

A man with a beard and mustache, wearing a light-colored button-down shirt and camouflage pants, is crouching on a pile of rubble in a war-torn city. He is holding a machine gun with a long magazine. The background shows damaged buildings and debris.

ACTION ON  
ARMED VIOLENCE

**AOAV**

## **PATTERNS OF HARM**

Five years of explosive violence  
2011 – 2015

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**With thanks to**  
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**Cover illustration**  
A Free Syrian Army fighter takes cover during clashes with Syrian Army in the Salaheddine neighbourhood of central Aleppo August 7, 2012. © REUTERS/Goran Tomasevic

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## Introduction

***Mortars are weapons that kill or maim whoever is within the impact zone after they explode and they are unable to distinguish between combatants and civilians. A decision to deploy them in a location where a large number of civilians is likely to be present, is a decision that the commander should know will result in the death and/or injuries of some of those civilians.***

**UN International Commission of Inquiry Report on Libya, 1 June 2011<sup>i</sup>**

Since 2011, AOAV has collected and analysed data on the use of explosive weapons worldwide as part of our Explosive Violence Monitoring Project (EVMP). Our EVMP database now contains more than five years of data collated from English-language news reporting across the globe. This report, ***Patterns of Harm***, looks at the five years worth of data we have recorded and seeks to draw your attention to the terrible – and predictable – patterns of harm that occur when explosive weapons are used in populated areas.

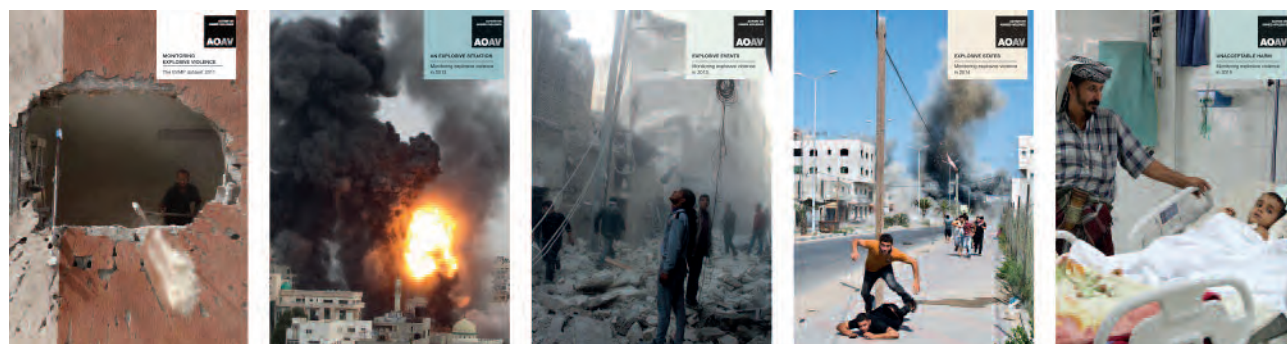
These five years have not been quiet ones. From January 2011 to December 2015, the EVMP recorded 188,325 deaths and injuries from explosive violence around the world.

The beginning of the EVMP coincided almost exactly with the outbreak of the Arab Spring protests across much of the Middle East. And as this report is written, the Syrian civil war is still ongoing, at the cost of hundreds of thousands of lives and millions displaced. In addition, 2014 saw the outbreak of hostilities in Ukraine, the rise of ISIS in Iraq and Syria and the devastating effects of Operation Protective Edge in Gaza. And in 2015, Boko Haram's bloody campaign of suicide bombings and the Saudi-led 'Decisive Storm' intervention killed and injured thousands in Nigeria and Yemen.

Over these five years one hard truth has been constant: civilians have borne the brunt of the explosive weapons use around the world. 77% of the total number of deaths and injuries (145,565) recorded were ordinary people going about their daily business. In some years, the percentage of civilians harmed in this way rose as high as 82%.

Despite on-going efforts to reduce civilian harm in warzones, the stark message of our report is this: the majority of those reported harmed by explosive violence worldwide are still civilians and will continue to be so unless dramatic international efforts take place. When explosive weapons were used in areas defined as 'populated' – i.e. having a likely high concentration of civilians – the percentage of those killed or injured who were civilians reaches an average of 91%.

And while the effects of this explosive violence may be most obvious in a warzone, the EVMP also shows that explosive violence is widespread. From 2011 to



Five years of explosive violence monitor reports.



A child walks down the staircase of his shelled apartment block near Semenivka, Ukraine.  
© Dirk-Jan Visser for PAX and UNOCHA

2015, AOAV recorded at least one incident of explosive violence in 110 different countries and territories. There was also a concerning 'creep' of certain types of violence. 2015 saw 21 countries impacted by suicide bombings – the most countries ever recorded witnessing this type of violence. Such violence is reflective of the increasing use of improvised explosive devices (IEDs) around the world – in the last five years, such weapons have been responsible for 56% of recorded deaths and injuries from explosive violence.

The overall numbers reported here, can only ever be suggestive of the true scale of the damage caused by explosive weapons. We do not claim that these figures represent each and every person harmed by explosive violence. Nonetheless, they throw into stark relief the sheer size of the problem. These last five years have seen – alongside escalating levels of civilian harm – an awakening to the urgent need for policy changes to reduce this harm.

The UN Secretary-General has repeatedly noted the importance of achieving a political commitment to refrain from using explosive weapons in populated areas. As of June 2016, 53 states and territories and four state groupings have publically acknowledged the harm caused by such usage.

***Ultimately, civilians in Syria, Gaza, Israel, Afghanistan, Libya, eastern Ukraine and other conflict hotspots pay the price when the shells aimed at military targets end up hitting homes, hospitals and schools. This simply has to stop. These explosive weapons are designed for open battlefields, not built-up urban areas [...] This is not about the weapons themselves – it's about where and how they are used.***

**ICRC President Peter Maurer, October 2014<sup>ii</sup>**

***Patterns of Harm*** shows more than ever the necessity of building on these successes to combat the suffering caused by explosive weapons worldwide. AOAV calls on states to condemn the use of explosive weapons with wide area effects in populated areas and to join ranks with the growing number of states who do the same. Only together can this avoidable horror be curtailed.



## Key findings

### OVERVIEW

Over five years of monitoring explosive violence around the world, AOAV recorded 188,325 deaths and injuries as a result of 12,566 incidents of explosive weapons use. Of these, 145,565 (77%) were reported as civilians.

The key findings in this report – *Patterns of Harm* – show that:

- Of the 188,325 deaths and injuries recorded from 2011-2015, **145,565 (77%) were civilians**. The remainder (42,760) were armed actors.
- When explosive weapons were used in populated areas, **91%** of deaths and injuries were reported as civilians. This compares to **33%** in areas not reported as populated.
- Every year since the monitor began AOAV has seen an **increase in both total deaths and injuries and civilian deaths and injuries**.
  - In 2015, 43,795 deaths and injuries were recorded, 33,307 of whom were civilians; this was, respectively, **45% and 54% more than recorded in 2011**.
- At least one death or injury was recorded in **110 countries and territories** over the five years.
  - Each year incidents were recorded in **an average of 61 different countries or territories**.
- Over the five years **Iraq, Syria, Pakistan, Afghanistan and Yemen** saw the highest levels of civilian harm.
  - Of these, four – Iraq, Syria, Pakistan and Afghanistan – saw more than 10,000 civilian deaths and injuries.
- **Improvised Explosive Devices (IEDs) consistently caused the most civilian harm of any weapon category**. Over the five-year period, AOAV recorded 105,071 deaths and injuries as a result of IED incidents, of which 86,395 (82%) were civilians. This is 59% of all civilian deaths and injuries recorded.
- Whilst representing only 19% of reported IED incidents, suicide bombings appear throughout the data as particular cause for concern. **Suicide bombings caused 39,717 deaths and injuries, of which 79% (31,447) were civilians**.
  - This represents a disproportionate 38% of all deaths and injuries from IED incidents.
  - Of the ten worst incidents over the five year period, **half were suicide bombings**.
- AOAV recorded **35,976 deaths and injuries caused by air-launched weaponry, of which 21,280 (59%) were civilians**.
  - When air-launched weapons were used in populated areas 86% of those killed and injured were civilians, compared to 19% in areas not reported as populated. **Both 2014 and 2015 saw a worrisome spike in casualties of air-launched weaponry**, with 9,200 civilian deaths and injuries recorded in 2015 – a rise of 4.5 times that recorded in 2013.
- Ground-launched weaponry caused **39,347 deaths and injuries, of which 32,903 (84%) were civilians**.
  - When used in populated areas, 92% of those killed and injured were civilians, compared to 38% in areas not reported as populated.

*If the weapons used are so inaccurate that they cannot be directed at military targets without imposing a substantial risk of civilian harm, then they should not be deployed.*

Human Rights Watch, August 2012<sup>iii</sup>



# EXPLOSIVE VIOLENCE FROM 2011 TO 2015

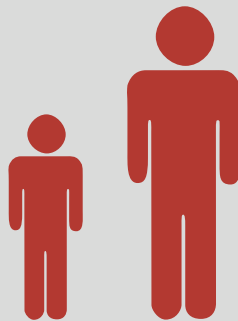
188,325

Total reported deaths and injuries

145,565

Total civilian deaths and injuries

2011 2015



54% increase in total civilian deaths and injuries



77% civilian casualties

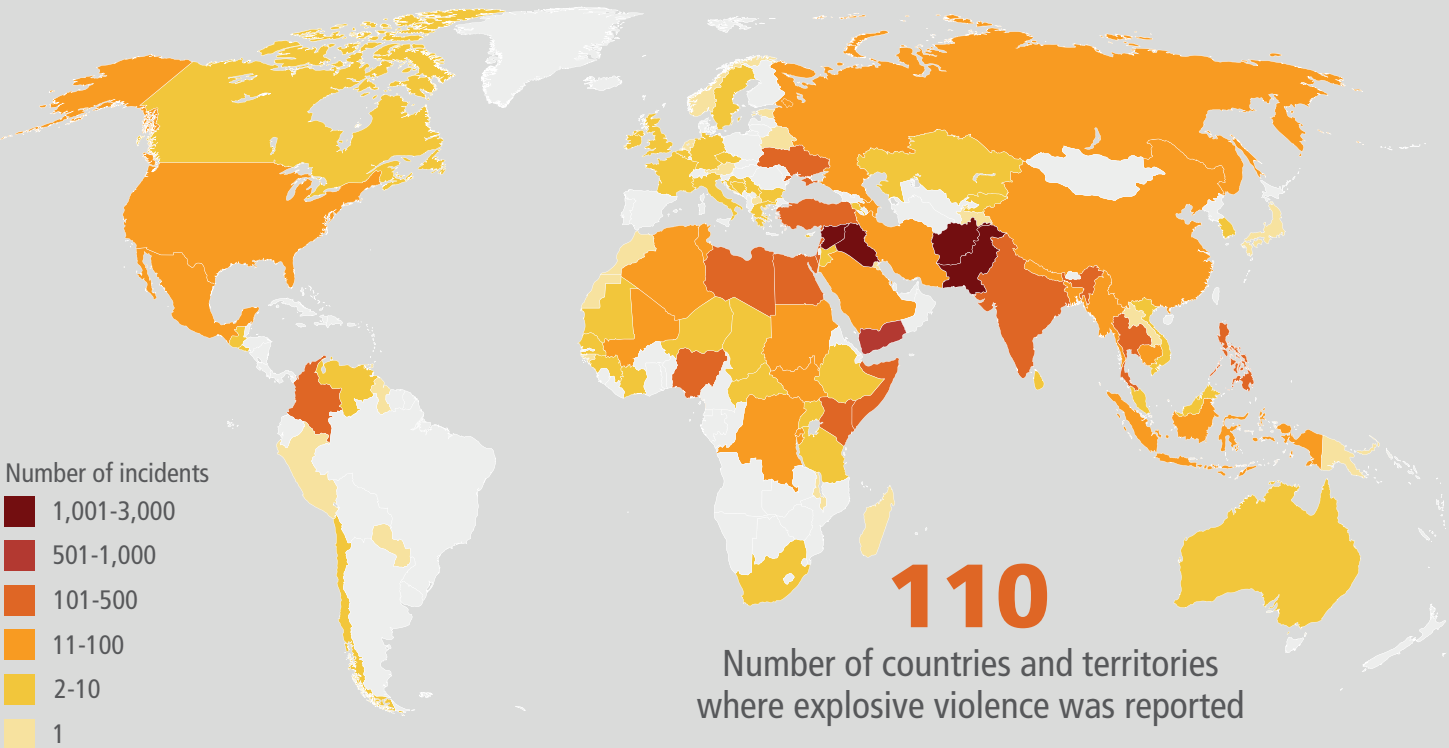
## Total deaths and injuries per year

2011	2012	2013	2014	2015
30,301	34,689	37,693	41,847	43,795

## Civilian deaths and injuries per year

2011	2012	2013	2014	2015
21,689	27,014	30,893	32,662	33,307

## Incidents of explosive violence recorded by AOA from 2011 to 2015



## Populated areas

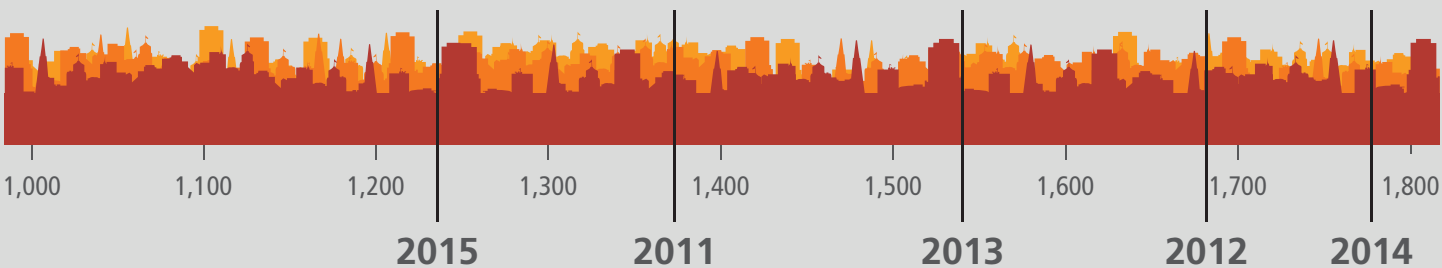


91% civilian deaths and injured

130,737

Total civilian deaths and injuries in populated areas

## Number of attacks in populated areas per year



## Less populated areas

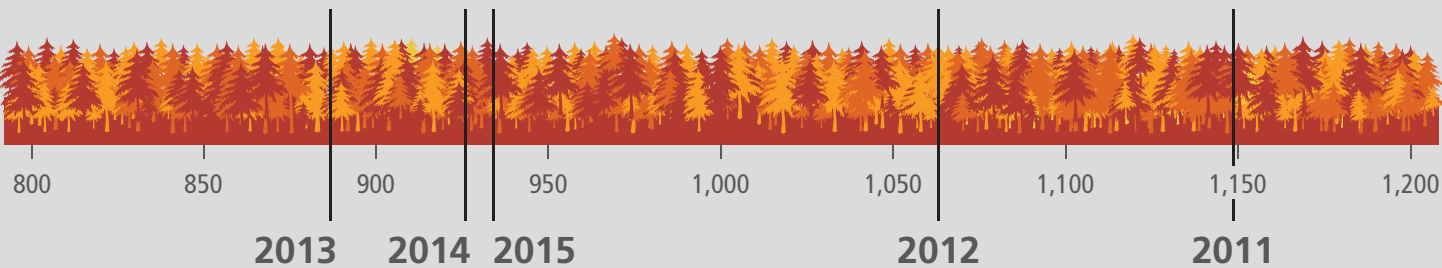


33% civilian deaths and injuries

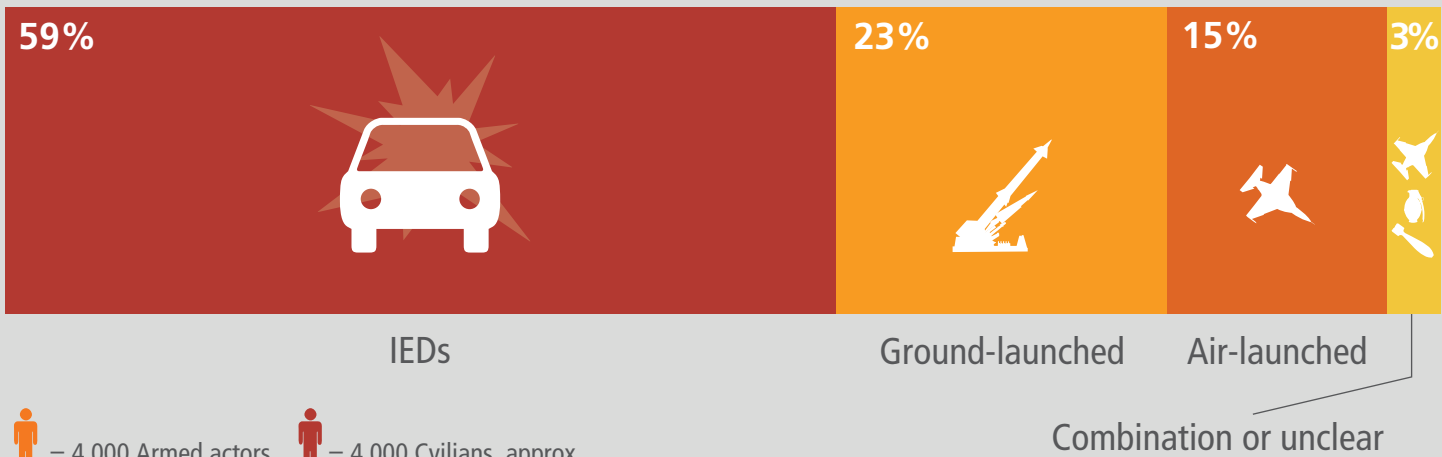
14,828

Total civilian deaths and injuries in less populated areas

## Number of attacks in less populated areas per year



## Total civilian deaths and injuries by weapon launch method



The casualties

Over five years – from between the beginning of January 2011 through to the end of December 2015 – AOA’s Explosive Violence Monitoring Programme (EVMP) has recorded 188,325 deaths and injuries from explosive weapons around the world.

These attacks, reported in English language media worldwide, were a result of the deliberate use of explosive weapons such as air-dropped bombs, ground-launched rockets and Improvised Explosive Devices. Of these, the majority of deaths and injuries – 145,565, or 77% of the total – were reported to have been civilians.

