

December 2018 update

**Worldwide
investments in
CLUSTER MUNITIONS
a shared responsibility**

PAX

Chapter 1

Cluster munitions producers

1.1 Introduction

Cluster munitions are indiscriminate weapons that pose a serious threat to civilian populations during and long after their use. The devastating humanitarian effects of cluster munitions are well documented. Unfortunately, reports continue to appear on cluster munition use in Yemen and Syria and the effects of these weapons on the civilian population.

But not only are these weapons still being used in conflict, they are also still being produced by companies making money out the production of weapons that were banned because of their indiscriminate nature.

Stopping the money going to cluster munitions producers has proven an effective way to halt production of these heinous weapons. As long as investments continue, there are means provided to continue to produce weapons that will indiscriminately kill and maim children, women and men.

Stopping the money going to cluster munitions producers has proven an effective way to halt production of these heinous weapons

All companies still involved in the production of cluster munition should stop producing these weapons immediately and declare so publicly.

Changes from the previous report

In this 9th edition of the Worldwide Investments in Cluster Munitions report, we clearly see some effect of the campaign that this report is part of.

Two major US arms producers that featured as cluster munitions producers in the 2017 edition of the report, Textron and Orbital ATK, have declared publicly that they no longer produce any cluster munitions. These developments are at least partly the result of the pressure from the financial sector.

At the same time this report includes 3 new companies involved in the production of cluster munitions: Avibras, Bharat Dynamics Limited and LIG Nex1. We also add a note of caution because Israeli defence company Elbit Systems will soon finalize the acquisition of cluster munitions producer IMI Systems. After this acquisition is completed and unless Elbit decides to stop IMIs production of cluster munitions, Elbit will be considered a cluster munitions producer as well.

1.2 Methodology

The goal of our research is to show the involvement of financial institutions worldwide in companies that produce or develop cluster munitions. Before we identify these financial institutions, it is important to have a clear understanding of what we mean by cluster munitions and how we define a cluster munitions producer.

Definitions

Our research uses the definition of cluster munitions and explosive submunitions that is in the Convention on Cluster Munitions:

“Cluster munitions means a conventional munition that is designed to disperse or release explosive submunitions each weighing less than 20 kilograms, and includes those explosive submunitions. It does not mean the following:

1. A munition or submunition designed to dispense flares, smoke, pyrotechnics or chaff; or a munition designed exclusively for an air defence role;
2. A munition or submunition designed to produce electrical or electronic effects;
3. A munition that, in order to avoid indiscriminate area effects and the risks posed by unexploded submunitions, has all of the following characteristics:
 - i. Each munition contains fewer than ten explosive submunitions;
 - ii. Each explosive submunition weighs more than four kilograms;
 - iii. Each explosive submunition is designed to detect and engage a single target object;
 - iv. Each explosive submunition is equipped with an electronic self-destruction mechanism;
 - v. Each explosive submunition is equipped with an electronic self-deactivating feature;

Explosive submunition means a conventional munition that in order to perform its task is dispersed or released by a cluster munitions and is designed to function by detonating an explosive charge prior to, on or after impact;⁷⁴

We define a **cluster munitions producer** as follows:

Any company or group of companies that, in its own name or through a subsidiary, develops or produces cluster munitions and/or explosive submunitions according to the definitions in the Convention on Cluster Munitions, or key components thereof.

Key components are components which form an integral and indispensable part of the cluster munitions or explosive submunitions.

We consider a company or group of companies to be a cluster munitions producer when any part, however small, of its total turnover is derived from producing (key components for) cluster munitions or explosive submunitions, regardless of the nature of the company's other activities.

We do so, because most cluster munitions are produced by companies that also produce other defence and/or civil products. Companies and groups can easily reallocate capital internally; profit from one production line can be invested in other production lines; money for general corporate purposes can be used for any of the company's activities, etc. Focussing solely on financing for cluster munitions is impossible and undesirable given the companies' financial structures. Moreover, even if a company only gets 1% of its turnover from cluster munitions, this 1% can represent a considerable amount of money and can mean the production of large amounts of cluster munitions.

**Profit from one production line
can be invested in other production
lines**

Criteria for inclusion on the long list

For this research project we have compiled a long list of cluster munitions producers. We include a company on the long list if we find sufficient evidence that:

- a company produced (key components for) cluster munitions or explosive submunitions since 30 May 2008 (the day the convention text was adopted in Dublin), or it has over the past year the company become involved in planned production or development of (key components for) cluster munitions or explosive submunitions, **and**
- the company has not stated publicly that it will end its involvement in the coming 12 months.

