



**Anti-vehicle mines  
Discussion Paper  
November-December 2004**



Civilian truck destroyed by AVM, Cunene province, Angola

**Anti-vehicle mines are increasingly used indiscriminately and without proper and legal consideration for the humanitarian consequences. Anti-vehicle mines can target and damage or destroy all types of civilian vehicle – even very small – and have a far more devastating impact on people than an anti-personnel mine, causing large numbers of deaths and injuries when they detonate, and impacting on large numbers of internally displaced persons (IDP), refugees and other civilians who are dramatically affected by road closures, and isolation. This situation is compounded by the destruction of UN, ICRC and NGO vehicles and the enormous difficulties and added expense that mined roads generate for the provision of humanitarian assistance and food relief. These mines when equipped with sensitive fuses and anti-handling devices further add to the problem.**

## **1. Introduction**

This paper discusses anti-vehicle mines (AVM) and anti-handling also known as anti-disturbance devices (AHD).

We also discuss the humanitarian impact of these devices, legal implications and initiatives taken.

We invite comment, and above all constructive dialogue as to ways to proceed that protect the lives and livelihoods of people affected by conflict, during conflict, in the immediate aftermath and longer term.

## 2. Anti-Vehicle Mines

These mines are also called anti-tank mines. The name has been changed to reflect the fact that such mines do not only target tanks: the terms anti-tank and anti-vehicle are interchangeable; we will use the term anti-vehicle mine throughout.



A military munitions truck (not a tank) destroyed by an AVM on the road from Luena to Lucusse in Moxico province. The unexploded munitions were later cleared and destroyed by MAG.

In tactical military terms, anti-vehicle mines prevent, hinder or delay the use of armoured military vehicles. Anti-handling or anti-disturbance devices are used to hinder the enemy's attempts to clear these anti-vehicle mines and negatively affect the morale of the demining personnel. The original anti-disturbance device invented to protect the relatively expensive and tactically more important anti-vehicle mine was of course... the **anti-personnel mine (APM)**. This latter device has now been banned, but with an exemption agreed for anti-handling devices when attached to AVM. While on the one hand the APM is now prohibited from use, the precursor to the APM is now legally recognised as exempt from such restriction.

Anti-vehicle mines are sometimes referred to as MOTAPM (Mines Other Than Anti-Personnel Mines), an acronym that also covers a number of other types of landmine<sup>1</sup>. As we shall discuss, anti-vehicle mines and the mechanisms that protect them can have serious effects on civilians and their communities during conflict and in the aftermath.

The civilian pick-up truck shown on the front page hit an anti-vehicle mine on a road in Cunene province, southern Angola. No-one will now use the road and communities remain isolated.



Clearing and AVM fused with an APM, Angola

### 3. Anti-Handling and Anti-Disturbance Devices, Sensitive Fusing Mechanisms

Serious concerns have been raised over many years with regard to the sensitivity of the fuses and activation mechanisms used in anti-vehicle mines. Magnetic sensors, tilt rods, breakwires, tripwires and other mechanisms are all of concern. The United Kingdom states that tilt rod, break wire and tripwire fuses cannot be designed to be less sensitive<sup>2</sup>, seeming to imply that technology may not solve the problem.

Following signature of the Ottawa Treaty, the UK and the Netherlands removed from service and destroyed their F2 MIACAH breakwire-fused mines on the basis that such breakwires could indeed be broken by a person. The United Kingdom has recognised, during the CCW discussions that break wires, tripwires, tilt rods and other sensitive fuses are 'highly likely' to be activated by a person and are "unacceptable to us as methods of detonating anti-tank mines"<sup>3</sup>. Anti-vehicle mines that operate in this way are therefore assimilated with anti-personnel mines and are banned. Germany currently stockpiles about 10.000 PARM-1 off route mines equipped with a fibre-optic sensor cable (breakwire).

#### Definitions

The first attempt to deal with the question legally, the Convention on Conventional Weapons and its Landmines Protocol that was reviewed in the 1990s, states that "Anti-handling device" means a device intended to protect a mine and which is part of, linked to, attached to or placed under the mine and which activates when an attempt is made to tamper with the mine"<sup>4</sup>.

The Ottawa Treaty negotiators recognized that in effect such devices could impact on personnel and come under the proposed ban. The Ottawa Treaty does not deal with anti-vehicle mines and therefore simply defines the usage of the anti-handling/anti-disturbance mechanism in order to exempt the devices.

This new definition essentially defines the action of trying to remove the mine. As described above, the purpose of anti-handling and anti-disturbance devices is to stop the deminer. The Ottawa Treaty therefore relies on the intention of a person, defined as someone who intentionally disturbs or tampers with the mine.<sup>5</sup>

There are several flaws with this argument:

*Discrimination* - Firstly: How can an anti-handling device distinguish between an intentional and an unintentional act? How can such a device or mine decide whether it is being 'tampered with' by a deminer, a child or a farmer wanting to remove the mine from a road and take his tractor to market? Existing technology does not provide the answer.

