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Southeast Asia: A Potential Domain for Chemical Terrorism

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SOUTHEAST ASIA: A POTENTIAL DOMAIN FOR CHEMICAL TERRORISM

A Master's Thesis

Presented to

The Graduate College of

Missouri State University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science, Defense and Strategic Studies

By

Bryner R. Las

August 2019

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Defense and Strategic Studies

Missouri State University, August 2019

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ABSTRACT

This research examines the prospect of Southeast Asia as a future domain for chemical terrorism over the next five years by assessing the correlation between the intent and capability of potential actors to conduct chemical terrorism. Additionally, the effectiveness of prevention and mitigation measures of the concerned governments is also examined. Southeast Asian countries have experienced the persistent threat of Islamic violent extremism for decades. The exploitation of chemical weapons (CW) reflects new developments in the methods of committing terrorist acts. Al Qaeda and the Islamic State of Iraq and Syria (ISIS) have demonstrated the intent and capability of chemical terrorism. It is highly likely that Al Qaeda and ISIS will disseminate CW expertise to their affiliates in Southeast Asia that transform the region into a domain for chemical terrorism. The main thesis of this research argues that Southeast Asia will be a potential domain for chemical terrorism within the next five years because the gap that exists between the Islamic extremists' intent to use CW and acquiring a full capability of such weapons has been narrowed down. Lastly, it outlines the conclusion and policy recommendations to mitigate the risk of chemical terrorism in the region.

KEYWORDS: Southeast Asia, chemical weapons, Islamic violent extremism, chemical terrorism, proliferation

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In the interest of academic freedom and the principle of free speech, approval of this thesis indicates the format is acceptable and meets the academic criteria for the discipline as determined by the faculty that constitute the thesis committee. The content and views expressed in this thesis are those of the student-scholar and are not endorsed by Missouri State University, its Graduate College, or its employees.

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INTRODUCTION

The development of weapons of mass destruction (WMD) is considered as one of the greatest innovations in warfare. The 1948 United Nations (UN) Commission on Conventional Armaments (CCA) defined WMD as “atomic explosive weapons, radioactive material weapons, lethal chemical and biological weapons, and any weapon developed in the future which have characteristics comparable in destructive effect to those of the atomic bomb or other weapons mentioned above.” WMD is a game changer in any scale of conflicts which is why many state and non-state actors seek to possess this capability. Such weapons are crucial as evidenced by modern chemical warfare that ultimately disrupted trench warfare in the Western Front during World War I (WWI). Additionally, America’s nuclear warfare defeated the Japanese unorthodox warfare in the Pacific in World War II (WWII).

WMD, if used, as the name implies could destroy a large number of individuals or cause significant damage to property.¹ In recognizing these effects, the civilized world is determined to prohibit the development, production, transfer, retention, and use of such weapons. Nation-states are only allowed to develop programs associated with these weapons and their raw materials if they are for peaceful use. Several international treaties were established to affirm the willingness of the majority of nation-states to restrain from proliferation and use of WMD. Among the notable international treaties are the following: Treaty for Non-Proliferation of Nuclear Weapons (NPT), Chemical Weapons Convention (CWC), and Biological Weapons Convention (BWC). For the purpose of this research, the proliferation of WMD means the spread of nuclear,

¹ Carus, W. Seth. “Defining Weapons of Mass Destruction:” National Defense University Press, Occasional Paper, 8 (January 2012), p. 34.

chemical, biological, and/or radiological weapons, their technical know-how, and delivery systems.

Despite the global non-proliferation and arms-control regimes, there have been states that challenge the international norm by surreptitiously developing, proliferating, and even resorted to using WMD capabilities.² Concerns for these became even more disturbing when non-state actors acquired and used chemical weapons (CW) on a number of occasions. Aum Shinrikyo, a religious cult in Japan, first proved that modern CW can be developed by any determined non-state actor and could be used to support their cause.³ In the mid-1990's, Aum executed CW attacks using sarin nerve agent in Japan which resulted to death and injury of numerous victims. The details of these incidents will be discussed in chapter 2.

While Aum's chemical threat was promptly contained by Japan authorities, security analysts believe Aum's chemical incidents could be a precedent for terrorist organizations to resort to chemical terrorism. This paper defines chemical terrorism as a method of terrorism that uses the properties of toxic chemicals to inflict harm or fear toward the intended target.

The rise of Islamic violent extremist groups revitalized the threat of chemical terrorism globally. Al Qaeda and the Islamic State of Iraq and Syria (ISIS) both demonstrated the intent and capability of conducting chemical terrorism. ISIS employed CW using mostly chlorine and sulfur mustard in Syria and Iraq at least 76 times between 2004 and 2017.⁴ Al Qaeda, on the

² The Russian Federation, the Democratic People's Republic of Korea, and the Syrian Arab Republic were suspected involved in the recent cases of chemical weapons use. While the Islamic State of Iran and the Democratic People's Republic of Korea are secretly developing their respective nuclear weapons programs.

³ Office of the Under Secretary of Defence for Acquisition and Technologies. "The Militarily Critical Technology List Part II: Weapons of Mass Destruction Technologies." U.S. Department of Defense, February 1998, p. II-4-11.

⁴ Strack, Columb. "The Evolution of the Islamic State's Chemical Weapons Effort." CTC Sentinel 10, no. 9 (October 2017), pp. 19–20.

other hand, is believed to have equal determination in developing CW and the intent to employ them in the future.⁵ In 2003, an aborted chemical terrorism plot in the New York City subways demonstrated Al Qaeda's willingness to use chemical weapons.⁶ Given that these groups have acquired a CW capability, they could spread the technical expertise to their regional affiliate groups and inspired-individuals online to carry out more horrific attacks.

Southeast Asia is among the centers of international trade with a number of global transshipment ports established in the region.⁷ Southeast Asia is "an area of concern for WMDs proliferation and transit because of lack of political will to end the spread of WMDs, incomplete legal and regulatory frameworks, weak strategic trade controls, inadequate law enforcement and security capabilities, and emerging and re-emerging infectious diseases, and burgeoning bioscience capacity."⁸ Based on the findings of U.S. Bureau of Counterterrorism in 2017, Malaysia, the Philippines, and Singapore are the only nation-states in Southeast Asia with strategic trade control regulations and laws while other nation-states "struggle with control over dual-use items" that include raw materials for CW.⁹ Meanwhile, Southeast Asia is a region notorious for hospitable terrain for myriad terrorist and insurgent groups, given its history, geography, and demographics.¹⁰ Existing transnational terrorist organizations particularly Al Qaeda and ISIS, still pose threats on regional stability and United States interests in Southeast Asia.

⁵ Dunn, Lewis A. "Can Al Qaeda Be Deterred from Using Nuclear Weapons?" Center for the Study of Weapons of Mass Destruction| NDU Press, Occasional Paper 3, July 2005, p. 5.

⁶ Ibid., p.5.

⁷ Bureau of Counterterrorism. "Country Reports on Terrorism 2017." Washington, D.C: United States Department of State Publication, September 2018, p. 227.

⁸ Ibid., p. 227.

⁹ Ibid., p.7.

¹⁰ The Soufan Center. "IntelBrief: Southeast Asia's Vulnerability to Terrorism." Intelbrief, January 31, 2019. <https://thesoufancenter.org/intelbrief-southeast-asias-vulnerability-to-terrorism/>.

Several Southeast Asian Islamic violent extremist groups and numerous individuals pledged allegiance with Al Qaeda and/or ISIS and accepted their leadership and doctrines in conducting terrorist acts in the region. These alliances open the opportunity for violent extremists or terrorists to gain access to resources and knowledge on updated methods of conducting terrorism from other groups in the Middle East which include the development and employment of CW. Given the recent trends and developments in terrorism, this paper argues that within the next five years Southeast Asia will be a potential domain for chemical terrorism. This would drastically alter the nature of terrorism in the region that will bring new challenges to regional countries and their security partnership with the United States.

Scope of Study

While the entire Southeast Asia region comprises eleven countries, for the purpose of this study the collective term “Southeast Asia” refers to Indonesia, Malaysia, the Philippines, and Singapore.¹¹ These countries are geographically interconnected and have experienced persistent and similar threats of terrorism for decades from the inter-linked transnational Islamic violent extremist groups in the region. Furthermore, the timeline of the risk assessment for CW terrorism in the region is limited to a five-year period. There are two main phenomena in terrorism that led to the consideration of this timeframe. First is the continuing threat and transformation of Islamic violent extremist groups in the region and second is the level of response from security forces towards these threats.

¹¹ Geographically, there are eleven countries lies in Southeast Asia region: Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar (Burma), the Philippines, Singapore, Thailand, Timor-Leste, and Vietnam.

Methodology of Study

The primary purpose of this research is to analyze Southeast Asia's potential as a domain for chemical terrorism within the next five years. To accomplish this goal, this research first examines potential actors who will commit chemical terrorism in Southeast Asia. Second, the research analyzes the motivations of potential actors to commit chemical terrorism and if they have the capability to conduct such attacks. Third, the research examines the inhibiting factors that could lead to the prevention of use and if used, mitigation of effects, of CW in Southeast Asia.

Assessing the probability for chemical terrorism is rather hypothetical given that there have only been limited cases of these in the past. Thus, in analyzing the intent of potential actors requires studying the maximum number of previous cases of CW use or attempted use by states and non-state actors; the ideology behind the Islamic violent extremism; and the strategic and tactical goals of Al Qaeda and ISIS, which are also used as the model of Southeast Asian Islamic violent extremists. Certain assumptions have been made to assess the capability of potential actors. The main assumption is that Al Qaeda or ISIS will disseminate CW technical expertise to their affiliates in Southeast Asia. This assumption is valid given that most of the recorded terrorist attacks and foiled attacks in Southeast Asia were executed by affiliates. In addition, there is evidence that Al Qaeda and ISIS both possess CW capability which will be outlined in detail in the succeeding chapters. Furthermore, Al Qaeda and ISIS are highly involved in training individuals on the methods of conducting terrorism either in remote camps or in virtual space, which has been established in various credible reports and studies.

Another assumption is that potential actors will develop their own CW program locally in Southeast Asia given the risk of detection and logistical burden of smuggled CW if shipped from

the Middle East to Southeast Asia. The last assumption is that chemical terrorism will target government officials and security forces, civilians, and U.S. or Western interests in the Southeast Asia region. The rhetoric of Al Qaeda and ISIS leaders and what is happening locally are consistent with this assumption.

In analyzing the inhibiting factors, the research also examines the counterterrorism efforts of the Southeast Asian countries and their defense readiness and response against chemical attacks. The research is limited in terms of identifying who among the list of potential actors will be the first to commit chemical terrorism in Southeast Asia and on which country it will take place. In providing the readers with an adequate understanding of the subject, the research is organized into five chapters.

Chapter one is an overview of terrorism. The chapter sets the stage for this paper by defining the concept of terrorism. It discusses the different ideologies and motivations, and the evolution of modern-day terrorism. The chapter also provides a rationale on why terrorist group seek a WMD capability.

Chapter two is the discussion on the technical aspects of chemical weapons. It provides the definition of CW, discusses the different categories of chemical agents and their effects, and gives an overview of the CW program. The case studies of previous CW use, consequences of CW use, and the international arms-control regimes that seek to prevent the proliferation and use of CW are explored in this chapter.

Chapter three is an analysis of the intent and capability of Al Qaeda and ISIS pertaining to chemical terrorism. It discusses the background of Islamic violent extremism and the different strategies and tactics of Al Qaeda and ISIS.

Chapter four is an analysis of Southeast Asia's chemical terrorism threat and provides a background of U.S. interests in the region that can be targeted by potential chemical terrorism actors. Similarly, this chapter talks about the evolution of Islamic violent extremism in Southeast Asia in particular.

Finally, Chapter five outlines the conclusion and some policy recommendations to mitigate the risk of chemical terrorism in Southeast Asia.

CHAPTER 1: THE FACE OF TERRORISM

Terrorism is among the lowest catalyst for deaths worldwide based on the most recently analyzed data of the *Our World in Data*.¹² In 2016, the said non-profit website offered insight into the causes of death in the world. Figures 1 and 2 indicated that terrorism was less than one percent of the worldwide total. Casualty figures of terrorism are significantly lower compared to other leading causes of death, such as crime and disease, but the impact affects not only to the direct victims and their family but also to the entire community or country and its economy. In 2018, UN Secretary-General António Guterres described terrorism as "...a persistent and evolving global menace... No country is immune..." in the first-ever High-level Conference on Counter-Terrorism.¹³ Terrorism has become very multifaceted and deeply intertwined with other security issues in diverse societies across the globe. The problem is quite substantial for governments to solve given the intricacies that exist in a terrorist organization let alone the link between various terror groups and factions. Hence, it is important to fully recognize its context and the evolving trend of extremist organizations in order to counter, eliminate, or mitigate a persistent threat to society.

Diverse Definition Similar Tactics

The term "terrorism" has been defined in several ways by the international community and not even the nations' security sectors have a consensus on the precise description. Each has a

¹² Ritchie, Hannah, and Max Roser. "Causes of Death." *Our World in Data*, February 14, 2018. <https://ourworldindata.org/causes-of-death>.

¹³ Guterres, António. "Uniting the World against Terrorism." New York, NY, June 2018. <https://www.un.org/counterterrorism/ctitf/sites/www.un.org.counterterrorism.ctitf/files/26june-sgoped-counterterrorism-EN.pdf>.

varied narrative because even within a state the root cause and impact can greatly differ, as well as the approaches in crafting solutions.¹⁴ The Federal Bureau of Investigation (FBI)¹⁵, the Department of State¹⁶, and the Department of Defense (DoD)¹⁷, all define terrorism distinctively. Bruce Hoffman, a professor of Security Studies at Georgetown University, developed a useful reference in explaining terrorism.

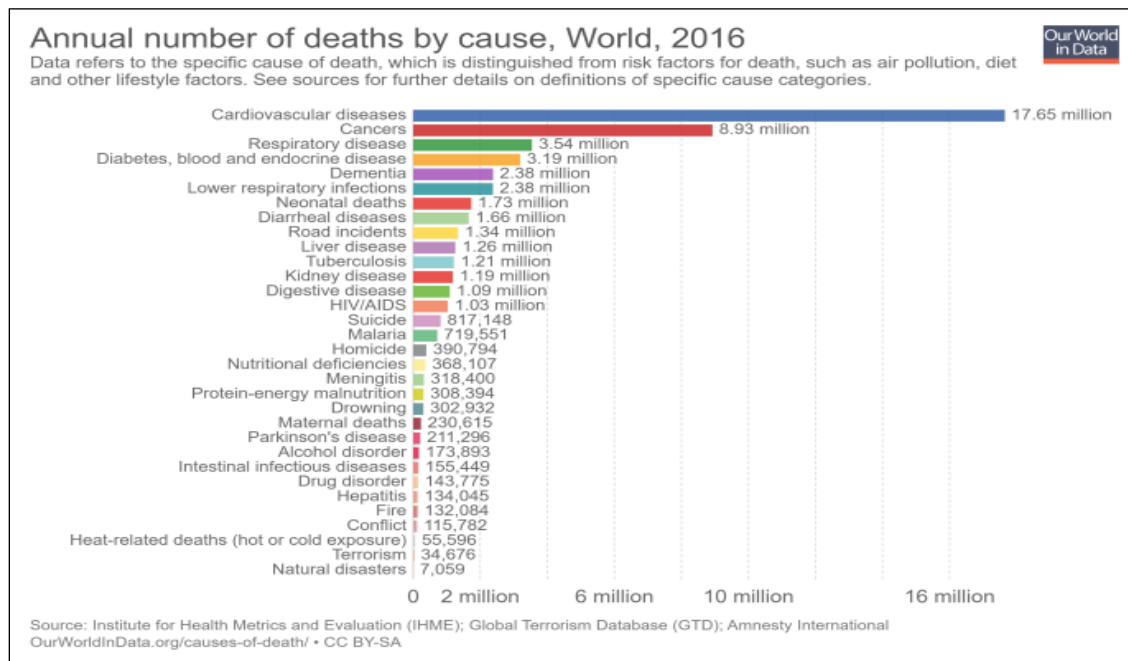


Figure 1. The Worldwide Number of Deaths by Cause in 2016
 Source: Ritchie, Hannah, and Max Roser. “Causes of Death.” *Our World in Data*, February 14, 2018. <https://ourworldindata.org/causes-of-death>.

¹⁴ Pratt, Andrew Nichols. “Terrorism’s Evolution: Yesterday, Today, and Forever.” *Connections* 10, no. 2 (2011), p. 5.

¹⁵ The FBI defines terrorism based on the U.S. Code of Regulations as "the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives".

¹⁶ The U.S. Department of State defines terrorism as “premeditated, politically motivated violence perpetrated against non-combatant targets by subnational groups or clandestine agents”. See “22 U.S. Code § 2656f - Annual Country Reports on Terrorism.” LII / Legal Information Institute. Accessed April 12, 2019. <https://www.law.cornell.edu/uscode/text/22/2656f>.

¹⁷ The U.S. DoD defines terrorism as “the calculated use of unlawful violence or threat of unlawful violence to inculcate fear; intended to coerce or to intimidate governments or societies in the pursuit of goals that are generally political, religious, or ideological.”

Hoffman defines it as “the deliberate creation and exploitation of fear through violence or the threat of violence in pursuit of political change.”¹⁸ He argued that an action is considered an act of terrorism if the following elements are present: it is politically motivated; violence is used as a means to achieve its goal; it is intended to create a psychological effect on its “target audience”; it is conducted either by an organization with distinguishable leadership or by directly influenced individuals or by an ideologically inspired individual; and, it is executed by a subnational group or non-state entity.¹⁹

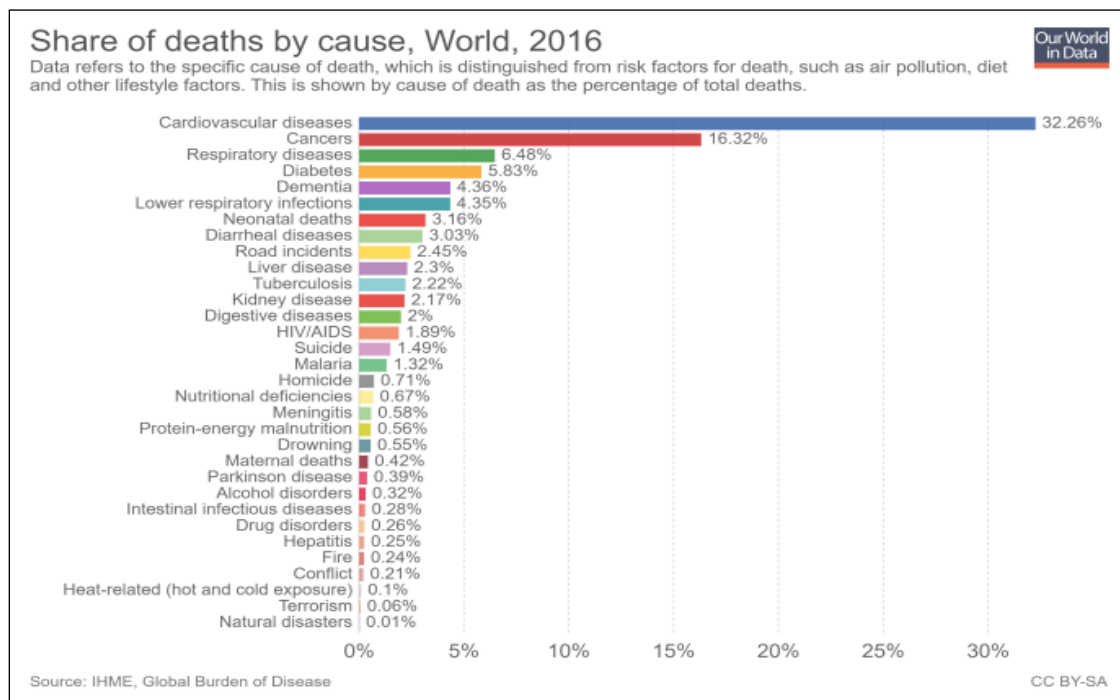


Figure 2. The Worldwide Share of Deaths by Cause in 2016
 Source: Ritchie, Hannah, and Max Roser. “Causes of Death.” *Our World in Data*, February 14, 2018. <https://ourworldindata.org/causes-of-death>.

¹⁸ Howard, Russell, Reid Sawyer, and Natasha Bajema. *Terrorism and Counterterrorism: Understanding the New Security Environment, Readings and Interpretations*. 3rd ed. Boston: McGraw-Hill/Dushkin, 2008, p. 33.

¹⁹ *Ibid.*, p.33.

An act of terrorism is a commitment and a choice of an individual or group based on their belief as a larger cause. Andrew Pratt, a notable terrorism expert, enumerated the following key motivating factors why individuals engage in terrorism: dreadful histories accompanied by humiliation; foreign repression; love for a lost land or era; lack of democracy, civil liberty, and rule of law; lack of power sharing, ethnic, or religious discrimination; illegitimate governance; a government's intolerance to minorities; extremist ideologies or zealotry; becoming a failed state; rapid modernization; or charismatic leaders.²⁰

In a strategic sense, terrorism is a tactic of the weak against a stable target. According to Martha Crenshaw, terrorism is “an attractive strategy for small organizations of diverse ideological persuasions who want to attract attention for their cause, provoke the government, intimidate opponents, appeal for sympathy, impress an audience, or promote the adherence of the faithful.”²¹

Evolution of Terrorism

Terrorism has evolved over time. The intensity and lethality of terrorist attacks evidenced by the level of brutality have significantly increased. Brian Jerkin, a RAND terrorism expert, developed a comparison indicating terrorists in history wished a lot of people observe their deeds while the aim of today is to inflict the highest number of casualties possible.²² Audrey Cronin, former Director of Studies of the Changing Character of War Program at Oxford University, argued that “terrorist targets are not the victims killed or harmed in the attack, but rather the

²⁰ Pratt, Andrew Nichols. “Terrorism’s Evolution: Yesterday, Today, and Forever,” pp. 28-29.

²¹ Crenshaw, Martha. “The Causes of Terrorism.” *Comparative Politics* 13, no. 4 (1981), p. 396.

²² Jenkins, Brian Michael. *Unconquerable Nation: Knowing Our Enemy, Strengthening Ourselves*. Santa Monica, CA: RAND Corp, 2006, p. 8.

government, public, or constituents among whom the terrorists hope to provoke a reaction of fear, repulsion, intimidation, overreaction, or radicalization.”²³

The weapon of choice is directly proportional to the desired severity of the attack quantified by the number of casualties. Pratt further argued that terrorist weapons influence or coerce society, including policymakers, to ultimately achieve their goal. Chronologically, terrorists have utilized the following weapons: dagger, garrotes, guns, explosives, and WMD.²⁴ Additionally, commercially available technologies such as electronic and automated systems contribute to the complexity of their weapon systems. The U.S. DoD believes that advanced technologies will most likely make WMD threats difficult to identify and defend.²⁵

Another development in terrorism is the manner terrorist groups disseminate their messages to their perceived audience. Notable terrorist groups invest in the improvement of their messaging board to recruit and air their propaganda. Apart from the traditional face-to-face method, they bifurcated into internet-based platforms like social media, websites, etc. and were able to capture a wider audience. In the book, *The Terrorist Argument: Modern Advocacy and Propaganda*, authors Christopher Harmon and Randall Bowdish discuss how different messaging platforms like radio, voice and lyrics, newspapers, television, books, e-magazines, advertisements, websites, and social media help terrorist organizations circulate messages that carry their ideology.

With the burgeoning explosion of the internet-of-things, terrorist groups certainly benefit from this transformation along with billions of people with devices right at their fingertips.

²³ Cronin, Audrey Kurth. “Behind the Curve: Globalization and International Terrorism.” In *Terrorism and Counterterrorism: Understanding the New Security Environment*, 3rd ed., 57–78. New York, NY: McGraw-Hill, 2009, p. 58.

²⁴ Pratt, Andrew Nichols. “Terrorism’s Evolution: Yesterday, Today, and Forever,” p. 3.

²⁵ “Department of Defense Strategy for Countering Weapons of Mass Destruction.” U.S. Department of Defense, June 2014, p. 3.