A clear description of a contract for or delivery of the product in a company publication or trade journal is considered as sufficient evidence that a company is involved in present or planned production. This is also the case when a budget line for the product is included in a recent government budget.

If over the past year the company has advertised (key components for) cluster munitions or explosive submunitions at exhibitions, in brochures, or on its website, this is seen as evidence of development or production. However, if other evidence is found that contradicts this or if the advertising refers to (key components for) cluster munitions or explosive submunitions that, to our knowledge, have not been produced since 30 May 2008, we do not place the company on the long list.

As a consequence, some companies which mention (key components for) cluster munitions or explosive submunitions on their websites are not included on the long list. A brochure may date from before May 2008, or other evidence may suggest that these products are no longer being produced. Furthermore, some companies that may produce (key components for) cluster munitions or explosive submunitions at present are not included on the long list because we could not find sufficient evidence of their production activities.

The research was done by the Cluster Munition Coalition, research consultancy service Profundo, Omega Research Foundation and PAX. We contacted all of the producing companies on the Red Flag List. When they provided additional information, we refer to it in this report.

From long list to short list (“Red Flag List”)

For all cluster munitions producers on the long list we researched if financial links with one or more financial institutions could be confirmed with reliable information in the public domain. When we could find no links to financial institutions, we have not included the cluster munitions producer in this report. This was mostly the case with state-owned and privately-owned companies. Because these companies are not taken into account, the short list of companies in this report can by no means be considered an exhaustive list of the companies, worldwide, involved in the production of (key components for) cluster munitions or explosive submunitions at present.

There is still a marked lack of official information available in the public domain about the production of cluster munitions. There may well be companies that currently produce (key components for) cluster munitions or explosive submunitions that are not on the Red Flag List simply because we could not find sufficient evidence of their production activities.

The short list of companies in this report can by no means be considered an exhaustive list

Based on the criteria outlined above, we included the following companies on our Red Flag List of cluster munitions producers.

1.3 Red Flag List of cluster munitions producers

1.3.1 Avibras (Brazil)

Avibras Indústria Aeroespacial S/A is a Brazilian private company. The company is active in aerospace, defence and civil markets. It produces, among other things, space vehicles, cruise missiles and armoured vehicles.⁵

Avibras produces the ASTROS (Artillery Saturation Rocket System) type of rockets and has produced the ASTROS II. The ASTROS II has two types of rockets that both deliver 150-kilogram warheads, each containing 70 submunitions: the SS-60 and SS-80. ASTROS II rockets can also be equipped with a unitary high explosive warhead.⁶

The ASTROS system is still listed on the Avibras website at the time of writing (although the submunition warheads have been removed) and in January 2018 the ASTROS system was presented at the Kuwait Aviation Show.⁷ It is unknown whether Avibras is still producing the ASTROS-fired SS-60 and SS-80 missiles with submunition warheads.⁸

The Cluster Munition Monitor reports ASTROS-manufactured surface-to-surface rockets with submunition warheads were exported from Brazil to Iran, Iraq, Malaysia, and Saudi Arabia. It is not clear when the last exports have taken place.⁹ Saudi Arabia has used the ASTROS cluster munitions rockets in Yemen on several occasions from 2015-2017, according to reports by Amnesty International¹⁰, Human Rights Watch¹¹ and Armament Research Services (ARES).¹²

The Cluster Munition Monitor notes that Avibras itself confirmed that it produced cluster munitions after 2008: “in 2010, a representative from Avibras said that the company generates US\$60–70 million per year from cluster munitions and claimed that cluster bombs produced by Avibras have a failure rate of less than 1%”.¹³ On 9 March 2017, still according to the Monitor, “Avibras did not deny continued production, but claimed that since 2001, its ASTROS cluster munition rockets have been equipped with a “reliable self-destruct device that complies with humanitarian principles and legislation” of the Convention on Cluster Munitions”.¹⁴

Like the Cluster Munition Coalition we maintain, however, that at least some of its products are clearly cluster munitions as defined and prohibited by the CCM: “When equipped with a warhead containing submunitions the SS-60 or SS-80 rockets launched by the ASTROS system are banned by the Convention on Cluster Munitions”.¹⁵

