Chinese “wide area” riot control agent means of delivery: implications for the Chemical Weapons Convention
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Acknowledgements and information about the organisations

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Bradford Non-Lethal Weapons Research Project (BNLWRP) is part of the Bradford Disarmament Research Centre (BDRC) of Bradford University. Its primary objectives are to explore and compile open source information on so called “non-lethal” or “less lethal” weapons, to objectively analyse the implications of their development, proliferation, use and potential misuse for international peace, human security and human rights; and to develop strategies for regulating or prohibiting the introduction and potential use of the most dangerous of these weapons. For further information see: http://www.brad.ac.uk/acad/nlw/

The Omega Research Foundation conducts research on the development and transfer of conventional arms and related security equipment. It promotes effective mechanisms to prevent the proliferation and misuse of such weapons. For further information see: http://www.omegaresearchfoundation.org/.

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1. Introduction

Riot control agents (RCAs) are potent sensory irritants normally with relatively low lethality that produce dose and time-dependent acute site-specific toxicity. The most widely used include 2-chlorobenzalmalononitrile (CS), dibenzoxazepine (CR), 1-chloroacetophenone (CN), Oleoresin capsicum (OC) and N-Vanillylnonamide (pseudocapsaicin) (PAVA). These chemicals interact pharmacologically with sensory nerve receptors associated with mucosal surfaces and the skin at the site of contamination, resulting in localized discomfort or pain with associated reflexes. Although intense lachrymation and stenutation are common reactions to exposure to RCAs, these compounds can elicit a diverse array of physiological effects. Concerns have been raised regarding the employment of RCAs in excessive quantities or in confined spaces where the targeted persons cannot disperse and where the toxic properties of the agents can lead to serious injury or death, particularly to vulnerable individuals.

The use of RCAs in armed conflict is absolutely prohibited under the Chemical Weapons Convention (CWC). RCAs can, however, be utilized for a range of “purposes not prohibited” under the CWC, most notably “law enforcement including domestic riot control purposes”; provided that the RCAs employed are of appropriate “types and quantities” for such purposes. Consequently, whilst States Parties to the CWC would be prohibited from developing RCA munitions intended for use in armed conflict, they may manufacture, acquire and utilise delivery systems to disseminate appropriate “types and quantities” of RCAs for law enforcement purposes.

In addition to considerations regarding permissibility under the CWC, States intending to employ RCA means of delivery for law enforcement should ensure that such means of delivery are compatible with relevant international human rights law and standards regulating the use of force by law enforcement officials.

Although even those delivery mechanisms that disperse small amounts of RCAs over short distances and with a very limited coverage area can be inappropriately employed in contravention of the CWC and/or relevant international human rights law, of particular concern are those large calibre munitions and other delivery systems that can be utilised for delivering significant amounts of RCA over wide areas and/or over extended distances. Inadequate control of such “wide area” means of delivery has potentially grave consequences, including: employment in armed conflict, potential application in chemical weapons programmes, proliferation to and misuse by non-State actors, employment of

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5 OPCW, Chemical Weapons Convention (1993) op.cit., Article II.1.a

6 OPCW, Chemical Weapons Convention (1993) op.cit., Article II.1.a

inherently in appropriate devices or munitions in law enforcement, and the misuse of such devices or munitions to facilitate large scale human rights abuses.

To date the international community has failed to effectively address this issue, either within the framework of the CWC or through international human rights law. Instead - as documented in previous Bradford University/Omega Research Foundation publications - a range of “wide area” means of RCA delivery and dispersal has been developed and promoted by States and commercial companies in a number of countries.8

This briefing paper highlights the reported production and promotion by Chinese companies of a range of “wide area” RCA means of delivery including: large back-pack or tank spray devices; multi-launchers and associated RCA projectiles; automatic grenade launchers and associated RCA grenades; RCA mortar projectiles and other large caliber projectiles; RCA area denial munitions and unmanned aerial vehicles capable of RCA dispersal. Some of the “wide area” means of delivery detailed in this paper appear to be inherently inappropriate for law enforcement and/or may have military utility. Consequently, such means of delivery could pose a risk of breaching the provisions of the CWC as well as relevant human rights law and standards constraining the use of force.

2. “Wide area” RCA means of delivery developed by Chinese companies

The following sections of this paper illustrate the variety of “wide area” means of delivery that are reportedly being developed or have been developed or promoted by Chinese companies since the Chemical Weapons Convention came into force in 1997. Research in this area has proven difficult, often being constrained by restraints on access to relevant information sources, and curtailed by issues of commercial confidentiality. Consequently, this review is by no means exhaustive, and the spread and frequency of entities cited does not claim to be representative of the companies or State bodies developing, promoting or holding such means of delivery – but instead reflects the open source information that could be obtained by the researchers at this time. Prior to publication, attempts were made to contact the relevant Chinese State oversight bodies and the companies concerned to provide them with an opportunity for clarification; responses are cited, as appropriate.

2.1. Riot control agent sprayers

A range of RCA sprayers have been developed by Chinese companies, some of which have the capacity to deliver significant amounts of RCAs over a wide area, potentially affecting large numbers of people.

“Backpack anti-riot sprayer”

The “Chemical General Factory Nanxing, Hubei” distributed material promoting a “backpack anti-riot sprayer” at the Asia Pacific China Police 2004 exhibition.9 According to an unofficial English translation of the original company material, the “backpack anti-riot sprayer” employs pressurized gas to quickly spread irritants widely to a specific targeted area. The backpack sprayer has a range of greater than 10 metres, can discharge a continuous spray for between 15-30 seconds and cover a large but unspecified area. It can be employed as a one person backpack, and it can also be installed and used on vehicles. The backpack sprayer weighs 15kg and it contains 5kg of agent which can be either CS, CR or OC. No further information is publicly available concerning this product or its availability.

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8 See for example: Crowley, M. Drawing the Line: Regulation of “Wide Area” Riot Control Agent Delivery Mechanisms Under the Chemical Weapons Convention, Bradford Non-Lethal Weapons Project and Omega Research Foundation, April 2013; BNLWRP, ISS and ORF, Destruction by Turkey of all remaining 120mm mortar munitions containing CS: A briefing note for CWC States Parties, 12th September 2011; BNLWRP, ISS and ORF, The production and promotion by a Russian Federation company of a range of munitions containing chemical irritants: A briefing note for CWC States Parties, 12th September 2011.

9 “Chemical General Factory Nanxing, Hubei” company brochure, undated, distributed at Asia Pacific China Police Expo 2004, 23rd-26th June 2004, Beijing Exhibition Centre, Beijing, China, (copy on file with the Omega Research Foundation).
“Knapsack spray device”
Beijing Zhong’an Lianhe Police Equipment Co. Ltd has promoted a “knapsack spray device” on its company website. The spray device was apparently developed by the Installations and Equipment Engineering Development Center of the Chinese People’s Armed Police Force. According to information in English that was on the company website, the sprayer employs “high-pressure gas” to quickly disperse the agent over “a large area”. The “small particle irritants like smoke” can remain suspended “about two metres” above the ground for “a long period of time”. As a result of “the wind flow, the particles continue[d] to spread, [so as to] disperse [the] troublemakers crowd”.

