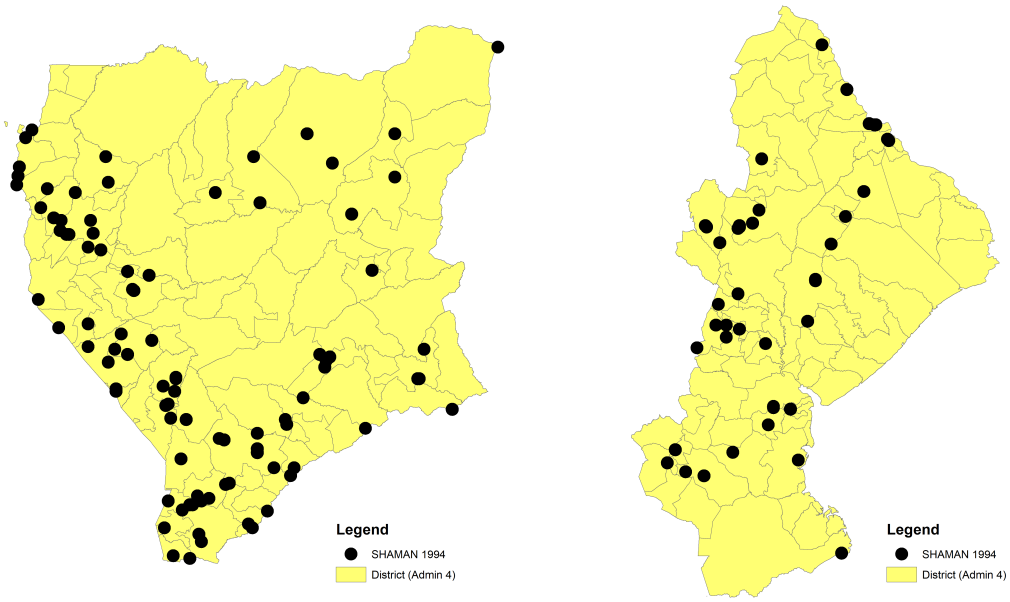
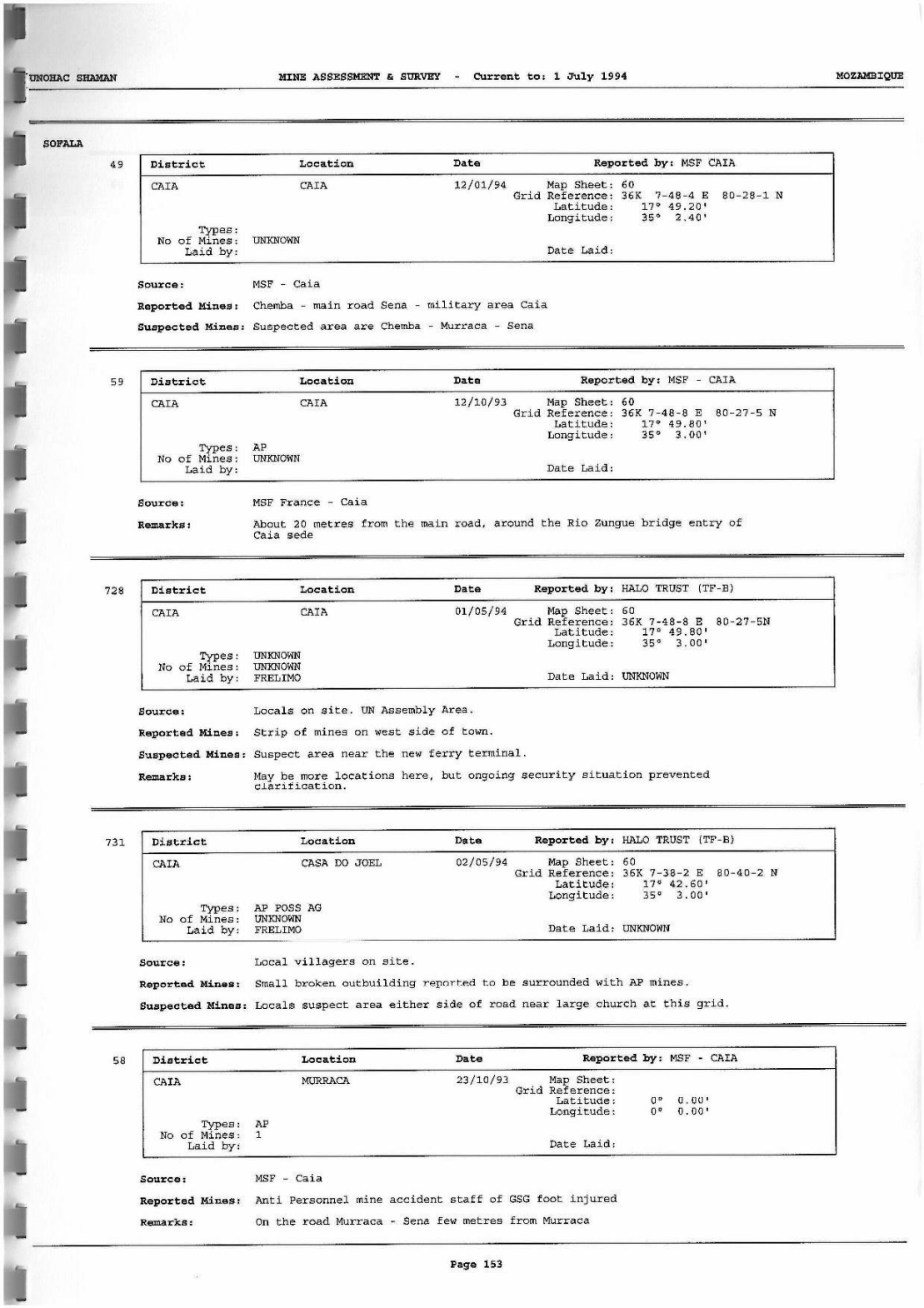


Figure 3: SHAMAN Survey: Niassa and Sofala Province



UNOHAC SHAMAN — MINE ASSESSMENT & SURVEY - Current to: 1 July 1994 — MOZAMBIQUE

SOFALA

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District	Location	Date	Reported by: MSF CAIA
CAIA	CAIA	12/01/94	Map Sheet: 60 Grid Reference: 36K 7-48-4 E 80-28-1 N Latitude: 17° 49.20' Longitude: 35° 2.40'
Types: No of Mines: UNKNOWN Laid by:			Date Laid:

Source: MSF - Caia

Reported Mines: Chemba - main road Sena - military area Caia

Suspected Mines: Suspected area are Chemba - Murraca - Sena

59

District	Location	Date	Reported by: MSF - CAIA
CAIA	CAIA	12/10/93	Map Sheet: 60 Grid Reference: 36K 7-48-8 E 80-27-5 N Latitude: 17° 49.80' Longitude: 35° 3.00'
Types: AP No of Mines: UNKNOWN Laid by:			Date Laid:

Source: MSF France - Caia

Remarks: About 20 metres from the main road, around the Rio Zungue bridge entry of Caia sede

728

District	Location	Date	Reported by: HALO TRUST (TF-B)
CAIA	CAIA	01/05/94	Map Sheet: 60 Grid Reference: 36K 7-48-8 E 80-27-5N Latitude: 17° 49.80' Longitude: 35° 3.00'
Types: UNKNOWN No of Mines: UNKNOWN Laid by: FRELIMO			Date Laid: UNKNOWN

Source: Locals on site. UN Assembly Area.

Reported Mines: Strip of mines on west side of town.

Suspected Mines: Suspect area near the new ferry terminal.

Remarks: May be more locations here, but ongoing security situation prevented clarification.

731

District	Location	Date	Reported by: HALO TRUST (TF-B)
CAIA	CASA DO JOEL	02/05/94	Map Sheet: 60 Grid Reference: 36K 7-38-2 E 80-40-2 N Latitude: 17° 42.60' Longitude: 35° 3.00'
Types: AP POSS AG No of Mines: UNKNOWN Laid by: FRELIMO			Date Laid: UNKNOWN

Source: Local villagers on site.

Reported Mines: Small broken outbuilding reported to be surrounded with AP mines.

Suspected Mines: Locals suspect area either side of road near large church at this grid.

58

District	Location	Date	Reported by: MSF - CAIA
CAIA	MURRACA	23/10/93	Map Sheet: Grid Reference: Latitude: 0° 0.00' Longitude: 0° 0.00'
Types: AP No of Mines: 1 Laid by:			Date Laid:

Source: MSF - Caia

Reported Mines: Anti Personnel mine accident staff of GSG foot injured

Remarks: On the road Murraca - Sena few metres from Murraca

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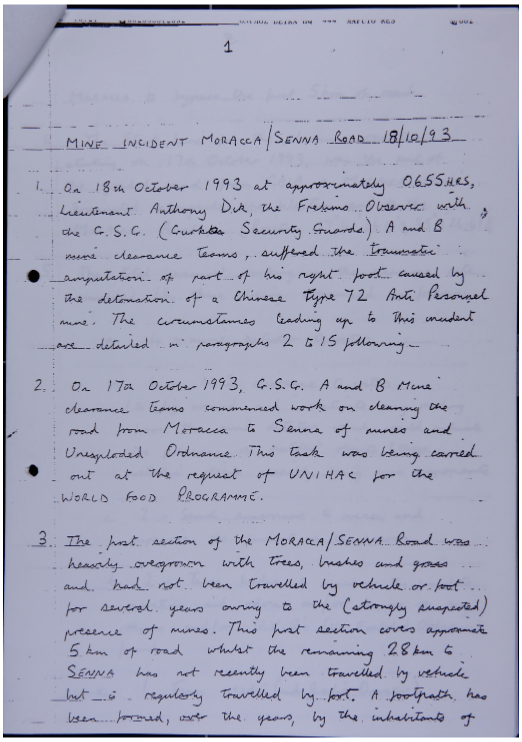
Figure 4: SHAMAN Original Dataset



1

MINE INCIDENT MORACCA/SENNA ROAD 18/10/93

1. On 18th October 1993 at approximately 0655HRS, Lieutenant Anthony Dik, the Frelimo Observer with the G.S.G. (Gurkha Security Guards) A and B mine clearance teams, suffered the traumatic amputation of part of his right foot caused by the detonation of a Chinese Type 72 Anti Personnel mine. The circumstances leading up to this incident are detailed in paragraphs 2 to 15 following.