Online dissemination of terrorist narratives is cost effective and can be used alternatively as a means of communication either for recruitment or training individuals to wage terrorist acts. The ethereal web space provides anonymity and security to the actor, while they express ideas as a medium to wage information war or even disinformation.²⁶ Further, internet connectivity facilitates the surreptitious transmission of financial and logistical resources between terrorist groups, core supporters and affiliates. Lastly, the homogenizing effect between cyber and terrorists in the physical world led some ‘keyboard warriors’ who identify with a particular terrorist group to work for them in terms by seeking alternative funding sources either through hacking or various fraudulent means.

Terrorist organizations became transnational in terms of operational reach. One of the drivers that made this possible for example is religious fundamentalism or fanaticism which allows individuals to connect with other people through a common but often biased ideology. Thus, it can widen the terrorist network across the globe as long as there are commonalities in beliefs.

In Islamic terrorism, the global jihadist movement is divided into three categories. First, the *core group* is considered as the founder or main sponsor of the Islamic violent extremist ideology. The core group controls or owns most of the resources and manpower however, not all of its members are combatants. The core group provides direction and strategy for the entire organization and it conducts research and training which enhances their operatives and other affiliates’ capacity to conduct terrorism. Highly skilled individuals such as scientists and information technology (IT) professionals are part of the core group’s support mechanism. These individuals also enlist women and children to their ranks that can either be involved in direct or

²⁶ Harmon, Christopher C., and Randall G. Bowdish. *The Terrorist Argument: Modern Advocacy and Propaganda*. Washington, D.C: Brookings Institution Press, 2018, pp. 109-113.

indirect terrorist activities. Currently, Al Qaeda and ISIS are considered the core groups of Islamic violent extremism. Both have fairly similar ideology but there is a contrast in some approaches and overall objectives. Such disparities are important to understand and will be discussed further in chapter three.

Second are the *affiliates* that exist in the local region who adhere to the core group's ideology.²⁷ Some are insurgents or established separatists who pledged allegiance to a core group by accepting their organizational leadership, dogma, and methods in conducting terrorist attacks to achieve common interests. Alliances bring greater access to logistical resources and training for local terrorists. Thus, alliances help equip actors to become more aggressive players.

The third and last category of a jihadist movement is the inspired or radicalized individuals, also known as "lone wolf" attackers. These entities underwent a radicalization process commonly initiated via the internet.²⁸ Core groups typically publish messages for its audience and encourage them from across the globe to adopt an extremist view of the world and subsequently conduct terrorist attacks against the West and its allies. Lone wolf attackers are difficult to identify and uncover because they blend with society.²⁹ As such, they pose a threat to anyone anytime they wish to commit a violent act. Daniel Coats, Director of the U.S. National Intelligence, assesses that this kind of attacks will remain rampant and difficult-to-detect because they often select soft targets to strike without warning and need not require advanced training to do it.³⁰

²⁷ Stewart, Scott. "The Jihadist CBRN Threat." Stratfor| Worldview| Security Weekly, February 10, 2010. <https://worldview.stratfor.com/article/jihadist-cbrn-threat>.

²⁸ Bjelopera, Jerome P. "Domestic Terrorism: An Overview." Washington, D.C.: Congressional Research Service, August 21, 2017, pp. 48-50.

²⁹ Stewart, Scott. "The Jihadist CBRN Threat."

³⁰ Coats, Daniel. "Worldwide Threat Assessment of the US Intelligence Community." Statement for the Record. Washington, D.C, February 13, 2018, p. 10.

Finally, some terrorists and other transnational criminal organizations (TCOs) collaborate in illicit activities. According to the U.S. Center of Homeland Defense and Security (CHDS), the partnership ensues because both parties have the following agenda: to co-exist in one geographic arena, to cooperate for mutual interest, and to converge with the same behavioral group.³¹ The fusion between terrorist groups and other TCOs may be influenced by their similarities in the organizational characteristics.³² Both groups adopt concepts such as operational secrecy, innovation, resiliency, and extreme violence in their actions.

Among the main drivers that help terrorists and TCOs thrive and evade security forces are border porosity, population transfer such as migration and freedom of movement, financial and commercial developments or globalization, and communications technology.³³ Terrorism poses a major challenge since underground networks can also be used as lines of communication between core groups and their regional affiliates. The network can be exploited to transfer its logistical and financial support to its affiliates, which allows them to grow and exert greater control. Criminal networks provide advantages that can be exploited by terrorist groups that seek to spread and use WMD as their mode of attack.

Different Motivations for Terrorism

Terrorism exists because of an ideology that serves as the connecting node uniting the core group, the affiliates, and the inspired individuals to work towards common goals. Ideology provides the belief system, which serves as the general direction of what an individual or group aims to attain. According to C.J.M. Drake, a terrorism expert, ideology plays an important role in

³¹ CHDS. "Convergence of Terrorism & Transnational Criminal Organizations." CHDS/Ed, September 22, 2017. <https://www.chds.us/ed/items/17382>.

³² Ibid.

³³ Ibid.

the selection of terrorist's target and justification of the terrorist acts.³⁴ Ideology defines the range of legitimate targets and works as a logical parameter for terrorists to commit terror acts. Thus, ideology makes terrorism as the means to an end.

An individual or a group will have wide-ranging motivations to become a terrorist or commit acts of terrorism. Eqbal Ahmad, a Pakistani political scientist, concluded in his research that there are five types of terrorism: state, criminal, political, oppositional, and religious. *State terrorism* or state-sponsored terrorism referred to the acts motivated, sanctioned, and supported by a nation-state against another nation-state.³⁵ Between 1979 and 2017, the U.S. Department of State had designated four nation-states – Syrian Arab Republic (1979), Republic of the Sudan (1993), Islamic Republic of Iran (1984) and Democratic People's Republic of Korea (2017) – as countries providing support for acts of international terrorism.³⁶ As consequences, the U.S. imposed sanctions to the abovementioned nation-states which include restriction of U.S. foreign assistance; a ban on defense exports and sales; certain controls over exports of dual use items; and miscellaneous and other restrictions.³⁷ In addition, the U.S. incriminates other sanctions laws that punish direct individuals or other countries conducting in certain trade with the designated state sponsors.³⁸

Criminal terrorism is the type of terrorism inspired to support criminal activities or for criminal gains. *Political terrorism* is referred to as the extreme practice of political ideology of

³⁴ Drake, C. J. M. "The Role of Ideology in Terrorists' Target Selection." *Terrorism and Political Violence* 10, no. 2 (June 1, 1998), p. 53.

³⁵ Ahmad, Eqbal. "Terrorism: Theirs & Ours." In *Terrorism and Counterterrorism: Understanding the New Security Environment, Reading and Interpretation*, 3rd ed., 34–41. Washington, D.C: McGraw-Hill, 2009, p. 37.

³⁶ U.S. Department of State. "State Sponsors of Terrorism." U.S. Department of State| Diploma in Action, 2017. <https://www.state.gov/j/ct/list/c14151.htm>.

³⁷ Ibid.

³⁸ Ibid.

either left- or right-wing. As of this writing, far-right extremism is progressively developing to be a serious concern.³⁹ Based on the 2018 Global Terrorism Index, the number of deaths associated with the far-right group or individual had increased worldwide from three in 2014 to seventeen in 2017.⁴⁰ *Oppositional terrorism* denotes the acts of terror of the rebellious group directed toward the existing government.

Finally, *religious terrorism* is perhaps the most common type of terrorism. This type of terrorism has been the emphasis of policies and amplified by the media since it has become the most prevalent international threat in the past decades. Individuals who succumb to this type of terrorism, such as Islamic violent extremism, are often stirred by extreme spiritual belief.⁴¹ In 2016, the Global Terrorism Database recorded that Islamic violent extremists were responsible for approximately 70 percent of the terror victims worldwide.⁴² According to Cronin, religious terrorism is the most feared and had caused larger casualties per incident, and evidence indicate that religiously-inspired terrorists are motivated to use WMDs because it amplifies the impact of their attacks as it would affect a wider range of casualties.⁴³

The Troubling Rise of Chemical Terrorism

The possession and ability to use WMDs can be a pivotal moment for a terrorist organization. Mark Dechesne, a political psychologist at the University of Leiden in The Hague,

³⁹ Institute for Economics and Peace. "Global Terrorism Index 2018: Measuring the Impact of Terrorism." Sydney, Australia, November 2018, p. 3.

⁴⁰ *Ibid.*, p. 3.

⁴¹ Ahmad, Eqbal. "Terrorism: Theirs & Ours," p. 38.

⁴² Zehorai, Itai. "The Richest Terror Organizations in the World." *Forbes*, January 24, 2018. <https://www.forbes.com/sites/forbesinternational/2018/01/24/the-richest-terror-organizations-in-the-world/>.

⁴³ Cronin, Audrey Kurth. "Behind the Curve: Globalization and International Terrorism," p. 58.

argues that there are factors why terrorists aim for WMD capability. First, they use extreme tactics that can maximize the force of an attack and lessen the time of conflict.⁴⁴ Second, WMDs are used for strategic aims by gaining more advantages and diminish losses on their part while reducing advantages and escalate losses for their targets.⁴⁵ Third, the strategic aims can uphold the legality of their ideologies focus on their version of truth and their identity.⁴⁶ Lastly, the decision makers within terrorist organizations could contribute to the use of WMD with the desires to achieve their tactical, strategic, and ideological goals.⁴⁷

Meanwhile, Scott Stewart, STRATFOR Vice President for Analysis, suggested that terrorists' aspiration to acquire WMDs correlates with the current anti-terrorism and counterterrorism efforts. Most countries subjected to terrorist attacks made adjustments to their security protocols. As a result, WMDs will be an alternative means of attacking well-protected strategic targets against conventional weapons or improvised explosive devices (IED).⁴⁸ The possession and potential use of WMD is a global concern especially for countries experiencing continuous terrorist threat. In February 2010, former U.S. Secretary of State Hillary Clinton expressed her concerns on WMD-armed threats. She stated on a CNN interview that "the biggest nightmare that many of us have is that one of these terrorist members' organizations within the syndicate of terror will get their hands on a weapon of mass destruction."⁴⁹

Consistently, the U.S. DoD considers both state and non-state actors' desire to possess or

⁴⁴ Dechesne, Mark. "Obedience to Divinity? The Psychology of Jihadist WMD Terrorism." In *Jihadists and Weapons of Mass Destruction*, 62–80. Boca Raton, Florida: CRC Press, 2009, p. 63.

⁴⁵ Ibid., p. 63.

⁴⁶ Ibid., p. 63.

⁴⁷ Ibid., p. 63.

⁴⁸ Stewart, Scott. "The Jihadist CBRN Threat."

⁴⁹ NTI. "WMD-Armed Terrorists Are Top Threat, Clinton Says," February 9, 2010. <https://www.nti.org/gsn/article/wmd-armed-terrorists-are-top-threat-clinton-says/>.

pursue WMDs as a challenge to global norms, regional balances of power, and U.S. national interest.⁵⁰ As an incentive of possessing WMDs, the U.S. DoD believes that terrorists can use the capability to increase strategic leverage; as greater means for coercion; and the ability to deter, disrupt, or defeat military operations or cause mass casualty attacks.⁵¹

Several security experts believe that terrorist organizations are more inclined to pursue CW as compared to other types of WMDs. Based on the University of Maryland's Profile of Incidents Involving Chemical, Biological, Radiological, and Nuclear (CBRN) by Non-state Actors (POICN) database, there were 400 cases of pursuit or attempted use CW out of 580 total CBRN cases from 1996 to 2016.⁵² Scientists and policymakers often refer to CW and biological weapons as "the poor man's atomic bomb" because they are inexpensive to produce compared to nuclear weapons. U.N. officials estimated that the cost of affecting a civilian casualty per square kilometer was about \$2,000 U.S. dollars with conventional weapons, \$800 U.S. dollars with nuclear weapons, \$600 U.S. dollars with CW and \$1 U.S. dollar with biological weapons.⁵³ Nuclear weapons require sophisticated and highly technical delivery systems for deployment while CW can be employed using indigenous materials or by meager resourcefulness. Although, it is important to differentiate the impact as nuclear weapons can obviously inflict more casualties and create huge damage in a single use.

CW programs do not require a sophisticated facility nor a team of scientists to synthesize and weaponize a chemical agent. A chemist with reasonable experience can fuse chemicals using

⁵⁰ "Department of Defense Strategy for Countering Weapons of Mass Destruction," p. 3.

⁵¹ *Ibid.*, p. 3.

⁵² Ackerman, Gary, and Michelle Jacome. "WMD Terrorism: The Once and Future Threat." *PRISM* 7, no. 3 (May 15, 2018), pp. 24-25.

⁵³ Simpson, Erika. "Simpson: The Poor Man's Nuclear Bomb." *The London Free Press*. February 21, 2014. <https://www.lfpress.com/2014/02/21/simpson-the-poor-mans-nuclear-bomb/wcm/7fbff4f7-b296-c258-abf3-1b69a47aff63>.

simple instruments to produce a nerve agent like sarin and other chemical agents which are more stable than biological agents.⁵⁴ Terrorists can fuse readily available toxic industrial chemicals (TIC) that can be purchased over-the-counter to produce a chemical agent. Therefore, the increased flow of expertise and illegal, dual-use, and uncontrolled items pose a challenge in controlling WMD proliferation.

A historical example of chemical terrorism occurred in Japan in 1995 when a Japanese cult dispersed chemical agents in two occasions. Other instances transpired when ISIS employed CW in Iraq and Syria battlefields between 2014 and 2017. Despite the absence of recorded use, several intelligence reports from the U.S. and U.K. confirmed that Al Qaeda successfully developed and attempted to use CW. The threat posed by Aum Shinrikyo did not last because the Japanese government had successfully eliminated the terrorist group as opposed to ISIS, Al Qaeda, and their respective affiliates that remain at large despite global counterterrorism efforts. Thus, the threat of chemical terrorism posed by Al Qaeda and ISIS also continues and could spread in other regions through affiliates or lone wolf attackers. Southeast Asian terror groups have access to gain the knowledge or technical expertise for developing CW.

In summary, this chapter described the background and definition of terrorism for the purpose of this research. Additionally, it laid out the evolution of terrorism to its current state and differentiated the ideological motivation in the wake of terrorist activities. Finally, this chapter established the important role of core groups, to the likely spread of the technical know-how of the CW virtually via the internet, including Southeast Asia. The succeeding chapter will further discuss the overview of CW program, lessons learned from historical CW incidents and the international efforts to control the spread and mitigate the use of the CW.

⁵⁴ Ibid.

CHAPTER 2: OVERVIEW OF CHEMICAL WARFARE

CW proliferation has been a concern for centuries and is considered as the “original WMD”.⁵⁵ Currently, there is heightened anxiety for such weapons because state and non-state actors alike are evidently motivated to use them for offensive capabilities. In fact, between 2012 and 2018 there were more than 200 reported CW incidents worldwide.⁵⁶ The repeated employment of such weapons has weakened the global system of restraint against their use and the international treaty that bans it.⁵⁷ More importantly, the majority of recent CW attacks were perpetrated by governments and terrorist groups that ignore international law with the most recent reported events in Syria, Iraq, Malaysia, and U.K.

This chapter delves into the characteristics and production of CW. It further outlines the historical antecedents that impacts victims, policymakers, and security sectors to provide insight on how it is particularly linked to the nefarious intent of a terrorist organization. Moreover, this research undertakes a close examination of the international arms-control regime in order to identify the elimination or mitigation of CW threats in general.

Definition of Chemical Weapons

Historically, CW were used on the battlefield and modern use began during WWI. CW are commonly understood as specialized munitions loaded with toxic chemicals that can kill

⁵⁵ Talbot, Thomas, Brian Lukey, and Gennady Platoff Jr. “Introduction to the Chemical Threat.” In *Medical Aspects of Chemical Warfare*. Falls Church, Virginia: Office of the Surgeon General, U.S. Army; Borden Institute, 2008, p. 2.

⁵⁶ Hersman, Rebecca, and William Pittinos. “Restoring Restraint Enforcing Accountability for Users of Chemical Weapon.” Washington, D.C.: Center for Strategic & International Studies, June 2018, p. 1.

⁵⁷ *Ibid.* p. 1.

indiscriminately.⁵⁸ In 1993, the Chemical Weapons Convention (CWC) came up with a more detailed definition of CW which is consistent and align with the Convention's objectives in countering the proliferation and use of CW, and the elimination of state-owned CW arsenals.

Based on the Convention, CW are exclusively or jointly qualified by the following definition:

- a. Toxic chemicals and their precursors, except where intended for purposes not prohibited under this Convention, as long as the types and quantities are consistent with such purposes;
- b. Munitions and devices, specifically designed to cause death or harm through the toxic properties of those toxic chemicals specified in subparagraph (a), which would be released as a result of the employment of such munitions and devices;
- c. Any equipment specifically designed for use directly in connection with the employment of munitions and devices specified in subparagraph (b).⁵⁹

Moreover, toxic chemicals are any substance or material that can cause death, temporary incapacitation or permanent harm to humans or animals.⁶⁰ These chemicals are produced either in manufacturing facilities and are embedded in munitions, but such can also be mass-produced elsewhere in makeshift laboratories.⁶¹ The precursors of CW are any chemical reactants that are utilized in the production of a toxic chemical.⁶²

Currently, the Convention does not impose a total ban on the production and use of toxic chemicals and their precursors. CWC signatory nation-states are still authorized to produce and utilize toxic chemicals and their precursors for the following purposes:

- a. Industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes;
- b. Protective purposes, namely those purposes directly related to protection against toxic chemicals and to protection against CW;
- c. Military purposes not connected with the use of CW and not dependent on the use of the toxic properties of chemicals as a method of warfare;

⁵⁸ OPCW. "What Is a Chemical Weapon?" Accessed February 6, 2019.
<https://www.opcw.org/our-work/what-chemical-weapon>.

⁵⁹ OPCW. "Article II – Definitions and Criteria." OPCW. Accessed February 18, 2019.
<https://www.opcw.org/chemical-weapons-convention/articles/article-ii-definitions-and-criteria>.

⁶⁰ Ibid.

⁶¹ Ibid.

⁶² Ibid.

d. Law enforcement including domestic riot control purposes.⁶³

CW come in various forms and have distinguished signatures when used. In the absence of detection equipment, these signatures are effective in determining the probable kind of CW used and in providing effective therapy for the victims.⁶⁴ These features aid the first responders and security forces in identifying the proper approach to mitigate the effects of a chemical agent, more importantly when choosing the corresponding on-scene protective equipment.⁶⁵ Finally, knowing the effects of CW serve as a benchmark in crafting policies that aid in regulating and monitoring toxic chemicals and their precursors.

Categories of Chemical Agents

Chemical agents are categorized into groups in terms of physiological effects namely: nerve agents, vesicants or blistering agents, lung irritants or choking agents, blood gases or systemic agents, sensory irritants or lacrimator agents, and psychotropic agents.⁶⁶ As a general characteristic, chemical agents come in different forms of matter—gas, liquid, or solid. Depending on the lethality, chemical agents can cause the victims to experience discomfort, incapacitation, or even, death.⁶⁷ Usually, chemical agents affect the victim’s body through inhalation and absorption through the skin (percutaneous) and eyes, but an immediate effect could also be seen when enough quantity of these chemicals is ingested.⁶⁸

⁶³ Ibid.

⁶⁴ Shea, Dana. “Chemical Weapons: A Summary Report of Characteristics and Effects.” Washington, D.C: U.S. Congressional Research Service, September 13, 2013, p. 1.

⁶⁵ Ibid., pp. 1-2.

⁶⁶ World Health Organization. *Public Health Response to Biological and Chemical Weapons: WHO Guidance*. 2nd ed. Geneva: World Health Organization, 2004, pp. 45-46.

⁶⁷ Ibid., p. 44.

⁶⁸ Ibid., p. 45.

The range of chemical infection varies on the persistency of chemical agents or the duration of the chemical hazard that lingers in the atmosphere once disseminated which could last from several hours to weeks. Persistent agents are used in creating obstacles ranging from contaminating strategic places or equipment, area denial, and to cause mass fatalities.⁶⁹ Environmental factors such as weather, temperature, humidity, and wind velocity affect the persistency of chemical agents.⁷⁰ For instance, a strong wind may lessen the persistency of a chemical agent while a heavy rain may decrease its effectiveness.

The following are the distinct characteristics and descriptions of the different categories of chemical agent.

Nerve Agents. Nerve agents are highly toxic chemicals. They have rapid effects if inhaled or absorbed through skin or eyes.⁷¹ These chemical agents disrupt the nervous system by impairing the transmission of nerve impulses which may result in a shock or immediate death due to respiratory failure.⁷² These agents are stable, odorless, colorless, and tasteless when dissolved in water or food.⁷³

The “G”-series and the “V”-series are the most popular nerve agents. The first nerve agent ever synthesized was tabun (GA) in 1936. Sarin (GB) was discovered in 1939, followed by soman (GD) in 1944, and finally the more obscure cyclosarin (GF) in 1949. The agents in the

⁶⁹ Ibid., p. 45.

⁷⁰ Spiers, Edward M. *A History of Chemical and Biological Weapons*. London: Reaktion Books, 2010, p. 14.

⁷¹ The Deputy Assistant to the Secretary of Defense for Chemical and Biological Defense. “Chemical and Biological Defense Primer.” U.S. Department of Defense, October 2001, p. 8.

⁷² Spiers, Edward M. “A History of Chemical and Biological Weapons,” p. 15.

⁷³ Sidell, Frederick, Jonathan Newmark, and John McDonough. “Nerve Agents.” In *Medical Aspects of Chemical Warfare*. Falls Church, Virginia: Office of the Surgeon General, U.S. Army; Borden Institute, 2008, p. 167.

“G”- series, gained their code letter from their country of origin, Germany.⁷⁴ The “V”-series means “venomous”, involving VE, VM, and VX, were first produced by British scientists in 1948 with a very high lethality even in small quantity.⁷⁵ For instance, a ten-milligram of VX is enough doses to harm or kill a 70-kilogram human.⁷⁶

Finally, victims exposed to nerve agents may suffer the following symptoms: chest tightness, shortness of breath, excessive sweating, vomiting, abdominal cramps, seizures, coma, and death.⁷⁷ Antidotes are available as a therapy for the victims but need immediate administration upon the victim’s exposure to maximize their effectiveness.⁷⁸

Vesicants or Blistering Agents. Vesicants are chemical agents that can cause burns, blisters, or temporary blindness when absorbed through skin or eyes.⁷⁹ When inhaled, these agents damage the lungs that may cause difficulty in breathing or even death due to suffocation. Among the common blistering agents are mustard agents, lewisite, and phosgene oxime.⁸⁰

Mustard gases are persistent agents, smell or taste like mustard or garlic, and ranges from yellow to dark brown in color.⁸¹ Historically, sulfur mustards were known as “king of the war gases,” in WWI alone they caused more chemical casualties as compared to chlorine, phosgene,

⁷⁴ Ibid., p. 156.

⁷⁵ Ibid., p. 156.

⁷⁶ U.S. Congress, Office of Technology Assessment. *Technologies Underlying Weapons of Mass Destruction*. Washington, D.C: U.S. Government Printing Office, 1993, p. 24.

⁷⁷ Agency for Toxic Substances and Disease Registry. “Medical Management Guidelines for Nerve Agents: Tabun (GA); Sarin (GB); Soman (GD); and VX.” Toxic Substances Portal - Nerve Agents (GA, GB, GD, VX), October 21, 2014.

<https://www.atsdr.cdc.gov/mmg/mmg.asp?id=523&tid=93>.

⁷⁸ Ibid.

⁷⁹ Hurst, Charles, John Petrali, David Barillo, John Graham, William Smith, John Urbanetti, and Frederick Sidell. “Vesicants” In *Medical Aspects of Chemical Warfare*. Falls Church, Virginia: Office of The Surgeon General, U.S. Army; Borden Institute, 2008, p. 261.

⁸⁰ Ibid., pp. 260-261.