The sprayer weighs 9.5Kg and can contain 2.8 litres of unspecified powdered agent. The powder is dispensed through pressurized gas in either a continuous or intermittent spray. The knapsack dispenser has a maximum range of 30 metres, can discharge a continuous spray for between 18-30 seconds and has an area coverage of 2000m². The identical knapsack spray device was marketed by the Beijing Zhong Dun Po Yip Safety Protective Equipment Co. Ltd in materials distributed at the Asia China Police Expo 2012 and continued to be promoted on its website, until at least October 2015.

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10 Beijing Zhong’an Lianhe Police Equipment Co.Ltd website, Products, undated, http://www.zalhco.com/products_detail/&productId=aeb578b8-7b4c-41f9-a7c4-1533d5bcb925.html (last accessed 15th July 2015; although the information has subsequently been removed, a copy is held by the Omega Research Foundation).
11 Beijing Zhong’an Lianhe Police Equipment Co.Ltd (undated) op.cit.
12 Beijing Zhong’an Lianhe Police Equipment Co.Ltd (undated) op.cit.
13 Beijing Zhong Dun Po Yip Safety Protective Equipment Co. Ltd, Police Equipment brochure, undated, undated, distributed at Asia Pacific China Police Expo 2012, China National Convention Center, Beijing, China, China, 22nd - 25th May 2012, p.30 (copy of publication held by the Omega Research Foundation).
WDTC-Q38 trolley-style riot control sprayer and the WDBF-Q18 knapsack sprayer
Henan Weida Military and Police Equipment Co. Ltd has developed and as of October 2015, continues to promote the WDTC-Q38 trolley-style riot control sprayer. According to the company’s product manual this sprayer employs “high pressure gas” to disperse “the stimulating agent spread quickly” over a large target area. The “smoke-like small particle stimulating agent can be suspended in the air” two metres above the ground for a sustained period and with the aid of wind flow, can continue to spread. The WDBF-Q38 can hold 18kg of agent powder and can spray a continuous jet of agent for 76 seconds, it has a maximum range of 50 metres and a coverage area of 2000m² or more. The company has also developed, and as of October 2015, continues to promote, the smaller WDBF-Q18 knapsack sprayer which can hold 4kg of agent powder and can spray a continuous jet of agent for 18-30 seconds; it has a maximum range of 40 metres and a coverage area of 2000m² or more. No information is currently available regarding the specific riot control agent and concentration employed in either the WDTC-Q18 or WDTC-Q38.

According to Henan Weida Military and Police Equipment Co. Ltd, both the WDTC-18 and the WDTC-Q38 “can be used to dispose of large scale emergencies” and in “counter terrorism operations”. Very similar wording has been used by Beijing Zhong’an Lianhe Police Equipment Co. Ltd in its promotion of the “knapsack spray device”. Whilst such purposes are not prohibited under the CWC, potential concerns are raised about the appropriateness of employing such sprayers given the quantity of agent that can be dispersed through all of these devices.

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2.2. Multi-launchers and associated RCA projectiles

A range of multi-launchers have been developed and promoted by Chinese companies that are capable of delivering salvoes of a variety of so-called “less lethal” projectiles, including those containing RCAs. Although these launchers can fire a limited number of projectiles in a fairly targeted fashion, they do also have the capability to rapidly discharge large salvoes of RCA projectiles and can be employed to blanket wide areas, cumulatively delivering significant amounts of RCAs and potentially affecting large numbers of people. They vary in the maximum number of projectiles launched, rapidity and mode of fire, range and area coverage, as well as in terms of the calibre, weight and agent fill of the projectiles utilized.

38mm tear gas munition and multi-launcher

China Ordnance Equipment Research Institute (No.208 Research Institute of China Ordnance Industries) has developed a vehicle-mounted nine barrel 38mm anti-riot launcher, which it has promoted in its publications distributed at Chinese arms and security fairs from at least 2006 to 2014. According to the company’s marketing material, the launcher can be used for “quickly...
deterring or dispersing illegal meetings, demonstrations, conflicts among massed rioters ... [and] ... striking at gangs of drug pushers and [smugglers] on the borders.”

The launcher has a maximum range of over 120 metres and can cover an area of 30x30 metres. The launcher can be employed in a “single shot, tri-burst and nine burst” mode, and “fires a variety of anti-riot cartridges.”

China Ordnance Equipment Research Institute has not described the specific types of ammunition that could be utilised in its 38mm multi-launcher, in any publicly available documents. However, a second Chinese company, Hubei Handan Mechatronics, Co. Ltd. has promoted the W11/W11A 38mm electric ignition tear-gas grenades which it stated are fired from a 38mm nine-barrel vehicular anti-riot launcher.

According to the company marketing materials each projectile weighs 200 grammes and has an “average chemical casualty area” equal or greater than 300m².

The nature and amount of active RCA in each projectile has not been made public. In their marketing material, the company has stated that these projectiles are “mainly used to deal with the illegal assembly insurgents within 120 metres”. In addition the projectiles “can also be used to fixed-point shoot the ditch thugs and terrorists... [driving them] from the semi-enclosed space target (such as: buildings, caves, tunnels, bunkers, etc).”

Promotion of the application of such projectiles in enclosed spaces is of particular concern given the potential accumulation of high concentrations of RCAs in such spaces, resulting in risk of asphyxiation or poisoning of the targeted individuals.

Images (above) of the nine-barrelled 38mm launcher taken from China Ordnance Equipment Research Institute marketing material; image (left) of 38 launcher photographed at China Police 2014. Above right: Images of W11 and W11A 38mm electric ignition tear gas grenade taken from Hubei Handan Mechatronics Co. Ltd marketing material.

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22 China Ordnance Equipment Research Institute (undated) op.cit.
23 China Ordnance Equipment Research Institute (undated) op.cit.
24 Hubei Handan Mechatronics Co. Ltd, Products Manual, undated, distributed at Asia Pacific China Police Expo 2014 (copy held by the Omega Research Foundation).
25 Hubei Handan Mechatronics Co. Ltd, Products Manual (undated) op.cit.
26 Hubei Handan Mechatronics Co. Ltd, Products Manual (undated) op.cit.
27 Hubei Handan Mechatronics Co. Ltd, Products Manual (undated) op.cit.
64mm tear gas projectiles and multi-launchers

Images of the 64mm six-barrelled launcher mounted on armoured personnel carriers (above left and centre) and a marine vessel (above right), taken from China Ordnance Equipment Research Institute promotional materials

China Ordnance Equipment Research Institute (No.208 Research Institute of China Ordnance Industries) has promoted a 64mm six-barrel launch system which has been developed in three versions suitable for use on vehicles, marine vessels or in a portable variant. 28

According to China Ordnance Equipment Research Institute, the land-based version is intended for the dispersal of “large-scale illegal grouping, riot mass, who are not easy to reach by the police from long-distance.” The system can fire six projectiles singly or continuously, and has an effective range of between 200 and 350 metres. 29

Images (above left) of 64mm anti-riot launcher and 64mm tear gas projectiles taken from marketing material by China Ordnance Equipment Research Institute; (above centre) 64mm anti-riot launcher displayed on China Ordnance Equipment Research Institute stall, Asia China Police Expo 2014; (above right) 64/38mm tear gas launcher promoted on NORINCO website.