2. On 17th October 1993, G.S.G. A and B Mine clearance teams commenced work on clearing the road from Moracca to Senna of mines and Unexploded Ordnance. This task was being carried out at the request of UNIHAC for the WORLD FOOD PROGRAMME.

3. The first section of the MORACCA/SENNA Road was heavily overgrown with trees, bushes and grass and had not been travelled by vehicle or foot for several years owing to the (strongly suspected) presence of mines. This first section covers approximate 5 km of road whilst the remaining 28 km to SENNA has not recently been travelled by vehicle but is regularly travelled by foot. A footpath has been formed, over the years, by the inhabitants of

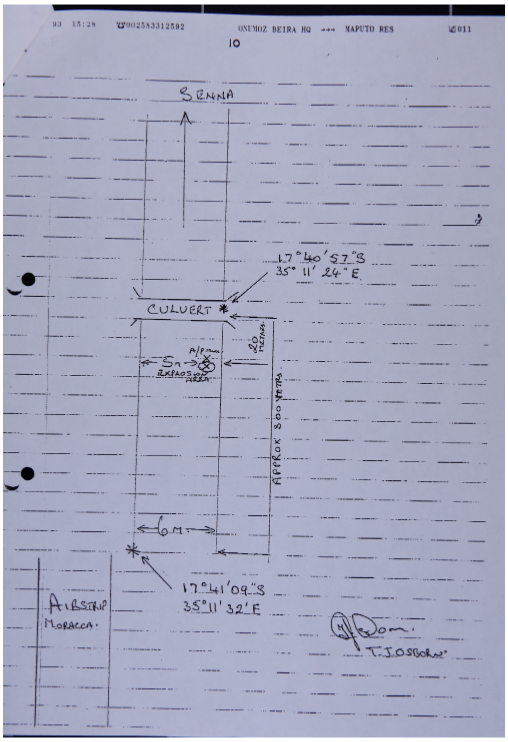
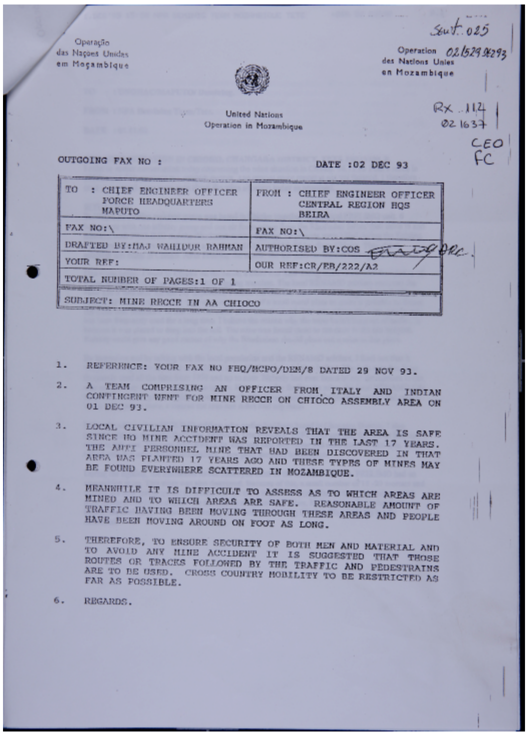


Figure 5: **SHAMAN Hand-Written Maps Example: Murraca**



Operação das Nações Unidas em Moçambique

Operation des Nations Unies en Mozambique

United Nations Operation in Mozambique

OUTGOING FAX NO :

DATE :02 DEC 93

TO : CHIEF ENGINEER OFFICER FORCE HEADQUARTERS MAPUTO	FROM : CHIEF ENGINEER OFFICER CENTRAL REGION HQS BEIRA
FAX NO:\	FAX NO:\
DRAFTED BY:MAJ WAHIDUR RAHMAN	AUTHORISED BY:COS
YOUR REF:	OUR REF:CR/EB/222/A2
TOTAL NUMBER OF PAGES:1 OF 1	
SUBJECT: MINE RECCE IN AA CHIOCO	

1. REFERENCE: YOUR FAX NO FHQ/HCPO/DEM/8 DATED 29 NOV 93.
2. A TEAM COMPRISING AN OFFICER FROM ITALY AND INDIAN CONTINGENT WENT FOR MINE RECCE ON CHIOCO ASSEMBLY AREA ON 01 DEC 93.
3. LOCAL CIVILIAN INFORMATION REVEALS THAT THE AREA IS SAFE SINCE NO MINE ACCIDENT WAS REPORTED IN THE LAST 17 YEARS. THE ANTI PERSONNEL MINE THAT HAD BEEN DISCOVERED IN THAT AREA WAS PLANTED 17 YEARS AGO AND THESE TYPES OF MINES MAY BE FOUND EVERYWHERE SCATTERED IN MOZAMBIQUE.
4. MEANWHILE IT IS DIFFICULT TO ASSESS AS TO WHICH AREAS ARE MINED AND TO WHICH AREAS ARE SAFE. REASONABLE AMOUNT OF TRAFFIC HAVING BEEN MOVING THROUGH THESE AREAS AND PEOPLE HAVE BEEN MOVING AROUND ON FOOT AS LONG.
5. THEREFORE, TO ENSURE SECURITY OF BOTH MEN AND MATERIAL AND TO AVOID ANY MINE ACCIDENT IT IS SUGGESTED THAT THOSE ROUTES OR TRACKS FOLLOWED BY THE TRAFFIC AND PEDESTRAINS ARE TO BE USED. CROSS COUNTRY MOBILITY TO BE RESTRICTED AS FAR AS POSSIBLE.
6. REGARDS.

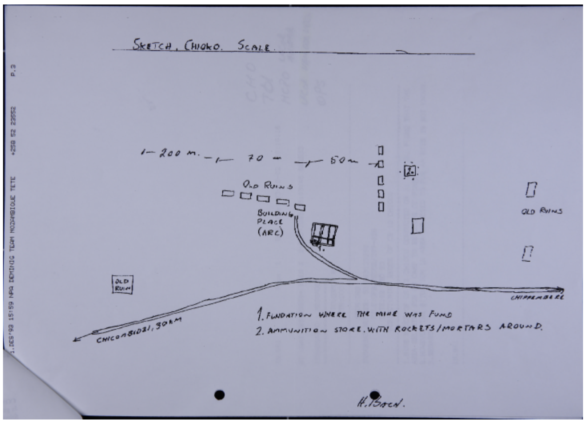


Figure 6: **SHAMAN Hand-Written Maps Example: Chioco**

unknown." (see map in Figure 5).

- *Chioco, Changara District, Tete Province*: "Information from Diogo dos Santos (RENAMO representative). One Anti-Personnel (AP) mine found at the building site [old hospital] and one AP mine close to the administration building. Locals and Renamo avoid the area due to suspicion of mines around airfield. Laid by Rhodesian forces." (see map in Figure 6).

The majority of SHAs were located in the south and centre of the country. The most seriously affected provinces were Maputo, Inhambane, Manica, Zambezia and Tete (Halo Trust (1994)). The survey corroborated UN's earlier assessments that all 28 major road segments were mined (US Department of State (1994)). For example, the HALO Trust report verified the heavy mining of the main highway connecting Maputo the Centre ($EN1$) in Inhambane. The Survey also revealed that bridges, schools, clinics, and local townhouses were mined. The report suggested that the majority of dams, railway lines, electricity substations and powerlines should be assumed to be contaminated (Halo Trust (1994)). HALO Trust's survey reduced the initial UNOHAC estimate of millions of land mines to a few hundred thousand (Millard and Harpviken (2000)). The survey rightly stressed that the issue is not the actual number of mines, as even a few mines can be hugely detrimental to economic and social activity (see also Vines and Thompson (1999) and HRW (1997)).

Criticisms The HALO Trust report provided an overview of the problem of contamination in the demining community. However, it was heavily criticized for a number of reasons. First, the survey arguably underestimated the extent of contamination. This was inevitable, as the HALO Trust did not claim to cover every area in Mozambique nor did it suggest that every piece of information was reliable (Halo Trust (1994)). Although the survey teams covered over $110,000$ km of roads and tracks, some areas were inaccessible. For example, the Chinde district in Zambezia could not be reached by vehicle. Second, given the size of the country, the team was evidently understaffed. The United Nations pushed for a quick completion of the survey, making it even harder for the surveying team. Third, conditions were truly chaotic, marked by millions of refugees and internally displaced people trying to return home, violence, and insecurity. Forth, many organizations that had laid mines (notably RENAMO and other militias) were not particularly collaborating. This was especially the case in Central provinces, close to RENAMO main military bases, as the rebel organization was afraid that after clearance the government will move forces. Hence, the quality of provincial reports varied. Fifth, the availability of relevant people to interview with knowledge of landmine placement hindered the quality of the findings. In many instances, landmines were placed ten or even twenty years before the surveying team visited the areas; as such it was close to impossible to get accurate information on the exact location of contamination.

Despite these limitations, the HALO Trust survey and the associated SHAMAN database provided a preliminary assessment of the problem, though "*the survey did not, despite its intention, form the*

basis of a long-term landmine programme for Mozambique" (HRW 97). In line with this assessment, a follow-up assessment, funded by USAID, concluded that "more detailed surveys of affected areas were needed to work out a priority list for humanitarian clearance." However, the report shifted attention from the total number of mines ("intensive" margin) to the impact on the local community which was considerable even when there were a couple of mines (HRW97).

1.1.4 Demining

Actual demining in the initial phase was limited. On top of the challenges posed by poverty, refugees, and insecurity, clearance operations were delayed as the United Nations Agencies, the government, and RENAMO were involved in tedious negotiations on priorities. Some limited "*uncoordinated mine clearance from both sides occurred across the country during 1993 and the first half of 1994*" (HRW (97)). Data on funding is scant, but HRW estimates that 31.3 million USD was spent for landmine clearance during this period.