Over these 5 years, year in and year out, AOA witnessed a consistent rise in both civilian and overall deaths and injuries from explosive weapons around the world (see figure 1). Between 2011 and 2015 there was a 54% increase in civilian deaths and injuries globally from explosive weapons, as recorded in English language media.

In 2011 there were 21,689 civilian deaths and injuries; in 2012 there were 27,014; in 2013 this rose to 30,893; in 2014 there were 32,662; and in 2015 there were 33,307.

One consistent trend identified by AOA in every year of the 2011-2015 period is that when explosive weapons were used in a populated area – an area that

contains a dense concentration of civilians<sup>1</sup> – these weapons routinely caused extremely high levels of civilian harm. On average, 91% of deaths and injuries caused by incidents in populated areas were recorded as civilians. By comparison, civilians constituted on average of 33% of deaths and injuries caused by explosive attacks in lesser-populated areas.

Figure 1 Overall harm

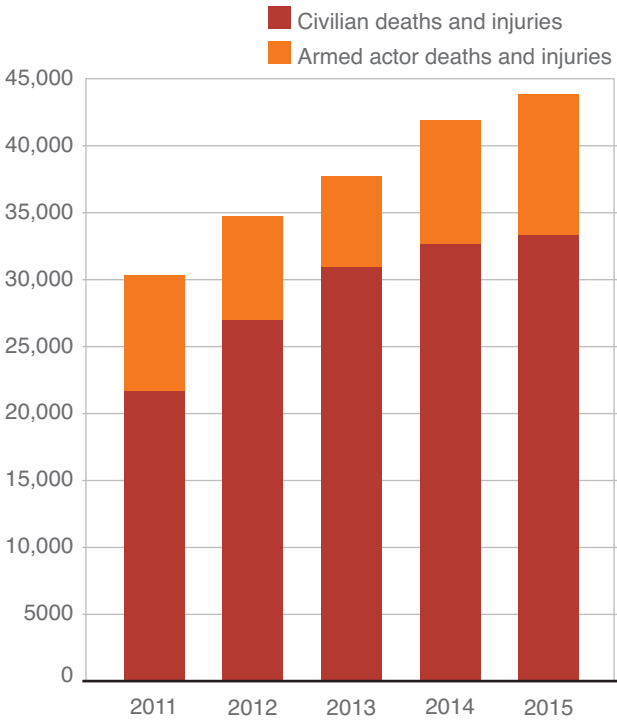


Figure 2 Worst incidents from 2011 to 2015

Date	Incident	Civilians killed or injured
30/10/2015	Multiple aerial bombs hit crowded marketplace in Douma, Syria	620
10/10/2015	Near-simultaneous suicide bombings hit peace rally in Ankara, Turkey	602
23/08/2013	Twin car bombings outside mosques in Tripoli, Lebanon	547
20/03/2015	Four suicide bombings target mosques used by Houthi rebels in San’aa, Yemen	482
10/05/2012	Two consecutive 1,000kg car bombs go off in Damascus city centre	427
20/04/2015	Airstrike hits missile base in city centre of San’aa, Yemen	423
31/03/2012	Car bomb in hotel basement causes fire and deaths, Thailand	419
28/11/2014	Multiple bombings outside central mosque in Kano, Nigeria	390
01/08/2014	Hundreds of airstrikes and shells hit Gaza as Hannibal Directive is authorised	373
21/02/2012	At least 250 rockets and artillery shells hit Homs, Syria over two-hour bombardment	361

Number of incidents

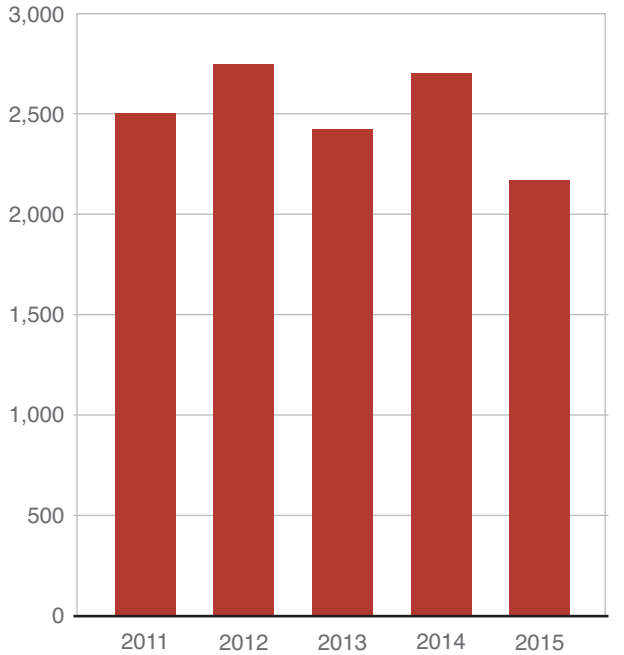
Over 5 years a total of some 12,566 incidents of explosive violence were recorded by AOA.

Unlike the steady rise in casualties, however, AOA did not record a year on year rise in incidents. As Figure 3 shows, the recorded number of incidents fluctuated across the time period, even dipping in the most harmful year – 2015.

Accordingly, our data suggests that the number of incidents recorded does not automatically correlate with the numbers of deaths and injuries recorded. For instance, from 2012 to 2013 – when there was a drop of about 300 in recorded incident numbers – there was a marked rise of around 3,000 in the number of recorded civilian deaths and injuries.

Over the five year period, AOA recorded 7,607 incidents that caused deaths or injuries occurring in populated areas, compared to 4,959 in lesser populated areas – or 61% and 39% respectively.

Figure 3 Incidents recorded



Gutted room at psychiatric hospital, Semenivka, Ukraine. © Dirk-Jan Visser for PAX and UNOCHA





## AIR-LAUNCHED EXPLOSIVE WEAPONS

### Civilians killed or injured by air-launched explosive weapons



### Percentage of incidents occurring in populated areas

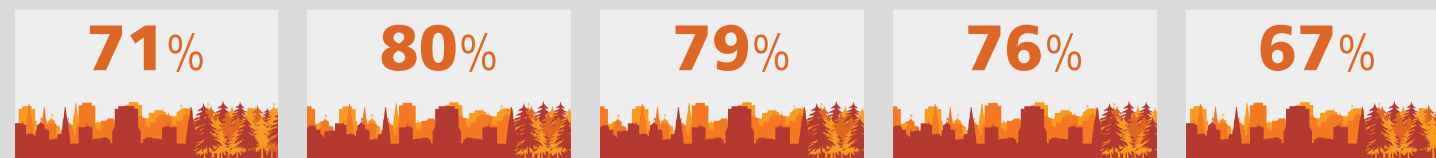


## GROUND-LAUNCHED EXPLOSIVE WEAPONS

### Civilians killed or injured by ground-launched explosive weapons



### Percentage of incidents occurring in populated areas

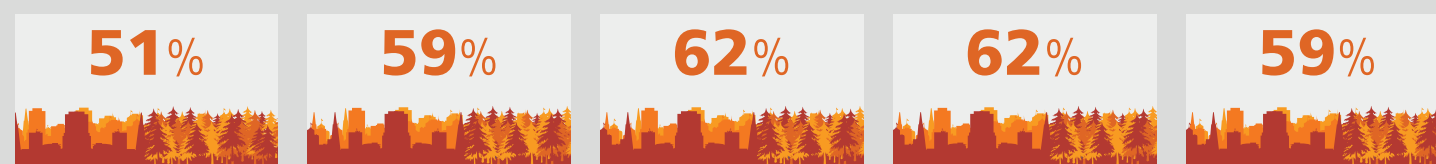


## IMPROVISED EXPLOSIVE DEVICES (IEDs)

### Civilians killed or injured by improvised explosive devices (IEDs)



### Percentage of incidents occurring in populated areas



## Weapon types

### IMPROVISED EXPLOSIVE DEVICES (IEDs)

In recent years, Improvised Explosive Devices (IEDs) have consistently been recorded as causing the most civilian deaths and injuries of all weapon types. Over the five year period, 105,071 people (86,395 civilians and 18,676 armed actors) were recorded killed or wounded by IEDs.

Of major concern is that 92% of all IED deaths and injuries in populated areas were civilians. In lesser-populated areas, this figure fell to 43%. It is worth noting that the civilian impact of such weapons in lesser-populated areas is higher than the equivalent figures for ground-launched weapons (38%) and air-launched weapons (19%).

### ACTIVATION METHODS

Of all the IED incidents recorded by AOAV since our records began, 67% (4,216 incidents) were not reported as being activated by a particular method.

Less than 1% of incidents were recorded as having been activated by timed detonation (52 incidents). 5% were recorded as victim-activated (for example by pressure pad) and 8% as remotely detonated.

Over the five-year period, AOAV recorded 1,171 suicide bombings, representing 19% of all IED incidents. Of these, 698 were 'non-specific IEDs' (60% incidents, largely representing suicide vests) and 446 (38%) were car bombs.

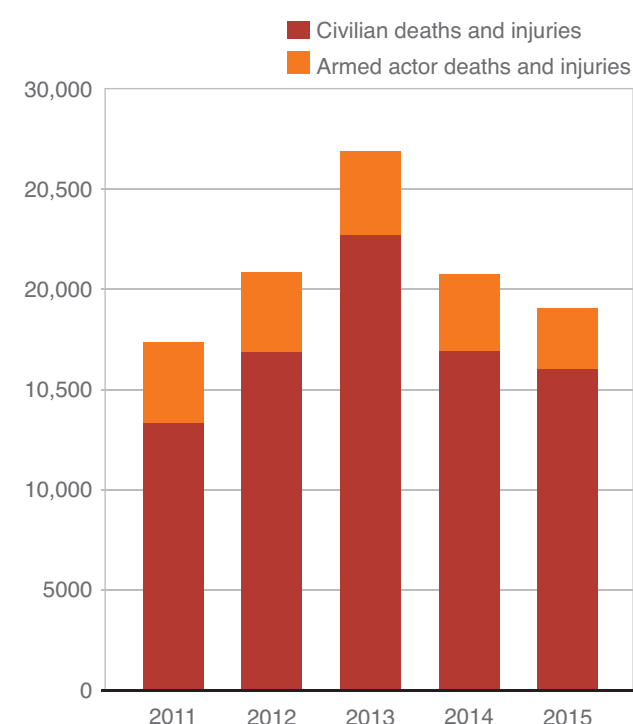
Car bombs consistently killed and injured more civilians per incident than other kinds of IED. This is to be expected given that much larger explosive payloads can be delivered by a car bomb than by, say, an explosive vest.

AOAV's figures have consistently shown that suicide bombings cause greater civilian harm than non-suicide IED attacks. Non-specific IED suicide bombings (typically suicide vests) in particular caused on average 27 civilian deaths and injuries per incident; for non-suicide non-specific IEDs this figure falls to 13.

These averages – although high – do not reflect the potential that suicide bombings have to cause huge civilian harm. Of the ten worst incidents recorded by AOAV over the five year period, five were suicide bombings.

In line with this, over the five-year period AOAV has also recorded a worrisome overall trend of rising civilian deaths and injuries from suicide bombings, as well as ever-greater numbers of countries affected.

Figure 4 Deaths and injuries from IEDs



This means that 56% of all deaths and injuries worldwide were caused by IEDs – 59% of all civilian deaths and injuries and 43% of all armed actors deaths and injuries.

Between 2011 and 2015, AOAV recorded 6,320 IED incidents resulting in 105,071 deaths and injuries. Of these, 86,395 (82%) were civilians. The average IED incident caused 14 civilian deaths and injuries. In populated areas, this rose to 21.

3,685 (58%) of reported IED incidents occurred in populated areas, compared to 2,635 (42%) incidents in areas not reported as populated.



In 2015, for example, suicide bombings were recorded in 21 countries – the highest number ever recorded both by AOA and other datasets. Indeed, 2015 saw a considerable uptick in the overall lethality of suicide bombings. This was in spite of similar incident numbers. Suicide strikes in 2015 resulted in an average of 36 civilian deaths and injuries per incident, markedly higher than the five-year average of 28. This rise can largely be attributed to an intensification of high-profile suicide bombings launched by Boko Haram and ISIS.

Figure 5 Deaths and injuries from suicide bombings

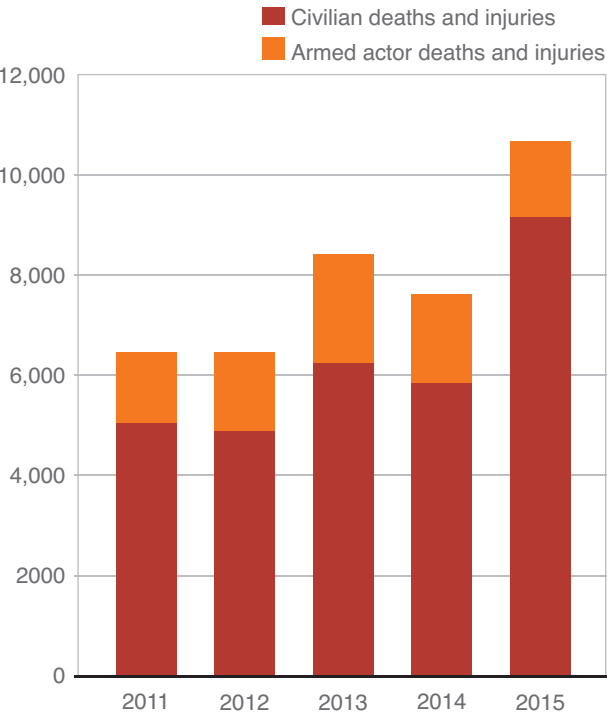


Figure 6 Incidents by different launch methods from 2011 to 2015

	Air-launched			Ground-launched			IED		
	Incidents	Civilians	Armed actors	Incidents	Civilians	Armed actors	Incidents	Civilians	Armed actors
2011	353	1743	1866	687	5932	2157	1401	13336	4145
2012	504	2535	2123	699	6798	1076	1452	16990	3952
2013	269	1934	1365	616	4990	636	1460	22772	4206
2014	736	5868	3770	777	8088	938	1100	17098	3547
2015	500	9200	5572	674	7095	1637	907	16199	2826

AIR-LAUNCHED WEAPONS

Over the five-years, AOA recorded 2,362 incidents of air-launched weapons being used globally. These air strikes caused at least 35,976 reported deaths and injuries. Of these, 21,280 (59%) were civilians. This makes for an average of 9 civilian deaths and injuries per air-launched incident.

Of the 2,362 incidents, 1,169 (49%) were recorded to have taken place in populated areas, while 1,193 (51%) took place in areas not reported as populated. Incidents involving air-launched weaponry used in towns and cities, caused on average 16 civilian deaths and injuries. This figure, however, does not reflect the true destructive potential of air-launched weaponry. The most lethal incident AOA recorded over the five-year period was the November 2015 airstrike on Douma market, Syria. It killed and injured at least 620 people.

It is clear that when air-strikes are ordered on populated areas, the chances of civilian deaths and injuries are almost inevitable.

The countries worst-affected by air-dropped weapons in the last five years were Syria (10,065 civilians killed or injured) Yemen (4,195) and Gaza (2,828).

Syria’s markedly higher numbers reflect five years of civil war in which air-launched weapons have repeatedly been deployed against civilians. The Gaza and Yemen figures largely occurred within narrow time-frames: almost all the deaths and injuries recorded in Gaza came as a result of 2014’s Operation Protective

Edge. Those in Yemen are largely the result of Decisive Storm, the Saudi-led aerial intervention that began in early 2015.

Unlike ground-launched weapons and IEDs – which are readily available to sub-state groups and criminal organisations and are used in a broad range of contexts – air-launched weapons are almost exclusively used by states. Accordingly, AOA’s data points to the fact that Russia and the Syrian state, the Saudi-led coalition and the State of Israel were the worst offenders for civilian harm from air-dropped weapons globally between 2011 and 2015.

GROUND-LAUNCHED WEAPONS

‘Ground-launched weapons’ is the broadest category used by AOA, covering everything from grenades to single tank/artillery shells to artillery bombardments and ballistic missiles. Certain weapon types in particular caused consistently worrisome levels of harm. AOA has previously highlighted the use of Grad rockets and mortars in our report *Wide Area Impact*.

Over the last five years, AOA recorded 3,453 incidents of use of ground-launched weaponry resulting in 39,347 deaths and injuries. Of these, 32,903 – or 84% – were civilians. This makes for an average of 10 civilian deaths and injuries per incident. This average rose to 12 when ground-launched explosive weapons were used in populated areas.

2,573 (75%) of the ground-launched weapon incidents recorded by AOA over the period occurred in populated areas, compared to 880 incidents (25%) in areas not reported as populated. It should be noted that this might be due to a reporting bias on both when such weapons are used in cities and the fact that, in that use, they are more likely to harm civilians – and as such are deemed more ‘newsworthy’.

