



Counter-Terrorism
Centre of Excellence

EAPCCO CTCoE Study 2/2023

The Manifestation and Threat of Improvised
Explosive Devices in Eastern Africa

Abstract

Focusing on the type of explosives and detonation methods, this study outlines trends in the manufacturing and use of improvised explosive devices (IEDs) in Eastern Africa. Between 2015 and 2022, the region saw almost four thousand security incidents involving explosives. The use of IEDs by terrorist groups is rising across the region with devastating consequences. Somalia-based Al-Shabaab is the primary perpetrator, using IEDs in most recent attacks. The analysis of available data suggests that bomb-makers shifted from military-grade to commercial and homemade explosives. The use of precursor chemicals and commercially available components has become more prevalent. Bombers have also moved from command wire initiation to remote means, such as using mobile phones and motorcycle alarms as triggering devices. The study concludes that the region needs harmonization of national legislation and greater adherence to international instruments regulating access to explosives and precursor chemicals; more robust domestic control mechanisms for components used in IED manufacturing; closer cooperation with the private sector; and stronger inter-institutional and regional cooperation to effectively address the threat.

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01

INTRODUCTION

1.1 Background

With financial support from the Government of the Federal Republic of Germany, since 2020, the United Nations Office on Drugs and Crime (UNODC) has been implementing a project on supporting the Eastern African Police Chiefs Cooperation Organization (EAPCCO) and its regional Counter-Terrorism Centre of Excellence (CTCoE). The project benefits fourteen EAPCCO members¹ in enhancing national and regional capacity to effectively prevent and counter violent extremism, terrorism, and transnational organized crime.



One of the project's objectives is to produce evidence-based research relevant to Eastern African law enforcement and criminal justice practitioners. The EAPCCO CTCoE conducted this study, a new installment in the series of publications addressing various terrorism- and transnational organized crime-related challenges faced by Eastern Africa,² with support from UNODC as part of this objective.

1.2 Objective, methodology, and key definitions

Over the years, the indiscriminate nature and devastating consequences of using explosives for terrorist purposes garnered the attention of analysts, practitioners, and policymakers. And while organizations such as al-Shabaab (listed by the UNSC; Soe.011) managed to secure and use weapons systems, including mortars and other

artillery pieces, its ability to construct and use improvised explosive devices (IEDs) is much more worrying. More recently, the Allied Democratic Forces (ADF) (UNSC listed CDe.001) constructed and used IEDs in attacks in the Democratic Republic of the Congo (DRC) and Uganda.

WHAT ARE IEDs?

An IED is defined by the United Nations Improved Explosive Device Disposal Standards as “a device placed or fabricated in an improvised manner incorporating destructive, lethal, noxious, pyrotechnic or incendiary chemicals and designed to destroy, incapacitate, harass, or distract. It may incorporate military stores but is normally devised from non-military components.”³

These trends point to an alarming growth in the prevalence and incidence of attacks employing IEDs in Eastern Africa. They call for a closer examination of the dominant manufacturing methods and techniques and their geographic distribution within the region. A better understanding of the threat will aid law enforcement and criminal justice institutions across the region in formulating tailored countermeasures and strategies while strengthening cross-border cooperation where bomb-making signatures point to an influence of a specific terrorist group or the expertise of a particular bomb-maker.

1 The EAPCCO members are Burundi, Comoros, the DRC, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Seychelles, Somalia, Sudan, South Sudan, Tanzania, and Uganda.
2 Please consult the section of the EAPCCO CTCoE website to explore the full range of the EAPCCO CTCoE Issue Papers: <https://eapcco-ctcoe.org/ct-issue-papers/>
3 Source: United Nations Improved Explosive Device Disposal Standards. May 2018. https://www.unmas.org/sites/default/files/un_iedd_standards.pdf

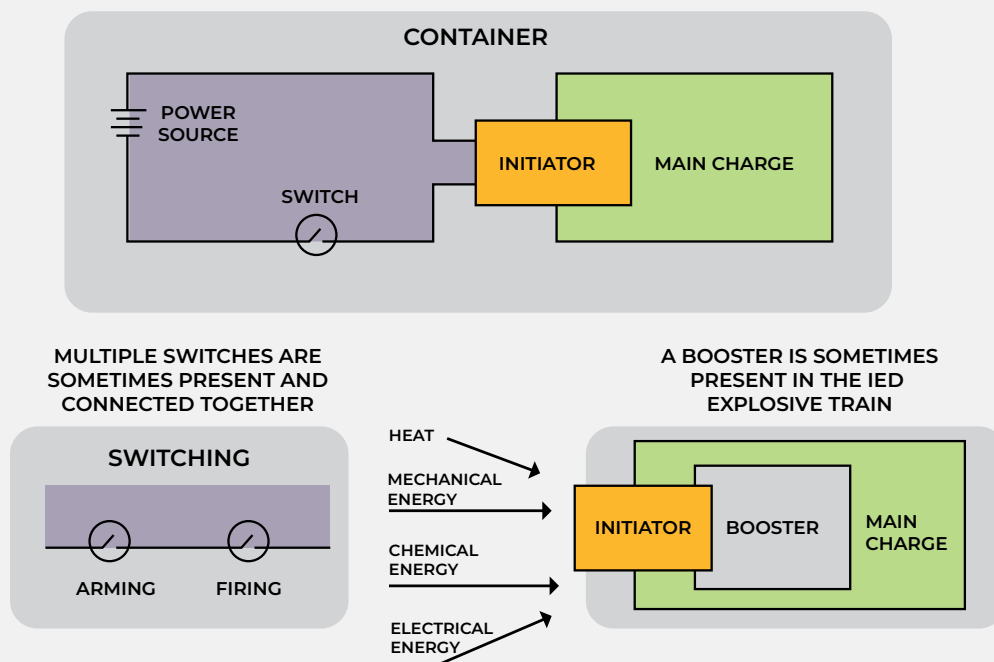
The objective of this study is to identify regional trends in the manufacturing and use of IEDs in Eastern Africa. To that end, the study compares the prevalence of the IEDs with that of munitions (hand grenades, artillery shells, etc) and other explosives while plotting geographic locations where IEDs have been used to identify emerging patterns. Mainly focusing on the incidents in the DRC, Kenya, and Somalia (and, to a lesser extent, in other Eastern African countries and Mozambique), the study aims to discern specific regional shifts in terrorist groups' modus operandi.

The data analysis draws on historical data and known factors that have an impact on vulnerability, risk, and threat. Trends are identified using various statistical indicators. The EAPCCO CTCoE database of terrorism- and violent extremism-related incidents was independently developed using open-source information, including newspaper articles and online publications, using a range of specific criteria to determine the prevalence and geographic location of incidents.

Composition of an IED

An IED typically consists of five components, namely, a switch (activator) divided into an arming and activation switch, an initiator using a detonator or blasting cap, a container (body), the main explosive charge, and a power source (battery) linking everything through an electrical circuit.

THE FIVE COMPONENTS COMMON TO MOST MODERN IEDS



Source: United Nations Mine Action Service improvised explosive device lexicon : an IED lexicon for people working in environments contaminated with improvised explosive devices
https://digitallibrary.un.org/record/3799224/files/unmas_ied_lexicon_0.pdf?ln=en

Changes in the construction and methods of detonation further provide insights into the overall tactics of terrorists in the region. The study discusses different components of an IED, including the type of explosives as well as detonation methods, in particular body-borne, usually as a suicide-vest (BBIED), suicide vehicle-borne (SVBIED), vehicle-borne (VBIED), under-vehicle (UVIED), and remote-controlled (RCIED).

For a detailed discussion of the various IED types and standard international terminology and nomenclature, consult the United Nations Mine Action Service improvised explosive device lexicon: https://digitallibrary.un.org/record/3799224/files/unmas_ied_lexicon_0.pdf?ln=en



Explosives are categorized as “high” or “low” explosives:

1. **Low explosives** are generally classified as propellants, predominately used in ammunition. Examples of low explosives include black powder, smokeless powder, and nitrocellulose powder. In order to use low explosives in an explosive device, this powder must be contained in a closed container that needs to contain gases that expand until sufficient force is built up to enable an explosion. To detonate, low explosives require a spark, flame, or friction to ignite the mentioned powders.⁴ Pipe bombs are the most common devices in which these powders are used.
2. **High explosives**, on the other hand, have a faster burning rate and are designed to shatter and/or destroy. The faster the burning rate, the greater the shattering effect; the slower the burning rate, the more pushing and heaving effect is obtained. High explosives require the introduction of an explosive shock to achieve detonation. The latter is achieved through a detonator or blasting cap (electric or nonelectric).⁵
 - a) **Military explosives and explosive compositions** are used in military munitions (bombs, shells, grenades, missiles, etc.). The bulk charges (secondary explosives) in these munitions are insensitive to some extent and are, therefore, safe for handling, storage, and transportation. Military explosives are set off by means of what is described as an explosive train consisting of an initiator followed by intermediates or boosters.⁶ Examples of military explosives include TNT, RDX, and PETN.
 - b) **Commercial explosives** are used in mining, quarrying, construction, and tunnel building. They are chemical compositions, which detonate when initiated by high explosive primers or boosters or directly by detonators. These explosives are relatively insensitive to shock, friction, or impact to include dynamite, and ammonium nitrate fuel oil and water gels.

