

Small Arms Survey 2014: Women and Guns

Annexes to Chapter 5

Countdown to Catastrophe: The Mpila Ammunition Depot Explosions

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Table 1 Types, descriptions, and accumulated quantities of ammunition recovered and destroyed during clearance activities undertaken from March 2012 to April 2013

Category	Type (as mentioned in French in MAG's monthly destruction reports)	Country of manufacture*	Description	Net explosive content (NEC) each (kg)**	Gross weight/unit (kg)**	Total quantities destroyed			Category total weight (kg)	% absolute total weight/category weight
						Total units	Total NEC (kg)	Total gross weight (kg)		
Small arms ammunition	7.62 mm		7.62 x 39 mm, 7.62 x 51 mm, 7.62 x 54R mm	0.0016	0.008	2,171,906	3,475.05	16,506.49	41,711.32	20.78
	9 mm para		9 x 19 mm	0.0020	0.007	77,197	154.39	575.12		
	12.7 mm	Russian Federation/Soviet Union, China	12.7 x 108 mm B-32 API and BZT API-T for Russian-designed DShK-38, NSV-12.7, Chinese and Russian production	0.0100	0.045	223,195	2,231.95	10,043.78		
	14.5 mm	Russian Federation/Soviet Union, Poland	14.5 x 114 mm B-32 API and BZT API-T for Russian-designed KPV, Polish and Russian production	0.0300	0.180	77,132	2,313.96	13,883.76		

	Cartouche de chasse		12-gauge shotgun shell	0.0010	0.070	10,031	10.03	702.17		
Hand and rifle grenades	Ma DF F1		F-1 hand grenade, designed by France, widely used and distributed by the Russian Federation and former communist states	0.0450	0.750	556	25.04	417.00	800.37	0.40
	Ma RGD-5		RGD-5 hand grenade, Russian design	0.1050	0.350	677	71.09	236.95		
	Ma RG-4	Czechoslovakia	RG-4 hand grenade, designed and made in Czechoslovakia	0.0420	0.500	104	4.37	52.00		
	Ma Type 67	China	Type 67 hand grenade, supposedly made in China	0.0260	0.535	20	0.52	10.70		
	Ma RGN/RGO	Russian Federation/Soviet Union or Ukraine	RGN (offensive) and RGO (defensive) hand grenade: both use UDZ fuze with impact feature, made in the Russian Federation and	0.1140	0.520	161	18.36	83.72		

			Ukraine							
	Fumigène (smoke)	Croatia or Bosnia and Herzegovina	Ž-1 (English: Zh-1) smoke hand grenade, yellow smoke, made in former Yugoslavia (probably Croatia or Bosnia and Herzegovina)			91	-	-		
	Anti-émeute		ID unclear, images show unidentified anti-riot hand grenade (irritant or distraction type)			32	-	-		
	Lacrymogène (CS)	South Africa	M8958A1 CS (lachrymatory) tear gas rifle grenade, made in South Africa			4,884	-	-		
Projectiles or cartridges	23 mm NK OFZ HEI		23x152B OFZ, HEI for ZU-23 AA gun, Russian design	0.0190	0.183	57,348	1,089.61	10,494.68	83,704.36	41.71
	30 mm MOD OT HEI-T		30 x 165 mm OFZ, HEI for Russian-designed GSh-30 for aircraft gun	0.2000	1.066	7,603	1,520.60	8,104.80		

	37 mm HE		37 x 252R mm OR-167 or OR-167M for Russian-designed M1939 AA gun	0.0360	0.700	675	24.30	472.50		
	57 mm HE/SR RCL Type 26-8		57 mm recoilless HE, supposedly Chinese but unconfirmed, for recoilless rifle, copy of US M18	0.4000	1.800	81	32.40	145.80		
	T 57 mm HVAP BR271P		57 x 480R mm HVAP-T for Russian-designed ZIS-2 AT gun	0.0130	2.600	106	1.38	275.60		
	57 mm O 271U/FRAG		57 x 480R mm HE-T for Russian-designed ZIS-2 AT gun	0.2000	2.200	122	24.40	268.40		
	75 mm SR RCL Type 26-8		75 mm recoilless, supposedly Chinese but unconfirmed, for recoilless rifle, copy of US M20	0.6370	4.800	114	72.62	547.20		
	76 mm APC BC		76 mm APHE-T, supposedly for ZIS-3 gun,	0.6040/1.1500	6.200	71	78.92	440.20		