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28 Information taken from a China Ordnance Equipment Research Institute, undated catalogue, distributed at China (Beijing) International Exhibition and Symposium on Police and Anti-Terrorism Technology and Equipment, Beijing, 2011 (CIPATE 2011), Beijing Exhibition Center, Beijing, China, 19th – 21st May 2011. [Information is from an unofficial translation of the Chinese original on file with the Omega Research Foundation]. China Ordnance Equipment Research Institute subsequently distributed revised marketing material for the 64mm multiple launcher at Asia Pacific China Police Expo 2012 and Asia Pacific China Police Expo 2014, (copies of original marketing materials held by the Omega Research Foundation).

29 China Ordnance Equipment Research Institute (undated) op.cit.
The delivery system is designed to utilise the 64mm tear gas projectile also promoted by China Ordnance Equipment Research Institute. Each 64mm tear gas projectile comprises four sub-projectiles, each carrying CS, which explode in the air above the target group. This projectile weighs 500 grammes and has an effective area coverage of 600 m². The total amount and concentration of active CS in each projectile has not been made public.

As of October 2015, a second Chinese company, China North Industry Corporations (NORINCO), has promoted a six-barrelled “64/38mm tear gas grenade launcher” on its website. No further information is currently available as to the design characteristics of the launcher or the “tear gas” ammunition it employs.

**CQF08 and ZFB05F-2 armoured anti-riot disperse vehicles**

Shaanxi Baoji Special Vehicles Manufacturing Co. Ltd have developed and promoted two “armoured anti-riot disperse” vehicles – the CQF08 and the ZFB05F-2 - that carry a range of RCA dispersal systems that collectively and cumulatively are capable of dispersing extremely large amounts of RCA over wide areas. These vehicles were promoted at the Asia China Police Expo 2012 and, as of October 2015, on the company’s website.

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30 China Ordnance Equipment Research Institute, (undated) *op.cit.*
32 CQF08 Armored Anti-riot Disperse Vehicle, Shaanxi Baoji Special Vehicles Manufacturing Co. Ltd, promotional brochure, undated; ZFB05-2 Armored Anti-riot Disperse Vehicle, Shaanxi Baoji Special Vehicles Manufacturing Co. Ltd,
The CQF08, which is equipped with a high powered loudspeaker, image and surveillance system, in addition to the RCA dispersal systems, appears to be intended for internal security and policing activities. In contrast, the ZFB05-2 appears to be developed for use in a wider range of potential scenarios; according to Shaanxi Baoji Special Vehicles Manufacturing Co. Ltd:

"Due to the increasingly terrorism events in both domestic and international community, our company has designed and developed the... ZFB05-2 Armoured Anti-riot Disperse Vehicle based on the ZFB05 Wheeled Armored Vehicle so as to maintain social stability. With... high mobility, quick response and effective function of anti-riot dispersing in large areas, the... vehicle can [undertake]... various missions including anti-terrorism fighting, peacekeeping tasks, or handle emergencies for police, armed police forces or special forces."\(^{34}\)

According to the company’s promotional material\(^{35}\), both the CQF08 and the ZFB05F-2 have the following RCA dispersal systems:

promotional brochure, undated. (Both brochures distributed at Asia China Police Expo 2012; copies held by the Omega Research Foundation).


\(^{34}\) ZFB05-2 Armored Anti-riot Disperse Vehicle, Shaanxi Baoji Special Vehicles Manufacturing Co. Ltd \(op.
\(^{35}\) CQF08 Armored Anti-riot Disperse Vehicle, Shaanxi Baoji Special Vehicles Manufacturing Co. Ltd, promotional brochure (undated) \(op.
\(^{36}\) ZFB05-2 Armored Anti-riot Disperse Vehicle, Shaanxi Baoji Special Vehicles Manufacturing Co. Ltd (undated) \(op.

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ZFB05F-2 Armoured Anti-riot Disperse Vehicle, images (left and on previous page) taken from Shaanxi Baoji Special Vehicles Manufacturing Co. Ltd website.
Two anti-riot CS dry powder spray guns capable of dispersing agent up to 50 metres. Although company promotional video and photographic material indicates that this system can disseminate large amounts of dry agent powder, the total quantity and concentration of CS dispersed is unknown.

Two 38mm nine-barrel vehicular anti-riot launchers capable of projecting “tear gas bombs” from 40 metres to 120 metres.

Two 64mm six-barrel vehicular anti-riot launchers capable of projecting projectiles up to 300 metres.

There are no details of the projectiles that can be employed with the 38mm or 64mm launchers, but both launchers appear to be very similar to those promoted by China Ordnance Equipment Research Institute and NORINCO.

2.3. Automatic grenade launchers and associated RCA grenades

Certain automatic grenade launchers developed by Chinese companies can utilise a range of “less lethal” rounds, including RCA grenades. Given their high rate of fire, they are potentially capable of blanketing wide areas, cumulatively delivering significant amounts of RCAs and potentially affecting large numbers of people.

ZLZ94 35mm grenade launcher

According to the Chinese company, Zhejiang XianFeng Machinery Co. Ltd, the ZLZ94 vehicular grenade launcher is a riot control weapon which fires 35mm ammunition and can be used to disperse a “troublous [sic] and disorderly crowd.” The ZLZ94 can be utilised in either single fire or automatic fire modes. According to Zhejiang Xian-Feng Machinery Co. Ltd, the launcher “is capable of firing low-propulsion ammunitions continuously.” The ammunition is loaded by a link feed system with 25 rounds available per cartridge box. The ZLZ94 has a maximum theoretical rate of fire of 58 rounds per minute and an effective range of between 100-200 metres. The company has stated that: “The design was finalized in 1994. Now it comes into service in People’s Army Garrison Troops in Hong Kong and Macao.” Although this information has been removed from the Zhejiang XianFeng Machinery Co. Ltd website; as of October 2015, the launcher was still being advertised on several Chinese marketing websites and Zhejiang XianFeng Machinery Co. Ltd was named as the supplier.

Zhejiang Xian-Feng Machinery Co. Ltd has not described the types of 35mm ammunition that could be fired by the ZLZ94, in any publicly available documents. However in 2014, a second Chinese company, Hubei Handan Mechatronics, Co. Ltd. promoted the DFC91-35 tear gas grenade, the FKB09 35mm 601 tear gas grenade and the FKB10 35mm tear gas grenade all of which they have stated can be fired from a number of launchers including the “Type ZLZ94 35mm vehicular automatic anti-riot grenade launcher.” The three grenades each weigh approximately 145 grammes and have a maximum range of greater than 300 metres. The type and quantity of the RCA contained in each munition is not currently publicly available. The effective coverage area after one minute of the

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37 ZLZ94 35mm Vehicular Grenade Launcher, Zhejiang XianFeng Machinery Co. Ltd, undated, http://www.xianfeng.net/en/p1a.htm (Last accessed on 9th December 2010. This information has subsequently been removed from the manufacturer’s website).

38 ZLZ94 35mm Vehicular Grenade Launcher, Zhejiang XianFeng Machinery Co. Ltd (undated) op.cit.

39 ZLZ94 35mm Vehicular Grenade Launcher, Zhejiang XianFeng Machinery Co. Ltd (undated) op.cit.


41 Hubei Handan Mechatronics Co., Ltd. Products Manual, distributed at Asia Pacific China Police Expo 2014 (copy held by the Omega Research Foundation).
DFC91-35 is 140 m$^2$, that of the FKB10 is 250 m$^2$ and the FKB09 is 300 m$^2$. The FKB09 and FKB10 grenades are described as “mainly used to disperse riot crowds and rioters, and also ...can be used [to] subdue armed criminals hiding in the building, producing tear gas smoke people [find] hard to bear.” Promotion of the application of such grenades in enclosed spaces is of particular concern given the potential accumulation of high concentrations of RCAs in such spaces, resulting in risk of asphyxiation or poisoning of the targeted individuals.