4 Ron Hopkins and Bill Abney. “Explosion Theory.” TRACE Fire Protection and Safety Consultants. <http://www.tracefireandsafety.com/VFRE-99/Theory/Definitions/definitions-1.htm>

5 Ron Hopkins and Bill Abney. “Explosion Theory.” TRACE Fire Protection and Safety Consultants. <http://www.tracefireandsafety.com/VFRE-99/Theory/Definitions/definitions-1.htm>

6 Agrawal, Jai Prakash. High energy materials: propellants, explosives and pyrotechnics. John Wiley & Sons, 2010: 6-8.

c) **Home-made explosives (HMEs)** refer to explosives produced from precursor chemicals either physically blended or combined in a chemical reaction. Many precursor chemicals are frequently used in industrial manufacturing and may be available for commercial or personal use.⁷ Guides for making HMEs and instructions for constructing IEDs are widely available and can be easily found on the Internet. Even before the Age of the Internet, these were available through publications such as the Anarchist Cookbook, first published in 1971. HMEs can broadly be categorized into:

- **Powders:** Virtually any type of explosive can be improvised to a powder form in addition to black powder that is commonly found in pipe bombs.
- **Improvised plastic explosives:** Although knowledge is required, a mixture of, for example, grounded potassium chloride and petroleum jelly can be detonated with a blasting cap.
- **Liquids:** Improvised fuel explosives are commonly available, although different levels of experience are required to mix the different components. For example, peroxide-based explosives include triacetone triperoxide (TATP) or acetone peroxide (also known as the 'Mother of Satan'); and hexamethylene triperoxide diamine (HMTD). TATP, for example, was used in the 7/7 London bombings. It is difficult to detect by dogs and conventional hi-tech methods, which is why Richard Reid, the 'shoe bomber', went undetected – TATP is made with acetone and hydrogen peroxide and not nitrogen, which all conventional airport detectors are designed to spot. TATP is made by mixing hydrogen peroxide (a disinfectant also used as a hair dye); acetone, commonly found in paint thinners; and an acid catalyst – for example, sulfuric acid or hydrochloric acid. Hexamethylene triperoxide diamine (HMTD) is less sensitive than TATP but still dangerous. While HMTD is more sensitive to impact than TCPT, both are very sensitive explosives. Although referred to as a liquid (its initial form), TATP in powder or crystal form is more concentrated and more volatile.

Building an IED is relatively inexpensive compared to other tactics, although it may require a basic understanding of electronics and chemistry. In the absence of effective control and monitoring regimes, explosive materials, including chemicals, fertilizers, and commercial explosives, are readily available. The second part of the study analyzes provisions criminalizing illegal access to explosives, materials, and chemicals in manufacturing explosives before discussing potential countermeasures and offering practical recommendations.

⁷ National Academies of Sciences, Engineering, and Medicine. Reducing the threat of improvised explosive device attacks by restricting access to explosive precursor chemicals. National Academies Press, 2018: 1.



02

**USE OF EXPLOSIVES IN
EASTERN AFRICA**

Between 2015 and 2022, 4044 incidents were recorded in Eastern Africa in which non-state actors, most notably terrorists, used explosives in the execution of their attacks.

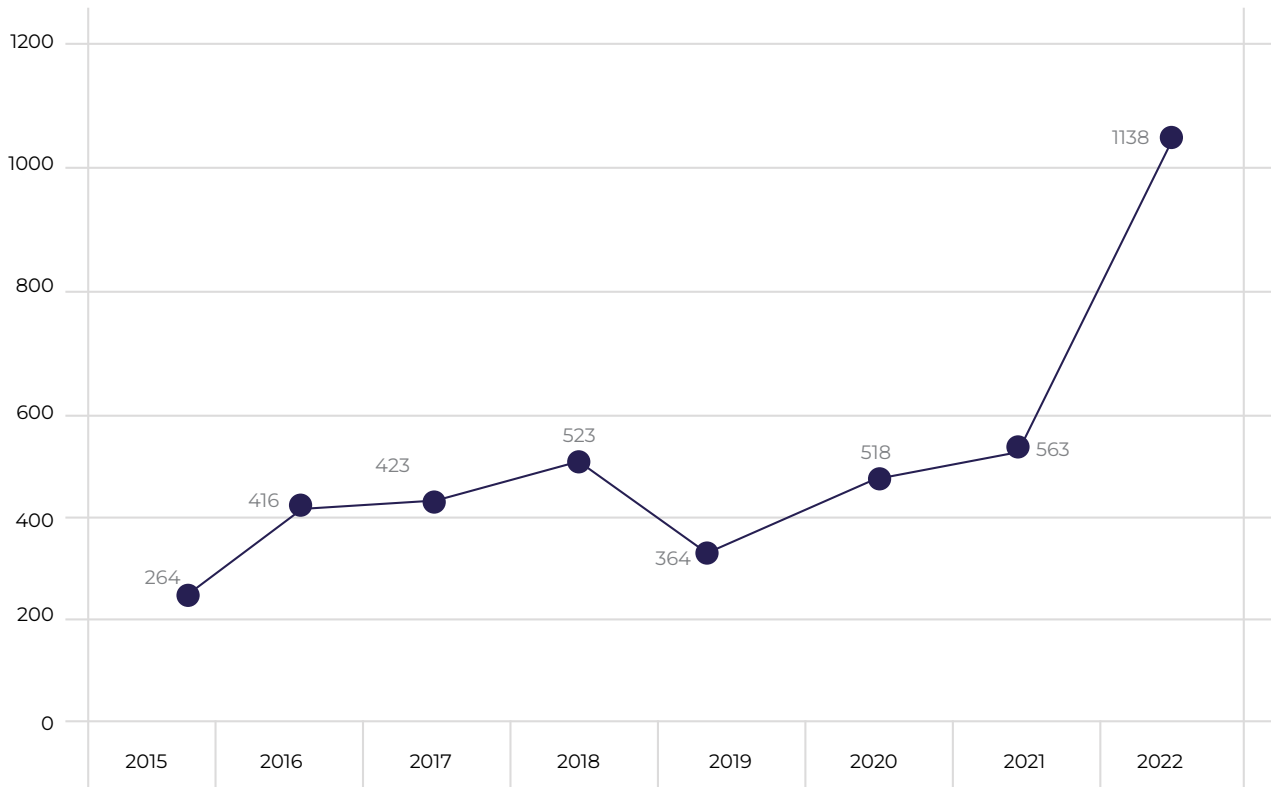


Figure 1: Use of explosives, 2015-2022

Two significant trends emerge when analyzing where and in what format explosives are used. While conventional explosive ordnance and hand grenades were prevalent in countries such as Burundi, the Democratic Republic of the Congo (DRC) and Ethiopia, their use has fluctuated but remained comparatively stable.

At the same time, the use of IEDs (or unconventional use of explosives) is rising in the DRC, Somalia, Kenya, Uganda, and Mozambique. The emergence of innovative and unconventional applications of explosives has devastating consequences for Eastern Africa and adjacent regions.

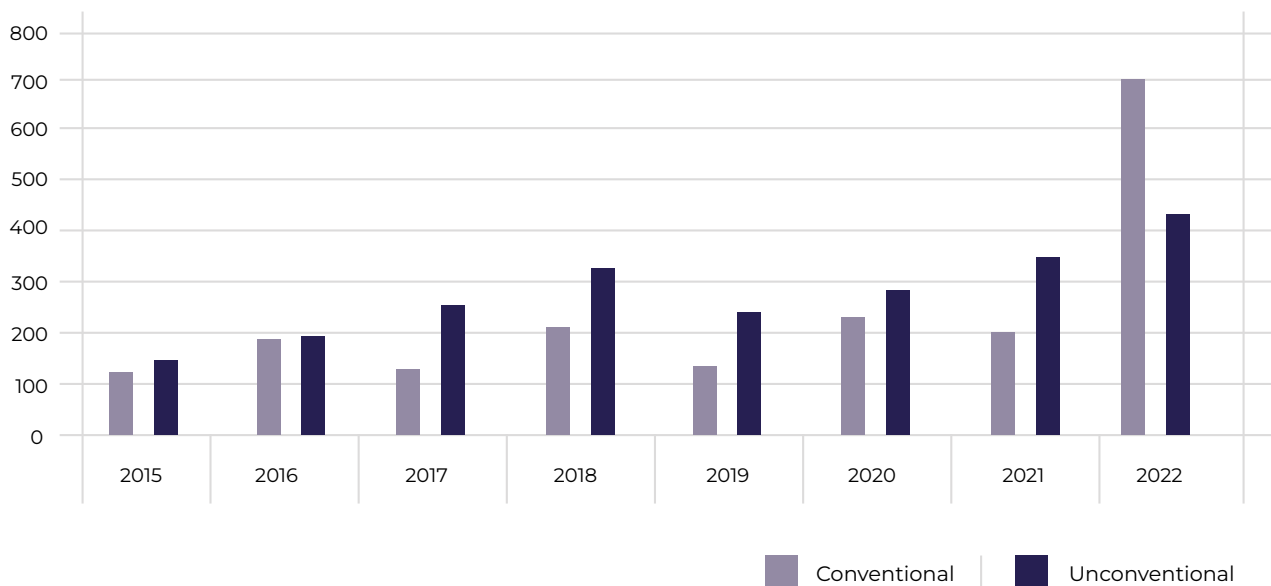


Figure 2: Conventional and unconventional use of explosives in Eastern Africa

Al-Shabaab, followed by a few incidents in which Da'esh in Somalia claimed responsibility, predominately used IEDs (58%) in the 3356 attacks involving explosives in **Somalia**. Figure 4 indicates the growing use of IEDs in Somalia since 2019, with the exception of 2022 during the use of conventional explosives ordnance increased, specifically directed against security

forces. Spilling over from instability in Somalia, 84% of attacks in **Kenya** involved the unconventional use of explosives (see also Figure 5), most notably the use of roadside IEDs (equally on the increase). In addition to the use of IEDs, the use of conventional explosive ordnance, most notably hand grenades, is similarly a concerning trend.