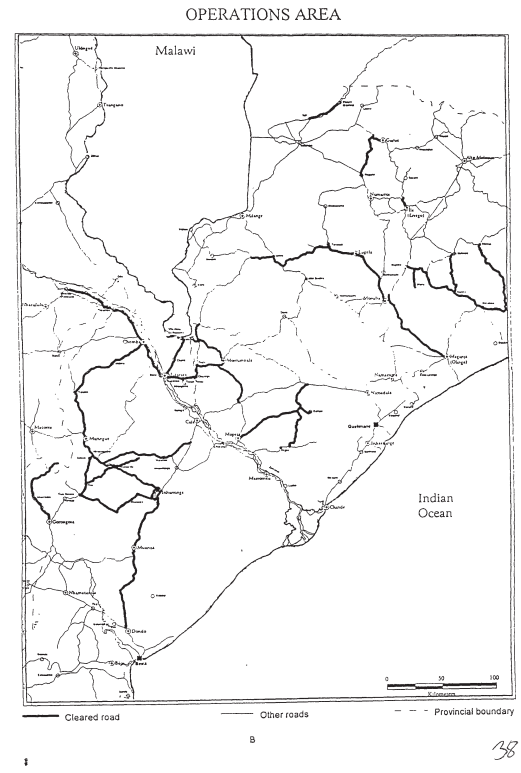
The most controversial demining operation was the one awarded by the United Nations to a consortium of Lonrho, Mechem, and Royal Ordnance in May 1994 to clear roads for a cost of 4.8 million USD. The "*Project Caminho*" was heavily criticized internationally, as it involved operators that were manufacturers of landmines and small weapons themselves (HRW (97)) Figure 7 gives a mapping of these interventions using self-collected data from the United Nations Library in New York City (these data were not recorded by national or other authorities as at the time the country lacked any capacity to even monitor developments).

Some demining was completed by RONCO in the central provinces of Sofala and Zambezia under US financial backing (of roughly 4 million USD). 7 below gives the maps provided by RONCO to USAID on its clearance operations in $1993 - 1995$. [Again these data were not recorded by the Mozambican authorities and were retrieved from archives].

1.2 Consolidation Phase 1995-1999

1.2.1 Conditions after the 1994 Elections

The first democratic Presidential and Parliamentary elections took place on October $27^{th} - 29^{th}$, 1994. The warring factions transformed into political parties in a nascent democracy. It was the first time the country had multiparty elections since independence (in the 1977 elections only FRELIMO participated). The electoral race between Joaquim Chissano, FRELIMO leader, and Alfonso Dhlakama, RENAMO's leader, brought to the polling stations 88% of the voting-age population. FRELIMO won both the Presidential (53%) and the Parliamentary (44.33%) elections; Dhlakama obtained 33% of the presidential election votes and RENAMO reached a 37% share of the parliamentary votes. The electoral results revealed a divided country. RENAMO managed to secure the relative majority of votes in Manica, Nampula, Tete, Sofala, and Zambezia; while the remaining Southern provinces and



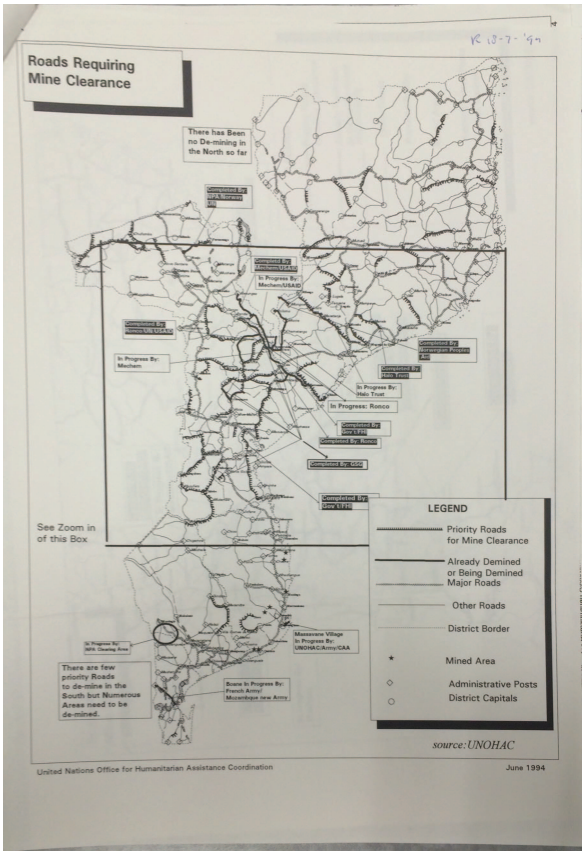


Figure 7: **RONCO and "*Project Caminho*" Maps**

Maputo city gave a strong victory to FRELIMO. The newly-elected government highlighted mine action as essential to Mozambique's recovery. Nevertheless, the effectiveness of the government was curtailed by the weakness of its administrative structures, especially at the local level, and by the termination of the UNOMOZ's mandate.

In 1995 the government established the National Demining Commission (CND). It's mandate was to *"collect, process and analyze information and data relevant to demining, elaborate a strategy and action plan for mine clearance, and establish procedures for setting priorities at the local and national level; monitor and coordinate all ongoing demining activities; act as the approval and licensing authority in respect of a new operator; adjudicate public tenders for service contracts; and promote and oversee the implementation of a national programme to improve public mine awareness"* (GICHD (2005)). The UNDP partly funded the CND (1995 − 1999) by providing $3 - 5$ technical demining advisors in addition to US$ 1 million. Moreover, the UN earmarked US$ $12 - 14$ million for mine related activities. However, it took more than a year for the commission to meet; and it was apparent that it had virtually no capacity (GICHD (2004)). It began operating in 1996, but its workers, though less than 10, first got paid in 1997. CND was unable to establish its oversight role. A July 1996 US diplomatic cable states "*the CND has failed to develop, as expected, is poorly led, and has yet to produce a long-awaited national demining policy.*" (HRW (97)). Donors were dissatisfied and the CND was eventually closed.

Some progress was made by the signing of the Anti-Personnel Mine Ban Convention in 1997, a milestone global treaty that required signing parties to stop manufacturing and using antipersonnel landmines (though anti-tank mines were excluded form the ban). According to Article 5, Mozambique committed to remove all known landmines within 10 years. Article 5 mandates each state party to make every effort to identify all areas under its jurisdiction in which anti-personnel mines are known or suspected to be and ensure the destruction of all anti-personnel mines.

1.2.2 Landmine Clearance

Landmine clearance operators proceeded to work with low levels of coordination, reinforcing the regional and provincial divide. The size of the country (more than twice the size of Germany) and the lack of infrastructure isolated demining actors even further.

HALO Trust expanded in all northern provinces; Niassa in 1995 with funding from the Irish Government, Nampula in 1997 with Dutch and US financial assistance, and Cabo Delgado in 1998 with financial backing from the Swiss government (UNDP, 2016). By 1998, "*The HALO Trust was the only humanitarian demining operator working in the north of Mozambique and its programmes stretched across each of the four northern provinces. At its peak HALO Mozambique employed* 550 *staff*" (Halo Trust (2007a)).

In 1998, the NPA launched a two-year Integrated Demining Programme (NORAD (2009)).[3] Hand-

[3]The programme allowed for "small-scale development activities to be performed together with demining to make

icap International (Humanity & Inclusion) began demining in Inhambane in 1998 after predominantly focussing on MRE. It established a tactic of Proximity Demining, focusing in the most-heavily mined province of the country. Proximity Demining entailed the clearance of small sites under $15,000m^2$, aiming at ensuring safe access to land and paths for small communities (GICHD (2012)). Given limited funding, 4 HI teams of 8 deminers were deployed in 1999 to small demining areas close to communities rather than the large-scale action that was commonplace in the North and the South.[4]

The UNADP began operations in Inhambane and Gaza around 1998, deploying 10 to 50-men platoons (United Nations (1998)). Commercial operators' involvement also increased in 1997. Two local NGOs, AfroVida and Necochaminas cleared areas in the South; other international agencies, such as Krohn Demining Enterprise (a German firm) and MAG, a British NGO, got involved. By 1997, 45% of total funding had been assigned to commercial companies (Millard and Harpviken (2000)).

Arguably the most important of the smaller operators was Mine-Tech, a Zimbabwe-based firm, that worked together with the Geramn Development Agency, GTZ, in the Central provinces. In its initial operations, Mine-tech cleared pylons connecting the Cahora Bassa damn to South Africa and then cleared mostly border villages and secondary roads in the border with Zimbabwe. Figure 8 gives one of the operation reports (as provided to us by GTZ director Ulrich Weyl) with an asscoiated map of GTZ-Mine-Tech operation in 1997 in Sambazoka village, Machaze district, in Manica, close to the border with Zimbabwe.[5]

1.3 Summary

Despite all efforts, the progress of clearance during the first period was not meeting initial expectations, partly due to the lack of precise information on the actual degree of contamination, partly due to government's weak state capacity, conflict between the UN and donors (and also between UN agencies), and ensuing violence and insecurity. In spite of donor support and international assistance, it was clear in the late 1990s that the country could not meet its ambitious 10-year deadline to clear all confirmed hazardous areas (CHA) and investigate all suspected hazardous areas (SHA).

The lack of coordination coupled with the desire of the international community and donors to assist brought into the country dozens of NGOs and commercial demining operators. And while some demining did take place, most operations were conducted in an ad hoc manner and without much consideration of the general implications and the big picture. A national demining plan was still missing (GICHD (2005)). The United Nations had left and the National Commission proved unable to centralize the process and accelerate the process of surveying and clearing contaminated areas. The

the side effects of having a large demining team present more positive. Activities could be community education, rehabilitation of infrastructure, construction of improved traditional latrines and drilling of wells" (Knudsen (2006)).

[4]We are grateful to Aderito Ismael and his colleagues at HI, who provided very useful information and data on HI operations in Inhambane.

[5]We are grateful to Ulrich Weyl for kindly sharing his personal archives detailing GTZ-Mine-Tech's operations and also for patiently explaining the challenges of demining teams at the time.

