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Humanitarian Mine Clearance

# Operations Angola 2001



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End of year status report for  
Bengo and Cunene Projects  
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## Introduction

The Year 2001 saw MgM suffer a severe shortage of funds for Demining Operations, curtailing many proposed projects. Through this though, with the available funds MgM managed to meet commitments to help support other humanitarian operations in aid of Internally Displaced People (IDPs) in Angola.

MgM's main area of operation was around the port town of Ambriz, 100 kms north of Luanda. Unfortunately, as MgM were almost in a position to declare Ambriz free of the threat of mines, UNITA forces attacked the town on 5th of June. The ensuing insecurity, as well as the wish of the FAA that MgM stops operations, meant that the team had to be withdrawn from Bengo Province.

Further attacks on the Provincial Capital of Bengo Province prevented MgM from immediately deploying the northern demining team to a new location in the province where they would be able to support other humanitarian operations. Emphasis was then turned to MgM's Southern Operations in Cunene. MgM has been supporting humanitarian organisations and agencies as well as provincial government initiatives in Cunene. This has been carried out by opening infrastructure to allow for the rehabilitation of community centres. To help the drain of valuable funds, the Cunene Provincial Government provided MgM with fuel requirements for operational purposes.

September saw an increase in UNITA activity in the north of Bengo Province, this prompted up to 25,000 people to leave their homes in Nambuanguo District and relocate to the old Boa Esperança Camp outside Caxito. The pylon line that passes through this camp was reputedly mined, and IDPs were seen to be in danger as houses were being constructed in proximity to the pylon bases. MgM have now cleared area around eighteen bases to make the area safe for construction of temporary accommodation for the IDPs.

In agreement with UNHCR, MgM has now taken over their vehicle maintenance facility in Viana on the outskirts of Luanda. In a tripartite agreement between MgM, UNHCR and MINARS (GoA Ministry for Aid and Social Reconstruction), MgM are now able to provide a service to other non-profit organisations in Luanda. This includes all NGO's, UN Agencies and Embassies. The agreement allows for any surplus funds generated from providing this service to be ploughed back in support for MgM's Demining Operations in Angola.

MgM's fleet of light vehicles is now aging and prone to mechanical breakdown mainly caused Angola's poor road network. This was putting a strain on MgM's ability to support its Demining Operations in the field. This problem has now been alleviated by the transfer of ex-UNAVEM vehicles, held by UNDP at the ETAM demining School, to MgM. These vehicles, six Nissan Patrols, one Nissan Double Cab and two Landrover 130 Ambulances, were transferred to the new MgM maintenance facility in Viana where they will undergo a complete overhaul in preparation to support MgM demining Operations in Year 2002.

In an effort to cut costs in base operations in Luanda, the main administration office has now moved to the workshop facility in Viana. This office will continue to correspond with all other Organisations, Agencies and Embassies in Luanda, as well as coordinate with all Commissions and Government Offices. The office and accommodation complex on the Ilha do Cabo has now been handed back to the owner. Control of all MgM Operations in Angola has now been transferred to the Operations Base South in Ondjiva, Cunene Province. For the future a new Operations Base North will be set up in Malanje during 2002.

## Operations

Funding shortages prevented MgM from becoming fully operational until February 2001. Some EOD activities were carried out in January and February, from the Ondjiva Operations Base in Cunene Province in support of returning IDPs to make their home areas safe. This was achieved with a small amount of private funding and donations of diesel from the Provincial Government, those these were in extremely short supply due to lack of deliveries from the main fuel depots in Namibe.

Retraining of all demining team members commenced on the 4th of February in the Ambriz Demining Base, in Bengo Province. The mechanics prepared all the demining support vehicles, while the MgM Paramedics carried out training for the local nurses to improve their abilities to serve the local population.

Full scale demining re-commenced on the 11th of February, on a minefield complex outside Ambriz, around the lake Yanga dia Vata. This is one of two minefield complexes that need to be cleared to make the area around Ambriz safe for all inhabitants, and for its future expansion. The second complex is a barrier minefield that was constructed to directly protect the town. Most of the minefield complex at Yanga dia Vata was cleared during year 2000, and the rest of the minefields in this complex, plus the protective barrier minefield were expected to be cleared during 2001.

By the end of May just about all the minefields, making up the complex at Yanga dia Vata, had been cleared. Only one major mined area remain, that between two hills. Unfortunately due to floodwaters from the Rio Loge, still swollen from the seasonal rains, this minefield was inaccessible. There are two other roads known to be mined, but they are not a direct threat to the local population, they are not required for use and by-passes have been put in place to avoid these routes.

The demining teams finished off working on the other minefields, were in the process of being re-deployed to start work on clearing the barrier minefield at the access to Ambriz, when the town was attacked by UNITA (FALA) forces. Unfortunately this has destabilised all the developmental work that was being achieved in the area, and unfortunately resulted in the removal of the MgM demining team from the town. This was mainly at the behest of the military authorities in the area who wished to retain the barrier minefield for the protection of Ambriz. It should be noted that the Civil Authorities of Ambriz requested that MgM return to the area to continue demining towards the end of the year. This could not be reacted to since all resources were operational on other emergency tasks. If possible this will be reconsidered during 2002.

Continued instability in Bengo Province, which culminated in a major military assault on the Provincial Capital of Caxito, prevented MgM from restarting demining operations. With agreement from Donors a switch in emphasis was made to enable MgM to support IDP resettlement programmes in Cunene Province in the South of Angola. This necessitated the transfer of the bulk of MgM's armoured demining and other support vehicles to the Operations Base South at Ondjiva. Men, dogs and some light equipment were moved by WFP flights. The rest of the equipment and vehicles were sent by sea from Luanda to Namibe Port, and then driven via Lubango to Ondjiva. This way the convoy avoided any 'hot spots' on the road between Luanda and Lubango.

During this period of flux MgM carried out assessment missions and surveys in Angola for possible future clearance missions. These included the clearance of an ammunition dump in Bairro Madeira

to the southern end of the International Airport in Luanda, the Benguela Railway from Huambo, and infrastructure support for WFP, MINARS and the Provincial Government in Cunene.