			Russian design							
	76 mm HE	Russian Federation/Soviet Union	76 mm HE for ZIS-3 gun, Russian design, made in the Russian Federation	1.1500	6.200	97	111.55	601.40		
	85 mm APHE-TBR365 CEI		85 mm BR-365 variant, APHE-T for Russian-designed D-44 AT gun	0.0680	9.200	346	23.54	3,183.20		
	85 mm HEAT		85 mm BK-1, HEAT-T for Russian-designed D-44 AT gun, supposedly Russian-made	0.9000	8.000	173	155.70	1,384.00		
	100 mm NK HE		100 mm OF-412, HE for Russian-designed D-10 tank gun	3.5280	21.700	1,379	4,865.12	29,924.30		
	100 mm HEAT BK10	Russian Federation/Soviet Union	100 mm BK-4M or BK-5, HEAT-T for Russian-designed D-10 tank gun, Russian-made	1.0420	12.400	277	288.63	3,434.80		
	122 mm HE OF 472	Bulgaria	122 mm OF-462, HE for Russian-	3.5000	21.700	240	840.00	5,208.00		

			designed D-30 Howitzer, made in Bulgaria							
	130 mm HE 482M		130 mm OF-482M, HE for Russian-designed M46 gun	5.0000	33.600	10	50.00	336.00		
	152 mm HE Frag OF-530		152 mm OF-530 HE for Russian-designed D-20 howitzer	6.2400	43.510	10	62.40	435.10		
	Mortar 60 mm HE-Frag		60 mm mortar round, HE, at least 2 different types	0.2000	1.600	1,250	250.00	2,000.00		
	Mortar 82 mm Type 30 Frag	China	82 mm mortar round, HE, Chinese-made	0.4200	3.150	487	204.54	1,534.05		
	Mortar 82 mm HE		82 mm mortar round, HE	0.5700	3.200	518	295.26	1,657.60		
	Mortar 120 mm HE F-843		120 mm mortar round, OF-843 (variants), HE, Russian design	1.0950	15.800	25	27.38	395.00		
	82 mm HEAT ou HE	Russian Federation/Soviet Union	82 mm BK-881 (HEAT) and O-881 (HE) for recoilless rifle B-10, Russian design, made in the Russian Federation	1.2600	4.250	272	342.72	1,156.00		

	PG-2 Type 56	China	PG-2/Type 56, HEAT projectile for RPG-2, Russian design, made in China	0.3770	1.700	299	112.73	508.30		
	OG-7	Bulgaria	OG-7 HE-Frag projectile for RPG-7 variants, made in Bulgaria	0.2100	1.750	622	130.62	1,088.50		
	OG-9/OG-15	Bulgaria	73mm HE-Frag projectile for SPG-9 recoilless rifle (OG-9) or for 73 x 102R mm 2A28 tank gun (OG-15), Russian designed, made in Bulgaria	0.7000	3.700	130	91.00	481.00		
	FL VOG-17 M	Russian Federation/Soviet Union	30 x 29B mm cartridge for AGS-17 so-called grenade launcher, actually a machine cannon, made in Russia	0.0330	0.350	1,214	40.06	424.90		
	FL VOG-25		40 mm VOG-25 cartridge for Russian-designed GP-25, GP-30, under-barrel grenade	0.0400	0.250	1,121	44.84	280.25		