⁸¹ Ibid., pp. 261-262.

and cyanide combined.⁸² Medical practitioners argue that mustard agents have low toxicity level but a chemical incident involving such agents can quickly overwhelm medical facilities with casualties seeking medical attention.⁸³ More importantly, the Central Intelligence Agency (CIA) noted that mustard agents are not commercially available, but are easy to synthesize with the help of a production guide.⁸⁴

Blood Agents. Blood agents are another type of highly toxic chemical agents that can cause instantaneous death upon inhalation of lethal dosage because they block the circulation of oxygen within the blood.⁸⁵ Hydrogen cyanide and cyanide salts are the chemicals of this category. Hydrogen cyanide is highly volatile gas that smells like almond while cyanide salt is odorless and solid in form.⁸⁶ These chemical agents are commercially available as they are utilized for electroplating, metallurgy, organic chemicals production, photographic developing, manufacture of plastics, fumigation of ships, and selected mining processes.⁸⁷

Choking Agents. Choking agents are chemical agents that can directly injure the respiratory systems.⁸⁸ Victims exposed to these agents experience irritation of the nose and throat, difficulty in breathing, and inflammation of the lungs that can lead to death due to lack of oxygen.⁸⁹ Phosgene, ammonia, and chlorine are common forms of choking agents. Historically, choking agents, particularly chlorine and phosgene, were developed for wartime use and were

⁸² Spiers, Edward M. "A History of Chemical and Biological Weapons," p. 15.

⁸³ Hurst, Charles, et. al. "Vesicants," p. 261.

⁸⁴ Central Intelligence Agency. "Terrorist CBRN: Materials and Effects." Virginia: Central Intelligence Agency, May 2003

⁸⁵ Spiers, Edward M. "A History of Chemical and Biological Weapons," p. 15.

⁸⁶ Shea, Dana. Chemical Weapons: A Summary Report of Characteristics and Effects, p. 7.

⁸⁷ Agency for Toxic Substances and Disease Registry. "Cyanide." Toxic Substances Portal, March 3, 2011. <https://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=19>.

⁸⁸ Arms Control Association. "Chemical Weapons: Frequently Asked Questions." Fact Sheets and Briefs. Arms Control Association, June 2018.

⁸⁹ Spiers, Edward M. "A History of Chemical and Biological Weapons," p. 14.

utilized during WWI.⁹⁰ Most of these chemical agents are in gaseous form and have distinct odors.⁹¹

Additionally, choking agents are also commercially available and are classified as among the toxic industrial chemicals with high hazard index.⁹² Chlorine is a yellow-green substance with strong irritating odor and mostly used as a bleach in paper and cloth manufacturing.⁹³ Phosgene smells like a freshly cut hay and is commonly used to manufacture pesticides and pharmaceuticals.⁹⁴ Lastly, ammonia could serve as a choking agent which is normally used in numerous household and industrial cleaning merchandises.⁹⁵

Sensory Irritants. Sensory agents are among the category of non-lethal chemicals agents and they are mostly utilized as riot control agents.⁹⁶ Tear gases are the usual example of this category that is employed to momentarily weaken the body of the desired target.⁹⁷ While victims may immediately experience chest pain, nausea, and eyes or nose irritation, they are designed not to be persistent.⁹⁸

Psychotropic Agents. Psychotropic agents are another kind of non-lethal chemical

⁹⁰ Ibid., pp. 5-6.

⁹¹ Shea, Dana. "Chemical Weapons: A Summary Report of Characteristics and Effects," p. 5.

⁹² Fatah, Alim A, John A Barrett, Richard D Arcilesi, Kenneth J Ewing, Charlotte H Lattin, Michael S Helinski, and Imran A Baig. *Guide for the Selection of Chemical and Biological Decontamination Equipment for Emergency First Responders (NIJ Guide 103-00)*. Vol. I. Washington, D.C: National Institute of Justice Office of Science and Technology, 2001, pp. 9-10.

⁹³ Agency for Toxic Substances and Disease Registry. "Chlorine." Toxic Substances Portal, March 3, 2011. <https://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=36>.

⁹⁴ Agency for Toxic Substances & Disease Registry. "Phosgene." Toxic Substances Portal, March 3, 2011. <https://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=182>.

⁹⁵ Agency for Toxic Substances and Disease Registry. "Ammonia." Toxic Substances Portal, March 3, 2011. <https://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=2>.

⁹⁶ Arms Control Association. "Facts Sheet and Briefs."

⁹⁷ Spiers, Edward M. "A History of Chemical and Biological Weapons," p. 14.

⁹⁸ Ibid., pp. 14-15.

agents that are designed to incapacitate the victim causing temporary paralysis, rigidity, or mental disorientation.⁹⁹ These are widely used as tranquilizers, sedatives, analgesics, stimulants, and anesthetics.¹⁰⁰ Examples of this category are lysergic acid diethylamide (LSD), belladonna, atropine, and phencyclidine.¹⁰¹

Acquisition of Chemical Warfare Capability

Traditionally, acquiring CW capability requires a lengthy process. For instance, a nation-state undergoes a series of research and tests of chemical agents prior to the large-scale production of the weapons. In addition, a nation-state needs to comply with the bureaucratic process of capability acquisition and development. In 1993, the U.S. Congress Office of Technology Assessment outlined the following acquisition steps to obtain a fully integrated chemical warfare capability.

1. Acquire equipment and materials needed for CW agent production and the relevant expertise;
2. Produce agents in small quantities at a pilot facility to work out technical details of the synthetic process, and then scale up to a production plant;
3. Purchase suitable munitions and delivery systems (or design, prototype, test, and produce them indigenously);
4. Fill the munitions with the agent;
5. Establish bunkers (or other storage facilities) and logistical support networks for the stockpiling, transport, handling, and use of bulk agents and munitions;
6. Deliver chemical munitions to the military logistics system for storage and transport to the battle zone;
7. Acquire individual and collective chemical defenses and decontamination equipment, and train troops how to fight in a chemical environment; and
8. Develop strategic and tactical battle plans for CW use, and practice them in operational

⁹⁹ Walters, Douglas, Pauline Ho, and Jasper Hardesty. "Safety, Security and Dual-Use Chemical." *Journal of Chemical Health and Safety* 22, no. 5 (December 18, 2014): 3–16.

¹⁰⁰ Ketchum, James, and Harry Salem. "Incapacitating Agents." In *Medical Aspects of Chemical Warfare*. Falls Church, Virginia: Office of the Surgeon General, U.S. Army; Borden Institute, 2008, pp. 414-424.

¹⁰¹ Walters, Douglas, et.al. "Safety, Security and Dual-Use Chemical," pp. 3-16.

tests and field exercises.¹⁰²

However, in general, these processes do not apply to non-state actors as they only need to develop a chemical agent of choice and integrate them with a delivery system. The non-state actor can omit some steps in the process, for example, not having a standard storage facility that will save them time and resources.¹⁰³ Therefore, this shortcut method favors the non-state actors especially for those groups who have financial constraints while it serves as a challenge to the government forces in detection and prevention of a possible chemical attack.

Currently, the process to acquire CW is less complicated as before since toxic chemical agents can be produced in various ways. The U.S. DoD assesses both state and non-state CW proliferators as having the capacity to utilize existing commercial manufacturing infrastructures in a given area to create their desired chemical agents.¹⁰⁴ Additionally, proliferators can utilize toxic industrial chemicals as CW precursors as discussed earlier.¹⁰⁵ Chlorine and phosgene are among the proven toxic chemicals available in the open market and possibly in the black market while vesicant agents are among the easiest to produce.

Moreover, most of the technical details and methods to develop CW are readily available via open source literature.¹⁰⁶ Robert Turkington elaborated in his book, *Chemical Used for Illegal Purposes: A Guide for First Responders to Identify Explosives, Recreational Drugs, and Poisons*, the process of synthesizing various commercial toxic industrial chemicals to develop bulk mustard agents. He explained that there are at least nine ways of producing mustard

¹⁰² U.S. Congress Office of Technology Assessment. “Technologies Underlying Weapons of Mass Destruction,” pp. 19-20.

¹⁰³ *Ibid.*, p. 19.

¹⁰⁴ Office of the Under Secretary of Defense for Acquisition and Technologies. “The Militarily Critical Technology List Part II: Weapons of Mass Destruction Technologies,” p. II-4-8.

¹⁰⁵ *Ibid.*, p. II-4-8-9.

¹⁰⁶ *Ibid.*, p. II-4-8.

agents with an average total cost of less than a hundred U.S. dollars.¹⁰⁷

Manufactured chemical agents require deployment to attain the desired effect. Aside from the level of toxicity of chemical agents, their effectiveness is also dependent on the efficient means of dissemination.¹⁰⁸ Conventional delivery systems of CW may include cruise or ballistic missiles, artillery, rockets, mortars, mines, bombs, sprayers, or spray tanks.¹⁰⁹ Sooner or later, dedicated terrorist groups could think of other techniques to execute chemical attacks. Former U.S. Secretary of State Hillary Clinton described modern day terrorist groups in a taped interview with CNN as “more creative, more flexible and more agile.”¹¹⁰ Consistently, the U.S. DoD agrees that the intricacies of terrorist’s delivery systems are limited only by their imagination.¹¹¹ They have a wide range of choices that include indigenous material such as plastics and sprayers to modern technology like drones.

Finally, the development of binary CW technology has increased the complexity of detection and dissemination of chemical agents although it has improved the means of storage and handling them. Binary CW use developed toxic chemical by mixing two compounds immediately before or during the dissemination or dispersion.¹¹² Each compound is stable, with a

¹⁰⁷ Turkington, Robert. *Chemicals Used for Illegal Purposes: A Guide for First Responders to Identify Explosives, Recreational Drugs, and Poisons*. New Jersey: John Wiley & Sons, 2009, pp. 331-332.

¹⁰⁸ Office of the Under Secretary of Defense for Acquisition and Technologies. “The Militarily Critical Technology List Part II: Weapons of Mass Destruction Technologies,” p. II-4-22.

¹⁰⁹ The Deputy Assistant to the Secretary of Defense for Chemical and Biological Defense. “Chemical and Biological Defense Primer,” p. 13.

¹¹⁰ NTI. “WMD-Armed Terrorists Are Top Threat, Clinton Says.”

¹¹¹ The Deputy Assistant to the Secretary of Defense for Chemical and Biological Defense. “Chemical and Biological Defense Primer,” p. 4.

¹¹² Office of the Under Secretary of Defence for Acquisition and Technologies. “The Militarily Critical Technology List Part II: Weapons of Mass Destruction Technologies,” p. II-4-3.

low level of toxicity, and safe for transport. Thus, the potential attackers or perpetrators are safe from chemical poisoning prior to their use in staging the weapon to a specific location.

Historical Use of Chemical Weapons

The roots of CW usage existed longer than anyone could have imagined. Historically, toxic smoke was used in ancient warfare by Indians in 2000 B.C., Chinese in 1000 B.C. and Spartans in 428 B.C. as choking fumes to instill fear and panic in their enemies.¹¹³ Further, Greek soldiers of King Solon poisoned the enemy water supply to induce severe diarrhea against their rivaling troops in 600 B.C.¹¹⁴ Despite historical accounts of CW usage, experts determined that modern CW warfare started in WWI with advancements in synthetic chemical production and delivery systems.

On April 22, 1915, the first large scale use of CW was recorded when German soldiers discharged chlorine gases from cylinders against the Allied forces in “No Man’s Land” during the Battle of Ypres.¹¹⁵ Chemical warfare historians support that the Ypres chemical incident triggered the proliferation of war gases prompting the Allied and Axis forces to develop their own versions of CW. This era of CW competition was known as the “chemists’ war.”¹¹⁶ Generally, the motivation behind German’s first development and offensive use of CW was to “have a new weapon of war that could break the stalemate in the trenches.”¹¹⁷

¹¹³ Hilmas, Corey, Jeffery Smart, and Benjamin Hill. “History of Chemical Warfare.” In *Medical Aspects of Chemical Warfare*. Falls Church, Virginia: Office of the Surgeon General, U.S. Army; Borden Institute, 2008, p. 10.

¹¹⁴ Ketchum, James, and Harry Salem. “Incapacitating Agents,” p. 412.

¹¹⁵ Spiers, Edward M. *A History of Chemical and Biological Weapons*, p. 30.

¹¹⁶ Freemantle, Michael. “The Chemists’ War.” *Chemistry World*, August 10, 2015. <https://www.chemistryworld.com/features/the-chemists-war/8837.article>.

¹¹⁷ Spiers, Edward M. “A History of Chemical and Biological Weapons,” p. 36.

The terror on the battlefield brought by CW in WWI garnered different reactions from the nation-state leaders and policymakers. For instance, British Prime Minister Winston Churchill favored the use of CW to shorten military conflicts.¹¹⁸ In 1944, Churchill, then Secretary of State for Defense, emphasized in his memorandum to the Britain War Office a request for chemical attacks on Germany. He stated: “It is not necessary to use only the most deadly gases: gases can be used which cause great inconvenience and would spread a lively terror and yet would leave no serious permanent effects on most of those affected.”¹¹⁹

On the contrary, during WWII, Adolf Hitler of Germany did not favor the CW use on the battlefield for an unclear reason.¹²⁰ It was claimed that Germany produced around 12,000 tons of the deadly chemical compound by the end of WWII sufficient enough to kill millions of people.¹²¹ Unknown of Germany’s exact war plans and despite an international treaty banning the use of CW, the British government sanctioned extensive planning and preparations for possible chemical attacks in WWII. The horrifying chemical incidents in WWI had psychologically affected the mindset of the British policymakers that made CW as a high-level threat for their citizens as stated: “The terror of gas hung heavy on the public consciousness, and with the advent of the medium bomber bringing civilian population centers into the line of fire, the government considered the threat of gas to civilian populations to be severe.”¹²²

By the end of WWI, chemical attacks using chlorine, phosgene, mustard gases, and Lewisite caused an estimated 90,000 fatalities and 1,300,000 injured soldiers and civilians.¹²³

¹¹⁸ Pruitt, Sarah. “The Nazis Developed Sarin Gas During WWII, But Hitler Was Afraid to Use It.” History, April 12, 2017. <https://www.history.com/news/the-nazis-developed-sarin-gas-but-hitler-was-afraid-to-use-it>.

¹¹⁹ Ibid.

¹²⁰ Ibid.

¹²¹ Ibid.

¹²² Ibid.

However, some experts argue that CW were not effective strategically because such weapons caused less than one percent of WWI fatalities and less than two percent of American war casualties.¹²⁴ Tactically, Piet Chielens, author and curator at In Flanders Field Museum in Ypres, Belgium, says “but from the point of view of the men who had to work with it—be exposed to it—it was a terrible weapon.”¹²⁵ He added that “psychological terror on the ordinary soldier was immense.”¹²⁶ Finally, WMD scholars noted that WWI CW use were the driving force for chemical protective equipment development like gas masks and the modern employment of CW precedence.

During the Iran-Iraq war between 1980 and 1988, Iraqi forces used CW against the Iranians despite the 1925 Geneva Protocol banning the use of such weapons.¹²⁷ As a result, Iran suffered massive casualties estimated at around 60,000 soldiers and civilians.¹²⁸ Iraqi forces utilized mustard gas in their initial attacks then followed by nerve agents particularly tabun and sarin in their succeeding attacks.¹²⁹ In 1988, the Iraqi government initiated a single chemical attack against the Kurds that yielded over 6,000 civilian fatalities in the town of Halabja.¹³⁰

It was determined that Saddam Hussein utilized CW during the Iran-Iraq war for several reasons. CIA analysts assessed that “selective use of CW can augment conventional arsenals,

¹²³ Fitzgerald, Gerard J. “Chemical Warfare and Medical Response during World War I.” *American Journal of Public Health* 98, no. 4 (April 2008), p. 612.

¹²⁴ Everts, Sarah. “When Chemicals Became Weapons of War.” *Chemical and Engineering News* | 100 Years of Chemical Weapons, February 9, 2015. <http://chemicalweapons.cenmag.org/when-chemicals-became-weapons-of-war/>.

¹²⁵ Ibid.

¹²⁶ Ibid.

¹²⁷ Nuclear Threat Initiative. “Iran | Chemical | NTI,” July 2017. <https://www.nti.org/learn/countries/iran/chemical/>.

¹²⁸ Ibid.

¹²⁹ Ibid.

¹³⁰ Nuclear Threat Initiative. “Iraq | Countries | NTI,” July 2015. <https://www.nti.org/learn/countries/iraq/chemical/>.

attain short-term objectives, influence particular combat situations, and significantly increase enemy casualties.”¹³¹ Iraqi chemical warfare sent a clear message that “the use of CW to demoralize and provide fear in an enemy is as important as inflicting battlefield casualties.”¹³² Further, Iraq used CW as a force multiplier in defending its territory. Saddam’s initial political and military decision to field such weapons against Iran seems to be rooted in “compensating for Iraq’s limited military manpower.”¹³³ Lastly, Iraqi’s use of CW internally against civilians was deliberate to specifically “terrorize the Kurds and threaten their very existence.”¹³⁴

In early 2013, according to the Human Rights Watch (HRW), the Syrian regime under President Bashar al Assad was held responsible for chemical attacks against Syrian rebels.¹³⁵ Based on the HRW report, the regime initiated at least 85 chemical weapon attacks between August 21, 2013, and February 25, 2018, in Damascus, Idlib, Aleppo, and Hama.¹³⁶ While Syria is among the state parties signatory of international conventions banning the use of CW, the Assad regime allegedly used Sarin, VX, and sulfur mustard to inflict harm to thousands of civilian casualties in the ongoing Syrian civil war.¹³⁷ The international community condemned the Syrian government for using CW against its own people; however, the case remains

¹³¹ Director of Central Intelligence. “Impact and Implications of Chemical Weapon Use in Iran-Iraq War.” Interagency Intelligence Memorandum (declassified). Virginia: Central Intelligence Agency, March 22, 1988, p. 1.

¹³² McCarthy, Timothy, and Jonathan Tucker. “Saddam’s Toxic Arsenal: Chemical and Biological Weapons in the Gulf Wars.” In *Planning the Unthinkable: How New Powers Will Use Nuclear, Biological, and Chemical Weapons*, 1st ed. Ithaca, NY: Cornell University Press, 2000, p. 61.

¹³³ Director of Central Intelligence. “Impact and Implications of Chemical Weapon Use in Iran-Iraq War,” p. 3.

¹³⁴ Russell, Richard. “Iraq’s Chemical Weapons Legacy: What Others Might Learn from Saddam.” *The Middle East Journal*, Changing Geopolitics, 59, no. 2 (Spring 2005), p. 199.

¹³⁵ Human Rights Watch. “Syria: A Year On, Chemical Weapons Attacks Persist,” April 4, 2018. <https://www.hrw.org/news/2018/04/04/syria-year-chemical-weapons-attacks-persist>.

¹³⁶ Ibid.

¹³⁷ Ibid.

unresolved due to geopolitical differences within the governing international organization.

CW are also utilized for targeted attacks. In February 2017, Kim Jong-Nam, eldest brother of North Korean Supreme Leader Kim Jong-Un, was murdered using the VX nerve agent in Malaysia airport in broad daylight.¹³⁸ The Malaysian government claimed that two women, an Indonesian and a Vietnamese, wiped a liquid substance one after another, on the face of the victim that caused his instantaneous death.¹³⁹ Numerous CW experts and scientists suggested that the assassins utilized binary chemical weapon using VX as the chemical agent. Several countries condemned the assassination and called out North Korea as responsible for the attack.¹⁴⁰

In Kim Jong-Nam's case, binary CW were proven to be effective in conducting clandestinely directed chemical attacks. Both suspects pleaded innocent on the assassination case filed against them by Malaysian authorities.¹⁴¹ In their statements, the women insisted that they were tricked by unknown persons and were made to believe that they were part of a certain TV prank.¹⁴² Thus, if their statements were factual, it can be assessed that they carried those chemical compounds safely and had passed through the airport security protocol undetected.

On March 4, 2018, a Russian nerve agent was employed in Salisbury, the U.K. against Sergei Skripal, a former Russian spy, and his daughter, Yulia.¹⁴³ It is the latest known targeted

¹³⁸ Paddock, Richard C., and Choe Sang-Hun. "Kim Jong-Nam Was Killed by VX Nerve Agent, Malaysians Say." *The New York Times*, December 22, 2017, sec. World. <https://www.nytimes.com/2017/02/23/world/asia/kim-jong-nam-vx-nerve-agent-.html>.

¹³⁹ Ibid.

¹⁴⁰ Hersman, Rebecca, and William Pittinos. "Restoring Restraint Enforcing Accountability for Users of Chemical Weapon," p. VI.

¹⁴¹ BBC. "Kim Murder Suspect Escapes Death Penalty." *BBC News*, April 1, 2019, sec. Asia. <https://www.bbc.com/news/world-asia-47769962>.

¹⁴² Ibid.

¹⁴³ UK Government. "Novichok Nerve Agent Use in Salisbury: UK Government Response, March to April 2018." GOV.UK, April 18, 2018.

chemical attack. The UK and other countries suspected that the Russian government was behind the plot. As a result, 150 Russian intelligence officers were expelled from 26 countries in response to the incident however, the attackers remain at large.¹⁴⁴

Non-state actors have also turned to CW to commit acts of terrorism. Aum Shinrikyo, a Japanese doomsday cult, executed two major chemical terrorism attacks. First, at midnight of June 27, 1994, the group sprayed GB nerve agent in Matsumoto City, Japan while everybody was asleep based on detailed accounts from Japanese authorities.¹⁴⁵ It resulted in seven fatalities and 274 chemical-related injuries.¹⁴⁶ The second attack was launched during the peak of morning rush hour of March 20, 1995, in the Tokyo subway system that yielded 12 fatalities and more than 5,000 injuries.¹⁴⁷

Aum is recognized to be the first non-state actor that employed modern CW to deliberately attack civilians. According to the U.S. DoD, Aum CW case proved that committed non-state actors could achieve technical sophistication or the expertise to threaten society with chemical agents.¹⁴⁸ Aum manufactured the following nerve agents: GA, GD, GB, and VX, as well as phosgene and sodium cyanide based on the U.S. Senate Permanent Subcommittee for Investigations research.¹⁴⁹

<https://www.gov.uk/government/news/novichok-nerve-agent-use-in-salisbury-uk-government-response>.

¹⁴⁴ Ibid.

¹⁴⁵ OPCW. “The Sarin Gas Attack in Japan and the Related Forensic Investigation.” News, June 1, 2001. <https://www.opcw.org/media-centre/news/2001/06/sarin-gas-attack-japan-and-related-forensic-investigation>.

¹⁴⁶ Ibid.

¹⁴⁷ Ibid.

¹⁴⁸ Office of the Under Secretary of Defence for Acquisition and Technologies. “The Militarily Critical Technology List Part II: Weapons of Mass Destruction Technologies,” p. II-4-11.

¹⁴⁹ Ibid., p. II-4-11.

There are many lessons learned from the Japanese chemical incidents which can still be applied today. First, the magnitude of chemical terrorism is severe because most civilians are poorly prepared for chemical attacks.¹⁵⁰ Second, the untrained and less-equipped health care workers and first responders are vulnerable to secondary exposure of chemicals. Experts claimed that Japanese responders were exposed to secondary exposure during the Tokyo GB attacks because of “insufficient knowledge of decontamination and protective measures that needed to be implemented.”¹⁵¹

Reliable chemical detection systems are essential to identify the chemical agents used in a chemical attack incident and the corresponding protocol to mitigate the effects. Robyn Pangi, a research associate with the Executive Session on Domestic Preparedness at Harvard University, determined that there was significant delay in the identification of the chemical agent as the nature of the problem during the chemical attacks in Japan. In addition, the chemical attacks continued to have psychological impacts on the Japanese people.¹⁵² While victims of the GB attacks recovered physically from the chemical exposure, psychological effects of the attacks remain in society and victims’ families.¹⁵³

In hindsight, Islamic violent extremist groups, such as Al Qaeda and ISIS, have established their own CW program to aid their respective political objectives. For instance, ISIS

¹⁵⁰ Ibid., p. II-4-5.

¹⁵¹ Okumura, Sumie, Tetsu Okumura, Shinichi Ishimatsu, Kunihisa Miura, Hiroshi Maekawa, and Toshio Naito. “Clinical Review: Tokyo – Protecting the Health Care Worker during a Chemical Mass Casualty Event: An Important Issue of Continuing Relevance.” *Critical Care* 9, no. 4 (2005), p. 397.

¹⁵² Asukai, Nozomu, and Kazuhiko Maekawa. “Psychological and Physical Health Effects of the 1995 Sarin Attack in the Tokyo Subway System.” In *Toxic Turmoil: Psychological and Societal Consequences of Ecological Disasters*, edited by Johan M. Havenaar, Julie G. Cwikel, and Evelyn J. Bromet, 149–62. The Plenum Series on Stress and Coping. Boston, MA: Springer US, 2002.

