

November 2012

## The Humanitarian Impact of Antivehicle Mines

Landmine Monitor has been recording the negative humanitarian impact of landmines, including antivehicle mines,<sup>1</sup> since it began reporting in 1999.<sup>2</sup> From 1999 through the end of 2011, the Monitor identified 5,693 casualties from antivehicle mines.<sup>3</sup> Casualties were recorded in 52 states and six *other areas*.<sup>4</sup> Available data reveals that **the majority of recorded antivehicle mine casualties are civilians** (over 70%).<sup>5</sup> Since 1999, the Monitor has identified new use of antivehicle mines in 36 countries and three *other areas*.<sup>6</sup>

### Use

Non-state armed groups (NSAG) have accounted for most of the antivehicle mine use reported by the Monitor. In 2011, NSAGs used antivehicle mines in Afghanistan, India, Kenya, Libya, Pakistan, Senegal, Somalia, South Sudan, and Yemen. Syria was reported to have used antivehicle mines during early 2012. From 1999 to early 2012, the Monitor reported new use of antivehicle mines by government forces in 11 countries and by NSAGs in 30 countries and three *other areas*.<sup>7</sup>

<sup>1</sup> Antivehicle mines are frequently referred to as “anti-tank mines” and classified among mines other than antipersonnel mines (MOTAPM). They are designed to be detonated by the presence, proximity or contact of a vehicle as opposed to a person. Antivehicle mines with sensitive fuzes that cause them to function as antipersonnel mines are prohibited under the Mine Ban Treaty, according to the ICBL and most States Parties to the Mine Ban Treaty that have expressed a view; this includes antivehicle mines which rely on a tripwire, breakwire, or a tilt rod as the sole firing mechanism.

<sup>2</sup> However, the impact of antivehicle mines was not always disaggregated in casualty reporting, particularly prior to 2004.

<sup>3</sup> According to available data 1,552 people were killed, 2,757 injured and, for 1,384 people the outcome of the incident was unknown.<sup>3</sup> Data was known to be incomplete. As with antipersonnel mines, data on antivehicle mine casualties often goes unreported, and reports on mine casualties often do not differentiate among type of mines or other explosive items.

<sup>4</sup> The latest complete casualty data available is through the end of 2011. States with antivehicle mine casualties were: Afghanistan, Algeria, Angola, Azerbaijan, Belarus, Bosnia and Herzegovina, Burundi, Cambodia, Chad, Chile, Colombia, Croatia, Cyprus, Djibouti, DR Congo, Egypt, Eritrea, Ethiopia, FYR Macedonia, Georgia, Germany, Guinea-Bissau, India, Iran, Iraq, Israel, Jordan, Kuwait, Lao PDR, Lebanon, Liberia, Mali, Mauritania, Morocco, Mozambique, Myanmar, Nepal, Niger, Pakistan, Russia, Senegal, Serbia, Somalia, South Korea, South Sudan, Sri Lanka, Sudan, Syria, Thailand, Turkey, Uganda, and Yemen.

*Other areas* with antivehicle mine casualties were: *Abkhazia, Kosovo, Nagorno-Karabakh, Palestine, Somaliland, and Western Sahara.*

<sup>5</sup> Among casualties whose status was known, civilians were 2,427 of the total; deminers, 63; and security forces, 943. Military casualties from antivehicle mines made up the majority of all casualties in Macedonia (76%), Niger (58%), Pakistan (55%) and Sri Lanka (98%). In Senegal, 48% of the casualties were military.

<sup>6</sup> From 1999 to early 2012, the Monitor identified new use of antivehicle mines in: Afghanistan, Algeria, Angola, Central African Republic, Chad, Colombia, Democratic Republic of Congo, Eritrea, Ethiopia, Georgia, Greece, Guinea-Bissau, India, Iran, Iraq, Kenya, Lebanon, Liberia, Libya, Macedonia, Myanmar/Burma, Namibia, Niger, Pakistan, Philippines, Russia, Senegal, Somalia, South Sudan, Sri Lanka, Sudan, Syria, Thailand, Turkey, Uganda and Yemen, as well as *Abkhazia, Kosovo, and Palestine*. Based on the results of mine/ERW casualty and clearance data before 1999 the use of antivehicle mines occurred in many other countries.