			launchers and others							
	FI RD 40 mm HE	Bulgaria	40 x 46SR mm cartridge for M79-and M203-type weapons, made in Bulgaria	0.0400	0.230	1,286	51.44	295.78		
	35 mm QLZ	China	35 x 32SR mm cartridge for Chinese QLZ-87 grenade launcher			-	-	-		
	FI DFS 87 35 mm HE	China	35x32SR cartridge HE or HEDP (HEAT) for Chinese QLZ-87 grenade launcher			10	-	-		
	CS 38 mm		38 mm CS cartridge for anti-riot launcher			2,676	-	-		
	122 ECL		122 mm S-463 or S-4, illuminating projectile for 122 mm D-30 howitzer, Russian design	2.6900	21.700	286	769.34	6,206.20		
	122 PH		122 mm D-4 white phosphorous smoke projectile for 122 mm D-	3.6000	22.600	8	28.80	180.80		

			30 howitzer, Russian design							
	Mo 120 HE		120 mm HE mortar round	2.6800	16.000	140	375.20	2,240.00		
Rockets	57 mm S5-K HEAT	Russian Federation/Soviet Union	57 mm S-5K, HEAT unguided aircraft rocket (air-to-ground), Russian design	1.0950	3.700	350	383.26	1,295.00	52,056.24	25.94
	57 mm S5 KO	Russian Federation/Soviet Union	57 mm S-5KO, HEAT-Frag unguided aircraft rocket (air-to-ground), Russian design	0.3200	4.500	1,801	576.32	8,104.50		
	80 mm S8 (7 types QNE moyenne)	Russian Federation/Soviet Union	80 mm S- 8KOM, HEAT- Frag unguided aircraft rocket (air-to-ground), Russian design, made in Russia	0.4600	11.150	406	186.76	4,526.90		
	107 mm Type 63 HE-Frag		107 mm Type 63 HE (ground- to-ground), supposedly made in China	4.8350	19.000	55	265.94	1,045.00		
	122 mm 9M22-U Frag	Russian Federation/Soviet Union, Bulgaria	122 mm 9M28F or M21OF, HE- Frag (ground-to- ground), Russian design, made in the Russian	6.4000	18.400	581	3,718.40	10,690.40		

			Federation and Bulgaria							
	9M22 (explosive debris)		Debris of items listed above (9M28F or M21OF)	20.5000	47.600	348	7,134.00	16,564.80		
	130 mm		Unguided rocket (ground-to-ground), no ID	2.7200	22.680	16	43.52	362.88		
	M-14OF 140 mm (Tête + propulseur)		140 mm M-14OF, HE-Frag, unguided rocket for BM-14 launcher (ground-to-ground), Russian design	11.8900/11.9500	39.600	151	1,798.51	5,979.60		
	240 mm S24 Frag	Russian Federation/Soviet Union	240 mm S-24 HE-Frag unguided aircraft rocket (air-to-ground), designed and made in the Russian Federation	29.0000	235.000	–	–	–		
	PG-7	Russian Federation/Soviet Union, Bulgaria, Iran	PG-7 (variants) HEAT rocket for RPG-7 variants, Russian design, made in Bulgaria, Iran, and the Russian Federation	0.3200	2.250	876	280.32	1,971.00		

	PG-9/PG-15	Bulgaria	73 mm PG-9 & PG-15, HEAT rocket for SPG-9 recoilless rifle (PG-9) or for 73x102R 2A28 tank gun (PG-15), Russian design, Bulgarian-made	0.3200	2.630	532	170.24	1,399.16		
	PG-22	Russian Federation/Soviet Union or Bulgaria	72.5 mm RPG-22 HEAT, disposable rocket launcher, designed and made in the Russian Federation, external production licensed only to Bulgaria	0.3500	1.500	38	13.30	57.00		
	RPO-A AC Incend. (2 bandes rouges)	Russian Federation/Soviet Union	RPO-A 93 mm disposable incendiary launcher, designed and made in the Russian Federation	0.2140	4.000	15	3.21	60.00		
Missiles	SA SAM 7		9K32 Strela-2 MANPADS, Russian design	1.1800	9.800	–	–	–	19,475.60	9.70
	AA2 Atoll-R13		K-13, Russian design, air-to-air	11.3000	90.000	195	2,203.50	17,550.00		