¹⁵³ Pangi, Robyn. “Consequence Management in the 1995 Sarin Attacks on the Japanese Subway System.” Belfer Center for Science and International Affairs, February 2002, p. 37.

was responsible for over 200 CW use which were recorded between 2012 and 2017. The details of Islamic violent extremists' CW program will be discussed in chapter 3.

Consequences of Chemical Weapons Use

As previously stated, chemical attacks could have direct and indirect repercussions to victims, environment, and economy. The impacts differ in terms of short-term or long-term consequences. In 2004, the World Health Organization (WHO) released a comprehensive report of possible consequences of CW. Such weapons can directly result in mass fatalities and massive injuries without damaging infrastructure in the target area.¹⁵⁴ The use of such a weapon can indirectly initiate panic and psychological anxiety in a targeted community.¹⁵⁵

Exposure to chemical agents may lead to continuous chronic illnesses and environmental damage.¹⁵⁶ During the Iran-Iraq war, victims from previous chemical attacks, suffered eye injuries and skin complications, structural abnormalities, and pulmonary diseases such as chronic bronchiectasis, asthmatic bronchitis, pulmonary fibrosis, and large airway obstructions.¹⁵⁷ Notably, deaths from pulmonary complications were recorded as late as 12 years after the chemical agent exposure.¹⁵⁸

Environmentally, the effects of CW can affect the normal quality and quantity of the food

¹⁵⁴ Office of the Under Secretary of Defence for Acquisition and Technologies. "The Militarily Critical Technology List Part II: Weapons of Mass Destruction Technologies," p. II-4-1.

¹⁵⁵ World Health Organization. "Public Health Response to Biological and Chemical Weapons," p. 46.

¹⁵⁶ *Ibid.*, pp. 46-47.

¹⁵⁷ World Health Organization. "Public Health Response to Biological and Chemical Weapons," pp. 47-48.

¹⁵⁸ *Ibid.*, p. 48.

supply derived from plants and animals.¹⁵⁹ Finally, chemical-related incidents may disrupt the normal flow of business or economic trades and tourism activities especially if it affects a significant area.¹⁶⁰ Affected facilities need to undergo decontamination process prior to the resumption of normal operations, thus, the disruption to business operations could have an enormous impact on the livelihood and well-being of the local population.

International Treaties and Arms-Control Regime

The effects of CW were disturbing since the first application in warfare. As a result, the international community aimed to cut further development, production, stockpiling, transfer, and use of CW. Generally, signatory nation-states are bound to adhere to the provisions with the option to withdraw their association from the agreement. While non-signatory nation-states may adhere with the articles of the agreement but they are not compelled to do so.

The following are the notable international treaties and organizations which aim to control the development, production, stockpiling, transfers, and use of CW.

Strasbourg Agreement. Strasbourg Agreement was the first formalized international agreement regulating the use of CW.¹⁶¹ France and German signed an agreement in Strasbourg, France on August 27, 1675, prohibiting the use of a poison bullet.¹⁶²

1925 Geneva Protocol. The Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gas, and of Bacteriological Method of Warfare, also known as

¹⁵⁹ Ibid., p. 49.

¹⁶⁰ Miller, Trisha Hoette, Troy Stevens, Charles Robert Rath, Craig M. Tenney, Mark K. Kinnan, and Mark Pepple. "Chemical Incident Economic Impact Analysis Methodology." New Mexico: Sandia National Laboratories, August 1, 2013, p. 5.

¹⁶¹ OPCW. "Origins of the Chemical Weapons Convention and the OPCW." Fact Sheet. 1. Organisation for the Prohibition of Chemical Weapons, November 2017, p. 1.

¹⁶² Ibid., p.1.

the 1925 Geneva Protocol, was established to ban the use of chemical and biological weapons on the battlefield but not the possession of such weapons.¹⁶³ It was signed in Geneva on June 17, 1925, and entered into force on February 8, 1928. Notably, some countries signed the Protocol with reservation because the agreement can be interpreted that development, production, and use of CW for defensive purposes were not prohibited.¹⁶⁴ It was only in the mid-twentieth century when these nation-states recognized the total ban on the use of chemical and biological weapons.

In its early stage, the 1925 Geneva Protocol showed the success on the limitation of CW use in war, particularly during WWII. However, the Protocol weakened because some nation states have significantly increased their CW stockpiles and such weapons were utilized again in subsequent wars, notably during the Iran-Iraq war.

Chemical Weapons Convention (CWC). The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, commonly known as Chemical Weapons Convention (CWC), was signed on January 13, 1993, and entered into force on April 29, 1997. Significantly, the Convention has 193 member states and one signatory state (Israel), leaving only three countries (Egypt, North Korea, and South Sudan) that neither signed nor ratified the CWC.¹⁶⁵ The CWC requires member states to declare their stockpiles and be verified by an international verification body prior to their destruction.

The Organization for the Prohibition of Chemical Weapons (OPCW) was established on April 29, 1997 with a specific mission to “implement the provisions of the CWC to achieve our vision of a world free of CW and the threat of their use, but instead promote the science of

¹⁶³ Arms Control Association. “The Chemical Weapons Convention (CWC) at a Glance.” Fact Sheets and Briefs. Arms Control Association, June 22, 2018. <https://www.armscontrol.org/factsheets/cwcglance>.

¹⁶⁴ OPCW. “Origins of the Chemical Weapons Convention and the OPCW,” p. 2.

¹⁶⁵ OPCW. “OPCW by the Numbers.” OPCW, June 16, 2018. <https://www.opcw.org/media-centre/opcw-numbers>.

chemistry in which the intended use is for peace, progress, and prosperity.”¹⁶⁶ Remarkably, the OPCW has been positive in minimizing the stockpile of CW worldwide. As of April 30, 2017, the OPCW Director-General Ahmet Üzümcü announced that the OPCW destroyed 90 percent of the total U.S. declared Category 1 CW and 98 percent of Russia’s total CW belonging to the same category.¹⁶⁷

On the contrary, the CWC has been challenged on the continuous spread and use of CW. Since it came into force, CWC member states, Russia and Syria, have allegedly violated the sole purpose of the Convention. Additionally, North Korea, a non-member state, employed CW in Malaysia, a CWC member state. Lastly, non-state actors – Aum Shinrikyo, Al Qaeda, and ISIS – evidently became known players in the global CW problem. More so, Al Qaeda and ISIS CW proliferation and potential use are among the most serious international security concern in modern times. In an event of a chemical incident, OPCW can provide technical and emergency assistance before carrying out a formal investigation that could be requested by an affected member state.¹⁶⁸

The Australian Group. The Australian Group is an informal organization by member countries with the intention to contribute to countering the proliferation of chemical and biological weapons. The primary objective of the Australian Group is “to use licensing measures to ensure that exports of certain chemicals, biological agents, and dual-use chemical and biological manufacturing facilities and equipment, in order to control or regulate the spread of

¹⁶⁶ OPCW. “Mission,” 2019. <https://www.opcw.org/about-us/mission>.

¹⁶⁷ Üzümcü, Ahmet. “The Chemical Weapons Convention 1997-2017: Progress, Challenges and Reinforcing the Global Norm against Chemical Weapons.” Washington, D.C, June 201AD.
https://www.opcw.org/sites/default/files/documents/ODG/uzumcu/Speech_washington_forum_june_2017_final.pdf.

¹⁶⁸ OPCW. “Responding to the Use of Chemical Weapons.” OPCW, 2019.
<https://www.opcw.org/our-work/responding-use-chemical-weapons>.

chemical and biological weapons.”¹⁶⁹ The 1980s Iraqi CW attacks triggered the formation of the group which has grown to 41 participating countries from only 15 in 1985.¹⁷⁰

This chapter outlined the composition of different CW and discussed the horrific impacts of CW. The weapon proved to cause mass casualties, long-term psychological impact as well as economic and environmental damage. In addition, the effects of CW use have been maximized against unprepared targets and first responders. Further, committed state and non-state actors carried out CW attacks to gain a strategic and tactical advantage against their more powerful adversaries despite international prohibitions.

Lastly, this chapter determines that CW are predisposed to proliferation compared to other types of WMDs. CW are relatively stable, inexpensive and easy to produce. In general, the typical chemical agents being developed and used were nerve agents, choking agents, and blistering agents – all with commercially available precursors. Notably, Al Qaeda and ISIS are among the potential proliferators of CW given their current technical proficiency and a network of affiliates worldwide, including in Southeast Asia.

The next chapter will focus on examining CW capability of Al Qaeda and ISIS as the patent of CW proliferation in Southeast Asia. Furthermore, it will study the ideology, tactics, and strategies of both terrorist core groups and gauge their intent of using and spreading the technical expertise of CW to their affiliates in Southeast Asia.

¹⁶⁹ The Australia Group. “Objectives of the Group.” Accessed February 20, 2019. <https://australiagroup.net/en/objectives.html>.

¹⁷⁰ The Australia Group. “The Origin of the Australia Group.” Accessed February 20, 2019. <https://australiagroup.net/en/origins.html>.

CHAPTER 3: THREAT ANALYSIS OF CHEMICAL TERRORISM

Al Qaeda and ISIS' possession of CW capability poses a serious security concern. Having access to such capability, these terrorist groups will most likely employ CW in the future. The situation is aggravated by a possible proliferation of their CW expertise to other Islamic violent extremists globally which augment more actors who will be able to commit the act of chemical terrorism. This chapter examines the intent and capability of Al Qaeda and ISIS influence on the chemical terrorism threat in Southeast Asia. This chapter studies their ideology, organization, strategies, and CW technical specifications that are essential in formulating a strategy to counteract the chemical terrorism threat, specifically the Islamic violent extremism.

Understanding Islamic Violent Extremism

Sunni is the largest sect of Islam comprising more than 85 percent of the total Muslim population in the world compared to its rival sect, Shia.¹⁷¹ In 2010, Pew Research estimated that there were 1.6 billion Muslims around the world, which make it second-largest rising spiritual group after Christianity.¹⁷² The division of Islam began in 632 A.D after the death of Prophet Muhammad, founder of Islam, over leadership succession. Over time, Islamic religious scholars interpreted differently the teachings of Prophet Muhammad, which eventually created factions within the religion.

¹⁷¹ Pew Research Center. "Mapping the Global Muslim Population," October 7, 2009. <http://www.pewforum.org/2009/10/07/mapping-the-global-muslim-population/>.

¹⁷² Desilver, Drew, and David Masci. "World Muslim Population More Widespread than You Might Think." Pew Research Center, January 31, 2017. <https://www.pewresearch.org/fact-tank/2017/01/31/worlds-muslim-population-more-widespread-than-you-might-think/>.

In the 18th century, Muhammad bin Abd al Wahhab, whose name is the basis of the word “Wahhabi,” formed a religious movement in the Arabian Peninsula aimed at spreading the traditional understanding of the Islam.¹⁷³ He encouraged all Muslims to adhere to the conservative practices of Islam, as exemplified in the Quran and in the life of the Prophet Muhammad. In the early 20th century, followers advocating the orthodox outlook of Islam formed a group and called themselves as “Unitarian” (*muwahiddun*) or “Salafiyyun”, which came from the word *salaf* means to “follow” or “precede.”¹⁷⁴

Islamic violent extremists with Wahhabism or Salafism ideology continue to cause terrorism and other forms of atrocities worldwide. In 2016, Al Qaeda, ISIS, and the Taliban were responsible for about 70 percent of the terrorism victims worldwide.¹⁷⁵ Notably, Shia Muslims and other supporters are also subjected to attacks aside from non-Muslims.¹⁷⁶ In 2018, the U.S. intelligence assessed the following: “Sunni violent extremists most notably Al Qaeda and ISIS continue to pose terrorist threats to U.S. interests and partners worldwide, while U.S. homegrown violent extremists (HVEs) will remain the most prevalent Sunni violent extremist threat in the U.S..”¹⁷⁷

Islamic violent extremists justify their terrorist acts on their own “interpretation” of the Quran¹⁷⁸ and the literature of early Sunni religious scholars. It has been the rhetoric of the

¹⁷³ Blanchard, Christopher M. “The Islamic Traditions of Wahhabism and Salafiyya.” Washington, D.C: Congressional Research Service, January 24, 2008, p. 2.

¹⁷⁴ Ibid., p. 3.

¹⁷⁵ Zehorai, Itai. “The Richest Terror Organizations in the World.”

¹⁷⁶ BBC. “Sunnis and Shia: Islam’s Ancient Schism.” *BBC News*, January 4, 2016, sec. Middle East. <https://www.bbc.com/news/world-middle-east-16047709>.

¹⁷⁷ Coats, Daniel. “Worldwide Threat Assessment of the US Intelligence Community,” p. 9.

¹⁷⁸ Quran is the Bible of Islam. Aside from the Quran, Muslims observe the teachings in the books written by ancient Islam scholars.

leaders like the late Osama bin Laden, Ayman al-Zawahiri, and Abu Bakr Al Baghdadi for other Muslims to join the jihad against the unbelievers and the “fake” Muslims.¹⁷⁹

According to Sohail Hashmi, associate professor of international relations at Mount Holyoke College, jihad could be used for defensive or offensive purpose. Defensive jihad aims to reject the aggression of the unbelievers of Islam which Hashmi further explains as a duty of every able-bodied Muslim, male and female.¹⁸⁰ Scholars believe that such kind of jihad motivated the Afghanistan “*mujahideen*” or “freedom fighters” and other foreign Muslim fighters in suppressing the expansion of the Soviet Union at Afghanistan during the Cold War. In order to legitimize Islamic violent extremism and win support, leaders and propaganda experts utilize the passages from the Quran that provoke other Muslims to undertake jihad with emphasis on their duty in Islam and the rewards they will receive thereafter. Below are the usual cited Quran verses that invoke provocation to undergo jihad.

- a. Quran 2:190-191 – Fight in the way of Allah those who fight you but do not transgress. Indeed, Allah does not like transgressors.” “And kill them wherever you overtake them and expel them from wherever they have expelled you, and trial (fitnah) is worse than killing. And do not fight them at al-Masjid al- Haram until they fight you there. But if they fight you, then kill them. Such is the recompense of the disbelievers.
- b. Quran 4:74 – So let those fight in the cause of Allah who sells the life of this world for the Hereafter. And he who fights in the cause of Allah and is killed or achieves victory - We will bestow upon him a great reward.
- c. Quran 9:36 – ...fight against the disbelievers collectively as they fight against you collectively. And know that Allah is with the righteous (who fear Him).

¹⁷⁹ Jihad is an Arabic word literally means “struggle” or “efforts”. Islamic violent extremist groups use this word to encourage other Muslims to join the “holy war” to defend Islam. The person who adheres with jihad is called a *jihadist*. For more details on jihad, see BBC. “Jihad.” Religion| Islam, August 3, 2009. http://www.bbc.co.uk/religion/religions/islam/beliefs/jihad_1.shtml.

¹⁸⁰ Hashmi, Sohail. “Islamic Ethics and Weapons of Mass Destruction: An Argument for Nonproliferation.” In *Ethics and Weapons of Mass Destruction: Religious and Secular Perspectives*, edited by Sohail Hashmi and Steven Lee. Cambridge, United Kingdom: Cambridge University Press, 2004, p. 325.

Offensive jihad is primarily intended to expand the territory of Islam (*dar al-Islam*) and ultimately to limit the domain of the unbelievers (*dar al-Harb*).¹⁸¹ Hashmi describes that in offensive jihad, the unbelievers will not be harmed if they convert to Islam or to live independently within Islamic sovereignty. Recent examples of offensive jihad were seen in the Middle East and Southeast Asia. In early 2014, ISIS core group took control of a considerable part of Iraq and Syria and declared it as an Islamic *caliphate*.¹⁸² In 2017, ISIS affiliates took control of a city in the southern Philippines and declared it as the Islamic caliphate in Southeast Asia. It is important to note that while all of the above territories are now back in the control of their respective governments the ideology remains potent.

Islamic jihad existed for millennia. Robert Spencer, an Islamic scholar, author of *The History of Jihad: From Muhammad to ISIS*, argues that Islamic violence is as old as Islam itself. Spencer started by quoting what Prophet Muhammad said to his followers, “I have been made victorious with terrors.”¹⁸³ Al Qaeda and ISIS along with their affiliates and inspired individuals, continue to wage both defensive and offensive jihad worldwide. They are committed to fight against their perceived enemies both overtly and secretly. Further, their methods are increasingly becoming brutal and innovative. As such, as long as Wahhabism or Salafism ideology remains, Islamic violent extremism will persist regardless of leadership, supporters and the tactics they employ. It is particularly observed that new devotees to the ideology are more aggressive and violent than their predecessors.

¹⁸¹ Ibid., p. 325.

¹⁸² Caliphate is the territory where a caliph or the successor of Prophet Muhammad can rule and implement the sharia or the Islamic laws.

¹⁸³ Spencer, Robert. *The History of Jihad: From Muhammad to ISIS*. New York, USA: Bombardier Books, 2018, p. 6.

Al Qaeda and its Chemical Weapons Program

In 1988, Al Qaeda was formally established by Osama bin Laden, a Saudi national and charismatic leader, who settled in Afghanistan. Historically, the early members of the terrorist group were enlisted from the network called *Maktab al-Khidamat* (Services Office) also known as *Al Khilafah*.¹⁸⁴ This network was originally organized by bin Laden and Dr. Abdullah al-Azzam¹⁸⁵ to recruit and to raise funds from the Arab country, Europe, and the U.S. in support of jihad against the Soviet Union. Based on the U.S. intelligence estimate, the original size of the network trained by bin Laden in Afghanistan camp was about 10,000 to 20,000 fighters in 1988.¹⁸⁶

At present, Al Qaeda maintains a hierarchical organization structure “characterized by clear lines of authority, functional specialization, and centralized decision-making” can be seen in Figure 3.¹⁸⁷ Based on the Al Qaeda’s organizational structure, the Amir or overall leader is directly responsible and has authority in all religious, operational, and logistical activities of Al Qaeda whether inside or outside Afghanistan’s borders.¹⁸⁸ The Amir participates in tactical, operational, strategic, logistical, and organizational planning.¹⁸⁹

The Deputy and the Command Council are the authorities next to the Amir in Al Qaeda’s structural organization. The Deputy is the second in command and is responsible for whatever tasks the Amir entrusted him while the Command Council, comprising seven to ten members, is

¹⁸⁴ Katzman, Kenneth. “Al Qaeda: Profile and Threat Assessment.” CRS Report for Congress. Washington, D.C: Congressional Research Service, August 17, 2005, p. 1.

¹⁸⁵ Dr. Abdullah al-Azzam was a former professor of Osama bin Laden at King Abdul Aziz University in Jeddah, Saudi Arabia. He was a Palestinian and key figure in the Muslim Brotherhood in Jordan. He was assassinated in November 1989.

¹⁸⁶ Katzman, Kenneth. “Al Qaeda: Profile and Threat Assessment,” p. 2.

¹⁸⁷ Gunaratna, Rohan, and Aviv Oreg. “Al Qaeda’s Organizational Structure and Its Evolution.” *Studies in Conflict & Terrorism* 20, no. 5 (November 20, 2010), p. 1045.

¹⁸⁸ *Ibid.*, p. 1054.

¹⁸⁹ *Ibid.*, p. 1054.

considered as “the highest decision-making body of Al Qaeda.”¹⁹⁰ The terrorist group has six different committees working based on their specialized functions.

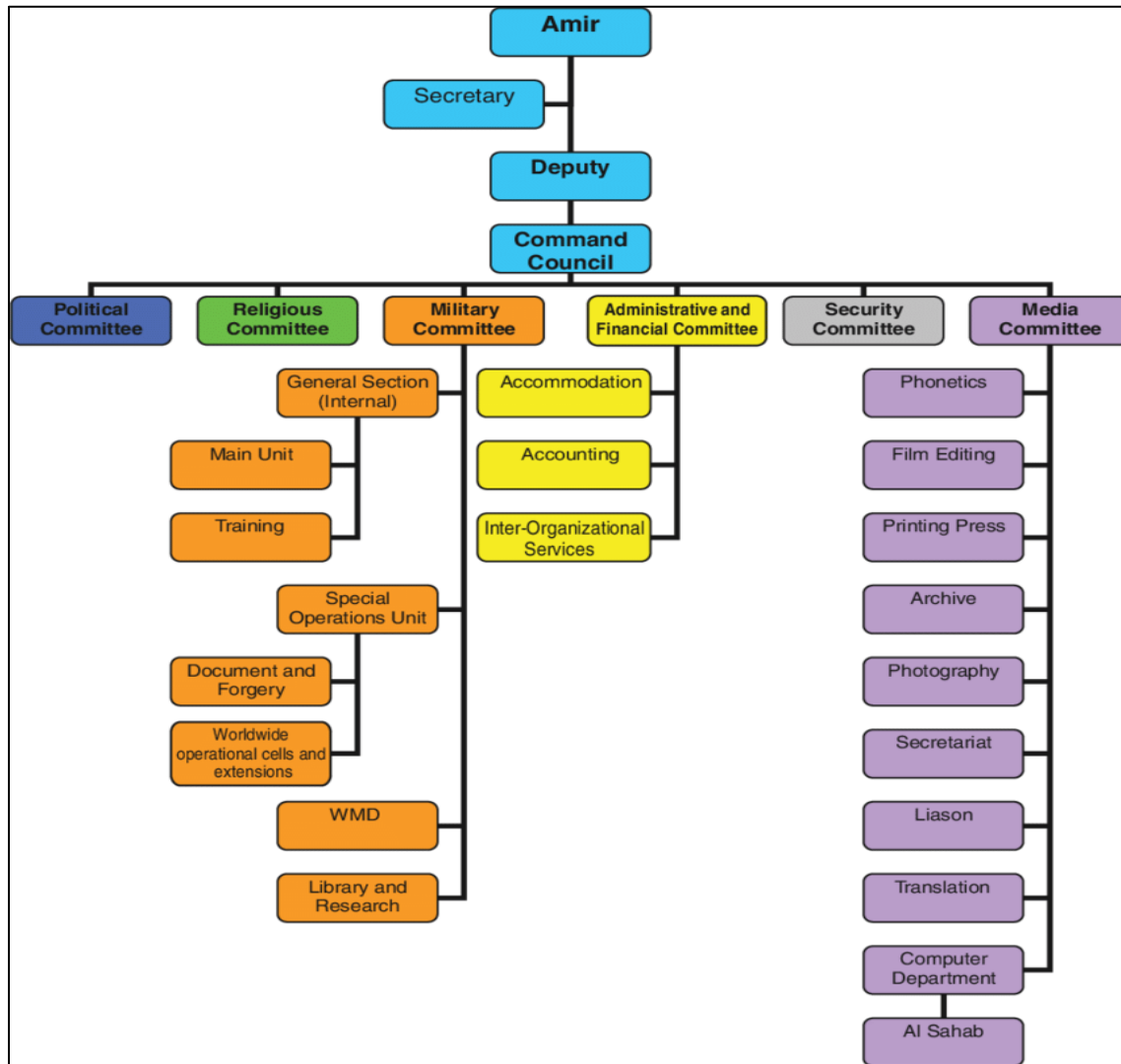


Figure 3. The Organizational Structure and Hierarchy of Al Qaeda
 Source: Gunaratna, Rohan, and Aviv Oreg. “Al Qaeda’s Organizational Structure and Its Evolution.” *Studies in Conflict & Terrorism* 20, no. 5 (November 20, 2010), p. 1055.

First is the political committee which is responsible for the partisan engagements of Al

¹⁹⁰ Ibid., pp. 1055-56.

Qaeda to its government or political partners such as the Taliban.¹⁹¹ Second is the religious committee. This committee is in charge of the review of the Islamic laws, preparation of leader's religious statements or fatwa, and assertion that all Al Qaeda's activities are aligned with the Islamic laws.¹⁹² Third is the security committee which provides personal security services to Al Qaeda's senior leaders and performs counterintelligence operations to protect the organization from enemies' espionage activities.¹⁹³ Fourth is the Administrative and Financial Committee. This commission facilitates various administrative requirements for all the members of the organizations and their families and is responsible for the financial services of the group such as accounting and transfer of funds.¹⁹⁴ Fifth is the Media Committee or the Information Committee which serves as the propaganda group. This committee acts as the group's messaging agency that disseminates Al Qaeda's ideology, leader's messages, and other information such as online training and recruitment videos to the Muslim audience worldwide.¹⁹⁵

Lastly, the Military Committee is responsible for all the operational and military activities of Al Qaeda. The functions of the body include training of new recruits; conducting the internal guerrilla war in the Middle East through its Main Unit; executing worldwide attacks through its Special Operations Unit; developing new conventional and non-conventional capabilities for the organization such as WMD; and documenting of Al Qaeda's operations and programs.¹⁹⁶

Security scholars believe that Al Qaeda's prefer a hierarchical organizational structure because it promotes an effective feedback system within the organization and it provides the capacity to

¹⁹¹ Ibid., p. 1062.