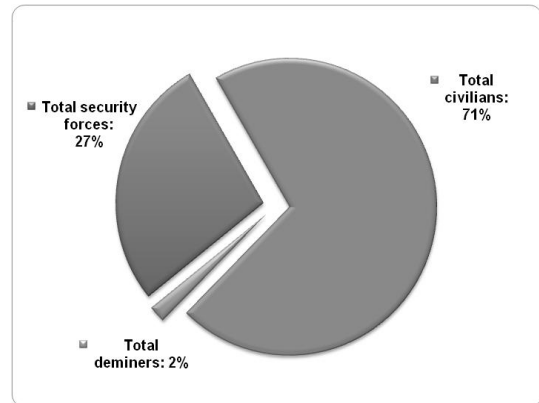
<sup>7</sup> New use by government forces from 1999 to early 2012: Angola, Central African Republic, Eritrea, Georgia, Greece, India, Iraq, Libya, Myanmar/Burma, Pakistan, and Syria. New use by NSAGs from 1999 to early 2012: Afghanistan, Algeria, Angola, Chad, Colombia, DR Congo, Ethiopia, Georgia, Guinea-Bissau, India, Iran, Iraq,

## Casualties

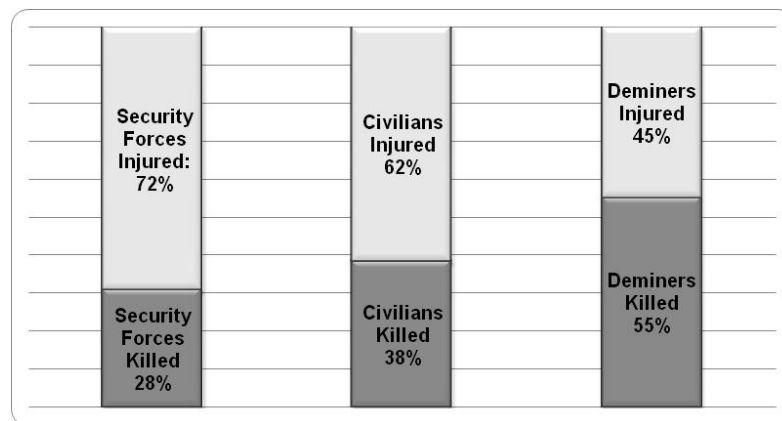
Twelve states have the most casualties from antivehicle mines, of these all but three are States Parties to the Mine Ban Treaty (as in the chart below). States Parties to the Mine Ban Treaty with responsibility for mine/ERW victims have resolved to assist all victims regardless of the cause of injuries and disability or socioeconomic needs.

Data on antivehicle mine casualties remains incomplete and underreported. Often national databases do not differentiate adequately between antipersonnel and antivehicle mine incidents.<sup>8</sup> In situations where both improvised explosive devices (IEDs) and antivehicle mines have caused casualties in the same country or area during a reporting period, comprehensive disaggregation is not always possible.<sup>9</sup>

**Figure 1. The global breakdown of antivehicle mine casualties (1999-2011)**



**Figure 2. Fatality rate of antivehicle mine casualties by civilian status (1999-2011)<sup>10</sup>**



Data shows that civilians are significantly more likely to be killed by an antivehicle mine blast than are military and security personnel. The lowest survival rate following an antivehicle mine incident was registered among deminers.

Kenya, Lebanon, Liberia, Libya, Macedonia, Myanmar/Burma, Namibia, Niger, Pakistan, Russia, Senegal, Somalia, South Sudan, Sri Lanka, Sudan, Turkey, Uganda, and Yemen, as well as *Abkhazia*, *Kosovo*, and *Palestine*. Additionally, through clearance of antivehicle mines, the Monitor identified past use of antivehicle mines, prior to 1999 in another 33 states and four other areas: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Cambodia, Chile, Croatia, Cuba, Djibouti, Ecuador, Egypt, Estonia, Germany, Guatemala, Hungary, Israel, Jordan, Kuwait, Lao PDR, Latvia, Lithuania, Mali, Mauritania, Morocco, Mozambique, Oman, Poland, Serbia & Montenegro, Syria, Tajikistan, Tunisia and Zambia, as well as *Nagorno-Karabakh*, *Somaliland*, *Taiwan*, and *Western Sahara*. This list is not, however, considered exhaustive, and does not include data from countries or areas in which clearance is not taking place.