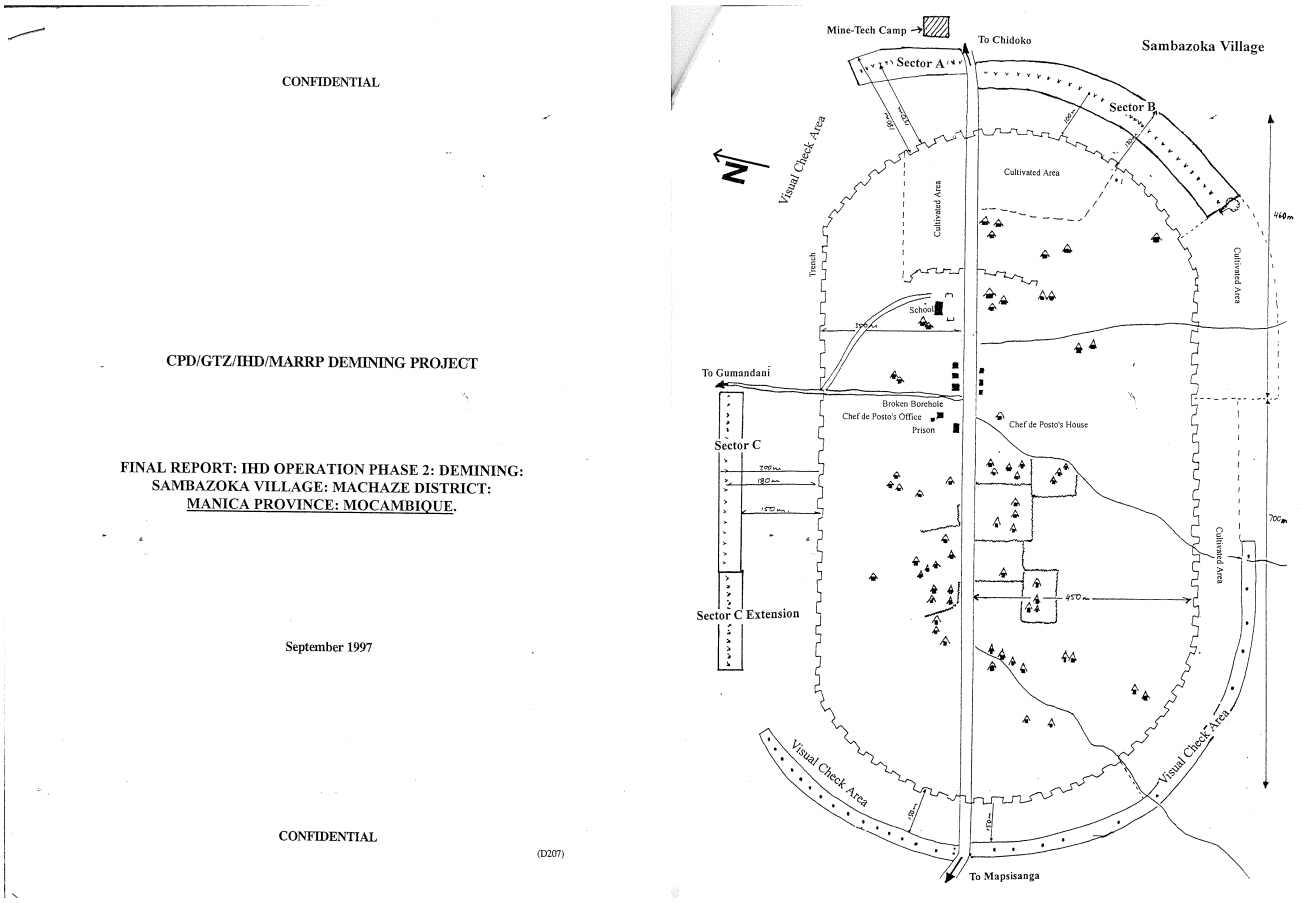


Figure 8: **GTZ-Mine-Tech report of Sambazoka operation**

government and NGOs had a fragmented, at best, picture of the problem. According to the director of Mozambique's mine clearance operations in 1997: "*First, we must have a clear idea of what the landmine situation in Mozambique is. We are in the dark about that, and without a sound knowledge of the situation, it is impossible to define a strategy, let alone determine the cost and resources needed for clearance operations*" (Human Rights Watch (1997)). In the meantime, other related projects on raising awareness, assisting the wounded, and improving health facilities proceeded. Though data is scarce and not much reliable, all evidence suggests that the number of deaths and injuries from landmines and UXOs declined considerably from 1992-1994 to 1999.

2 Second Phase 2000-2007

2.1 Conditions and Initial Developments

In late 1998, the National Mine Clearance Strategy Approach suggested that a new governing body of the mine action programme should replace the CND to enable greater coordination (United Nations Development Programme (2016)). The National Demining Institute (IND) replaced the CND after the council of ministers approved decree 37/99 in June 1999 (GICHD (2004)). The IND had some autonomy and could bypass cumbersome procedures and red tape. It established two provincial offices (on top of the headquarters in Maputo), one in Nampula in the north and the other in Sofala in the centre to coordinate with the HALO Trust and NPA teams, respectively.[6] IND aimed at "*successfully establishing and developing coordination, supervision and management mechanism, in close cooperation with all other relevant organizations and agencies, to ensure the cost-effective execution of a national mine-action plan*" (GICHD (2005)). Donor funding increased (from approximately $6-8$ million per year in $1993-1996$) to more than 14 million during $1999-2004$. The IND started coordinating the demining efforts and it is no coincidence that landmine clearance accelerated during the early years of the second phase, $1999-2003$ (GICHD (2005)).

2.2 The Mozambique Land Mine Impact Study (MLIS 2001)

However, the true extent of contamination was yet to be known with certainty. The SHAMAN database was not used by demining operators, as it entailed various flaws and shortcomings (for example the hand-written maps were lost). In an attempt to address this issue and meet the requirements of the Anti-Personnel Mine Ban Treaty of 1997, the IND (with funding from the Canadian International Development Agency) commissioned the Canadian International Demining Corps (CIDC) and Paul F. Wilkinson & Associates to conduct a nationwide survey of the landmine situation and its impacts. Fieldwork began in March 2000 and the survey was completed in August 2001.

[6]The IND' mandated was to "coordinate and oversee the implementation of all mine action program, including quality assurance and information management (data gathering, mine action database maintenance and information dissemination)" (National Institute of Demining (2008)).

During this period the survey teams collected expert opinions and conducted group interviews with 6,772 locals aiming to *"collect, records and analyze information on the location of known or suspected mined areas throughout the country and provide an overview of their social and economic impacts as perceived by the residents of landmine- affected communities*" (Canadian International Demining Corps (2001)). The survey findings were stored in the Information Management System for Mine Action ("IMSMA"). This database "*constituted the basis for Mozambique authorities to define priority targets for mine action*" (Canadian International Demining Corps (2001)).

2.2.1 Key Findings

In a broad sense, the MLIS reaffirmed the main message of the 1994 SHAMAN Report. Landmine contamination was more extensive than intensive; most importantly landmines were having substantial adverse impact on local communities almost a decade after the civil war ending (Canadian International Demining Corps (2001), Scan Team (2003), GICHD (2013)). Figure 9 shows the spatial distribution of suspected and confirmed hazardous areas recorded in the MLIS survey; Figure 10 zooms on Niassa and Sofala provinces. Landmines affected all 10 provinces and 123 out of the 128 districts (admin-2 units). The MLIS identified 791 landmine-affected villages and 1,374 suspected hazardous areas (SHAs) spanning an area of 562 square kilometers. The majority of affected villages and towns (768) were in the south-east of the country. The provinces of Inhambane, Maputo and Zambezia were found to have above average landmine-affected villages. SHAs affected 1.5 million people (approximately 9% of the 1997 population). Inhambane alone accounted for one quarter of all affected persons, recording also the highest number of affected communities (157 villages). Gaza, Niassa, Sofala and Tete tended to have numbers below the national average. Niassa reported the lowest number with only 40 affected villages. The data illustrated that, while an overwhelming number of landmines was discovered, their contamination was not as intense as previously suspected. Over half of landmine-affected communities reported only one SHA. Only 63 reported more than 4 SHAs, demonstrating that the sheer presence of landmine contamination outweighed the importance of the actual number of mines in an area. A typical entry from the MLIS dataset contained information on the location (e.g., GPS), the reason why the location was affected (civil war incident or developments during the war of independence), the population of the affected village, and an assessment of the impact of contamination. For example:

- *Ponte Nova in Mecutine, Nampula Province.* "The suspected area is located 3 km away from an area known as Ponte Nova, along the N8 road. Several mine accidents were reported and a mine is visible. It is consider of Medium Impact and agriculture blocked. 1081 people affected."
- *Antigo Quartel in Catuane, Maputo Province.* "Rodrigues Ossomane, who mined the area, informed us about the presence of land mines. It is judged of Low Impact, affecting a population of 96 people. Road and agriculture were blocked."

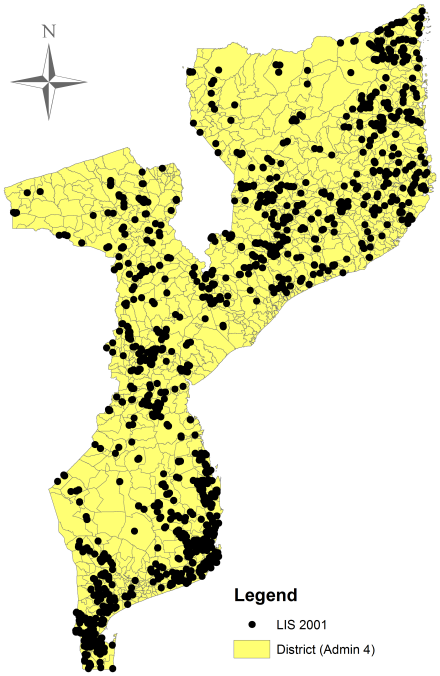


Figure 9: LIS 2001 Survey

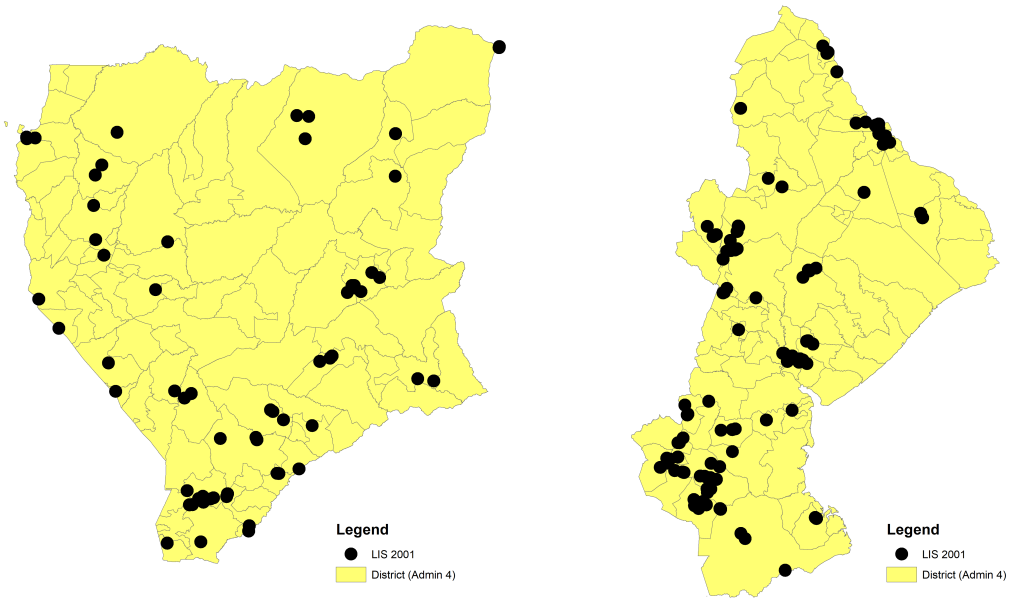


Figure 10: LIS 2001 Survey: Niassa and Sofala Province

- *Unsicane in Matiquiti, Cabo Delgado Province.* 'Interviewers saw a mine. Impact considered high. 3,493 people affected. Agriculture blocked."
- *Rio Djuni in Maubica, Niassa Province.* "Informed by HI about land mines contamination. Access to water blocked. Low impact and 1,401 people affected."
- *Thomo in Ressano Garcia, Maputo Province.* "Several mine accidents. During survey, landmines were spotted and danger signs were present. Agriculture was judged to be blocked. Impact considered Low. People affected 7,345."