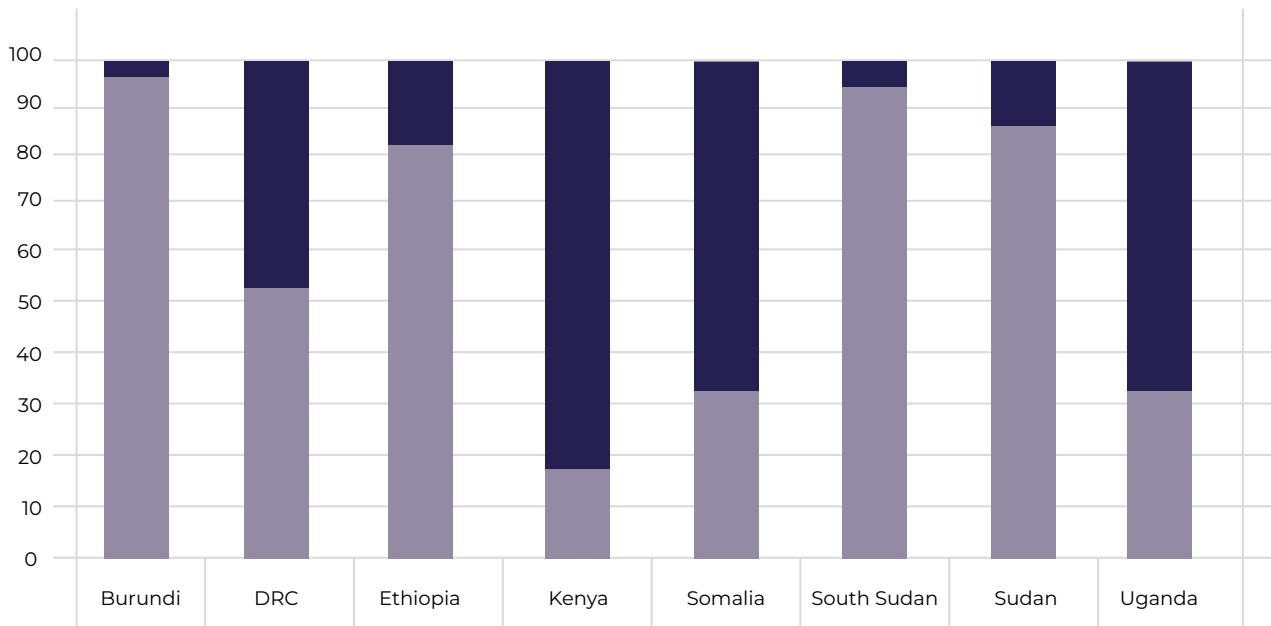


Figure 3: Unconventional against conventional and use of explosives in most affected countries in Eastern Africa

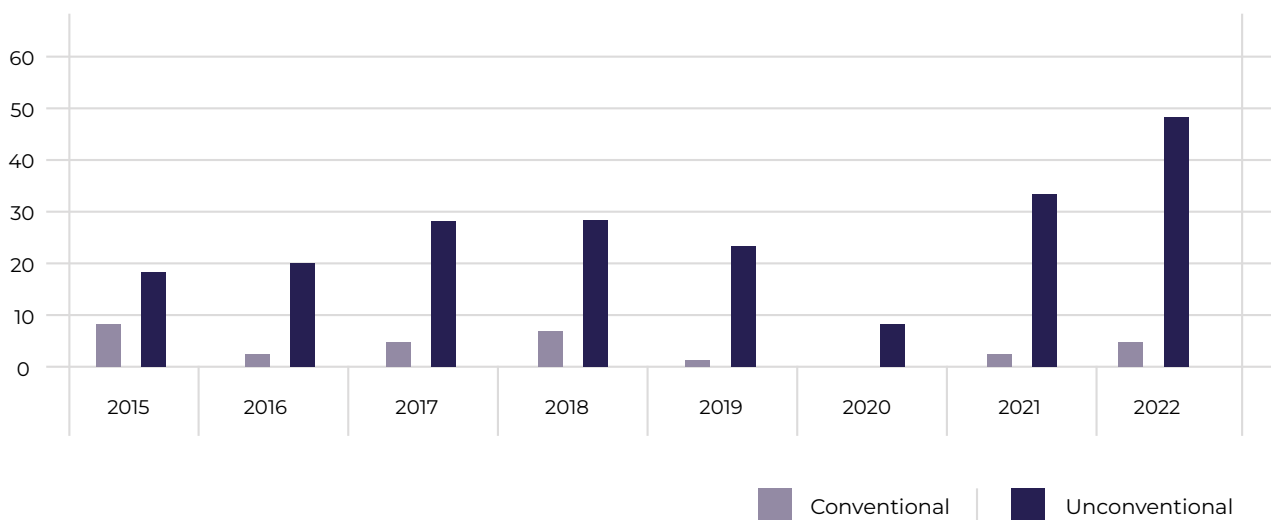


Figure 4: Attacks using explosives in Somalia (2015-2022)

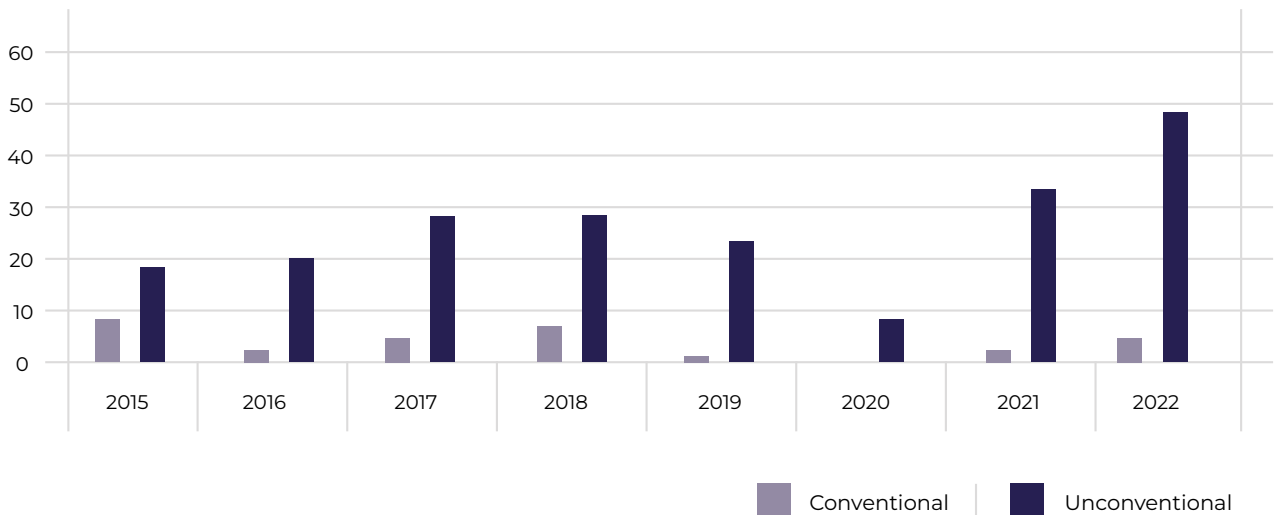


Figure 5: Attacks using explosives in Kenya (2015-2022)

While al-Shabaab executed attacks in Somalia, Kenya, and more recently Ethiopia, the Allied Democratic Forces (ADF), through its base in the **Democratic Republic of the Congo (DRC)**, started to change its rhetoric and modus operandi under the leadership of Seka Musa Baluku (UNSC listed CDi.036). Baluku assumed the leadership role following the arrest of Jamil Mukulu in Tanzania in 2015. These changes coincided with the ADF’s rebranding as Madina

at Tauheed Wau Mujahedeen (MTM) and allegiance to Da’esh, consequently being referred to as constituting a part of what Da’esh regards as its Central African Province (ISCAP).⁸

Compounding the situation, the **March 23 Movement** or M23 (not listed), the Mayi Mayi militia (not listed), and other groups and factions have used grenades, landmines, artillery, and other types of explosives.

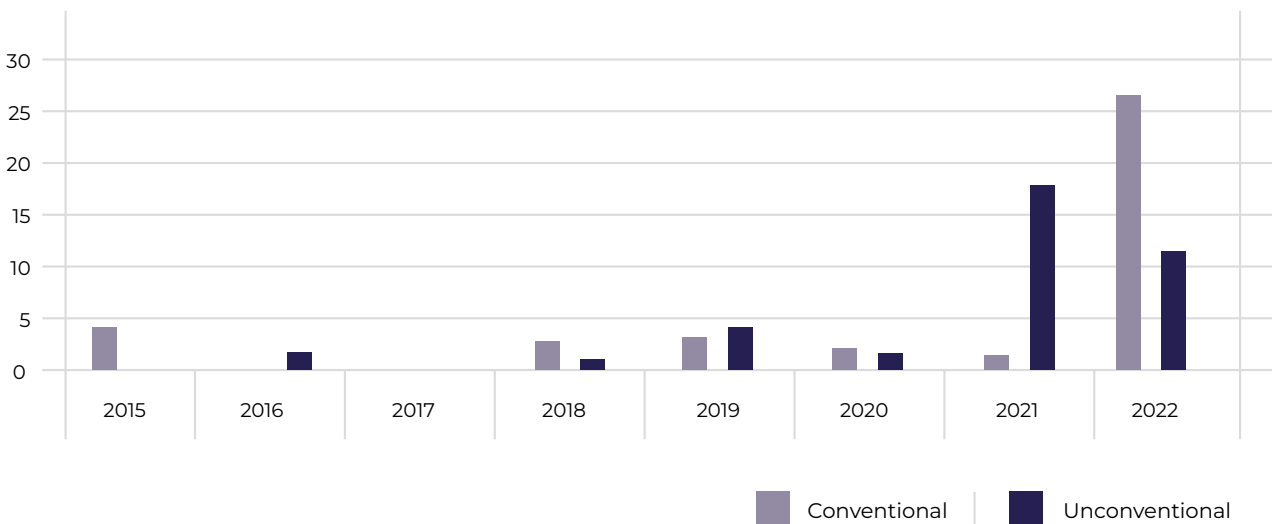


Figure 6: Attacks using explosives in the DRC (2015-2022)

8 Mūcahid Durmaz. “Is DAESH making inroads in DR Congo?” TRT World, 26 April 2019. <https://www.trtworld.com/africa/is-daesh-making-inroads-in-dr-congo-26178>.