On the contrary, expert evidence suggests that anti-handling/anti-disturbance devices and sensitive fusing (see after) can pose serious humanitarian problems. "... it is important to note, that an AHD cannot be expected to distinguish whether disturbance of an AVM is intentional or unintentional".<sup>6</sup>

*Anti-civilian?* - Secondly: The majority of the world's operational deminers in the field are civilian nationals working to clear their countries of dangerous landmines and unexploded ordnance. Anti-vehicle mines fitted with anti-handling/anti-disturbance devices target these civilian humanitarian personnel.

When fitted with anti-handling, anti-disturbance and similar devices and trigger mechanisms, it is argued that anti-vehicle mines become large anti-personnel mines and fall within the scope of the Ottawa Treaty<sup>7</sup>.

In addition to the above arguments, some of the sensitive fuses and anti-handling devices in circulation can be activated by a variety of regular activities:

*Magnetic fields* - Technology has produced fuses that detonate the anti-vehicle mine if it senses the changes in the magnetic field caused by the large metal body of a (military) vehicle. It appears however that in practice, these magnetic sensors can also sense much smaller magnetic changes, even those made by people, and can cause the mine to detonate.

Military and mine clearance staff often say that they would not knowingly approach such a mine or device carrying a portable radio or metallic objects as radio frequencies and even small changes in magnetic fields caused by metal may cause the mine to explode.

In addition, some anti-handling/anti-disturbance devices are designed to detonate if they sense the metal detector of a deminer. Such devices are prohibited by the Convention on Conventional Weapons<sup>8</sup>.



This explosion killed a MAG deminer in Angola, and seriously injured another. They were trying to open the road to allow international aid into an area cut off for years. The accident was caused by a magnetic sensor device attached to an AVM

*Personal magnetic fields* – Magnetic influence fusing systems are used in many ‘modern’ anti-vehicle mines. The United Kingdom government argues that ‘Badly designed magnetic influence sensors may make mines highly sensitive, whereas well designed magnetic influence sensors may achieve the appropriate balance between military and humanitarian requirements.’<sup>9</sup>

It is also known that magnetic sensors have been developed that react even to the change in magnetic field created by a human being. Such sensors are not restricted by the Convention<sup>10</sup>.

For example, the FFV 028 self-neutralising anti-vehicle mine<sup>11</sup>. After this mine is armed, it is activated by changes in the electro-magnetic field around it. An increase in the metal content in the area (for example, a car passing over it) or simply moving the mine (that is, changing its orientation in relation to the earth's magnetic field) can set it off. When it explodes, it will normally completely destroy (cause "catastrophic damage" to) the vehicle (if it is a vehicle which has set it off) and shoot fragments in a 150-225 metre radius. It is hazardous up to 1 km from the exploding weapon. The mines can be armed and laid as fast as 13 per minute by a special machine.

CF (Canadian Forces) landmine databases confirm that disturbance of the mine body will cause actuation, that the sensitivity of the fuse is similar to an integral anti-disturbance device, and that even a tripwire feeler can set off the mine. The 1999 database warns soldiers not to approach the mine when it is armed. It is apparent that the Canadian Forces believe the mine can be set off by an unintentional act. Canada is listed as stocking these mines<sup>12</sup>, and is reported to have bought an additional 12,000 from the Netherlands via Bofors in a process begun in 1996 and concluded in October 1997 at a cost of \$5 to \$6 million<sup>13</sup>. It is not clear today what action has been taken regarding the compliance of this mine with the Ottawa Convention.

*Tilting or moving the mine* - Mercury tilt switches and magnetic fuses are often used as anti-handling devices to cause the ignition of a mine when unintentionally disturbed. With a tilt switch, the mercury contained within the mechanism, if tilted, will move between two points and make an electrical connection that triggers the mine<sup>14</sup>. Other magnetic fuses sense any movement in the earth's magnetic field, which would occur if the mine is moved or tilted. One example is the German AT-2 mine, in service with several NATO countries. Along with its anti-handling device, the magnetic fusing of the AT-2 makes it possible for the mine to be detonated by an unintentional act, for example by the slight movement caused by a person walking into or stumbling over it. According to German military experts the mine is equipped with an anti-handling device (S1 sensor), which registers any movement of the mine and then activates it<sup>15</sup>.

#### Low-Pressure activation

It was long thought that as most AVM are activated by pressures of over 150kg this means that they could not be a threat to civilian pedestrians. Research based on the study of biomechanics carried out by the renowned sports science University of Loughborough in the UK shows very strong evidence that a human being can very easily exert an equivalent force close to and above such pressures<sup>16</sup>. For example, an 8-year old boy weighing 30kg, running downhill in his shoes, exerts a ground force of 146kg. A 9-year old girl weighing 40kg running downhill in her bare feet exerts 167kg of force. An adult male running will exert 213kg.

By early 2003, Switzerland has taken all anti-vehicle mines of the type Pz Mi 60 out of service and destroyed them. The fuse of the Pz Mi 60 reacts to a pressure of 30 kg<sup>17</sup>.

### **5. Non-detectable Anti-Vehicle Mines**

A further question of concern is that a proportion of anti-vehicle mines are made to be virtually undetectable by current metal detectors. From a military point of view, this makes it more difficult and time-consuming for the enemy to find and remove mines from roads and tracks. However it has a similar effect for the post-conflict mine clearance process. Detecting mines on roads and thus opening them swiftly for aid, relief, refugee movement and other humanitarian tasks is made more difficult, time-consuming and expensive.