The most drastic to look at was the ordnance stockpile at the end of the runway in Luanda. This used to be a very large depot until an accident in 1992 that resulted in one area of the depot being destroyed and ordnance being sprayed over a large area. Much of the ordnance, mostly aircraft deployed, that could be re-used was moved to a safer location the rest left out of sight. Luanda is continually undergoing expansion, due to the influx of displaced persons from the countryside, with one new Bairro being opened in on the site of this old ordnance dump. This was brought to the attention of MgM by INAROOE after accidents occurred there. Funds are still being sought to allow MgM to train and mobilise a specialist EOD Team to clear the Bairro before any more accidents occur.

The mission to Huambo was at the request of the Provincial Governor, and is related to opening up initially around 100 kms of track. The first 40 kms is to the town of Ca'ala, this would allow food and other supplies to be moved to the IDP Camps around the town by rail, and then 60 kms of track from a branch line to the south of Ca'ala. This would have the benefit of supporting the IDP communities outside Huambo without having to put more pressure on the crumbling road network, and allow railway engineers to remove the unwanted track on the branch line, that will be restored for use on broken portions of the mainline. Eventually with the mainline open to Lobito building materials can be easily transported to Huambo, and Kuito, to facilitate reconstruction.

Cunene, due to stability over most of the province, has few IDPs. What is lacking is access to communities to allow for food security, access to markets, and support from the Provincial Government to allow for schools and clinics to be restored. Missions were carried out with WFP to Cuvelai using MgM's mine proofed vehicles for added safety. This highlighted the isolated nature of rural communities when roads are not travelled due to the threat of landmines.

The accident to Governor Mutinde of Cunene when he drove over an anti-tank mine in June was a reminder to all, including the Government of Angola, that landmines are a danger to all the population of Angola. Fortunately he, and his passengers, survived the accident though the Governor suffered terrible injuries to his face and lost one foot. Ironically Governor Mutinde is the most vocal advocate of Angolan support to mine clearance of all the Provincial Governments, to the point of supporting MgM where and when provincial resources allow. This brought a renewed emphasis to mine clearance in Cunene, and also brought about adroit cooperation between the two demining organisations in Ondjiva, MgM and MAG (Mines Advisory Group).

MgM, along with MAG, restarted operations on the 16th of July at the site of the Governors accident at Humbe, across the River Cunene from Xangongo. Although Cap Anamur, a demining and medical support group who operated in Cunene from 1992 to 1994, kept no clearance records in those early days of demining, it was always considered that the area of the accident was clear of mines. Records were not kept due to renewed conflict in the area, which could be misconstrued as spying. Further investigation by MgM's Survey Team revealed that the Angolan Army (FAA) Engineers had a record of 173 anti-tanks mines been laid across a field in 1982, with the start point around where the Governor had his accident. This belt has been moved in 1983, but FAA obviously forgot some. Clearance of the area has revealed one more TM-57 plus one splash mark where another anti-tank mine has been detonated, probably by a cow, though no other mines have been located. There is no prior bad clearance to blame, as earlier operators were told that the area was free from mines. But it was also revealed that the information given to the earlier operators was incomplete or wrong on purpose which means that many areas cleared in the early days by

other groups will have to be re-cleared, since it has been admitted that possibly the clearance wasn't carried out as methodically as is expected now.

The problems in the North of Bengo Province continued through the middle part of the year, with attacks on the Nambuanguo area. This is an area that MgM spent over two years clearing of mines to allow IDPs to return safely, this was achieved by Christmas 1998. By this time the majority of the district population had spent the better part of seven years in an IDP camp outside Caxito, at Boa Esperança. Since 1999 the camp has been closed, with a few people remaining to keep it open as an unofficial village for the transit of foodstuff from their home areas to markets in Luanda. Attacks in Nambuanguo by alleged FALA forces again displaced some of the population. Although as much as half the population remained in Nambuanguo, around 25.000 were displaced, walking the 100 kilometres to their old IDP camp. NPA Level One Mine Survey of Bengo showed that there had been reports of mines placed around the base of all pylons, running from the hydro-electric dam at Mabubas (north-east of Caxito) to the border with Luanda. This pylon line runs right through the Boa Esperança camp, and the displaced population was seen to be encamped in direct proximity to a number of these pylons.

MgM dispatched an assessment team to carry out a Level Two survey of a number of these pylons, to prove the veracity of the reports. The first two pylons checked revealed 20 anti-personnel mines. Since people were now living within 10 metres of the pylons, with children playing in the area, and also people collecting grass for construction of temporary dwellings. MgM gained permission from the Provincial Government and INAROOE to be allowed to deploy a small team to remove all mines from around the bases of all pylons that created a direct threat to the IDPs. By the end of the year MgM had cleared around 18 pylons, removing 83 anti-personnel mines. Even Angola's President Dos Santos came to see the MgM team to get a briefing on the danger and its solution.

Since the remaining pylons do not constitute an immediate humanitarian threat, the clearance project has now been suspended for the present. Also, since the Provincial and National Governments have provided funds for the rehabilitation of the hydro-electric power plant and pylon line, they can also provide funds for the clearance of the rest of the pylon bases.

Between Boa Esperança and Caxito is another IDP Camp, Cambambe II. These people were displaced in 1999 from the Piri - Quibaxi, Bula Atumba and Pango Aluquem areas of north-east Bengo and the north of Kwanza Norte. Towards the end of the year a local landlord allocated farmland to some families. As the people were clearing the land, in preparation for the end of year rains, they located a number of mines. These were reported to the local authorities, who in turn informed MgM field personnel. An EOD Team was dispatched to the area, locating and removing five OZM 72 bounding fragmentation anti-personnel mines. These were found to be part of a line of mines that had been protecting a field prison, possibly used by the ANC. The areas were marked off for future clearance, when funds are available in year 2002. There still remains enough land for the families farming there to become self-sufficient.

The last task of the year carried out by MgM was the final confirmation clearance of all areas around Ondjiva Airport. This was to allow for up-grading the airfield to allow for transport aircraft to deliver aid shipments. As with other provincial airfields, like those at Kuito, Luena and Huambo, the blacktop of the Ondjiva airport is crumbling. In a concerted effort by the Provincial Government to be able to support the rural population of Cunene, this airport is needed so the small aircraft belonging to the Provincial Government can distribute aid, delivered by larger aircraft, to isolated communities.

