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THE IMPROVISED EXPLOSIVE DEVICES UNSURGENT ARTILLERY IN MODERN WARFARES

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ABSTRACT

We have no greater responsibility than providing the safety and security for our citizens, allies, and partners and develop the economic environment that promotes opportunity and prosperity. The use of improvised explosive devices (IEDs) threatens these interests by killing, injuring, and intimidating citizens and political leaders around the world, inflicting damage on security forces on the battlefield, and disrupting transportation and the flow of commerce. The terrorists and criminals responsible for these attacks are resilient, technologically adept and adaptable. They employ the most recent and successful tactics, technique, and procedures gained from experience in Iraq, Afghanistan and around the world. The strategic environment, even after the Cold War, is dangerous and ambiguous. Increased instability in the world has resulted in regional conflicts, civil wars, insurgences, terrorist attacks, drug trafficking, and a variety of attempts of intimidation. These challenges arise even during times of relative peace. With this threat, IEDs will reduce the military commander's combat power, national politics, economic and informational power. Because of this threat, military commanders and leaders responsible for security at all levels must incorporate Counter IED support into their planning process. This will ensure to be able to respond to these worldwide strategic challenges across a full range of operations as part of a joint team.

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INTRODUCTION

In the past years when improvised explosive devices have become a symbol of asymmetric warfare in the modern armed conflicts, little had changed strategy and progress in the fight against the this threats (C-IED-Counter Improve Explosive devices). Security forces are always in search of better vehicles and equipment that will destroy this device, home appliances made by some of our civilization and technological achievements. Consequently, the strategy of fight against improvised explosive devices are primarily focused on the development of new ways to mitigate the effects of the explosion, instead of trying to stop the process of planning and development of the device. Billions of finance, dollars and euros have been spent in the name of saving lives, but the real cause of the problem and its origins remain largely ignored,

leaving the key role in the fight against improvised explosive devices at the theater of war aimed at insurgents who realize these attacks (IED Handbook Afghanistan, 2012). The wide range of murderous improvised explosive devices gives the possibility of terrorist groups to use in achieving their goals in different ways. They represent themselves with popular modern weapons and means of warfare that terrorists are trained in its training centers. Their use allows to inflict such damage which set the intended purpose and applied not only human and material damage but also political (Jeffrey Morghantaller, Targeting: Social Network Analysis in Counter IED Operations, Introduction, by, 28.11.2011). IED's (Improvise Explosive Device) are the most important part of the whole system of terrorist activities used in the contemporary armed conflicts. They are reality on every continent of the globe where we have a terrorist action. These devices have makeshift or improvise (Makeshift improvizore, latin- made on fast hand) appearance, destructive power and ultimate effect on media propaganda. They are designed to kill or destroy the planned objective, which represent great

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importance for the functioning of the political and social system and have not appropriate ideas according to their ideology. The materials required for the preparation of the device are stolen, bought on the black market or otherwise appropriated or stolen from a military organization or commercial location. Sometimes made from agricultural reagents (fertilizers) and other readily available explosive materials. Basically these devices are made from: explosives, lighter, detonator, wires and conductors, shrapnel, pieces of metal frame (container) which unites in one (IED Smart Book, Afghanistan, 2011). Terrorist groups, organizations, alliances and rebel humans who act independently, constantly develop sophisticated new methods in response to the defense and countermeasures taken by their opponents. New IED's arising from the intelligence capabilities of the human mind made more effective, upgraded and easy for transport. Therefore, the race for countermeasures against these threats is difficult and requires a lot of study and analysis that should include more elements of society.

Historical development of IED'S

The appearance of improvised explosive devices in the world history was recorded with the phenomenon of gunpowder in China in the VIII century, who was initially used as a means of lighting in various ceremonies and creating luminous effects. Gunpowder was located in Ancient China and widely used in military operations as a means of intimidation and creating fire effects. However, the discovery of explosives, especially dynamite by the Swedish scientist Alfred Bernhard Nobel (*Swedish, born 21 October 1833 – die 10 December 1896, was a chemist, engineer, innovator, and armaments manufacturer*) led to a huge range of use for various purposes. For the first time, with the name improvised explosive devices used in battles are mentioned by, (*Ernst Jünger (29 March 1895 – 17 February 1998)*) was a German writer and philosopher. In addition to his political essays, novels and diaries, he is well known for *Storm of Steel*, an account of his experience during World War I, in his literature work "Storm of Steel". (*in German: In Stahlgewittern, ISBN 0-86527-310-3*) is the memoir of German officer Ernst Jünger's experiences on the Western Front during the First World War.