### **6. Humanitarian Impact and examples of the use of anti-vehicle mines**

Anti-vehicle mines have been used indiscriminately in a number of areas including Afghanistan, Iraq and Angola and are responsible for an increasing number of civilian deaths and injuries in post-conflict communities around the world. This impact is documented notably by the ICRC<sup>18</sup>. Furthermore, even where anti-tank mines may have been initially laid with a discriminate, military purpose, when they are not removed once that military purpose is no longer in evidence the continued use of these weapons immediately becomes indiscriminate.

Just like APM, the presence or suspected presence of AVM on roads, tracks and in other areas effectively closes transport and communications routes and hampers agriculture and economic revival.

What follows is a number of examples from humanitarian agencies and the media on the prevalence of AVM and incidents of death, injury and humanitarian blockages caused.

“Information from humanitarian demining organisations and mine action centres make clear that the number of AV mines cleared is relatively small compared to the number of cleared AP mines. ICRC figures collected suggest that the percentage of cleared AV mines does not exceed 4 % of the total mines cleared. In recent conflicts, it appears that industrial nations have employed anti-vehicle mines on a larger scale than non-industrialised nations. According to demining organisations the AV mines cleared in Kosovo, Kuwait, and Nagorno Karabakh counted for 62.2 %, 34.5 % and 70.9 % respectively of the total number of mines they cleared.”<sup>19</sup>



This anti-vehicle mine has been boosted with unexploded mortars and has an anti-personnel mine as fuse. Angola.

Even used in smaller numbers than anti-personnel mines, AVM have a severe impact upon the lives of civilians in conflict areas and upon the activities of demining and relief organisations.

“A single AV mine, or fear of the presence of such mines, can close transport routes for months, or even years, and obstruct the movement of goods, essential relief supplies and people in huge areas.”<sup>20</sup> For example in Mozambique, a single AVM on the road linking Milange and Morrumbala cut these two district capitals off from the rest of the world for over 10 years<sup>21</sup>.

*Sudan* - October 2003, in one incident eight people were killed and two others injured when their vehicle hit a mine. Of those killed, five were women; one was a double amputee from a mine incident in 1998. She had just returned to the Nuba Mountains from the ICRC hospital in Lokichokio after re-amputation surgery and the fitting of new limbs<sup>22</sup>.

*Kashmir* - “In 2001 India plans and started to lay millions of mines along its border with Pakistan, which stretches more than 3,000 kms from the Indian Ocean to the Himalayas. The plan would create the longest fortified border in the world, with fields of anti-personnel and anti-tank mines up to five kilometres deep in some places. India and Pakistan manufacture anti-tank and anti-personnel mines. India is estimated to have a stockpile of more than four million land mines, and Pakistan has about six million. Experts estimated security forces will need to plant at least one landmine per metre along the entire border, which results in more than 3 million land mines”<sup>23</sup>

Nearly 40 were killed in landmine blasts including countless injured people near the border with Pakistan in January 2002 when laying anti-tank and anti-personnel mines. A heavy explosion happened in a factory producing fuses for anti-vehicle mines.<sup>24</sup> During demining, which starts in June 2002, accidental blasts involving the mines have killed at least 73 people and injured 216, and troops involved in the de-mining operations in Rajasthan, Punjab and Jammu and Kashmir were exposed to serious dangers, senior army officials said<sup>25</sup>.



This road, to Lucusse in Angola, was closed for several years due to the suspected presence of AVMs with AHD

*Angola* 12 February 2004 - At least four people died and 13 others were injured in Huambo province when the vehicle they were traveling in detonated an anti-tank landmine.<sup>26</sup>

*Cambodia* 5 April 2004 - Four people were killed in northwestern Cambodia when an open-air truck in which they were traveling detonated an anti-tank mine. "Police said ...their truck ran over an anti-tank mine as they were driving on a path back home from the jungle, where they had been collecting wood," according to AFP, adding that the mine would have been laid by Khmer Rouge soldiers<sup>27</sup>.

*Israel* 12 May 2004 - Armored forces stormed into Gaza City on Tuesday and razed a few makeshift rocket and mortar plants. But the raid went awry when a troop carrier ran over a landmine in the Zeitoun neighborhood and erupted, killing six soldiers and hurling their remains in all directions<sup>28</sup>.

*Jammu-Kashmir* 23 May 2004 - At least 28 people were killed in disputed Kashmir yesterday when a bus packed with Indian soldiers and their families ran over a land mine planted by separatist guerrillas, officials said. .... the exact toll last night was not certain, and The Associated Press reported as many as 33 people may have been killed and 10 wounded. Torn limbs, blood-stained shoes and clothes, and lunchboxes with rice and bread lay strewn on the highway at Lower Munda, 60 miles south of Srinagar, Kashmir's summer capital... A leading Pakistan-based rebel group, Hizbul Mujahideen, which is seeking the merger of Kashmir with Pakistan, claimed responsibility for the blast<sup>29</sup>.