NPA and MAG have cleared areas around this airport before, though no definitive work has been completed to make sure all areas have been cleared. MgM deployed its Voodoo system comprising of two mine proofed Wolf command and control vehicles, two armoured F12 Graders, two explosive vapour detection dog teams and a section of deminers. Over 1 million square metres was checked, UXO was removed and the area proved clear of landmines and other ordnance, leaving the area safe for reconstruction teams to start work on reparation.

## Operational Task Sites

### Ambriz - Operations Base North

Work continued on the minefield complex at Yanga dia Vata, close to the costal town of Ambriz. At the end of 2001 three minefields were still been worked on, with a further 5 minefields that had to be cleared to leave the area free for farmers waiting to cultivate the area.

Access was gained to this site during 2000 using MgM's MaM system, utilising a 12F Grader and a hand clearance demining team. This was used to clear and open the old road system through the former FAPLA camp that the minefield was laid to defend. This also gave access to all the minefield start points, allowing MgM safety vehicles access to the site, keeping the medical support teams as close as possible. This one of the advantages MgM has in utilising such equipment, deminers do not have to walk long distances through the bush to access the start of a minefield for clearance. Also in the event of an accident occur, the safety vehicle or ambulance can be on station in close proximity to all work sites. Unfortunately the grader had a major breakdown in March with one piston breaking up in its cylinder. This took until May for the spare parts to arrive to allow the mechanics to repair the engine. Consequently, a number of routes that MgM was hoping to demine during the year remain closed to the threat of mines.

The minefield designated BG0134 in the INAROOE Database was found to be 11 separate minefields, so each one has been suffixed with a letter from a to k. By the end of 2000, minefields BG0134 a, b, d and f had been cleared, and clearance on BG0134c and e had been suspended. Clearance restarted on BG0134c and e along with starting a new site at g on the 11th of February. Shortly after clearance commenced BG0134c was completed and BG0134g had to be suspended because of the start of the rainy season. The minefield BG0134g was a road that ran out of the old FAPLA camp across the flood plains towards Ambriz. With the rains it became impossible for the demining team to safely work there. This task was re-started on the 15th of May when the area had dried out. No mines were located though two human skulls and other remains were found, as well as mine trip wires. It seems to be normal at military bases in the bush to put fragmentation or bounding fragmentation mines to the side of an entrance. Trip wires to the fuzes are put out at night to prevent infiltration, gathering them in at first light. It is assumed that these two individuals were unlucky enough to have tripped this mine. Their remains were handed over to the Father at the local Catholic Church for a religious burial.

By 30th May all individual minefields in BG0134 had been cleared and teams then prepared to be deployed to other mined areas during June. Unfortunately FALA forces attacked the town of Ambriz at the beginning of June. Due to continued tension in the area MgM withdrew all demining teams and equipment. Initially MgM's two boats were deployed to Ambriz harbour to help with the evacuation by sea should routes by land be impassible.

All teams returned to base location in Luanda while a security evaluation on the situation in Bengo could be carried out. By mid June, with the situation fast deteriorating in Bengo it was decided to

move the bulk of the demining capacity to Cunene, leaving a reduced capacity to deal with EOD situations and small scale emergency clearance projects.

#### Clearance Results - Ambriz

##### BG0134c

Task Restarted:	11/02/01		
Task Completed:	23/02/01		
Area Cleared:	454m2	Total 2000/1:	8835m2
Mines Cleared:	MAI 75 x 50	Total 2000/1:	82
	OZM 72 x 0		7
	TM 57 x 2		7
Improvised mines:	F1 a/p grenade x 0		3
	RGD 5 a/t grenade x 0		8

##### BG0134e

Task Restarted:	11/02/01		
Task Completed:	05/05/01		
Area Cleared:	1653m2	Total 2000/1:	2376m2
Mines Cleared:	OZM 72 x 1	Total 2000/1:	5
	POM Z-2 x 6		7

##### BG0134g

Task Started:	11/02/01
Task Suspended:	13/02/01
Task Restarted:	15/05/01
Task Completed:	30/05/01
Area Cleared:	916m2
Mine Cleared:	Nil

##### BG0134h

Task Started:	19/02/01
Task Completed:	07/05/01

Area Cleared: 973m2

Mines Cleared: OZM-72 x 1

BG0134i

Task Started: 26/02/01

Task Completed: 12/05/01

Area Cleared: 986m2

Mines Cleared: Improvised F1 x 8

UXO Cleared: SPG 18 x 1

BG0134j

Task Started: 07/05/01

Task Completed: 30/05/01

Area Cleared: 806m2

Mines Cleared: POM Z-2 x 1  
OZM 72 x 1

BG0134k

Task Started: 08/05/01

Task Completed: 30/05/01

Area Cleared: 668m2

Mines Cleared: POM Z-2 x 3

Statistics for total clearance of BG0134

Task Started: 24/04/00

Task Completed: 30/05/01

Area Cleared (Hand): 28,942m2

A/P Mines Cleared: MAI 75 x 625  
Gyata 64 x 38  
POM Z-2 x 38  
OZM 72 x 36

Improvised Mines: F1 x 11  
RDG 5 X 8

A/T Mines Cleared: TM57 x 5

#### Mechanically assisted Manual (MaM) Clearance Statistics

Road Clearance Started: 11/02/01

Road Clearance Finished: 08/05/01

Road Cleared: 10.1 kms

Area Cleared: 80,800 m2

#### Boa Esperança and Cambambe II Camp, Caxito - Emergency Response

During the first week of September 2001, FALA troops attacked towns in the Nambuanguo area of NorthEast Bengo, Angola. UNITA then took control of the administrative centres of Quicunzo and Muxaluando, resulting in the majority of the population fleeing these areas. The peoples of Nambuanguo previously fled the area when FALA was forced out of Caxito in 1993 moving into Nambuanguo and the neighbouring Dembos areas. By Christmas 1998, MgM had cleared and reopened the entire infrastructure in Nambuanguo to allow all IDPs to return home safely. After this relocation the people of Nambuanguo vowed never to be moved from their homes again. Unfortunately the total of IDPs now registered with German Agro Action in the reformed Boa Esperança camp is now 35,000. The Civil War in Angola, which restarted at the end of 1998, caused the dislocation of the population of the Dembos area, now over 25,000 IDPs from this area reside in the neighbouring camp of Cambambe II.