¹⁹² Ibid., p. 1064.

¹⁹³ Ibid., p. 1064.

¹⁹⁴ Ibid., p. 1063.

¹⁹⁵ Ibid., p. 1063.

¹⁹⁶ Ibid., pp. 1058-62.

promptly fill the position and rehabilitate its chain of command.¹⁹⁷ Thus, the organization can withstand despite losses of its key leaders.

In 2015, Daniel Byman, a senior fellow in the Center for Middle East Policy at Brookings Institute, stated before the Subcommittee on Counterterrorism of the House Committee on U.S. Homeland Security that the ultimate goal of Al-Qaeda is “to overthrow the corrupt apostate regimes in the Middle East and replace them with a true Islamic government.”¹⁹⁸ Byman added that the primary enemy of the group is the U.S., which is perceived as the root cause of the problem in the Middle East. Similarly, Kenneth Katzman, Specialist in Middle East Affairs of U.S. Congressional Research Service (CRS), explains that bin Laden and Dr. Ayman al-Zawahiri¹⁹⁹ believe that “the only way to bring an Islamic regime to power was to oust the U.S. from the region as it supports secular regional regimes such as Saudi Arabia.”²⁰⁰

In summary, Al Qaeda opposes the U.S. presence in the Middle East, particularly in the Arab Peninsula, because this group believes that the U.S. is desecrating the land of Islam where its two holiest sites are located.²⁰¹ Additionally, without the U.S. presence, the region will be more vulnerable to their attacks and control.²⁰²

¹⁹⁷ Ibid., pp. 1046-65.

¹⁹⁸ Byman, Daniel L. “Comparing Al Qaeda and ISIS: Different Goals, Different Targets.” Washington, D.C, April 29, 2015. <https://www.brookings.edu/testimonies/comparing-al-qaeda-and-isis-different-goals-different-targets/>.

¹⁹⁹ Dr. Ayman al-Zawahiri is the former chief lieutenant and main strategist of Osama bin Laden and currently, the leader or the Amir of Al Qaeda.

²⁰⁰ Katzman, Kenneth. “Al Qaeda: Profile and Threat Assessment,” p. 3.

²⁰¹ The most sacred places for Sunni Islam are located in the Arabian Peninsula. First is the black stone shrine of Islam or the Ka’ba in Mecca, Saudi Arabia. Second is the Medina or “City of the Prophet” located in the Hejaz region in western Saudi Arabia. For more details on other Islam sacred places, see “Sacred Places of Islam.” ReligionFacts, June 22, 2017. <http://www.religionfacts.com/islam/places>.

²⁰² Byman, Daniel L. “Comparing Al Qaeda and ISIS: Different Goals, Different Targets.”

Meanwhile, Al Qaeda continues to conduct terrorist attacks and encourages other Sunni Muslims to direct their assault to U.S. interests and its allies. On February 23, 1998, World Islamic Front leadership issued a joint fatwa obligating all Muslims to attack and kill Americans and their partners worldwide to free Islam from oppression and injustice.

The ruling to kill the Americans and their allies – civilians and military – is an individual duty for every Muslim who can do it in any country in which it is possible to do it, in order to liberate the al-Aqsa Mosque and the holy mosque (Mecca) from their grip, and in order for their armies to move out of all the lands of Islam, defeated and unable to threaten any Muslim. These are in accordance with the words of Almighty Allah – fight the pagans all together as they fight you all together; and fight them until there is no more tumult or oppression, and there prevail justice and faith in Allah.²⁰³

Al Qaeda supports local or regional Islamic insurgent groups who fight for their own causes and for Al Qaeda's message in general. Based on the 9/11 Commission Report, Al Qaeda provided equipment and training assistance to the Philippine insurgents, specifically on the Moro Islamic Liberation Front (MILF) and the Abu Sayyaf Group (ASG), and to the Jemaah Islamiyah (JI) with members dispersed in Malaysia, Indonesia, Singapore, and the Philippines.²⁰⁴

Tactically, Byman argued that Al Qaeda preferred historic and extensive attacks against strategic or symbolic targets. Among this kind of incidents are the following: the 1993 World Trade Center bombing, 1998 U.S. Embassy bombing in Kenya and Tanzania, 2000 USS Cole suicide bombing, and the U.S. Homeland September 11, 2001 plane attacks. It appears that each attack was unique, innovative, and underwent extensive planning and preparations with recruitment of personnel, acquisition or production of means of attacks, target surveillance, rehearsals, training, and proof of concept of attacks. Al Qaeda spends at least three to five years to undertake

²⁰³ World Islamic Front. "Jihad Against Jews and Crusaders," February 23, 1998. <https://fas.org/irp/world/para/docs/980223-fatwa.htm>.

²⁰⁴ National Commission on Terrorist Attacks upon the U.S. "The 9/11 Commission Report: Final Report of the National Commission on Terrorist Attacks upon the U.S." Washington, D.C: National Institution on Terrorist Attacks upon the U.S., 2004, p. 58.

a single strategic and surprise attack.²⁰⁵

Numerous incidents showed that Al Qaeda acquired and is prepared to use WMD, particularly CW. This enthusiasm can be traced back on the willingness of Al Qaeda's leader to achieve such capability. On December 22, 1998, bin Laden told Rahimullah Yousafzai, a Pakistani journalist and political and security analyst, in an interview that Al Qaeda has a plan of acquiring and use WMDs against its perceived enemies.

We are seeking to drive them (the US) out of our Islamic nations and prevent them from dominating us. We believe that this right to defend oneself is the right of all human beings. At a time when Israel stocks hundreds of nuclear warheads and when the Western crusaders control a large percentage of this weapon, we do not consider this an accusation but a right and we reject anyone who accuses us of this. We congratulated the Pakistani people when they achieved this nuclear weapon and we consider it the right of all Muslims to do so.²⁰⁶

WMD experts believe that Al Qaeda's CW programs had started in the late 1990s. Recovered documents, confessions from detainees, and a series of foiled chemical attack plots have all proven that Al Qaeda's acquisition of CW signifies its strong intent to use them.²⁰⁷ Besides, a WMD unit is embedded in the organizational structure of the group as shown in Figure 3. Historically, Al Qaeda was linked in several chemical plots using different kinds of chemicals—i.e. the London tube and U.S. embassy in Rome in 2002 that involved cyanide; New York City's (NYC) subway system using an improvised chemical device in 2003; and employing sulfuric acid at Amman, Jordan in 2004. Notably, authorities in those countries were able to thwart the chemical attacks, except for the plotted attack in NYC's subway. In a last minute decision, the operation was cancelled by a senior leader of Al Qaeda in what turned out to be a stroke of luck for the Americans on that fateful day.

²⁰⁵ Dunn, Lewis A. "Can Al Qaeda Be Deterred from Using Nuclear Weapons?," p. 12.

²⁰⁶ Staff, Guardian. "Text: Osama Bin Laden's 1998 Interview." *The Guardian*, October 8, 2001, sec. World news.

<https://www.theguardian.com/world/2001/oct/08/afghanistan.terrorism15>.

²⁰⁷ Dunn, Lewis A. "Can Al Qaeda Be Deterred from Using Nuclear Weapons?," pp. 4-5.

In July 2018, Aimen Dean, Military Intelligence - 6 (MI6) spy within Al Qaeda, revealed in a CNN interview that the terrorist organization had attained a CW capability as early as 2001 and subsequently explained the reason behind the sudden cancellation of the chemical attacks in the NYC subway.²⁰⁸ Dean, who was personally involved in the development of Al Qaeda's chemical device, later confirmed that Al Qaeda had developed a chemical device known as "*al-mubtakkar-al farid*" or what literally means as a "unique invention." He further described that the device was loaded with either cyanogen chloride or hydrogen cyanide and uses a timer or a mobile phone as a triggering device allowing the attackers to deploy safely. The CIA and MI6 were both convinced that the mubtakkar is lethal and dependable after they jointly developed and tested a prototype of the device using the recovered blueprint from captured members of Al Qaeda.²⁰⁹

As of this writing, there is no recorded case that Al Qaeda had deployed or used its unique invention. It remains uncertain on when or where Al Qaeda will deploy the mubtakkar, but what can be certain is that Al Qaeda will maintain the technical know-how and necessary expertise pertaining to this weapon. Dean exposed that an individual named Akhil, a former chemist teacher who became an Al Qaeda member was directly involved in developing the mubtakkar. Akhil revealed to Dean that the terrorist organization sent four operatives that are Saudi citizens who were holders of U.S. 10-year visas and previously trained on the mubtakkar in Morocco.²¹⁰ Akhil also exposed on why the NYC subway attack was aborted. Accordingly, "Zawahiri called off the chemical attacks in NYC subway system because he was concerned that

²⁰⁸ Dean, Aimen. "Former Spy Reveals Why Al Qaeda Called off NYC Subway Attack." CNN, July 12, 2018. <https://www.cnn.com/2018/07/12/world/al-qaeda-spy-nine-lives-aimen-dean-book-excerpt/index.html>.

²⁰⁹ Ibid.

²¹⁰ Ibid.

an attack in New York would be used to claim that Saddam Hussein had given Al Qaeda weapons of mass destruction so that the Americans could legitimize the invasion of Iraq.”²¹¹

Prior to the split of Al Qaeda and ISIS, Hashmi assessed that “Al Qaeda is justifiably perceived as the principal WMD threat of today because of its financial resources, its network of affiliated organizations around the world, and the technical sophistication of its recruits.”²¹² With the capability on hand, Al Qaeda will certainly utilize such weapons to its advantage and attain its ultimate goal.

Al Qaeda suffered significant losses in logistics, finances, and manpower as repercussion to the U.S. September 11, 2001 attacks. More countries joined the U.S. in combating the threat posed by Al Qaeda and its affiliates. On May 2, 2011, Osama bin Laden was assassinated by the U.S. Special Forces in Pakistan. Under the current leadership, security experts believe that core group Al Qaeda is merging with affiliate groups in the Middle East, Africa, and even in Southeast Asia. Albert Barabasi argues in his book, *Linked: How Everything Is Connected to Everything Else and What It Means for Business, Science, and Everyday Life*, that Al-Qaeda will continue to exist and pose threats to its perceived enemies because “Al Qaeda is so scattered and self-sustaining that even the elimination of Osama bin Laden and his closest deputies might not eradicate the threat they created. It is a web without a true spider.”²¹³

The rise of ISIS in 2014 opened the opportunity for Al Qaida to regroup with its network as ISIS became the focus of global efforts in combating Islamic violent extremism. As ISIS lost its territory, Al Qaeda can use it as another opportunity to recruit and reinstate ISIS members,

²¹¹ Ibid.

²¹² Hashmi, Sohail. “Islamic Ethics and Weapons of Mass Destruction: An Argument for Nonproliferation,” p. 321.

²¹³ Barabasi, Albert-laszlo. *Linked: How Everything Is Connected to Everything Else and What It Means for Business, Science, and Everyday Life*. 3/30/03 edition. New York: Basic Books, 2014, p. 223.

also former Al Qaeda members, back to the group. These members are experienced in combat and could be effective in perpetrating either small-scale or large-scale terrorist attacks. Elaine Duke, then Acting Secretary of U.S. Homeland Security, believed that Al Qaeda and its affiliates are conducting small-scale attacks to “keep their members engaged.”²¹⁴ Further, Al Qaeda has rising new leaders like Hamza bin Laden, son of Osama bin Laden, who may introduce more extreme terrorist activities to revive the jihad that his father started. Ali Soufan, a terrorist expert, assessed that Hamza bin Laden might be “a unifying figure” for the global jihadi movements to unite.²¹⁵ Thus, having the means and intent to inflict mass casualties, Al Qaeda’s resurgence in perpetrating future terrorist attacks will be expected to be more terrifying and chaotic.

ISIS and its Chemical Weapon Program

In 2002, Abu Musab al Zarqawi established the *Tawhid wal Jihad* (Monotheism and Jihad) in Iraq.²¹⁶ Zarqawi capitalized Sunni’s anger and opposition towards the U.S. forces in Iraq and the oppression from the majority Shia.²¹⁷ In 2004, Zarqawi pledged allegiance to Al Qaeda and renamed the group, Al Qaeda in the Land of the Two Rivers (also known as, Al Qaida in Iraq or AQ-I). AQ-I conducted a series of attacks in the region and among the notable attacks was the 2003 United Nation Headquarters bombing in Iraq. In 2006, Zarqawi died from the U.S.

²¹⁴ The Telegraph. “Terrorist Groups Planning Another 9/11-Style Attack, Top US Official Warns.” News, October 19, 2017. <https://www.telegraph.co.uk/news/2017/10/19/terrorist-groups-planning-another-911-style-attack-top-us-official/>.

²¹⁵ Soufan, Ali. “Hamza Bin Ladin: From Steadfast Son to Al-Qa`ida’s Leader in Waiting.” *Combating Terrorism Center at West Point* 10, no. 8 (September 7, 2017), p. 5.

²¹⁶ Blanchard, Christopher M, and Carla E Humud. “The Islamic State and U.S. Policy.” CRS Report. Washington, D.C: Congressional Research Service, September 25, 2018, p. 13.

²¹⁷ *Ibid.*, p. 15.

air strike and was replaced by Ibrahim Awad Ibrahim al Badri al Samarra'i (aka Abu Bakr al Baghdadi), a former U.S. prisoner. Experts believe that after the death of bin Laden in 2011 the relation between AQ-I and the core group Al Qaeda weakened. In April 2013, Baghdadi announced his intention of merging AQ-I and *Jabnat al-Nusra*, a Syrian jihadist group, and renamed merged group into Islamic State in Iraq and al Sham (Levant), also known as (ISIS/ISIL).²¹⁸ Al Qaeda core group condemned the merger of two groups and denounced ISIS.

In June 2014, Islamic State leaders pronounced the reestablishment of the *caliphate* (Islamic government), declared Baghdadi as *caliph* (the leader of the Islam world) and commanded all Muslims worldwide to support the caliphate.²¹⁹ ISIS adopted the organizational structure of traditional Islamic movement under the institution of the caliphate as shown in Figure 4.²²⁰ Some security scholars described this organizational structure as “one of the world’s most well-developed international jihadi movements in terms of structure and administrative effectiveness.”²²¹

A caliphate institution comprises several councils under the leadership of a caliph. A caliph has “absolute authority overall religious and worldly affairs in Sunni Islamic political history and imperial jurisprudence and has the absolute obedience of his followers after being chosen by the Shura Council and those who hold binding authority within the organization or the

²¹⁸ Zelin, Aaron. “Al-Qaeda Announces an Islamic State in Syria.” Policy Analysis. The Washington Institute, April 9, 2013. <https://www.washingtoninstitute.org/policy-analysis/view/al-qaeda-announces-an-islamic-state-in-syria>.

²¹⁹ Blanchard, Christopher M, and Carla E Humud. “The Islamic State and U.S. Policy,” p. 13.

²²⁰ Haniyeh, Hassan Abu. “Daesh’s Organisational Structure.” Aljazeera Centre for Studies, December 4, 2014. <http://studies.aljazeera.net/en/dossiers/decipheringdaeshoriginsimpactandfuture/2014/12/201412395930929444.html>.

²²¹ Ibid.

Ahlul Hal Wal Aqd (translated as “those who loosen and bind”).”²²² Thus, all the decisions and guidance of the caliph are final and undisputed in the Islamic world.

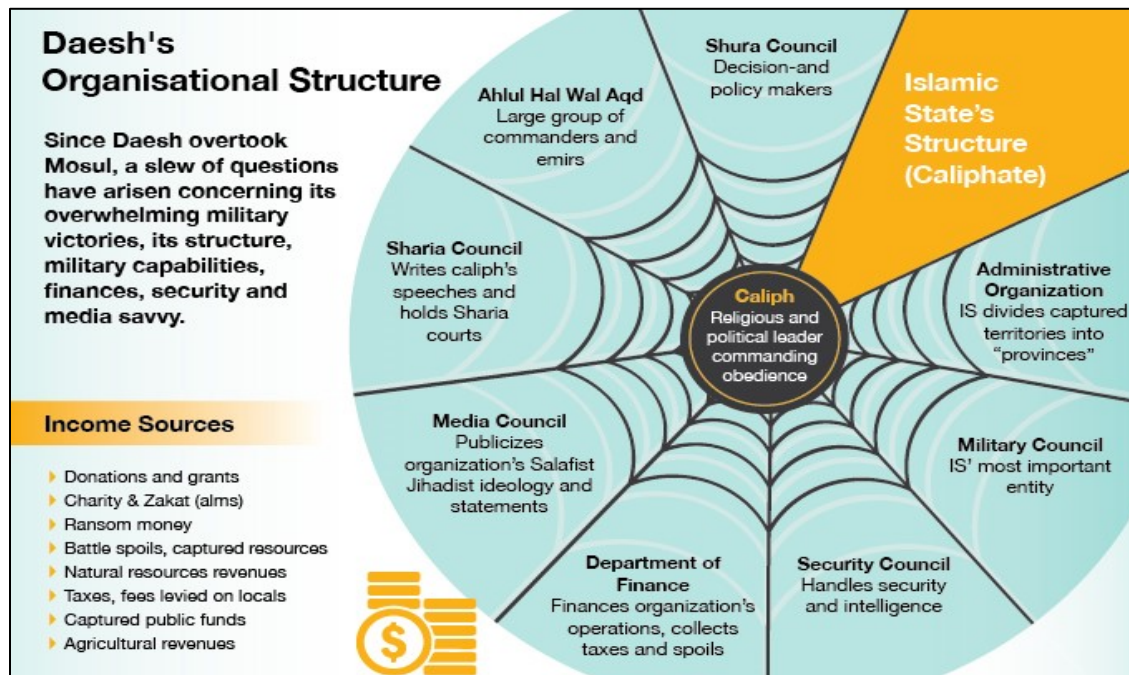


Figure 4. The Organizational Structure of ISIS

Source: Haniyeh, Hassan Abu. “Daesh’s Organisational Structure.” *Aljazeera Centre for Studies*, December 4, 2014.

<http://studies.aljazeera.net/en/dossiers/decipheringdaeshoriginsimpactandfuture/2014/12/201412395930929444.html>.

The first council is the Shura Council which is among the most important councils in the caliphate. It is composed of between nine and eleven members and tasks to deliberate recent issues in the organization, important decisions, and policies.²²³ The council is powerful because it can unseat an emir or regional leader from his position. Other functions of Shura Council include providing advice to the caliph; ensuring that all councils adhere to the Islamic laws,

²²² Ibid.

²²³ Ibid.

and recommending new caliph in case of the incumbent caliph dies.²²⁴

Second is the Ahlul Hal Wa Aqd which is composed of a large group of commanders and emirs who were appointed and pledged allegiance with the caliph.²²⁵ Unlike with the Al Qaeda's command hierarchy, these leaders can plan and conduct attacks independently in their area of operations without seeking prior approval from the caliph as long as the actions do not violate the Islamic law. Thus, ISIS' leadership structure follows a decentralized form of authority which provides more security and survivability to the organization.

Third is the Sharia Council which is responsible for "the spiritual and security guidance."²²⁶ This council issues religious messages, guidance, and preaching; writes caliph's speeches and statements; and provides commentary for the organization's videos, songs, and other media.²²⁷ Sharia courts and judiciary systems are under the authority of this council. Fourth is the Media Council which is in charge of the publication of Salafi's ideology and its political messages.²²⁸ As compared with Islamic violent extremist groups, ISIS has mastered the exploitation of the Internet and other mass communication platform to launch its concept of "electronic jihad". This body maintains various websites and online forums, which provide an immense collection of literature about ISIS ideology, teachings, methods of recruitment, fundraising, training, surreptitious actions, battle tactics, bomb-making, and all jihadists need to know about warfare.

Fifth is the Department of Finance which is in charge of managing the caliphates' financial resources. ISIS became the wealthiest Islamic violent extremist in the history of the

²²⁴ Ibid.

²²⁵ Ibid.

²²⁶ Ibid.

²²⁷ Ibid.

²²⁸ Ibid.

jihadi movement.²²⁹ Among the sources of ISIS' funds were donations and grants, charity and zakat (alms), ransom money, captured resources, revenue from natural resources and mining, taxes and stipends, captured government funds, and agricultural revenues.²³⁰ Sixth is the Security Council which handles the security and intelligence of the organizations. Seventh is the Military Council which is ISIS' most important agency. This council is composed of sector commanders that "handles all military aspects, including strategic planning, battle commands, attack planning, and oversight, supervision and correction of military commanders' operations, as well as armament and spoils management."²³¹ Lastly, the Administrative Organization referred to the divided units of ISIS called the "wilayat" means state or provinces which are governed by an appointed official called a "wali".

ISIS recruited thousands of Muslims worldwide to join the fight in the declared caliphate. Consequently, at least thirty Islamic insurgents in different countries, including Indonesia and the Philippines, pledged allegiance with ISIS.²³² On their peak, ISIS, its affiliates, and inspired-individuals conducted series of atrocities globally. From 2002 to 2015, the Global Terrorism Database documented more than 4,900 terrorist acts committed by the groups associated with the Islamic State.²³³ As a result, these caused more than 33,000 deaths, more than 41,000 injuries, and more than 11,000 individuals held hostage and kidnapped.²³⁴

²²⁹ Ibid.

²³⁰ Ibid.

²³¹ Ibid.

²³² Cordesman, Anthony. "Global Trends in Terrorism Through 2016 and the Relative Role of ISIS and the Taliban." Center for Strategic and International Studies, June 14, 2017. <https://www.csis.org/analysis/global-trends-terrorism-through-2016-and-relative-role-isis-and-taliban>.

²³³ Miller, Erin, Sheenan Kane, William Kamerer, and Brian Wingenroth. "Patterns of Islamic State-Related Terrorism, 2002-2015." Background Report. College Park, Maryland: START, August 2016.

ISIS threatened to attack the U.S. and its allies since 2012 and its leaders regularly described the U.S. and its non-Muslim allies as “crusaders”.²³⁵ Further, ISIS leaders encouraged their supporters to initiate attacks on their own against the supposed enemies of Islamic State. In comparison with Al Qaeda, Byman observes that ISIS prefers targeting the “near enemies”, which are the “apostate” regimes in the Middle East specifically Syria and Iraq instead of the “far enemy”, the United States. Baghdadi prioritizes the cleansing of the Islamic community by attacking Shi’a, other minority religious groups, and its rival jihadist groups namely, the Hizballah, the Yazidis, and Jabnat al-Nusra.²³⁶

ISIS strategically, favors territorial control and expansion. Byman elaborated that it desires to establish an Islamic government where Muslims live under Islamic law. In 2014 to 2015, experts estimated that ISIS took over more than 34,000 square miles of territory in Iraq and Syria. Furthermore, they controlled income generating facilities such as oil refineries and other business establishments.

Tactically, Byman observed that ISIS employs terrorist acts to weaken the morale of the security forces, to target rivals, or to conquer territory.²³⁷ ISIS and its affiliates became international concerns because of their inhumane activities such as mass executions, decapitation, kidnap-for-ransom, forced religious conversion, rape, extortions, among others. Furthermore, ISIS employed CW in Syria and Iraq. ISIS is known to be the first non-state actor to have manufactured chemical warfare agents and fused them with the projectile as a delivery

https://www.start.umd.edu/pubs/START_IslamicStateTerrorismPatterns_BackgroundReport_Aug2016.pdf.

²³⁴ Ibid.

²³⁵ Blanchard, Christopher M, and Carla E Humud. “The Islamic State and U.S. Policy,” p. 5.

²³⁶ Byman, Daniel L. “Comparing Al Qaeda and ISIS: Different Goals, Different Targets.”