The AV mine on this road is connected to a Claymore fragmentation APM and needs careful clearance procedures

## 8. The market for anti-vehicle mines

Despite the controversy and discussions surrounding these systems, it still seems reasonably simple to acquire anti-vehicle mines equipped with sensitive fuses and/or AHD from official arms exhibitions. At the IDET weapons shows 2001 and 2003 in Brno, Czech Republic, the Czech company Policske Strojirny marketed the "Horizont" mine.

The producer classifies the mine as an "anti-transport mine" or "anti-vehicle off-route mine". The mine also known as PD-Mi-PK clearly can have anti-personnel effects. According to Policske Strojirny other fuses which can be used with the "Horizont" mine are electrical fuses for command detonation, as well as an electro-mechanical sensor contact cable. On detonation the mine will normally cause catastrophic damage to a vehicle as well as propel secondary fragmentation out to a radius of 150 to 225 meters. The electro-mechanical sensor-contact cable acts like a tripwire and is a victim-activated fusing system therefore violating the Ottawa Treaty. In 2002 PD-Mi-PK was in production<sup>30</sup> and it was offered at arms fairs during 2003. It is thought to be in service with the Army of the Czech Republic.



The Horizont displayed in a victim-activated, anti-personnel mode, with tripwire and a sensor contact cable fusing system

In Cooperation with US company ATK, the Czech company Max Merlin offered at the IDET 2003 exhibition the mine scattering system VLAS comparable with the Volcano system. Another anti-vehicle mine shown at the IDET defence exhibition was the Slovakian scatterable PTMi-D1. The mine is similar to the German AT-2 mine and produced by ZVS Holding, A.S.

The German AT-2 mine was displayed at the Defendory 2002 exhibition in Athens by the Greek company Hellenic Arms Industry. The company is said to produce the AT-2 mine, equipped with an AHD, under licence for use with the German Scorpion minelayer which has been procured by the Greek Army.

On the occasion of the defence exhibition Eurosatory 2004 in Paris, the German company Diehl's catalogue offers a modern sensor-fused Area Defence Anti-Vehicle Mine (ADW) equipped with an anti-handling device.

At the 2003 IDEF weapons exhibition in Ankara, Turkey, the Croatian company Agencija Alan d.o.o. had on offer a tilt-rod fused "TMRP-6 Anti-Tank Mine". If this fuse can be activated by a person, it contravenes the Ottawa Convention. The mine is also offered by the Croatian company RIZ Transmitters Co<sup>31</sup>. According to Jane's Mines and Mine Clearance (2001-2002) just 1.5kg of operating force is required on the end of this tilt-rod to activate the mine. The tilt-rod also has a hole in the end of the mast for the connection of a tripwire; in this way TMRP-6 can be used as a victim-operated off route mine. Any of the former-Yugoslav fuses or booby traps using a M10x1 thread can be used with this mine. The mine has been used in Bosnia, Croatia and Kosovo.

## 9. National and Legal initiatives

States themselves have differing opinions about the impact of anti-vehicle mines. The USA for example states that "the humanitarian harm caused by anti-vehicle landmines is significant. Anti-vehicle mines prevent refugees from traveling home, food aid from reaching the needy and the free exchange of goods vital for economic prosperity, as well as causing injury or death to the occupants of vehicles" and underlines that "a recent report from Angola suggests that up to 70% of the country's roads are blocked by persistent anti-vehicle mines".<sup>32</sup>

The United Kingdom on the other hand has said that "The key question is whether there is evidence that anti-tank mines with so-called sensitive fuses cause a significant humanitarian problem. Nobody has presented such evidence at this meeting or its predecessors. We believe we should concentrate on the humanitarian issue..."<sup>33</sup>

Other nations have also made statements within the CCW review process and elsewhere to clarify their views and intentions in regards to AVM, sensitive fuses and anti-handling devices.

### The Convention on Certain Conventional Weapons (CCW)

The Convention on Certain Conventional Weapons (CCW) Protocol II (amended 1996) addresses restrictions and limitations on the use of landmines. Under this treaty, "Mine" means a munition placed under, on or near the ground or other surface area and designed to be exploded by the presence, proximity or contact of a person or vehicle.

In 1996, regulations designed to improve the protection of civilians and humanitarian agencies were agreed. This is the only treaty that specifically deals with anti-vehicle mines, and has been signed by 94 countries. The protocol was revised in 1996 and has been ratified by 80 countries (as of November 2004).

However there is no requirement for detectability of AVM. Restrictions placed on remotely delivered AVM are minimal and there are none with respect to AVM laid outside marked areas. Some proposals have been made to tackle this lacuna, as well as a German government proposal regarding a "best practices" approach.