From the NPA Level One Survey of Bengo Province carried out during 1996, MgM was aware that anti-personnel landmines were likely to have been laid around pylons of the electricity line that runs from the hydroelectric dam at Mabubas (close to Caxito) to Luanda. These had never created a problem before since most pylons are away from habitation or areas of cultivation. However without a formal camp prepared for the population dislocated from Nambuanguo, these peoples proceeded to set themselves up on the hills and in the valleys surrounding what is left of the old Boa Esperança camp. This now means that family groups have built camps around the mine-infested pylons. MgM mounted a mission on the 24th of September to carry out a Level Two Survey of two of the pylons to ascertain whether a Level Three clearance operation should be carried out on all pylons affecting the safety of the IDPs.

With twenty anti-personnel mines cleared from around two pylons in the middle of the of the IDP camps a full scale clearance operation was instigated, with funds generated by OCHA Luanda, to clear the rest of the pylons. These pylons run through or close to both Boa Esperança and Cambambe II IDP camps. This was carried out from the new MgM Operations Base North situated in Caxito. The nine man demining team operating as EOD cover from Caxito cleared eighteen pylons by the 3rd of December.

Numbers of mines cleared: MAI 75 x 12  
Gyata 64 x 14  
PP Mi Sr x 56  
F1 Grenade (Imp. Frag. Mine) x 1

Total area cleared: 1568m2

Total numbers of UXO's cleared from around the pylons are:

PG-7 x 12  
Mortar 120 mm x 1  
Mortar 60 mm x 4  
SPG-18 x 2

This task will continue until all the pylons in the proximity to the two IDP camps, and other areas where they pose a daily threat to the local population, are cleared. A Level 2 Technical Survey has also been carried out on an area to the north of the old sugar factory close to Caxito. A portion of land has been allocated by the village headman (Soba) to some of the IDP families from the Cambambe II camp. When clearing started a woman found an OZM 4 bounding fragmentation mine, this was reported to MgM by a representative of Handicap International (Belgium) who carry out a mines awareness programme in the area. A row of OZM 4's have been located, with five now cleared to allow people access to the land. The row has been marked off, the people warned away, and clearance of the rest of the row will during 2002, when funds for this project become available. The area the mines protected has been described as either an old ANC Camp or a prison, or maybe both.

Mines cleared at old ANC camp: OZM-4 x 5

Area cleared at old ANC camp: 330 m2

The hydro-electric plant in the dam at Mabubas, outside Caxito to the north-east, is undergoing refurbishment, and funds from the Government of Angola have been made available for the reconstruction of the power line that runs into Luanda. It is known that the majority of the pylons are mined all the way to the boundary of Luanda, so the base of each will have to be cleared before reconstruction of the line can commence. MgM have now cleared 18 pylons, and previously a team from SC (US) cleared 46, work on this power line has been suspended until funds are made available for continued clearance. The rest of the power line that remains uncleared runs through unpopulated and/or agricultural land where the potential threat is known and avoided. Handicap International is carrying out a mines awareness campaign in the area to reinforce this knowledge.

#### Ondjiva - Operations Base South

Due to fuel shortages in Cunene during the first three months of 2001, it was not possible to fully utilise the MgM Mechanically assisted Dog Demining (MaD) Team in Cunene. Although small amounts of fuel could be purchased from Namibia, this was not sufficient to run the whole operation. A shame really because the rains were extremely late in arriving, and conditions remained good for MgM's style of mechanical assistance to traditional demining. The team was kept busy during the early part of this year answering EOD call-outs covering the whole of the central and south of the province. This on top of completing the test bed site for evaluating future technologies, and completion of the mechanical workshops.

While the expatriate dog handler/trainer was in-situ the newly trained Angolan dog handlers were blooded giving assistance to the Mines Advisory Group (MAG). MAG requested help to check a

road they wished to use to gain access to other mined areas around the town of Mongua. Three new handlers each with a pair of Mine Detection Dogs checked the road in question, though no targets were located, MAG duly used the road. Unfortunately these handlers were unable to keep up a level of operational readiness once the expatriate returned to another project in Mozambique, and now wait for a new period of retraining.

During the first three months of 2001, MgM reacted to 11 emergency calls, this resulted in the following items being cleared and destroyed:

- TM57 x 1
- TM46 x 3
- Grenade F1 x 1
- Mortar 60 mm HE x 2
- Mortar 82 mm HE x 8
- Mortar 81 mm HE x 1
- RPG-7 x 3
- SPG-18 x 1
- Rocket BM 15 x 1

The Mine Dog Detection Team cleared 2 kms of road in assistance to MAG, equating to 7188 m<sup>2</sup>. Later one of MgM's previous dog handlers returned for personal leave after two other dog handlers was retrenched. The expatriate dog specialist returned in April to work with the two remaining dog handlers and their four dogs. Limited funds meant that the teams, when retrained, were not immediately deployed to Ambriz in support of demining operations there. The events in June meant that they were retained in Ondjiva to support MgM Operations Base South demining projects. To help support other MgM Operations in Mozambique, the remaining pair of dogs that remain without a handler were sent out on loan.

Fuel shortage problems were exacerbated by heavy late rains that washed away many roads and bridges. The main bridge access out of Namibe Port to Lubango was completely washed away and prevented fuel supplies reaching the whole of Southern Angola. The Boeing 727's that are used to airfreight fuel supplies to isolated areas of Angola are over stretched delivering supplies to other areas more affected by the ongoing conflict. Southern Angola had to wait for the rains to subside and bridges rebuilt before fuel supplies were able to move again.