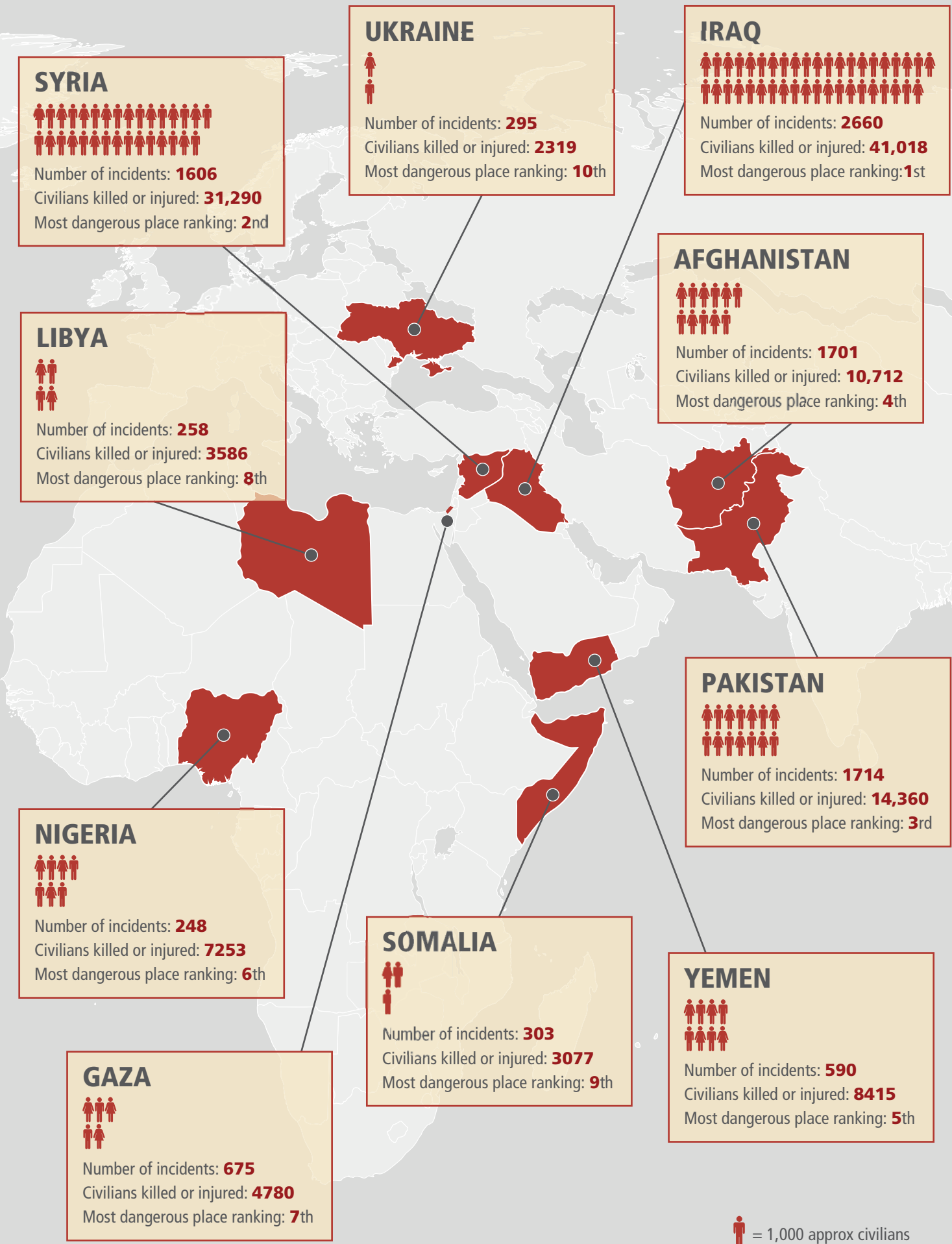
AOA recorded the most incidents for grenades (1,002) and mortars (923). Both are commonly available, and grenades in particular are not only restricted to military and paramilitary groups but in some areas are also used by non-state armed actors. Mortars – which have seen significant use in the Syrian conflict – have been previously highlighted by AOA as a significant threat to civilians due to their significant inaccuracy and imprecision (for more please see our report *Wide Area Impact*).

Another less-recorded weapon type that raises particular concerns is shelling. This is a broad category representing incidents where a specific weapon type is not reported. The weapon in question may be a mortar, tank fire or heavy artillery, and the term generally describes sustained fire over an area. Each incident described as shelling killed or injured on average 24 civilians over the five-year period.

Figure 7 Incidents by ground-launched weapons from 2011 to 2015

Ground-launched weapon type	Incidents	Civilian deaths and injuries	Total deaths and injuries	Average civilian deaths + injuries
Mortar	923	9735	10479	11
Grenade	1002	5743	6727	6
Shelling	490	4745	5791	10
Rocket	349	3052	3752	9
Artillery shell	253	2422	3282	10
Missile	59	1085	1417	18
Tank shell	67	770	818	11
RPG	93	190	532	2

TEN MOST DANGEROUS PLACES TO BE A CIVILIAN



Countries

From 2011 to 2015, AOA recorded at least one incident in 110 different countries and territories worldwide. Incidents were recorded in an average of 61 different countries every year.

Despite this global spread, however, the majority of global harm occurred in a much smaller set of countries. The twenty worst-affected countries accounted for 95% of all recorded civilian deaths and injuries in the five years.

Conversely, in 55 of the countries and territories in which AOA recorded incidents – exactly half – there were five or fewer incidents reported.

SHIFTING EPICENTRES OF HARM

Of the twenty worst-affected countries, Syria, Yemen, Libya and Iraq are, or have recently been, in the midst of full-blown civil wars. Afghanistan, Nigeria, Somalia, Pakistan, Turkey, Thailand, the Philippines and India all face regional insurgencies of varying intensities. Gaza has suffered the consequences of Operation Protective Edge, and Lebanon has seen serious spillover from the Syrian conflict.

Many of the worst-affected countries have stayed the same throughout the period, although their respective positions on the table have shifted.

Figure 8 Twenty worst-affected countries from 2011 to 2015

	Incidents	Civilians killed or injured	Armed actors killed or injured
Iraq	2660	41018	9032
Syria	1606	31290	4934
Pakistan	1714	14360	7037
Afghanistan	1701	10712	5827
Yemen	590	8415	4554
Nigeria	248	7253	516
Gaza	675	4780	484
Libya	258	3586	1523
Somalia	303	3077	1226
Ukraine	295	2319	1116
Lebanon	123	2308	218
India	387	1751	676
Thailand	251	1677	710
Turkey	114	1396	622
Philippines	271	1259	529
Egypt	202	1124	1205
Kenya	100	958	156
Russia	70	718	233
Colombia	95	675	532
Sudan	83	519	59



## Iraq

For three of the five years (2011, 2013 and 2014), Iraq was the country worst affected by explosive violence. In 2013 and 2014, AOA V recorded almost twice as many deaths and injuries there than in the next most affected country, Syria. In 2012 and 2015, Iraq remained in the top three.

The precipitous rise in civilian deaths and injuries as a result of explosive violence in Iraq from 2013 onwards reflects a rapid decline in the security situation after December 2011, the date of the final withdrawal of American troops. Although Iraq's presence at the head of the table even in 2011 attests to the difficulty of the situation even prior to the withdrawal, 2012 saw increased activity from an emboldened Iraqi insurgency – at its head al-Qaeda in Iraq.<sup>3</sup> These activities included

the 2012 'Breaking the Walls' campaign which targeted prisons and resulted in the breakout of hundreds of AQI operatives who would then form the basis of the rebranded ISIS.<sup>34</sup>

Whilst since 2014 ISIS have been engaged in active conventional warfare against the Iraqi state, seizing territory and making use of heavy weaponry, the vast majority of civilian deaths and injuries recorded in Iraq have resulted from IED incidents. Over the five-year period, 90% (36,772) of the civilian deaths and injuries recorded by AOA V were caused by IEDs. Even in 2014 and 2015, after the total collapse of the security situation and ISIS' seizure of several major Iraqi cities, 77% and 81% of the civilian deaths and injuries recorded by AOA V respectively were caused by IEDs.

This probably partially reflects a paucity of reporting in areas like Fallujah, where military clashes and the use of other kinds of conventional weaponry are probably focused. But the other side of this coin is the sheer scale of the harm caused by IED incidents in and

around Baghdad. In 2015, 94% of the civilians reported killed and injured by IED incidents – 81% of the total – were either in Baghdad or the south of Diyala province which borders on it directly.

Iraq has consistently been the country worst affected by suicide bombing. Over the five year period AOA V has recorded 9,134 civilian deaths and injuries as a result of suicide bombings in Iraq – 29% of all the deaths and injuries recorded from suicide bombings worldwide.

In 2015 Iraq dropped for the first time to third on the table of countries worst affected by explosive violence, and AOA V noted a significant drop in the number of

deaths and injuries recorded there. The reasons behind this drop in reported casualty levels are not entirely clear, although they correlate with a drop in deaths noted by Iraq Body Count, a casualty recorder.<sup>5</sup>

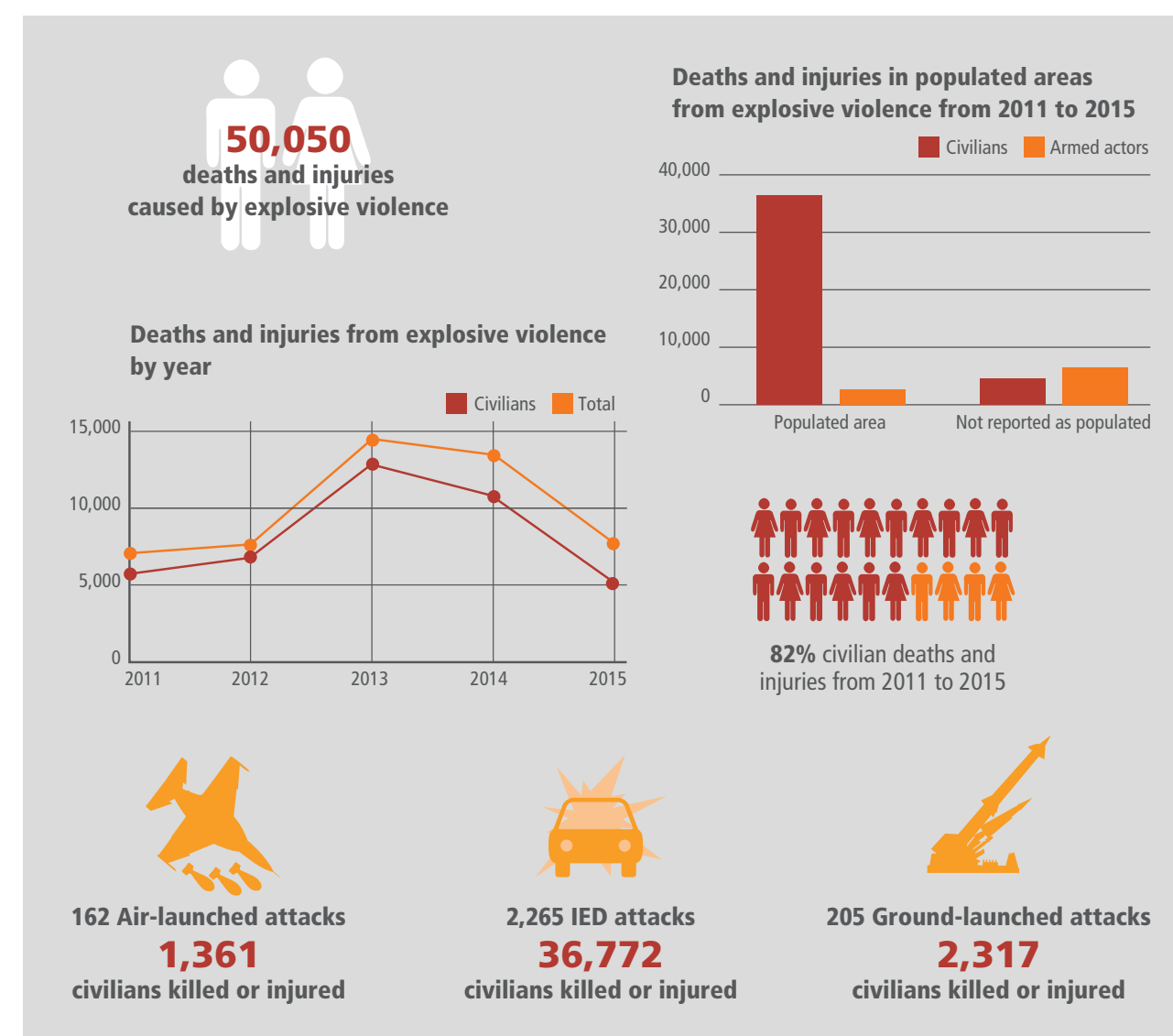
*It was something really extraordinary. The dust and the smoke. It looked like a nuclear bomb. We ran like hell.*

**Abu Hammed,**  
Fallujah resident who witnessed a barrel bomb strike, May 2014<sup>iv</sup>



Remnant of a direct-fire rocket-assisted projectile outside Fallujah General Hospital in Anbar Province, Iraq, 13 January 2014. (Human Rights Watch, © private)

Figure 8 Explosive violence in Iraq from 2011 to 2015





## Syria

Syria has consistently been in the top five countries worst affected by explosive violence throughout the five years of AOA's Explosive Violence Monitor. In 2012 and 2015 it was the worst-affected, whilst in 2013 and 2014 it was consistently in second place. Three of the ten worst incidents recorded over the five-year period took place in Syria. In 2011 it was in seventh place, reflecting the situation of relative calm before the escalation of Free Syrian Army activities in the late months of that year.

Since 2012, the situation in Syria has deteriorated further and further, resulting in what has been described by the UN as the 'biggest humanitarian emergency of our era.'<sup>6</sup> AOA's research among Syrian refugees in

Lebanon found that explosive violence was perhaps the most significant factor driving Syrians to seek safety over the border.<sup>7</sup> This is reflected in the data by consistently high reported rates of civilian deaths and injuries in spite of the difficulties in reporting from the Syrian interior.

The explosive violence recorded by AOA in Syria has been quite diverse, reflecting ongoing long-term conventional warfare involving all kinds of state military equipment as well as IEDs and – although less often than Iraq – large-scale suicide bombings. Previous research by AOA has discussed twelve of the most concerning explosive weapon types causing serious civilian harm within Syria.<sup>8</sup> The five-year period has seen a steady rise in civilian deaths and injuries resulting from air-launched weaponry, whilst since the high point in 2012 recorded IED and ground-launched-weapon-related deaths have remained largely constant over the last three years.

The rising toll of air-launched weaponry reflects in the early period the attacks of the Syrian Arab Air Force (SAAF), particularly their notorious barrel bombs. The

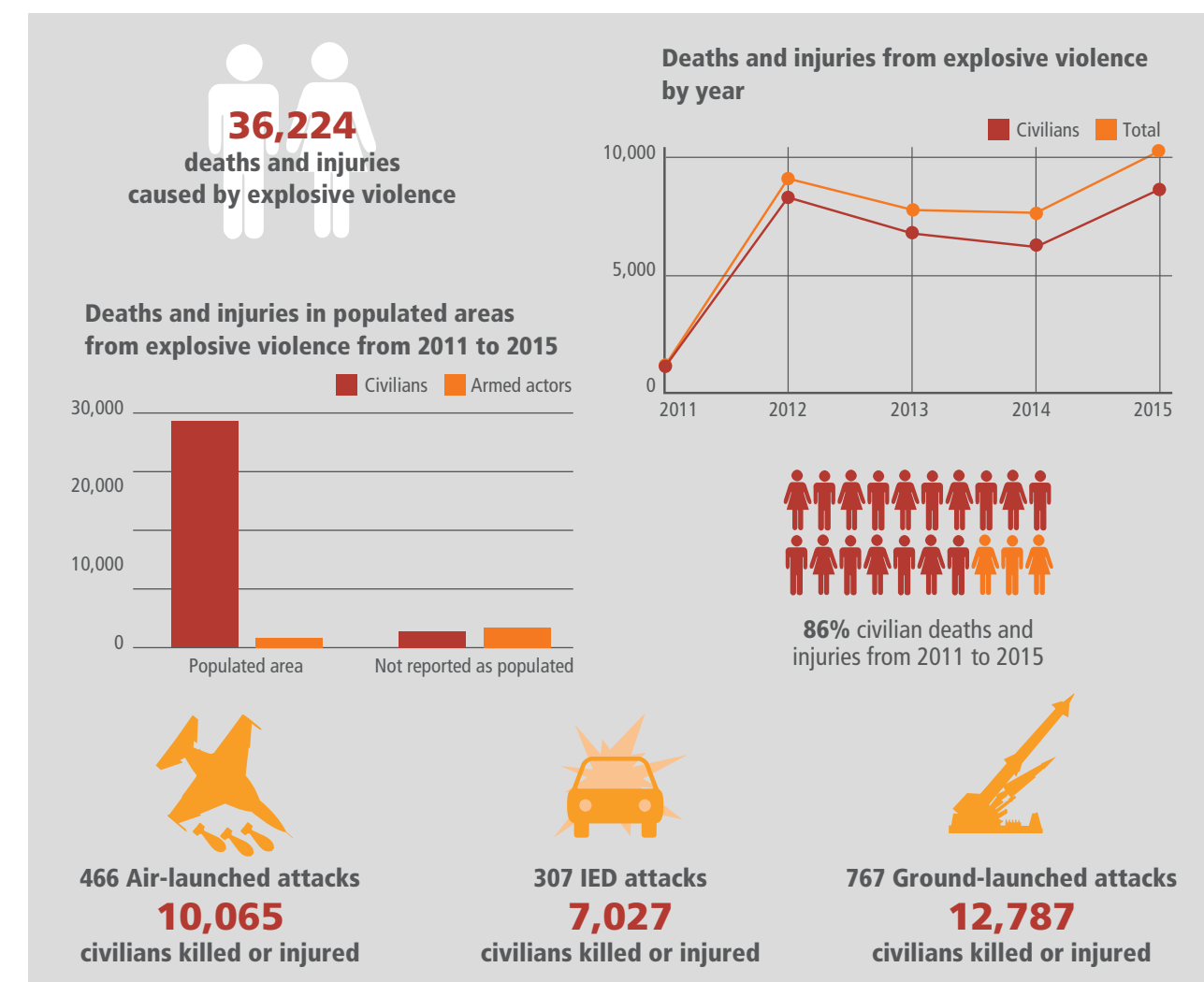
SAAF have been regularly accused of deliberately targeting civilians, with markets apparently a common target of choice. In the early period of the war, analysts did not expect that the SAAF – with an aging, Soviet-era fleet – would be able to maintain an effective strike force for very long without serious technical failures causing its total collapse. Russian maintenance and refitting, however, ensured that the SAAF have been able to continue launching missions.<sup>9</sup>

In September 2014, the US-led mission against ISIS in Iraq was extended into Syria.<sup>10</sup> Almost exactly a year later, Russia announced its own aerial intervention.<sup>11</sup> Syria's increasingly crowded skies have resulted in a significant increase in the levels of civilian harm caused by air-launched weaponry. In particular, between the end of 2014 and the end of 2015 there was

a 75% leap in the number of civilians killed or injured by air-launched incidents. Of particular concern is the Russian campaign, which has been frequently implicated in the deliberate targeting of civilians and humanitarian infrastructure such as hospitals.