Seka Musa Baluku's leadership's impact becomes visible with the ADF's attacks in the DRC and Uganda increasing. The ADF (under the flag of ISCAP) was also implicated in a series of attacks in 2021 that started on 1 June 2021 when gunmen on motorcycles attacked the vehicle of Works Minister Katumba, a former chief of defence forces and Uganda police commander, in Kisasi.⁹ Although attackers used firearms in this attack, future attacks in Kampala escalated with the detonation of an IED at a restaurant on 23 October that killed one woman, a suicide attack (BBIED) on a bus near Kampala on 25 October, followed by two suicide bombings on 16 November in Kampala that left four people dead and 33 injured.¹⁰

The reach of the ADF/ISCAP is, however, not limited to the DRC and Uganda but also increasing in **Rwanda** and further south to Mozambique. For example, on 1 October 2021, the Government of Rwanda announced the

arrest of 13 individuals for planning terrorist attacks in Kigali. The suspects, linked to ADF and acting under its guidance, were arrested with bomb-making materials, including explosives, wires, nails, and phones.¹¹

While **Mozambique** may be geographically outside Eastern Africa, influence from Somalia and the DRC and the emergence of Ahl al-Sunna wal-Jama'a (ASWJ: not listed) in Cabo Delgado is well documented.¹² On 12 September 2021, ASWJ started including buried explosive devices in its arsenal. According to earlier analysis, the group is making use of TM46 landmines in the execution of these attacks. Although the construction of IEDs cannot be confirmed, capturing explosive ordnance during confrontations with security forces opens the potential for manufacturing IEDs in the future.

9 Reuters. Gun attack on Ugandan ex-army chief kills daughter, driver -military. 1 June. <https://www.reuters.com/world/assassination-attempt-made-ugandan-minister-army-spokeswoman-2021-06-01/>

10 AFP. Uganda charges 15 with terrorism over deadly bombings. Mail and Guardian, 24 December 2021. <https://mg.co.za/africa/2021-12-24-uganda-charges-15-with-terrorism-over-deadly-bombings/>

11 Africa News. "Rwanda arrests 13 suspected of plotting 'terrorist' attacks" 1 October 2021. <https://www.africanews.com/2021/10/01/rwanda-arrests-13-suspected-of-plotting-terrorist-attacks/#:~:text=Rwandan%20police%20said%20on%20Friday,Police%20said%20in%20a%20statement.>

12 Trans-regionalization of Terrorism in Eastern and Southern Africa. EAPCCO CTCoE Issue Paper 5/2022. <https://eapcco-ctcoe.org/wp-content/uploads/2022/10/EAPCCO-CTCoE-Issue-Paper5-2022.pdf>



03

CHANGING TRENDS IN THE TACTICS ASSOCIATED WITH THE USE OF IEDS

The evolution of the use of IEDs in Eastern Africa started with highly trained al-Shabaab bomb makers who brought their experience and expertise from Afghanistan, Iraq, and Yemen.

3.1 Body-borne improvised explosive devices (BBIED)

BBIED, or the execution of an attack by a person carrying explosives (suicide bomber), became an effective tactic in the assassination of prominent individuals as well as in indiscriminate attacks in populated areas, especially restaurants. Although the volume of explosives an individual can carry may be less than in a vehicle (SVBIED), an individual attacker can get closer to the intended target. Considered a thinking bomb, the attacker can choose the precise moment to detonate the device, increasing the accuracy of the attack. These assaults may involve a single attacker or be part of a more coordinated strike involving multiple assailants armed with suicide vests.

While between 2015 and 2022 most BBIED attacks (57) were executed in Somalia and Kenya (2), more recently, Uganda (4) and the DRC (2) have experienced this type of attacks as well. Assaults in the DRC and Uganda were executed in 2021 with an escalation of ADF-ISCAP attacks in these two countries (described above).

The following cases provide some examples of BBIED-type attacks in Eastern Africa. On 2 February 2016, the bomber Abdulahi Abdissalam Borle, later identified as the only fatality, managed to take an explosive device hidden in a laptop onboard Daallo Airlines Flight 159. The device detonated 20 minutes after the plane departed from Mogadishu. This assault was unsuccessful mainly because there was a slight delay before taking off, resulting in the plane not reaching cruising altitude and being fully

pressurized when the explosion happened. The pilot managed to land safely despite the hole in the fuselage. This was, however, not the first time explosives were hidden in a laptop computer; in November 2013, al-Shabaab detonated a laptop bomb at the city's Makkah Al-Mukarama Hotel.

In the DRC on Christmas day, 25 December 2021, a suspected member of the ADF detonated a BBIED at the entrance of a restaurant on Nyamusi boulevard in the city of Beni (North Kivu). At least eight people (including the assailant) were killed. The victims include a FARDC soldier (assumed off-duty), along with his two daughters, among others. At least twenty people were injured; two were mayors of Beni communes. According to eyewitness accounts, the suicide bomber wanted to enter the restaurant but was prevented, potentially saving lives.

3.2 Suicide vehicle-borne improvised explosive devices (SVBIED)

SVBIED attacks are closely associated with BBIED with the difference that a vehicle is used to drive an attacker to the intended target. Since more explosives can be carried by the vehicle, the potential for stealth decreases, especially in heavily protected areas. Vehicles will approach the target at high speed, often resulting in the death of the assailant before reaching the intended target. Under these circumstances, momentum is used for the device to detonate on impact or, alternatively, through a dead-man switch.

Since the first SVBIED attack in Somalia on 18 September 2006, al-Shabaab continues to employ this tactic by itself or as part of multiple-attack scenarios. This category of attacks also includes the use of motorcycles. For example, on 11 August 2022, Hussein Jibril Ali, the deputy

13 Drazen Jorgic. "Somalia plane bomber was meant to board Turkish flight: airline executive." Reuters, 8 February 2016. <https://www.reuters.com/article/us-somalia-blast-turkish-airlines-idUSKCN0VH0QA>

14 Robyn Kriel and Paul Cruickshank. "Source: 'Sophisticated' laptop bomb on Somali plane got through X-ray machine." CNN, 12 February 2016. <https://edition.cnn.com/2016/02/11/africa/somalia-plane-bomb/index.html>

15 Reuters. Suicide bomber kills at least five at east Congo restaurant. 26 December 2021. <https://www.reuters.com/world/africa/bomb-explodes-restaurant-east-congo-mayor-says-2021-12-25/>

16 Anneli Botha. (2013). Practical guide to understanding and preventing suicide operations in Africa. Institute for Security Studies. https://www.researchgate.net/publication/273126335_Practical_guide_to_understanding_and_preventing_suicide_operations_in_Africa

mayor of Afgoye, was killed when a suicide bomber driving a motorcycle struck his vehicle about 30 kilometers south of Mogadishu. Four people were killed, including the commissioner, his two bodyguards, and the suicide bomber.¹⁷

As an example of a more complex attack, on 3 October 2022, al-Shabaab targeted the district headquarters in Beledweyne with SVBIEDs specifically targeting members of the Macawisley, or clan militias, as well as local Somali government officials. According to al-Shabaab, a third suicide bombing targeted emergency personnel and Djiboutian soldiers who secured the scene.¹⁸ At least 20 people were killed, including three Al-Shabaab attackers, three Hirshabelle dignitaries, amongst which the deputy governor of the Hiraan region, the region's health minister, the deputy commissioner of finance, while thirty-six others were injured in the attack.¹⁹

3.3 Complex attacks

Complex attacks involve a combination of multiple tactics and attackers that incorporate multiple formats of IEDs on one target. These operations are often initiated by an SVBIED directed at the gate of a structure to ensure access and eliminate potential opposition, followed by a second vehicle transporting attackers on foot armed with automatic firearms and BBIEDs. This modus operandi continues to be one of Al-Shabaab's hallmark tactics. In Somalia, this tactic increased to fourteen attacks in 2022, following five attacks the year before. Predominantly directed against hotels, the propaganda value of this type of attack is maximized the longer attackers are able to remain on target.

The Dusit D2 attack at 15:00 on 15 January 2019 serves as an example of a complex attack in Kenya and of Al-Shabaab's ability to execute a high-value attack outside of Somalia. During this attack, Mahir Khalid Riziki, wearing a BBIED blew himself up outside Secret Garden hotel, killing six people. According to investigations, Riziki arrived at the complex and stayed at a hotel room from where he walked down while communicating with other attackers who shot their way in.²⁰ Other gunmen stormed the 14 Riverside Drive compound, in the direction of the DusitD2 complex while forcing security guards to open the gate by opening fire on them. The attackers advanced and hurled explosives into vehicles at a car park, setting fire to three cars, before splitting into two groups. One group attacked a nearby office building with small arms fire and a hand grenade, while the other fired their weapons in the direction of the Secret Garden Café. One of the attackers subsequently detonated a BBIED at the restaurant/café before the remaining assailants converged on the DusitD2 Hotel, opening fire indiscriminately. The attack concluded on 16 January at 10:20 after five attackers were confirmed dead while leaving 21 fatalities and 27 people injured.²¹

3.4 Under-vehicle improvised explosive devices (UVIED)

UVIEDs have been used in targeted assassinations of high-ranking security officials and government employees, although other prominent members of society may be equally at risk. Due to the indiscriminate nature of the use of explosives in attacks, other passengers and passers-by are sure to be among the casualties.

