



April 2012

The Humanitarian Impact of Antivehicle Mines

Landmine Monitor has been recording the negative humanitarian impact of landmines, including antivehicle mines,¹ since it began reporting in 1999. From 1999 through the end of 2010, the Monitor identified over 5,000 casualties from antivehicle mines.² Casualties were recorded in 52 states and six other areas.³ Available data reveals that **more than three-quarters of recorded antivehicle mine casualties are civilians.**⁴ Since 1999, the Monitor has identified new use of antivehicle mines in 35 countries and three *other areas*.⁵

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, Libya, Myanmar/Burma, Niger, Pakistan, South Sudan, and Yemen. Libya and Syria were the only two governments reported to have used antivehicle mines during 2011. From 1999 to 2010, the Monitor reported new use of antivehicle mines by government forces in 10 countries and by NSAG in 30 countries and three *other areas*.⁶

¹ 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 that have 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.

² Data was known to be incomplete: 5,030 casualties of antivehicle mines were counted, but more incidents causing casualties were reported where the number of casualties was not differentiated from those caused by other mines in the annual data.

³ The latest complete casualty data available is through the end of 2010. 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.

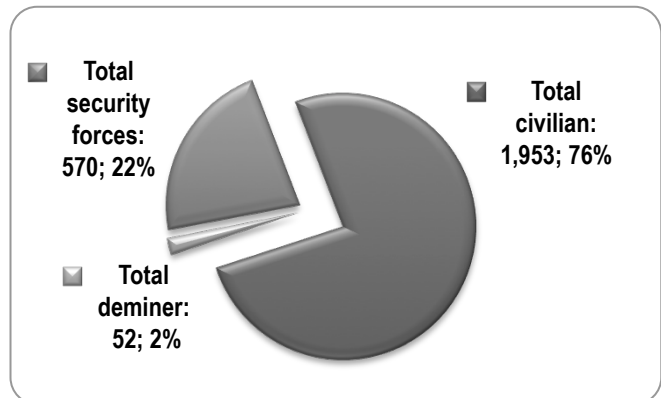
Other areas with antivehicle mine casualties were: *Abkhazia, Kosovo, Nagorno-Karabakh, Palestine, Somaliland, and Western Sahara.*

⁴ Among casualties whose status was known, civilians were 1,953 of the total; deminers, 52; and security forces, 570. In only one case, that of Pakistan, did military casualties from antivehicle mines (52%) make up the majority of all casualties. In Senegal, 48% of the casualties were military.

⁵ From 1999 to 2011, 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, 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.

⁶ New use by government forces from 1999 to 2010: Angola, Central African Republic, Eritrea, Georgia, Greece, India, Iraq, Libya, Myanmar/Burma, and Pakistan. New use by NSAGs from 1999 to 2010: Afghanistan, Algeria, Angola, Chad, Colombia, DR Congo, Ethiopia, Georgia, Guinea-Bissau, India, Iran, Iraq, 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