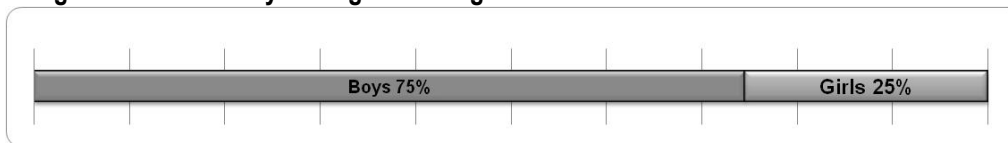
<sup>8</sup> To a lesser extent, some data collection systems cannot adequately distinguish between ERW and landmines.

<sup>9</sup> See notes on casualty data in Afghanistan and Pakistan casualties for 2011 below.

<sup>10</sup> Total worldwide 1999–2011: 881 Security Forces, 2,422 civilians, 62 deminers. Not including unknown status or killed/injured outcomes.

## Age and gender of casualties

**Figure 3. Ratio of boys and girls among child antivehicle mine casualties 1999–2010**



Globally, most civilian casualties of antivehicle mines were adult men (70%), as is the case with antipersonnel mine casualties. More than one in five civilian antivehicle mine casualties was a child.<sup>11</sup> Boys accounted for 16% of known casualties and girls for 5%. Child casualties mostly occurred when members of families were traveling together in the same vehicle. Women accounted for 9% of civilian casualties.

## An ongoing casualty threat

### Antivehicle mine casualties in 2011

Antivehicle mines killed and injured people in 19 states and three other areas in 2011.<sup>12</sup> Of the total, 11 countries and one area registered more antivehicle mine casualties in 2011 than antipersonnel mine casualties; five of those 11 countries had no recorded antipersonnel mine casualties during the year.<sup>13</sup>

Between 2010 and 2011, the percentage of casualties recorded as caused by antivehicle mines increased in relation to the annual total of mine/ERW casualties.<sup>14</sup> In 2011, some 17% (663) of casualties for which the explosive item responsible was recorded were reported to have been caused by antivehicle mines, compared with 10% (375) of casualties in 2010.<sup>15</sup>

<sup>11</sup> There were 475 children among casualties where the age and sex was known. Children are under the age of 18.

<sup>12</sup> Afghanistan, Algeria, Angola, Azerbaijan, Bosnia and Herzegovina, Cambodia, Croatia, Iran, Lebanon, Libya, Mali, Morocco, Myanmar, Pakistan, Somalia, South Sudan, Sudan, Syria, Thailand, and *Nagorno-Karabakh, Somaliland and Western Sahara*.

<sup>13</sup> Algeria, Cambodia, Iran, Lebanon, Libya, Mali, Morocco, Pakistan, Somalia, South Sudan, Sudan, and *Western Sahara*. Iran (6), Lebanon (1), Mali (2), Morocco (3), Sudan (53 antivehicle mine casualties) had no antipersonnel mine casualties in 2011. Mali is believed to be contaminated by antivehicle mines only.

<sup>14</sup> Mine/ERW casualty figures include individuals killed or injured in incidents involving devices detonated by the presence, proximity, or contact of a person or a vehicle, such as all antipersonnel mines, antivehicle mines, abandoned explosive ordnance (AXO), unexploded ordnance (UXO), and victim-activated IEDs. AXO and UXO, including cluster munition remnants, are collectively referred to as ERW. Not included in the totals are: estimates of casualties where exact numbers were not given; incidents caused or reasonably suspected to have been caused by remote-detonated mines or IEDs (those that were not victim-activated); and people killed or injured while manufacturing or emplacing devices.

<sup>15</sup> Casualties caused by mines, victim-activated IEDs, cluster munition remnants, and ERW in 2011 totaled 4,286. At least 1,320 people were killed and another 2,907 people were injured; for 59 casualties it was not known if the person survived the incident.