Image of ZLZ94 grenade launcher and associated RCA grenades, originally downloaded from Zhejiang Xian-Feng Machinery Co. Ltd website (above left). Images of the DFC91-35, FKB09 and the FKB10 tear gas grenades from Hubei Handan Mechatronics Co., Ltd. brochure (above centre, right and far right).

**Vehicle mounted 38mm automatic grenade launcher**

At both the Asia Pacific China Police Expos of 2012 and 2014, China Ordnance Equipment Research Institute (No.208 Research Institute of China Ordnance Industries) promoted a 38mm Automatic Riot Grenade Launcher designed to be mounted on land vehicles or naval craft and which can be remotely controlled by an operator inside the vehicle. The launcher is loaded by a belt-fed system with 60 grenades per belt, and it has a maximum firing rate of 200 grenades per minute.

Image of vehicle mounted 38mm automatic grenade launcher taken from marketing material by No.208 Research Institute of China Ordnance Industries (above right) and photographed at China Police 2014 (above left)

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42 Hubei Handan Mechatronics Co., Ltd. Products Manual (undated) *op.cit.*
43 Hubei Handan Mechatronics Co., Ltd. Products Manual (undated) *op.cit.*
44 Information taken from China Ordnance Equipment Research Institute, undated catalogue, distributed at Asia Pacific China Police Expo 2012. [Information is from an unofficial English translation of the Chinese original on file with the Omega Research Foundation], p.8.
According to an unofficial translation of the company marketing material: “The 38mm automatic riot grenade launcher system can adjust and switch firing rate, from single fire to interrupted fire and continuous fire, and can control and cope with mass events quickly and effectively.” The maximum effective range of the launcher utilizing the 38 mm grenade series is at least 300 metres. It is compatible with a range of 38mm grenades, including 38mm tear gas grenades as well as smoke and stun grenades. No further information is available concerning the tear gas grenades that can be employed i.e. the type and quantity of RCA which they contain.

64mm automatic grenade launcher

In 2012, China Ordnance Equipment Research Institute (No.208 Research Institute of China Ordnance Industries) promoted a 64mm Automatic Riot Grenade Launcher. According to an unofficial translation of the original company marketing material, this weapon system is designed to “cope with large-scale mass events”, and can be mounted on land vehicles or naval craft. The launcher can be remotely controlled by an operator inside the vehicle.

It is compatible with a range of 64mm grenades including 64mm tear gas grenades, smoke grenades, stun grenades and explosive dye projectiles. The grenades are loaded by a belt-fed system with 30 grenades per belt. “The firing rate can be switched between single fire, interrupted fire, and continuous fire” with the launcher able to deliver a maximum firing rate of 60 shots/minute. The maximum effective range of the launcher utilizing the 64 mm grenade series is 600m, which according to the company is “much further than similar equipment in the domestic and foreign market.” No further information is available concerning the tear gas grenades that can be employed i.e. the type and quantity of RCA which they contain.

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45 China Ordnance Equipment Research Institute (undated catalogue) op. cit., p.8.
46 China Ordnance Equipment Research Institute (undated catalogue) op. cit., p.8.
47 China Ordnance Equipment Research Institute (undated catalogue) op. cit., p.13.
48 China Ordnance Equipment Research Institute (undated catalogue) op. cit., p.13.
49 China Ordnance Equipment Research Institute (undated catalogue) op. cit., p.13.
75mm tear gas canisters


Henan Weida Military and Police Equipment Co. Ltd have developed a 75mm tear gas canister and promoted this product in marketing material distributed at the Asia Pacific China Police 2014 Exhibition. According to the company marketing material, this product can “produce a large area of the thick white smoke” and it creates a “strong stimulus to human eyes, nasal cavity, oral cavity, skin and respiratory organs, the rapid emergence of tears, runny nose, skin, eyes burning, breathing difficulties and other symptoms.” [Emphasis added]. This canister is promoted by the company for law enforcement purposes including the rapid dispersal of rioting crowds, hostage rescue and the arrest of criminal suspects. Whilst such purposes are not prohibited by the CWC, there is concern given the description of the agent effects and also the quantity of agent dispersed: each canister weighs 2kg of which 1.5Kg is “smoke agent weight”, and emits “smoke” for eight minutes. The type and concentration of the RCA employed is not known. Although the company information has indicated that the canisters are not hand-thrown but are employed with a “weapon”, no further detail on range or rate of fire is available and it is not known whether these canisters can be employed in multi-launchers.

2.4. RCA mortar projectiles and other large calibre projectiles

Chinese companies have developed and promoted certain mortar projectiles and other large calibre projectiles that are either specifically designed to carry RCAs or else capable of carrying a variety of “less lethal” payloads. Such projectiles can deliver RCAs over wide areas and/or extended ranges, potentially affecting large numbers of people. They vary in terms of their calibre, weight, design, material construction, potential payloads, area coverage and range, as well as the purposes for which they have been promoted.

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QLT89 50mm silent mortar and associated “tear gas bomb”

Images of QLT89 50mm silent mortar taken from a 2010 China R&D Academy of Machinery presentation.

China developed a “jet shot” grenade launcher/mortar in the early 1990s which it designated as the QLT89.55 According to Janes Ammunition Handbook 2010-2011, the launcher/mortar and related ammunition family have been developed by the State owned China North Industries Corp (NORINCO)56, whilst subsequent Janes Ammunition Handbooks for 2012-13 and 2013-2014 also list Poly Technologies, Inc., in addition to NORINCO, as a “contractor”.57 The launcher/mortar can be used to fire a range of 50mm projectiles including HE/fragmentation, illuminating, smoke/incendiary and “tear gas bombs”. The DNC99 “tear gas bomb” contains 125 grammes of agent and covers an area of 300 metres.58 Although the maximum range of the “tear gas bomb” is unknown, the launcher/mortar has an effective range between 200-800 metres depending on the munition used.59

Although it is not known which, if any, Chinese military, security or police forces currently possess the “tear gas bomb”; the QLT89 mortar appears to be intended for use by the Chinese military. According to the China R&D Academy of Machinery, the QLT89 is designed to be a type of “close range small arms [that is] portable by [a] single soldier”. It provides indirect fire and is intended for use at the “company or platoon unit” level.60 It has been designed to fire without any noise, smoke or flash61 and thus has potential military utility by concealing the firer’s location from enemy forces.

In May 2014, Hubei Handan Mechatronics Ltd displayed the 80mm Individual Anti-Riot Projectile at the Asia Pacific China Police 2014 exhibition. According to an unofficial translation of the company’s promotional materials, the 80mm projectile is a self-contained munition which includes storage, transportation and deployment equipment. “It does not require an independent launcher or any other equipment, and can be shot with ease in standing..., kneeling or prone position[s].” The company literature stated that the system is intended to be mainly deployed by security forces for “antiriot missions to maintain social stability, for coping with terrorist attacks and emergencies, and to control unrest caused by mobs.”