			missile, copy of US Sidewinder AIM-9							
	AT3		9M14 'Malyutka', Russian design, anti-tank guided missile	2.5000	11.350	156	390.00	1,770.60		
	Propulseur AT3 (explosive debris)		Debris of rocket engine for item listed above (9M14 'Malyutka')	2.7000	7.0/8.0	21	56.70	155.00		
Mines***	TM-46 (AT)		TM-46 or TMN-46, Russian-designed AT mine (5.7 kg net explosive)	5.7000	8.600	14	79.80	120.40	194.56	0.10
	PMN (AP)		PMN, Russian-designed AP mine (0.2 kg net explosive)	0.2400	0.550	21	5.04	11.55		
	PPM-2 (AP)	German Democratic Republic	PPM-2 AP mine, designed and made in the German Democratic Republic (0.1 kg net explosive)	0.1100	0.370	23	2.53	8.51		
	POMZ (AP)		POMZ-2 or POMZ-2M AP mine, tripwire-actuated, Russian design	0.0750	2.000	3	0.23	6.00		

			(0.075 kg net explosive)							
	TM-57 (AT)	Russian Federation/Soviet Union	TM-57 AT mine, designed and made in the Russian Federation (6.5 kg or 7 kg net explosive)	7.0000	9.800	2	14.00	19.60		
	TMDB-44 (AT)	Russian Federation/Soviet Union	TMDB-44 AT mine, Russian design, supposedly Russian-made (4.8 kg or 6.7 kg net explosive)	6.9000	9.500	3	20.70	28.50		
Aircraft bombs	OFAB 100/120		OFAB 100-120, 120 kg HE-Frag aircraft bomb, Russian design	42.0000	138.000	1	42.00	138.00	146.10	0.07
	OFAB 250 (5 types QNE moyenne)		OFAB 250, 250 kg HE-Frag aircraft bomb, Russian design (94 kg net Explosive)	94.0000	275.000	–	–	–		
	AO1SCh	Russian Federation/Soviet Union	AO-1SCh, 1 kg HE-Frag submunition, Russian design, Russian-made	0.0510	1.160	–	–	–		
	PETAB 2.5 M		PTAB 2.5M, 2.5 kg HEAT submunition, Russian design,	0.4540	2.700	3	1.36	8.10		

			supposedly Russian-made							
Fuzes	AVTE 350		Unclear. Possibly AVU-ET aircraft bomb fuze with an erroneous transcription of a Cyrillic designation for factory code #50 (Z50, or as it is in Cyrillic, '350').	0.0620	1.500	171	10.60	256.50	450.26	0.22
	ATK-E		ATK-E, aircraft bomb fuze, Russian design			67	–	–		
	MD-6 CHI	China	MD-6 fuze for mortar rounds, made in China	0.0080	0.103	1	0.01	0.10		
	KTM-1		KTM-1 fuze for artillery ammunition 45 mm–85 mm HE projectiles, Russian design	0.0076	0.350	117	0.89	40.95		
	MJ-1	China	MJ-1 fuze for 107 mm and 130 mm rockets, made in China			33	–	–		
	unknown, various (similar V25)		V-25M fuze for 140 mm rockets, Russian design	0.0280		8,034	224.95	–		

	MRV-U	Bulgaria	MRV-U fuze for 122 mm 9M22 rockets, Russian design, made in Bulgaria	0.029	0.746	178	5.16	132.79		
	UZRG		UZRGM or UZRGM-2 hand grenade fuze, Russian design	0.0015	0.003	1,165	1.75	14.78		
	MUV-2 CEI		MUV-2 pull fuze for AP mines, tripwire-actuated and with arming delay	0.0015	0.010	514	0.77	5.14		
Miscellaneous	Cart. Signal		26.5 mm flare/signal cartridge (Russian calibre designation is 26 mm) for flare guns			4,880	–	–	1,953.57	0.97
	Cordeau détonnant		Detonating cord			32	–	–		
	Detonateur électrique		Electric detonators for demolitions	0.0012	0.003	2,291	2.74	6.87		
	All meche lente CEI		Safety fuse for demolitions	1.0000		1	1.00	–		
	Propulseur PG	Russian Federation/Soviet Union, Bulgaria, Iran	Expelling charges for various types of RPG-7 rounds	0.4750	0.700	2,781	1,320.99	1,946.70		