In respect of sensitive fuses and anti-handling devices, consensus has not so far been achieved to obtain a mandate to begin official negotiations on a new protocol under the CCW to address the problems caused by AVM. During the 9th session of the Group of Governmental Experts (GGE/CCW), Norway, New Zealand and Austria stated that mines with sensitive fuses which can be triggered by a person are APM and therefore banned. Germany insists on dealing with sensitive fuses and AHD exclusively in the context of the CCW, a position that is contrary to a German parliamentary resolution adopted in 2002. UNMAS stated during the 9th session of GGE/CCW that clearing anti-vehicle mines equipped with an anti-handling device is expensive and very time consuming.<sup>34</sup>

Discussions are currently under way to review the CCW. With a view to providing a basis for the work of this review, the co-ordinator of the CCW's Group of Governmental Experts (GGE) states that 'It is widely accepted that the humanitarian impact especially of non-detectable, long-lived AVMs far outweighs any military advantages they might have and that especially non-detectability of MOTAPM gives little military advantage but has a considerable impact on local population and humanitarian aid workers'.<sup>35</sup>

However, this view is not shared by all nations; for example Russia, China, Pakistan or Cuba. In the opinion of the Russian Federation, the inhumane character of landmines other than anti-personnel mines (MOTAPM), when used by the regular armed forces, as far as the civilian population is concerned, is to a large extent exaggerated.<sup>36</sup>

China believes that non-detectable mines, if properly used, according to Protocol II will not pose humanitarian risk to civilians<sup>37</sup>.

India states that the use of MOTAPM, explosives and other munitions by non-state actors conforms to no norms and therefore can cause considerable harm to the life and property of innocent civilians in unpredictable ways over a prolonged period of time<sup>38</sup>.

Germany states that the use of MOTAPM can cause humanitarian suffering and can be a serious impediment to humanitarian assistance, peacekeeping, reconstruction, social and economic development<sup>39</sup>.

#### National legislation

National legislation such as in Italy or parliamentary resolutions as in Germany provide restrictions and regulations in respect of anti-vehicle mines. National legislation on APM was approved by the Italian Parliament even before the Ottawa Treaty entered into force and adopts a wide definition of APM which does not foresee any exception for AVM equipped with AHD<sup>40</sup>. It includes also dual-use mines as well as any anti-manipulation devices in general<sup>41</sup>. The law (374/97) applies not only to the Italian territory but also to any other territory under Italian jurisdiction and control which would include those on NATO bases. The Italian Campaign to Ban Landmines noted a lack of any formal mechanism to carry out inspections and ongoing monitoring of implementation of this law<sup>42</sup>. In 2002 the German Parliament passed a resolution requesting the German Government "to influence Ottawa member states to share the position that an AVM with sensitive fusing which can be detonated by a person must be regarded as an APM, meaning that these mines are covered by the Convention" and "...to remove - step by step - from German stockpiles all AVMs which can pose a threat to civilians; and finally to strengthen (financial) support for mine action programs<sup>43</sup>.

#### National Approaches to sensitive fuses and anti-handling devices

A number of countries have begun to take action in regards to the problems with anti-handling and certain fuses. Bulgaria, Canada, Hungary and Slovenia have already destroyed or intend to destroy anti-vehicle mines with sensitive fuses and/or anti-handling devices. As another example, the Netherlands has declared it would not use its 10,000 DM-31 anti-vehicle mine unless it is assured that these mines cannot function in response to mine detection equipment<sup>44</sup>.

Germany also stockpiles 125,000 DM 31 anti-vehicle mines, and it is to be hoped it will take comparable measures. The manufacturer of the mine has stated that this anti-vehicle mine violates the Ottawa Convention and must be modified. "In order to fulfill the obligations of the Ottawa Convention a modernization of the stockpiled anti-vehicle mine DM 31 would cost 40-50 million DM (20-25 million €)"<sup>45</sup>.

The German manufacturer of the DM 31 states that the German Army still stockpiles a huge amount of mechanically laid anti-vehicle mines and off route mines which, 'once deployed, act in an uncontrolled manner and are not able to distinguish between military and civilian targets. Some of these mines violate the Ottawa Convention, which makes it necessary to modernize them'.<sup>46</sup>

### European Parliament

The European Parliament recently carried a resolution that “all types of anti-handling devices target humanitarian mine clearance personnel” and that “tripwires, breakwires, tilt-rods, low-pressure fuses, anti-handling devices and similar fuses are prohibited for States Party to the [Ottawa] Convention.

“The European Parliament urges... all Member States and parties to the Ottawa Convention to insist that any mine which is likely to be detonated by the presence, proximity or contact of a person is an antipersonnel mine prohibited by the Convention. The Parliament also notes that this means specifically that tripwires, breakwires, tilt-rods, low-pressure fuses, anti-handling devices and similar fuses are prohibited for States Party to the Convention.

The European Parliament also requests EU Member States immediately to take measures to ensure that anti-vehicle mines which are likely to be detonated by the presence, proximity or contact of a person are destroyed in accordance with the provisions of the Ottawa Convention<sup>47</sup>.

### Ottawa Convention

With regards to article 2 of the Ottawa Convention (the article dealing with definitions) there is an ongoing discussion among member states about mines equipped with sensitive fuses and/or anti-handling devices. As noted by the ICRC, some member states (eg South Africa, Austria, Canada, Ireland, Italy, Norway, New Zealand, Switzerland) share the view, that mines fitted with sensitive fuses like breakwires, tilt rods, tripwires and low-pressure fuses meet the definition of an anti-personnel mine and are prohibited under the convention<sup>48</sup>.