17 Keydmedia Online. Suicide bomber kills senior official outside Somalia capital. 11 August 2022. <https://www.keydmedia.net/news/suicide-bomber-kills-senior-official-outside-somalia-capital>

18 Caleb Weiss. Shabaab conducts triple suicide bombing in central Somalia. The Long War Journal, 3 October 2022. <https://www.longwarjournal.org/archives/2022/10/shabaab-conducts-triple-suicide-bombing-in-central-somalia.php>

19 Reliefweb. 20 killed and 36 injured in Al Shabaab car bomb attack on government offices in Beledweyne, 3 Oct. <https://reliefweb.int/report/somalia/20-killed-and-36-injured-al-shabaab-car-bomb-attack-government-offices-beledweyne-3-oct>

20 Capital News. Riverside suicide bomber named as Mahir Khalid Riziki. 19 January 2019. <https://www.capitalfm.co.ke/news/2019/01/riverside-suicide-bomber-named-as-mahir-khalid-riziki/>

21 Constellis. Nairobi DusitD2 Attack: Post-Incident Report 17 January 2019. chrome-extension://efaidnbmninnbpcjpcglclefindmkaj/https://constellis-production-tmp.s3.amazonaws.com/uploads/document/file/109/CONSTELLIS_CONFIDENTIAL_-_Nairobi_DusitD2_Attack_-_Post_Incident_Report_-_17_Jan_2019.pdf

The construction of a UVIED device is based on the “sticky-charge” or “sticky bomb” principle developed during World War II against armoured vehicles and tanks. The UVIED consists of a container with the explosives, detonating cord linking the explosives to a detonator, and a mobile phone. The phone battery serves as a power source to the IED while dialing the number of the phone will complete the circuit and initiate the detonation. A form of adhesive, most commonly a magnet, holds the device attached to the vehicle chassis. Historically, UVIEDs have been placed on the underside of a vehicle; in front, on top of, or behind a wheel; attached to a wheel arch; tied to an exhaust; or on the ground under a vehicle.²²

This tactic has been used in Somalia, and of the hundred attacks executed between 2015 and 2022, 37% were directed against government representatives, followed by attacks against security force personnel, prominent members of the community, and individuals who, due to their careers – including contractors and journalists – are in the public domain. Al-Shabaab also targeted members of the diplomatic corps and UN representatives in prior attacks. For example, on 20 April 2015, an explosive device planted on a minibus carrying UNICEF personnel detonated in Garoowe city, Nugaal region, Somalia. This device was planted under a seat and remotely detonated. At least nine people were killed, and four others were injured in the blast.²³

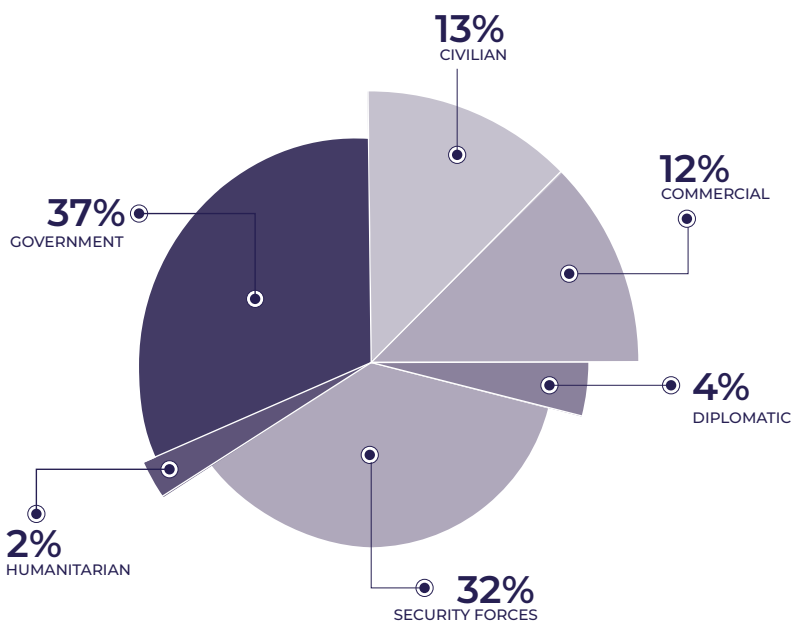


Figure 7: Target selection of UVIEDs in Somalia (2015-2022)

3.5 Remote-control improvised explosive devices (RCIED)

Belonging to the same category of IEDs as UVIEDs, RCIED involves the construction of an explosive device detonated on command using a transmitter that is in the possession of the bomber, and a receiver connected to the IED. The command can be in the form of the bomber dialling the receiving mobile phone’s number or by the bomber pressing designated keys on a keypad of a two-way radio or a remote. In other words, any system in which a receiving component picks up and authenticates a transmitted signal that, in turn, switches on electrical power to the initiator.²⁴

Al-Shabaab operatives have also been implicated in the construction of directional fragmentation charge (DFC) devices, or homemade Claymore mines, and explosively formed penetrator/projectiles (EFPs) that serve as a shape-charge. As explained by Collective Awareness to Unexploded Ordnance: “the effect of the explosive shaped-charge is to deform a metal plate into a slug or projectile and accelerate it toward a target. The charges are generally cylindrical, fabricated from commonly available metal containers, with the forward end closed by a

22 United Kingdom Government. Attack Methodology: Vehicle bombs. 2 November 2020. <https://www.gov.uk/government/publications/crowded-places-guidance/attack-methodology-vehicle-bombs>

23 Aljazeera. Deadly attack targets UN staff in Somalia’s Puntland. 20 April 2015. <https://www.aljazeera.com/news/2015/4/20/deadly-attack-targets-un-staff-in-somalias-puntland>

24 Collective Awareness to Unexploded Ordnance. Radio Controlled IED (RCIED). <https://cat-uxo.com/explosive-hazards/ied/radio-controlled-ied-rcied>



Figure 8: EFP device and copper plate recovered in Somalia

concave copper or steel disk-shaped liner to create a shaped-charge.”²⁵ Figure 8 provides a summary of the construction of an EFP in Somalia and its impact on an armoured personnel carrier (a *Casspir*) showing hull penetration.

From a tactical perspective, al-Shabaab operatives have studied the operational procedures of explosive ordnance disposal (EOD) teams and now leverage them to their advantage to target bomb disposal technicians. For instance, the group would plant an “IED” to draw EOD specialists close to a hidden device or

devices that may be detonated through an array of different means.

While the use of IEDs and RCIEDs is a familiar tactic in Somalia, Kenya witnessed a drastic increase in the use of this modus operandi in its northeastern counties. In addition to 205 attacks, numerous others were prevented. For example, more recently, on 1 July 2023, police in Garissa foiled an attack that led to the recovery of the device.²⁶ As Figure 11 shows, 12-volt motorcycle PM9 batteries are the most common power sources used in RCIED construction.

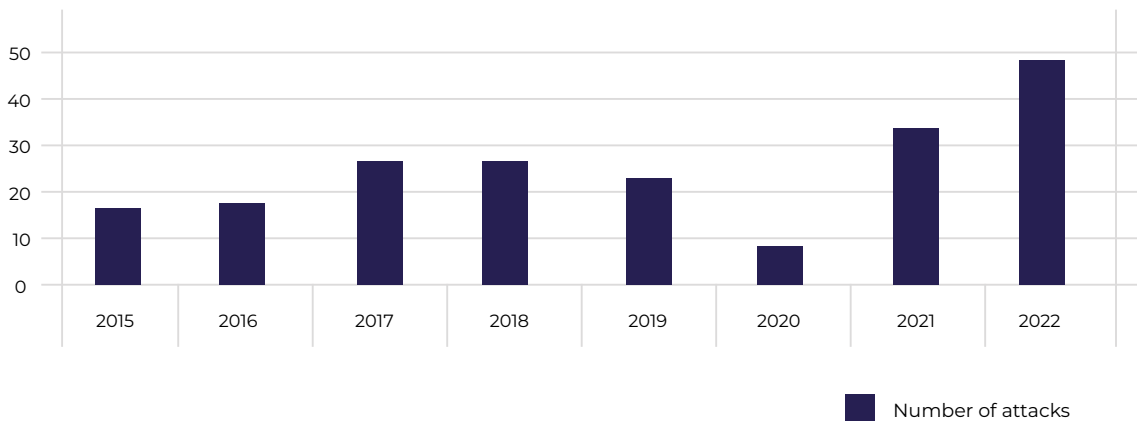


Figure 9: IED/RCIED attacks in Kenya

25 Collective Awareness to Unexploded Ordnance (CAT-UXO). Explosively Formed Projectile (EFP). <https://cat-uxo.com/explosive-hazards/ied/explosively-formed-projectile-efp>

26 Opera News. ‘Drama As Multi Agency Ambushes Alshabaab Allegedly Caught Planting an IED Bomb On the Road. 1 July 2023. https://www.operanewsapp.com/za/en/share/detail?news_id=beb2313eeb6e83bd9624044c91b344fc&news_entry_id=t4d72317230701en_za&open_type=transcoded&from=news&request_id=share_request