According to the CCM, munitions are *not* considered cluster munitions if they meet 5 cumulative criteria. The Avibras cluster munitions do not meet all of these 5 criteria.^V And whereas the submunitions in the Brazilian weapon might meet *one* of these criteria (they have a self-destruct mechanism but it is unclear if these are electronic), there is no evidence of any of the other exclusion criteria being met. With 70 submunitions, the permitted maximum of fewer than 10 is exceeded, we have information that mentions a weight per submunition between 1,8 and 2,5 kg (where 4 kg is the minimum to fall under the exception), nothing suggests that the submunitions are capable of attacking a single target and there is no evidence of a self-deactivating feature.¹⁶

Under the ASTROS 2020 programme, Avibras is developing a new (version of the) ASTROS launcher, as well as several new missiles. Several sources note that one of these Avibras' AV TM 300 missiles (also known as MTC 300 and nicknamed Matador) can also carry a cluster munition warhead.¹⁷

V Article 2 of the Convention on Cluster Munitions reads (emphasis added): 2. “**Cluster munition**” means a conventional munition that is designed to disperse or release explosive submunitions each weighing less than 20 kilograms, and includes those explosive submunitions. **It does not mean the following:** (...)

(c) **A munition that**, in order to avoid indiscriminate area effects and the risks posed by unexploded submunitions, **has all** of the following characteristics: (i) Each munition contains fewer than ten explosive submunitions; (ii) Each explosive submunition weighs more than four kilograms; (iii) Each explosive submunition is designed to detect and engage a single target object; (iv) Each explosive submunition is equipped with an electronic selfdestruction mechanism; (v) Each explosive submunition is equipped with an electronic selfdeactivating feature.

Conclusion

Avibras is considered a cluster munitions producer, based on the production of the submunitions carrying SS-60, SS-80 rockets after May 2008, the credible reports on the AV TM-300 and Avibras' own statement in 2010 that it was involved in cluster munitions production.

Avibras has not refuted this information, has not responded to PAX' requests for more information and has not stated publicly that it would stop producing cluster munitions.

1.3.2 Bharat Dynamics Limited (India)

Bharat Dynamics Limited (BDL) is an Indian company founded in 1970 that produces and sells guided missiles and associated defense equipment.¹⁸ BDL used to be a fully state-owned enterprise under the administrative control of the Ministry of Defense.¹⁹ However, in March 2018 BDL was listed on the Bombay Stock Exchange and the National Stock Exchange in India.²⁰ BDL works amongst others for the Indian Defence Research and Development Organization (DRDO) to produce missiles for the Indian armed forces.²¹

BDL produces different types of missiles that can carry submunition warheads. Together with the DRDO, BDL has co-developed the different types of Prithvi missiles, for which different kinds of warheads have been developed, including a cluster munitions one. Both the Prithvi I and II are also fitted with submunitions warheads.²²

A 2018 DRDO publication explicitly mentions the importance of cluster munitions for the DRDO and the Indian military and describes the development of cluster munition warheads for the Prithvi missile: "A major technological breakthrough has been the development of submunition warheads for various medium and large calibre missiles, rockets, bombs and artillery systems. An innovative warhead test vehicle has been evolved for test and evaluation. DPICM bomblet, incendiary, prefragmentation and penetration-cum-blast submunitions have been established for warheads for Prithvi missile, Pinaka rocket and artillery rounds."²³

Conclusion

Bharat Dynamics Limited is considered a cluster munitions producer because there is sufficient evidence that it developed and produced the cluster munition-capable Prithvi II missile after May 2008.

BDL has not refuted this information, has not responded to PAX' requests for more information and has not stated publicly that it would stop producing cluster munitions.

1.3.3 China Aerospace Science and Industry (China)

China Aerospace Science and Industry (CASIC) is a state-owned Chinese company.²⁴ CASIC describes itself as "the largest missile weapon designer and manufacturer in China".²⁵

It has developed the SY-300 and SY-400, 300 mm and 400 mm munitions, respectively. Among the warhead options are dual-purpose submunitions and blast fragmentation warheads.²⁶ The larger SY-400 version carries a 300 kg payload capable of delivering a 660 cluster munitions warhead.²⁷ The company's P-12 missile is also capable of carrying an anti-armour submunitions warhead.²⁸

The missiles produced by CASIC (and those of Chinese state-owned sister company CASC) are marketed by the China Precision Machinery Import and Export Corporation (CPMIEC).²⁹ CPMIEC also promoted several other types of cluster munitions but we have been unable to ascertain whether these were produced by CASIC or by another Chinese manufacturer. This report lists only those cluster munitions of which it could be confidently established they are produced by CASIC.