The United Kingdom appears to take a different view, stating that ‘On the definition of anti-personnel mines in the Convention, the UK does not accept that certain so-called sensitive fuses for anti-vehicle or anti-tank mines are banned by the Convention.’<sup>49</sup>

Based on the negotiating history, the object and purpose of the Convention and the basic rules of treaty interpretation, the ICRC insists that any mine which is likely to be detonated by the presence, proximity or contact of a person is an antipersonnel mine and therefore prohibited by the Ottawa Convention. The ICRC refers specifically to tripwires, breakwires, tilt-rods, low-pressure fuses and similar fuses, which are prohibited for State Parties and notes that there is considerable ambiguity concerning which anti-handling devices are permitted and which are not.

“If a mine is easily detonated by the presence, proximity or contact of a person this is the result of its design”. ICRC urges States Parties to clarify this issue at the 2004 Nairobi Review Conference<sup>50</sup>.

The Justice and International Mission Unit, Synod of Victoria and Tasmania of the Uniting Church in Australia has recently published the positions of 141 governments. The report concludes that “many of the responses [from States Parties] recognised that anti-vehicle mines do cause humanitarian impacts on civilian populations and some...acknowledged that existing restrictions on anti-vehicle mines were inadequate...A growing number of governments are recognizing the negative humanitarian impact of anti-vehicle mines and the need to take action...”<sup>51</sup>

### Self-destruct and self-neutralisation technologies and future use of anti-vehicle mines

These technologies are proposed as a way out of the problems created by sensitive anti-vehicle mine fuses. The mines would effectively destroy themselves or render themselves inactive after a set period of time after being laid or remotely delivered. There are differing views as to the effectiveness of such technological solutions<sup>52</sup>. The USA for example states that self-destruct and self neutralisation technologies can eliminate the problems cause by long-lived landmines. China appears to have the opposite view as to the effectiveness of such devices<sup>53</sup>.

### Phasing out anti-vehicle mines and anti-handling devices

Some countries have begun to consider the anti-vehicle mine itself, or certain types, as well as anti-handling devices themselves. During a meeting in Bamako, Mali in February 2001, military spokespeople from Canada and France signified their interest in phasing out anti-tank mines over the coming decade as other technologies became available to discriminate targets more effectively and destroy military vehicles only. The USA is also phasing out anti-vehicle mines that do not self-destruct. A senior US official also stated at a meeting in Kunming, China in April 2004 that the US did not use anti-handling devices and encouraged other countries to do likewise<sup>54</sup>.

## **10. Conclusion**

Across a variety of programme and project areas, humanitarian agencies seek to meet the challenge of anti-vehicle mines. They considerably hamper and hinder mine and ordnance clearance operations, endanger indeed, in some cases, target our humanitarian staff, put at risk the lives of countless refugees, IDPs, villagers as well as NGO personnel, and make many humanitarian, relief and development operations more expensive than they should be.

The CCW protocol 2 does not sufficiently address the growing threat of anti-vehicle mines. There are positive steps already taken by a number of countries, such as making all anti-vehicle mines detectable, and clearly prohibiting the use of at least some anti-handling devices. Reliance on technical solutions such as self-destruct and self-deactivation technology does not solve the problem.

Experience with anti-personnel mines suggests that the problems caused by weapons use is based in the weapons themselves. International Humanitarian Law can regulate both given the political will of nations to find appropriate and effective solutions to the problems presented by anti-vehicle mines and their various fusing systems.

The authors would like to recommend for further consideration a number of approaches:

- to recognize and implement the ICRC's clear statements that (anti-vehicle) mines with person-activated fuses must be considered as anti-personnel mines and are prohibited under the Ottawa Treaty;
- to follow the European Parliament request immediately to take measures to ensure that anti-vehicle mines which are likely to be detonated by the presence, proximity or contact of a person have to be destroyed in accordance with the provisions of the Ottawa Convention
- to widen the scope of internationally binding legislation to prohibit anti-handling devices
- to provide a full and transparent review of stocks and production programmes for such weapons and systems;
- to publish full information about all sensitive fuses under Article 7 reports for the Ottawa Treaty
- to consider ways to further strengthen and improve international humanitarian law with regard to the indiscriminate and disproportionate use of anti-vehicle mines, and the enforcement of existing regulations.

November 19, 2004. Texts: Editorial Committee (Actiongroup landmine.de, MAG, The Uniting Church in Australia Justice and International Mission Unit, Synod of Victoria and Tasmania); Photos © landmine.de and MAG. Photographs may not be reproduced without permission.

## CONTACTS

### **Actiongroup Landmine.de**

Rykestr. 13  
10405 Berlin  
Phone +49 –30-446858-14  
FAX +49 –30- 42801688  
E: [info@landmine.de](mailto:info@landmine.de)  
[www.landmine.de](http://www.landmine.de)

Members of Actiongroup Landmine.de are: Bread for the World, Christoffel Mission for the Blind, German Justitia et Pax, German Committee for Freedom from Hunger, German Caritas, Social Service Agency of the Evangelical Church in Germany, EIRENE International, Handicap International (Germany), Kindernothilfe (Help for Children in Need), medico international, Misereor, OXFAM Germany, Pax Christi, Solidarity International (SODI), terre des homes, UNICEF-Germany.