Figure 1. The global breakdown of antivehicle mine casualties (1999–2010)⁷

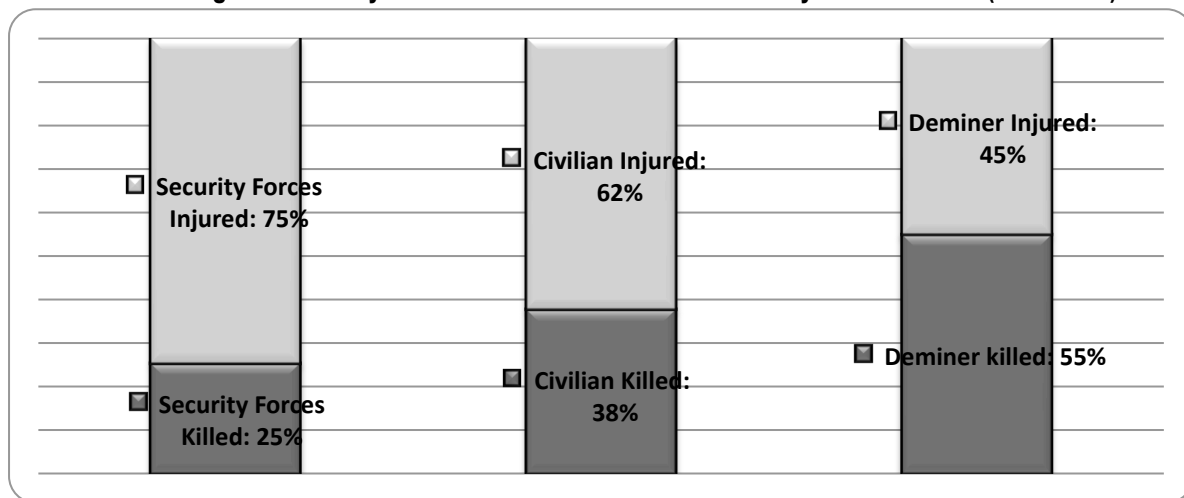


Casualties

The nine states and one *other area* with the most antivehicle mine casualties from 1999 to 2010 are Afghanistan (1,027), Pakistan (892), Cambodia (804), Sudan (322), Russia (205), Eritrea (188), Senegal (181), Angola (135), Chad (100), and *Somaliland* (92).

Data on antivehicle mine casualties, however, remains incomplete and underreported. Often, national databases do not differentiate between antipersonnel and antivehicle mine incidents. In situations where both improvised explosive devices (IEDs) and antivehicle mines have caused casualties, comprehensive disaggregation is not always possible.

Figure 2. Fatality rate of antivehicle mine casualties by civilian status (1999-2010)⁸



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.

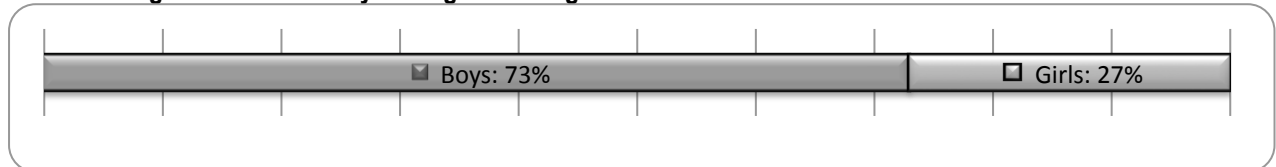
⁷ For 2,575 casualties where the status was known (1,892 were unknown).

⁸ Total worldwide 1999–2010: 570 Security Forces, 1,948 civilians, 52 deminers. Not including unknown status or killed/injured outcomes.

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.

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 (72%), as is the case with antipersonnel mine casualties. Almost one in five civilian antivehicle mine casualties was a child.⁹ Boys accounted for 14% 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

In two of the most heavily mine-affected states—Afghanistan and Cambodia—the number of recorded antivehicle mine casualties exceeded the number of antipersonnel mine casualties in 2010.¹⁰

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 in small numbers and irregularly 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 (3% in 2010). Moreover, *Mujaheddin* use of Iranian M-19 and Italian TC-6 minimum-metal antivehicle mines has further complicated clearance.

In the meantime, by far the most immediate threat to the general population arises from victim-activated IEDs placed by antigovernment elements along roads. Many victim-activated IEDs are placed to act like antivehicle mines.¹¹ Although often crudely manufactured with chemical fertilizer, many have sufficient explosive charge to destroy