At the 2010 Africa Aerospace and Defence exhibition, CPMIEC advertised the SY-400.³⁰ CPMIEC also promoted the SY-300, SY-400 and P-12 systems at the IDEX 2015 fair in Abu Dhabi.³¹

Conclusion

China Aerospace Science and Industry (CASIC) is considered a cluster munitions producer because there is sufficient evidence that it produced several types of cluster munitions after May 2008, notably the SY-300 and SY-400 munitions and the P-12 missile.

CASIC has not refuted this information, has not responded to PAX' requests for more information and has not stated publicly that it would stop producing cluster munitions.

1.3.4 Hanwha (South Korea)

Hanwha Corporation, formerly Korea Explosives Corporation, is a diversified industrial conglomerate. Its defence division makes munitions, guidance and delivery systems.³² The South Korean company specialises in munitions, for which the production process is under strict government control. While in 2007 the company stated that the South Korean Government was their sole customer³³, in recent years, in parallel with much of South Korea's military industry, Hanwha has opened up to the export market, both exhibiting at international arms fairs and selling military equipment abroad.³⁴

Hanwha has produced the 130 mm Multiple Launch Rocket System (MLRS) and the 2.75" Multi-purpose submunitions (MPSM) for use on its rockets. The company confirmed the manufacture of this type of cluster munition in a written answer to the Norwegian Government Pension Fund Global in 2007.³⁵

In February 2010, Hanwha Corporation still advertised the 130 mm MLRS and the 2.75" MPSM on its website. It described the 130 mm MLRS as a rocket launcher that could "launch multiple rockets into concentrated enemy encampments across a wide area."³⁶ The 2.75-inch MPSM was described as the "HE MPSM K224 Warhead [that] contains 9 each multipurpose submunitions for use against personnel, materiel and light armour."³⁷ Also at the IDEX 2013 arms fair (International Defence Exhibition & Conference in Abu Dhabi) Hanwha marketed the "Rocket warhead MPSM K224" in its catalogue.³⁸

In January 2011, the 2.75" MPSM was still on the company's website, but the 130 mm MLRS had been removed.³⁹ By March 2012, both the 2.75" MPSM and the 130 mm MLRS had been removed from the company's website. Research by Handicap International and Facing Finance (Germany) in 2011, however, showed that Hanwha still offered 2.75" submunitions and 120 mm mortar bombs with cluster ammunition at the 2011 IDEX.⁴⁰

In April 2012, South Korea informed the Cluster Munition Monitor that Hanwha produced 42,800 Dual Purpose Improved Conventional Munition (DPICM) submunitions for its extended range (base-bleed) 155 mm artillery projectiles in 2011.⁴¹

First deliveries for Hanwha's new twelve-round, multiple-calibre MLRS, 'Chunmoo', were then scheduled for the second half of 2014. The Chunmoo is capable of firing 130 mm and 239 mm rockets.⁴² At IDEX 2015 the Chunmoo rocket launcher system was listed under Hanwha's products.⁴³ In 2018, the Chunmoo system is advertised on Hanwha's website.⁴⁴ Among the available warheads are reportedly high explosive fragmentation rounds and cargo warheads with anti-tank or pre-fragmented anti-personnel submunitions.⁴⁵

Hanwha also produces fuzes that are used for cluster munitions. The mechanical fuze M577A1 and the proximity fuze HW201, of which Hanwha states it is equivalent to the electronic proximity fuze M732, both used for cluster ammunition, are listed in a brochure available on the company website.⁴⁶ The HW101 Fuze is used in the (Poongsan) K310 cluster munition.⁴⁷

In February 2017 Hanwha Corporation "submitted a patent application for submunition [with a] delayed self-destruct [unit] with [an] independent pyrotechnic [mechanism]. [...] An abstract released by the Korean Intellectual Property Office states: 'The present invention relates to a submissile fuze having an independent pyrotechnic self-destruct unit, wherein

an impulse fuze part and a delay part emitted from a submissile to be exploded after a certain amount of time are independently operated. Therefore, the submissile fuze having an independent pyrotechnic self-destruct unit minimizes the chance of non-detonation, thereby securing sufficient delay time.”⁴⁸ Although it is unknown for which submunition type the patent is filed, it is clear that Hanwha is at least developing this submunition.

Conclusion

Hanwha is considered a cluster munitions producer because the company produced and advertised submunitions and key components of cluster munitions after May 2008. It advertised the 2.75” MPASM submunitions and 120 mm and 130 mm MLRS mortar bombs with cluster ammunition and the Chunmoo systems with submunitions. It also produced DPICM submunitions and produced and markets fuzes that are used in cluster munitions. In addition, it applied for a patent for a yet-unknown submunition.