The accident outside the town of Humbe, across the River Cunene from Xangongo, to a car being driven by Governor Mutinde provided added impetus from regional authorities to increase support for demining projects. The accident when the Governor was driving into property owned by his brother, along an old and well used track, when the front left wheel activated an anti-tank mine. Investigation showed that this mined had been buried at the site for some considerable time, and not a new mine as initially speculated. Further investigations carried out by the MgM Survey Team and the Technical Adviser from MAG concluded that this mine had been part of a larger minefield. Information from FAA (Angolan Armed Forces) Engineers showed from records that 173 anti-tank mines had been laid in this particular area.

Working together from July, both MgM and MAG sent demining teams to the area to check on the situation and clear any mines located. The main problem stemmed from a previous group who carried out clearance in this area between 1992 and 1998. The area around Xangongo was recorded as cleared between 1992 and 1994, however no records were kept. In some part this was due to the team having little knowledge of recording requirements at that time, with no Mine Action Centre in the country at that time. Even though this was the time of the 'little peace' in

Angola, prior to elections, possession of maps, data collection and information logging would have been tantamount to spying, a secondary reason for lack of suitable records. However, deminers working for MgM who previously worked for Cap Anamur have admitted that they did not work in a methodical manner. They only realised this when they started work for MgM and attained their present level of competence. They are now not sure that all areas they thought they had cleared are in fact anywhere near 100% cleared.

MgM continued to work on clearing around the accident site until October. This kept the MgM capacity active on a site that was close to the homes of the majority of the deminers. This allowed for the deminers to be able to walk to work, preserving valuable fuel supplies for emergencies. In this time MgM found one more anti-tank mine as well as the splash mark where another anti-tank mine had exploded killing a cow. MAG kept one demining section working on the site until November without finding another target. Since it was known that this was an anti-tank minefield, MgM tried using its dog capacity to follow the original pattern of the minefield, and locate any remaining mines. Unfortunately the whole area was strewn with a type of spiked seed pod that got between the toes of the dogs paws, this made it impossible to work. Small boots have now been procured for the dogs to allow them to operate under these conditions. Adaptation to these boots will take time, so this task has now been suspended until such time as alternative technologies can be used to verify the area. This will now require that all areas previously cleared by Cap Anamur will have to be verified. This will have to include the barrier minefield that existed around the town of Xangongo, where around 42,000 anti tank mines were alleged to have been removed.

#### Clearance Statistics for Humbe Task:

Task Started:	16/07/01
Task Suspended:	05/10/01
Area Cleared:	4456m <sup>2</sup>
Mines Cleared:	TM 57 x 1

During this period MgM's EOD were called out fourteen times to remove and/or destroy items of explosive (XO) and unexploded (UXO) ordnance. For safety of surrounding communities MgM removed and destroyed large stockpiles of ordnance stored in old FAPLA bases. This task will be continued in 2002.

The following items of ordnance were destroyed by controlled demolition from August until October 15th:

Mines	Pt Mi Ba III (a/t mines) x 2
	TM 57 (a/t mine) x 1
	Fuzes TM57 x 6
	Fuzes OZM 72 x 15
	Trip wires x 4
	UDROM-I KV (Frag, Mine a/p) x 1
Other Ordnance	Rockets BM 24 x 364

Rockets BM 21 x 56  
Projectiles 57 mm x 620  
Mortars 60 mm x 3  
Mortars 51 mm x 2  
Fuzes Mortars x 11  
Hand Grenades F1 x 13  
TNT Blocks 100 grams x 2

Official fuel supplies finally started arriving in Ondjiva, in sufficient quantities to allow the use of mechanical support to MgM's demining operations, during October. This, then allowed MgM to support WFP and Provincial Government initiatives to help relocate IDP's. Although the province has relatively few IDP's, in comparison to other provinces, they are still significant. Until recently little has been done to settle these people in the short term. MgM, utilising its MaD system opened roads and cleared areas for the construction of temporary housing at Chiede near Namacunde, close to the Namibian frontier. This operation was also assisted by an MAG demining team that worked to clear around existing properties at Chiede.

Much of the road network in Cunene is closed due to either the threat of mine or lack of maintenance resulting in weather damage. Most towns in the province either have a small airstrip, or are in the proximity to one. This means that most of the supports given to outlying communities, those away from the main routes that are open, receive contact with provincial authorities by air. In the past two years many schools and clinics have been rehabilitated and reopened, with support coming via the small airline run by the Provincial Government. With an increase in air traffic the runway at Ondjiva Airport is starting to show the strain. To assist the provincial authorities to rehabilitate the airport MgM used its MaD and ROTAR systems to check and clear all areas around the runway. Both NPA and MAG had in the past carried out clearance programmes around the runway. However there was little confidence amongst all groups that the whole area had been cleared and checked to acceptable standards. As a definitive control during November and December, MgM teams checked the whole area once again. Although no landmines were located, a total of 17 items of UXO were found and destroyed by controlled demolition. With these items removed the area is now safe for construction crews working in soft skinned un-armored prime movers.

#### Clearance Statistics of IDP Camp Chiede:

Task Started: 3/11/01

Task Completed: 9/11/01

Road Cleared: 3.4 kms

Total Area Cleared: 87,200 m<sup>2</sup>

UXO Destroyed: Mortars HE 60mm x 2

#### Clearance Statistics of Ondjiva Airport:

Task Started: 22/11/01

Task Completed: 13/12/01

Total Area Cleared: 855,744 m<sup>2</sup>

UXO Destroyed: BM 15 x 17

## Research and Development

MgM is often called a world leader in the development of mechanical support to traditional demining techniques. This has driven by in-house field requirements and developed by specialist with field knowledge. It is essential to know what kind of machine can be sustained in the field with limited resources available. Over the past twenty five years of civil war in Angola much of the infrastructure has been destroyed or has deteriorated. The majority of the bridges have been destroyed, with many now replaced by 'Bailey' bridges. Many have a relatively low weight limit, this precludes the passing of heavy or overweight vehicles over them. To this extent many ponderous machines developed to eradicate the threat of mines are too large and heavy to transport around countries like Angola.

For this reason MgM has developed mechanical systems that can easily be transported on the existing, though poor, Angolan road network. They also have to ability to be transported by C130 transport aircraft. This allows for easy movement around Angola, moving demining support vehicles and machines utilising transport aircraft that are available from WFP.