The MLIS identified blocked land access in all provinces. Agricultural land was inaccessible for 464 villages/towns. For example, in Maciana (Maputo province) and Meculane (Cabo Delgado) contamination during the civil war was preventing the development of agricultural activities. Blocked access to non-agricultural land, such as land for hunting, firewood collection was widespread with the exception of some areas in western Nampula, northern Niassa and Gaza and north-western Inhambane. 180 villages were impacted by this restriction. Restricted roads and paths were evident in 231 villages across all provinces. In addition, access to infrastructure was blocked in landmine-affected communities. This occurred mostly in Zambezia, Inhambane and Maputo. Access to drinking water was generally sufficient; only 55 communities in Maputo and Inhambane reported restrictions to their access.

The landmine-affected communities were assigned a landmine-impact score, as a means to prioritize areas for mine action. The scores were established through consideration of a number of factors, including blocked access to facilities, the number of victims and whether SHAs were clearly marked. Landmines in the vast majority of affected villages (76.7%) were considered to have a low impact affecting 1.1 million persons, the majority of which were located in Inhambane. 164 affected villages identified landmines to have a medium impact affecting 393,000 people. Maputo had the largest number of modestly affected villages. With the exception of Niassa, every province had an affected village with a high impact score accounting for 2.5% of all affected communities. The SHAs in these 20 villages impacted 36,000 persons.

2.2.2 Criticisms

The MLIS has been criticized on a number of accounts. The representativeness of the survey compromised the validity of the findings. The MLIS did not survey all areas of Mozambique, as survey teams were not able to access many communities (Wilkinson and Masella (2003)). Villages in Niassa and Sofala were inaccessible, and thus, landmine-affected communities may have been present, but their

plight was not recorded.[7] Mozambique suffered the largest flooding in 50 years during 2000 – 2001.[8] The floods disrupted demining momentum, stressed the capacity of government, and significantly impacted the MLIS. The independent report by Government of Mozambique (2008) summarizes the key challenges: "*The large size of Mozambique and the absence of a functional road network in much of it, extensive flooding in parts of the country in* 2001*, the widespread distribution of mine-affected communities, the absence of an accurate national gazetteer (i.e., official listing of communities and their geographic coordinates), the lack of accurate maps in appropriate scale, the impossibility of applying in its entirety the SAC protocol for false-negative sampling, and, the nature, availability and quality of expert opinion.*"[9]

2.3 Progress on Landmine Clearance. First Mine Action Plan (2002-2006)

Despite its limitations, the MLIS was considered the most comprehensive landmine survey across the world at the time. The MLIS data enabled the IND to design the first National Mine Action Plan (NMAP 2002−2006). Its main objective was to achieve a "landmine-free" Mozambique within 10 years, by 2011 (GICHD (2005)); the NMAP also envisioned the clearance of all high-to-medium impact areas by 2006. MLIS setup 6 main objectives; increasing demining coverage, conducting nationwide technical surveys, implementing quality assurance, increasing landmine clearance capacity[10], and improving victim assistance (GICHD (2004), GICHD (2005)). Figure 11 shows the distribution fo HALO Trust intervention on the Tanzanian border between 2003 and 2006.

As a result of improved information and a more efficient institutional structure, the main operators accelearted their operations. The HALO Trust continued its clearance operations in the Northern provinces. In 2003 the US government funded HALO Trust's three-year operation to clear large Portuguese-laid minefields from the colonial era. *"This project would ultimately lead to the clearance of more than* $80,000$ *mines and would be successful in clearing the country's biggest barrier minefield"* (Halo Trust (2007a)).

The NPA had also expanded to around 500 deminers, employing, among others, workers with foreign expertise (United Nations Development Programme (2016)). "*NPA's work in the province as a whole has gradually shifted from the emergency aid required in the initial years after the Peace Accord*

[7]Discrepancies between the MLIS and the HALO Trust survey emerged after publication particularly in the areas where HALO Trust was active (GICHD (2004), Scan Team (2003)). A difference of a factor of three between the number of SHAs identified by the HALO Trust and the MLIS was discovered. For example, in Zambezia, the HALO Trust reported a total of 46 SHAs while the MLIS recorded 200 (GICHD (2004)).

[8]Cyclone Eline in late February 2000 and Cyclone Hudah in mid-April 2000 affected the lives of close to 2 millions of people in the Southern provinces of Gaza, Maputo and Inhambane. The cyclones killed about 600 and displaced more than $200,000$. A major flood also occurred early 2001 in the Central-East.

[9]The IND "*stated as a priority from* 2003 *to get a better picture of the mine problem in the country. By this, it acknowledged that the survey from* 2001 *did not reveal the true picture*" (Knudsen (2006)).

[10]A Danish government-funded project enabled the UNDP to assist Mozambique in capacity-building (GICHD (2004), United Nations Development Programme (2016)). Handicap International (Humanity and Inclusion) also participated in indigenous capacity building, passing many of its victim assistance responsibilities to the IND (United Nations Development Programme (2016)).

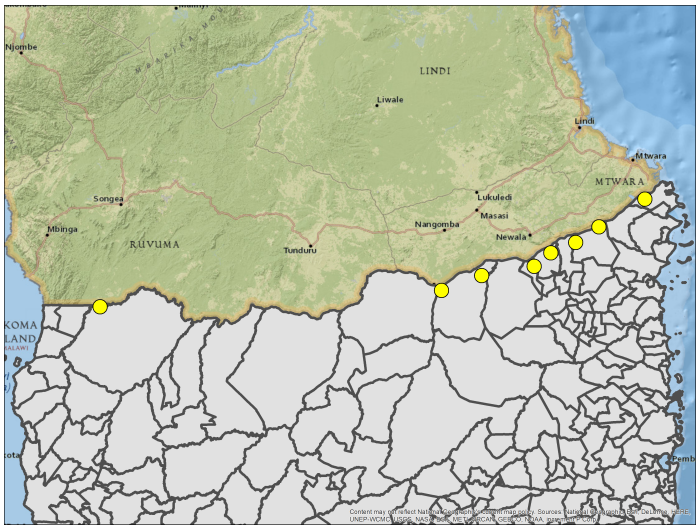


Figure 11: HALO Trust Interventions 2003-2006 on the Border with Tanzania

(1992-1997), when thousands of people returned to their homes with little to live on, to development assistance designed to equip the people with the means and capacity to fend for themselves on a sustained basis" (Norwegian People's Aid (2002)). Figure 12 shows the distribution fo NPA interventions between 2002 and 2004.

Smaller players also continued demining, mostly in the Southern provinces contracting with the Accelerated Demining Program. Afrovita continued with road clearance, MgM, a German NGO began mine clearance of electricity pylons close to Maputo in $2000-1$ and Mechem was assigned clearance of the Massingir Dam in Gaza. The armed forces of Mozambique (FADM) also undertook humanitarian demining operations in Niassa, Nampula, Sofala, Gaza and Maputo (National Institute of Demining (2013)). APOPO, a Belgian-Tanzanian organization started working in 2004 initially testing its rat-based survey approach and subsequently assisting HI.

2.4 Set-backs

The period of perceived progress came to a halt in 2004.[11] The mine action programme suffered a blow of confidence due to scandals, a depletion of funding and the withdrawal of the main demining operators. In $2003-4$ the Adopt a Minefield charity, established in 1999 with the aim to engage the

[11] By 2005, a report reviewing 10 years of mine action in Mozambique accredited the achievements made thus far. The Geneva International Centre for Humanitarian Demining suggested that "*significant progress has been made in terms of clearance and, more broadly, in generating a better picture of the extent and precise location of suspected hazard areas*" (GICHD (2005)). According to the GICHD (2005) report, although the humanitarian impact of landmines had been greatly reduced, Mozambique would not be free of mines in the near future. It suggested that *"there is a need for greater leadership on the part of the Government of Mozambique to address the underlying issues that might lead to donor fatigue by formulating a national strategy for long-term mine action, increasing accountability and transparenc*" (GICHD (2005)). This was evident in the execution of the NMAP 2002-2006. It exaggerated its predictions and was therefore largely ignored by the main operators; the "*independent operators have not always adhered to the government's plans*" (O'Reilly, Friedman, Dinsmore, Storr, and MacPherson (2012)).