The projectile appears to be a composite munition: it contains one tear gas grenade which disperses an unidentified type and quantity of tear gas over no less than 200 m²; and can contain a stun grenade which emits a stun sound wave with a pressure higher than 150 decibels at 10 metres from the burst point, and also generates an instantaneous flash intensity of 1.5x10⁷ cd - 7x10⁷ cd. It is unclear whether the projectile can hold both the tear gas and the stun grenade simultaneously or whether these are alternative configurations of the projectile.

Two alternative versions of the projectile appear to have been developed: the first is rocket-assisted and has a maximum range of 2,000 metres, the second is a non-assisted projectile having a maximum range of 300 metres. The projectile appears to be launched from a mortar-type device (pictured above left). The weight of the projectile is unknown, but it does incorporate a parachute intended to slow down the debris’ descent velocity.

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62 Marketing material providing details of the munition were available on the Hubei Handan Mechatronics, Ltd stall, Asia Pacific China Police Expo 2014. Photographs of the original Chinese marketing material are held by the Omega Research Foundation. The text cited is from an unofficial English translation.
63 Marketing material, Hubei Handan Mechatronics, Ltd (May 2014) op.cit.
64 Marketing material, Hubei Handan Mechatronics, Ltd (May 2014) op.cit.
65 Marketing material, Hubei Handan Mechatronics, Ltd (May 2014) op.cit.
82mm PP87 tear gas mortar projectile

In 2002, marketing material from the Department of Scientific and Technical Development, Chinese People’s Armed Police Force, promoted the “82mm PP87 tear gas mortar bomb”: “The 82mm PP87 mortar-throwing tear bomb is made of non-metal shell body material, and is launched from the 82mm mortar. It is powerful, reliable, user-friendly, and has a long firing range. The bomb can be detonated in the air, and spray lacrimatory agent in the shrapnel mode. It exerts effects over a large area, receives little influence from weather conditions, and will not inflict fatal injury on human body. It is a desirable device to remotely disperse large mass target.”

According to the company marketing materials, the “mortar bomb” weighs 1.35 kg, has a range of between 200-350 metres and has an effective area of coverage of more than 2,000m². It is designed to explode at a height 30-50 metres above the target. The “lacrimatory agent” is identified as CS, though no details of the total amount or concentration of the agent contained in each “mortar bomb” is disclosed. A second Chinese company, China Ordnance Industry Group, State-owned No. 672 Factory, has also promoted what appears to be the essentially same projectile in marketing material distributed at the 2011 China (Beijing) International Exhibition and Symposium on Police and Anti-Terrorism Technology and Equipment. (CIPATE 2011).

The projectile has also been promoted by entities outside of China; until at least 1st December 2014, Ferrovi International, a company providing “high performance defense / Police and non-defense related products”, included the “82mm Mortar Dropping Tear-gas Shell Type PP87” amongst its products.

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67 Ibid.
68 PP87 82mm tear gas mortar munition, China Ordnance Industry Group, State-owned No. 672 Factory, undated brochure, distributed at China (Beijing) International Exhibition and Symposium on Police and Anti-Terrorism Technology and Equipment (CIPATE 2011) [Information is from an unofficial translation of the Chinese original held by the Omega Research Foundation].
69 Ferrovi International website, home page http://www.ferrovi.net/about.htm (accessed 1st December 2014). The website has subsequently been removed.
product range on its website. On its website, Ferrovi International stated that it had offices in Sri Lanka and Australia, and a presence in the United Arab Emirates, potentially bringing its activities within the scope of those countries’ jurisdictions. It is uncertain whether the company held stocks of the 82mm mortar projectile at any of these sites or whether the company acted solely as a promoter and potential broker for transfers on behalf of the Chinese manufacturer.

Letters seeking clarification were sent to Ferrovi International, and to the relevant Governments; whilst no response was received from either the company or the Governments of Sri Lanka or the United Arab Emirates, the Australian Government Department of Foreign Affairs and Trade investigated this issue and stated that: “Ferrovi International...does not appear to be registered as a business with the Australian Securities and Investments Commission, and appears to have no presence in Australia apart from a Post Office Box address.”

The Australian Department of Foreign Affairs and Trade further stated that:
“Eighty-two millimetre PP87 tear gas mortar munitions are controlled goods under Australian legislation (ML4.a. – Defence and Strategic Goods List) and, as such, would require a permit for export. The marketing and promotion of these goods though is not controlled as an export in a tangible sense has not taken place. The intangible export of promotional imagery and marketing paraphernalia via a web-site is also not controlled as this does not constitute the transfer of controlled technology required to produce, develop or use the good.”

“The development, production, acquisition, stockpiling, transfer and use of chemicals weapons, or assisting anyone to do this, is prohibited in Australia under the Chemical Weapons (Prohibition) Act 1994 (the Act). Technical advice would be required to determine whether the PP87 systems fall within the scope of the definitions under Article II of the Chemical Weapons Convention, as these definitions apply in the Act. Nevertheless, any export of the PP87 tear gas mortar (or any defence and strategic good) would be assessed by taking into account the type of good that is to be exported, the receiver of the goods, the end-use and anticipated end-user of the goods and technology against five export control policy criteria. These are: ...Australia’s international obligations...Human rights...Regional security...National security...Foreign policy considerations.”

2.5. Area Denial Munitions
Chinese companies have developed and promoted a range of target activated “less lethal” munitions, including tear gas devices, intended to ensure denial of specific areas.

RCA Anti-Riot Warning Mines

“Less than lethal” mines displayed on the 9604 Factory Xiangfan City Hubei Province stall at the Asia Pacific China Police 2008 Exhibition, including the smoking tear gas mine (rear left) and an explosive tear gas less lethal mine (front right). (Photo: © Robin Ballantyne/Omega Research Foundation.

71 Ferrovi International website, home page http://www.ferrovi.net/about.htm (accessed 1st December 2014).
72 Correspondence received from the Australian Embassy in the Hague to BNLWRP and ORF, 5th November 2014.
73 Correspondence received from the Australian Embassy in the Hague to BNLWRP and ORF, 5th November 2014.
The Chinese State-owned No. 9604 Factory has developed and promoted a range of “Anti-Riot Warning Mines” which have the: “features of both mine and anti-riot grenade.” These mines “can immediately work and barricade rioters and raise an alarm when the distributed mine is lifted and knocked down.” They can also be used “for guard[ing] along with roadblocks under main roads and important departments.” According to State-owned No. 9604 Factory publications, the following categories of “Anti-Riot Warning Mine” are produced: explosive tear gas mine, smoke tear gas mine, rubber ball mine, dye mine and flash mine, with the tear gas mine having a dispersion area greater than 200 m². Information on this product has also appeared in the 2006 edition of Jane’s Police and Security Equipment which described its status as: “in production and in service” although which Chinese entities, if any currently possess this tear gas mine have not been made public. A very similar (if not identical) product has also been promoted by a second Chinese company, Hubei Handan Mechatronics Co. Ltd, in its Military Products Manual.

### 2.6. Unmanned aerial vehicles

Chinese companies and/or law enforcement bodies have explored the development and potential application of unmanned aerial vehicles (UAVs) for the delivery of RCA. Certain small UAVs and associated RCA delivery mechanisms appear to be designed to deliver relatively limited amounts of RCAs to a target in a highly focussed manner. Other UAVs appear capable of potentially delivering RCAs over wide areas.