MgM has now developed a test site at the Operations Base South at Ondjiva, Cunene. This site is still undergoing development and expansion. MgM has already developed the ROTAR Mk I, which has now been deployed in Angola. MgM also has a number of Mulchers, bush cutting devices attached to HIAB extendable arms, mounted on an armoured SAMIL 20 carrier. The latest machine to be developed by MgM is the ROTAR Mk II, which combines both these technologies. This consists of an armoured Caterpillar 428 Lightweight Front-end Loader with Backhoe. It has been designed to be multi-functional with interchangeable attachments, the front bucket can simply be exchanged for a ROTAR bucket, and the rear backhoe bucket can be substituted for a Mulcher unit. This machine underwent two tests at the MgM facility in front of international observers. The first test was a shakeout to find the limitations of the machine in a field scenario. All points from the observers reports and field analysis were acted up, with modifications and improvements made to the A Model. The second test showed an infinitely superior machine to the A Model, and was accepted for further field trials by representatives from US DoD. The machine has now been despatched to MgM Operations in Mozambique for six months of live field-testing.

A test bed facility has also been developed, at MgM's Operations Base South, for analysing the capabilities of new technology mine detection systems. The test beds have been designed and implemented by Andy Smith of AVS Consulting, for technologies developed on the EU's Esprit Programme. Specifically the Demine and MinesEye Programmes which utilise Ground Penetrating Radar (GPR) and Nuclear Magnetic Resonance (NMR). The test beds consist of a number of set rows that contain various types of unarmed anti-personnel mines, laid at different angles and depths. These have been mapped and recorded, with all documentation available at the Demining Base General Office. The beds are protected by a two-metre high chain link fence to allow the test beds to 'settle' and allow natural vegetation to grow, simulating a normal scenario.

The Demine Programme tested their latest model of GPR on the test beds with limited success. A revised model of the Demine (GPR) system, along with the highly rated MinesEye (NMR) development will be tested during 2002. Extensions to the test beds will be laid in 2002. MgM will send three trucks to Huila Province, in 2002, to collect different types of soil for three new test beds. This will allow tests to be carried out on laterite enriched soils, for a fair comparison. The test

beds are also open to other technologies to test their devices. The APOPO project, based in Tanzania, which utilises Giant African Pouch Rats to detect the residual explosive vapour of mines will be tested in Angola. Initially this will be on the set test beds at Operations Base South, followed by live testing from Operations Base North, on mines laid around the pylons of the electricity line from Caxito to Luanda.

Further R&D projects envisioned to be tested during 2002 are the new MgM designed remote controlled Mini Mulcher System, and the US DoD MCC (Mine Clearance cultivator). The remote controlled MCC bulldozer will be field tested for US DoD on the mine belts, formerly 'cleared' by Cap Anamur, around the town of Xangongo.

Further information on all MgM R&D projects can be seen on the MgM website at [www.mgm.org](http://www.mgm.org).

## Developments

Due to MgM's experience in maintaining a large fleet of vehicles for operational readiness, the Luanda office was contacted by UNHCR to ask MgM to tender a proposal to run their workshop. UNHCR have a well-equipped mechanical workshop on the outskirts of Luanda, in Viana, for which MgM were selected as partner to operate the facility. Unfortunately, due to their mandate UNHCR are not allowed to offer the services of their facilities to other agencies or organisations, which are forced to have their vehicles expensively maintained in the city. To overcome this problem, MgM entered into a tripartite agreement with the UNHCR and MINARS (Ministry of Aid and Social Reconstruction, GoA) to operate the workshop for the benefit of all non-profit making organisations in Luanda. For their part UNHCR agreed to donate funds to MgM's budget for the first six months of operation. Within this timeframe the workshop manager had to develop a customer base to be able to operate the workshop free of funding from UNHCR, and without being a drain on MgM resources. Within the tripartite agreement, MgM Workshop Division is allowed to charge for services rendered, this money is then put back into operating cost. Initially monies generated were used to build up the spare parts stock for the wide variety of vehicles operated by non-profit organisations and agencies in Luanda. Any operating profit generated subsequently is donated to MgM Demining for operational costs. This facility is now open for service to all Non-Governmental Organisations, UN Agencies and Embassies in Luanda. By the end of the year the client base had become quite extensive, with income almost equating to operating costs.

Since the withdrawal of UNAVEM III and MONUA from Angola, many UN 4x4 vehicles as well as 4 and 10 tonne trucks have been parked at the ETAM (Demining School - Viana). Although once in a reasonable condition, these vehicles have been seen to be slowly deteriorating. These vehicles had previously been support vehicles for the UN Demining Programme in Angola and were found to be the responsibility of the UNDP. Due to the present fleet of MgM light vehicles becoming more and more difficult and expensive to maintain, which was affecting the operational safety of MgM demining teams. A proposal was passed to UNHCR for a transfer of selected vehicles from the mothballed fleet to MgM. Six Nissan Patrols, one Nissan Doublecab Pick-up and two Landrover 130 Ambulances were allocated for MgM Operations. These vehicles were delivered to the MgM workshop at the end of the year for servicing, refurbishment and repainting in readiness for MgM Operations in 2002.

Due to a change in emphasis on operations for year 2002, MgM has given up its Operational Headquarters in Luanda. MgM operations in 2002 will be based in Malanje, Huila and Kunene Province. Due to insecurity in the north of the country MgM has been unsuccessful in generating fund for clearance operations in Bengo, Uige and Zaire Provinces. For logistical purposes the Operational Headquarters will now be based at MgM's Operations Base South in Ondjiva. With

good air links, and improving roads now, this base will support MgM operations throughout Huila and Kunene, as well as the new Operations Base North which will be based in Malanje City. For coordination and contact with Governmental Departments, Financial Institutions, Commissions, Embassies, Donors, UN Agencies as well as other demining organisations and coordinating bodies, MgM will maintain an office at the MgM Workshop facility in Viana. This office will maintain MgM Angolas Accounts and Human Resources. Once the new office is up and running contact details will be distributed.

## Accidents

As with previous years, MgM maintained its personnel accident free status. One small accident occurred when the demining team were withdrawing from Ambriz, when the driver of one of the Nissan pick-ups accidentally ran into the back of the Samil 100 Mine Protected truck when it stopped suddenly in a deep pot hole. The panel beater at the MgM workshop in Viana easily rectified this problem.