²³⁷ Ibid.

system.²³⁸ Historically, experts believe that ISIS' CW ambitions started during the time of al-Zarqawi. In 1999, he established a training camp in Afghanistan and they started the experiment of toxin production. In 2004, ISIS attempted to use chemicals by incorporating them with the vehicle-borne improvised explosive device (VBIED) to create a toxic cloud on Jordanian soil, however; the plot was disrupted by the Jordanian authorities.²³⁹

Some security analysts believe the group recovered massive chemical warfare agents from the Iraq former CW facilities. Besides that, ISIS developed its indigenous low-grade CW loaded with chemical agents such as chlorine and sulfur mustard. In 2015, the European Parliament evaluated that ISIS had attained its CW capability because "the radical Islamic group had the following: money, scientists – some of the foreign origin – on the payroll, found an abundance of deadly toxins stockpiled by the tyrants of Syria, Iraq, and Libya, and could make more of its own quite easily."²⁴⁰ In June 2017, the U.S State and Treasury Department designated two Iraqis as terrorists in connection with their involvement in the development of ISIS CW namely, Attallah Salman 'Abd Kafi al-Jaburi, ISIS CW and explosive manager, and Marwan Ibrahim Hussayn Ta al-Azawi, ISIS leader in CW development.²⁴¹ Furthermore, Joe Asperman, French and a senior CW expert for ISIS, was added by the State Department to the U.S.

²³⁸ Strack, Columb. "The Evolution of the Islamic State's Chemical Weapons Efforts" *Combating Terrorism Center at West Point* Vol 10, no. 9 (October 18, 2017). <https://ctc.usma.edu/the-evolution-of-the-islamic-states-chemical-weapons-efforts/>, 19-23.

²³⁹ CNN. "Jordan Says Major Al Qaeda Plot Disrupted." CNN.com, April 26, 2004. <http://www.cnn.com/2004/WORLD/meast/04/26/jordan.terror/>.

²⁴⁰ Immenkamp, Beatrix. "ISIL/Da'esh and 'Non-Conventional' Weapons of Terror." Briefing. European Parliamentary Research Service, December 2015. [http://www.europarl.europa.eu/RegData/etudes/BRIE/2015/572806/EPRS_BRI\(2015\)572806_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/BRIE/2015/572806/EPRS_BRI(2015)572806_EN.pdf).

²⁴¹ Joscelyn, Thomas "U.S. Designates ISIS Chemical Weapons Expert From France As Terrorist." *RealClearDefense*. March 23, 2018. https://www.realcleardefense.com/articles/2018/03/23/isis_chemical_weapons_expert_from_france_as_terrorist_113240.html.

government list of designated terrorists in March 2018.²⁴²

The IHS Markit assessed that ISIS employed its CW at least 48 times in Iraq and 28 times in Syria between 2014 and 2017 by using chlorine and sulfur mustards against the Coalition forces and civilians. The group utilized projectiles and IEDs as delivery system for their chemical agents. The summary of ISIS chemical attacks in Iraq and Syria is shown in Figure 5.

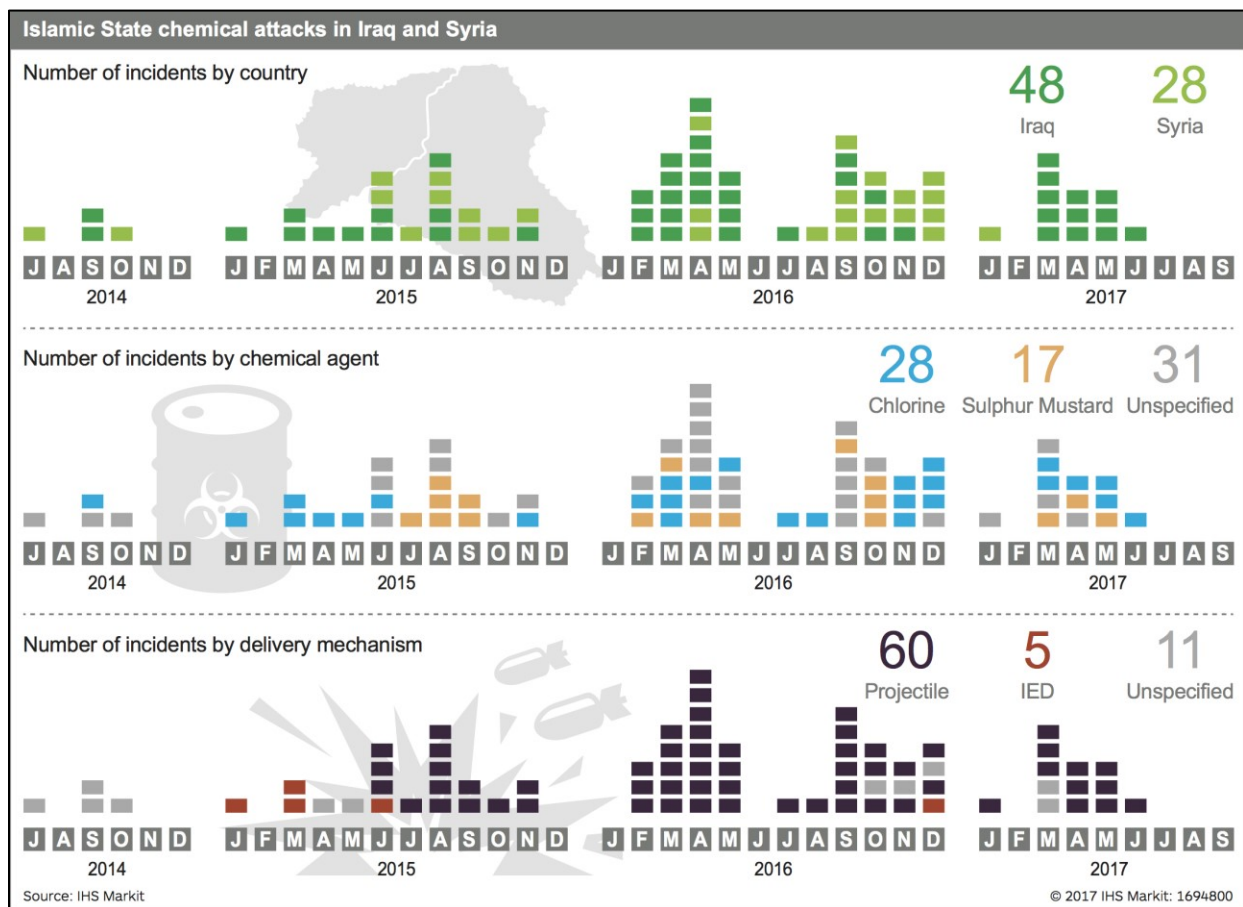


Figure 5: Timeline of ISIS Chemical Attacks in Iraq and Syria

Source: Strack, Columb. "The Evolution of the Islamic State's Chemical Weapons Efforts." *Combating Terrorism Center at West Point* 10, no. 9 (October 18, 2017).

<https://ctc.usma.edu/the-evolution-of-the-islamic-states-chemical-weapons-efforts/>.

²⁴² Ibid.

Columb Strack, senior analyst and head of IHS Conflict Monitor, believes ISIS used its chemical weapon “to slow down and demoralize advancing enemy forces, and to potentially make an example of—and take revenge on—civilian dissidents within the city attacks to stop or slow down the chasing troops.”²⁴³ But for the U.S. government, it believes that terrorist groups, like ISIS, pursue a WMD capability because they have the objective of killing large numbers of U.S. citizens and those of U.S. allies and partners without warning and hesitation.²⁴⁴

The Coalition suppressed ISIS from using the CW in the Middle East. The Conflict Monitor through IHS Markit evaluated that the instances of ISIS employment of CW in Syria in 2017 had lowered and these chemical incidents were only concentrated in Mosul, Iraq.²⁴⁵ Despite this development, IHS Markit still considered that “ISIS probably retains the capability to produce small batches of low-quality chlorine and sulfur mustard agents in another place.”²⁴⁶ The agency assessed that ISIS could incorporate these chemical agents with its IEDs to elevate the magnitude of the attack.²⁴⁷ For example, to enhance the psychological impact, ISIS may conduct a suicide car bombing with a combination of CW attacks in urban areas.

Meanwhile, ISIS proliferated and attempted to use CW outside the Middle East. In July 2017, Australian authority disrupted two terrorism plots in Sydney comprising bringing down a passenger plane and releasing hydrogen sulfide, a toxic gas used by the British Army in World

²⁴³ Moore, Jack. “ISIS Used Chemical Weapons at Least 52 Times in Iraq and Syria, Analysis Shows.” November 22, 2016. <http://www.newsweek.com/isis-used-chemical-weapons-least-52-times-iraq-and-syria-new-analysis-shows-523845>.

²⁴⁴ “National Strategy to Combat Weapons of Mass Destruction.” United States Government, December 2002. <https://fas.org/irp/offdocs/nspd/nspd-wmd.pdf>, 1.

²⁴⁵ IHS Markit. “Islamic State’s Chemical Weapons Capability Degraded, IHS Markit Says.” IHS Markit Online Newsroom, June 13, 2017. <https://news.ihsmarkit.com/press-release/aerospace-defense-security/islamic-states-chemical-weapons-capability-degraded-ihs-mar>.

²⁴⁶ Ibid.

²⁴⁷ Ibid.

War I, in public places.²⁴⁸ Khayat brothers, Khalid and Tarik Khayat, were charged with two counts of the act done in the protecting, or planning, a terrorist act by the Australian government.²⁴⁹ It can be assessed that the worldwide threat of ISIS CW proliferation and potential use still persist despite the Coalition declared that ISIS was defeated in Syria and Iraq. Just like the Al Qaeda, ISIS' ideology is still alive. Having attained the means to conduct chemical terrorism, ISIS will certainly spread and use this capability in its future operations.

In summary, this chapter establishes that Islamic violent extremist core groups – Al Qaeda and ISIS – both have the intent and capability in committing chemical terrorism in the future. On one hand, ISIS had successfully fielded its CW which denotes its willingness to use such capability. On the other hand, ISIS' CW are not lethal enough to cause mass casualties. But, the chemical incidents that it did cause serious psychological impact not just to the ordinary civilians but to the policymakers and security sectors as well. It can be assumed that ISIS will maintain possession and will improve the capability of its CW for future employment.

Meanwhile, this chapter demonstrates that Al Qaeda has more lethal CW as compared to ISIS. Despite no recorded chemical attacks, Al Qaida's mere development of CW and the aborted chemical plots aggravates its readiness and intent of committing chemical terrorism. In addition, this chapter shows that Islamic violent extremism persists as long as a group or an individual believes in the ideology of Salafism or Wahhabism. Perish jihadists will always be replaced with new members who are more radical and harmful. Lastly, this chapter establishes that Al Qaeda and ISIS have regional affiliated groups and inspired individuals patronizing their ideology and actions, including in Southeast Asia. Traditionally, core groups provide training

²⁴⁸ McKirdy, Euan and Smith, Karen "Two Men Charged in Australia over Airplane Terror Plot - CNN." August 5, 2017. <https://www.cnn.com/2017/08/03/asia/australia-terror-plot-charges/index.html>.

²⁴⁹ Ibid

and logistical support to their associates. It can be presumed that Al Qaeda and ISIS will spread their CW technical know-how to their associated groups and inspired-individuals. It is assumed that raw materials for CW production will be drawn from the affiliates' regional influence to mitigate the risk of detection. The next chapter will examine the feasibility of CW proliferation and potential use in Southeast Asia by evaluating the driving forces that may influence the success of such terrorist activities.

CHAPTER 4: CHEMICAL TERRORISM IN SOUTHEAST ASIA

The U.S. and Southeast Asian countries mutually benefit from their economic relations and strong security. For decades, the White House engaged these countries through bilateral and multilateral partnership. Existing transnational Islamic violent extremist groups threaten the regional stability and U.S. interests in the region. Government officials mostly in the security sectors believe that Al Qaeda and ISIS continue to be a prominent threat in the region particularly in Indonesia, Malaysia, Singapore, and the Philippines. Domestically, local violent extremists seek allegiance with either Al Qaeda or ISIS or both.

This chapter examines the trend of Islamic violent extremism in Southeast Asia, which threatens U.S. interests in the region. This section assesses the potential for Southeast Asia to become a new domain for proliferation and employment of CW by jihadist groups, which is the main purpose of this study. Finally, the presence of lone wolf attackers inspired by Islamic violent extremism is also considered as an implied threat in each country due to its transnational nature.

Southeast Asia and the U.S. Relations

The U.S. maintains its superpower status in the Asia-Pacific region since post-WWII and plays a key role in ensuring peace and stability in Southeast Asia in order to preserve its commitments to maintain free and open commerce, promote a just global order, and guarantee open access to shared domain in the region.²⁵⁰ All of these have been maintained with profound security and economic relations with several countries in the region for decades. The Philippines

²⁵⁰ U.S. DoD. "Quadrennial Defense Review 2014." Washington, D.C: U.S. Department of Defense, 2014, 4.

remains one of U.S. allies in the region while Indonesia, Malaysia, and Singapore are the U.S. economic and security partners. The U.S. government is committed to sustain its global alliances and partnerships, including in Southeast Asia, to sustain a favorable balance of power since its allies and partners magnify U.S. power and its leadership in the region.²⁵¹

The U.S. has a relatively good economic engagement with the Association of Southeast Asian Nations (ASEAN)²⁵², a multi-government organization in the region. ASEAN, with over 600 million inhabitants, is a huge market for U.S. goods and services exports, and a decent investment prospect for U.S. businesses.²⁵³ The US-ASEAN Business Council claims that “ASEAN member states, taken together, rank as fourth after Canada, Mexico, and China as an export market for the U.S., while the U.S. is the fourth largest trading partner for ASEAN.”²⁵⁴ In 2015, Americans exported over \$100 billion U.S. dollars in goods and services collectively to ASEAN member states, an increase of 81 percent since 2004.²⁵⁵

Geographically, Southeast Asia lies in strategic maritime chokepoints linking the Indian and the Pacific Ocean, and connecting the Oceania region and the countries in Northeast Asia.²⁵⁶

²⁵¹ “National Security Strategy of the United States,” December 2017. <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>, p. 46.

²⁵² The Association of Southeast Asian Nations (ASEAN) is a multilateral organization comprising ten countries in Southeast Asia. The goals of the Association are for “cooperation in the economic, social, cultural, technical, educational and other fields, and in the promotion of regional peace and stability through abiding respect for justice and the rule of law and adherence to the principles of the United Nations Charter.” For more details on ASEAN, see ASEAN history. Abad, Jun, and Jamil Maidan Flores. “About ASEAN.” ASEAN | One Vision One Identity One Community, August 8, 1997. <https://asean.org/asean/about-asean/history/>.

²⁵³ Sokolsky, Richard, Angel Rabasa, and C. Richard Neu. “The Role of Southeast Asia in U.S. Strategy Toward China.” Santa Monica, CA: RAND Corporation, 2001, p. 5.

²⁵⁴ US- ASEAN Business Council. “Trade & Investment.” US-ASEAN Business Council, May 16, 2017. <https://www.usasean.org/why-asean/trade-and-investment>.

²⁵⁵ Ibid.

²⁵⁶ Sokolsky, Richard, et. al. “The Role of Southeast Asia in U.S. Strategy Toward China,” p. 5.

More than one-third of the worldwide merchant ships navigate through the Strait of Malacca, the Strait of Sunda, and the Straits of Lombok and Makassar (see Figure 6).²⁵⁷ These Sea-Lanes of Communication (SLOCs) have both economic and security importance for the U.S. and its allies in the Asia-Pacific region. A disturbance on the normal maritime traffic flow in these SLOCs creates a significant undesirable effect in the global economy and overall regional security.

The Strait of Malacca, being the world's second busiest transit chokepoint, is also the direct maritime route between the Middle East and Asian oil markets – notably, China, Japan, South Korea, and other U.S. allies and partner countries in the region.²⁵⁸ Based on the U.S. Energy Information Administration's monitoring, the oil shipments pass through the said strait rose to 16 million barrels per day of crude oil in 2016 as compared to 14.5 million barrels per day in 2011.²⁵⁹ Oil industry experts believe that an accidental or intentional disruption on the strait will cause a significant oil price increase in the global market.²⁶⁰ Militarily, the Strait of Malacca is vital to U.S. forces deployment from Western Pacific to the Indian Ocean and the Persian Gulf.²⁶¹ Therefore, the instability of the maritime chokepoints in Southeast Asia affects U.S. strategic interests in the region.

Meanwhile, Southeast Asian countries particularly Indonesia, Malaysia, Singapore, and the Philippines are among the U.S. partners in countering terrorism. These countries supported

²⁵⁷ Noer, John. *Chokepoints: Maritime Economic Concerns in Southeast Asia*. Washington, D.C: National Defense University Press, 1996, p. 3.

²⁵⁸ U.S. Energy Information Administration. "World Oil Transit Chokepoints." Analysis. EIA Beta, July 25, 2017. <https://www.eia.gov/beta/international/regions-topics.php?RegionTopicID=WOTC>.

²⁵⁹ Ibid.

²⁶⁰ Strait of Malacca lies in between Malaysia, Indonesia, and Singapore. Its narrowest point is approximately 1.7 miles wide situated in the Philips Channel of the Singapore Strait. This bottleneck point is prone to ship's collision and grounding.

²⁶¹ Sokolsky, Richard, et. al. "The Role of Southeast Asia in U.S. Strategy Toward China," p. 11.

the U.S.-led Global War on Terrorism (GWOT) against Al Qaeda and the recent Global Coalition to Defeat ISIS. The U.S government provides Anti-Terrorism assistance (ASA) and Nonproliferation Anti-Terrorism, Demining, and Related Programs (NADR) funds for Indonesia, Malaysia, and the Philippines.²⁶² In Indonesia, the U.S. trained and equipped police officers to “build the capacity to deter, detect, and respond to terrorist threat.”²⁶³



Figure 6: Southeast Asia’s Strategic Shipping Lanes in the Tri-border Area
 Source: “In the Philippines, the ‘Punisher’ Takes on Terrorism.” *Stratfor*, September 10, 2016. <https://worldview.stratfor.com/article/philippines-punisher-takes-terrorism>.

²⁶² “Terrorism in Southeast Asia.” CRS Report for Congress. Washington, D.C: Congressional Research Service, May 5, 2017, p. 7.

²⁵⁹ *Ibid.*, p. 7.

In Malaysia, the U.S. assistance focuses on anti-terrorism training and border security to foil transnational terrorists from entering or transiting through the country.²⁶⁴ In the Philippines, NADR-ATA programs provide training to “enhance the strategic and tactical skills, as well as the investigative capabilities of regional civilian security forces, particularly in Mindanao.”²⁶⁵

The U.S. Congressional Research Service analysts believe that Islamic violent extremists are affecting regional stability and threaten the U.S. interests in Southeast Asia in various ways:

1. Rising Islamic militancy in Southeast Asia could lead to a direct attack against U.S. citizens or interests in the region, as well as against the United States;
2. It could also act as a catalyst for recruitment for terrorist activity in Southeast Asian countries, increasing risks for both local and Western governments;
3. It could serve as an inspiration for those people thinking of joining terrorist fighters in Iraq, Syria, or elsewhere;
4. It could provide cells that help finance terrorist causes in-country, in the Middle East, and beyond;
5. It could heighten the threat of attack by Islamist militants against U.S. partners and allies in Southeast Asia, which in turn could limit the ways and extent to which they support U.S.-led coalition activities against the Islamic State and Al Qaeda;
6. Terrorist attacks have the potential to exacerbate regional tensions, and distract Southeast Asian governments from other initiatives the United States supports;
7. An increased U.S. military presence in the region could become propaganda or physical target for militants; and
8. The return of foreign terrorist fighters from Iraq and Syria, and the spread of the Islamic State's ideology through social media could lead to further attacks and threaten partners, allies, and U.S. security interests.²⁶⁶

Prior to the September 11, 2001 attacks on the U.S. homeland, Malaysia and the Philippines served as planning, staging, and training ground of Al Qaeda leaders that plot strategic attacks against the U.S.²⁶⁷ In 1995, Philippine authorities unraveled Al Qaeda’s “Bojinka plot”, which intended to bomb 12 U.S. airlines. Furthermore, Southeast Asia is among

²⁶⁴ Ibid., p. 7.

²⁶⁵ Ibid., p. 7.

²⁶⁶ Ibid., pp., 4-5.

²⁶⁷ National Commission on Terrorist Attacks upon the United States. “The 9/11 Commission Report: Final Report of the National Commission on Terrorist Attacks upon the United States.” Washington, D.C: National Institution on Terrorist Attacks upon the United States, 2004, pp. 147-149.

the regional sources of jihadist recruits and financial support of Al Qaeda and ISIS in conducting global terrorism, primarily targeting the West. In January 2016, the U.S. Agency for International Development (USAID) estimated around 1,000 to 2,000 Indonesians who pledged allegiance to ISIS in Iraq and Syria.²⁶⁸ According to authorities, around 70 Malaysian military personnel and at least 200 other Malaysians joined ISIS core group in the Middle East between 2015 and 2017.²⁶⁹ In February 2019, Malaysian authorities nabbed a Singaporean national and charged with terrorism for giving financial support to ISIS, which is an additional manifestation that ISIS received logistical or financial support from Southeast Asia.²⁷⁰

Southeast Asia lies in a tropical region and is one of the most popular tourist destinations in the world. Foreigners, particularly Westerners, are targeted for terrorist attacks and kidnap-for-ransom activities. In 2001, Abu Sayyaf Group (ASG), a Philippine-based Islamic violent extremist linked to Al Qaeda and ISIS, abducted 20 individuals, including three Americans – Martin and Gracia Burnham and Guillermo Sobrero – from a luxury resort in Palawan, Philippines.²⁷¹ Sobrero was decapitated less than a month after the abduction. Martin died during the rescue operations a year after their capture while his wife, Gracia Burnham, was wounded. ASG remains in the kidnap-for-ransom business deliberately targeting locals and foreigners in the southern Philippines and in Malaysia to generate funds. According to the Philippine military, ASG is supported by Ajang-Ajang group, an ASG’s subgroup comprising younger generations

²⁶⁸ Counter Extremism Project. “Indonesia: Extremism & Counter-Extremism.” Counter Extremism Project, March 1, 2017. <https://www.counterextremism.com/countries/indonesia>

²⁶⁹ Counter Extremism Project. “Malaysia: Extremism & Counter-Extremism.” Counter Extremism Project, June 8, 2017. <https://www.counterextremism.com/countries/malaysia>.

²⁷⁰ Rodzi, Nadirah. “Singaporean Nabbed in Johor Baru for Alleged Involvement in Terrorism.” Asia. The Straits Times, February 15, 2019. <https://www.straitstimes.com/asia/se-asia/singaporean-nabbed-in-johor-baru-for-alleged-involvement-in-terrorism>.

²⁷¹ Office of the Director of National Intelligence. “Historic Timeline.” Counter Terrorism Guide, 2015. <https://www.dni.gov/nctc/timeline.html#2010>.

of active and deceased ASG members.²⁷² In April 2019, the Department of State designated the Philippines as high risk for travel due to terrorism and kidnap-for-ransom incidents.²⁷³

In Indonesia, Jemaah Islamiyah (JI) members, an Indonesian-based terrorist group linked with Al Qaeda and ISIS detonated multiple car bombs in Bali, which was considered as one of Indonesian's deadliest terrorist attacks. The attacks yielded 202 fatalities, that included 88 Australians, 38 Indonesians, and 28 Britons, and almost 200 individuals injured.²⁷⁴ Some security analysts argued that JI's motivation for the attacks was in retaliation to the U.S.-led War on Terror against Al Qaeda. After the 9/11 attacks, the U.S. went through a series of reforms to its homeland's security however ensuring the protection of U.S. citizens abroad against Islamic violent extremists still pose a major challenge. Thus, the U.S. relies on the cooperation and readiness of its security partners in combatting transnational terrorism in order to protect its national interests.

Islamic Violent Extremism in Southeast Asia

Indonesia, Malaysia, Singapore, and the Philippines are home to around 212 million Sunni Muslims, which is more than thirteen percent of the total Sunni population worldwide in 2010.²⁷⁵ Malaysia is an Islamic country while Indonesia remains to be a secular state despite

²⁷² Counter Extremism Project. "The Philippines: Extremism & Counter-Extremism." Counter Extremism Project, April 1, 2016.

<https://www.counterextremism.com/countries/philippines>.

²⁷³ "Philippines Travel Advisory." Travel.State.Gov, April 9, 2019. <https://travel.state.gov/content/travel/en/traveladvisories/traveladvisories/philippines-travel-advisory.html>.