Charge, high-explosive	100 gr		100 g demolition charge, supposedly TNT	0.1000	0.100	5	0.50	0.50	211.90	0.11
	200 gr		200 g demolition charge, supposedly TNT	0.2000	0.200	995	199.00	199.00		
	400 gr		400 g demolition charge, supposedly TNT	0.4000	0.400	31	12.40	12.40		
Totals						2,671,889	39,480.24	200,704.28	200,704.28	100.00
						Small arms ammunition	Unexploded ordnance	Total items		
						2,559,461	112,428	2,671,889		

Notes: This table lists identification, description, and categorization details provided by Alexander Diehl, EOD specialist and Survey consultant.

* The country of manufacture is indicated only when it is positively identified in provided images; suspected manufacturers are mentioned in the description column only. The Russian Federation and the Soviet Union are grouped together as it is not possible to identify all observed codes as either of the Soviet Union or of successor states.

** Provided figures are taken from MAG monthly destruction reports.

*** This research does not include or constitute an analysis of compliance with Anti-Personnel Mine Ban Convention (APMBC) obligations. The Republic of the Congo (RoC) is a state party to the APMBC, which has specific provisions on stockpile destruction (Article 4) and transparency reporting (Article 7). Article 4 obliges states parties to destroy all stockpiles and report through the convention mechanisms. According to the 2012 Landmine & Cluster Munition Monitor, the RoC reported compliance with Article 4 but subsequently found a stockpile of anti-personnel (AP) mines in Pointe-Noire. MAG oversaw the destruction of the AP mines, which was verified by a third party. The RoC then declared compliance with Article 4. The Landmine & Cluster Munition Monitor also states that the RoC reported AP mine retention through the Article 7 process: 'In its Article 7 report submitted in 2009, Congo stated that it retained 322 antipersonnel mines for training purposes, after it used 50 mines (30 PPM-2 and 20 POMZ-2) in the April 2009 destruction of the newly discovered stockpile. Previously, in November 2007, Congo had cited a figure of 372 mines retained. It has not provided details on the intended purposes of its remaining retained mines' (LCMM, 2012).

Table 2 Additional ammunition types recovered and destroyed during clearance activities undertaken from March 2012 to April 2013, but not inventoried in the monthly destruction reports

Category	Country of manufacture*	Description
Projectiles or cartridges		57 x 480R mm BR-271K, APHE-T for ZIS-2 AT gun, Russian design
		57 x 480R mm O-271U, HE for ZIS-2 AT gun, Russian design, supposedly Russian-made
	Russian Federation/Soviet Union	57 x 348SR mm OR-281U HE-T for S-60 AA gun, Russian design, Russian-made
		30 x 165 mm BT, AP-T for GSh-30 aircraft guns, Russian design, supposedly Russian-made
		30 x 165 mm BR, AP-HE for GSh-30, GSh-301 aircraft guns, Russian development, supposedly Russian-made
		30 x 165 mm OT, HEI-T for 2A42, 2A38, 2A72 guns of IFV and AA systems, Russian design, supposedly Russian-made
		100 mm BR-412D, APHE-T for Russian-designed D-10 tank gun
		23 x 152B mm BZT, API-T for ZU-23 AA gun, Russian design
		23 x 115 mm OFZ, HEI for AM-23 aircraft gun, Russian design
Fuzes		RGM-2, for artillery projectiles, Russian design
	Russian Federation/Soviet Union	M-6 mortar fuze, Russian design, made in Bulgaria
		V-429, fuze for artillery projectiles, Russian design
	Russian Federation/Soviet Union	V-5K fuze for 57 mm rockets S-5K and S-5KO, Russian design, Russian-made
	Russian Federation/Soviet Union	Demolition time fuze (unit), comprising fuze lighter (pull friction type), safety fuse and a detonator, Russian-made
Russian Federation/Soviet Union	MVZ-57 AT mine fuze for TM-57 AT mine, Russian design, Russian-made	
Hand grenades	Bulgaria	RGO-78 hand grenade, Bulgarian design, made in Bulgaria
	France	DF 37/46 hand grenade, French design, supposedly made in France
		M26 hand grenade, US design, manufacturer not identified
Pyrotechnics		30 mm hand-fired flare, Russian design
	Russian Federation/Soviet Union	Simulator, made of cardboard with safety fuse, training aid, Russian-made
		Simulator, string-wrapped, training aid
Miscellaneous		Non-electric detonators for shock tube system
	German Democratic Republic	MEZ electric detonator for PPM-2 AP mine, made in the German Democratic Republic