Jünger tells of his experience of the First World War which describes in detail the use of explosive traps, as he called them, while the German army retreating in the area of river Somme. In the IInd World War, IED's are mentioned by military historians, but as a means massively used to prevent convoys of the military forces of Nazi Germany. A special place in that part of history take Belarusian partisans. (*Archive of Belarus, <http://archives.gov.by>, Belarusian Resistance*) They use the IED's on the rail convoys where German Army moved in the direction of the main fronts in the Soviet Union (1922 – 1991). The best tactic of applying and using the principle of surprise, Belarusian partisans reduced logistical support of German troops advancing towards Moscow and Leningrad in the Soviet Union. Their main use, began with the rapid technological development of military industry, the developing of different types of explosives, fuses, different kinds of wires and means to unite in one part and increase the ability of innovation and using people for making different types of improvised explosive devices.

Korean and Vietnam War represent inception of modern use of the IED's, set by the supporters of Kim Il Sung in Korea and communist guerrillas in Vietnam against the US Army and its allies. Most progress of their use was noticed during the campaign of the UK Army in Northern Ireland in the period from 1969 to 1997 year. Members of the Irish Republican Army (IRA) (*was an Irish republican revolutionary military organization*), use of these devices represents their main weapon for causing losses of manpower and material technical resources. IRA members often use home-made explosives and handmade lighters or military explosives stolen from the warehouses of the Army of the United Kingdom or smuggled from countries campaign against the United Kingdom in Northern Ireland. Their use leads to great expansion of the study of the IED's, creating tactics and techniques for finding and destroying them. Today in modern warfare conditions existing large conventional armies against this type of threat, pay great attention and adapt to them.

The culmination of the use of these deadly devices grown through the years, not only as a weapon for destroying military targets, but as a means to achieve certain goals through achieving media effect. The real effect came with the opening of the fronts in Chechnya, (*Chechnya (Russian: Чеченская Республика) autonomy republic in Russian Federation*) Iraq and Afghanistan. Their use focused not only on conventional military forces, but more often to the civilians, government and non-governmental organizations and religious communities. Their use directed towards conventional military forces, but also by civilians and infrastructure, contribute to achieve better effects affecting the population and the political establishment. The example of the 1995 Oklahoma City bombing (The Oklahoma City bombing was a domestic terrorist bomb attack on the Alfred P. Murrah Federal Building in downtown Oklahoma City on April 19, 1995) when a homemade device of fertilizer were killed 168 people. Boston Marathon (*The Boston Marathon bombings and subsequent related shootings were a series of attacks and incidents which began on April 15, 2013*) when Chechen students use Express pot with explosives with total losses of three people and injured 264. Show that these devices are becoming more present out of places where are performed battle operations. States and their institutions how are main leaders in the fight against this threat are the main target.

From a historical overview of the use of the IED's we will also mention their use in Macedonia through her history before independence as the Republic of Macedonia as an independent state. During the Ottoman Empire by Macedonian revolutionaries were used shell against the Ottoman army and their infrastructure. The modern pioneers of the revolutionary struggle how used the explosive devices is recorded by The Thessaloniki bombers from April 28 to May 1, 1903 in Thessaloniki. Macedonian partisans in WWII were using IED's in preventing railway convoys of German and Bulgarian occupying army. Railway convoys were stopped to make normal transport of logistical supply to Greece and Bulgaria. Positive examples for used IED's are part of the history that is usual until the end of WWII and there are no example for the period since 1991, when Macedonia became independent and sovereign state. The attempt of assassination (*Newspaper: Nova Makedonija, No.2119, 25.02.2010*) of the former

President Mr. Kiro Gligorov on the 03.10.1995, which was conducted through the device assembled from a range in the motor vehicle Citroen Ami - Spachek. The device was designed to kill the President and after that to create a general panic, low coordination of state authorities and destabilizing the political and social system.



Figure 1. Attempt for assassin of The President of Republic of Macedonia, Mister Kiro Gligorov

The use in the past in conflict areas and outside of them contribute security forces and armies who fight in those regions and the countries who are affected by them have neediness to increase the level of caution and training in the fight against the diveces (C-IED). States, political and military alliances formed institutions of different levels that study, published various documents and provide guidelines for dealing with them. Especially in this we gone highlight the US Agency of C-IED (*Joint Improvised Explosive Device Defeat Organization - JIEDDO*) and NATO Centre for C-IED (*Counter Improvised Explosive Devices Centre of Excellence - C-IED COE*).