**States with 100 or more antivehicle mine casualties reported from 1999 to 2011**

<b>Afghanistan</b>	1,056
<b>Angola</b>	171
<b>Cambodia</b>	872
<b>Chad</b>	100
<b>Eritrea</b>	188
<b>Niger</b>	102
Pakistan	1,185
Russia	205
<b>Senegal</b>	181
<b>South Sudan</b>	147
Sri Lanka	102
<b>Sudan</b>	375

*Note: **Bold** indicates States Parties to the Mine Ban Treaty*

In three states, **Pakistan**, **South Sudan**, and **Sudan**, casualties from antivehicle mines increased exponentially from 2010 to the 2011.<sup>16</sup> In 2011, 293 antivehicle mine casualties in **Pakistan** represented almost half of the global antivehicle casualties in 2011. (The situation in Pakistan is elaborated below).

In **South Sudan**, 145 casualties from antivehicle mines were reported, more than two-thirds of all mine/ERW casualties in 2011, compared to just two antivehicle mine casualties in 2010. In 2012, it was reported in South Sudan that antivehicle mines were being newly laid on roads, “forcing demining teams to clear the routes over and over again.”<sup>17</sup>

**Sudan** went from registering no casualties from antivehicle mines in 2010 to identifying 53 in 2011; the total included 11 peacekeepers from the United Nations Interim Security Force for Abyei (UNISFA) from one antivehicle mine incident.

**The situation in Pakistan**

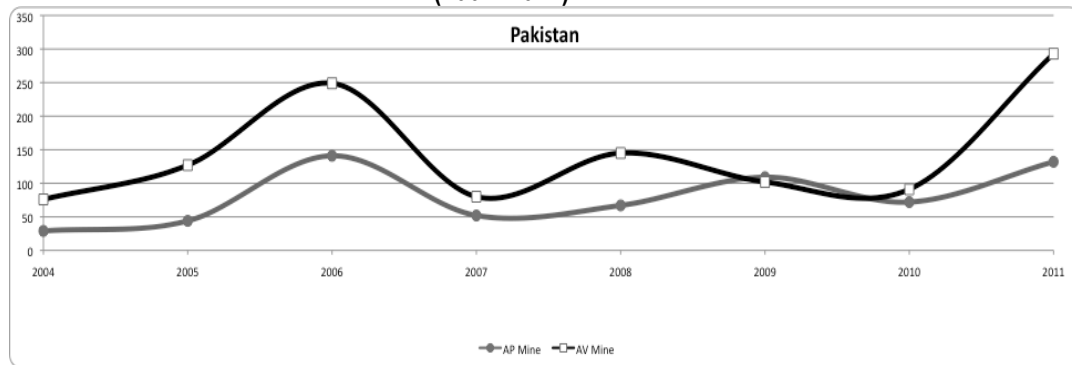
**Pakistan** had 293 reported casualties from antivehicle mines in 2011, the highest number among all states. This number was higher than the previous peak of 249 antivehicle mine casualties recorded for 2006 when the Monitor reported that in Pakistan, “Antivehicle mines posed the greatest threat to both civilians and military personnel.” The 2011 total was more than three times the 91 antivehicle casualties identified in 2010.

In 2011, the Monitor registered a large number of mine/ERW casualties in Balochistan, the Federally Administered Tribal Areas (FATA), and Khyber Pakhtunkhwa (formerly the North-West Frontier Province), where the Pakistan army and security forces have been engaged in armed conflict with Pakistani Taliban, Al-Qaeda, and Baloch insurgents. Many of the mines used appeared to be recently laid as either a result of conflict between anti-government armed groups or as a result of inter-tribal conflicts.

<sup>16</sup> While Sudan and South Sudan have official data collection mechanisms in place, in Pakistan most casualty data is collected through the media which provides limited information on explosive item types. Therefore, some fluctuations in explosive item types within Pakistan could be related to media reporting.

<sup>17</sup> Small Arms Survey, Anti-tank and anti-personnel mines in Unity and Jonglei states, 6 March 2012, [reliefweb.int/report/south-sudan-republic/anti-tank-and-anti-personnel-mines-unity-and-jonglei-states](http://reliefweb.int/report/south-sudan-republic/anti-tank-and-anti-personnel-mines-unity-and-jonglei-states)

**Figure 4: Comparison of antivehicle (AV) mine and antipersonnel (AP) mine casualties in Pakistan (2004–2011)**



Despite numerous mine casualties recorded by NGOs and in the media, Pakistan has stated that it “is not a mine-afflicted country”<sup>18</sup> and that “mines have never caused humanitarian concerns in Pakistan...”<sup>19</sup> Pakistan has repeatedly affirmed that it “faces no problem of un-cleared mines; hence no casualties were caused accidentally.”<sup>20</sup> However, Pakistan reported on 1,200 “IED attacks” causing casualties in 2011, “including” antipersonnel mines and antivehicle mines.<sup>21</sup>