Notes: This table lists identification, description, and categorization details provided by Alexander Diehl, EOD specialist and Survey consultant.

* The country of manufacture is indicated only when it is positively identified in provided images; suspected manufacturers are mentioned in the description column only. The Russian Federation and the Soviet Union are grouped together as it is not possible to identify all observed codes as either of the Soviet Union or of successor states.

Annexe 5.2 Methodology

Most of the data on imports into the Republic of the Congo (RoC) is derived from Eurostat and UN Comtrade reporting. Other sources include national reports, media reports, EU Annual Reports, and the UN Register of Conventional Arms.

The following steps were taken to ensure that the data is accurate and comparable:

- Import and export values, provided in several currencies in the raw data, were converted to USD in line with the Small Arms Survey Style Guide. The exchange rate is determined based on the 365-day average asking price for the relevant fiscal period from 1 September to 31 August.
- All USD figures refer to 2009 values as determined by the implicit price deflator published by the US Bureau of Economic Analysis (BEA, n.d.).
- Euro figures (ECU or XEU prior to 1999) refer to values based on average exchange rate data available from Eurostat (n.d.a). All euro figures were converted to 2009 USD values.

Analysis focused on large-calibre ammunition and included the following reporting categories:

Source	Categories
UN Comtrade	89129: munitions of war; 95106: bombs, missiles, ammunition; 930111: self-propelled artillery; 930690: bombs, grenades, ammunition, mines, other
UN Register of Conventional Arms	82 mm mortars
Eurostat	93069090: ammunition, projectiles, and parts, excluding for military purposes; 93SSS891: confidential trade in arms and ammunition ¹
EU Annual Reports	Military List 3: ammunition and fuze setting devices, specially designed components; Military List 4: bombs, torpedoes, rockets, missiles, other explosive devices and charges, related equipment and accessories (all specially designed for military use)
National reports	Explosives; unguided missiles
Media	Surface-to-air missiles

The analysis of export data excluded the category ‘Type A’, as it encompasses a broad spectrum from explosives to fighter aircraft and tanks. This category was especially important in South African exports to the RoC, with ‘Type A’ accounting for more than 84 per cent of total South African exports. Also excluded from this analysis is a Bulgarian export of unguided missiles in 2002, which had no declared value.

Efforts were made to avoid double counting, which occurs when the same shipment is recorded in two (or more) ways. Records may appear in both country and regional reports; for example, both the Bulgarian national report and the EU Annual Report provided data on a

¹ See Eurostat (n.d.b, para. 14.3(b)).

single 2009 Bulgarian export. If both the authorized value and the subsequent delivery value of a shipment were recorded as separate trades, the chapter retained only the delivery value. If only an authorization value was recorded, this value is retained. Several reporting mechanisms, such as Eurostat and UN Comtrade, may also report on the same transfer; in such cases, the UN Comtrade transfer was retained and the Eurostat record excluded. The following categories were used to determine if a duplicate entry existed: provenance, currency valuation, time frame, and export category.

The data also excludes RoC reports of weapons and ammunition imports from ‘all countries’ to prevent the double counting of imports reported in other categories.

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