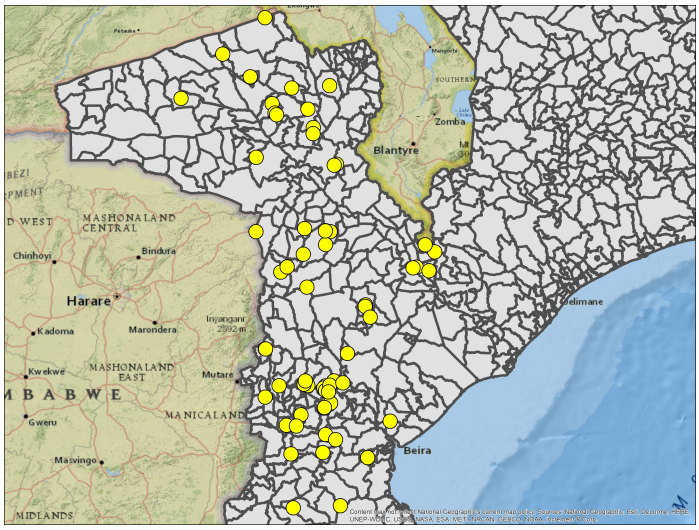


Figure 12: NPA Interventions 2002-2004

US civil society in landmine clearance in Mozambique, was involved in a major corruption scandal, implicating, among others, the head of the NPA and officials from the UNDP and IND (GICHD (2012), United Nations Development Programme (2016)). A further scandal involving IND funds and its director erupted leading to donor fatigue for mine action. Furthermore, criticisms of the IND undermined its credibility: *"although performing far better than the former NMCC/CND, IND has as yet been unable to establish fully adequate coordination to ensure the activities of the humanitarian operators are consistent with an overall national plan for mine action"* (GICHD (2005)).

In 2005, UNDP's capacity-building programme with the IND terminated without being renewed; this weakened considerably IND's capacity, at a time when its operations were improving. Corruption coupled with the evident inability of IND and the administration to meet the targets of five-year Mine Action plane by 2006, led to donor fatigue (United Nations Development Programme (2016), GICHD (2012)). At the same time, the IND was receiving reports from operators and local administrators of highly contaminated areas and uncovered by the MLIS contaminated sites. "All of these factors contributed to failing donor support for mine action -*from almost US$* 23 *million in* 2002 *to US$* 17 *million,* 7.5 *million and* 4 *million in* 2005*,* 2006 *and* 2007*, respectively*" (GICHD (2012), GICHD (2012)).

Central Provinces As a consequence of the donors' withdrawal, demining operators began to cease activities. The NPA that was the major demining operator in the Central provinces announced that it would close operations in 2005. "*NPA started discussing how to perform a phase-out of the programme and whether to leave something behind. Among the alternatives discussed was a small fire brigade-like organization with a capacity of some* 50 *deminers or a larger one including mine-detection dogs. An Exit Strategy 2003-2007 was formulated in late 2003, planning for the termination*

of operations by late 2006" (Knudsen (2006)). "*By the end of August 2005, all remaining manual deminers were dismissed as part of the phase-out*" (Knudsen (2006)) and the operator left in 2006 "*leaving a hole in the centre of the country*" (GICHD (2012)). Before its departure, the NPA conducted a Task Impact Assessments (TIA) of all the provinces it had worked on.[12]

The IND requested Handicap International (Humanity and Inclusion) to expand its operations from Inhambane to Manica and Sofala. In spite of its limited capacity, HI surveyed all three central provinces (Inhambane, Manica and Sofala) to confirm or cancel suspected hazardous areas; it also identified new SHAs (GICHD (2013), United Nations Development Programme (2016)). Over a period of two years, HI worked in roughly 750 sites, in which many mine clearance tasks were cancelled due to insufficient evidence of contamination. The majority of sites that required clearance were newly reported ones, suggesting that the up-to-that-point survey data were incomplete. The survey "*identified nine million* km^2 *of* 651 *previously unknown suspected hazardous areas plus roads*" (GICHD (2012)).

Southern Provinces Things were not better in the South, as ADP entered a severe crisis. ADP workers striked over unpaid wages. "*In the summer of 2005 UNDP ceased its Accelerated Demining Programme. This had been imagined as the only large actor to remain active upon departure of the international NGOs. The ADP staff made an attempt to create a new organization, but did not obtain funding*" (Knudsen (2006)). The UNDP terminated its capacity-building project with the IND and consequently the IND lost trained and educated staff (GICHD (2012), GICHD (2012)). As donor support dwindled, commercial operators terminated activities in the mid-2000s. For example, MgM closed their activities in 2003 and RONCO in 2006 (Government of Mozambique (2008)).

Northern Provinces In contrast to the negative developments in the Southern and the Central provinces, the second phase of demining concludes with good news from the North. HALO Trust had progressed with landmine clearance and managed to conclude its operations by 2006. As the task of freeing the Northern Provinces was in sight, HALO Trust announced plans to leave Mozambique in the end of 2006 (Halo Trust (2007a)). Before leaving, on request of the IND, the HALO Trust conducted Mine Impact Free Surveys in all Northern provinces. Teams visited communities to ask residents if they were aware of known mines, contaminated areas or threats from UXOs. "*Any suspected area identified during the process was investigated and if necessary cleared*" (Halo Trust (2007a)). The HALO Trust teams visited $6,395$ communities and interviewed $401,007$ people. 74 new suspected

[12]While it was not a comprehensive survey, it re-surveyed the MLIS-identified suspected hazardous areas in districts it had worked in. Information on the "local communities and the history of the area is collected from villagers, landowners and land users, the municipal and county authorities and other humanitarian and development actors through interviews and discussion. This helped governments, donors and operators to make more informed decisions about prioritizing mine clearance activities" (NORAD (2009)). After an increase in funding, the TIA expanded to Gaza and Maputo despite never having cleared mines there. Similar to the methodology of the MLIS, the TIA examined the situation in affected communities rather than areas with minefields (GICHD (2012)). The "NPA gave IND detailed reports on each site, classifying them as high, medium, low and negligible impact. NPA would consider the province to be "mine impact free" if all sites in high, medium and low categories were cleared" (GICHD (2012)).

hazardous areas were identified and eventually cleared (Halo Trust (2007a)). The tasks identified by the surveys "*were in addition to the 478 tasks that had been identified over the years by HALO survey teams and subsequently cleared by HALO demining teams*", the majority of which were located in Cabo Delgado (Halo Trust (2007a)). This village by village "*process achieved a state as close to every single square meter of the country to verify the fact*" (Halo Trust (2007a)). At the end of the process, all interviews had confirmed that all known areas were cleared and that there were no areas they would not use or fear mines. This was confirmed by each community leader signing the paperwork to acknowledge that no mine threats remained and all known mined areas had been cleared.

2.5 Summary

Demining accelerated during the period $1999 - 2007$. The establishment of the autonomous and decently-funded National Institute off Demining, coupled with learning from past mistakes enabled the acceleration of landmine clearance that was quiet limited in the earlier phase. The Landmine Impact Survey of 2001 was also useful, as for the first time, officials, international agencies, and demining operators obtained a decent overview of landmine contamination across the country. However, progress was slow and by the end of 2007 more than half of the suspected hazardous areas were cleared. This was due to a combination of many issues. First, IND's capacity was far from strong and weakened when the United Nations Development Program stopped assistance in 2005. Second, The MLIS had many flaws and as such the country still lacked a thorough, analytical, and in-depth description of the problem. Third, the massive floods of 2000 and 2002 removed landmines and unexploded ordnance in the much-contaminated central provinces making detection even harder. Fourth, corruption allegations in 2004 stopped the earlier momentum. Fifth, donors became frustrated with the challenges and corruption and aid fell considerably in the period $2004 - 2007$. In 2007 it was clear that in spite of the clearance of the Northern provinces, there was still a lot of work to be done for the country to achieve landmine-free status.

3 Third Phase 2008-2015

3.1 Conditions. Second Mine Action Plan (2008-2014)

The final phase of demining starts with the second Mine Action Plan $(2008 - 2014)$ and the subsequent request of the Mozambican government for an extension of the deadline to destroy the stockpiles of landmines and clear all suspected hazardous areas (Government of Mozambique (2008)). The request for extension built on the "Baseline Assessment", a survey commissioned by the IND and conducted by the HALO Trust, using all records and survey data from other operators (like HI and NPA) from the 6 central and southern provinces that remained contaminated. Additionally, the HALO Trust survey teams visited over $1,800$ sites in Inhambane, Manica, Sofala, Gaza, Maputo and Tete and confirmed

that all were still contaminated (National Institute of Demining (2009)). Figure 13 illustrates the spatial distribution of suspected hazardous areas according to the "Baseline Assessment" in 2007.

A key finding of the assessment was that, despite the progress made, contamination was still prevalent as new minefields and UXOs were discovered. The survey teams confirmed a total of 541 mined areas covering approximately $12,164,401$ m^2 across the country. A total of $1,192$ sites suspected of contamination were cancelled after non-technical surveys. Cancellation was mainly due to duplication in databases, insufficient evidence for contamination, and because the threat had been already cleared but the information had not been passed to the authorities.[13] The confirmed tasks were classified into high, medium and low priority. The vast majority of SHA was identified to be of medium priority for clearance, whereas 169 tasks were categorized as low and 84 were listed as high.

Inhambane contained approximately half of all suspected hazardous areas (252 confirmed minefields) which concurs with findings of the earlier MLIS survey (2001) and the HALO Trust survey (1994) that it was the most affected by landmines province. Figure 14 depicts the distribution of suspected hazardous areas in Inhambane. The survey identified Inhambane as having the most SHAs listed as high-impact.[14] New minefields were identified, including the Chicamba Dam, power-lines in Sofala, and new areas in the border with Zimbabwe. In addition, the survey "*also revealed that the four northern provinces still had* 146 *locations with UXO problems and some cases of suspected mined areas (Niassa* 49*, Cabo Delgado* 44*, Nampula 16, and Zambezia* 37*)*".

The second Mine Action Plan $2008-201$ was designed to provide a strategic, district-by-district clearance scheme outlining key objectives and priorities (GICHD (2012), United Nations Development Programme (2016)). Past criticisms of poor coordination (Millard and Harpviken (2000)) were addressed as"*coordination meetings and information sharing increased among stakeholders. As a result mine-action donors and partners regained confidence in the programme's leadership*" (United Nations Development Programme (2009)).

The findings of the "Baseline Assessment" were a crucial input in the mine-action planning (GICHD (2013)). The increased coordination, and the evidence that landmine contamination was still severe, helped to reignite donors' interest. "*Between* 2008 *and* 2012 *the State provided the equivalent of* $8.8 *million USD. The international community contributed about USD* $41.1 *million most of which was transferred directly to international humanitarian demining organizations*" (National Institute of Demining (2013)).[15] Following these developments, the Anti-Personnel Mine Ban Treaty Extension

[13] In line with this, going over the original reports provided to us by Halo Trust, NPA, and HI, we detected dozens of completion reports that were not stored by the electronic system of the IND. Moreover, we did detect in the IMSA datasets many duplicate observations.