Since the beginning of reporting in 1999, the Monitor has noted the absence of, and need for, an integrated casualty data collection mechanism in Pakistan. Explosive incident reporting in Pakistan is based on monitoring media information, which does not always clearly differentiate between types of landmines or between landmines and IEDs.<sup>22</sup>

Media reporting on Pakistani casualties indicated that in 2012 some IEDs were used in combination with antivehicle mines.

In two of the most heavily mine-affected states—**Afghanistan and Cambodia**—the ratio of recorded antivehicle to antipersonnel mine casualties increased significantly since 1999.

### **The situation in Afghanistan**

In contrast to antipersonnel mines, heavily used by all parties in 30 years of conflict including dense mine belts and mined areas of varying density, antivehicle mines are found mainly in western provinces, notably Herat, where they were laid irregularly in small numbers on and beside roads and across large areas of farmland, aiming to interdict Soviet transport communications. As a result, the significant and growing threat of antivehicle mines has been largely overshadowed by the more immediate danger of antipersonnel mines, with antivehicle mines constituting only a small percentage of total mines cleared (4% in

<sup>18</sup> Pakistan CCW Amended Protocol II Article 13 Report, Form B, 15 October 2002.

<sup>19</sup> Pakistan CCW Amended Protocol II Article 13 Report, Form F, 8 October 2004.

<sup>20</sup> Pakistan CCW Amended Protocol II Article 13 Report (for the period 16 August 2006 to 15 August 2007), Form B; and Article 13 Reports, Form B, 10 November 2006, 2 November 2005, and 8 October 2004

<sup>21</sup> Pakistan CCW Amended Protocol II Article 13 Report (for calendar year 2011), Form B.

<sup>22</sup> Of 636 explosive weapon casualties recorded by the Sustainable Peace and Development Organization (SPADO) from media reporting for 2011, the Monitor identified 569 that were indicated to be caused by victim-activated explosive items including mines and IEDs as well as ERW which exploded due to the presence, proximity or contact of a person or vehicle.

2011).<sup>23</sup> Moreover, *Mujaheddin* use of Iranian M-19 and Italian TC-6 minimum-metal antivehicle mines has further complicated clearance.

In March 2012, Afghanistan submitted a request for a 10-year extension to its Mine Ban Treaty Article 5 deadline, setting a precedent by committing itself on humanitarian grounds to clear not just antipersonnel mines as required by the Mine Ban Treaty, but all antivehicle mines and ERW. The request states, “There are AT [anti-tank] minefields and BF [battlefield ERW] with a higher priority for clearance than some AP [antipersonnel] minefields.”<sup>24</sup> Therefore, 1,319 antivehicle minefields covering 253.9km<sup>2</sup>, some 41% or the remaining area to be cleared, are also included in Afghanistan’s 10-year work plan.

Antivehicle mines were also reported to be in use by non-state armed groups in Afghanistan.<sup>25</sup> However, by far the most immediate threat to the general population arises from victim-activated IEDs placed by anti-government elements along roads. Many victim-activated IEDs are placed to act like antivehicle mines.<sup>26</sup> Although often crudely manufactured with chemical fertilizer, many have sufficient explosive charge to destroy heavy vehicles including civilian transportation such as cars and buses.<sup>27</sup>

According to the UN, the “majority of IEDs that kill civilians in Afghanistan are victim-activated pressure plate IEDs.”<sup>28</sup> However the casualties of IEDs are not statistically differentiated in UN reporting which in 2011 included 967 civilian deaths and 1,586 injuries resulting from all types of IEDs, including command detonated and victim-activated devices, representing almost one-third of total civilian casualties of conflict in Afghanistan.<sup>29</sup> In 2012, UN reporting indicated that (all types of) IEDs caused more than half of civilian deaths in conflict in the first six months of the year.<sup>30</sup> The United Nations Assistance Mission in Afghanistan (UNAMA) reported that “most IEDs causing civilian casualties had not been directed at a specific military objective, but rather were placed routinely on civilian roadsides, resulting in indiscriminate deaths and injuries of civilians in violation of international humanitarian law. As a result, many IED incidents that resulted in civilian casualties could amount to war crimes.”<sup>31</sup>

<sup>23</sup> 23,570 antipersonnel mines and 1,032 antivehicle mines were cleared in Afghanistan in 2011.