Syria – and Iraq outside Baghdad – are very difficult for journalists to enter and work from. Moreover, many reports of high-casualty incidents describe 'large numbers' or 'dozens' of injuries which due to the methodology cannot be included in the EVMP. Although it is more difficult to prove, it is likely that English language reporting has also suffered from reporting fatigue and a decline in the newsworthiness of low-casualty attacks in places like Baghdad and Aleppo that have become synonymous with explosive violence.<sup>12</sup>

Figure 9 Explosive violence in Syria from 2011 to 2015



Syrian children are seen in an informal refugee camp in Aarsal, Lebanon, on Wednesday, 20 November 2013. Unlike Jordan or Turkey, Lebanon has not attempted to set up formal refugee camps. (Nicole Tung/AOAV)

# Pakistan and Afghanistan

Over the five-year period Pakistan and Afghanistan have consistently been among the worst countries affected by explosive violence. Most of the explosive violence recorded in both Afghanistan and Pakistan is perpetrated by various groups which emerged from or are affiliated with the original Afghan Taliban. Pakistan also faces numerous other security threats including the Balochistan insurgency and the activity of well-armed criminal gangs who regularly make use of small explosives like grenades in attacking either state forces or civilian victims.

In Afghanistan the main cause of civilian harm has consistently been the use of improvised explosive

devices (IEDs). 80% (8,608) of civilian deaths and injuries recorded by AOVAV in Afghanistan from 2011-2015 were reported as the result of IED incidents. From 2011-2015, AOVAV recorded a decline in the number of recorded civilian deaths and injuries from roadside bombs and 'non-specific IEDs'. However, this was accompanied by a rise in the number of deaths and injuries from car bombings. This may reflect a change in tactics on the part of the Taliban.

Pakistan has seen a marked decrease in levels of explosive violence in the last two years. In 2015 – for the first time – Pakistan was not one of the five worst-affected countries in the world.

In spite of a concerted air campaign by both NATO and the Pakistani air force (the latter known as Zarb-e-Azb), the number of civilians reported killed and injured by air-launched weaponry has steadily fallen since 2011.

Given that almost all of the air-launched incidents recorded by AOVAV in Afghanistan took place in the remote Federally Administrated Tribal Areas (FATA) or parts of Khyber-Pakhtunkhwa province and are

Figure 10 Explosive violence in Pakistan from 2011 to 2015

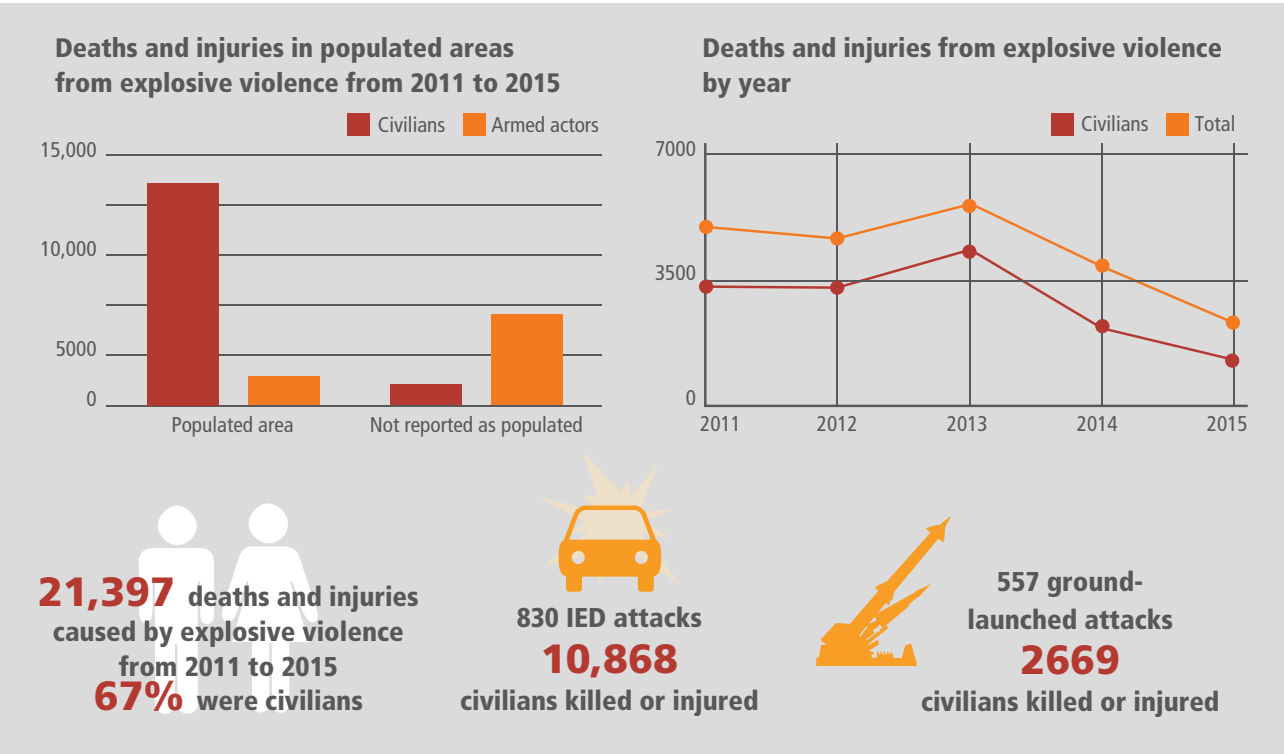
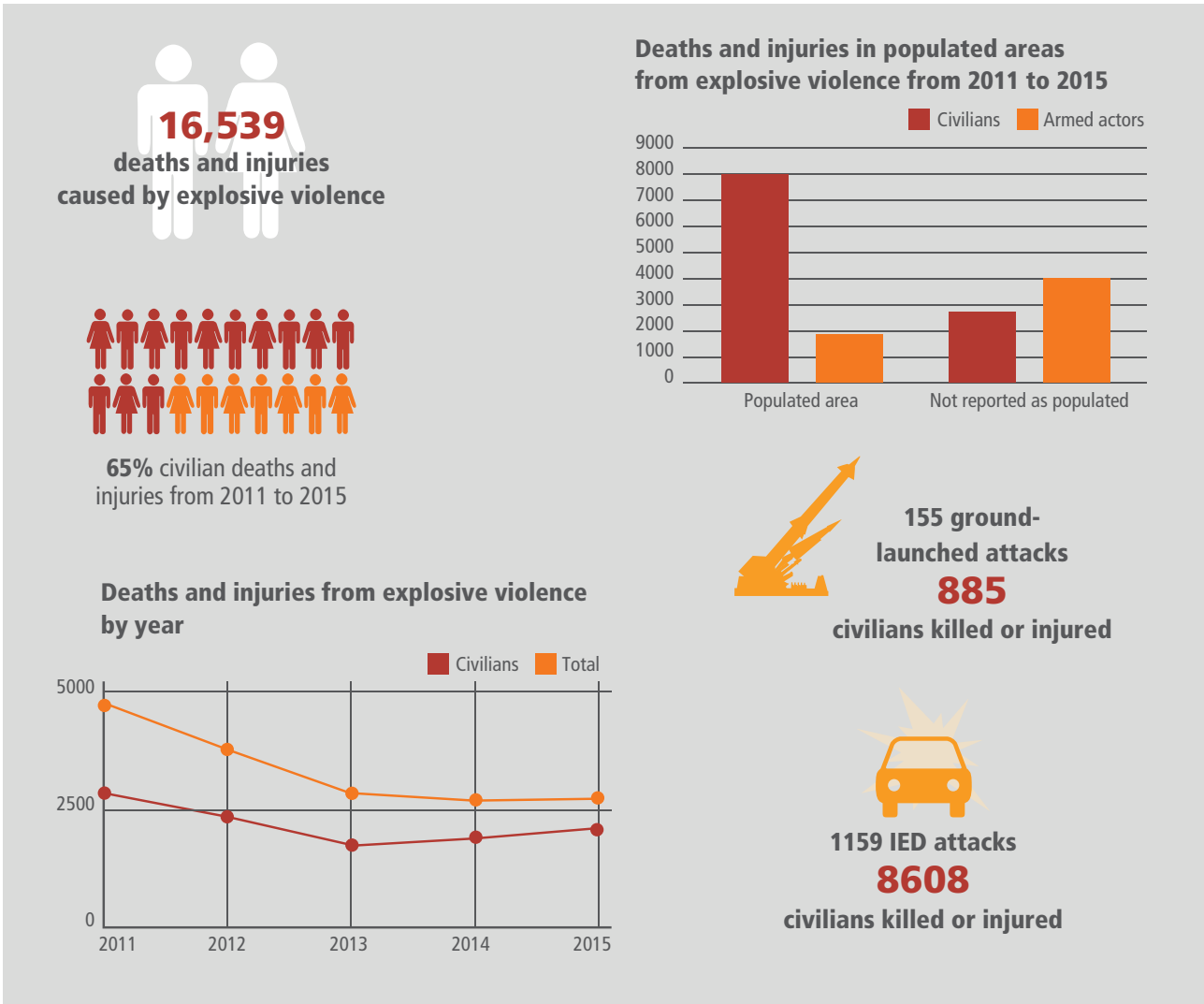


Figure 11 Explosive violence in Afghanistan from 2011 to 2015



reported only in Pakistani military sources there may be cause for scepticism around claims of zero civilian fatalities there.

Pakistan – particularly FATA and Khyber-Pakhtunkhwa along the Afghan border – has also consistently suffered from IED-related violence and suicide bombings. Research by AOVAV has investigated the after-effects of the 2009 Moon Market bombing in Lahore, which took place shortly before the Monitor project first began.<sup>13</sup> Although recent events suggest a potential worrisome return to earlier tactics,<sup>14</sup> as of the end of 2015 the number of civilian deaths and injuries from both IEDs and suicide bombings had been falling consistently since its peak in 2013.

*This indiscriminate attack in an area crowded with civilians demonstrates a complete disregard for civilian lives. Deliberately and indiscriminately causing death and injury to such a large number of civilians is an atrocity.*

**Nicholas Haysom**,  
United Nations Assistance Mission to Afghanistan (UNAMA), after a suicide bombing killed 47 civilians at a volleyball game in Paktika, 23 November 2014<sup>v</sup>



## Yemen

For the entire period of AOA's Monitor, Yemen has experienced significant levels of explosive violence. In 2011 it was 6th on the table of worst-affected countries; in 2012 11th; in 2013 8th and in 2014 9th. This violence was perpetrated by a broad variety of actors. Since long before the Arab Spring disrupted the established political order Yemen has suffered perennial political instability, including separatist insurgencies in both north and south and the ongoing activities of al-Qaeda in the Arabian Peninsula (AQAP).

In 2015, the security situation in Yemen collapsed into full-on civil war between the Houthi rebels – who occupied much of the country – and the internationally-recognised government under Abd Rabbo Mansour Hadi.

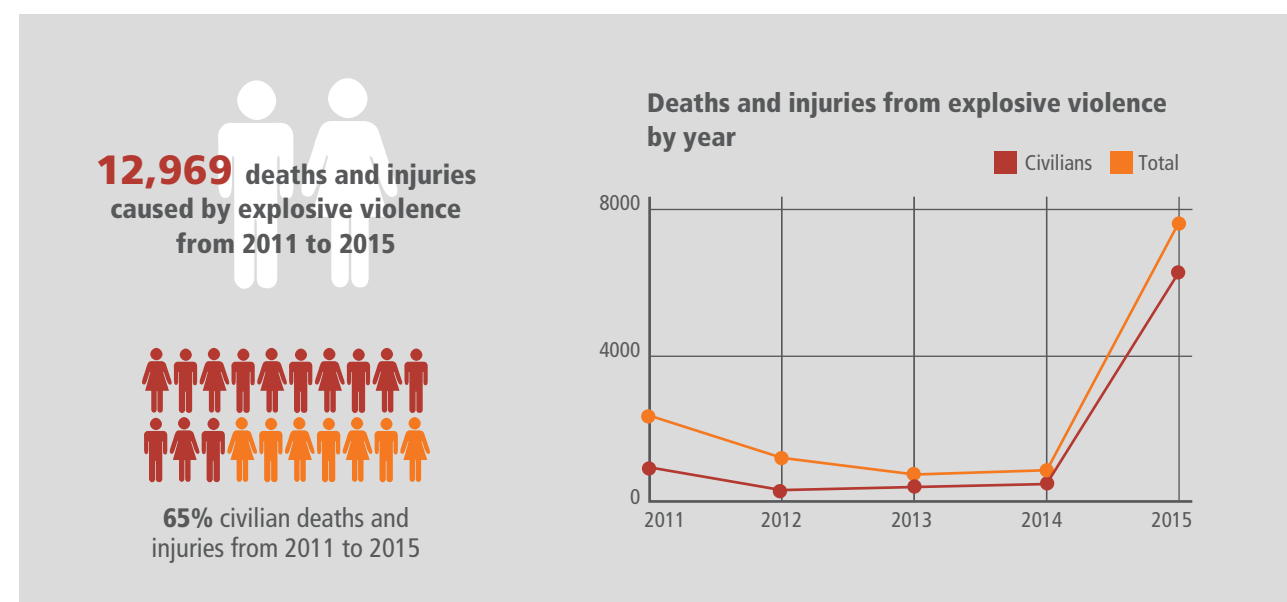
Houthi victory across most of the country was quickly followed by a Saudi-led Arab intervention to restore

Hadi's rule, beginning a bloody air campaign that has been widely criticised by international organisations. In 2015 AOA recorded 3,972 civilian deaths and injuries from air-launched weaponry in Yemen – 43% of all those recorded worldwide and more than ten times the number recorded over the last four years combined. The full-blown military conflict has also led to a significant rise in the numbers of civilians killed or injured by ground-launched weaponry. Whilst in previous years Yemen had seen occasional use of grenades, mortars and artillery, in 2015 hundreds of civilians were reported killed or injured by mortars, rockets, and non-specific shelling.

Over the five-year period Yemen has also seen a steady rise in the numbers of civilians killed and injured by IEDs. This is not a direct consequence of the civil war and as a trend predates it by years. However, the decline in the security situation has allowed both the well-established AQAP and newly-established ISIS affiliates to increase their activities. Whilst AOA only recorded 9 suicide bombings in 2015 (compared to 11 the previous year), the civilian toll inflicted by these bombings was significantly higher, killing and injuring a reported 541 non-combatants compared to 359 in 2014.

AOAV has previously highlighted the drastic nature of explosive violence in Yemen in research carried out with UN-OCHA.<sup>15</sup>

Figure 12 Explosive violence in Yemen from 2011 to 2015



## Nigeria, Chad and Cameroon

Nigeria has appeared regularly in the top ten countries worst affected by explosive violence because of numerous internal security threats. In 2011, for example, it was 8th on the table; in 2012 5th. After dropping off the table entirely in 2013 – largely because of military setbacks to the Boko Haram insurgency – in 2014 Nigeria saw a wave of suicide bombings which pushed it to 4th on the table of worst-affected countries. It remained in this spot in 2015.

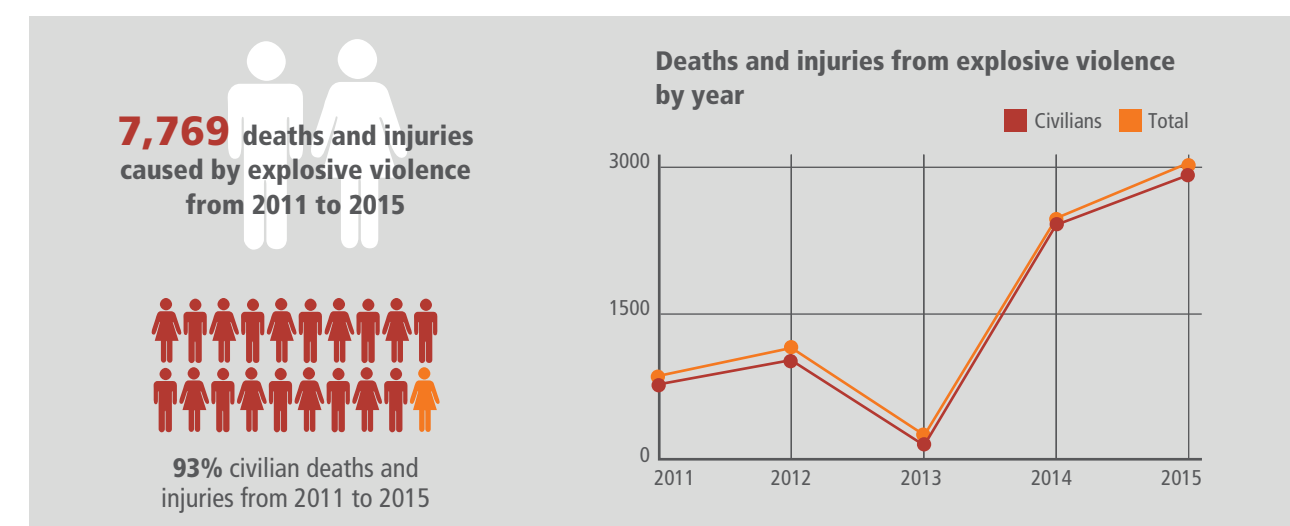
In 2013 AOA produced research in cooperation with the Nigerian National Working Group on Armed Violence (NWGAV) analysing violence in different parts of Nigeria.<sup>16</sup> This report makes it clear that the northern region is far from the only part of Nigeria seriously affected by armed violence. However, the majority of explosive violence recorded by AOA through the EVMP takes place in the northeastern region, specifically Borno, Adamawa and Yobe States. These are the heartlands of the Boko Haram Islamist insurgency, which recently rebranded itself as West Africa Province of the Islamic State.

Because of AOA's methodology, attacks which are neither claimed by a group nor explicitly attributed to them in the reporting cannot be ascribed to them in the database. However, it seems reasonable to assume that most or all of the incidents in the northeast, particularly those involving suicide bombings, are the work of Boko Haram. If we assume this to be true, Boko Haram have been responsible for at least 4,332 civilian deaths and injuries in Nigeria alone. When Boko Haram briefly retreated into the highlands of Cameroon in 2013 after military setbacks, AOA recorded much lower levels of explosive violence in Nigeria.

Throughout the five-year period the majority of explosive violence recorded in Nigeria has been IED-based. However, the post-2013 period has seen the nature of the IED threat shift markedly towards increased use of suicide bombings. This represents a shift in strategy for Boko Haram, whose conventional military capabilities have been greatly degraded. In 2014 suicide bombings killed or injured 1,141 civilians in Nigeria; in 2015 the equivalent figure was 2,181.

It is important to note that whilst Nigeria is certainly the centre of the Boko Haram insurgency, the group operates across borders. Since the formation of a local coalition of Cameroon, Chad, Niger and Nigeria to confront the threat, it has extended its suicide bombing campaign into those states too. When the 2015 figures from Chad and Cameroon are included, it is likely that explosive violence perpetrated by Boko Haram is responsible for at least 5,255 civilian deaths and injuries.