²⁷⁴ BBC News. "The 12 October 2002 Bali Bombing Plot," October 11, 2012, sec. Asia. <https://www.bbc.com/news/world-asia-19881138>.

²⁷⁵ Pew Research Center. "Table: Muslim Population by Country." Pew Research Center: Religious & Public Life, January 27, 2011. <http://www.pewforum.org/2011/01/27/table-muslim-population-by-country/>.

being the world's largest Muslim populations because its Constitution preserved the equality and freedom of religion in the country. In Singapore and the Philippines, Muslims are among the minority groups in their population.²⁷⁶

These four Southeast Asian states are facing the very similar and closely linked terrorist threat posed by the core Islamic violent extremists operating in Southeast Asia - Al Qaeda, ISIS, and JI. In addition, Indonesia and the Philippines are threatened by various domestic terrorist groups linked with the said core groups. While Malaysia and Singapore do not have active local terrorist groups, government officials of both countries acknowledge the risk from lone-wolf attackers and transnational terrorist groups such as the JI and ASG.

As part of its recruitment and radicalization activities in Southeast Asia, ISIS created and disseminated through the Internet several brochures, tutorials, and propaganda videos in Malay language to incite violence among the young Muslims and initiate terrorist attacks in their respective country.²⁷⁷ On June 23, 2016, ISIS released a 20-minute video in the Malay language provoking Malaysian youth to conduct atrocities in their country. On June 28, 2016, ISIS inspired-individual tossed a grenade in a nightclub in Kuala Lumpur wounding eight people.²⁷⁸ In response to the attack, Malaysian authorities arrested a number of individuals on different occasions, including the persons involved in the grenade attack. Malaysian and Singaporean authorities are allowed to arrest and detain an individual suspected as a threat to national security by virtue of their respective Internal Security Acts (ISA).

In Indonesia and the Philippines, the security forces have dealt with domestic Islamic

²⁷⁶ Desilver, Drew, and David Masci. "World Muslim Population More Widespread than You Might Think." Pew Research Center, January 31, 2017. <https://www.pewresearch.org/fact-tank/2017/01/31/worlds-muslim-population-more-widespread-than-you-might-think/>.

²⁷⁷ Counter Extremism Project. "Malaysia: Extremism & Counter-Extremism."

²⁷⁸ Ibid.

violent extremist groups for centuries. Indonesia has at least fourteen Islamic militant factions operating in the different regions of the country as can be seen in Appendix A. Most of Indonesia's Islamic militants are located in the island of Java while some are in the island Sumatra. Some of the militants prefer not to use violence to show their discontented with the government however some security experts believe that weak response of the government to their concern may result in their radicalization in the future.²⁷⁹ In the Philippines, the Islamic militants are usually operating on the island of Mindanao or the southern island of the Philippines as can be seen in Appendix B.²⁸⁰ Majority of Filipino Muslims are situated on the island of Mindanao, where Islam in the Philippines was first established by an Arab trader in the thirteenth century.

The evolution of Islamic violent extremist groups in both countries can be observed in three different periods: the growth of early Islamic separatist movements, the rise of Al Qaeda's affiliates, and the emergence of ISIS and violent extremist online. The intensity of terrorist attacks in both countries shifted as the motivation and means of conducting terrorism changed over time.

The early separatist movements adhered to terrorism to oppose foreign power. During the colonial period, the Indonesian Islamic movement fought against the Dutch colonial forces while in the Philippines Islamic militants revolted against the Spanish colonial forces in the sixteenth century and against the Americans in the late nineteenth century.²⁸¹ Filipino Muslims or referred

²⁷⁹ Ahnaf, Mohammad Iqbal. "Weak State Helps Extremism in Indonesia." Center for Religious and Cross-cultural Studies, October 23, 2011. <https://crcs.ugm.ac.id/articles/491/weak-state-helps-extremism-in-indonesia.html>.

²⁸⁰ Aside from the Islamic militants, the Philippine security forces are also dealing with the armed component of a left-leaning terrorist organization spread all over the country— New People's Army (NPA) of Communist Party of the Philippines (CPP).

²⁸¹ "Terrorism in Southeast Asia," pp. 4-8.

as “Moro” were armed only with bolo or machete but they succeeded in defending the island of Mindanao against the conquest of foreign forces.

Islamic separatist movements grew in Indonesia and in the Philippines as these countries became independent states. These secessionist groups were motivated to be independent from the newly established governments and control their ancestral domains. In Indonesia, the Aceh Merdeka Movement, also known as Free Aceh or GAM, fought for an independent Islamic kingdom in a predominant Muslim Aceh Province, located in the tip of Sumatra since the 1970s.²⁸² The Moro National Liberation Front (MNLF) was established in 1972 in the Philippines which aims for an independent Islamic state in the Muslim concentrated region on the island of Mindanao.²⁸³ Aceh’s influence in the region was contained by the Indonesian government but some security analysts believe this Islamic militant group has “created safe havens for other militant groups to operate and recruit.”²⁸⁴ The MNLF started to work with the Philippine government after the creation of the Autonomous Region in Muslim Mindanao (ARMM) in 1989 and purportedly, abandoned its armed struggle after a final peace agreement was signed in 1996. The effects of terrorism brought by the early Islamic separatist groups were only confined on the concerned nation-state and their goals could be attained through a compromise with the affected country to end the group’s atrocities. However, negotiation between the government and the separatist group could potentially split a big organization for other members may not be satisfied with the terms of the agreement. Thus, it will lead to the rise of a splinter group.

²⁸² Nicksch, Larry. “Indonesian Separatist Movement in Aceh.” CRS Report for Congress. Washington, D.C: Congressional Research Service, September 25, 2002, p. 1.

²⁸³ Stanford University. “Moro National Liberation Front.” Mapping Militant Organizations, August 14, 2015. <http://web.stanford.edu/group/mappingmilitants/cgi-bin/groups/view/379>.

²⁸⁴ “Terrorism in Southeast Asia,” p. 8.

The second evolution of Islamic violent extremist groups in Indonesia and in the Philippines was the rise of Al Qaeda's affiliate groups. As discussed in chapter one, affiliate groups embrace organizational leadership, dogma, and methods in conducting terrorist attacks. Additionally, this alliance brings better access to training and resources for the local groups. This period became the new era of Islamic militancy in the region. There were significant changes in the source of funds, motivation, leadership, area of operations, method of attacks, and target selections of terrorist groups in both countries.

Financially, bin Laden started supporting its Southeast Asian affiliate groups by funding the establishment of JI in Indonesia, and ASG and Raja Solaiman Movement (RSM) in the Philippines in the 1990s. Additionally, Al Qaeda provided funds to the Moro Islamic Liberation Front (MILF), a splinter group of MNLF. Al Qaeda's fund support was instrumental to local terrorist groups to organize more attacks and recruit more members. In motivational terms, most of the domestic Islamic militants applied the extremist ideology of Al Qaeda in seeking domestic objectives. For instance, JI seeks "to overthrow the Indonesian Government and, ultimately, establish a pan-Islamic state across Southeast Asia."²⁸⁵ In the Philippines, ASG seeks "to establish an Islamic State in Mindanao, particularly in Sulu archipelago and eventually, launch an Islamic caliphate across Southeast Asia."²⁸⁶

In terms of leadership, Al Qaeda provided the direction and guidance to its affiliates as discussed in chapter three while the JI became the regional core group among the Islamic violent extremist groups. It has active members in Australia, Pakistan, Indonesia, Singapore, Malaysia,

²⁸⁵ The World Factbook. "East Asia/Southeast Asia : Indonesia." Central Intelligence Agency, February 24, 2019. <https://www.cia.gov/library/publications/the-world-factbook/geos/id.html>.

²⁸⁶ The World Factbook. "East Asia/Southeast Asia : Philippines."

the Philippines, Brunei, and Thailand.²⁸⁷ Furthermore, JI members provided training on bomb-making to MILF, RSM, and ASG members, which became the new method of attacks in the region. Aside from remotely-detonated IEDs, JI also orchestrated suicide bombing attacks. JI members were responsible for the 2003 Marriott Hotel bombing, killing 13 and wounding 149 individuals, and the 2004 Australian Embassy attacks killing 10 and wounding 150 individuals in Indonesia.²⁸⁸ In the Philippines, IEDs became the weapons of choice of ASG and Islamic violent extremist groups in attacking their desired targets. Based on the report of Action on Armed Violence (AOV) in 2016, there were 271 explosive incidents that occurred in the Philippines killing and injuring 1,259 civilians and 529 government security forces, making the country among the twenty worst-affected countries of explosive violence between 2011 and 2015.²⁸⁹

On target selection, these groups target both security forces and civilians particularly Westerners. Soft targets such as public transports, churches, shopping malls, business establishments, and other public places were among the places subjected to bombing attacks. ASG first showed its ruthlessness by bombing Christian predominant areas in Southern Philippines as directed by Al Qaeda.²⁹⁰ Furthermore, U.S. citizens and U.S. strategic infrastructures were among their desired targets. Hilarion del Rosario Santos III, the RSM founder, attested that he collaborated with ASG, JI, and Al Qaeda to conduct terrorist attacks in Manila targeting the U.S. Embassy and business establishments patronized by foreigners,

²⁸⁷ START. “Jemaah Islamiyah (JI).” Project on Violent Conflict, April 2015. <https://www.start.umd.edu/baad/narratives/jemaah-islamiya-ji>.

²⁸⁸ Office of the Director of National Intelligence. “Historic Timeline.” Counter Terrorism Guide, 2015. <https://www.dni.gov/nctc/timeline.html#2010>.

²⁸⁹ Overton, Iain. “Pattern of Harm: Five Years of Explosive Violence 2011 - 2015.” Norway: Action on Armed Violence, June 2016, p. 14.

²⁹⁰ Fellman, Zack. “Abu Sayyaf Group.” Center for Strategic and International Studies, November 28, 2011. <https://www.csis.org/analysis/abu-sayyaf-group>.

particularly U.S. citizens.²⁹¹

Al Qaeda and its Southeast Asian affiliates caused great damage in the region. In response, the Indonesian government cracked down on JI's organization and its activities, which resulted positively. Since 2002, JI leaders and members either killed or arrested by Indonesian authorities led to the group's decline. Indonesian government received praise from the international community for successfully containing the JI's threat. However, government officials and security analysts believe that the group continues to be a threat to society. As evidenced, the Indonesian government foiled a rocket attack plot on Marina Bay, Singapore in 2016.²⁹²

In the Philippines, the majority of MILF members abandoned its armed-struggle and decided to integrate with the community after the peace agreement was signed in 2014. The Philippine Government will create a new autonomous region, also known as Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) that allows the Muslim leadership to have more autonomy over the budgeting issues, judiciary system, indigenous rights, and natural resources in Mindanao.²⁹³ RSM group was disbanded after the arrest of its leader in 2005 and the death of another member. ASG also suffered massive losses due to casualties in combat against the Philippine security forces. Based on the National Consortium for the Study of Terrorism and Responses to Terrorism (START) data, the Abu Sayyaf had reached at around 1,000 to 1,500 armed-members on its peak in 2000 and the number of members declined at around 200 to 400

²⁹¹ UNSC. "Rajah Solaiman Movement." United Nations Security Council, April 17, 2018. https://www.un.org/securitycouncil/sanctions/1267/aq_sanctions_list/summaries/entity/rajah-solaiman-movement.

²⁹² Arshad, Arlina, and Lee Seok Hwai. "Indonesian Police Foil Rocket Attack Plot on Marina Bay; Singapore Steps up Security." Text. The Straits Times, August 5, 2016. <https://www.straitstimes.com/asia/se-asia/indonesian-police-arrest-six-batam-militants>.

²⁹³ Counter Extremism Project. "The Philippines: Extremism & Counter-Extremism."

armed-individuals in 2015.²⁹⁴

The third evolution of Islamic violent extremist groups in Indonesia and in the Philippines is the rise of ISIS and domestic violent extremism. When ISIS declared a caliphate in Syria and Iraq in 2014, newly organized Islamic violent extremist group and former Al Qaeda's affiliate groups pledged allegiance to ISIS. These groups also received funding, online training, and preaching from the ISIS core group in the Middle East. ISIS affiliates employed the same methods of attack learned from Al Qaeda and JI's training camp and enhance the collaboration among members of different groups.²⁹⁵ In addition, ISIS affiliates emulate the core group methods of conducting terror in Iraq and Syria such as seizing control of territory and video-recorded beheading of hostages and messaging that declare an Islamic state. More importantly, the level of brutality in their attacks has intensified.

In Indonesia, members of Jamaah Ansharut Daulah (JAD), a splinter group of JI that is linked with ISIS, conducted a family-orchestrated suicide bombing attacks targeting Christian churchgoers and police personnel on May 13 and 14, 2018.²⁹⁶ The attacks on the 13th of May occurred in three Christian churches at Surabaya, Indonesia which resulted in 12 fatalities and several others wounded. The 14th of May attack happened at a police headquarters of the same island injuring seven people.²⁹⁷ Security observers claim that it was the first family-orchestrated suicide attacks bombing attacks occurred in Indonesia that involved minors and women. Indonesian authorities cracked down on JAD network and arrested several individuals linked to the said group and JI.

²⁹⁴ START. "Abu Sayyaf Group." Project on Violent Conflict, February 2015. <https://www.start.umd.edu/baad/narratives/abu-sayyaf-group-asg>.

²⁹⁵ IPAC. "How Southeast Asian and Bangladeshi Extremist Intersect." Jakarta, Indonesia: Institute for Policy Analysis of Conflict, May 8, 2017, p. 1.

²⁹⁶ Counter Extremism Project. "Indonesia: Extremism & Counter-Extremism."

²⁹⁷ Ibid.

In the Philippines, joint ASG and Maute group, a newly established Islamic violent extremist group linked with ISIS, seized a city and declared it as ISIS caliphate in Southeast Asia in 2017. Marawi City, a Muslim populated city in the southern Philippines, was recaptured by the Philippine government security forces after five months of battle, which eventually resulted in the neutralization of the Maute Group entirely. The incident yielded more than 1,000 dead (terrorists, soldiers, and civilians) and almost 200,000 internally displaced people (IDP).²⁹⁸ According to Eduardo del Rosario, Chief of Task Force “Bangon Marawi” or the agency in charge for the rehabilitation of Marawi City, there were around \$340 million U.S. dollars’ worth of property that was damaged. Meanwhile, Bangsamoro Islamic Freedom Fighter (BIFF) and Ansarul Khilafah Philippines (Supporters of ISIS in the Philippines or AKP), both splinter groups of MILF, pledged their allegiance with ISIS and conducted small scale atrocities in their area of operations to demonstrate their relevance to the bigger organization.

In 2019, the U.S. led Global Coalition to Defeat ISIS was successful in recovering ISIS declared territory in the Middle East. Security officials and analysts believe that ISIS may have been defeated in its declared caliphate but the jihadist group remains a threat to the international community. Like other countries worldwide, Indonesia and the Philippine authorities are concerned about the threat posed by returning ISIS members to their home countries and other ISIS foreign fighters seeking harbor in the region. Based on the assessment of the U.S. Bureau of Counterterrorism for Indonesia in 2017, “Returning foreign terrorist fighters with new operational training, skills, experience, networks, and access to funding could help launch more sophisticated attacks against Indonesian government personnel or facilities, Western targets, and

²⁹⁸ “Philippine Army Says Battle for Marawi to End Soon, 1,000 Dead, SE Asia News & Top Stories - The Straits Times.” Accessed March 14, 2019. <https://www.straitstimes.com/asia/se-asia/army-says-battle-for-philippine-city-to-end-soon-1000-dead>.

other soft targets and public spaces.”²⁹⁹

In early 2019, Philippine security forces first recorded an incident of the ASG masterminding a suicide bombing attack with the help of alleged Indonesian couples who killed themselves inside a Catholic cathedral during the celebration of Sunday service in Jolo, Sulu.³⁰⁰ The attacks killed 20 individuals both civilian and military, injured 102 others, and damaged the entire interior of the cathedral.³⁰¹ A security analyst in the Philippines claimed that at least 100 ISIS-foreign members entered the country and joined local terrorist groups.³⁰² In June 28, 2019, Philippine experienced terror attacks from the first Filipino suicide bombers, who blew themselves in the entrance of a military camp in the province of Sulu. The incident killed 5 individuals comprising three soldiers and two civilians.³⁰³ The Philippine security forces are focused on cracking down on the members of ASG and other ISIS affiliates in the country as it is among the top priorities of the present administration.

In summary, Islamic militancy has been a threat in Southeast Asian countries for millennia. While the previous threat only affects a concerned country, the rise of transnational Islamic violent extremist groups influenced the spread of Islamic violent extremism in the entire

²⁹⁹ Bureau of Counterterrorism. “Country Reports on Terrorism 2017,” p. 55.

³⁰⁰ “Philippine Minister ‘certain’ Church Bombers Were Indonesian.” Text. The Straits Times, February 2, 2019. <https://www.straitstimes.com/asia/se-asia/philippine-minister-certain-church-bombers-were-indonesian>.

³⁰¹ Gutierrez, Jason. “Philippines Cathedral Bombing Kills 20 - The New York Times.” *New York Times*, January 29, 2019, sec. Asia Pacific. <https://www.nytimes.com/2019/01/27/world/asia/philippines-jolo-cathedral-bombing.html>.

³⁰² GMA News. “Around 100 ISIS-Inspired Foreign Bandits Now in PHL, Expert Says.” GMA News Online, March 12, 2019. <https://www.gmanetwork.com/news/news/nation/687741/around-100-isis-inspired-foreign-bandits-now-in-phl-expert-says/story/>.

³⁰³ Philstar. “Military Confirms First Filipino ‘suicide Bomber’ behind Sulu Attack | Philstar.Com.” Philstar Global, July 10, 2019. <https://www.philstar.com/headlines/2019/07/10/1933609/military-confirms-first-filipino-suicide-bomber-behind-sulu-attack>.

region. Southeast Asia becomes one of the important hubs of Al Qaeda and ISIS in pursuing its strategic goals. Having the world's largest population of Sunni Muslims, the region has both their potential sympathizers and potential targets. Al Qaeda and ISIS became the common nodes that connect Southeast Asia's Islamic violent extremist groups and make them to collaborate in conducting terrorist acts.

Furthermore, the training and other support that Al Qaeda provided had contributed to intensity and lethality of terrorist attacks that take place in the region. While ISIS' expertise in exploiting the Internet adds on the complexity of the terrorist threat because it incites more actors to join their cause and it closes the gap of the line of communication between the Middle East and Southeast Asia. On the one hand, Al Qaeda and ISIS affiliate groups and inspired-individuals in Southeast Asia will continue to adhere to their core groups' ideology, leadership, strategy, and tactics. On the other hand, Al Qaeda and ISIS will continue to support their regional affiliates and inspired-individuals with funds, logistics, and training on their updated means of conducting terrorist attacks, which could potentially include the use of CW as the mass casualty trend – such as suicide bombing – as terrorist attacks continue in Southeast Asia.

Assessment of Chemical Terrorism in Southeast Asia

To answer this question: will Southeast Asia become a domain for chemical terrorism within five years? It is imperative to examine and answer the following sub-questions: Who will be the potential actors of chemical terrorism in Southeast Asia? Do the potential actors have the intent and capability to conduct chemical terrorism? And, what are the inhibiting factors that can prevent the success of potential actors from acquiring, employing and if used, mitigating the effects of CW? For this paper, a successful chemical terrorism attack means that an actor

acquired the CW capability and employed such capability causing harm or damage in the limited geographical scope examined - Indonesia, Malaysia, Singapore, or the Philippines.

To assess the likelihood of an event, this paper uses the following rating: *low*, indicates that there is a less probability that the event will happen; *moderate*, indicates that there is neither low nor high possibility of the event to happen; *high*, indicates that there is a big probability that the event will happen.

In chapter three, this paper established that Al Qaeda and ISIS have both the intent and the capability to conduct chemical terrorism. As part of the assumptions, these terrorist core groups are considered as the proliferator of CW technical know-how for the potential actors of chemical terrorism in Southeast Asia. This paper established that Al Qaeda and ISIS provided training such as bomb-making to their affiliate groups and inspired-individuals. Thus, it could be viewed that the potential regional actors of chemical terrorism in Southeast Asia will be among the following active Al Qaeda and ISIS' affiliate groups in the region: JI, ASG, BIFF, JAD, and AKP, or lone wolf attackers.

While these actors already showed their eagerness to commit terrorism in the region, there are underlying motivations for these groups or individuals to embrace chemical terrorism. First, CW will be used to inflict civilian mass casualties and cause psychological reactions. The case studies of chemical incidents in chapter two particularly during WWI, Iran-Iraq wars, Japan attacks, and Syrian government's CW use, showed that employment of CW were effective in inflicting casualties especially on poorly prepared or soft targets like civilians. The case studies also showed the psychological effects of CW on the victims and policymakers in both short and long-term.

Second, CW will be used as weapons of denial and as force multipliers. Southeast Asian

governments are committed to crackdown Al Qaeda and ISIS' affiliates which caused severe losses on the terrorists' side. In Syria and Iraq, ISIS demonstrated the effectiveness of CW to slow down chasing coalition troops as well as force multipliers in fighting larger government forces.

Third, CW will be used as weapons of retaliation in targeting U.S. interests in the region. CW can be employed targeting fortified U.S. infrastructure and temporary military encampments in the region, which re-echoed Scott Stewart's assessment on why terrorist desire CW capability. Furthermore, Islamic violent extremists may employ CW to cause economic sabotage in the region that could directly or indirectly affect the United States. In 2004 Shangri-La Dialogue, Tony Tan, then Singapore's Deputy Prime Minister, expressed his concern on the possibility that members of the terrorist group will hijack ships and will turn them into "floating bombs" then will crash them into critical infrastructure such as oil refineries or ports in Singapore, which "would cripple world trade" as a result.³⁰⁴ Although the potential cause of damage of CW against a business establishment is indefinite, the disruption of commerce to decontaminate the area may already cause a significant amount of income loss.

To assess how the potential actors could acquire the CW, this paper examines the following six interconnected factors that, if all could be satisfied, would lead to successful CW proliferation in the region: people, material, infrastructure, money, information, and lines of communication (LOC). Similarly, WMD experts are also targeting these factors in countering WMD proliferation.³⁰⁵

³⁰⁴ "Going for the Jugular." *The Economist*, June 10, 2004.
<https://www.economist.com/asia/2004/06/10/going-for-the-jugular>.

³⁰⁵ Frumin, Amy, Tracy Moss, and David Ellis. "The State of the Art in Contemporary CWMD Thinking." *PRISM | National Defense University* 7, no. 3 (May 15, 2018), p. 70.

People. People refer to the “decision-makers, scientists, brokers, workers and engineers.”³⁰⁶ It is assessed as *high* that the identified potential actors’ decision-makers will support and facilitate CW production in the region considering the advantages discussed in chapter two. Al Qaeda and ISIS already have experienced scientists that can guide the potential actors either virtually or in person. As elaborated by Robert Turkington in chapter two, synthesizing commercial chemicals to produce a chemical agent is achievable by anyone who follows the step-by-step procedures. Islamic violent extremist groups could utilize the overt assistance of their sympathizers such as relatives, women, and minors in developing the CW unsuspected.

Materials. Materials are the components needed to produce CW such as parts, products, commodities, raw materials, and tools.³⁰⁷ Among the industries in Indonesia, Malaysia, Singapore, and the Philippines that uses chemical are in the field of agriculture, oil and gas, and mining. Dual-use chemical precursors shown in Table 1 can also be utilized to synthesize the terrorists desired chemical agents. Besides, chlorine, hydrogen cyanide, and phosgene, the chemical component use by Al Qaeda and ISIS in their CW program, are available in the commercial market.

Electronic products such as disposable mobile phones, sim-cards, electrical circuit boards, and other electrical components necessary to produce the CW designed are affordable in the market. Islamic violent extremist groups are also utilizing the said electronic products for the production of their IEDs. Additionally, potential actors can use indigenous materials or modern technology such as drones for their CW delivery system.

³⁰⁶ Ibid., p. 70.

³⁰⁷ Ibid., p. 70.