The major incident that occurred during the year was the crash on landing of a light aircraft from Windhoek carrying the MgM Managing Director, Hendrik Ehlers. This occurred on a field airstrip, previously cleared by MgM at the end of 2000 utilising the MaD system. On landing the front wheel of the aircraft caught a small animal hole, which collapsed under the weight of the aircraft, ripping the front wheel off. Miraculously nobody was hurt, though the aeroplane was disabled.

MgM mechanics and other personnel dismantled the aeroplane and loaded it up on to MgM's Tatra 8x8 truck for transportation to Ondjiva where it was transferred to a low bed. The plane was then returned to Windhoek for repairs, making local news headlines.

## Visitors and Cooperation

Due to the unstable nature of the situation in Angola, few visitors were seen at the MgM operations based in Ambriz during 2002. A notable exception was the former US Ambassador to Angola, Joseph L Sullivan. For the Ambassador, and his senior staff who accompanied him including his Political Adviser João Ecsodi and Deborah Netland on an assessment mission from US DoS, this was their first time to drive out of the city of Luanda. In March the situation over the majority was relatively calm, with the route to Ambriz particularly safe. It was a great honour for MgM to host such a prestigious occasion, even though the return trip was eventful for some minor problems. A film crew also visited the demining Operations in Ambriz from TV Globo of Brazil, the largest television station on the planet.

A US Delegation, including most people on the road visit to Ambriz, embarked on a tour around Angola to observe US DoS sponsored demining projects. These included NPA operations in Luena and Malanje, MgM operations in Ondjiva and World Vision mines awareness project in Malanje. MgM, in Ondjiva, was able to show the newly deployed ROTAR Mk I system as well as other mechanical support equipment for manual and dog demining. The benefits of such equipment to increase safety in demining were self-evident.

The Operations Base South/Future Technologies Test Site was also visited by delegations from US DoD on two occasions, during initial field testing of the ROTAR Mk II, as well as by a team from the Demine Programme. The team from Demine, part of the EU Esprit Programme for the development of new technologies for the detection of landmines, arrived to test their latest GPR detector. This was carried out under the auspices of Andy Smith of AVS Consulting, who designed and built the test site.

In July we proudly hosted Col. George Zahaczewsky of US DoD, who could analyze the accident site of Governor Mutinde literally a few days after the accident. We were very glad to be able to show the results of the ongoing cooperation between MgM/HEC and the US DoD HDD. This journey was a steep learning curve and success for all participants.

As part of a developing cooperation with SwedeRelief, the managers of their projects in Huila visited the Operations Base South. SwedeRelief is active in Huila rebuilding a number of minor roads, at the moment the road from Lubango to Matola. Although this road is known to be clear of mines, a number of other roads that are projected for reconstruction by Swede Relief are closed due to the threat of mines.

In the past MgM intended to forge a partnership to open roads and rebuild as many bridges as possible in Moxico Province, in collaboration with Swede Relief. Unfortunately this was never realised due to the restart of the Civil war at the end of 1998. The visit to the Operations Camp South was to see the type of equipment, and systems, MgM has available to be able to clear and open roads for further development. Once MgM has cleared a road of the threat of mines it is immediately transitable, though this is only temporary, Swede relief have the ability to make MgM's clearance tasks into a permanently transitable route.

MgM also has a stock of medium girder bridging parts, enough for at least 22 six-metre bridges (missing only the decking). Swede Relief has the expertise to erect these bridges, which are also needed in Huila to completely open the road network being rebuilt. The bridging materials are stored at the ETAM (Demining School) at Viana outside Luanda, but are easily transportable by UN WFP cargo plane such as the C130 and Caribou to points where they are required. Swede Relief will be able to generate funding to support MgM operations, while clearance teams work ahead of Swede Relief construction crews. Partnership between MgM and Swede Relief will enable Swede Relief to access and rebuild formally mined roads, and MgM will be able to reduce administration costs in Huila by sharing Swede Relief facilities. Swede Relief also has an extensive field workshop that will also assist MgM in the event of major breakdown.

In Ondjiva, MgM is also forging a useful alliance with MAG (Mines Advisory Group) in Cunene. This was shown to best effect in the collaboration over the investigation of the mine accident to the Governor of Cunene. Future coordination, through the coordination group in Ondjiva headed by the Provincial Representative from INAROOE, will see both groups working to their strengths. MgM with the MaM and MaD systems opening up access to isolated communities, and MAG with its large hand clearance capability making have the capacity to clear mines areas in and around towns and villages.

## Summary

Due to the year 2001 been more notable for donor fatigue with the ongoing conflict ravaging Angola, MgM made the conscious effort to consolidate capacities to best react to available funding level. MgM was forced to reduce its capacity in the north of the country when attacks occurred on the town of Ambriz in Bengo Province. This province has been the centre of MgM operations for the past five and a half years, in which time the majority of the north of this province is now mine free. This gave MgM the opportunity to assess the best way forward with expected reduced funding levels.

There are few mined areas left in the north of Bengo Province, on the whole the majority are known to MgM. Apart from the minefields around the town of Ucuca, all remaining minefields are small or easy to be rolled up by a small team of deminers. The minefields around Ucuca, which remains a garrison town, probably will never be cleared. The area is horrible dry scrubland which and previous attempts to clear this area by other groups failed. With around 5000 IDP's in camps round Caxito from this area it would be cheaper to rebuild this town close by and cordon the area off, rather than spend extensive time and resources clearing around the town. In MgM proposals for the past two years, this has been the start point for clearance operations to open up routes and access the towns of Bula Atumba, Pango Aluquem, Piri, and Quibaxi that make up the Dembos area. Around 23,000 IDP's from this area are in Cambambe II Camp outside Caxito, with another 8,000 around Golungo Alto in the North of Kwanza Norte Province. With these routes opened it would have been safe to relocate all these people to relocate to their homes. However with the attacks on Ambriz, Caxito and the neighbouring district of Nambuanguo during the middle of 2001, this proposal has been withdrawn until peace and security are guaranteed.