Hanwha has not refuted this information, has not responded to PAX’ requests for more information and has not stated publicly that it would stop producing cluster munitions.

1.3.5 LIG Nex1 (South Korea)

LIG Nex1 is a leading South Korean arms producer. The company was established in 1976 and is involved in several business areas of the military industry, including precision guided munitions, high-energy weapon systems and command, control and communication.⁴⁹

LIG Nex1 started to produce the cluster munition Sea Dragon/Haeseong II Vertically Launched Tactical Surface Launch Missile for the South Korean Navy in 2017 and 2018.⁵⁰ On its website, LIG Nex1 promotes the Sea Dragon missile as “a ship-to-surface guided weapon system [that] has been uniquely developed for Next-generation Frigate (FFX), utilizing GPS/INS guidance to target coastal and inland targets. Enhanced survivability of warships as well as better performance of joint operations with the army is expected”.⁵¹

The Sea Dragon is designated Haeseong II in the Republic of Korea Navy.⁵² Navy Recognition reported that when the Sea Dragon was presented at the MADEX 2017 fair, a LIG Nex1 representative said the missile just entered mass production for the first time.⁵³

A Defense News article mentions: “According to the [South Korea’s Defense Acquisition Program Administration] DAPA, the missile is armed with a warhead carrying hundreds of submunitions. These combine a shaped charge and fragmentation jacket, the former is used to penetrate armoured vehicles and the latter to damage or destroy [so-called] softer targets. Once released, the submunitions can devastate an area the size of two US football fields, the agency added”⁵⁴

The **Missile Defense Project** at the Center for Strategic and International Studies refers to a DAPA release and explicitly mentions “**Warhead: Submunitions**” as part of the missile’s specifications.⁵⁵

The presentation animation video released by DAPA shows the Tactical Surface Launch Missile releasing multiple objects mid-air, in which explode in multiple small explosions on the ground in a pattern that is indeed that of submunitions.⁵⁶

A Navy Recognition Article cites a DAPA release in April 2017, mentioning that the TSLM missile is equipped with a submunition warhead with cumulative fragmentation elements, capable of “striking an area covering the equivalent of two football fields”.⁵⁷

Another DAPA video shows the testing of the TSLM. The very end of that video shows multiple objects falling in the sea – in a pattern equivalent to a cluster munition impact.⁵⁸ As was previously referred to, Article 2 and under (c) of the Convention on Cluster Munitions (CCM) lists 5 cumulative criteria that a munition must *all* comply with to *not* be considered a

cluster munition.^{VI} With the animation and test video clearly showing more than 10 explosions, at least one of these criteria is not met. There is no suggestion anywhere that any of the other exclusion criteria are applicable.

Conclusion

LIG Nex1 is considered a cluster munitions producer because there is sufficient evidence that it produced the Tactical Surface Launch Missile cluster munition after May 2008.

LIG Nex1 was contacted repeatedly by PAX and others but has not refuted this information, has not responded to PAX' requests for more information and has not stated publicly that it would stop producing cluster munitions.

1.3.6 Norinco (China)

Norinco (China North Industries Corporation) is a state-owned enterprise group engaged in military production and a range of other activities.⁵⁹

In 2011, research at IDEX (International Defence Exhibition & Conference in Abu Dhabi) by Handicap International and Facing Finance found evidence that Norinco advertised Type 90B 122 mm and W-120 273 mm cluster munition rockets for its Multiple Launch Rocket System (MLRS).⁶⁰

In 2009, Norinco presented the AR1-A MLRS at the IDEX arms fair.⁶¹ AR1-A can launch different rockets: BRC3 with cluster warhead with 623 submunitions, BRC4 of a similar type but with extended range, and BRE2 fitted with a conventional unitary high-explosive warhead.⁶²

Norinco also produces the AR3 MLRS.⁶³ It can use two pods of rockets, each of which can contain four 370 mm or five 300 mm rockets.⁶⁴ Various 300-mm rockets with different warheads are compatible, including cluster warheads with self-targeting antitank munitions.⁶⁵

At IDEX 2015, Norinco also displayed its Fire Dragon guided munitions for MRLS, featuring 300 mm and 370 mm rockets. While Norinco did not reveal the warhead options, these could reflect those of the unguided munitions, which includes cargo warheads capable of carrying dual-purpose anti-personnel/anti-tank bomblets.⁶⁶