[14] Previous survey findings suggesting that Gaza was of the least contaminated were also corroborated by the Baseline Assessment as only 13 confirmed tasks were recorded.

[15] The UNDP "pledged funds to directly support the demining operations of three NGOs, namely the HALO Trust in Maputo, APOPO in Gaza and Humanity & Inclusion in Inhambane" (United Nations Development Programme (2009)). The "Mozambique Government allocated a substantial amount of funding in 2009. In addition, there is a genuine boost of donor interest and support to the programme, including: Norway, Belgium, Ireland, Japan, UK, Italy, USA and UNDP. With the Government and donor contributions financial resources for 2009 mine action activities (9 million US

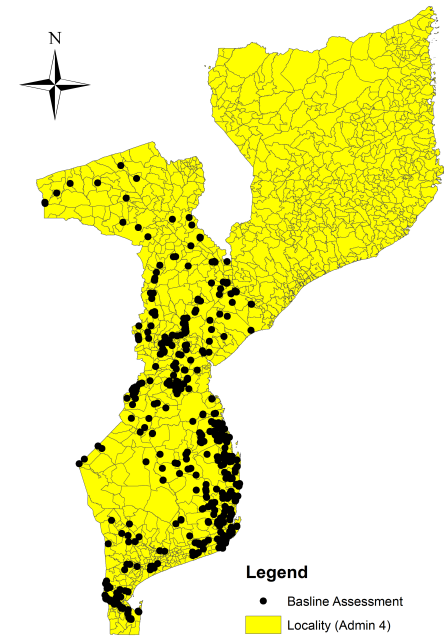


Figure 13: Baseline Assessment 2007

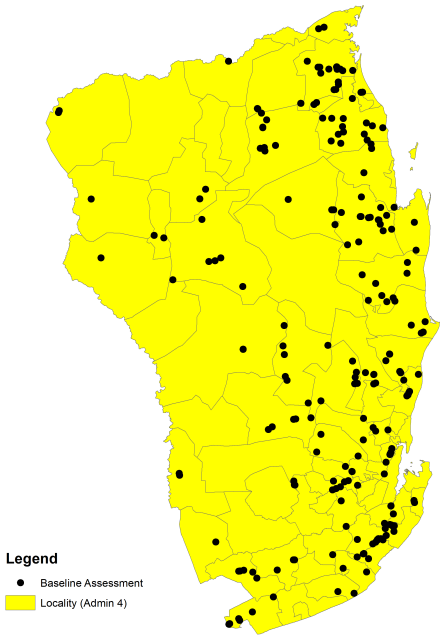


Figure 14: Baseline Assessment 2007: Inhambane Province

Request was finally approved during the 9th Meeting of the states parties in November 2008 in Geneva (National Institute of Demining (2009)). The new deadline for Mozambique to achieve mine-free status was set to 2014. The IND, with further funding and a new director in 2009, tasked the remaining operators beyond their initial regional dominance. The new plan, unlike the first MAP, which was largely ignored by operators (GICHD (2005)), was respected and time-frames were generally adhered to.

Besides clearance, the plan highlighted assurance, mine risk education (MRE), and victim assistance (GICHD (2012)). The plan's priorities were "*population resettlement, demining areas destined for agricultural activities, social infrastructure (schools, hospitals, commercial areas, areas around or within human settlements), areas of socio-economic interest, such as roads and bridges, railway lines, dams, electricity transmission lines and industrial infrastructure*" (National Institute of Demining (2013)).

3.2 Landmine Clearance

At the beginning of the final phase of demining, clearance activities accelerated as a result of the expanding databases of landmine contamination.

Demining Operators Belgium funded, rat-based operator, APOPO, was accredited as a demining operator and subsequently tasked with the clearance in Gaza and Inhambane in 2007/2008. APOPO, from 2008 to 2012 cleared a total of $4,970,832$ m^2 destroying $2,425$ landmines (APOPO (2012)).

The HALO Trust cleared additional suspected mined areas that were reported to the IND by the local governments, in which 43 SHAs were cleared with 34 UXOs in the North, and continued demining in Maputo, Tete and Manica working along Help Age International (WYG International (2013)). The IND requested HI to clear half of the SHAs, approximately 6 million m^2, in Sofala, Manica, and Inhambane, by December 2014 (Handicap International (2014)).The NPA, after departing from Mozambique in 2006, returned in 2011 to complete works in Tete and Manica in 2013 (National Institute of Demining (2013)). Between 2008 and 2012, the Government of Mozambique classified 96 districts out of 128 districts in Mozambique as mine free.

Progress By 2010, 50 of Mozambique's 128 districts were freed from mines, with the prospect of a further 42 in 2011 (GICHD (2012)). In 2012, Gaza was declared mine free by APOPO, a huge breakthrough in mine action in the Centre-South. Despite these tremendous efforts by operators and the IND, the remaining 5 provinces (Inhambane, Manica, Maputo, Sofala and Tete) were not at a similar stage as these provinces were not able to *"reach the original deadline established by the mine-ban treaty; therefore, a further extension request was approved with a new deadline set for 2014"* (National

Dollars) have been secured" (National Institute of Demining (2009)).

Institute of Demining (2009)). As of 2012, 32 districts were still considered as mine affected (National Institute of Demining (2013)) with 82% of the mine-contaminated areas located in the provinces of Sofala and Inhambane (Handicap International (2014)).[16]

During January and February of 2014, APOPO and the HALO Trust concentrated on clearance in the Maputo province. Demining in the province was completed in March 2014. The HALO Trust, the NPA and APOPO proceeded to conduct demining in Sofala and Manica. Mozambique's demining activities, however, outside Maputo briefly stalled in 2014. In addition to the heavy rains in central provinces, Sofala and Manica suffered military insecurity due to the re-emergence of conflict between RENAMO and the government.

In Manica, the operators faced operational difficulties. The Zimbabwean border remained considerably mined and clearing mines on this border were expected to cost much more than planned due to the dense mine patterns. A joint survey "*led by the National Institute for Demining in July to August* 2013 *with the involvement of the Mozambican Border Authority and the four international demining NGO operators, concluded that eight of the original thirteen border minefields were in fact located inside Zimbabwe*" (Norwegian People's Aid (2014)). The NPA completed demining of the Messambuzi border minefield in Sussendenga, bringing the total number of border minefields remaining on Mozambican territory to five: Kahira Luia, Mucodo, Mudododo, Nhamacuarara, and Nsoluwamunthu. In Tete, the HALO Trust expected to finish the Cahora Bassa Dam demining by June 2014 and border minefields in the fourth quarter of 2014. At the end of the year, the province was declared landmine free. HI, working in Inhambane, expected to complete the province by September 2014 (Government of Mozambique (2015)). Manica was declared free of all known landmines by late 2014, followed by Inhambane.

In 12 September 2015 Mozambique declared itself free of known mined areas with the last mines exploded around the Dondo Bridge in Sofala.

[16]Between 2013 and 2014, it was estimated that "*USD* 17.5 *million [would] be required to fund the demining capacity required to clear all areas by the March* 2014 *deadline*" (National Institute of Demining (2013)). It was "*expected that USD* 2.6 *million [would] be provided by the Government through the state budget and USD 15 million [would] come from contributions by cooperation partners*" (National Institute of Demining (2013)). As of May 2014, however, "*it appeared uncertain whether it would meet the deadline*" (Norwegian People's Aid (2014)).

4 Timeline of Mine Action in Mozambique

The following section presents a detailed chronology of the main events and developments during the Mine Action Program in Mozambique. The information is based on the United Nations Development Programme (2016) report ("Evaluation of the UNDP contribution to Mine Action").

4.1 First Phase (1992-1999)

- 1992: Peace agreement is signed between FRELIMO and RENAMO; responsibility for demining is assigned to the UN peacekeeping mission (UNOMOZ)
- 1992: UNOHAC estimates there are 2 million landmines in Mozambique
- 1992: HI begins nationwide mine risk education programme
- 1992-1994: UNOMOZ trains and manages clearance by Mozambican deminers
- 1993: UNOHAC establishes a mine clearance training centre in Moamba for former soldiers; it eventually results in ADP
- 1993: Mine clearance begins
- 1993: NPA establishes a demining programme in Tete province and soon expands to two other central provinces, Manica and Sofala
- Late 1993: UNOHAC contracts with HALO Trust for an emergency nationwide survey. Although coverage is incomplete, it finds 981 mined areas and assigns high priority to road clearance for peacekeeper access, refugee return and distribution of humanitarian assistance by road rather than air drop
- 1994: Absence of effective donor coordination and need to start operations leads to demining assignment of HALO Trust in the north, NPA in the centre and ADP in the south
- 1994: Mechem begins road clearance, financed by UNOMOZ
- 1994: HALO Trust establishes demining programme in Zambezia province in support of United Kingdom NGOs. It soon expands to three northern provinces: Niassa, Nampula and Cabo Delgado
- July 1994: UNDP initiates Accelerated Demining Programme (ADP) Phase 1 MOZ/93/801 to employ demobilized soldiers trained as deminers by UNOHAC, modelled on Cambodia's experience; initiative operates in southern provinces of Maputo, Gaza and Inhambane
- 1994: HI and International Committee of the Red Cross establish and run modern orthopedic centres in all provinces

- Oct 1994: Elections are considered the end of the peace process and of UNOMOZ
- 1994 onward: HALO Trust, NPA and ADP manage independent demining programmes in the north, centre and south of country, respectively
- 1995: At consultative group meeting in Paris, the Government of Mozambique documents its economic and social development goals and key policies highlighting demining as an essential priority for development
- 1995: The National Demining Commission is created, beginning operations in 1996. Staff are first paid in 1997. CND is unable to establish oversight role and is understaffed (fewer than 10 staff); donors are dissatisfied. CND is eventually replaced by IND (1999)
- 1996-1999: UNDP supports CND with 3 to 5 technical advisers and 1 USD million; staff is weak, counterparts are lacking; 85% of funds go to expatriate salaries; little indigenous capacity building takes place
- 1996 onward: UNDP does most of the legwork to convene donors periodically in Mine Action Support Group, to share information, mobilize resources and develop a unified message in policy dialogue with the Government
- 1996: UNDP/DHA/ADP database records $1,721$ mined areas divided into six categories depending on severity
- 1997-2000: Consolidation of the Accelerated Demining Programme
- 1997: DHA study on development of indigenous mine action capacity case study on Mozambique cites problems due to diverse mandates of multiple UN agencies: peacekeeping, relief, development etc.
- 1997: Anti-Personnel Mine Ban Convention (APMBC) opens for signature; Mozambique is among first countries to sign
- 1998: Mozambique ratifies APMBC
- 1998: HI starts small area demining in Inhambane
- Sep 1998: Study: with Specific Reference to Mozambique to identify mined areas)
- 1999: Canadian International Development Agency commissions, a firm without mine action experience, to prepare Mozambique Landmine Impact Survey; completed in 2001
- Feb 1999-July 2000: Preparation project for IND capacity building begins
- 1999: APMBC enters into force, including for Mozambique