Figure 13 Explosive violence in Nigeria from 2011 to 2015





## Gaza

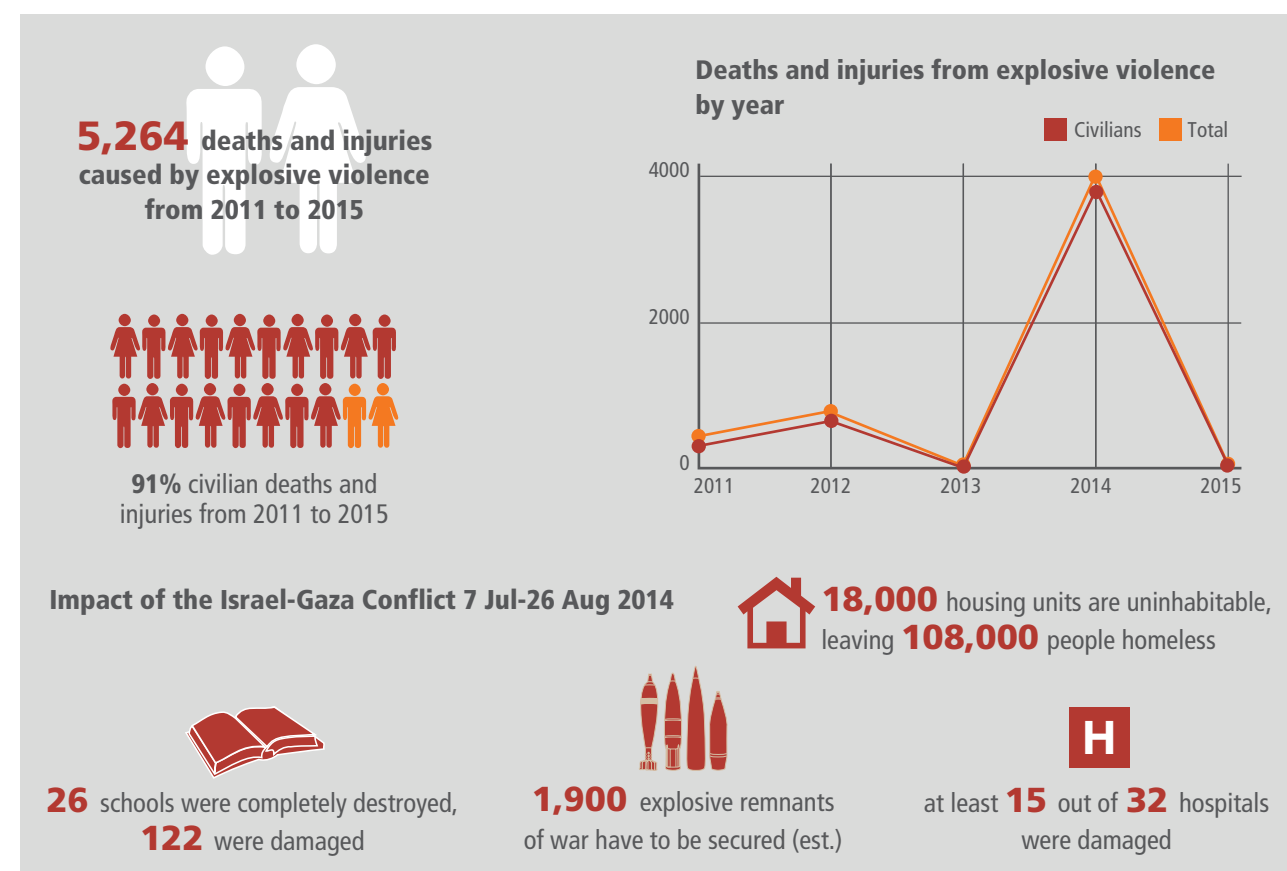
Gaza, has experienced consistent explosive violence throughout the five-year period, but the majority of civilian deaths and injuries occurred in a relatively narrow time period. In 2011 it was 10th on the table of worst-affected countries and territories, in 2012 7th. In 2013 it fell off the table. In 2014, however, it was the third most badly affected country or territory worldwide.

Gaza is unusual, although not unique, in that a huge percentage of the deaths and injuries reported over the five-year period occurred within a very narrow timeframe. 62% (416) of all incidents recorded and 80% (3,813) of all of the civilian deaths and injuries

recorded in Gaza over the five year period were reported in 2014, overwhelmingly during Operation Protective Edge. This was an Israeli military operation lasting from early July to late August whose stated aim was to put an end to rocket fire from Gaza. Protective Edge involved a ground assault, airstrikes and artillery shelling. The Israeli artillery rules of engagement were investigated in detail by AOA in the 2014 report *Under Fire*.<sup>17</sup>

Gaza is unusual in having a very high attribution rate – 99% of all incidents recorded were entered with a specific perpetrator name, as opposed to a global average of 43%. The vast majority of the explosive violence recorded by AOA over the five-year period in Gaza was perpetrated by the Israeli Defence Forces (IDF). Out of 675 incidents, 650 (96%) were entered with 'IDF' or 'Israel' as the perpetrator. Other incidents were attributed to Hamas (10 incidents), ISIS sympathisers (1 incident), 'Salafist group' (1 incident), Palestinian militants (1 incident) and the 'Popular Resistance Committee' (1 incident).

Figure 14 Explosive violence in Gaza from 2011 to 2015



## Libya

Since the toppling of long-time president Muammar Gaddafi during the wave of popular protests that swept the Arab World in 2011 Libya has suffered consistently high levels of explosive violence alongside other serious security threats. In 2011 Libya was the 4th-worst affected country in the world by explosive violence; in 2012, 12th, in 2013 9th, in 2014 11th and in 2015 10th.

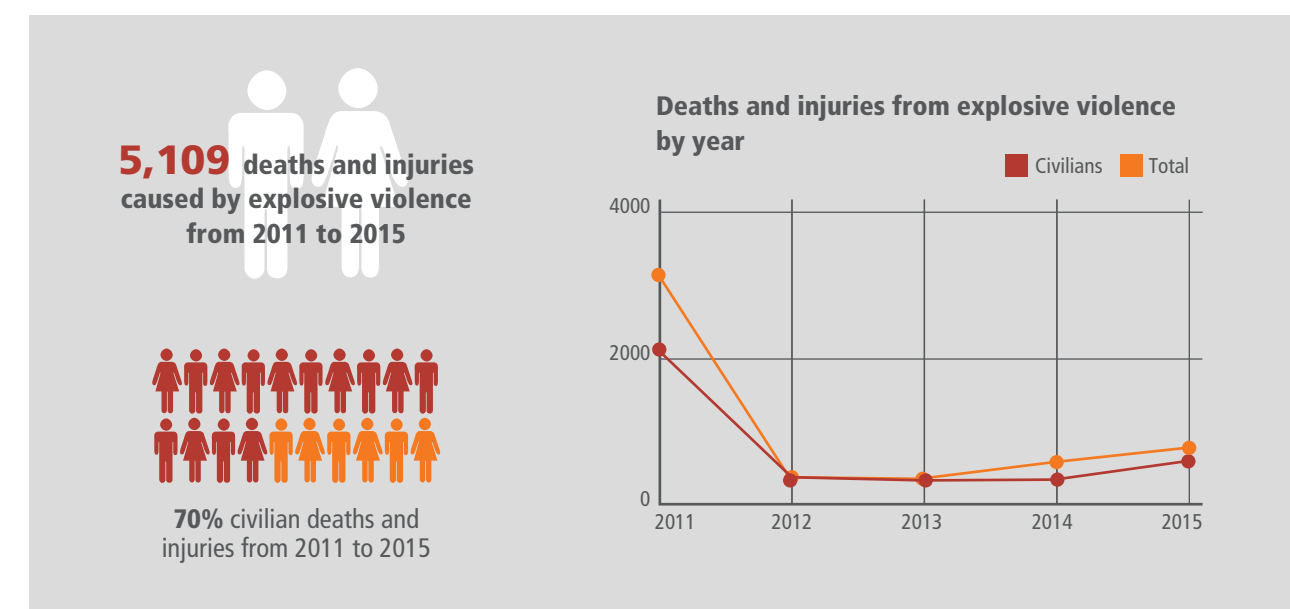
Libya saw its worst levels of harm in 2011 during the popular uprisings against Gaddafi and the NATO intervention on the side of the rebels. In this year, AOA recorded 2,108 civilian deaths and injuries. Of these, 696 were recorded as resulting from air-launched weaponry, largely attributed to NATO. Although there were 54 civilian deaths and injuries attributed to Libya, part of the NATO intervention involved the imposition of a no-fly zone, largely forcing the Gaddafi regime's aircraft to stay grounded. The rest were largely recorded as caused by ground-launched weaponry – largely deployed by the Libyan regime, but also by rebel groups.

After Gaddafi was toppled in late 2011, Libya entered a period of comparative calm. Without a single effective government the security situation remained fragile, but reported civilian harm gradually fell from 2012-2014.

No civilian deaths or injuries were reported from air-launched weaponry in 2012 or 2013, and even in 2014 – when General Haftar's militia deployed military aircraft in an unusual case of non-state use of air-launched weapons – reported civilian deaths and injuries from such weaponry remained limited to 43. A full 66% of all recorded civilian deaths and injuries during the 2012-2014 period were attributed to ground-launched weapons. A number of IED incidents were also recorded but these largely affected armed actors.

The downward trend in recorded explosive violence came to an end in 2015, when conflict began to escalate for a second time. This is probably linked to concerted efforts by the internationally-recognised Libyan government – which in 2016 finally merged with the other major administration to form a unity government – to reassert its control over its territory. Libya has also recently proven fertile ground for ISIS sympathisers who have declared three distinct provincial administrations within its territory. This is reflected in a marked increase in the level of civilian harm resulting from IED incidents, with 247 civilians reported killed or injured by IED incidents attributed to ISIS affiliates.

Figure 15 Explosive violence in Libya from 2011 to 2015



Somalia

For thirty years Somalia has suffered extensively from the effects of violence and explosive violence. Since 1991 the country has been locked in a series of overlapping conflicts. By the beginning of AOA’s EVMP these conflicts had largely solidified into a struggle between the central government and the militant al-Shabaab group.

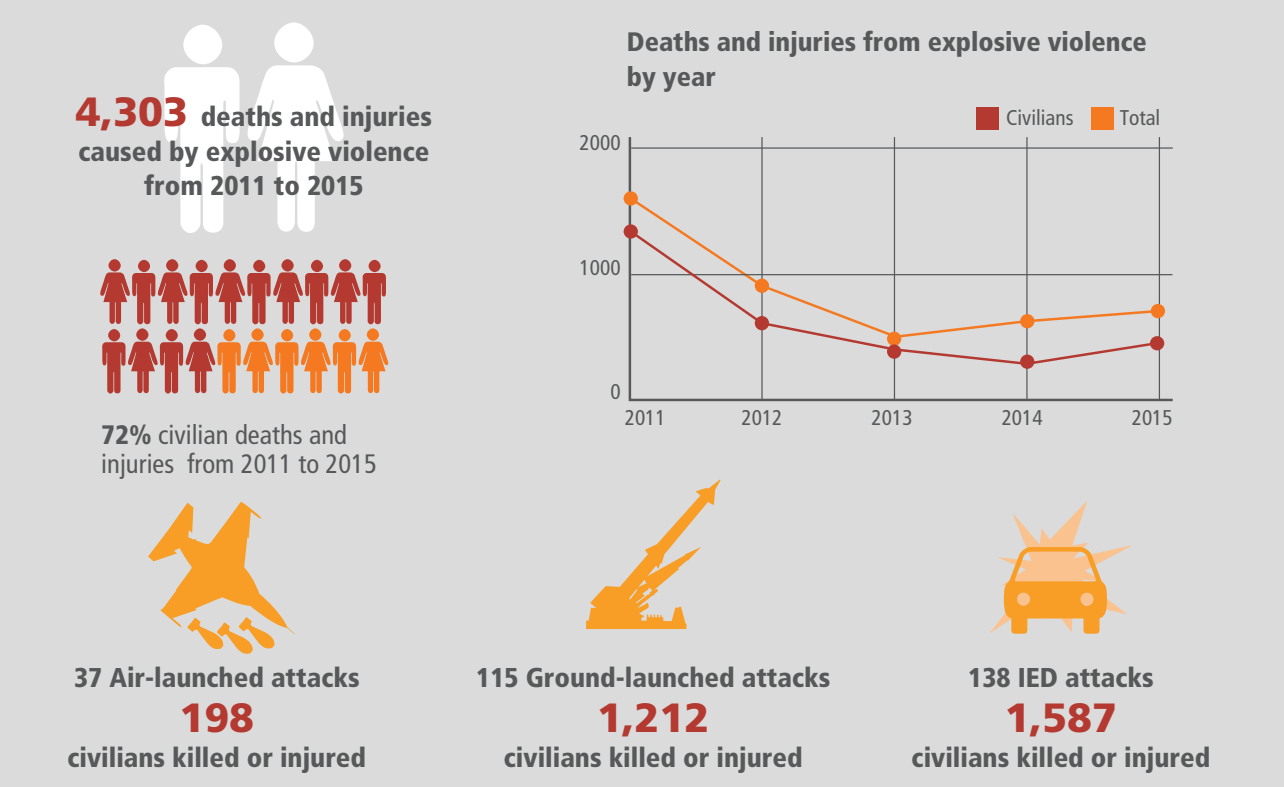
In 2011 Somalia was 5th on the table of countries worst affected by explosive violence, in 2012 eighth, in 2013 7th, in 2014 12th and 2015 13th. 2011 was by far the worst year, with 1,326 civilian deaths and injuries reported compared to an average of 438 over the other four years. 2011 was the year of a huge drought in Somalia as well as the year in which AMISOM re-established control over Mogadishu and other important areas, marking the tail end of al-Shabaab’s political ascendancy in Somalia.

Al-Shabaab – which announced its allegiance to al-Qaeda in 2012 – operates primarily in the southern and central regions of Somalia. Over the five-year period 42% of recorded civilian deaths and injuries in Somalia were attributed to al-Shabaab, making them the worst single perpetrator of civilian harm in the country.

AOA’s Explosive Violence Monitor has recorded a total of 3,077 civilian deaths and injuries in Somalia from explosive violence in the last five years. The vast majority of explosive violence recorded by AOA was in Banaadir and Gedo, although much explosive violence may go unrecorded in hostile regions in the centre and south.

Somali civilians have been particularly badly hit by ground-launched weaponry and IEDs. 52% (1,587) of the recorded civilian deaths and injuries in Somalia were attributed to various kinds of IEDs. Nearly half of these (801, or 26% of all recorded civilian deaths and injuries) were attributed to suicide bombings – a common tactic of al-Shabaab’s.

Figure 16 Explosive violence in Somalia from 2011 to 2015



Ukraine

Until 2014, Ukraine was almost untouched by explosive violence. In 2011 and 2013 no incidents were recorded within Ukrainian territory; in 2012 only four, three of which were IEDs detonated on the same day in Dnipropetrovsk in April of that year. For comparison, in the UK during the same period AOA recorded 6 separate incidents.

In 2014 and 2015, however, there were over 290 incidents of explosive violence reported in Ukraine. Of the 2,319 civilian deaths and injuries from explosive violence in Ukraine recorded by AOA in the last five years, 2,290 were recorded in 2014 (1,428 deaths and injuries) and 2015 (862 deaths and injuries).

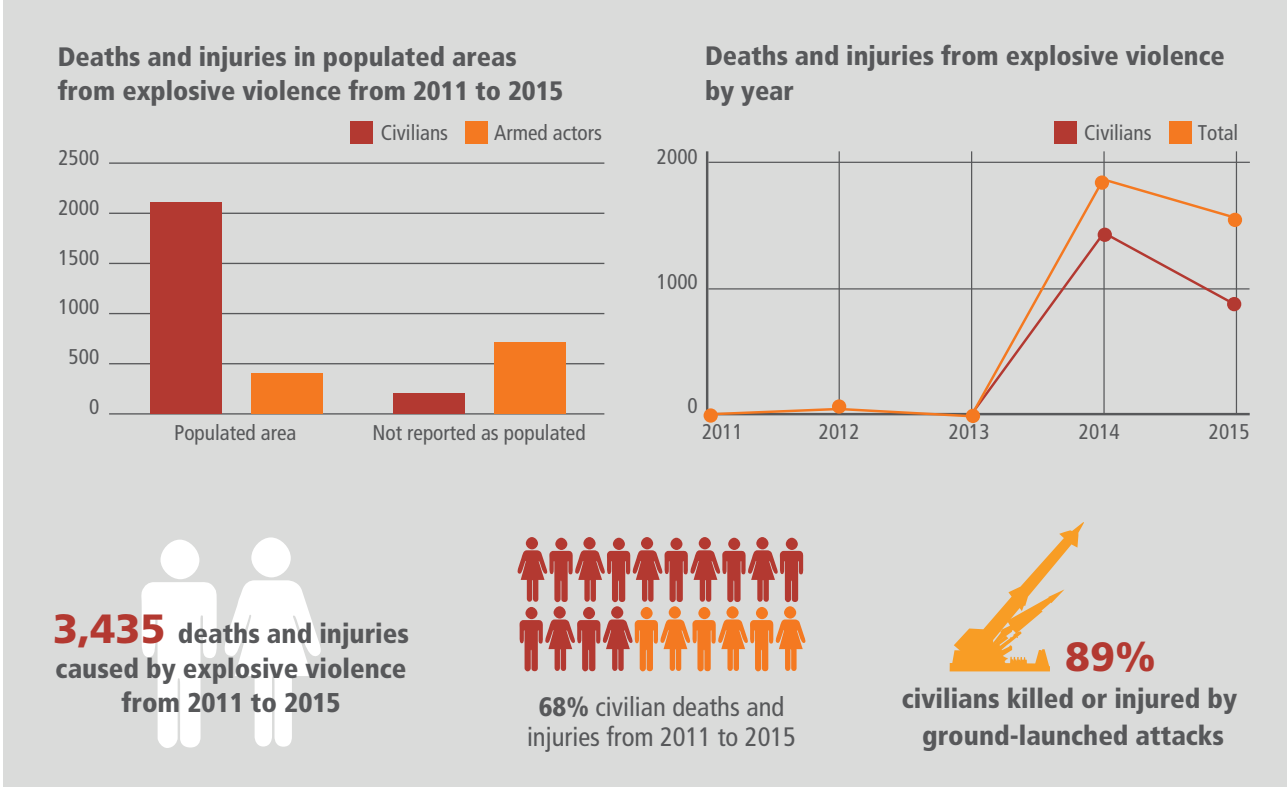
These figures reflect the massive escalation in violence that began in February 2014 with mass protests against then-president Viktor Yanukovych, culminating

in his ouster and his replacement by an interim government. This triggered waves of anti-government and secessionist protests in regions in the south and east of the country, which were backed by Russia. Russia subsequently occupied and annexed the Crimea, and the two eastern provinces of Luhansk and Donetsk declared their independence. Although a ceasefire has been in effect since February 2015, violations have continued to take a heavy toll on both sides.