In Jane's Air Launched Weapons 2018-2019, Norinco is listed as the producer of the 250kg Combined Effects Bomb containing 147 combined effects bomblets, and a cluster bomb derived from the Combined Effects Bomb. This cluster bomb is designed to be air-launched and to open at a pre-set altitude. In addition, according to Jane's, Norinco also produces the 340kg anti-tank cluster bomb which contains 189 armour piercing submunitions and an anti-runway cluster bomb, with 16 armour-piercing submunitions of 4.5kg each.⁶⁷ Jane's Weapons Ammunition 2018-2019 also mentions the production of the Norinco 152 mm type 66 ammunition, which has 63 bomblets and the Norinco 130 mm type 50, that has 35 bomblets.⁶⁸

Conclusion

Norinco (China North Industries Corporation) is considered a cluster munitions producer because there is evidence that the company has advertised and produced many types of cluster munitions after May 2008, amongst which are the Type 90B cluster munition rocket, the Fire Dragon and the Combined Effects Bomb.

Norinco has not refuted this information, has not responded to PAX' requests for more information and has not stated publicly that it would stop producing cluster munitions.

VI Article 2 of the Convention on Cluster Munitions reads (emphasis added): 2. "**Cluster munition**" means a conventional munition that is designed to disperse or release explosive submunitions each weighing less than 20 kilograms, and includes those explosive submunitions. **It does not mean the following: (...)**

(c) **A munition that**, in order to avoid indiscriminate area effects and the risks posed by unexploded submunitions, **has all** of the following characteristics:

- (i) Each munition contains fewer than ten explosive submunitions;
- (ii) Each explosive submunition weighs more than four kilograms;
- (iii) Each explosive submunition is designed to detect and engage a single target object;
- (iv) Each explosive submunition is equipped with an electronic selfdestruction mechanism;
- (v) Each explosive submunition is equipped with an electronic selfdeactivating feature.

1.3.7 Poongsan (South Korea)

Poongsan is a leading arms producer in South Korea that develops military and sporting ammunition.⁶⁹

Poongsan has been involved in the production of several types of 155 mm artillery cluster munitions, according to its company brochure: the Dual Purpose Improved Conventional Munitions (DPICM) K305; K308 and K310. These are 155 mm artillery projectiles, the K305 containing 64 K214 and 24 K215 DPICM submunitions; the K308 containing 40 K224 DPICM submunitions and 48 dummies; and the K310 containing 49 K221 DPICM submunitions.⁷⁰

Under a 2007 licensing agreement, between Pakistan Ordnance Factories and Poongsan, the latter delivered the first batch of co-produced K310 155mm projectiles containing DPICM submunitions to the Pakistan army in 2008.⁷¹ At Defence Services Asia Exhibition and Conference (DSA) 2008, information was displayed about a Poongsan – Pakistan Ordnance Factory Joint Venture signed in April 2007 to produce the DP-ICM 155 mm Base Bleed.⁷²

Poongsan displayed the K310 at IDEX 2013 (International Defence Exhibition & Conference in Abu Dhabi)⁷³ and at Bahrain International Defence Exhibition & Conference (BIDEC) 2017.⁷⁴

In an April 2016 letter to PAX, Poongsan stated it has been involved in producing “a self-propelled 155mm howitzer weapon that includes cluster munitions” for the Korean government. The company stated it has ceased the production of the K305 and K308.⁷⁵ Poongsan did not reply to follow-up questions about when the production of the K305 and K308 was ceased, or whether the 155mm howitzer weapon that includes cluster munitions it refers to is the K310 or another type.

Regardless of the exact current status of Poongsan’s involvement with its K305 and K308 cluster munitions, it is clear that Poongsan still advertised its K310 cluster munition in 2017, which is after the latest information received from the company.

Conclusion

Poongsan is considered a cluster munitions producer because there is sufficient evidence that it has been involved in the production of several types of cluster munitions since 2008, notably the K305, K308 and K310. Although Poongsan wrote to PAX in 2016 that it had stopped producing the K305 and K308, the company did not refute that it produced the K310, did not state publicly that it would stop producing cluster munitions and still advertised the K310 in 2017.

1.4 Note of caution: Elbit Systems

IMI Systems had already been considered a cluster munitions producer and had been included on PAX’ long list of cluster munitions producers in recent years. However, as we could previously not find financial links with the company because it was state-owned, IMI Systems was not included in previous versions of this report.

Early 2018, it was reported that Elbit Systems would take over IMI Systems⁷⁶ and in August 2018 it was reported that the merger passed the checks by the Israeli Antitrust Authority.⁷⁷ At the time of writing it is likely that Elbit will acquire IMI Systems before the end of 2018.