**Autonomous Helicopter**

![Image of Autonomous helicopter taken from Hawk Group promotional material, distributed at Asia Pacific China Police Expo 2012](image)

The Autonomous Helicopter has been developed and promoted by the Chinese company, Hawk Group. According to Hawk Group’s promotional material, this relatively small UAV has a fuselage of 15.20cm in length, an empty weight of 8.5kg and a take-off weight of 11kg. It can fly at an altitude of 1,000 metres, has a cruising speed of 52 km per hour and a cruising time of 25 minutes.

According to Hawk Group, the Autonomous Helicopter is a multi-purpose vehicle intended for use in a range of tasks including law enforcement and anti-terrorism activities. In May 2012, it was promoted at the Asia Pacific China Police 2012 exhibition. The UAV is equipped with an autonomous flight control system together with infrared thermal imager, cameras, and anti-riot equipment. The manufacturers claim to have developed a tear gas projectile system mounted on the helicopter for use in riot control situations, which can distribute small tear gas projectiles to disperse

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74 No.9604 Factory Xiangfan City Hubei Province, Anti-riot grenades for police, [In English and Chinese], undated publication, distributed by company in 2006 [copy held by the Omega Research Foundation].
75 No.964 Factory Xiangfan City Hubei Province (2006) *op.cit*
76 No.964 Factory Xiangfan City Hubei Province (2006) *op.cit*
78 Hubei Handan Mechatronics Co. Ltd, Military Products Manual, the anti-riot warning mine series, pp. 17-20, undated publication, distributed by company in 2008, distributed at the Asia Pacific China Police 2008 Expo, 16th-19th April, 2008, Beijing Exhibition Center, Beijing, China [copy held by the Omega Research Foundation].
79 Autonomous Helicopter, Hawk Group, promotional brochure, undated, distributed at the Asia Pacific China Police 2012 exhibition. [Information is from an unofficial translation of the Chinese original on file with the authors]
large-scale crowds and riots. No further information is publicly available concerning the specifications of the Autonomous Helicopter and the associated tear gas dispersal system.

**Unmanned aerial vehicle with tear gas projectile launcher**

In May 2014, at the Asia Pacific China Police 2014 expo, Hubei Handan Mechatronics Ltd promoted a small unmanned aerial vehicle with attached tear gas projectile launcher. A demonstration video displayed by the company showed the UAV being employed as part of a simulated police operation, during which an RCA projectile was fired from the hovering UAV into a building. No further information is publicly available concerning the specifications of the UAV and the associated tear gas projectile launcher system.

**“Tong Fei” II police unmanned aerial vehicle**

According to Chinese media and the Wuhan Public Security Bureau, the Tonghua public security police have developed and trialled at least three UAVs in January 2014. They included the “Tong Fei” II UAV which was described as a “large heavy rescue-cum-attack aircraft”. It is reportedly intended for the remote handling and delivery of equipment and materials, or alternatively for the delivery of

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81 Autonomous Helicopter, Hawk Group, promotional brochure, undated, distributed at the Asia Pacific China Police 2012 exhibition. [Information is from an unofficial translation of the Chinese original on file with the Omega Research Foundation].

82 Tonghua public security police UAV developed successful test flight, New Culture Network, enews.xwh.on, 25th January 2014, [unofficial English translation].

83 Tonghua developed series of police drones in use, Wuhan Public Security Bureau, undated, [unofficial English translation].
“non-lethal weapons, such as smoke bombs, tear gas...” At present there is no further information available concerning the mechanism of RCA dispersal nor of the nature or quantity of RCAs that could be dispersed.

2.7. Communications with Chinese Government and Companies
Clarification has been sought and further information has repeatedly been requested from the Chinese Government concerning the regulatory policy and practice regarding development, deployment, transfer and use of all the RCA means of delivery outlined in this paper.84 On 13th November 2014, a holding reply was received from the Deputy Permanent Representative of China to the OPCW stating that the BNLWPRP/ORF correspondence had been “transferred...to relevant authorities in China”.85 However, as of October 2015, no further substantive response to our enquiries has been forthcoming.

Further information was also sought from relevant Chinese companies regarding manufacture, marketing and potential transfer of RCA means of delivery outlined in this paper – and the regulation of such practices. As of October 2015, only one company, NORINCO, has responded, in general terms. On 7th September 2015, NORINCO’s Internal Compliance Program (ICP) Office stated: “We have always strictly observed laws and regulations of the Chinese government on export of defense products and dual-use items as well as relevant UN resolutions and international conventions. We have well honored our relevant international obligations by firmly advocating and practicing the commitments made by Chinese government in non-proliferation. With the guidance of relevant Chinese government agencies, we have adopted the principle of overall control when export is concerned and weigh pursuit of non-proliferation, peace and stability over that of business interest. To that end, NORINCO has taken the lead in putting in place a complete internal compliance program integrating our latest achievements in internal compliance and our unique business characteristics whereby we exert stringent management on the export of defense products, dual-use items, etc”86

In addition, NORINCO’s ICP Office stated: “According to China's Regulations on Administration of Arms Export, we need to report to SASTIND which is a governmental department in charge of arms export for approval. We also have some certain ICP procedures before that too to make sure that the contract is not against any non-proliferation laws and regulations.”87 However with regard to questions relating to the development, promotion and potential transfer of the NORINCO products highlighted in this paper, the company’s ICP Office stated: “we regret to tell you that the details of the products belong to the business secrets and we hope you can understand that we have no relevant information to provide.”88

84 Letters were sent by BNLWPRP and ORF to all the companies cited in this report and also to the Chinese Ambassador to the OPCW, the Chinese National CWC Authority and copied to the Chinese Ministry of Foreign Affairs and Chinese Ministry of Defence.
85 Correspondence received from Mr. XU Zhaoyang, Deputy Permanent Representative of China to the OPCW, 13th November 2014.
86 Email correspondence received from the Internal Compliance Program Office, NORINCO, 7th September 2015.
87 ICP Office, NORINCO (7th September 2015) op.cit.
88 ICP Office, NORINCO (7th September 2015) op.cit.
3.1. Application of the Chemical Weapons Convention to the regulation of RCA means of delivery

Under Article I of the Chemical Weapons Convention (CWC)

“Each State Party to this Convention undertakes never under any circumstances:
(a) To develop, produce, otherwise acquire, stockpile or retain chemical weapons, or transfer, directly or indirectly, chemical weapons to anyone;
(b) To use chemical weapons;
(c) To engage in any military preparations to use chemical weapons;
(d) To assist, encourage or induce, in any way, anyone to engage in any activity prohibited to a State Party under this Convention.”

Article II.1 of the Chemical Weapons Convention, defines a chemical weapon as:
“(a) toxic chemicals or their precursors, except where intended for purposes not prohibited by the Convention, as long as the types and quantities are consistent with such purposes;
(b) munitions and devices specifically designed to cause death or other harm through the toxic properties of those toxic chemicals specified in subparagraph (a), which would be released as a result of the employment of such munitions and devices;
(c) any equipment specifically designed for use directly in connection with the employment of the munitions and devices referred to in (b).”

The “purposes not prohibited” are defined under Article II.9 of the Convention and include:
“(c) Military purposes not connected with the use of chemical weapons and not dependent on the use of the toxic properties of chemicals as a method of warfare;
(d) Law enforcement including domestic riot control purposes.”

In addition, the Convention specifically defines riot control agents (RCAs) as: “Any chemical not listed in a Schedule, which can produce rapidly in humans sensory irritation or disabling physical effects which disappear within a short time following termination of exposure.”