The Ukrainian state, as of the end of 2015, had been reported as responsible for 656 civilian deaths and injuries – 28% of the total recorded. Ukrainian separatists were reported as responsible for 528 (23%). The remainder were attributed either to both sides (during clashes for example) or reported as unknown.

Ukraine has been particularly badly hit by ground-launched weaponry, with mortars (235 civilian deaths and injuries), missiles (302), artillery shells (317) and rockets (337) taking a particularly high toll. Previous EVMP reports and separate research by AOA have highlighted the use of Grad multiple rocket launchers as particularly dangerous for civilians.<sup>18</sup>

Figure 17 Explosive violence in Ukraine from 2011 to 2015

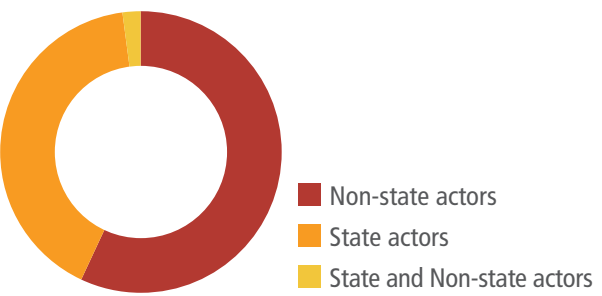


Perpetrators

A perpetrator group name was recorded for 43% of incidents recorded by AOA in the five-year period. 46% were recorded with a perpetrator status (e.g. state, non-state, state and non-state). Some incidents – such as airstrikes – could be attributed to a state, for example, without the specific state in question being known.

Of the 5,766 incidents for which a perpetrator status was entered, 57% were attributed to a state and 41% to a non-state actor (see Figure 18).

Figure 17 Incidents attributed to different kinds of actors



Attribution of incidents is a contentious topic, and AOA’s data excludes news reports that contain hedged statements such as ‘allegedly’. As a result, many incidents likely to have been perpetrated by groups such as Boko Haram – who generally do not claim their attacks – are recorded as unknown. The same applies to airstrikes in Syria. It is often self-evident that either Russian or Syrian jets carried out an airstrike, but it is impossible to say for sure which air force carried out the strike.

*Syria is in free-fall. Relentless shelling has killed thousands of civilians and displaced the populations of entire towns [...] Civilians have been killed by mortars landing in the streets; others have been crushed by rubble after their homes were destroyed by barrel bombs. [...] The Government must cease using imprecise weaponry, such as unguided missiles, on civilian areas.*

**Paulo Sérgio Pinheiro,**  
Chair of the Independent International Commission of Inquiry on Syria,  
29 July 2013<sup>vi</sup>

Figure 18 (opposite) shows the ten state actors who caused the highest number of civilian deaths and injuries over the five-year period.

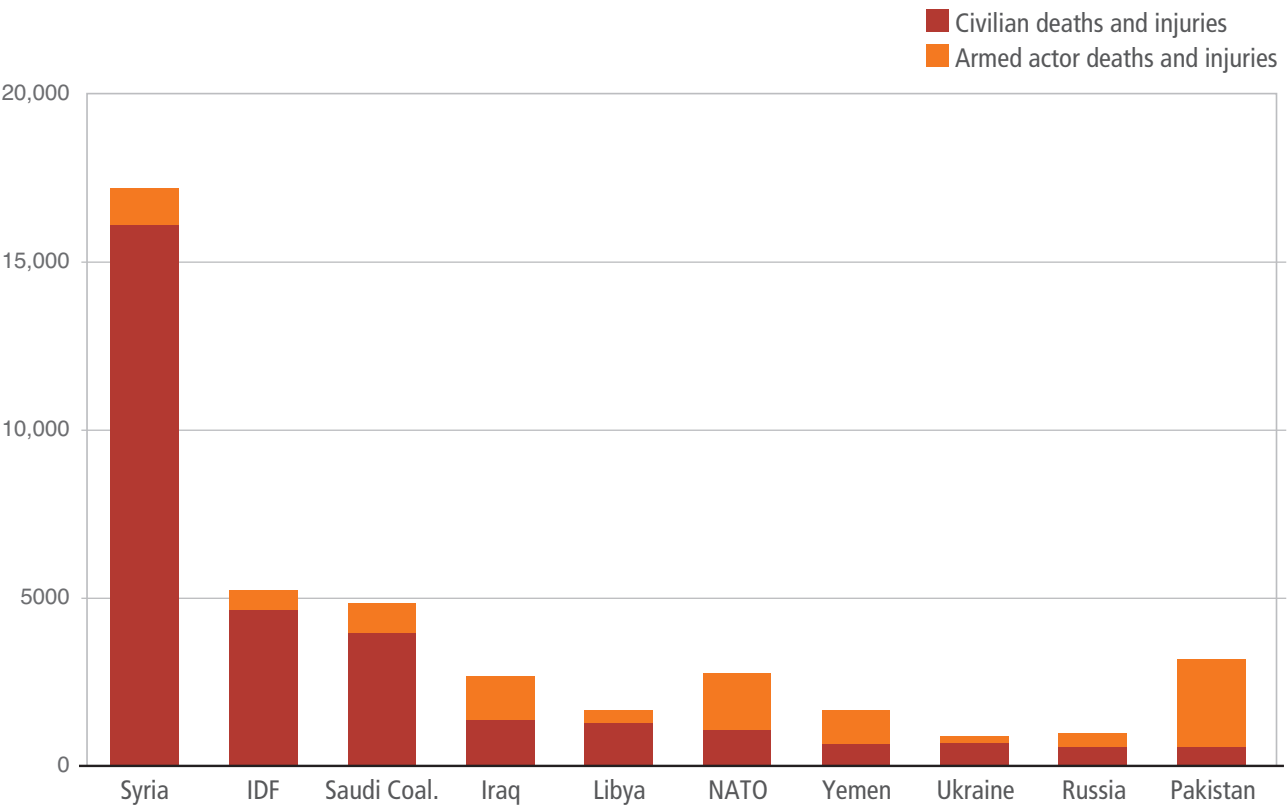
The Syrian armed forces caused more recorded deaths and injuries by far than any other state force. This is, perhaps, unsurprising given the well-documented huge civilian toll of the Syrian civil war, which has continued to rage throughout the entire period of the EVMP.

The next highest are the Israeli Defence Forces (largely but not exclusively due to actions taken in 2014’s Operation Protective Edge, which involved attacks on the Gaza strip with a broad range of air-launched and ground-launched explosive weaponry).

Following that are the Saudi-led coalition in Yemen. Whilst the figures for the IDF and the coalition seem small when compared to those attributed to Syria, it is worth noting that all of those deaths and injuries attributed to the coalition were recorded in one nine-month period from the beginning of the Decisive Storm intervention in Yemen. For the IDF, 79% of all of the civilian deaths and injuries recorded in the time period (3,703) were within the two-month period of July-August 2014.

According to news reporting, explosive weapon use by the government of Pakistan has been overwhelmingly implicated in the deaths and injuries of armed actors, not civilians, over the five-year period of the EVMP. This is unusual and unexpected – our data usually shows that far larger numbers of civilians are the casualties of explosive violence than are armed actors. Nonetheless, 60% (343 of a total 576) of all the civilian deaths and

Figure 18 State actors who caused the highest number of civilian deaths and injuries from 2011 to 2015



injuries ascribed to Pakistan during this time were reported as resulting from mortar fire and shelling, either in the restive Federally Administrated Tribal Areas (FATA) and the Afghan border or along the Indian border during occasional flare-ups in tensions – leaving only a few deaths and injuries caused by airstrikes.

The majority of armed actors recorded killed and injured were also in FATA, but this time as a result of airstrikes – particularly those carried out during Operation Zarb-e Azb. Since these incidents are typically reported only by the Pakistani military, who claim not to have killed a single civilian<sup>19</sup> in spite of evidence to the contrary,<sup>20</sup> the figures should probably not be taken at face value.

Figure 19 (overleaf) shows the ten non-state actors that caused the largest numbers of civilian deaths and injuries.

The group that caused by far the most deaths and injuries was ISIS. ‘ISIS’ has gone through several

name changes over the last few years – the category here includes incidents recorded as perpetrated by al-Qaeda in Iraq (AQI), Islamic State of Iraq (ISI) and the Islamic State of Iraq and Syria (ISIS).<sup>21</sup>

71% of all civilian deaths and injuries attributed to ISIS and its predecessor (6,790 of 9,551 total) were recorded, perhaps predictably, in Syria and Iraq. Most of the day-to-day violence perpetrated by ISIS takes place in these countries.

In the last two years, however, ISIS have increasingly made use of high-profile, high-lethality suicide bombings and IED attacks outside their main area of operation – such as the Ankara, Paris and Brussels attacks.

ISIS are the most prolific users of suicide bombings in the world – 48% of the total civilian deaths and injuries recorded as perpetrated by ISIS were as a result of suicide bombings.

Excluded from ISIS’ category are various functionally independent (and often previously separate) local ISIS



affiliates, including Boko Haram (now officially calling themselves ‘West Africa Province’) and Ansar Bayt al-Maqdis (now ‘Sinai Province’), who appear independently in the top ten perpetrators for civilian harm.

Since 2014 in particular, Boko Haram has caused huge amounts of civilian harm. This, however, is not fully reflected by the chart because of attribution problems. If all of the additional incidents recorded as ‘unknown’ by the EVMP that were likely perpetrated by Boko Haram are taken into account, they reach a total of 8,147 civilian deaths and injuries – placing them second on the table.

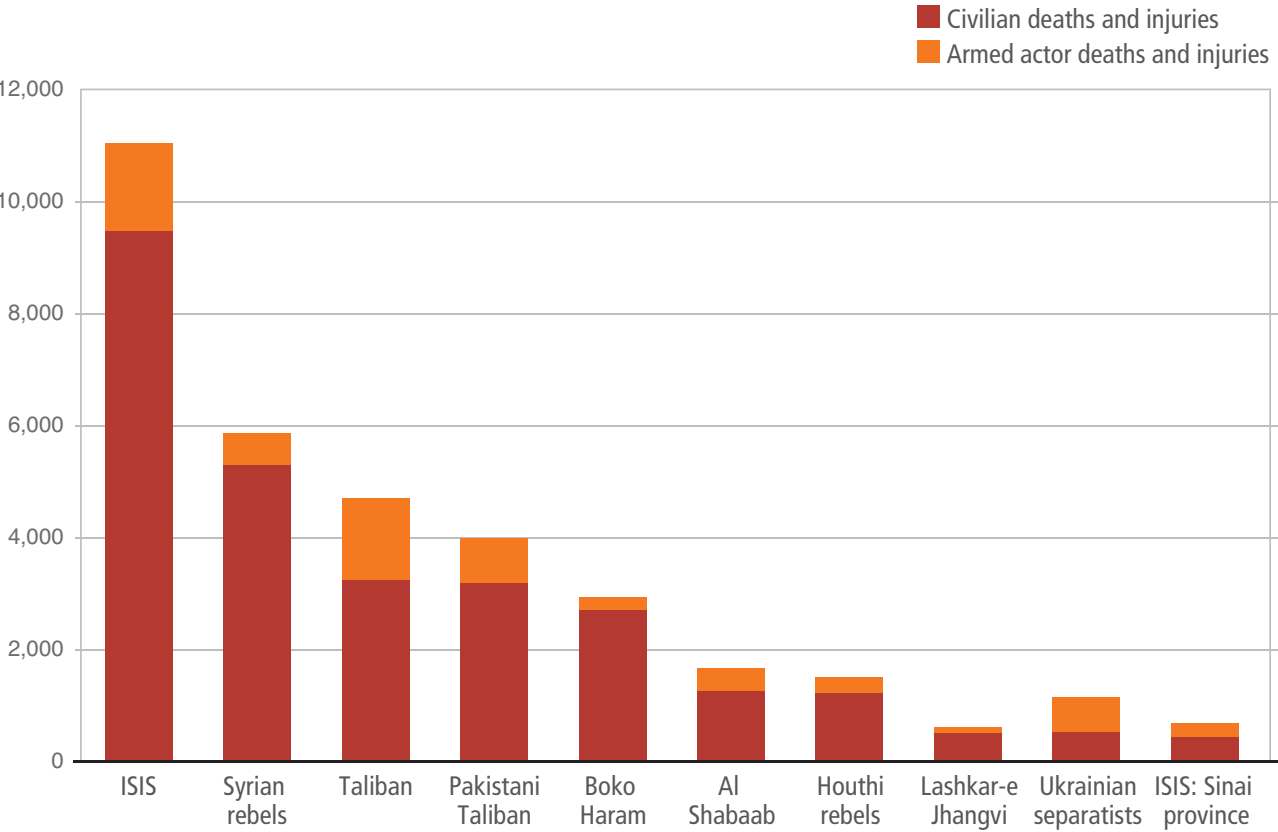
The group ‘Syrian rebels’ includes all non-Kurdish, non-ISIS opposition groups within Syria. Within the data they are - when possible – disaggregated further, but even for those on the ground it is often difficult to ascribe responsibility for incidents to a specific group, especially given the ephemeral nature of many of these groups. Incidents are thus often reported as simply the work of ‘Syrian rebels’, ‘Takfiri rebels’ etc.

As with the Syrian state, the Syrian rebels’ presence at the top of the table is unsurprising given that the Syrian civil war has been raging for the entire period of the Monitor – often with little concern for civilian life. Syria is a particularly difficult area for media reporting, so this figure probably falls far short of the full scale of harm.

*The injuring of innocent children who are studying for a better future is appalling. Attacks that affect Iraqi children’s education show disregard for fundamental principles of humanity. No cause justifies them and they have gone on for far too long. They must stop.*

**Dr. Marzio Babilie,**  
**UNICEF Representative to Iraq,**  
13 March 2013<sup>vii</sup>

Figure 19 Deaths and injuries caused by non-state actors



# Locations

Over the five-year period one consistently striking point that stands out in the data is the effect of location on likely civilian casualty figures. A ‘populated area’ by AOA’s definition is an area likely to contain a high density of civilians. When explosive weapons – which by definition have area effects – are used in such areas, they predictably cause higher levels of civilian harm.

Over the five-year period, 91% of the deaths and injuries caused by incidents of explosive violence in populated areas were reported as civilians. In areas not recorded as populated, the equivalent figure was 33%. Of the 145,565 civilian deaths and injuries recorded, 90% (130,737 deaths and injuries) were reported in populated areas. The ten worst incidents in AOA’s dataset (in terms of civilian harm) all occurred in populated areas.

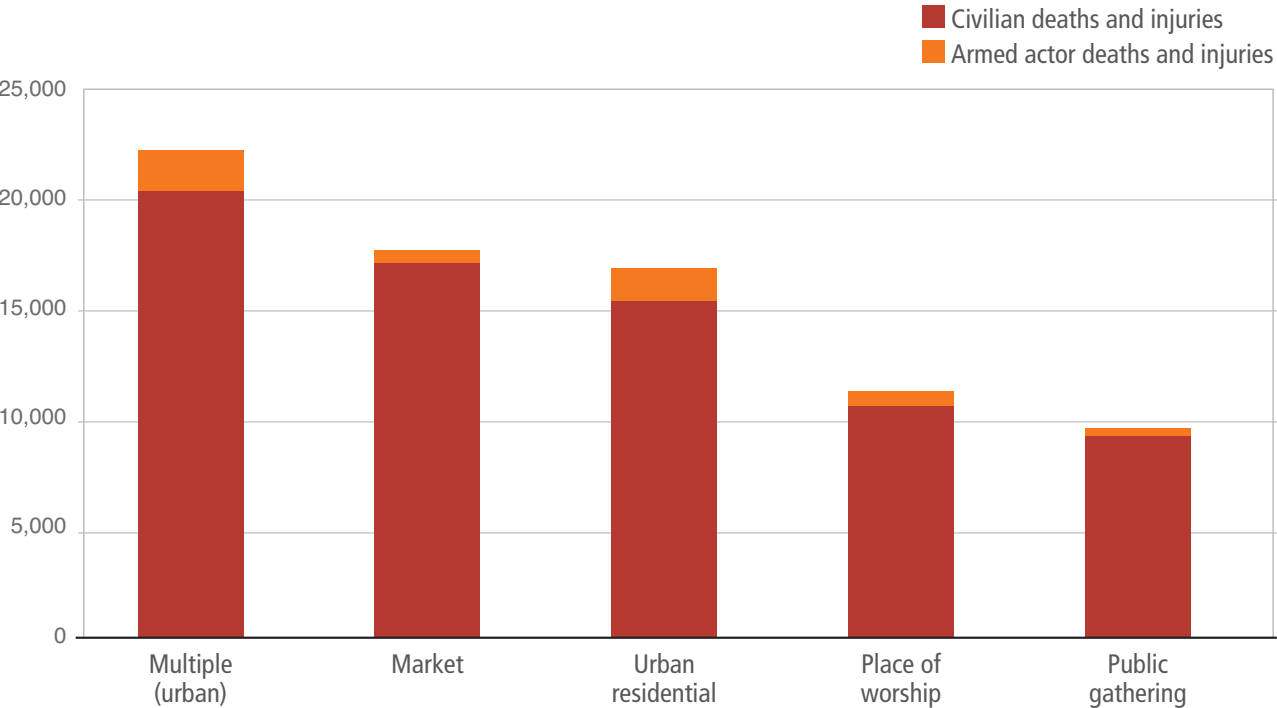
**LOCATION CATEGORIES**  
Of the different location categories specified in the methodology, several have consistently seen high levels of civilian harm. All of the top five locations for overall civilian harm are, unsurprisingly, places AOA defines as ‘populated’ – i.e. places likely to have a high density of civilians.