<sup>24</sup> Article 5 deadline Extension Request, 29 March 2012, p. 6.

<sup>25</sup> Afghan Ministry of Interior Affairs, “13 Oct- Five Armed Taliban Killed, Three Wounded and 23 Arrested by Afghan National Police” [moi.gov.af/en/news/13677](http://moi.gov.af/en/news/13677)

<sup>26</sup> By definition however these IEDs mostly fall into the category of antipersonnel mines, since they are activated by a pressure plate with a trigger sensitive enough to be activated by a person. “The majority of pressure plate IEDs in Afghanistan have approximately 20-25kg of explosive; more than twice the explosive content of a standard anti-tank mine yet they often have the trigger sensitivity of an anti-personnel mine. This means they effectively act as a massive antipersonnel landmine with the capability of destroying a tank; civilians who step or drive over these IEDs have no defense against them and little chance of survival.” UNAMA, “Afghanistan, Mid-Year Report 2012, Protection of Civilians in Armed Conflict,” Kabul, July 2012, p. 13.

<sup>27</sup> Recently, 19 civilians, mostly women and children, were killed by such a roadside IED in Dawlat Abad district of the northern Balkh province. “Enforce IED ban, UN tells Afghan Taliban,” Associated Press, 22 October 2012.

<sup>28</sup> UNAMA, “Afghanistan, Mid-Year Report 2012, Protection of Civilians in Armed Conflict,” Kabul, July 2012, p. 13.

<sup>29</sup> UN Assistance Mission in Afghanistan and UN Office of the High Commissioner for Human Rights, “Afghanistan, Annual Report 2011, Protection of Civilians in Armed Conflict,” Kabul, February 2012, p. 16.

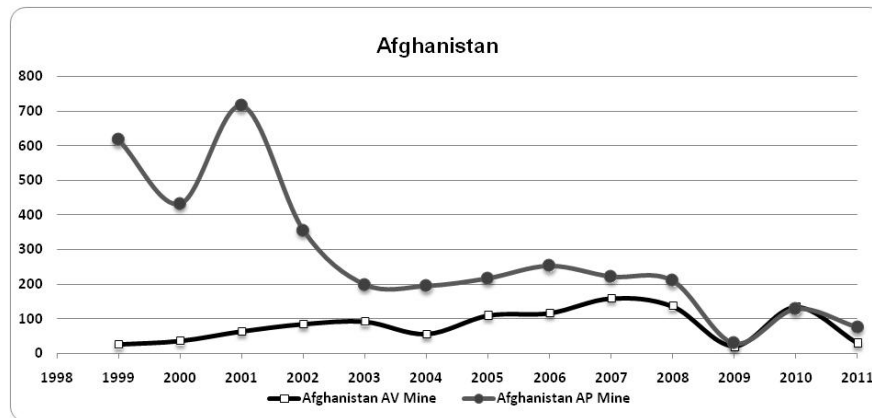
<sup>30</sup> UNAMA, “Afghanistan, Mid-Year Report 2012, Protection of Civilians in Armed Conflict,” Kabul, July 2012, p. 13.

<sup>31</sup> UNAMA, “Afghanistan, Mid-Year Report 2012, Protection of Civilians in Armed Conflict,” July 2012, p. 3.

In October 2012, UNAMA called on the Taliban leadership “to publicly reiterate a ban on these weapons [victim-activated IEDs] and to stop their use,” adding that IEDs which acted like mines caused “devastating harm to civilians.”<sup>32</sup>

Victim-activated IEDs are recognized by UNAMA and MACCA as antipersonnel mines and, as such, part of Afghanistan’s Article 5 clearance obligations.<sup>33</sup> Reports of rapid deterioration in the trigger mechanism of pressure plate IEDs suggest, though, that they will not present the same long-term hazard as that posed by antipersonnel and antivehicle mines.