Tactics and Techniques Used in Setting Improvised Explosive Devices

Tactical Characteristics

Many years of presence of the Army of The republic of Macedonia in Iraq and Afghanistan, led to the conclusion that the biggest threat comes from these murderous divices. Many series of studies and analyzes in coperation with our coalition partners were conduct in order to improve efficiency in the action in the fight against improvised explosive devices. The way of planning, coordinate and implementing the use of IED's is studied by the tactical aspect. For bigger fundamental approach of tactics of examination of the methods of identification, location, setting, motives, and their role in society, etymology and location we have to make systematic analyzes. To begin an exploration and production data for the whole genesis of existence we must start by answering the following questions (*Weapons Technical Intelligence (WTI), Improvised Explosive Device (IED) Lexicon, 4th Edition, October 2012, US Defense Intelligence Agency, page 13*):

- Why here?
- Why now?
- Why in this way?

The methods and measures taken, and arising from the above questions are as follows:

- Method of identification;
- Method of installation;
- A method of locating;
- Destruction of the sensor (electronic obstructing);
- The role of the shell;
- Studying geography (space, ground, ...)
- Conditions that affect the environment;
- The presence of civilians and army during the incident.

The questionnaire used in the detailed analysis and a detailed explanation of the above tactics and used by staff in security authorities concerned and involved in the fight against the shell (*Counter IED*) is the following (*IED briefing, JIEDO USA, November 2012, Kabul, Afghanistan*).

- What time the bomb will explode?
- Where is the bomb located?
- What type of bomb is?
- How will we get rid of the bomb?
- What is your good name?
- Why have you kept the bomb?
- Where are you speaking from?

The possibility of setting up IED's is huge, as eventual theater of war. The place where the warfare action is conduct is a center where they will be installed, and it can be very small to a whole country. Not only places where we have military actions, but also cities, towns and facilities who are target of terrorist groups and organizations. Specific examples where are they set out off the global military regions as an example was the train bomb in Madrid in 2004 and the bomb in the city bus in London 2005. The difference between the tactics used in Iraq, Avganistan, Yemen which are still under the military situation and attacks with the IED's in the above mentioned locations are very difficult to diagnose. In all cases the tactics that were used by the terrorists are very similar to the deviations in relation to the environment and conditions that we had at that moment. With better analizing and studing, as well as using the methods for the study and analysis can be found key differences that will continue to be a source of providing an successful C-IED operations.

Social and economic differences in the standard of states creates different conditions for apply tactics of hostile attacks. For example, Iraq and Afghanistan, two countries that since 2002 have presence of the most modern armies and coalitions in the world who actively participate in the suppression of terrorism. Iraq during the Saddam Hussein (Saddam Hussein Abd al-Majid al-Tikriti (Arabic: *صدام حسين عبد المجيد التكريتي* *Ṣaddām Ḥusayn 'Abd al-Mağīd al-Tikrītī*; 28 April 1937 – 30 December 2006, Iraqi President) during and after have great material wealth associated with reserves of oil. The population that lives in Iraq, anti-government organizations and subversive organizations have opportunities for greater resources. Another difference is wealthy Iraqi infrastructure. Unlike Afghanistan, Iraq had developed infrastructure. Paved roads, highways, boulevards and other modern facilities with modern infrastructure and modern design. Infrastructure itself, its homogeneity and uniformity, act positively in the possibility of locating the IED's because can be unlike paralel

to the background. Rich infrastructure is forcing planners and developers to use modern methods of installing and activating the device. The last key difference is the way of operating the network (IED network) which is planning, preparing and activate. In the Islamic Republic of Afghanistan, the networks involved in the realization of implementation is simpler. Compiled from small groups and mostly directed at ISAF (*ISAF– International Security and Assistance Forces*) and Afghan government forces. Unlike Afghanistan, In Iraq despite that they are been concentrated to the forces of Iraqi Freedom (*Iraqi Freedom- Mission started 2003*), as they were present in the region, they acted to Iraqi government forces, but also to the local population, its religious buildings, mostly to the believers from Shia muslim faith. Defining the differences that we mentioned, we have to take into account that in the background of planning attacks, they are nearly same with the same sign and philosophy. The differences will be small and will differ only in terms of purpose, adapted to the environment.