Incidents coded as ‘Multiple (urban)’ consistently caused particularly high levels of civilian harm. Over the five-year period, AOA has recorded 20,378 civilian deaths and injuries coded as occurring in ‘Multiple (urban)’ locations – 92% of all those killed or injured in such incidents were civilians. This is perhaps not surprising, as by definition these incidents represent multiple different explosions occurring in different places in an urban (and thus densely populated) area.

Other areas that show particular cause for concern include markets (17,169 civilian deaths and injuries over the five years), urban residential areas (15,480), places of worship (10,735) and public gatherings (9,290). In all of these areas armed actors form a very small percentage of the deaths and injuries recorded. In markets, for example only 3% of the 17,736 reported deaths and injuries were armed actors. In some years, this fell even further – in 2015, less than 1% of those killed or injured in markets were armed actors, and a large number of those armed actors who were killed were suicide bombers carrying out the attack rather than security personnel being targeted.

So stark are these figures that they are worth repeating. As many as 99% of those killed or injured in market bombings were civilians.

Figure 20 Worst-affected locations for civilians from 2011 to 2015



Other findings

PATTERNS OVER TIME

Perhaps unexpectedly, over the five years there was no consistent time pattern for spikes in explosive violence. Generally speaking mid-year there were higher levels of explosive violence than in the winter months – in four of the five years levels of recorded violence rise markedly from around the March-April period in line with what is often termed the spring offensive.

Of course, specific political developments also significantly influenced peaks in recorded violence. The September-October high point in 2014, for example, coincides with the beginning of the Russian bombing campaign in Syria. The huge spike in July 2014 – the only time when more than 5,000 civilian deaths and injuries have been recorded – is due largely to the well-documented huge civilian cost of Israel’s Operation Protective Edge in Gaza.

GENDER

AOAV’s methodology provides for disaggregation of civilian deaths and injuries by gender. However, this information is typically not provided in news reporting. Over the five years 4,292 women and girls were reported killed or injured by explosive weapons. In another 229 incidents women or girls were reported among those killed or injured but not in specific numbers. In many cases news reporting gives breakdowns of only those killed and not those injured.

Whilst the EVMP data is thus not particularly conclusive on the effect of explosive weapons on men versus women, research by AOAV into explosive violence in Gaza and Syria during July 2014 showed that the majority of those killed there were men or boys.<sup>22</sup> This may be because men are more likely to be outside the house during times of conflict.

REVERBERATING EFFECTS

The EVMP’s main focus is the direct effects of explosive violence – deaths and injuries. The methodology also provides for recording of secondary immediate effects like damage to buildings or displacement of population. However, as with gender the EVMP is constrained by the limits of typical reporting.

Damage to the location was recorded in 1,613 incidents over the five-year period. Displacement of various kinds was recorded in 96 incidents.

Often destruction of property goes unmentioned, and effectively estimating the actual extent of damage is impossible. Likewise, individual incidents are unlikely to be reported as causing significant displacement – even though they often constitute part of broader campaigns which taken together lead to significant population shifts.

Beyond these relatively immediate effects of explosive violence, there are many secondary and tertiary long-term effects which it is impossible to capture using AOAV’s methodology.

These reverberating effects include, on the individual level, the long-term physical and mental damage inflicted on survivors – in the latter case, whether they were injured or not. People’s property may be destroyed, inflicting serious financial damage, and their future ability to work may likewise be impaired.

On the macro level, the sense of insecurity and danger created by violence can have serious effects on economic development and political stability, contributing to a greater cycle of instability. Key infrastructure is often destroyed or damaged, crippling basic service provision and leading to broader crises including drought, starvation and disease. And of course displacement – which itself has all sorts of broader economic and social effects – is often not immediate or triggered by any one single incident.

Whilst attention is generally focused on the deaths and injuries caused by explosive weapons, these reverberating effects – which can continue to affect lives years down the line – are no less important. AOAV has previously investigated the long-term effects and efforts towards victim support in the wake of the 2009 Moon Market Bombing in Lahore.<sup>23</sup> By focusing on one specific event, it is possible to explore in detail some of the complexities of its aftermath. But these issues urgently require more study.

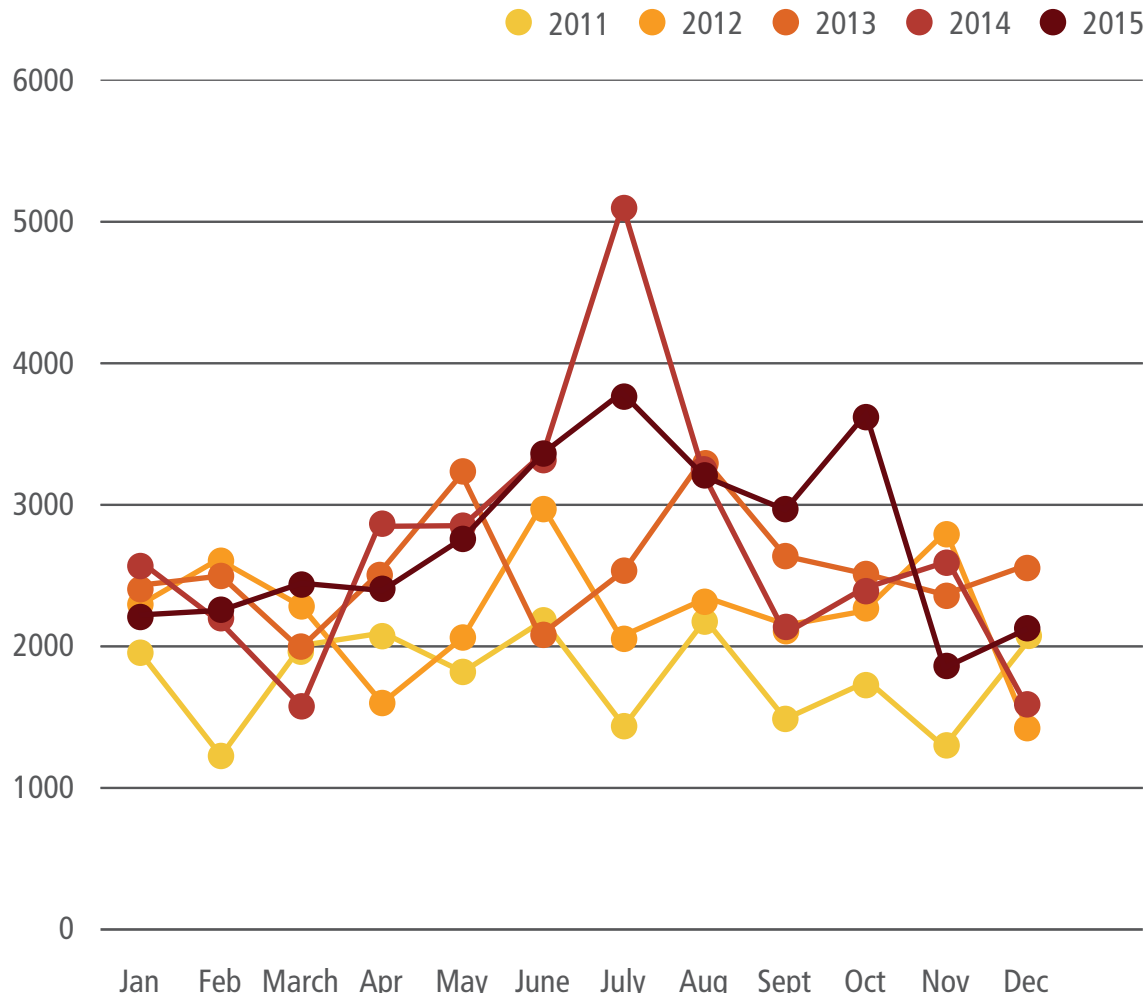
EFFECT ON AID AND HUMANITARIAN ASSISTANCE

One of the many secondary effects of explosive violence which is not immediately obvious from casualty figures is its ability to make the provision of aid and other humanitarian assistance difficult or untenable. During 2015, AOAV’s monthly reports on the EVMP included a section produced by Insecurity Insight focusing on the effect of explosive violence on provision of aid.

At best, explosive violence can seriously affect development and the progress of programmes like mine removal with potentially huge positive effects for local economies and people. At worst, areas already suffering humanitarian crises as a result of the destruction of infrastructure and huge levels of violence can be deprived of urgent assistance.

The effects of explosive violence on aid have been placed in the spotlight by the ongoing crisis in Syria, where the provision of aid to badly-affected areas in the interior has been seriously impacted – in particular by airstrikes. In many areas, airstrikes have apparently targeted hospitals, striking crippling blows to the ability of organisations like Medecins sans Frontières to provide medical care to those who need it most. Similar incidents have been recorded in Yemen, where MSF clinics have been repeatedly hit by airstrikes. Targeting hospitals is unambiguously illegal under International Humanitarian Law.

Figure 21 Monthly breakdown of civilian deaths and injuries





## Conclusion

These five years have seen explosive weapons take a huge toll on civilian lives. However, they have also seen the beginnings of movement towards a political solution.

INEW (the International Network on Explosive Weapons) has engaged in tireless advocacy towards the establishment of an international political commitment by states to avoid the use of explosive weapons in populated areas (EWIPA) – a phenomenon that AOA's data has irrefutably demonstrated is particularly harmful to civilians. As of June 2016, 53 states and territories and three state groupings have recognised the harm caused by EWIPA, and 38 countries have called for action to address this harm.<sup>24</sup>

The UN Secretary-General and the International Committee of the Red Cross (ICRC) have also publically noted the huge civilian harm caused by EWIPA. On 10 June 2016 the UN Security Council held an open debate on the protection of civilians in which EWIPA was a significant concern; AOA provided a briefing paper for this debate based on its EVMP findings.<sup>25</sup> In 2016, the use of explosive weapons in populated areas was discussed for the first time as a priority at the World Humanitarian Summit (WHS).

In July 2015 the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), together with the Norwegian Ministry of Foreign Affairs, held a meeting of experts on strengthening the protection of civilians from the use of explosive weapons in populated areas.<sup>26</sup> This was the second such meeting, and demonstrates increased commitment towards the development of a political commitment. AOA also convened a meeting of experts to address the humanitarian impact of improvised explosive devices (IEDs) in September 2015.<sup>27</sup>

The steps which have been taken so far are not to be dismissed, and give cause for hope. But there is much still to be done. AOA urges that all states and users of explosive weapons:

- Acknowledge that use of explosive weapons in populated areas tends to cause severe harm to individuals and communities and furthers suffering by damaging vital infrastructure;

- Strive to avoid such harm and suffering in any situation, review and strengthen national policies and practices on use of explosive weapons and gather and make available relevant data;
- Work for full realisation of the rights of victims and survivors;
- Develop stronger international standards, including certain prohibitions and restrictions on the use of explosive weapons in populated areas.
- States and other actors should stop using explosive weapons with wide area effects in populated areas.
- Previous AOA reports have shown the impact that strong, progressive rules of engagement can have in limiting the impact of explosive weapons on civilians.<sup>28</sup> States should review their policies and practices on the use of explosive weapons in populated areas, particularly those which may be expected to impact a wide area.
- States, international organisations and civil society should work together to further a process to develop an international political commitment to reduce the impact on civilians of the use of explosive weapons in populated areas, in line with the recommendations of the United Nations Secretary-General.<sup>29</sup>
- The UN Security Council should call upon parties to refrain from using explosive weapons in populated areas. Whenever relevant Security Council resolutions should include specific recommendations for civilian protection from such use of these weapons, building on recent examples in Syria, Libya and Cote d'Ivoire.<sup>30</sup>
- States and international organisations should publically condemn any use of explosive weapons in populated areas.
- Recognising the large number of civilian casualties caused by IEDs, all parties should work on measures which address the high level of humanitarian harm caused by these weapons. This includes

measures to address the security of stockpiled ammunition and munitions, coordinated efforts towards control of source materials, and more systematic data collection.<sup>31</sup>

- States and users of explosive weapons should work towards the full realisation of the rights of victims, including those killed and injured, their families, and affected communities. They should strive to ensure the timely and adequate provision of needed services for the recovery, rehabilitation, and inclusion of victims of explosive violence, without discrimination.
- States, international organisations, and non-governmental organisations should gather and make available data on the impacts of explosive weapons. Data on the casualties of explosive violence should be disaggregated so that stakeholders can accurately assess the impact of explosive weapons. More should also be done to protect and support people and organisations who gather such data, including providing access to journalists on the ground.
- More research is needed to better understand the long-term harm from explosive weapons, including on the impact of these weapons on vital infrastructure and services, public health, economic livelihoods, and environmental contamination. More funding support for NGOs working on data collection, investigations and victim assistance is necessary to advance collective understanding of the impacts of explosive weapons in populated areas.
- AOA has demonstrated over four years the importance of systematic and continuing monitoring of explosive violence and its impacts in populated areas. This monitoring must continue in order to assess if recommendations are put into effect.



Private apartment in Sloviansk, Ukraine. © Dirk-Jan Visser for PAX and UNOCHA



# Methodology

AOAV uses a methodology adapted from an incident-based methodology used by Landmine Action and Medact in 2009 which in turn was based on the Robin Coupland and Nathan Taback model.<sup>32</sup>

Data on explosive violence incidents is gathered from English-language media reports on the following factors: the date, time, and location of the incident; the number and circumstances of people killed and injured; the weapon type; the reported user and target; the detonation method and whether displacement or damage to the location was reported. AOA V does not attempt to comprehensively capture all incidents of explosive violence around the world but to serve as a useful indicator of the scale and pattern of harm.

The data collected by AOA V is always open to amendments in light of new information which becomes available after the publication of reports.

**No claims are made that this data captures every incident or casualty of explosive violence between 2011 and 2015.**

## SELECTING INCIDENTS

An RSS reader is used to scan Google News for key terms which relate to explosive weapon use: air strike\* artillery\* bomb\* bombing\* cluster bomb\* cluster munitions\* explosion\* explosive\* grenade\* IED\* mine\* missile\* mortar\* rocket\* shell.\*

At least one casualty from an explosive weapon must be reported in order for an incident to be recorded. Incidents with no clear date or which merely give a location as a country are excluded, as are incidents which occur over a period of more than 24 hours (e.g. 150 people killed by shelling over the last week). Casualty numbers must be clearly stated; reports which only describe ‘several’ or ‘numerous’ cannot be recorded.

When there are multiple sources for the same incident, those which provide the most detail or most recent casualty information are selected.

## SOURCES

AOAV uses a wide range of English-language news sources, many of which are translated by the publisher. Over the five-year period AOA V recorded

incidents reported in more than 1100 sources. By far the most widely-used, however, are Reuters, AFP and AP.

## RECORDING GUIDELINES

**Civilian/ armed actor or security personnel:** All casualties are assumed to be civilians unless otherwise stated. Casualties are recorded as ‘armed actors’ if they are reported as being members of the military, members of non-state armed groups, or security personnel who are likely to be armed, for example; police, security guards, intelligence officers, and paramilitary forces. If there is a strong possibility that armed actors are among the dead and injured, this is noted in the recording. Over the five years 782 such incidents occurred (6%).

**Intended target:** The target for an attack is only recorded if one of the three conditions below are met:

- The target is declared by the user.
- It is clearly reported in the source.
- The specific contextual conditions of use clearly indicate a target (e.g. if an IED is attached to the car of a police officer or soldier, ‘State armed’ is recorded as the target).

**Populated area:** Incidents are designated as occurring in populated areas likely to contain concentrations of civilians if: a) It is stated in the source (e.g. a busy street, a crowded market); b) If an incident occurs in or near a pre-defined location which is likely to contain concentrations of civilians e.g. commercial premises, entertainment venues, hospitals, hotels, encampments (containing IDPs, refugees, nomads), markets, places of worship, public gatherings, public buildings, public transport, schools, town centres, urban residential neighbourhoods, villages/ compounds. This definition of a populated area is based on Protocol III of the 1980 Convention on Certain Conventional Weapons (CCW) which defines concentrations of civilians as: *“any concentrations of civilians, be it permanent or temporary, such as in inhabited parts of cities, or inhabited towns or villages, or as in camps or columns of refugees or evacuees, or groups of nomads.”*<sup>33</sup>

**User status:** Responsibility for the use of explosive weapons is assigned where any of the following conditions are met:

- The group or actor responsible has claimed responsibility.
- The user of the explosive weapon is clearly stated in the report.
- If the user of the explosive weapon has employed technology clearly associated only with that user in the context in question.

If none of these conditions are met then the user is recorded as unknown. Users are recorded as ‘state and non-state’ when both users are identified but it is not possible to establish which one was responsible for the particular incident.

## LIMITATIONS

This methodology is subject to a number of limitations and biases, many relating to the nature of the source material on which it is dependent and the lack of a mechanism to follow up reports with in-depth investigation. It is recognised that there are very different levels of reporting across regions and countries so that under-reporting is likely in some contexts. In addition, only English-language media reports are used, which does not provide a comprehensive picture of definitive explosive weapon use around the world.

The methodology is designed to capture distinct incidents of explosive violence with a clear date and location. In some contexts of explosive violence, particularly during intense armed conflict, casualties cannot be assigned to specific incidents but a total number is reported as the result of a period of days. These casualties cannot be included in the dataset.

As the methodology relies on reports which are filed shortly after an incident took place, there is no mechanism for assessing whether people reported as wounded in the immediate aftermath of an incident subsequently died from their injuries. This is another factor that should be assessed when considering the likelihood that the actual numbers of fatalities of explosive violence are higher than the numbers recorded by AOA V. There is no systematic base-line for determining what constitutes an injury, and AOA V is therefore subject to the assessment of the news source.

On a number of occasions firearms were also reported as having been used alongside explosive weapons. While AOA V always tries to determine the casualties specifically caused by explosive weapons, in these incidents new sources are not always able to clarify which casualties were caused by which weapon type, particularly in incidents that involved large numbers of casualties. It is therefore possible that some casualties in these incidents may not have been caused by explosive weapons.<sup>34</sup>

AOAV is focused on capturing the harm caused by explosive weapons at the time of use. Explosive weapons that fail to explode as intended can linger in the form of explosive remnants of war (ERW) for years, if not decades, to come. In 2014, for instance, AOA V recorded 143 civilian casualties from unexploded or abandoned ordnance. These casualties occurred in 21 different countries and territories. The actual number of casualties from ERW is likely to be far higher.<sup>35</sup>

Poorly secured or stockpiled explosive weapons can also cause unintended harm to civilians. AOA V recorded 8 stockpile explosions from 2011-2015.