**Figure 5. Comparison of antivehicle (AV) mine and antipersonnel (AP) mine casualties in Afghanistan<sup>34</sup> (1999–2011)**



### The situation in Cambodia

In Cambodia, the impact of antivehicle mines is out of proportion to the number of antivehicle mine incidents or antivehicle mines cleared. Antivehicle mine incidents in Cambodia usually result in multiple deaths and in most recent years they have caused almost twice as many fatalities as antipersonnel mines, particularly affecting farming communities.<sup>35</sup>

Incidents have occurred mainly in the western and northern provinces bordering Thailand, an area of confrontation between Khmer Rouge and government forces in the 1980s where guerrillas sometimes stacked antivehicle mines on top of each other. Accidents occur along or near old roads and on farm tracks, particularly after heavy rainfall softens route surfaces.

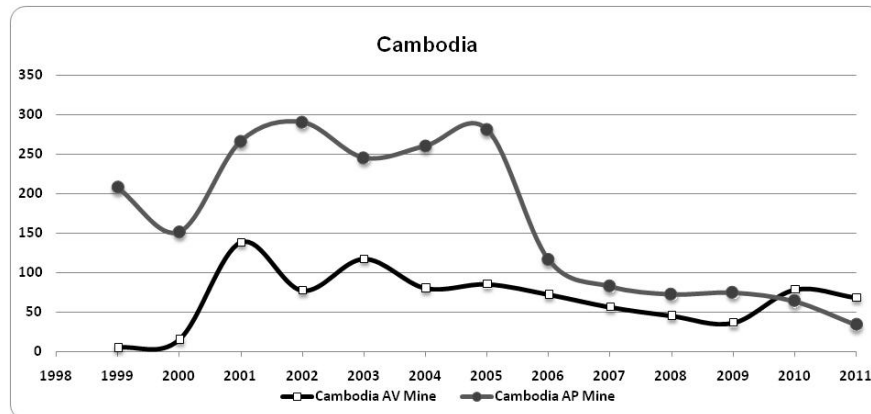
<sup>32</sup> “Enforce IED ban, UN tells Afghan Taliban,” Associated Press, 22 October 2012.

<sup>33</sup> UNAMA, “Afghanistan, Annual Report 2011, Protection of Civilians in Armed Conflict,” February 2012, p. 16; Article 5 deadline Extension Request, 29 March 2012, p. 69.

<sup>34</sup> Afghanistan 1999-2011, total antipersonnel mine casualties: 3,651; total antivehicle mine casualties: 1,056. Note: there was an anomaly in Afghanistan casualty reporting for 2009 as both antipersonnel and antivehicle mines were classified as unknown mine types. In some years, including 2011, data collection was limited by the unstable or deteriorating security situation.

<sup>35</sup> Since 2005, antivehicle mines killed 155 people (353 people were injured) and antipersonnel mines killed 88 people (666 injured), see Cambodian Mine Action and Victim Assistance Authority, “CMVIS Data”, www.cmaa.gov.kh.

Figure 6. Comparison of antivehicle (AV) mine and antipersonnel (AP) mine casualties in Cambodia<sup>36</sup> (1999–2011)



There are concerns that use of heavier farm vehicles could also result in detonations of antivehicle mines undetected in the course of rapid reclamation of farm land in recent years. Compounding the threat, the metal casing of Chinese TM-46 and some other antivehicle mines has proved more resistant to deterioration than wooden box mines or plastic-coated antipersonnel mines. Antivehicle mine accidents continued to kill and injure civilians, mostly rural farmers, in Cambodia in 2012.<sup>37</sup>

<sup>36</sup> Cambodia 1999–2011, total antipersonnel mine casualties: 2,140; total antivehicle mine casualties: 872.

<sup>37</sup> Two antivehicle mine accidents reported in Cambodia in October 2012 caused at least 14 civilian casualties including 5 people seriously injured. See “Anti-tank mine left from Cambodia war kills 3,” 8 October 2012, [www.huffingtonpost.com/huff-wires/20121008/as-cambodia-mine-explodes/](http://www.huffingtonpost.com/huff-wires/20121008/as-cambodia-mine-explodes/); and “Six Cambodians killed by anti-tank mine: police,” 1 October 2012, [reliefweb.int/report/cambodia/six-cambodians-killed-anti-tank-mine-police](http://reliefweb.int/report/cambodia/six-cambodians-killed-anti-tank-mine-police).