Demining operations around Ambriz proceeded steadily from the beginning of the year. Operations were within three months of being completed leaving the area free of mines when the town was attacked in June. Subsequent demining carried out around Caxito in the latter part of 2001 showed that a small team of dedicated deminers with the right equipment and support can be extremely effective. After the June attack on Ambriz, one mulcher system was kept on station in Luanda for use in support of the demining unit operating around Caxito, after leaving Ambriz, as well as an ambulance, five 4x4 vehicles and two Bedford TK 3 tonne trucks. The rest of the vehicle fleet was transferred to MgM's base outside Ondjiva in the southern province of Kunene. Due to insecurity on the road network outside Luanda, the MgM vehicle fleet was sent by sea to the port of Namibe, and then by road via Lubango to Ondjiva.

MgM's base in Ondjiva is still undergoing expansion. Originally envisioned as a support base to operations in the south, it was also foreseen as a technical school that would benefit both MgM and the local community. All the equipment to set up the school is in-situ now, with funds being sought to complete the project. This school will train students in whole range or artisan trades to be mechanics, electricians, carpenters and tailor. Expansion is still being carried out to the mechanical workshop, that is now up and running. The majority of the equipment and vehicles based in Ondjiva were originally for a project that was to be based in Cazombo, Moxico Province. It was envisioned that MgM, with support from Swede relief would open routes throughout Moxico, eventually to join the Provincial Capital of Luena to the rest of the province. Cazombo was chosen for a base for logistical purposes, for its proximity to the Zambian border. Subsequently routes would then be opened through to Menonque and through to Ondjiva, eventually opening up the south-east portion of the country. Due to the restart of the war at the end of 1998, the emphasis was changed from starting operations in Moxico, to starting operations in Cunene, at Ondjiva. The choice of base is now for its proximity to Namibia for logistical purposes. Huila and Kunene are relatively calm, and as the situation change so is Cuando Cubango. MgM is looking to use the base in Ondjiva as a stepping stone to finally achieve its goal of eventually opening up the south-east of Angola. To achieve this with limited funding levels, MgM has now prepared to centre its demining headquarters in the operations camp in Ondjiva. By the end of 2002, MgM shed its expensive properties in Luanda to reduce expenditure and overheads.

MgM has always prided itself on ensuring that projects have a recognisable and tangible social impact. The projects targeted and implemented during 2001 were also embarked on with the impact on the local community taken into consideration. The largest development would have been to Ambriz, with the demining process stimulating an interest in the towns infrastructure. Ambriz used to have a large port facility constructing off-shore oil rigs, this was destroyed in 1993/4 when UNITA forces took control of the town. Plans were being drawn up to re-build the port

facility as well as the high probability of the construction of a gas liquefaction plant being built to the south of the town. Although these are large commercial undertakings, the benefits to the local community would have been immense and all because it would be safe for construction crews to enter the area again. This has now all been lost because of the attack on Ambriz, with the distinct probability that the liquefaction plant will be built closer to Luanda.

During the time the demining team was in Ambriz the MgM paramedics continued assistance to the local hospital. This was to help the Doctor, from a Portuguese Medical Organisation, who was trying to run the hospital in the town with training for the hospital nurses. Little material support could be donated to the hospital, mainly because MgM does not set up parallel structures and this hospital is the responsibility of the Health Ministry. Also, supplies donated by MgM's medical partners action medeor and Johanniter International are fast running out, and in some cases have gone past their sell by date. These resources will have to be replenished during 2001.

The look forward to operations in 2002 is somewhat brighter, though it may take a little while to get MgM in Angola fully operational. All support vehicles are have received servicing at one of MgM's Mechanical Workshops in Luanda and Ondjiva. Readiness has been enhanced by the addition of nine 4x4 vehicles from the old UNAVEM mothballed stock. Due to its years of faithful service in the jungles of north-east Angola, MgM's original Wright 12F Grader will have to return to Namtrac in Windhoek for a complete overhaul. Namtrac is the main Caterpillar dealer in Namibia, and the service will be carried out when funds are available. Operations are proposed for Malanje, Huila and Kunene in 2002. Requests have been made to MgM, through WFP, to clear suspected mined areas to the east of the city of Malanje. It is projected that the area to be cleared by MgM will benefit all IDP's in camps with, initially, 0.5 Ha of ground to grow their own crops. This will then reduce dependency on food aid. WFP have also asked MgM to carry out EOD tasks in Huila Province, many stockpile of ammunition abound in and around provincial towns. These stockpiles are a danger to local residents and prevent development of the affected municipalities. In Kunene MgM will continue to open routes to isolated communities to allow IDP's to return home, guarantee food security and allow aid and support to improve the lives of the returnees and residents.

#### Overview of Results

Total road cleared by MaM system: 13.4 kms

Total area cleared by MaM system: 168,000 m<sup>2</sup>

Total area cleared by MaD system: 855,744 m<sup>2</sup>

Total area cleared by MaM and Mad systems: 1,023,744 m<sup>2</sup>

Total area cleared by Hand Clearance: 12,809 m<sup>2</sup>

Total area cleared by MgM in Angola 2001: 1,036,533 m<sup>2</sup>

Total anti-personnel mines destroyed: MAI 75 x 62

Gyata 64 x 14

POM Z-2 x 10

UDROM-1 KV x 1

OZM-72 x 3

OZM-4 x 5

PP Mi Sr x 56

F1 (imp blast frag. mine) x 9

Total anti-tanks mines destroyed: TM 57 x 5  
TM 46 x 3  
PT Mi Ba III x 2  
Fuzes TM 57 x 6

Total number of mines destroyed: 170

Total other XO and UXO destroyed: SPG-18 x 4  
PG-7 x 15  
Mortars 120mm HE x 1  
Mortars 82mm HE x 8  
Mortars 81mm x 1  
Mortars 60mm x 11  
Mortars 51mm x 2  
F1 Hand Grenade x 14  
Rockets BM 15 x 18  
Rockets BM 21 x 56  
Rockets BM 24 x 364  
Projectile 57mm AAA x 620  
Fuzes Mortars x 11  
TNT Block 100 grams x 2

Total items of ordnance destroyed: 1280