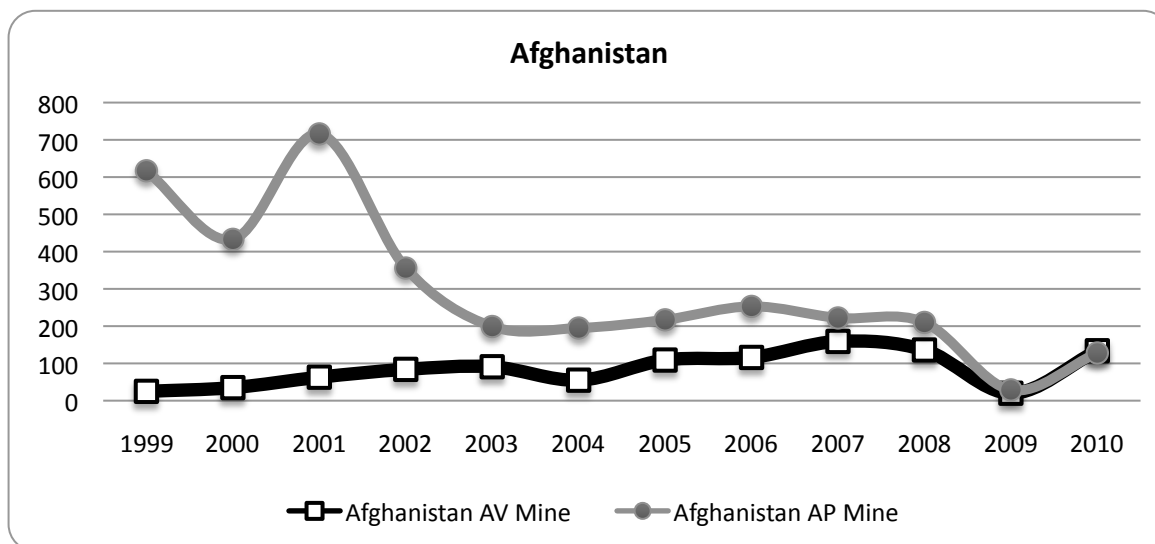
⁹ There were 333 children among casualties where the age and sex was known. Children are under the age of 18.

¹⁰ Not including mines recorded as victim-activated IEDs.

¹¹ By definition however these IEDS mostly fall into the category of antipersonnel mines, since they are activated by a pressure plate with a trigger as sensitive enough to be activated by a person.

heavy vehicles. The UN recorded 967 civilian deaths and 1,586 injuries resulting from IEDs in 2011, representing almost one-third of total civilian casualties.¹² Reports of rapid deterioration in the trigger mechanism suggest, though, that they will not present the same long-term hazard as that posed by antipersonnel and antivehicle mines.

Figure 4. Comparison of antivehicle (AV) mine and antipersonnel (AP) mine casualties in Afghanistan¹³ (1999–2010)



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.¹⁴

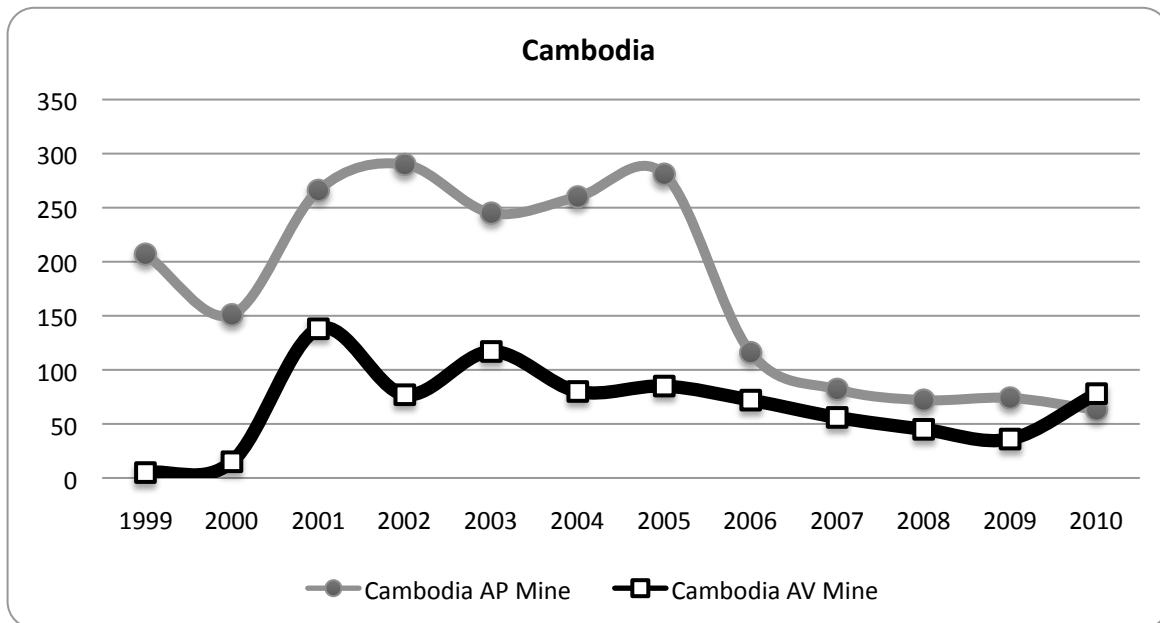
Incidents have occurred mainly in the western and northern provinces bordering Thailand, an area of confrontation between Khmer Rouge and government forces in the 1980s where guerrillas sometimes stacked antivehicle mines on top of each other. Accidents occur along or near old roads and on farm tracks,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