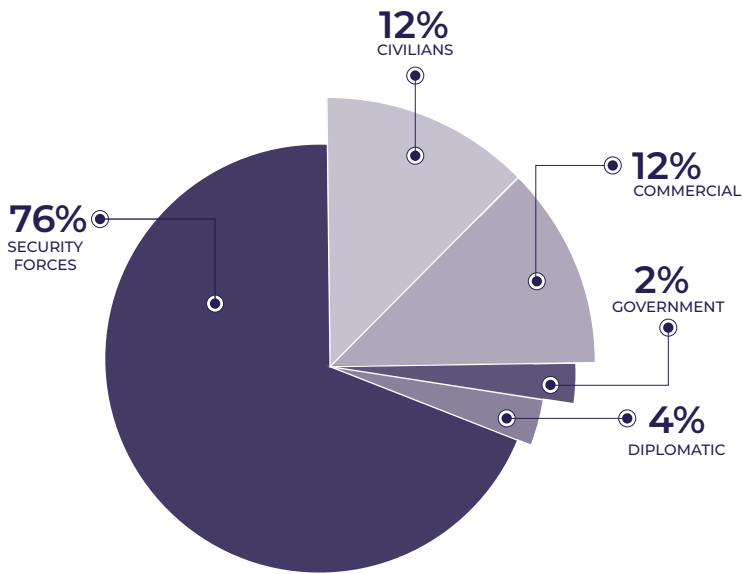


Figure 10: Target selection of RCIEDs in Kenya

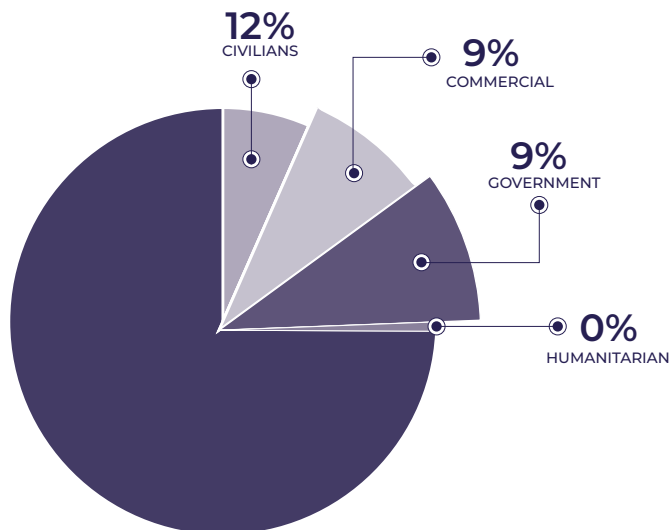


Figure 11: Target selection of RCIEDs in Somalia

Members of the security forces are targeted in RCIEDs in both Somalia and Kenya as stand-alone attacks or as part of a broader ambush while in transit (roadside IEDs). Explosives can also be planted at checkpoints, particularly in Somalia. Civilians often find themselves in the crossfire in public places – most notably in restaurants, hotels and markets frequented by security force personnel and government officials in Somalia. In Kenya, the planting of roadside bombs has targeted vehicles belonging to the security forces as well as civilian and commercial vehicles. The use of indiscriminate activation switches (to be discussed below) equally increased the risk of vehicles, other than security forces, being caught in an explosion, therefore increasing the risk to civilians.

The increasing use of RCIEDs in the DRC and links to Uganda are of great concern. For example, on 6 September 2022, suspected members of the ADF detonated an RCIED near a state intelligence office in the Bulengera area of Butembo (North Kivu province), injuring two officials.²⁷



Figure 12: Recovered IED in Garissa on 1 July 2023

²⁷ Crisis24. DRC: Bomb explosion in Butembo, Sept. 6. 8 September 2022. <https://crisis24.garda.com/alerts/2022/09/drc-bomb-explosion-in-butembo-sept-6>

The background of the slide is a photograph of an Improvised Explosive Device (IED) with a blue overlay. The IED is a rectangular metal box with a handle on top and a screen on the front. It is connected to various wires and components, including a battery and a fuse. The text is overlaid on the lower-left portion of the image.

04

CHANGING TRENDS IN THE CONSTRUCTION OF IEDS

Although post-blast investigators will reconstruct a device, an unexploded device is a treasure trove of evidence and insights into the bomb-making process. This study will discuss two recovered VBIEDs that deserve particular attention. The first was recovered on 17 March 2014 when members of the public reported that a suspicious vehicle was parked at a fuel station in Mombasa. In the vehicle were six pipe

bombs filled with 173kg TNT, connected to two commercial electric detonators, twenty-one meters of 10g/m commercial detonating cord with two Nokia Model 1208 mobile phones serving as initiator switches. The arming switch was fitted in the center console linked to a pipe bomb hidden under the dashboard and linked with detonating cord to the other pipe bombs concealed in the backseat.



Figure 13: Mombasa VBIED

The second VBIED was recovered on 15 February 2018 after a shootout with five armed suspects in Merti, Isiolo County. Upon investigation, seven modified 85mm projectiles were discovered distributed in the left front and rear doors, the front right, and the firewall under the windshield wipers. An additional 220mm x 690mm pipe bomb containing 41.5 kg of high explosive (TNT) was discovered beneath the dashboard. A blue detonating cord connected the items, although it was wrapped in black insulating tape to disguise it as part of the vehicle wiring system.

All the projectiles were wrapped in sisal bags to protect them from shock and friction. Four pairs of commercial detonators were discovered under the gear shift lever, although not connected. The detonator pairs were wrapped in electrical tape and contained within cut syringes. A two-core white power wire was spliced into the positive and negative wires coming off the vehicle battery (power source).

This wire contained quick connection plugs and a rocker switch (on/off switch) which is believed to be the arming switch. Three Nokia 1208 mobile phones were found beneath the dashboard. These phones had been modified with wires coming from the speaker and were most likely intended to be used to initiate the device.

In addition to five AK-47 assault rifles and ammunition, investigators also uncovered thirty-six un-primed F-1 Russian defensive hand grenades and eighteen pairs of UZRGM-2 grenade fuse mechanisms wrapped in black insulating tape. Those involved in the construction of this VBIED went through a meticulous process of wrapping wires and components in black insulating tape to conceal its true nature from the initial investigation. Considered to be a signature, insulating tape can equally be a source of forensic evidence.



Figure 14: Merti VBIED

4.1 Body of the device

IEDs come in varied sizes and packages depending on the tactics described above; the construction of RCIEDs is of particular interest, for instance, the unconventional use of pots in serving as a pressure cooker in the detonation of the device (see Figure 12). Not only containing the explosives, but also the way the body is constructed, where it was sourced, and even the welding techniques used can provide valuable insights into the investigation.

4.2 Explosive materials

Earlier IEDs used in Somalia and Kenya were constructed through the sourcing of military-grade explosives (most notably, trinitrotoluene (TNT) and cyclotrimethylenetrinitramine (RDX)) from conventional explosive ordinance stolen from the military or smuggled into Somalia. Two approaches have been used by Al-Shabaab operatives to source explosives from the

ordinance. It can be beaten out with care or through a bain-marie (or double boiler) process involving applying indirect heat (less than 60°) and melting the military explosives to pour it out. While military-grade explosives remain the most sought-after item due to their effect and stability, their demand started to outstrip availability. Consequently, bomb builders increased their focus on commercial explosives that are ammonium nitrate-based and other homemade explosives.

In addition to mixing explosive components with charcoal, following the discovery of a bomb-making factory in Yaqshid district in Mogadishu in August 2015, among the items recovered was a 20-liter container of TNT explosives mixed with sand. Additionally, a 20-liter container of ammonium nitrate and TNT mixture was also identified. Documents explaining how IEDs can be manufactured were also retrieved.²⁸

28 Discussion with a bomb disposal expert on 21 July 2023.

A changing trend in Somalia has been the increasing use of commercially available precursor chemicals and components in the construction of homemade explosives since July 2017, when chemical analysis confirmed the manufacturing of homemade explosives. According to the Terrorist Explosive Device Analytical Center of the Federal Bureau of Investigation (FBI), the chemical composition of the eleven incidents involving the use of IEDs in 2017 found evidence of mixtures of nitroglycerine (a highly sensitive explosive that comprises nitric acid that can be mixed with sulfuric acid and glycerine to produce nitroglycerine), potassium nitrate (used as an oxidizer), and charcoal (fuel).²⁹

Due to its sensitive nature, nitroglycerin is mixed with diatomaceous earth (Kieselguhr) to make it more stable in the manufacturing of dynamite. In the absence of Kieselguhr found in Germany, terrorists have also used sawdust, and in this case – sand. Sand is, however, not the most appropriate stabilizing agent on a molecular level (sharp edges of sand), which led to the premature detonations through friction of nitroglycerin and the killing and injuring of al-Shabaab members while working with nitroglycerin.³⁰

4.3 Boosters

A booster is a charge containing a high-brisance or shattering explosive used to initiate a main charge explosive that is incapable of being initiated with only a detonator. Within the initiation sequence, the booster is initiated with a detonator, which, in turn, initiates a larger quantity of explosive – the main charge.

Since secondary high explosive requires an explosive shock to achieve detonation, this shock is accomplished through a detonator or blasting cap. Blasting caps are electric or non-electric and generally consist of a metallic sleeve containing a small amount of primary and secondary high explosives. Electric blasting caps are detonators designed to function when

an electronic source, such as batteries, is present. Electric impulses from these sources are transmitted through leg wires, which ignite the primary charge. These caps will function with the application of a very small electrical charge. In addition, they come in a wide range of time delays, from instantaneous to a delay of several seconds.

Non-electric blasting caps are small metal cylinders, closed at one end and containing a small amount of primary high explosives as an initiating charge and secondary high explosives as a base charge. They are designed to function when a small spark or flame is introduced to the base charge, usually from a burning length of safety fuse. This fuse transmits a flame at a particular rate (determined by the manufacturer) to provide a time delay prior to detonation.³¹

Commercial electronic detonators were predominately recovered in Somalia and Kenya (as explained above).

4.4 Switches

For an explosion to occur or for the device to initiate, it needs to be triggered. Explosive devices are commonly detonated through:³²

1. Time delay through electronic or mechanical timers, a fuse, or through the use of chemicals. Timers include wristwatches, alarm clocks, and kitchen timers.
2. Action switches that require an individual to push or apply pressure to a switch or through a pull action. These include a device that is booby-trapped to detonate when lifted, opened, etc., but also include a button pushed by a suicide bomber. In other words, these can be victim-activated or perpetrator- or suicide bomber-activated.
3. Electrical or radio signals, for example, an electric door opener, the transmitter and receiver used in remote-controlled toys, and mobile phones.

29 United Nations Security Council. Report concerning resolution 751 (1992) Somalia addressed to the President of the Security Council. S/2019/858, 1 November 2019.

30 Discussion with a bomb disposal expert on 21 July 2023.

31 Anneli Botha, Willem Els and Johan Pietersen. (2012). Module 6: Explosives and Weapons of Mass Destruction. In Anneli Botha (ed). EAPCCO Counter-Terrorism Training Manual. Institute for Security Studies.

32 Geneva International Centre for Humanitarian Demining. "IED Clearance Good Practice Guide."

4. Combination or multi-switch incorporates multiple types of firing switches (e.g. a victim-operated IED armed by a radio control that enables specific targeting and mitigates against jamming). A single IED can also have multiple switches of the same type, for example, two or more different pressure plates.