Whilst the Convention expressly prohibits the use of “riot control agents as a method of warfare”, States Parties are permitted to possess and employ RCAs for “purposes not prohibited” including “law enforcement including domestic riot control purposes.” However, such use would be acceptable only “as long as the types and quantities [of toxic chemicals] are consistent with such purposes.”

Certain forms of “wide area” RCA means of delivery may have utility in large scale law enforcement situations provided they meet the CWC “types and quantities” restrictions and are employed in conformity with the CWC and human rights standards; however, there is a risk that some of these could also be readily misused in armed conflict or for large scale human rights abuses. Such RCA means of delivery should be stringently regulated to prevent misuse.

Other forms of “wide area” RCA means of delivery are completely inappropriate for any form of law enforcement, having possible utility only in armed conflict or for large scale human rights violations. Such means of delivery inherently breach the CWC “types and quantities” provision and/or the prohibition on the use of RCAs as a “method of warfare”. In addition, they may potentially be retrofitted for delivery of “classic” chemical and biological weapons. They should be considered to be chemical weapons and verifiably destroyed.

“Wide area” RCA means of delivery have begun to receive some attention in the OPCW. For example in its 2012 report to States Parties in preparation for the Third CWC Review Conference, the Scientific Advisory Board (SAB) highlighted the issue and “note[d] with concern isolated reports of the commercial availability of munitions apparently designed to deliver large amounts of riot control agents over long distances.”95 In addition, certain States Parties, notably Turkey, have set out their position on this issue.96

However, despite the requirement under Article VII of the CWC for all States Parties to “adopt the necessary measures to implement [their] obligations under this Convention” and to “not permit in any place under [their] control any activity prohibited to a State Party under this Convention”97, it is clear that the development and promotion of a range of “wide area” RCA means of delivery potentially in conflict with the Convention has taken place. Despite such activities none of the OPCW policy making organs (i.e. the Executive Council or the Conference of States Parties) have addressed this situation to date.

No OPCW policy making organ (PMO) has made any interpretative statements regarding application of these Articles or issued guidance as to which types of RCA means of delivery can be employed for law enforcement purposes and if so, under what circumstances. It is therefore left to individual States Parties to interpret the scope and nature of their obligations in this area.

3.2. Application of human rights law and standards to the regulation of RCA means of delivery

When interpreting and implementing their obligations in this area, States Parties must consider their obligations under all relevant international law, with particular attention given to international and regional human rights law as the primary area of law regulating the use of force by law enforcement officials and other agents of the State.98

While several human rights norms are applicable to the regulation RCAs and related means of delivery, the most notable are the rights:

- to life99;
- to liberty and security100;
- to freedom from torture and cruel, inhuman or degrading treatment101;


99 See, e.g., Universal Declaration of Human Rights, adopted and proclaimed by UN General Assembly Resolution 217 A (III), 10th December 1948, Article 3; International Covenant on Civil and Political Rights, adopted on 16th December 1966, Article 6.

100 See, for example, UN, Universal Declaration of Human Rights (1948) op.cit., Article 3; and UN, ICCPR (1966) op.cit., Article 9.
• to freedom of opinion, expression, association and assembly\textsuperscript{102};
• to health\textsuperscript{103},

Guidance to States on their attendant obligations to restrain and govern the use of force in law enforcement is provided by the UN Basic Principles on the Use of Force and Firearms by Law Enforcement Officials (UNBP)\textsuperscript{104} and the UN Code of Conduct for Law Enforcement Officials (UNCoC).\textsuperscript{105} These two instruments specify that the use of force must be proportionate, lawful, accountable and necessary. Under Principle 5 of the UNBP, law enforcement officials shall “exercise restraint in such use and act in proportion to the seriousness of the offence and the legitimate objective to be achieved; minimize damage and injury, and respect and preserve human life; ensure that assistance and medical aid are rendered to any injured or affected persons at the earliest possible moment.”\textsuperscript{106} Article 3 of the UNCoC, states that “law enforcement officials may use force only when strictly necessary and to the extent required for the performance of their duty.”\textsuperscript{107} The attendant official commentary to Article 3 states that law enforcement officials may not use a degree of force “which is disproportionate to the legitimate objective to be achieved.”\textsuperscript{108}

In addition, the UNBP specifically elaborates guidance for the appropriate use of force in the context of crowd control and dispersal. Principle 12 states that “everyone is allowed to participate in lawful and peaceful assemblies, in accordance with the principles embodied in the Universal Declaration of Human Rights and the International Covenant on Civil and Political Rights, Governments and law enforcement agencies and officials shall recognize that force and firearms” may not be used, unless an assembly becomes unlawful or turns violent.\textsuperscript{109} Principle 13 states that in the “dispersal” of an assembly that is peaceful but unlawful, “law enforcement officials shall avoid the use of force or, where that is not practicable, shall restrict such force to the minimum extent necessary.”\textsuperscript{110} Principle 14 states that in the dispersal of violent assemblies, “law enforcement officials may use firearms only when less dangerous means are not practicable and only to the minimum extent necessary.”\textsuperscript{111}

To fulfil their obligations under international human rights law and to ensure the responsible use of force by law enforcement officials, States will need to implement review mechanisms to ensure that any new weapons – including RCA means of delivery - developed or otherwise acquired are consistent with such obligations. This has been recognised in Principle 2 of the UNBP whereby: “Governments and law enforcement agencies should develop a range of means as broad as possible and equip law enforcement officials with various types of weapons and ammunition that would allow for a differentiated use of force and firearms. These should include the development of non-lethal

\textsuperscript{101} UN, Universal Declaration of Human Rights (1948) \textit{op.cit.}, Article 5; UN, ICCPR (1966) \textit{op.cit.}, Article 7; UN, Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment, adopted by UNGA Resolution 39/46, 10th December 1984.
\textsuperscript{102} See, e.g., UN, Universal Declaration of Human Rights (1948) \textit{op.cit.}, Articles 19 and 20; UN, ICCPR (1966) \textit{op.cit.}, Articles 19, 21 and 22.
\textsuperscript{106} United Nations, Basic Principles on the Use of Force and Firearms by Law Enforcement Officials (1990) \textit{op.cit.}, Principle 5 (a)-(c).
\textsuperscript{107} UN Code of Conduct for Law Enforcement Officials (1979) \textit{op.cit.}, Article 3.
\textsuperscript{108} UN Code of Conduct for Law Enforcement Officials (1979) \textit{op.cit.}, Article 3. Commentary, paragraph (b).
\textsuperscript{109} UN Basic Principles on the Use of Force and Firearms by Law Enforcement Officials (1990) \textit{op.cit.}, Principle 12.
\textsuperscript{110} UN Basic Principles on the Use of Force and Firearms by Law Enforcement Officials (1990) \textit{op.cit.}, Principle 13.
\textsuperscript{111} UN Basic Principles on the Use of Force and Firearms by Law Enforcement Officials (1990) \textit{op.cit.}, Principle 14.
incapacitating weapons for use in appropriate situations, with a view to increasingly restraining the application of means capable of causing death or injury to persons."  

Important constraints upon such development are elaborated under UNBP Principle 3 which has declared that: “The development and deployment of ‘non-lethal’ incapacitating weapons should be carefully evaluated in order to minimize the risk of endangering uninvolved persons, and the use of such weapons should be carefully controlled.”