Media reports used by AOA V are a valuable resource for better understanding the scale and pattern of explosive violence use. However, these reports are less helpful for capturing other types of harm known to be characteristic of explosive weapons in populated areas. Damage to infrastructure, the risk of ERW, long-term health effects, and displacement are all aspects of the pattern of harm caused by explosive weapons which are not fully represented in the data set. However, reporting on these effects is often limited, with news sources focusing on the immediate aftermath of an incident. For instance, only 1,613 incidents out of a total of 12,566 reported damage to a location. Effects which are the result of cumulative levels of explosive violence, for instance communities displaced by heavy shelling or continued insecurity, cannot be fully represented by this research.

## Key terms

### CIVILIAN/ARMED ACTOR OR SECURITY PERSONNEL:

Casualties were recorded as ‘armed actors’ only if they were reported as being part of the state military, members of non-state armed groups, or security personnel who AOA V considered likely to be armed. This includes police, security guards, intelligence officers, and paramilitary forces. All casualties not reported as belonging to these armed groups were recorded as civilians. If there is a strong possibility that armed actors are among the dead and injured, this is noted in the recording. Over the five years 782 such incidents occurred (6%).

### EXPLOSIVE VIOLENCE INCIDENT:

Refers to the use of explosive weapons that caused at least one casualty and took place in a 24-hour period.

### POPULATED AREA:

Refers to areas likely to contain concentrations of civilians.<sup>36</sup>

### EXPLOSIVE WEAPONS TYPES:

Weapons were classified by AOA V based on consistently-used language in media reporting. The categories used are deliberately broad in order to capture a range of different weapon types in light of considerable variance in the level of detail provided by news sources.

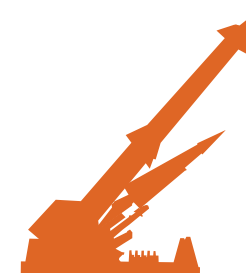
- **Multiple types:** Used to refer to incidents where a combination of different explosive weapon types were used and it was not possible to attribute casualties to each munition. These can involve any combination of air, ground-launched, or improvised explosive devices. The category most commonly includes attacks where ground-launched weapons such as rockets and artillery shells were fired together.
- **Mine:** Refers to incidents where the explosive weapon was described as a mine or landmine. These include both antipersonnel and anti-vehicle mines.<sup>37</sup>

### AIR-LAUNCHED:



- **Air strike:** The broadest recording category in this grouping. It refers to incidents where explosive weapons were reported as delivered by drones, planes, helicopters, or other aircraft, and the type of munition fired was not specified in the news source.<sup>38</sup> Where the munition used is specified in news sources it is recorded as one of the following more specific weapon categories below.
- **Air-dropped bomb:** References to areas being ‘bombed’ by military aircraft were recorded as air-dropped bomb incidents. This can include makeshift manually-deployed bombs, as well as cluster bombs.
- **Missile:** Recorded where explosive missiles delivered by air were reported in a news source, most commonly in drone attacks.<sup>39</sup>
- **Rocket:** Typically used to refer to unguided missiles, rockets were recorded wherever they are specified in a news source.<sup>40</sup>

### GROUND-LAUNCHED:



- **Shelling (unspecified):** The broadest recording category in this grouping. It refers to reports of the use of explosive shells that do not specify how they were delivered (e.g. mortars, rockets, artillery, or tanks).
- **Artillery shell:** An explosive projectile fired from a gun, cannon, howitzer or recoilless gun/rifle. This refers to medium and large-calibre munitions primarily designed to fire indirectly. Artillery shells were recorded wherever specified in news sources.
- **Missile:** Recorded where reported in news sources, or where a ground-launched missile type was reported in the incident (e.g. SCUD, MANPAD). Ground-launched missiles can range from shoulder-mounted to ballistic missiles.<sup>41</sup>
- **Rocket:** Recorded where reported in news sources, or where a known ground-launched rocket type was reported in the incident (e.g. Grad, Katyusha).
- **Mortar:** Recorded where reports specified that a mortar bomb was the munition used.<sup>42</sup>
- **Tank shell:** Explosive shells fired by tanks.
- **Grenade:** Recorded where reports indicate grenades deployed an explosive blast and/or fragmentation. Grenades specified as ‘homemade’ were recorded as IEDs.
- **RPG:** Rocket-propelled grenades. Grenades which are rifle-launched were recorded as grenades rather than RPGs.

### IMPROVISED EXPLOSIVE DEVICES (IEDS):



- **Non-specific IED:** The broadest recording category in this grouping. It refers to all IEDs which could not be categorised as either ‘roadside bombs’ or ‘car bombs.’
- **Car bomb:** Incidents where the IED was clearly described as a ‘car bomb,’ or other vehicles like trucks were used. IEDs which were reported as being attached to vehicles, such as a sticky bomb attached to a politician’s car or a remote control IED attached to a bicycle, were recorded as ‘Non-specific IEDs.’
- **Roadside bomb:** IEDs which were either specifically reported as ‘roadside bombs’ or where an IED was reported to be used alongside a road and no further information was provided.

## Notes

1 A populated area is one that is likely to contain concentrations of civilians. It is based on Protocol III of the 1980 Convention on Certain Conventional Weapons (CCW). The full definition and guidelines for recording an area as being populated is detailed on pages 35-36.

2 'Car bombs' is a slightly imprecise term. This category includes all vehicle-borne IEDs (VBIEDs) including, for example, digger bombs and bike bombs.

3 Kirk H. Sowell, "Iraq's Second Sunni Insurgency," Hudson Institute, August 2014, [www.hudson.org/research/10505-iraq-s-second-sunni-insurgency](http://www.hudson.org/research/10505-iraq-s-second-sunni-insurgency) (accessed 19/05/2016).

4 Jessica D. Lewis, "Al-Qaeda in Iraq Resurgent," Understanding War, September 2013, [www.understandingwar.org/sites/default/files/AQI-Resurgent-10Sept\\_0.pdf](http://www.understandingwar.org/sites/default/files/AQI-Resurgent-10Sept_0.pdf) (accessed 19/05/2016).

5 "Iraq 2015: A Catastrophic Normal," Iraq Body Count, January 2016, <https://www.iraqbodycount.org/analysis/numbers/2015/> (accessed 10/06/2016).

6 Eyder Peralta, "U.N.: Syrian Refugee Crisis Is 'Biggest Humanitarian Crisis Of Our Era,'" *NPR*, 29 August 2014, Syria [www.npr.org/sections/thetwo-way/2014/08/29/344219323/u-n-syrian-refugee-crisis-is-biggest-humanitarian-emergency-of-our-era](http://www.npr.org/sections/thetwo-way/2014/08/29/344219323/u-n-syrian-refugee-crisis-is-biggest-humanitarian-emergency-of-our-era)

7 Robert Perkins, "Syria's Shockwaves," AOA, December 2013.

8 Robert Perkins, "Investigation: Syria's Dirty Dozen," AOA, 23 September 2013, <https://aoav.org.uk/2013/syrias-dirty-dozen/> (accessed 20/05/2016).

9 Oryx, "The Syrian Arab Air Force, Beware of its Wings," *Bellingcat*, 16 January 2016, <https://www.bellingcat.com/news/mena/2015/01/16/the-syrian-arab-air-force-beware-of-its-wings/> (accessed 20/05/2016).

10 Martha Raddatz, Luis Martinez and Lee Ferran, "Airstrikes 'Successful' Against ISIS Targets in Syria, US Military Says," ABC, 23 September 2014, <http://abcnews.go.com/International/us-airstrikes-syria/story?id=25686031> (accessed 19/05/2016).

11 Andrew Roth, Brian Murphy and Missy Ryan, "Russia begins airstrikes in Syria; US warns of new concerns in conflict," *The Washington Post*, 30 September 2015, [https://www.washingtonpost.com/world/russias-legislature-authorizes-putin-to-use-military-force-in-syria/2015/09/30/f069f752-6749-11e5-9ef3-fde182507eac\\_story.html](https://www.washingtonpost.com/world/russias-legislature-authorizes-putin-to-use-military-force-in-syria/2015/09/30/f069f752-6749-11e5-9ef3-fde182507eac_story.html) (accessed 19/05/2016).

12 Although not directly comparable, Iraq Body Count (which includes non-explosive weapons) gives a conservative estimate of 16,115 non-combatant deaths for 2015. In the same period AOA recorded 5,049 civilian deaths and injuries total. Likewise, the Syrian Observatory for Human Rights cites a figure of 20,977 civilian deaths for the same period compared to AOA's figure of 8,732 civilians killed and injured. These organisations aim to be comprehensive and do not distinguish between the victims of explosive violence and the victims of other forms of violence. AOA's figures cannot be comprehensive, but should be taken as representative.

13 Henry Dodd, "Anatomy of a suicide bombing: investigating the Moon Market attack in Lahore, Pakistan," AOA, 22 May 2014, <https://aoav.org.uk/2014/anatomy-of-a-suicide-bombing-moon-market-pakistan/> (accessed 09/06/2016).

14 Specifically suicide bombings such as the March 2016 Lahore park suicide bombing. See Taha Siddiqui, "Pakistan hunts those behind attack that killed more than 70 in Lahore," 28 March 2016, [www.theguardian.com/world/2016/mar/27/dozens-killed-in-blast-outside-lahore-park-pakistan](http://www.theguardian.com/world/2016/mar/27/dozens-killed-in-blast-outside-lahore-park-pakistan) (accessed 20/05/2016).

15 Robert Perkins, "State of Crisis: Explosive Weapons in Yemen," AOA and OCHA, September 2015, <https://aoav.org.uk/2015/state-of-crisis-explosive-weapons-in-yemen/> (accessed 20/05/2016).

16 "The Violent Road: Violence in Nigeria," AOA and NWGAV, May 2014, <https://aoav.org.uk/2014/the-violent-road-nigeria-findings/> (accessed 20/05/2016).

17 Robert Perkins, "Under Fire: Israel's artillery policies scrutinised," AOA, December 2014, <https://aoav.org.uk/wp-content/uploads/2015/03/AOAV-Under-Fire-Israelis-artillery-policies-scrutinised.pdf> (accessed 23/04/2016).

18 Iain Overton, Iona Craig and Robert Perkins, "Wide-Area Impact: Investigating the wide-area effect of explosive weapons," AOA, February 2016, <https://aoav.org.uk/wp-content/uploads/2016/03/Wide-Area-Impact-explosive-weapons-in-populated-areas.pdf> (accessed 23/05/2016).

19 Bill Foggio, "Pakistani military claims 257 'terrorists,' no civilians killed in North Waziristan offensive," *Long War Journal*, 22 June 2014, [www.longwarjournal.org/archives/2014/06/pakistani-military\\_c\\_4.php](http://www.longwarjournal.org/archives/2014/06/pakistani-military_c_4.php) (accessed 14/04/2016).

20 AFP, "Civilian casualties fuel outrage over Zarb-e-Azb", *Newsweek Pakistan*, 22 July 2014, <http://newsweekpakistan.com/civilian-casualties-fuel-outrage-over-zarb-e-azb/> (accessed 14/04/2016).

21 The name 'Islamic State' used since the name change in 2014 and alternative translations and terms used by the media (such as ISIL and Da'esh) do not appear in AOA's database, where the incidents in question are entered simply as ISIS for consistency.

22 Claudia Xavier-Bonifay, "New report shows male civilians at particular risk of being killed by explosive weapons," AOA, 12 Mar 2015, <https://aoav.org.uk/2015/male-civilians-explosive-weapons/> (accessed 09/06/2016).

23 Henry Dodd, "Anatomy of a suicide bombing: investigating the Moon Market attack in Lahore, Pakistan," AOA, 22 May 2014, <https://aoav.org.uk/2014/anatomy-of-a-suicide-bombing-moon-market-pakistan/> (accessed 09/06/2016).

24 INEW, "Acknowledging the Harm," INEW, <http://www.inew.org/acknowledgements> (accessed 09/06/2016).

25 AOA, "Explosive Weapons and the Protection of Civilians: a briefing paper ahead of the UN Security Council Open Debate on the Protection of Civilians, 10 June 2016," AOA, 8 June 2016, <https://aoav.org.uk/2016/explosive-weapons-protection-civilians-briefing-paper-ahead-un-security-council-open-debate-protection-civilians-10-june-2016/> (accessed 09/06/2016).

26 "Informal Expert Meeting on Strengthening the Protection of Civilians from the www.inew.org/site/wp-content/uploads/2015/09/Oslo-Expert-Meeting-Summary-Report.pdf

27 Chatham House and Action on Armed Violence, "The Humanitarian Impact of Improvised Explosive Devices," 18 September 2015, [www.chathamhouse.org/sites/files/chathamhouse/field/field\\_document/20150918IEDHumanitarianImpact.pdf](http://www.chathamhouse.org/sites/files/chathamhouse/field/field_document/20150918IEDHumanitarianImpact.pdf) (26 May 2015).

28 Robert Perkins, "Air Power in Afghanistan, How NATO changed the rules, 2008-2015," Action on Armed Violence (AOAV), December 2015, <https://aoav.org.uk/wp-content/uploads/2015/03/AOAV-Air-Power-in-Afghanistan.pdf> (accessed 1 June 2015); Robert Perkins, "Under Fire, Israel's artillery policies scrutinised," Action on Armed Violence (AOAV), December 2015, <https://aoav.org.uk/wp-content/uploads/2015/03/AOAV-Under-Fire-Israelis-artillery-policies-scrutinised.pdf> (accessed 1 June 2015).

29 United Nations Security Council, "Report of the Secretary-General on the protection of civilians in armed conflict," 22 November 2014, <http://reliefweb.int/sites/reliefweb.int/files/resources/Report%20of%20the%20SG%20on%20the%20protection%20of%20civilians%20S2014-689.pdf> (accessed 23 April 2015).

30 See for example, United Nations Security Council SC/10583, 21 March 2012, [www.un.org/News/Press/docs/2012/sc10583.doc.htm](http://www.un.org/News/Press/docs/2012/sc10583.doc.htm) (accessed 1 April 2015); United Nations Security Council Resolution 1973, 17 March 2011, [www.nato.int/nato\\_static/assets/pdf/pdf\\_2011\\_03/20110927\\_110311-UNSCR-1973.pdf](http://www.nato.int/nato_static/assets/pdf/pdf_2011_03/20110927_110311-UNSCR-1973.pdf) (accessed 23 April 2015); and United Nations Security Council Resolution 1975, 30 March 2011, [www.un.org/en/ga/search/view\\_doc.asp?symbol=S/RES/1975\(2011\)](http://www.un.org/en/ga/search/view_doc.asp?symbol=S/RES/1975(2011)) (accessed 23 April 2015).

31 For more on these recommendations see Jane Hunter, "Tracking IED Harm," Action on Armed Violence (AOAV), December 2015, [https://aoav.org.uk/wp-content/uploads/2015/03/ied\\_data.pdf](https://aoav.org.uk/wp-content/uploads/2015/03/ied_data.pdf) (accessed 01 June 2015); Jenna Corderoy, "Material Harm," Action on Armed Violence (AOAV), December 2015, [https://aoav.org.uk/wp-content/uploads/2015/03/ied\\_material\\_lr.pdf](https://aoav.org.uk/wp-content/uploads/2015/03/ied_material_lr.pdf) (accessed 01 June 2015).

32 For more information see [www.insecurityinsight.org](http://www.insecurityinsight.org).

33 "Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III)," to the UN Convention on Certain Conventional Weapons, Geneva, 10 October 1980, [www.icrc.org/ihl.nsf/FULL/515](http://www.icrc.org/ihl.nsf/FULL/515) (accessed 18 March 2014).

34 AOA recorded 107 such incidents. For example, 12 civilians were reportedly killed in heavy gunfire, grenade and RPG clashes in the Jhat Pat market of Karachi, Pakistan on 12 March 2015. "Grenade attacks kill 12, injure 39 in Lyari," *The News Tribe*, 12 March 2015, [www.thenewstribes.com/2015/03/12/grenade-attacks-in-lyari-kill-12-injure-39/](http://www.thenewstribes.com/2015/03/12/grenade-attacks-in-lyari-kill-12-injure-39/) (accessed 26 May 2015).

35 For example, see International Campaign to Ban Landmines and Cluster Munition Coalition, *The Landmine and Cluster Munition Monitor 2015*, December 2015, <http://the-monitor.org/index.php/LM/Our-Research-Products/LMM14> (accessed 14 May 2015).

36 The definition of a populated area used by AOA is based on Protocol III of the 1980 Convention on Certain Conventional Weapons (CCW) which defines concentrations of civilians as: "any concentrations of civilians, be it permanent or temporary, such as in inhabited parts of cities, or inhabited towns or villages, or as in camps or columns of refugees or evacuees, or group of nomads." The full definition is available at: "Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III)," ICRC, Geneva, 10 October 1980, posted by U.S. Department of State, [www.state.gov/documents/organization/190579.pdf](http://www.state.gov/documents/organization/190579.pdf) (accessed 10 March 2015). AOA's guidelines for recording an area as populated are included in the Methodology.

37 The category of 'mines' includes both antipersonnel landmines and antivehicle mines. In many incidents, news sources often report what were likely actually victim-activated IEDs as 'mines' or in ambiguous language and it is not clear in many incidents whether these incidents involve manufactured or improvised explosive weapons. For detailed information on the incidents of antipersonnel and other types of mine use around the world see International Campaign to Ban Landmines and Cluster Munition Coalition, *The Landmine and Cluster Munition Monitor 2015*, December 2015, <http://the-monitor.org/index.php/LM/Our-Research-Products/LMM14> (accessed 14 May 2015).

38 Attacks described as air strikes can combine the firing of explosive missiles, the dropping of aerial bombs, and/or strafing using automatic weapons. There is often a lack of detail in media and official statements as to which specific weapons were used. On this basis incidents reported as air strikes were recorded as the use of an explosive weapon unless it is clear that only non-explosive weapons were used.

39 Missiles are defined as "an armament store designed to be

released from an aircraft or discharged from a gun or launcher towards a selected point usually to cause damage at that point." International Ammunition Technical Guideline, "Glossary of terms, definitions and abbreviations," United Nations Office for Disarmament Affairs, IATG 01.40:2011(E) 1st Edition (2001-10-01), [www.un.org/disarmament/convarms/Ammunition/IATG/docs/IATG01.40-Glossary\\_and\\_Definitions\(V.1\).pdf](http://www.un.org/disarmament/convarms/Ammunition/IATG/docs/IATG01.40-Glossary_and_Definitions(V.1).pdf) (accessed 11 March 2015).

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