### **MAG**

47 Newton Street  
Manchester  
M1 1FT  
Phone: +44 161 236 4311  
Fax: +44 161 236 6244  
E: [maguk@mag.org.uk](mailto:maguk@mag.org.uk)  
[www.magclearsmine.org](http://www.magclearsmine.org)

### **The Uniting Church in Australia Justice and International Mission Unit, Synod of Victoria and Tasmania**

Justice and International Mission Unit  
130 Little Collins St  
Melbourne Victoria Australia 3000  
Phone: +61-3-9251 5265  
Fax: +61-3-9654 2136  
[www.vic.uca.org.au](http://www.vic.uca.org.au)

## ENDNOTES

---

1 MOTAPM mine types include: anti-helicopter, anti-material fragmentation, anti-amphibious (these are shallow water mines, used on landing beaches and river crossings to target military vehicles such as armoured fighting vehicles), anti-tank blast, anti-tank shaped charge, anti vehicle directional fragmentation, direction fragmentation (often referred to by their generic name of "claymore" – these mines were included because they had sufficient power to endanger vehicles and fall under the definition of MOTAPM), and off-route mines. CCW/GGE 5-17 July 2004, The current detectability status of Mines Other Than Anti-Personnel Mines currently available to States Parties to the Convention on Certain Conventional Weapons, prepared by Geneva International Centre for Humanitarian Demining at the request of the Coordinator for MOTAPM

2 [United Kingdom Non Paper, Sensitive fuses in mines other than anti-personnel mines, CCW, 8-19 November 2004, Geneva

3 Statement on matters pertaining to Article 2, United Kingdom delegation, Fifth Meeting of State Parties, Bangkok, 18 September 2003

4 CCW Amended Protocol II, 1996

5 "Anti-handling device" means a device intended to protect a mine and which is part of, linked to, attached to or placed under the mine and which activates when an attempt is made to tamper with or otherwise intentionally disturb the mine. (Article 2.3, Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction, 1997)

6 Report on technical Expert Meeting on anti-vehicle mines with sensitive fuses or with sensitive anti-handling devices, hosted by ICRC 13-14 March 2001

7 ICBL argues that "antivehicle mines with anti-handling devices or sensitive fuses that explode from an unintentional act are banned by the Mine Ban Treaty. The ICBL calls on States Parties that have a different understanding to make their views known publicly." ([www.icbl.org](http://www.icbl.org), 17th November 2004). This present paper argues that AHDs cannot differentiate between intentional and unintentional acts and are targeted at deminers

---

8 The Convention on Conventional Weapons' Amended Protocol 2 bans such devices in its article 3: "It is prohibited to use mines, booby-traps or other devices which employ a mechanism or device specifically designed to detonate the munition by the presence of commonly available mine detectors as a result of their magnetic or other non-contact influence during normal use in detection operations".).

9 United Kingdom Non Paper, Sensitive fuses in mines other than anti-personnel mines, CCW, 8-19 November 2004, Geneva

10 Some magnetic fuses (passive mode) are constructed to measure the change of a magnetic field caused by a person approaching the mine, Diehl GMBH&CO, Patent DE 3338936, 9 May 1985

11 Letter from Col. Fitch, August 1998, to Mines Action Canada

12 CF 1996 landmine database

13 Jane's Defense Weekly, 27 March 1996, p 12; Mines Action Canada(MAC)/Pax Christi, Netherlands, email correspondence, January 1998; MAC/Levert, February 1999. Information on cost obtained from DND officials by Ottawa Citizen reporter, May 1999.

14 In particular remotely delivered mines equipped with anti-handling can be activated when civilians disturb them unintentionally. When such mines are tilted to an angle of more than 20 degrees the AHD will cause the ignition. Report on the technical Expert Meeting on anti-vehicle mines with sensitive fuses or with sensitive anti-handling devices, hosted by the ICRC 13-14 March 2001

15 Materialamt der Bundeswehr: Munitionsmerkblatt Panzerabwehrmine DM1274 A1, June 1993

16 Civilian Footsteps – Forces exerted on the ground by civilians during everyday activities, Sports Biomechanics Research Group, Loughborough University, published by Landmine Action, May 2001)

17 National annual report submitted in accordance with Article 13, para. 4 of the Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices as Amended on 3 May 1996 to the CCW, Geneva, 26 November 2003; and Ludovic Monnerat & Adrian Muller 1999: Die Schweizer Armee ist ein Vorreiter in der Vernichtung von Personenminen, 7. März 1999 <http://www.checkpoint-online.ch/Checkpoint/Armee/Arm0020-MinesAPSuisse-D.html>

18 Anti-Vehicle Mines: Effects on humanitarian assistance and civilian populations, ICRC paper to Group of Governmental Experts of the States Parties to the Convention. CCW/GGE/II/WP.9, dated 15 July 2002

19 CCW/GGE/II/WP.9 Anti-vehicle mines: effects on humanitarian assistance and civilian populations International Committee of the Red Cross July 2002, 15 July 2002

20 CCW/GGE/II/WP.9 Anti-vehicle mines: effects on humanitarian assistance and civilian populations International Committee of the Red Cross July 2002, 15 July 2002

21 Effect of Anti Vehicle (AV) Mines on Humanitarian Programmes – Response to Specific Questions From The ICRC, HALO Trust, 17 March 2000

22 Email from Aleu Ayieny Aleu, OSIL Director, 8 October 2003 to Landmine Monitor; Angela Stephens, "Land Mine Accident Indicates Lurking Dangers in Sudan," U.N. Wire (Sudan), 15 October 2003.