In addition, the UN Human Rights Council in its Resolution 25/38 of April 2014: “underline[d] the importance of thorough, independent and scientific testing of non-lethal weapons prior to deployment to establish their lethality and the extent of likely injury, and of monitoring appropriate training and use of such weapons”.

In order to do this effectively, a thorough multidisciplinary review of all prospective “non-lethal weapons” developed or acquired (including “wide area” RCA means of delivery) should be conducted by relevant State bodies, which, as a minimum should:

- ensure that all weapons (whether developed or acquired) are not inherently of a nature to violate relevant international human rights law and standards; and,
- identify whether there are specific circumstances in which use of developed or acquired weapons may breach international human rights law and criminal justice standards (in the case of RCA means of delivery, for example, where the quantity of RCA dispersed becomes hazardous to the health of the targeted individuals or groups, due to repeated employment of multi-RCA munition launchers or the use of high capacity RCA dispersal devices in enclosed spaces), and restrict such use accordingly.

4.1. Recommendations for Chinese Government

Given the nature of several of the RCA “wide area” means of delivery promoted by Chinese companies in their publications, websites or at international arms fairs held in China, it would appear that their use for riot control or other domestic law enforcement operations would breach certain human rights standards, particularly those related to proportionality and discrimination.

Furthermore, as many such means of delivery would be inherently inappropriate for “law enforcement including domestic riot control”, the manufacture, stockpiling and deployment of these means of delivery may also potentially breach Article I.1(a), I.5 and II.1.a of the CWC. Promotion and transfer of such means of delivery may also potentially breach Article I.1 (a) and Article I.1 (d) of the CWC.

Consequently, it would be beneficial if China could set out its position on these matters in an appropriate public document or forum, specifically:

- Clarifying whether the Chinese Government has undertaken formal reviews of the “wide area” RCA means of delivery outlined in this paper to determine their legality under the Chemical Weapons Convention and relevant international human rights law; and provide details of the findings of such reviews. If such reviews have not taken place, China should clarify whether it will suspend production, promotion, transfer and use of such means of delivery pending such reviews;
- Detailing which, if any, Chinese military, security or police forces possess stocks of the “wide area” RCA means of delivery outlined in this paper, and if so provide details of the nature of such stockpiles; the circumstances under which such means of delivery would be employed, and details of any such deployment in the last five years;

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114 UN, Human Rights Council, Resolution 25/38 (11th April 2014) op.cit., paragraph 15.
Describing the national export control policies and procedures for the authorisation of transfer of “wide area” RCA means of delivery outlined in this paper; and provide details of transfers to foreign military, security or police forces of any such “wide area” RCA means of delivery that have taken place in the last five years.

4.2. Recommendations for CWC States Parties

In the light of the concerns raised in this paper and previously by BNWL RP and ORF with regard to the development, promotion and potential transfer and employment of a range of “wide area” RCA means of delivery, the organisations recommend that the CWC States Parties - acting through the relevant policy making organs of the Organisation for the Prohibition of Chemical Weapons (OPCW) in consultation with the Technical Secretariat - should:

1. **Develop a process for determining which means of RCA delivery are prohibited under the Convention**

   The OPCW should develop criteria and a suitable process for determining which means of RCA delivery are inherently inappropriate for law enforcement purposes and would breach Article II.1 and/or Article I.5 of the CWC. If agreed by the Organisation, proposals for appropriate criteria and a determination mechanism could be developed by the Technical Secretariat. These proposals could then be submitted for the consideration of an appropriate forum of the OPCW, such as the Executive Council or Conference of States Parties.

2. **Develop a regularly updated clarificatory document detailing such prohibited RCA means of delivery**

   The OPCW should develop a clarificatory document for States Parties detailing those means of RCA delivery that are considered inherently inappropriate for law enforcement purposes and breach Article II.1 and/or Article I.5 of the CWC. All States Parties would be prohibited, under Article I.1, from developing, producing, stockpiling, marketing, transferring or using such means of delivery. Subsequently, all States Parties currently possessing such prohibited means of RCA delivery should declare such items to the Technical Secretariat as required under Article III.1 and verifiably destroy such means of delivery as required under Article I.2 of the Convention.

   If agreed by the Organisation, a clarificatory document containing a proposed list of prohibited means of RCA delivery should be developed by the Technical Secretariat, potentially with the assistance of the Scientific Advisory Board (SAB). This document could then be submitted for the consideration, review and approval of an appropriate forum of the OPCW, such as the Executive Council (EC) or Conference of States Parties (CSP). The clarificatory document should be reviewed regularly in an appropriate forum such as the EC or CSP to determine whether additional items should be added in the light of developments in science and technology.

3. **Strengthen existing RCA declaration and reporting measures, and explore the feasibility and utility of introducing appropriate monitoring and verification measures**

   The OPCW should expand the range of information provided by States Parties in their RCA declarations in fulfilment of Article III.1(e). To facilitate this process, the Technical Secretariat should be tasked with developing recommendations for relevant information categories for consideration by States Parties at the appropriate OPCW forums i.e. Executive Council or Conference of State Parties. Such information should include details of:

   - Name, structural formula and CAS number of each type of RCA and quantities held;
   - Nature and quantities of the associated “wide area” RCA means of delivery;
   - Locations of, and authorities responsible for holding, stockpiles of RCAs and associated “wide area” RCA means of delivery;
   - Entities permitted to use RCAs and associated “wide area” RCA means of delivery;
   - Nature of intended use.
In line with existing obligations, States Parties should be required to provide an update of the initial declaration 30 days after any change has become effective. These expanded reporting obligations could be introduced as voluntary confidence building measures (CBMs). As a means of promoting confidence and best practice in this area, all States Parties should now consider unilaterally providing the Technical Secretariat with the additional information regarding holdings of RCAs and related “wide area” means of delivery outlined above.

The OPCW should also study the potential feasibility and utility of introducing appropriate monitoring and verification measures undertaken by the Technical Secretariat to ensure that declarations submitted by States Parties concerning possession of RCAs and associated “wide area” means of delivery are full and accurate.

4. Utilise existing CWC consultation, investigation and fact-finding mechanisms

All CWC States Parties should utilise existing CWC consultation, investigation and fact-finding mechanisms where activities of potential concern come to their attention such as the reported development, production, marketing, transfer, stockpiling or use of prohibited RCA means of delivery or the emergence of militarily significant stockpiles of other “wide area” RCA means of delivery. If bilateral consultations with the relevant States Parties are not fruitful, concerned States Parties could consider a formal request under Article IX of the CWC.

5. Conduct a review of the existing constraints, under international human rights law, upon the use of RCA means of delivery in law enforcement

Although the CWC allows the use of appropriate “types and quantities” of RCAs for “law enforcement purposes including domestic riot control”, the nature and scope of activities consistent with “law enforcement” has not been elaborated under the Convention, or by a relevant OPCW policy making organ.

Consequently, CWC States Parties must give appropriate consideration to their direct obligations under international and regional human rights law and associated standards on the use of force by law enforcement officials, and determine how such obligations are to be fulfilled at the national level.

In addition, States should determine how such obligations inform the interpretation and implementation of their obligations under the CWC. In order to facilitate full and effective implementation of the CWC in this area by States Parties, the OPCW Director General should institute a review by the Office of the Legal Advisor (OLA), of the existing legal constraints under relevant international law, upon the use of RCAs and related means of delivery in law enforcement, and determine their bearing upon the implementation of the CWC. The OLA should report its findings to a suitable policy making organ of the OPCW.