From 2003 until today, based on many accumulated data from the US C-IED Agency (JIEDDO), their use in Iraq and Afghanistan are moving almost equal, with small fluctuations depending on the time of year (winter and summer). For example, in winter in Afghanistan use is significantly lower compared to Iraq. Attack in that period tactically is very different from Iraq. The reason is modly and frozen region, extreme low temperatures and low activity of the population, which, unlike in Iraq in reverse connotation of the said above. Although Iraq represents a better basis for planning and carrying out the attacks, the presence of military forces, Iraqi police and the growing movement of civilian transport convoys limited their use there. Many spreadsheets and illustrations are displayed to indicate the presence of shell in crisis regions. You can easily see that the world map is more filled with the notes of IED's attacks. The most frequently used tactics that are used in carrying out the attacks with IED's are the following:

- IED on roads. Can be set linear to the roadside, thrown from a bridge directly to the target buried in the road and detonated remotely or by wire.
- Shell placed on suicide bombers, placed on a person, male or female, who previously trained and mentally prepared to activate the device. You can wear it in a bag, briefcase, backpack or vest placed on his body. This technique represents the most dangerous due to the human factor which directly manages it.
- Shell set in the car. It can be placed where the vehicle can be set. Can be operated remotely if the vehicle is empty or a suicide bomber who can manage and activate.

Tactics that are mentioned mostly are used, but not unique. There are a huge number and depends heavily on the human factor how was the maker. For example, setting the shell of animals in books and letters setting the bike (a special example of Afghanistan), the agricultural products market, small aircraft operated remotely and many others.

Techniques used when using IED

Technical part strictly examines the technical characteristics. The main parts, composition, strength of explosives, initiating

systems and other technical characteristics. Their function and connectivity contribute to the functioning of the same, and techniques which are used in the development and use are mainly dependent on the major components of that shell is made. In principle the composition is as follows:

- Source of electricity;
- Safety stopper;
- Starter;
- Initiator;
- Main charging.

The combination of the components in the preparation of the shell, giving a huge variety of techniques of making and method of placement. The difference of technique depends mostly from the expertise of the contributors and available materials for production. Not always, more advanced technology developed enables them to be used without any slowdown. For example, the preparation of the shell which is activated by a starter which is initiated by remote control, often leading to bad results because the parts are not interacted. Organizations how are developing networks for planning, organization, recruitment and use of the shell, have a feedback mechanism to learn from their mistakes. Popularly called "Lessons Learned" methodology used and work in modern Western armies but also in terrorist organizations. Most acceptable and simplest techniques applied in setting up and activating the shell in the world today are the following:

- Merge (Coupling)

Merge or popularly called coupling technique of connecting an explosive device or explosive device with other explosives usually with detonating cord. When the first device is activated to detonate explosive devices in range. This technique is commonly used for the destruction of assets, which are primary target is to identify and destroy the IED's.

- Rolling (Rolling)

The technique of rolling technique is actually a deception. The goal is to run deep in the zone setting of many devices. Usually the first shell is not primary, while some of others can be the trigger. This technique is often used in Iraq, where in to the zone was let to enter huge convoys and an in large proportion were destroyed.

- Enhancing (Boosting)

Buried mines, grenades or any explosives buried in the ground, usually on one another. Trigger which activates is often placed on the bottom explosive device which is in the deepest set and detection is very difficult. This technique achieves high output of a particular purpose and effects are great in the destruction of material resources and manpower. This technique is used during the conflict in Republic of Macedonia in 2001 (*White Paper on Defense of Republic of Macedonia 2002*). Reinforcement technique, commonly used in Afghanistan and the regions where the road infrastructure is poor. Mood roads have are good chance of setting for a short time without danger. The IED can be activated by the wire or radio controlled activation.

- *Combination of all three methods (Combination)*

Technique that requires great innovative capabilities. Rarely applied because of its complexity. Examples of this technique are not many. Usual slowdown is their complexity, because of evasion of one of the techniques in combination used. Analyzing the above techniques, we come to the conclusion that the simplicity of the preparation of the shell and the application of a simple technique is always the first choice for the planner and installer.

Conclusion

The activities of military units must continue to move forward. Soldiers are creatures of action, and the action is deeply rooted in military culture that includes preparations for how an organization must work to survive "first contact combat". There is no silver bullet to combat the threat of improvised explosive devices. We are in a constant race with them. We have to fight conventionally and sophisticated with the latest technology. But without the combination of the two of them we can hope for success. All governments and coalition partners should have a serious approach for this danger, the danger of the device and the network that created it. Improvised explosive devices are the artillery of the 21st century. In order to protect against the threats and consequences of the use of the shell we have to be constantly information updated. Implementation of the tactics and techniques have to correlate and to be improve at the battlefield. The links within military organizations and civilians are crucial. Coordination between the allies, exchanging of different views about stopping these threats and direct training of the security structures how are involved together in the missions. The need of training of the personnel for this problematic in the security forces pushed the establishment of specialized teams for training and upgrading levels of education about C-IED in NATO and their partners. Fight against improvised explosive devices is not only ours, of those who are in uniform and have a sign of a soldier, fighting against improvised explosive devices belong to everyone's who share common social values.

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