- 1999: Mozambique hosts first meeting of States Parties to the APMBC
- 1999: Interministerial Committee for Mine Victim Support is established
- June 1999: Government replaces CND with IND under Ministry of Foreign Affairs, with more autonomy

4.2 Second Phase (2000-2007)

- 2000: Decree 39/2000 approves IND establishment with 120 employees. Most are never recruited as Government provides no funds and donors disapprove. As of 2001 staff is around 13
- 2000-2005: UNDP mobilizes resources for IND and ADP
- 2000: German NGO MgM starts demining in Mozambique
- March 2000: Preparatory assistance for project funded by Denmark, (MOZ/00/001) to run 2000 to 2003, extended to December 2006"
- Oct 2000 Dec 2001: UNDP Flood Related Mine Action project MOZ/00/004 delayed due to flooding in early 2000. By the time project starts the main flood relief effort is over; TA works on capacity development of IND
- 2000-2001: LIS is conducted but not integrated with IND; provides first national report on extent of landmine problem and socioeconomic impact
- 2000: MSMA is installed during LIS; first capacity building CTA"
- 2000-2005: Second UNDP ADP project provides funding for ADP 2000-2002 support for capacity building to IND (nationally executed)
- 2001-2004: Transformation of ADP into an NGO project (MOZ/00/012) (11.3 USD million) with objective to support national capacity development by producing a fully operational NGO. Minimal progress is made regarding the NGO and UNDP continues to provide demining funds. No real transition effort is in effect
- 2001: IND regional delegation established in Nampula (followed by Beira)
- 2001-2006: UNDP provides IND with four TAs, a CTA and advisers for finance and administration, operations and information
- 2001: MLIS report is issued, identifying 791 mine-affected communities in all 10 provinces and 123 of 128 districts; 80% are low impact; 1,374 suspected mined areas total 562 sq km
- 2001: HI hands over entire role in mine risk education to IND (supported by UNICEF)

- 2001: First National Mine Action Strategy is approved by Council of Ministers
- 2001: First Plan of Actions for the Reduction of Absolute Poverty (PARPA) (2001-2005) does not include mine action
- 2002: IND produces first National Mine Action Plan 2002-2006 using LIS data although operators mainly ignore it
- 2002-2003: First set of Mozambican national mine action standards is written by expatriate technical advisers in English (translated in 2004)
- 2002: Capacity building ProDoc is revised to include creation of socioeconomic research and evaluation unit, QA unit under operations, expansion of mine risk education, capacity building of Nampula and Beira delegations, new management for Adopt-a-Minefield"
- 2002: Consultancy concludes that NGO option for ADP is not viable. Donors agree at November meeting and decide to continue same", i.e. UNDP, IND and ADP will develop proposal for a nationally executed project under Ministry of Foreign Affairs" 2003: DP continues with two TAs and 2.1 USD million for operations"
- 2003: After using LIS as basis for its 2002-2006 plan, IND starts receiving operator reports of excessive numbers of contaminated areas and many unrecorded sites. IND has no real picture of contamination and thus how long clearance will take"
- 2003: Final destruction of remaining landmine stockpile on time for APMBC
- 2003: Most bilateral donors announce intent to end funding for mine action
- 2003: New director of IND is appointed: Gamiliel Munguambe
- 2003: MGM closes operations and leaves Mozambique
- 2003: Evaluation of global landmine survey process. Mozambique country study (by Scanteam) is critical of MLIS
- 2004: IND QA teams are deployed to each regional office; they have insufficient equipment and resources; Austria and Switzerland each support one region (Sofala and Cabo Delgado, respectively)
- 2004: Corruption accusations are made over use of donor funds to purchase expensive car for IND national director
- July 2004: ProDoc 0039146 Transformation of the Accelerated Demining Programme (ADP) July 2004-June 2005 (3 USD million); establishing ADP as a non-profit-making demining operator, setting up the Governing Board, staff and strategy for ADP

- 2004: APOPO starts clearance testing with rats
- 2004: Mozambique hosts first review conference of APMBC
- 2004: Review: Support to Humanitarian Mine Action in Mozambique COWI for Danida
- 2004: HALO Trust announces it will conclude work in four northern provinces and close programme by end 2006
- 2004-2007: HALO trust conducts mine- impact-free district survey in the four northern provinces to document completion; process is largely ignored by IND; NPA and HI each conduct surveys of their areas of operations; all three result in update and reduction of areas estimated by LIS
- 2004: NPA announces it will close operations in Mozambique based on Norwegian Embassy recommendation, based on 2002-2006 IND strategy with all high- and medium-impact sites cleared by 2006
- 2004: HI announces it will close demining at end of 2006, with conclusion of all small area tasks in Inhambane
- 2005: IND annual plan refers to 2002-2006 plan and what provincial governments were reporting; henceforth priorities to start from districts and provinces
- Apr 2005: ADP employees strike over unpaid wages; director resigns; Government shuts down ADP operations.

  USD million. Whereabouts of ADP database and clearance reports is unclear
- 2005: GICHD review of 10 years of assistance to mine action in Mozambique (based on fieldwork mid-January to mid- February 2005)
- 2005: UNDP capacity building programme ends; IND loses its best educated and trained local staff on UNDP project payroll; others not paid for months while awaiting admission to civil service
- 2005-2007: Donor funding plummets amid accountability and management concerns; donor support falls from 15 USD million in 2005 to 2.5 USD million in 2007
- June 2005: UNDP hires local consultant to help IND outreach to government departments and represent mine action in preparation for second PARPA
- 2006: Second PARPA (2006-2009) includes mine action as one of eight cross-cutting issues
- Jan 2006: Price Waterhouse produces of a Business Plan for the Accelerated Demining Project UNDP, but it is never heard of again

- 2006: NPA closes programme and leaves country after conducting task impact assessment of all centre-south provinces (Tete, Manica, Sofala, Inhambane; plus Gaza and Maputo, where it never worked)
- 2006: APOPO is accredited as demining operator
- 2006-2007: HI conducts comprehensive village-by-village surveys of Manica, Sofala and Inhambane provinces
- Feb 2007: Mozambique is one of three African countries to participate in launch of Oslo process, which produces Convention on Cluster Munitions
- June 2007: HALO Trust concludes a mine- impact-free assessment of the four centre-north provinces where it had been operating and declares no known mined areas remain
- 2007: Norway funds a seminar involving operators, GICHD, UNDP and IND to discuss National Mine Action Plan, challenges and strategy

4.3 Third Phase (2008-2015)

- 2007-2008: On behalf of IND, HALO Trust undertakes baseline assessment of remaining six provinces using records, LIS, pre- and post-LIS reports in IMSMA, and surveys by HI and NPA in their areas
- 2008-2015: The only remaining long-term advisers are individual CTAs funded by UNDP
- 2008: Evaluation of Canadian Land- mines Fund Phase II (mainly HI)
- 2008: For the first time the financial table in IND annual report contains government contribution (1.5 USD million)
- 2008: Socioeconomic impact assessment (UNDP-funded consultancy) is undertaken to determine performance against PARPA indicators. It is superficial but finds positive linkages
- 2008: Most ambassadors decline to attend annual IND director briefing
- 2008: Article 5 extension request is prepared, involving operators and other stakeholders under leadership of IND, using baseline assessment
- 2008-2012: National Mine Action Plan, based on baseline assessment, adopts district-by-district approach to prioritize remaining demining, approved by Council of Ministers
- 2008: Donor funding begins to recover, based on credibility of mine action strategy and Article 5 extension request, with UNDP support (full recovery by 2011)

- 2008-2011: Weapons Risk Mitigation and Mainstreaming Mine Action, Small Arms and Light Weapons Controls project
- 2008: IND strengthens QA operations
- 2008: IND performs district-by- district verification of provinces demined by HALO Trust in four northern sites; identifies 43 suspected mined areas and 34 unexploded ordnance sites."
- 2008: Government requests Ottawa Treaty extension to 2014"
- 2008: Article 5 extension request is approved by States Parties
- Dec 2008: Government signs Convention on Cluster Munitions
- 2009: National Mine Action Strategy 2009-2014 is adopted, aimed at mine-free Mozambique by 2014 (amended following Article 5 extension approval)
- 2009: New IND director appointed: Julio Braga
- 2009: IND/SAC workshop held on land release; IND develops land release standards (not accepted by operators)
- 2009: APOPO begins demining work in cooperation with HI in Inhambane 2010 onward UNDP mobilizes resources for IND and operations within national programme, channelling funds to all operators according to IND priority
- 2010: In Five Year Plan 2010-2014 mine action is one of seven cross- cutting issues with nine priority actions, reflecting baseline assessment
- 2010: Classification of provinces as mine-free effort begins and progresses
- 2011: District police trained and equipped to respond to EOD tasks in four northern provinces
- 2011: PARP 2011-2014 challenges include eliminating landmines to free land
- 2012: Government ratifies Convention on the Rights of Persons with Disabilities
- 2012: National Disability Plan 2012-2019 is approved
- 2012: NPA returns to Mozambique demining operations
- 2012: Ravim and HI undertake survey of 300 mine/ERW survivors
- 2013: Government makes second request for extension of Article 5 deadline, to December 2014
- 2014: Mozambique hosts third review conference of APMBC

- June 2014: Government announces development of national victim assistance plan at third review conference
- 2014-2015: Police in Gaza and Maputo provinces are trained and equipped in EOD
- 2014-2015: IND plans transition of core EOD and database functions to long-term institutional basis in context of post-demining residual problems"
- 2015: Government Five-Year Plan 2015-2019 identifies landmines as one of several perennial issues for attention"
- 2015: Mozambique declares itself free of known mined areas (17 September)"

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