Below we will list the cluster munition-related activities of IMI Systems, which at the time of writing still maintains a separate website.⁷⁸ With the acquisition of IMI Systems, Elbit Systems will become the parent company of a cluster munitions producer and will therefore be regarded as a cluster munitions producer itself. Therefore, we provide this information to inform investors in Elbit Systems that it is to be considered a cluster munitions producer after the acquisition of IMI Systems.

IMI Systems (IMI), previously Israel Military Industries, was founded in 1933 and until recently wholly owned by the State of Israel.⁷⁹

Jane's Ammunition 2014-2015 noted cluster bombs manufactured by IMI. Firstly, the AccuLAR rocket containing 104 of the M85 type submunitions.⁸⁰ Furthermore Jane's noted IMI's M970 and M971 cargo bombs which both contain submunitions.⁸¹ Jane's Air Launched Weapons 2018-2019 notes that "Israel Military Industries (now IMI Systems) produced a cluster bomb with penetrating submunitions known as the Runway Attack Munition".⁸²

The Cluster Munition Monitor notes that IMI Systems still advertises cluster munitions on its site, although without that denomination. "The cluster munitions are identified by the yellow-colored diamond-shaped markings near the nose of the projectile, which denotes that the item "contains submunitions" in Western ammunition marking schemes. [Several other] non-cluster munition product advertised on the page includes a link to a product information sheet or video. The entries for cluster munitions include the statement "For more info contact us."⁸³ VII

Furthermore, IMI advertised the EXTRA Extended Range Artillery system with the text 'payload capacity: unitary, sub-munitions'.⁸⁴ Other sources also note that for EXTRA "Various types of warhead weighing up to 120 kg have been proposed for the land-based version, including high-explosive or cargo-carrying submunitions. It is estimated that about 500 IMI Bantam submunitions could be carried."⁸⁵

PAX wrote Elbit Systems to express concern at the (then) pending acquisition of IMI Systems by Elbit Systems. In that letter, PAX asked Elbit Systems to declare that it would stop any production of cluster munition after the acquisition. In a reply the company wrote: "[...] Elbit Systems is not in a position to respond to the matter you raise beyond the information provided in Elbit Systems' announcements to the public."⁸⁶

Conclusion

IMI Systems is considered a cluster munitions producer because there is sufficient evidence that it produced cluster munitions after May 2008, amongst others the M85, M970, M971, RAM cluster munitions and the EXTRA system with cluster-munition warhead. It also continues to advertise several types of cluster munitions, including the EXTRA system.

IMI Systems' new parent company Elbit Systems has declined PAX' requests for more information and did not state publicly that it would stop producing cluster munitions. As a result, Elbit Systems is considered a cluster munitions producer because of its acquisition of IMI Systems in 2018.

We call on Elbit Systems to fully end its involvement with (key components of) cluster munitions. We also call on investors in Elbit Systems to engage with this company to make it sever all its involvement with the production of cluster munitions.

Elbit Systems is not yet included on the 2018 Red Flag List because the acquisition was not yet completed at the end of the research period of this report. However, we list the financial links with Elbit in Appendix 1.

VII The yellow-coloured diamond-shaped markings can be seen near the nose of the projectile with the 120mm M329, the 122mm M335, the 130mm M347, see IMI, "IMI Systems "What we do?", IMI website (<http://www.imisystems.com/whatwedocat/firepower-precision/land-firepower-precision/artillery/>), last viewed 15 October 2018.

1.5 Companies no longer on the Red Flag List of cluster munitions producers

1.5.1 Orbital ATK / Northrop Grumman (United States)

Orbital ATK was listed in previous versions of this report as a cluster munitions producer. In June 2018, major US arms manufacturer Northrop Grumman acquired Orbital ATK, which will continue to operate as Northrop Grumman Innovation Systems (NGIS).⁸⁷

Orbital ATK produced a key component of cluster munitions: the rocket motor used in Textron's Sensor Fuzed Weapon (SFW) (see below). With Textron having made its final delivery of that weapon,⁸⁸ Orbital ATK and its successor NGIS have declared to PAX, international investors and others that they have no involvement anymore with the SFW.⁸⁹

However, NGIS's predecessor ATK also manufactured the CBU-87/B Combined Effects Munition. NGIS still holds an aging and surveillance contract with the US Air Force pursuant to which NGIS performs tests on the various components of the CBU-87/B. NGIS stresses that the components it tests are thereby "demilitarized and permanently removed from the Government's munitions inventory." The reports that NGIS makes of the tests "provide functional performance data on each of the components tested by NGIS, as compared to its specifications."⁹⁰

An aging and surveillance contract as specified by NGIS is not seen as production as per this report's methodology. However, the activities of NGIS as described in its whitepaper are decommissioning the tested components only and not the remainder of the US arsenal of CBU-87/B. The subsequent reporting by NGIS provides the US Air Force with knowledge about their stockpile. This can be seen as assistance with the stockpiling and/or retention of cluster munitions, which is a prohibited act under the Convention on Cluster Munitions. NGIS should cease all involvement with cluster munitions as soon as it can and where possible not renew existing contracts.