Al-Shabaab uses various remote-controlled switches – most notably mobile telephones, motorcycle alarms, etc. – as a matter of fact, any remote control consisting of a transmitter and receiver can be used to detonate an IED. These items are available in everyday life and will seldom raise alarm when purchased or obtained.

According to investigators in Kenya, the most notable change in the detonation of RCIEDs is changing from command wire initiation to remote means of initiation. In other words, the attacker arms the device by switching honest switch from 'off' to 'on' from approximately three kilometers waiting for their target. When a vehicle approaches, it creates a vibration that triggers the device buried on the road. These honest switches are overly sensitive, delicate, and dangerous since the smallest vibration causes the device to function. In addition to the honest switch, attackers also continue to use motorcycle alarm systems, as described in Figure 15. A growing concern in using this method is that at the point of detonation, vehicles other than vehicles belonging to security forces may be targeted. Similarly, the use of pressure plates equally adds to the indiscriminate nature of these types of switches.

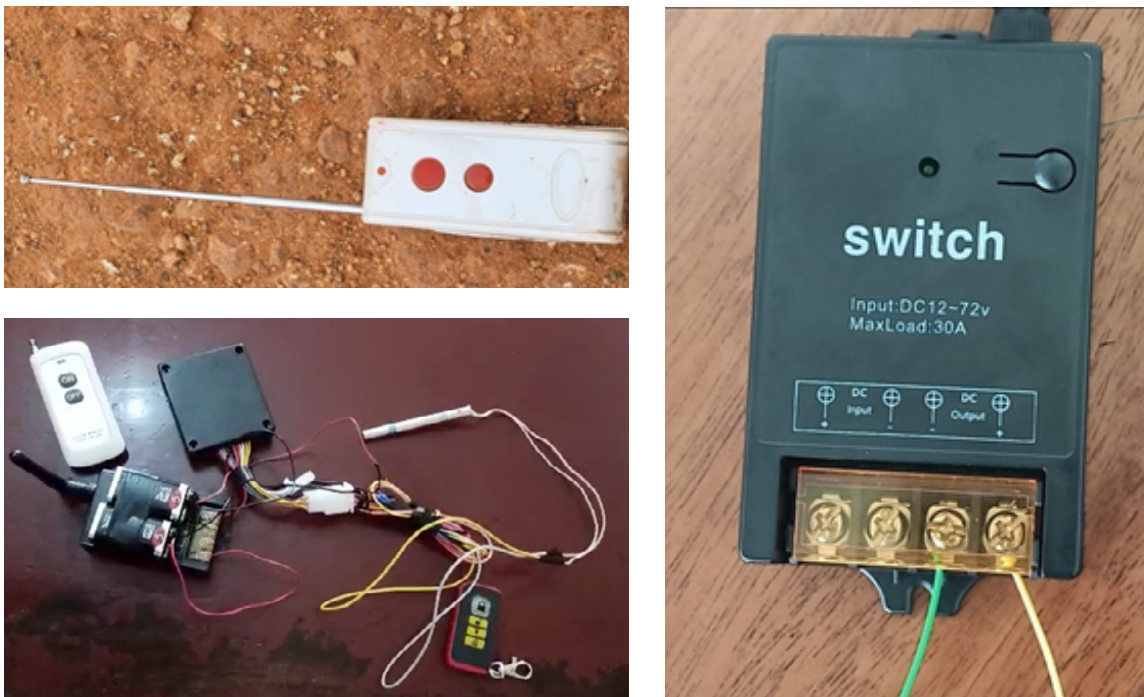


Figure 15: Honest switch transmitter, receiver and the completed circuit with motorcycle alarm

4.5 Shrapnel

While every component of the IED becomes shrapnel upon detonation, some devices included additional shrapnel in the form of ball bearings and nails. For example, the laptop bomb that failed to detonate at the Makkah Al-Mukarama hotel in Mogadishu, as presented in Figure 16. Comparatively, devices used by the ADF-ISCAP contain more shrapnel than those used in Kenya and Somalia.



Figure 16: Laptop IED found in Mogadishu

A person is working on a green printed circuit board (PCB) in a laboratory or workshop. The person's hands are visible, and they are using a pair of tweezers to place or adjust components on the board. In the background, there is a white electronic device with various knobs and buttons, and a digital display showing '0:00'. The scene is dimly lit, with a blue tint. The overall atmosphere is one of focused technical work.

05

KNOWN “ENGINEERS”³³ IN EASTERN AFRICA

³³ Reference to Yahya Abd-al-Latif Ayyash, the mastermind bombmaker of Hamas before his death in 1996. Having a degree in electrical engineering Ayyash was referred to as The Engineer. The moniker has since been used for bomb-makers generally.

The bombmaker, whether intentionally or unintentionally, leaves valuable clues to their identity by the manner their devices are constructed. Learning from others while sharing their experiences through training manuals as presented by the “Explosives Course” by Abu Khabbab al Misri or “The Mujahideen Explosives Handbook” by Abdel Aziz or attending courses or working under more experienced bomb builders, knowledge is being passed along.

Before his death in 2017, Ibrahim al-Asiri (originally from Saudi Arabia) was one of the most ingenious bomb-builders. Although it is unclear if al-Asiri personally constructed the Daallo Airlines Flight 159 device or if he only trained and shared his experience with al-Shabaab members, the innovative use of laptops reminded analysts of other attacks al-Asiri was implicated in, including:

- **27 August 2009:** A concealed device containing about 100g of PETN inside the target’s body using a detonator with a chemical fuse in an attempt to assassinate Saudi Arabia’s security chief, Prince Mohammed Bin Nayef Bin Abdul Aziz Al Saud.³⁴
- **25 December 2009:** Umar Farouk Abdulmutallab (the underwear bomber), a Nigerian national, attempted to blow up a US passenger plane as it flew into Detroit. The device contained in his underwear also contained PETN and had a chemical fuse.³⁵

- **3 September 2010:** according to AQAP, an explosive device detonated on a UPS cargo plane after take-off from Dubai International Airport. The second device was discovered in Heathrow following a tipoff.³⁶

Al-Asiri realized that the toner is carbon-based and that the carbon’s molecular number is close to that of pentaerythritol tetranitrate (PETN).³⁷ With this in mind, the toner cartridge was emptied and filled with 340 grams of PETN. A short detonator was used, and the wires from the circuit were connected to the toner in a way that would not raise any suspicions if inspected. When the toner is inside the printer, a metal plate on the toner would touch the circuit wire, but when inspected, the toner could be pulled out and would look normal without any wires sticking out.³⁸

Jehad Serwan Mostafa, also known as Ahmed Gurey, Anwar al-Amriki, and Emir Anwa Mostafa is currently on the FBI’s Most Wanted list after leaving the US in 2005 for Yemen and then Somalia, where he joined al-Shabaab. Mostafa is described as “a leader in Al-Shabaab’s explosives department”, implicated in “improving the effectiveness of improvised explosive devices” and categorized as “highest-ranking United States citizen fighting overseas for a terrorist organization”³⁹ On 22 May 2022, Aweys Mayow Eelay, who was in charge of making explosives and roadside bombs for Al-Shabaab, was arrested in Marka. According to reports, Aweys was busy planting landmines in Marka Ade at the time.⁴⁰

34 Abdullah Al Oraifij. “Fourth assassination attempt against Prince foiled”. Saudi Gazette, 16 August 2010. <http://www.saudigazette.com.sa/index.cfm?method=home.regcon&contentID=2010081681128>

35 BBC News. “Profile: Umar Farouk Abdulmutallab.” 11 October 2011. <https://www.bbc.com/news/world-us-canada-11545509>

36 Al-Malahem Media Production. ‘The Objectives of Operation Hemorrhage’ Inspire, Issue 3 (2010): 7

37 Pentaerythritol tetranitrate (PETN) is the main component in many commercial and military explosives. PETN is attractive for terrorist use, as it is one of the most powerful explosives available and is sensitive enough for blasting caps and detonation cords, but very stable and relatively safe to use. Howa, John D., Michael J. Lott, and James R. Ehleringer. “Observations and sources of carbon and nitrogen isotope ratio variation of pentaerythritol tetranitrate (PETN).” *Forensic Science International* 244 (2014): 152-157.

38 Al-Malahem Media, ‘Technical Details: Irkimah al-Muhajir Explosives Department’ Inspire, Issue 3 (2010): 13

39 Hollie McKay. Who is the FBI’s most wanted American terrorist? Meet Jehad Serwan Mostafa. Fox News, 9 January 2020. <https://www.foxnews.com/world/who-is-the-fbis-most-wanted-american-terrorist-meet-jehad-serwan-mostafa>

40 Somaliland. Somalia security forces arrested Al Shabaab Mastermind in Marka town, recovers explosives. 22 May 2022. <https://www.somaliland.com/news/featured-news/somalia-security-forces-arrested-al-shabaab-mastermind-in-marka-town-recovers-explosives/>

In DRC, instructions for the construction of improvised explosive devices were sent via Telegram by Ugandan ADF mastermind and bombmaker Meddie Nkalubo, alias Punisher from Madina Camp, in the DRC.⁴¹ Following the attacks in Uganda, police investigators uncovered the bomb-making lab and arrested Muhammad Kayemba, also known as Ronald Kayemba and MK in Kigagga zone, Salaama in Makindye division, a suburb in Kampala with a bag of falcon pellets, jerricans of hydrogen peroxide solution, sulfuric acid, lead nitrate and an AK47 rifle and two locally made pistols. Furthermore, bags of ammonium nitrate disguised as bags of sugar were also recovered, as well as a red detonating cord comprising of 10 grams/meter PETN (similar to that used in the Mombasa plot).⁴²

⁴¹ United Nations Security Council. "Twenty-ninth report of the Analytical Support and Sanctions Monitoring Team submitted pursuant to resolution 2610 (2021) concerning ISIL (Da'esh), Al-Qaida and associated individuals and entities." S2022/83, 3 February 2022.