¹² 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.

¹³ Afghanistan 1999-2010, total antipersonnel mine casualties: 3,575; total antivehicle mine casualties: 1,027. Note: there was an anomaly in Afghanistan casualty reporting for 2009 as both antipersonnel and antivehicle mines were classified as unknown mine types.

¹⁴ Since 2005, antivehicle mines killed 144 people (296 people were injured) and antipersonnel mines killed 83 people (638 injured), see Cambodian Mine Action and Victim Assistance Authority, “CMVIS Data”, www.cmaa.gov.kh.

Figure 5. Comparison of antivehicle (AV) mine and antipersonnel (AP) mine casualties in Cambodia¹⁵ (1999–2010)



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.

The situation in other affected states

Available data suggests that globally around 1 in 15 landmines cleared during demining operations in 2010 was an antivehicle mine (some 27,000 antivehicle mines destroyed compared to 388,000 antipersonnel mines; see Table 1 for clearance results in selected states). Central and South America have seen very little use of antivehicle mines; Europe has seen the highest recorded levels. Half of all mines encountered in Croatia were antivehicle mines, as described overleaf. Chile has reported a remarkable number of antivehicle mines remaining—more than 95,000—but due to the remoteness of the mined areas only one confirmed incidents has been reported from these mines.

¹⁵ Cambodia 1999–2010, total antipersonnel mine casualties: 2,107; total antivehicle mine casualties: 804.

Table 1. Mine clearance results in 2010 in selected states and other areas

State	Antivehicle mines destroyed	Antipersonnel mines destroyed	Antivehicle mines as % of total mines destroyed
Afghanistan	846	26,942	3.0
Azerbaijan	142	28	83.5
Bosnia and Herzegovina	114	2,350	4.6
Cambodia*	824	39,715	2.0
Croatia	1,803	1,809	49.9
Iraq	162	19,598	0.8
Jordan	11,906	20,641	36.6
<i>Nagorno-Karabakh</i>	95	360	20.9
Sri Lanka	245	129,289	0.2
South Sudan/Sudan	1,387	6,183	18.3
Taiwan	2,989	18,126	14.2
Thailand	63	832	7.0

*Humanitarian NGO clearance figures only

Croatia

Croatia is contaminated by a large number of antivehicle mines dating back to conflict in the 1990s over the break-up of the former Yugoslavia. The Croatian Mine Action Centre (CROMAC) reports it has destroyed a total of almost 25,000 antivehicle mines since clearance started in 1998 but estimates more than 23,000 remain. These are mostly found in flat, agricultural lands in the eastern counties bordering Serbia that were key areas of confrontation during the war. However, a complicating factor has been the discovery of antivehicle mines in unexpected locations such as forest, exemplified by a current clearance task on more than 260,000m² which is thought to hold more than 1,000 antivehicle mines.