We call on Northrop Grumman to fully end its involvement with (key components of) cluster munitions to the extent that it is prohibited by the Convention on Cluster Munitions as soon as possible. We also call on investors in Northrop Grumman to engage with this company to make it sever all its involvement with the continuation of stockpiling of cluster munitions.

Since the acquisition by Northrop Grumman of Orbital ATK was not yet completed when the financial research for this report was closed, we will list investors in Orbital ATK in an Appendix to this report.

1.5.2 Textron (United States)

Textron is one of the world's largest arms producers. Its subsidiary Textron Systems manufactures a range of land systems, air launched weapons, (sub)munitions and sensor systems.⁹¹

Textron had been on the Red Flag List of this report since its first publication in 2009. Textron's Sensor Fuzed Weapon (SFW) was designated CBU-97. Later a new type (including a Wind Corrected Munitions Dispenser) was produced, designated CBU-105. The SFW is a cluster munition that is prohibited by the Convention on Cluster Munitions.

Over the years, the SFW has been sold primarily to the US Air Force, but also to several other states. In its 2014 Fact Book, the company itself states that it has supplied over 7,900 SFWs to its customers, including the US Air Force and to other countries.⁹² Over the years sales have been reported to countries including Turkey⁹³, Oman⁹⁴, United Arab Emirates,⁹⁵ South Korea⁹⁶, Saudi Arabia⁹⁷ and India⁹⁸.

In May 2016, the US government decided to suspend the transfer of cluster munitions to Saudi Arabia after continued reports by Human Rights Watch and Amnesty International that US made cluster bombs were being used in Yemen.⁹⁹

In an August 2016 filing to the US Securities and Exchange Commission (SEC) Textron announced that it would “discontinue production of its sensor-fuzed weapon product.”¹⁰⁰ In July 2017 Textron reported in a filing to the US SEC, that it had by then “completed the final delivery of [its] discontinued sensor-fuzed weapon product in the second quarter of 2017”.¹⁰¹ Textron confirmed this in a call with analysts in January 2018.¹⁰²

PAX welcomes Textron’s decision to end its production of the Sensor Fuzed Weapon.

However, contracts published by the US Federal Procurement Data System show that after these announcements Textron still signed contracts with the Indian Air Force for “Sensor Fuzed Weapon Flight Test Support Extension”. The latest extension of this contract, that is aimed to support India in integrating cluster munitions in its arsenal, would run at least until 30 November 2018.

Furthermore, Textron is also still involved in the maintenance of cluster munitions. In 2018 it held a contract with the US government for “Technical and Analysis Support of Sensor Fuzed Weapons, CBU-105”. The contract ran at least until 28 September 2018.¹⁰³ At the time of writing, it is not known if these contracts are already finalized.

Because of the ongoing maintenance in 2018 of (at least US and Indian Air Force) cluster munitions and test support for the Indian Air Force, Textron is clearly still involved in cluster munitions. Maintenance and test support of cluster munitions is, as per this report’s methodology, not seen as production. It is, however, assistance with the stockpiling and/or retention of cluster munitions, which is prohibited under the Convention on Cluster Munitions. Textron should cease all involvement with cluster munitions as soon as it can and where possible not renew existing contracts.

Therefore, we list investors in Textron in Appendix 2 to this report. We call on these investors to engage with the company to make it halt any involvement with cluster munitions in a way prohibited the Convention on Cluster Munitions prohibits as soon as possible.

Appendix 4

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"Hanwha Corporation was officially designated as a defence contractor in 1974. Since then, it has specialised in munitions, whose production process has been under strict government control and all of which have been supplied only to the Korean government. Hanwha Corporation has manufactured MLRS and 2.75" MPSM5, which can be classified as cluster/cargo munitions and has also produced KCBU-58B in the past. However, we have developed and supplied such items in cooperation with the government's initiative for self-defence, not for any other unethical purpose."

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