23 National Post Online 11 Jan 02

24 BBC - January 2002, - by Ayanjit Sen

25 19 October 2002 by Xiong Changyi, Xinhua 2002

26 Angola Press Agency (Luanda), 16 February 2004

27 AFP, 7 April 2004

28 Reuters, 12 and 14 May 2004

29 Reuters/ Newsday/Daily Telegraph/Hindustan Times, 24 May 2004

30 Janes Mines and Mine Clearance, 6th edition, 2001-02

31 Ministry of Defence Croatia : Croatian Defence Catalogue 2003; <http://www.landmine.de/images/TMPR-6.pdf>

32 Bureau of Political Military Affairs, Factsheet February 27, 2004. The report referred to was published by UN-OCHA

33 Statement on Matters pertaining to Article 2 at the fifth meeting of States Parties, Bangkok, 18 September 2003

34 Notes by Actiongroup Landmine.de during 9th session of GGE/CCW, Wednesday, 10.11.2004, and Deutscher Bundestag, Drucksache 14/9438

35 CCW/GGE 5-17 July 2004, Proposals and ideas on MOTAPM in the GGE

36 CCW/GGE/VI/WG.2/WP.6 Improvised explosive devices, Prepared by the Russian Federation, 20 November 2003

37 CCW/GGE 5-17 July 2004, Statement by Delegation of China, Comments and proposals on the paper by the MOTAPM Coordinator, 5 July, 2004

38 CCW/GGE/IV/WG.2/WP.2 Irresponsible use of mines other than antipersonnel mines (MOTAPM) by non-state actors, by India, 10 March 2003

39 CCW/GGE 5-17 July 2004, Statement by the Delegation of Germany: Sensitive Fuses and Sensors for Mines Other Than Anti-Personnel Mines (MOTAPM), Proposal for Best Practice Prepared by Germany, 5 July 2004

40 National annual report submitted in accordance with Article 13, para. 4 of the Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices as Amended on 3 May 1996 to the CCW, Geneva, 26 November 2003

41 Landmine Monitor 1999

42 ibid

43 Bundestagsdrucksache 14/9436, 12.6.2002

44 ICRC , Anti-vehicle mines with sensitive fuses. Positions and relevant practice of States Parties on Article 2 of the Ottawa Treaty, 21 June 2004.

45 Dynamit Nobel (2001) Sperren ohne Landminen, Berlin February 2001. "Eine Modernisierung der vorhandenen PzAbwVMi DM 31 zwecks Erfüllung des Ottawa Übereinkommens würde Kosten zwischen 40 und 50 Mio DM verursachen."

---

46 Dynamit Nobel: Letter to Angelika Beer (Member of the German Parliament), February 2, 2001. „...die Bundeswehr hat immer noch große Bestände an Antifahrzeugminen (Panzerabwehrverlegeminen und Richtminen), welche einmal verlegt, über Tage und Wochen unkontrolliert wirksam sind und zwischen zivilen und militärischen Zielen nicht unterscheiden können. Teilweise verstoßen diese Minen gegen das Ottawa Abkommen, so dass eine Modernisierung der Sperrmittel unabdingbar ist.“

47 P6\_TA-PROV(2004) 0048, Cluster munitions, (B6-0108, 0111, 0112 and 0120/2004) European Parliament resolution on cluster munitions. Texts adopted at the sitting of Thursday 28 October 2004.

48 ICRC , Anti-vehicle mines with sensitive fuses. Positions and relevant practice of States Parties on Article 2 of the Ottawa Treaty, 21 June 2004.

49 Statement to the Standing Committee on the General Status and Operation of the Convention, 16 May 2003

50 Intervention of the International Committee of the Red Cross at the Standing Committee on the General Status and Operation of the Convention, 16 May 2003 during discussions on Article 2

51 *The Road to a Truly Mine-Free World, Government Attitudes to Anti-Vehicle Mines*, ICBL Australian Network, Inc and Justice and International Mission Unit Synod of Victoria and Tasmania, Uniting Church of Australia, November 2004; report available at [www.vic.uca.org.au](http://www.vic.uca.org.au)

52 “Self-destruct and Self-neutralisation (SD & SN) is technologically difficult and not cost-effective. SD&SN are not 100% reliable, SD&SN that fail are still dangerous to civilians and using SD&SN can be a false sense of security”. CCW/GGE 5-17 July 2004, Statement by the Delegation of China, Comments and proposals on the paper by the MOTAPM Coordinator, 5 July, 2004

53 Ibid.

54 Richard Kidd, Director, Office for Weapons Removal and Abatement, Bureau of Political Military Affairs, US Department of State, 28 April 2004, in response to oral questions, Kunming, China