Table 1. List of Dual-Use Chemical Precursors

Precursors	CW Agent	Commercial Product
Thiodiglycol	Sulfur mustard	plastic, dyes, inks
Thionyl chloride	Sulfur mustard	pesticides
Sodium sulphide	Sulfur mustard	paper
Phosphorous oxychloride	Tabun	insecticides
Dimethylamine	Tabun	detergents
Sodium cyanide	Tabun	dyes, pigments, gold recovery
Dimethyl methyphosponate	G agents	fire retardants
Dimethyl hydrochloride	G agents	pharmaceuticals
Potassium biflouride	G agents	ceramics
Diethyl phosphite	G agents	paint solvents

Source: U.S. Congress, Office of Technology Assessment. *Technologies Underlying Weapons of Mass Destruction*. Washington, D.C: U.S. Government Printing Office, 1993, p. 29.

Infrastructure. Infrastructure refers to “physical and virtual infrastructure of a network.”³⁰⁸ In acquiring CW capability, potential actors in Southeast Asia do not need to adhere with ideal chemical warfare capability as outlined by the U.S. Congress Office of Technology Assessment in chapter two. CW development program does not need a sophisticated infrastructure as compared to the nuclear weapons program. For example, a radicalized chemist can surreptitiously synthesize chemical agents in his/her controlled laboratory. Orsolya Raczova, a security analyst in Global Risk Insights, argued that “terrorist groups such as Aum, Al-Qaeda and ISIS with controlled territories (safe havens), enable them to work on CW programs without

³⁰⁸ Ibid., p. 70.

external interference.”³⁰⁹ Similarly, JI, JAD, ASG, BIFF, and AKP could utilize their respective safe havens to establish the CW program. In 2017, the U.S. Bureau of Counterterrorism claimed that Sulu-Sulawesi Seas Littoral and the Southern Philippines are terrorist safe havens in Southeast Asia. Lone wolf actors may also manufacture their CW in their own home or controlled places unnoticed.

Money. Money refers to any form of financial resources.³¹⁰ Al Qaeda with \$300 million U.S. dollars and ISIS with \$200 million U.S. dollars ranked fourth and fifth, respectively, in Forbes’ 2017 top ten wealthiest terrorist groups worldwide.³¹¹ As established in this paper, affiliate groups receive financial support from the core groups which they could use to finance the CW program.

Aside from the financial support coming from the core groups, regional actors can generate their own funds. Colin P. Clarke, Senior Fellow at The Soufan Center, detailed in his book, *Terrorism, Inc.: The Financing of Terrorism, Insurgency, and Irregular Warfare*, on how terrorist groups make money. He categorizes the financial activities into two groups. First, the “gray economy” includes licit and illicit activities performed by the terrorist such as diaspora support, charities, fraud business, front companies, and money laundering. Second, the “dark economy” comprises kidnap for ransom, robbery, smuggling, trafficking, and extortion. The U.S. Bureau of Counterterrorism assessed that “Kidnapping-for-ransom remained an ongoing threat and a source of funding for terrorist networks based in the southern Philippines.”³¹² Furthermore,

³⁰⁹ Raczova, Orsolya. “Forget Nuclear: Chemical Weapons Are the Real Weapons of Mass Destruction Threat.” Global Risk Insights, March 3, 2017. <https://globalriskinsights.com/2017/03/chemical-terrorism-credible-threat/>.

³¹⁰ Frumin, Amy, et.al. “The State of the Art in Contemporary CWMD Thinking.”

³¹¹ Zehorai, Itai. “The Richest Terror Organizations in the World.”

³¹² Bureau of Counterterrorism. “Country Reports on Terrorism 2017,” p. 227.

a CW program is will not cause too much financial burden for potential actors as they are relatively inexpensive to develop.

Information. Information refers to “data, knowledge, orders, commands, and facts.”³¹³ Al Qaeda and ISIS documented their respective CW program. The blueprint of Al Qaeda’s mubtakkar recovered by the CIA and MI6 in 2003 is one of the hard evidence of the dissemination of CW know-how among terrorists. Production of CW can be immediate because potential actors do not need to undergo research and development. Besides, some information in developing CW is readily available in open source literature.

Lines of Communications (LOC). Lines of communications refer to “either physical or virtual means of moving the information, money, or material.”³¹⁴ Indonesia’s, Malaysia’s and the Philippines’ maritime borders are connected in Sulu-Sulawesi Seas, a vast body of water with a total area of around 210,000 square miles (shown in Figure. 6). According to the U.S. Bureau of Counterterrorism, smuggling and piracy groups operating in Sulu-Sulawesi Seas often support the terrorist networks in the movement of personnel, equipment, and funds.³¹⁵ Security analysts believe that foreign fighters who joined the ASG and Maute Group in Marawi City siege in 2017 passed through this LOC. ASG is also using this LOC in its kidnap-for-ransom activities in southern Philippines and Malaysia.³¹⁶

As discussed in chapter one, Christopher Harmon and Randall Bowdish, claim that terrorists maintain websites and social media accounts to disseminate information and as a means

³¹³ Frumin, Amy, et.al. “The State of the Art in Contemporary CWMD Thinking,” p. 70.

³¹⁴ Ibid., p. 70.

³¹⁵ Bureau of Counterterrorism. “Country Reports on Terrorism 2017,” p. 227.

³¹⁶ World Maritime News Staff. “ReCAAP Warns of Abu Sayyaf Kidnapping Threat in Malaysia.” World Maritime News, May 2, 2018. <https://worldmaritimeweb.com/archives/251765/recaap-warns-of-abu-sayyaf-kidnap-threat-in-malaysia/>.

of communication. ISIS has been utilizing the Internet as its main tool for messaging. Online money transfer platforms are also exploited by the terrorists as evidenced by the FBI, which uncovered “a global financial network run by a senior Islamic State official that funneled money to an alleged ISIS operative in the U.S. through fake eBay transactions.”³¹⁷

While countering chemical terrorism goes with the policies and strategies of countering the threat of terrorism in general, mitigating the effects of CW demands a different level of readiness. As discussed, the U.S. supported Indonesia, Malaysia, and the Philippines through ATA and NADR to enhance their capabilities in countering terrorism. In Indonesia, laws were enacted as a legal basis for counterterrorism and regulations were imposed to control chemical and hazardous substances. Among the significant laws and regulations are the Law on Combating Criminal Acts of Terrorism, the Law on Prevention of Terrorist Financing, the Government Regulation Number 74 year 2001 regarding Hazardous and Toxic Material Management, and the Ministry of Environment and Forestry (MoEF) Regulation 36/2017 on Regulation and Notification Procedure for Hazardous and Toxic Substances. In 2002, Indonesia government established the Detachment 88, an elite police counterterrorism force, to lead counterterrorism operations and investigations and the Indonesian Financial Transaction Reports and Analysis Center (PPATK), which is responsible on financial intelligence.³¹⁸ These units successfully contained JI threat in the country and currently, they are pursuing JAD members. Indonesia is a member of Asia-Pacific Group (APG) on Money Laundering, a regional inter-government organization that aims to combat money laundering. Additionally, the Indonesian government and civil society leader develop countering violent extremism (CVE) programs,

³¹⁷ Maremont, Mark, and Christopher S. Stewart. “FBI Says ISIS Used EBay to Send Terror Cash to U.S.” *Wall Street Journal*, August 11, 2017, sec. US. <https://www.wsj.com/articles/fbi-says-isis-used-ebay-to-send-terror-cash-to-u-s-1502410868>.

³¹⁸ Bureau of Counterterrorism. “Country Reports on Terrorism 2017,” p. 56.

which focus on targeting the radical ideology of the terrorists.³¹⁹

In 2017, Indonesia, Malaysia, and the Philippines launched the Trilateral Maritime Patrol and Joint Air Patrol as part of the Trilateral Cooperative Arrangement, which aims to secure the shared maritime environment among the three countries.³²⁰ Indonesian Army has trained, equipped, and ready deployable chemical, biological, radiological, and nuclear (CBRN) defense units since 1986. It also formed a Police CBRN defense unit in 2009. In 2018, Indonesia held its first CBRN National Meeting which aims to prevent and mitigate CBRN risks.

Malaysian authorities are utilizing the Internal Security Act (ISA) of 1960 as the main legal basis for counterterrorism operations. Malaysian security forces can arrest individuals suspected as terrorists as permitted in ISA. Malaysia is a member of the Financial Action Task Force (FATF), a worldwide inter-government organization aim to combat money laundering, and of the APG. Malaysia also implements the Classification, Labelling and Safety Data Sheet of Hazardous Chemicals (CLASS) Regulations under the Occupational Safety and Health Act 1994 requiring chemical suppliers to properly label their hazardous chemical supply to ensure the safety in the workplace.³²¹ Malaysia also conducts CVE for its youth who are targeted for radicalization by ISIS. Malaysian military and police maintain their respective CBRN unit that can respond to any possible CBRN incident.

Being the most affected country of Islamic violent extremism, the Philippine government uses four different approaches in dealing with the threat of terrorism: military, political,

³¹⁹ Ibid., p. 57.

³²⁰ Andolong, Arsenio. "Indonesia, Malaysia and Philippines Launch Trilateral Air Patrol." Press Release, October 14, 2017.

³²¹ "CLASS Regulations." Official Website Department of Occupational Safety and Health. Accessed April 12, 2019. <http://www.dosh.gov.my/index.php/en/chemical-management/class-regulations>.

economic, and countering terrorist ideology.³²² The Human Security Act 2007 is the main legal basis of Philippine security forces in conducting counterterrorism operations. The Armed Forces of the Philippine (AFP) is the main government instrument that cracks down on Islamic violent extremist groups in the country. The Philippine government enhances the capability of its security forces through upgrade and training. In terms of readiness on possible chemical attacks, the AFP's CBRN capability is still nascent. The current CBRN platoon of the Philippine Army is currently acquiring both the expertise and equipment.³²³ The Bureau of Fire Protection (BFP) Special Rescue and HAZMAT Unit, the lead agency for CBRN incident response in the Philippines, shows more preparedness in terms of equipment and knowledge in mitigating the effects of chemical incidents.

Another counterterrorism effort by the Philippine government is via peaceful settlement with the threat groups. As discussed in the preceding section, the said country concluded a peace settlement with MILF and MNLF separatist groups. Also, the Philippine government focuses on opening more economic opportunity in Mindanao to alleviate poverty in the region, which is among the issues or grievances exploited by the terrorists in their recruitment. The Philippines adopted the CVE program to counter terrorist's ideology and is also a member of the Asia-Pacific Group on Money Laundering. Chemical control and inventory regulations are also present in this country.

Singapore, being the wealthiest country in the region, has all the means to maintain its readiness in counterterrorism and respond to a possible chemical incident at a higher standard.

³²² "Terrorism in Southeast Asia," p. 14.

³²³ Ascomwebmaster. "CBRN Defense; Keeping the Army at Par with Global Trends.," April 3, 2019. <https://www.army.mil.ph/ascom-home/index.php/home/featured-stories/258-cbrn-defense-keeping-the-army-at-par-with-global-trends>.

Singapore's ISA is instrumental in foiling terrorist plots in the country and arresting suspected individuals that are deemed a threat to national security. Singapore Armed Forces (SAF) conducts regular and extensive counterterrorism drills in the country involving scenarios such as hostage-taking and response to IED and CBRN related threats "to test and validate Singapore's multi-agency response plan in the event of a terror attack."³²⁴ Indonesia, Malaysia, Singapore, and the Philippines collaborate with several multinational organizations such as the UN, ASEAN, OPCW, Asia-Pacific Economic Cooperation (APEC) and the Global Counterterrorism Forum (GTR) to promote cooperation in counterterrorism efforts and training.

Having examined the factors that would lead to chemical terrorism in Southeast Asia, the possibility for potential actors to acquire CW and potentially use this capability is high making Southeast Asia as a domain for chemical terrorism. The intent of potential actors in committing chemical terrorism is real. Furthermore, CW could be used in targeting military, police, civilians, and U.S. interests in the region, which would influence policymakers' decision that may favor their cause.

The technical know-how and financial support that the potential actors could avail from terrorist core groups close the gap between the actors' intent and their CW capability. Southeast Asia provides an environment that can be viewed as an opportunity for the potential actors. Sulu-Sulawesi Seas' vastness will still serve as a security challenge for Indonesia, Malaysia, and the Philippines. Collaboration between the terrorist groups and other transnational organized criminals adds to the complexity of countering terrorism in the region. Southeast Asia's major industries utilizing dual-use chemical precursors and the availability of toxic industrial chemical

³²⁴ Mei, Tan Tam. "Security Forces in Counter-Terrorism Drill, Singapore News & Top Stories - The Straits Times." *The Strait Times*, February 23, 2019. <https://www.straitstimes.com/singapore/security-forces-in-counter-terrorism-drill>.

in the commercial market serve as another opportunity for the potential actors to have access on the chemicals needed for the terrorist to develop CW program.

While some governments showed their readiness on preventing the use and mitigation of the effects of CW, potential actors are keen on looking for the target's vulnerability turning into an opportunity to conduct chemical terrorism. As a result, surprise attacks could create bigger damage both physically and psychologically on victims and on Southeast Asian society writ large. Potential actors will use CW not to replace its usual method of attack in inflicting mass casualties – such as IEDs and suicide bombing attacks – but to augment with those existing capabilities, which add burden on the affected government directly or indirectly. CBRN defense readiness entails significant funding for equipment and training. Finally, possessing CW capability adds to the terrorist groups' legitimacy that attracts more extremists or recruits to join their ranks and fight to attain the regional goal and strategic goals of the Middle East' core groups.

CHAPTER 5: CONCLUSION

Terrorism in Southeast Asia has evolved over time and there are no indications that it is going to end soon. Despite the successes of counterterrorism efforts in Southeast Asia, Islamic violent extremism continues to grow as an ideology– “for holy warriors of any faith, the devoted are always right and the infidels always wrong, whoever the protagonist and the circumstances they encounter.”³²⁵ Terrorism will continue to be used by these individuals as tactics against established governments to achieve local or regional political objectives.

The nexus between Southeast Asian Islamic violent extremists and the core groups in the Middle East have influenced the level of intensity and lethality of terrorist attacks in the region. Al Qaeda and ISIS will continue to support their affiliates with funding, training, and publicity given the demographic importance of the region to the Sunni community. The Internet disrupts the natural barrier connecting them thereby providing ease in disseminating new methods of attack to local terrorists.

The threat of chemical terrorism in Southeast Asia is a serious concern that needs to be addressed before it reaches to unprecedented levels and causes major destruction. In *The Gray Rhino: How to Recognize an Act on the Obvious Danger*, Michele Wucker writes about a catastrophe with enormous consequences that is noticeable that even a sensible person can see it coming, hence, referred to as the Gray Rhino. Chemical terrorism in Southeast Asia is considered a Gray Rhino given that there is a high probability of this threat occurring in the next five years, and if it occurred, it will be catastrophic to the targeted society considering the

³²⁵ Lewis, Bernard. “License to Kill: Usama Bin Ladin’s Declaration of Jihad.” *Foreign Affairs*, November 1, 1998. <https://www.foreignaffairs.com/articles/saudi-arabia/1998-11-01/license-kill-usama-bin-ladins-declaration-jihad>.

impacts of CW. The gap that exists between intent and acquiring a full CW capability have been narrowed which shifts the question whether or not chemical terrorism will happen in Southeast Asia into when it will happen.

Threat awareness and preparedness are among the key factors that lead to the prevention and mitigation of surprise chemical attack scenarios. In addressing the threat of chemical terrorism, both multilateral and national approaches are essential. Broadly, a multilateral approach includes security cooperation, capacity building, and effective collaboration among concerned governments and the international community. Information sharing on potential threat actors, disrupting the financial networks of Islamic violent extremists, and expertise exchanges in CBRN are a few examples of areas where cooperation and collaboration can be improved in Southeast Asia. The UN through the OPCW, the U.S., and Singapore—all having a high-level of technical expertise on CBRN defense—are among the potential sources of knowledge and best practices in mitigation of CW effects.

A national approach against chemical terrorism is focused on security operations that crack down on potential actors through the following measures: strengthening a whole of nation approach in delegitimizing terrorist ideology; maintaining and amending of laws and regulations, if necessary, especially pertaining to the control of CW raw materials; bolstering of CBRN defense and response capability at the national level; involving the community in the preparedness of possible chemical incidents, and; building resilience to potential targets for terrorist recruitment and spread of violent extremist narratives.

There are several factors that may affect the security situation in Southeast Asia within the next five years, which is part of the limitations of this research. However, the non-occurrence of a chemical terrorism incident within the set timeframe of the study does not render the threat

as invalid owing to the randomness of other factors that play into these phenomena. For instance, there are numerous events that could influence terrorists in terms of determining the timing of conducting attacks not to mention the counterterrorism efforts that the security apparatus of a country put in to prevent them from happening. As established in this research, Al Qaeda goes to great lengths in planning and preparation before executing an attack against strategic or symbolic targets. Given the findings in this research, a continuous study of terrorism and the threat of chemical terrorism, in particular, is recommended in order to observe real situation locally and orient effective policies accordingly.

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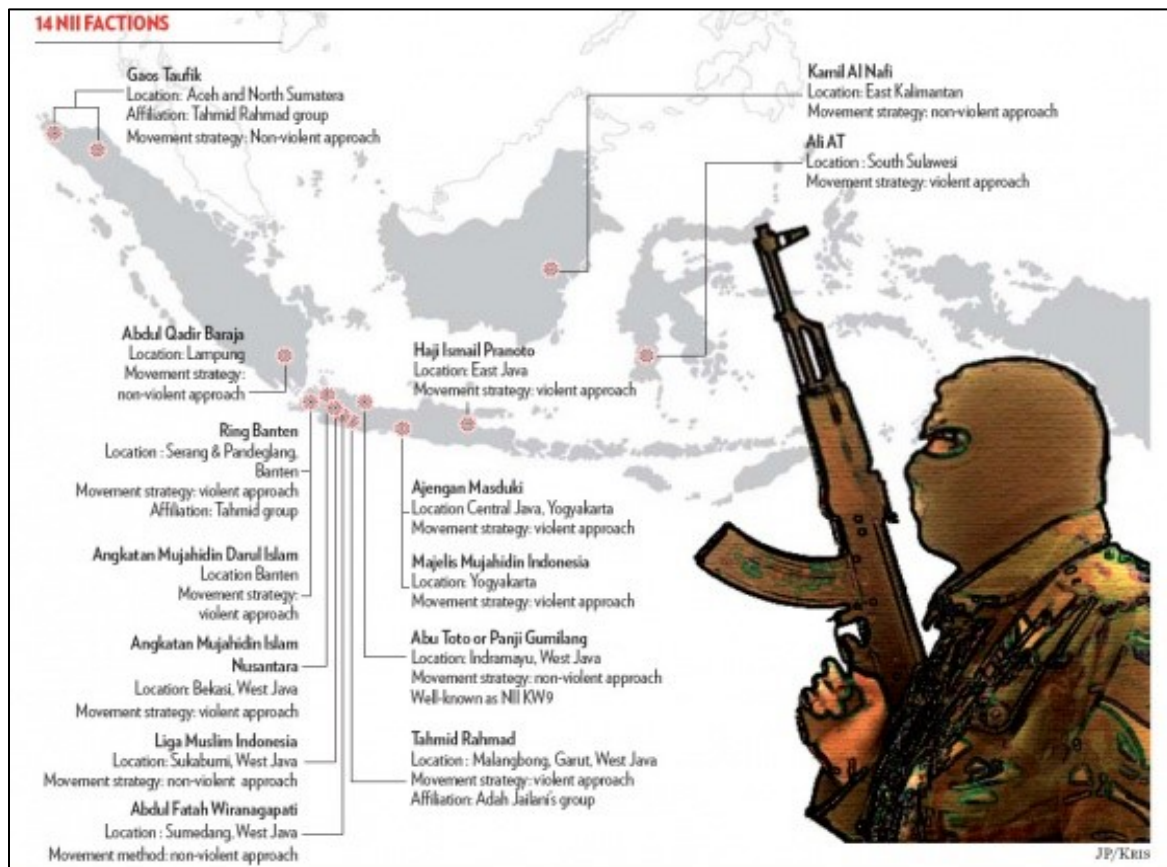
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APPENDICES

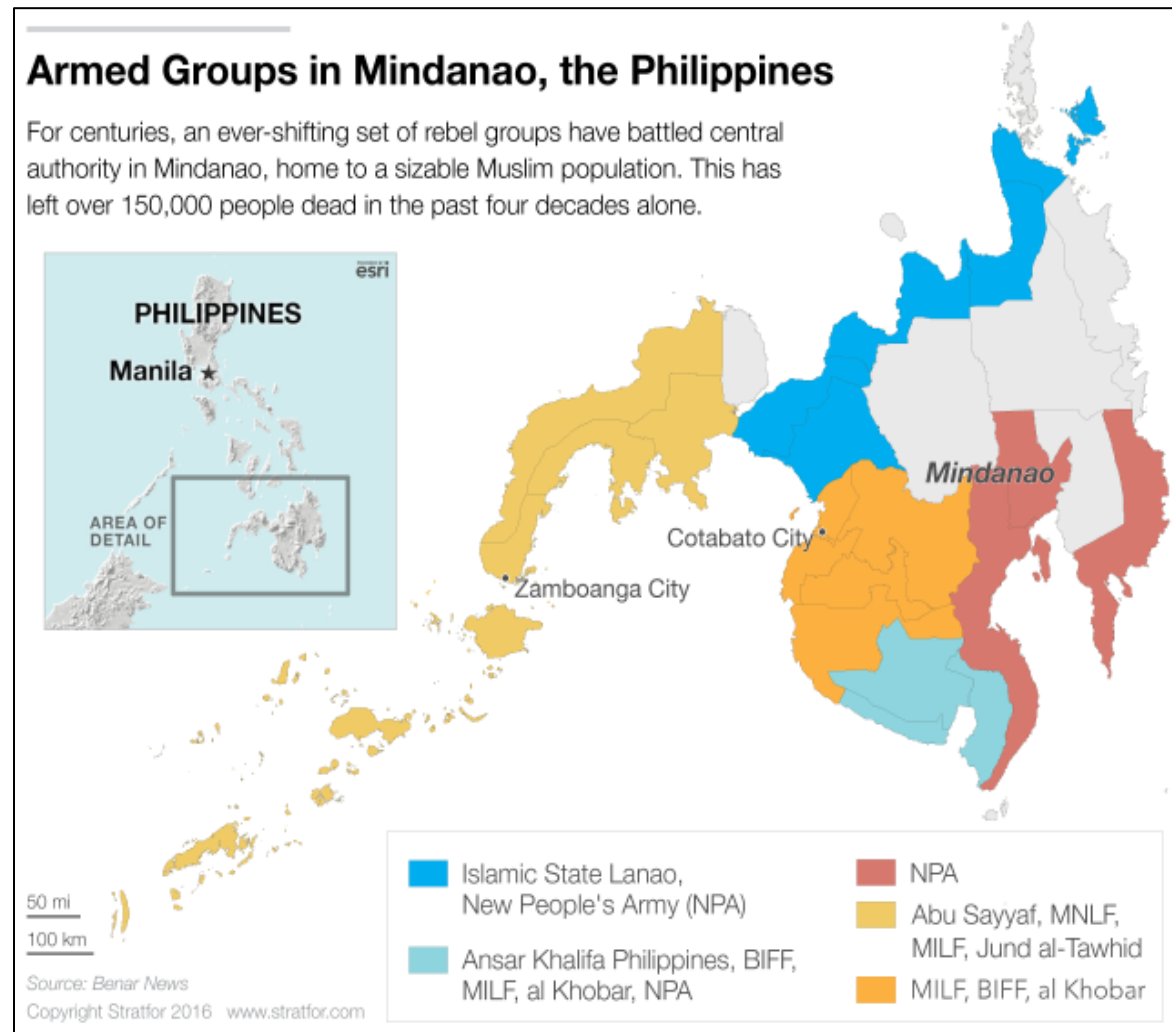
Appendix A



Islamic Armed Groups in Indonesia by Area of Operations

Source: Ahnaf, Mohammad Iqbal. "Weak State Helps Extremism in Indonesia." Center for Religious and Cross-cultural Studies, October 23, 2011. <https://crs.ugm.ac.id/articles/491/weak-state-helps-extremism-in-indonesia.html>.

Appendix B



Islamic Armed Groups in the Philippines by Area of Operation

Source: "In the Philippines, the 'Punisher' Takes on Terrorism." Stratfor, September 10, 2016.

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