⁴² Kenneth Kazibwe. Uganda: How Suspected ADF Agent Operated Explosive Making Lab, Assortment of Weapons in Kampala. Nile Post, 13 January 2023. <https://allafrica.com/stories/202301130003.html>



06

**INTERNATIONAL AND
NATIONAL LEGAL
FRAMEWORKS**

The United Nations, through international legal instruments (conventions and protocols), the Security Council resolutions, and the General Assembly resolutions, has taken several steps to address the provision and use of explosives by terrorists. For example, the Convention on Certain Conventional Weapons (CCW) (1980); the Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices as amended on 3 May 1996 (Protocol II to the 1980 CCW Convention as amended on 3 May 1996); Protocol on Explosive Remnants of War (Protocol V); and the International Convention for the Suppression of Terrorist Bombings (1997). Furthermore, and of equal importance, the General Assembly adopted the Resolution A/RES/71/72 on countering the threat posed by improvised explosive devices (unlike conventions and protocols, however, UN General Assembly resolutions are not legally binding).

UN Security Council Resolution 2370 (2017) calls on Member States to prevent terrorist organizations from obtaining, handling, storing, using, or seeking access to all types of explosives, whether military, civilian or improvised explosives, as well as to raw materials and components that can be used to manufacture IEDs or unconventional weapons, including (but not limited to) chemical components, detonators, detonating cord, or poisons. It further requires Member States to promote enhanced vigilance by their nationals, persons, and entities subject to their jurisdiction that are involved in the production, sale, supply, purchase, transfer, and storage of such materials. Lastly, it establishes that Member States shall share good practices and information, establish partnerships, and develop national strategies and capabilities to counter IEDs.

	CONVENTION ON CERTAIN CONVENTIONAL WEAPONS	PROTOCOL ON PROHIBITIONS OR RESTRICTIONS ON THE USE OF MINES, BOOBY-TRAPS AND OTHER DEVICES	PROTOCOL ON EXPLOSIVE REMNANTS OF WAR	INTERNATIONAL CONVENTION FOR THE SUPPRESSION OF TERRORIST BOMBINGS (1997)
Burundi	13 Jul 2012	13 Jul 2012	13 Jul 2012	4 Mar 1998
Comoros	-	-	-	25 Sep 2003
DRC	-	-	-	27 Jun 2008
Djibouti	29 Jul 1996	-	-	1 Jun 2004
Eritrea	-	-	-	-
Ethiopia	-	-	-	16 Apr 2003
Kenya	-	-	-	16 Nov 2001
Rwanda	-	-	-	13 May 2002
Seychelles	8 Jun 2000	-	-	22 Aug 2003
Somalia	-	-	-	-
South Sudan	-	-	-	-
Sudan	10 Apr 1981 (signed)	-	-	8 Sep 2000
Tanzania	-	-	-	22 Jan 2003
Uganda	14 Nov 1995	-	-	5 Nov 2003

Table 1: Status of UN instruments against IED in Eastern Africa

While concerted steps are being taken by Member States to prevent and counter terrorism, these are often not supported fully by introducing and updating measures monitoring and controlling access to explosives and precursor chemicals that can be used in the manufacturing of IEDs. In other words, while Member States become party to international instruments against terrorism followed through by introducing legislation criminalizing acts of terrorism, including access and use of explosives in terrorist bombings, control mechanisms to prevent terrorist access to these components are lacking.

On the national level, legislation regulating monitoring and controlling access to explosives and precursor chemicals and the unauthorized manufacturing of explosives exists, but the punishment in contravention of these provisions is limited and does not reflect the seriousness of these crimes. For example, Kenya's Explosive Act CAP 115, revised in 2012, under Article 5 "Restriction of manufacture of authorized explosives" stipulates that "No person shall manufacture any authorized explosive in any place other than an explosives factory. Any person who contravenes this section shall be guilty of an offence and liable to a fine not exceeding five thousand shillings or, in default of payment, to imprisonment for a period not exceeding two years..." Five thousand shillings is approximately USD 35. Article 9 criminalizes the selling and possession of blasting materials without a permit. However, should a person be found guilty of the offense he/she "liable to a fine not exceeding three thousand shillings [USD 21] or, in default of payment, to imprisonment for a term not exceeding one year."

The Explosives Act Chapter 298 in Uganda was introduced on 9 September 1936 (revised in 2000) and similar to Kenya, while the Act criminalizes the unauthorized possession of unauthorized explosives, contravening these provisions leads to "a fine not exceeding two thousand shillings [less than USD 1] or in default of payment to imprisonment for a period not exceeding six months" while the unauthorized

storage of explosives holds a fine of "one thousand shillings or in default of payment to imprisonment for a period not exceeding three months".

Tanzania, however, serves as an example with more severe penalties for being in possession of explosives. Article 3 of its Explosives Act provides that (1) "no person shall import, manufacture, possess, acquire or dispose of, sell, convey, deal or traffic in any explosive substance unless that substance has been approved by the Commissioner for use in Mainland Tanzania. (2) Any person who contravenes or fails to comply with the provisions of subsection (1) commits an offence and is liable upon conviction to a fine of not less than five million shillings [USD 2050] or to imprisonment for a term of not less than three years but not exceeding seven years or to both such fine and imprisonment."

Considering the regional impact of instability in Somalia, it is also important to mention the UN Security Council Resolution 2498 (2019). Under the regime established by UNSCR 2398, the following IED components listed in Annex C are being monitored for import into Somalia, including:⁴³

Explosive materials:

- Ammonium Nitrate Fuel Oil (ANFO)
- Nitroglycol
- Pentaerythritol tetranitrate (PETN)
- Picryl chloride
- 2,4,6-Trinitrotoluene (TNT).

Explosives precursors:

- Ammonium nitrate
- Potassium nitrate
- Sodium chlorate
- Nitric acid
- Sulphuric acid.

Explosive-related goods:

Equipment and devices specially designed to initiate explosives by electrical or non-electrical means (e.g. firing sets, detonators, igniters, detonating chord).

⁴³ United Nations Security Council, Resolution 2498 (2019), 15 November 2019. [chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://documents-dds-ny.un.org/doc/UNDOC/GEN/N19/369/61/PDF/N1936961.pdf?OpenElement](https://documents-dds-ny.un.org/doc/UNDOC/GEN/N19/369/61/PDF/N1936961.pdf?OpenElement)



07

RECOMMENDATIONS

1**Become party to international instruments and harmonize legislation controlling access to explosives and precursor chemicals.**

Legislators urgently need to update provisions in existing legislation to reflect changing times.

2**Increase the sharing of information on the production, import, and export of precursor chemicals.**

While the UN Security Council Resolution 2498 (2019) requires the monitoring of a list of IED components into Somalia, monitoring the production, import and export of these and other components and chemicals that can be used in the manufacturing of IEDs should be encouraged. Introducing these types of measures to only one country will have a limited impact considering the transnational reach of criminal and terrorist groups. It is equally important to note that the current list is limited since it reflected realities in Somalia at the time. The role of INTERPOL's Chemical Anti-Smuggling Enforcement and Chemical Risk Identification and Mitigation programmes and the Programme Global Shield of the World Customs Organisation should be strengthened in the region.

3**Increase domestic control mechanisms on components used in the manufacturing of IEDs.**

Starting with requiring businesses to maintain transaction records of dual-use chemical precursors and sharing information with government monitoring agencies.

4**Educate the public**

While the monitoring of chemicals and explosives may be easier, recording transactions for remote-control devices such as garage openers and car and motorcycle security alarms that are being purchased and used by terrorists as initiators for IEDs are more challenging. Not to mention transactions involving motorcycle batteries or mobile phones. Partnering with businesses to report suspicious transactions and customers will be more effective than requiring business owners to keep a record of transactions. Partnering, however, requires the existence of a relationship based on trust and the sharing of information. While the sharing of information from the business owner to authorities may be obvious, it is equally important for authorities to share information with the former. Starting with what to be on the lookout for, the latest trends, to the sharing of contact information, etc. The same also applies to members of the public.

5**Define and respect mandates**

Legislation in Member States through the respective Explosive Acts provides for the appointment of an Inspector of Explosives responsible for the control of explosives. Furthermore, there also exists confusion on the role and responsibility (mandate) of Explosive Ordnance Disposal (EOD) units in the military and Bomb Disposal Units (BDU) in the police, leaving countries to have an EOD in the military but not BDUs. The BDUs are, however, best suited to lead post-blast investigations in the aftermath of a terrorist attack. Consequently, the links between the respective agencies are not always well-defined.

6**Increase the sharing of information and lessons learned**

Bomb disposal is a highly specialized field that requires special training that never stops. Training of more bomb disposal technicians to correspond to the growing threat of IEDs in the region should be on the agenda. It is, however, not only training more bomb disposal technicians but also keeping these officers up to date with the latest trends and techniques used by terrorists in the region and beyond that will save lives, starting with saving the lives of these officers.

7**Strengthening inter-institutional collaboration for effective border management.**

There is a need to strengthen collaboration between law enforcement, criminal justice, customs, immigration, and military personnel operating in close proximity to international borders or at border checkpoints. These institutions would benefit from specialized training on interacting with border communities when investigating terrorism-related incidents, as well as in establishing trust and rapport with communities through human rights-compliant policing, which can offer invaluable insights

into the suspicious movement of goods and people across the border. Stronger inter-institutional collaboration and better community relations can assist in stemming the cross-border flow of dual-use items and materials that can be used to manufacture IEDs.

8**Strengthen the role of the EAPCCO CTCoE to provide specialized training**

Enhancing the technical expertise of law enforcement and other relevant agencies will allow EAPCCO member countries to respond to the changing IED-related threats. The EAPCCO member countries should thus continue supporting the EAPCCO CTCoE to organize joint training courses for specialized police units and other relevant institutions on countering the threat posed by IEDs by facilitating information and good practice exchange and knowledge transfer within Eastern Africa by engaging leading counter-IED experts.

