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THESIS

ILLICIT NETWORKS: TARGETING THE NEXUS BETWEEN TERRORISTS, PROLIFERATORS, AND NARCOTRAFFICKERS

by

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13. ABSTRACT

Globalization and the liberal international marketplace have provided fertile ground for the rise of transnational and non-state actors. Unfortunately, while states and businesses have profited from the increased fluidity of borders and the rise of global commerce, so have the criminal organizations that threaten national and international security. These illicit networks are stateless; they conduct their business in failed or failing states, under the guise of legitimate commerce, and without regard to sovereign borders or even human life. They are the main facilitators of proliferation, terrorism, and narcotics around the world—undeterred and, perhaps, undeterrable. This thesis offers a comparative analysis of three main types of illicit networks: terrorist, proliferation and narcotics networks. Using Jemaah Islamiyah, the A.Q. Khan proliferation network, and the Medellín drug 'cartel' as case studies, it examines their typologies, motivations, structures, characteristics, and sources and patterns of funding. It examines if and how illicit networks overlap, with special attention to intra-network (e.g., terrorist networks with other terrorist networks) and inter-network (e.g., terrorist networks with narcotics networks) overlap. It then explores how this information can inform U.S. counter-network activity.

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ILLICIT NETWORKS: TARGETING THE NEXUS BETWEEN TERRORISTS, PROLIFERATORS, AND NARCOTRAFFICKERS

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ABSTRACT

Globalization and the liberal international marketplace have provided fertile ground for the rise of transnational and non-state actors. Unfortunately, while states and businesses have profited from the increased fluidity of borders and the rise of global commerce, so have the criminal organizations that threaten national and international security. These illicit networks are stateless; they conduct their business in failed or failing states, under the guise of legitimate commerce, and without regard to sovereign borders or even human life. They are the main facilitators of proliferation, terrorism, and narcotics around the world—undeterred and, perhaps, undeterrable. This thesis offers a comparative analysis of three main types of illicit networks: terrorist, proliferation and narcotics networks. Using Jemaah Islamiyah, the A.Q. Khan proliferation network, and the Medellín drug 'cartel' as case studies, it examines their typologies, motivations, structures, characteristics, and sources and patterns of funding. It examines if and how illicit networks overlap, with special attention to intra-network (e.g., terrorist networks with other terrorist networks) and inter-network (e.g., terrorist networks with narcotics networks) overlap. It then explores how this information can inform U.S. counter-network activity.

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LIST OF ACRONYMS AND ABBREVIATIONS

AQ	Abdul Qadeer
ASEAN	Association of Southeast Asian Nations
ASG	Abu Sayyef Group
BBE	Bin Belailah Enterprises
BCCI	Bank of Credit and Commerce International
C2	Command and Control
CBRN	Chemical, Biological, Radiological, Nuclear
CIA	Central Intelligence Agency
CSCAP	Council for Security Control in the Asia Pacific
DEA	Drug Enforcement Administration
DIMEFIL	Diplomatic, Information, Military, Economic, Financial, Intelligence and Law Enforcement
DoD	Department of Defense
DPRK	Democratic People's Republic of Korea (North Korea)
ETA	*Euskadi Ta Askatasuna*, or Basque Homeland and Freedom
FARC	*Fuerzas Armadas Revolucionarias de Colombia*, or Revolutionary Armed Forces of Colombia
FATF	Financial Action Task Force
FBI	Federal Bureau of Investigation
FDO	Physical Dynamics Research Laboratory, Netherlands
GHQ	General Headquarters
GTI	Gulf Technology Institute
HEU	Highly Enriched Uranium
IC	Intelligence Community
ICG	International Crisis Group
IAEA	International Atomic Energy Agency
IRA	Irish Republican Army
ISI	Inter-Services Intelligence
JI	Jemaah Islamiyah
KMM	Kumplan Militan Malaysia

KRL	Khan Research Laboratory
LEU	Low Enriched Uranium
MMI	Mujehedin Council in Indonesia
NPT	Nuclear Nonproliferation Treaty
OECD	Organization for Economic Cooperation and Development
OPSEC	Operational Security
MILF	Moro Islamic Liberation Front
NCTC	National Counterterrorism Center
NCPC	National Counterproliferation Center
NSG	Nuclear Suppliers Group
PAEC	Pakistan Atomic Energy Commission
QDR	Quadrennial Defense Review
RCA	Regional Command Authority
SCOPE	Scomi Precision Engineering
SNA	Social Network Analysis
SPD	Strategic Plans Division
START	Strategic Arms Reduction Treaty
TCO	Transnational Criminal Organization
TNC	Transnational Corporation
UBS	Underground Banking System
UF6	Uranium Hexafluoride
UNC	Ultra Centrifuge Netherlands
WMD	Weapons of Mass Destruction

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I. INTRODUCTION

A. INTRODUCTION

Globalization and the liberal international marketplace have provided fertile ground for the rise of transnational and non-state actors. Unfortunately, while states and businesses have profited from the increased fluidity of borders and the rise of global commerce, so have the criminal organizations that threaten national and international security. These illicit networks exist within the shadows of legitimate trade and governance. They exploit an abundant supply of small arms and natural resources that fuel violent conflict, and plot acts of terrorism from the refuge of ungoverned spaces. They are stateless; they conduct their business in failed or failing states, under the guise of legitimate commerce, and without regard to sovereign borders or even human life. They are the main facilitators of proliferation, terrorism, and narcotics around the world—undeterred and, perhaps, undeterrable.

B. IMPORTANCE

The terrorist attacks of September 11, 2001, brought to the forefront of policymakers' minds the imminent need to adapt U.S. foreign policy objectives to address this new strategic landscape. It became abundantly clear that U.S. foreign policy could no longer afford to focus exclusively on coherent nation states as the primary adversary. In the wake of 9/11, there was a push among policymakers, military officials and academics alike to understand the nature of the terrorist threat to the United States. This resulted in an emergence of extensive literature on terrorism and terrorist networks, particularly those that target the "far enemy" (i.e., the United States). Shortly after 9/11, another series of events illustrated the threat posed by illicit networks. When U.S. and British agents finally brought down A. Q. Khan's notorious proliferation network, Khan and his gang had already spread nuclear weapons technology to Iran, North Korea, Libya, and perhaps others. Khan's elaborate global network—established to procure sensitive

technology for Pakistan's nuclear weapons program—had gone into business for itself, providing information, technology, materials, and expertise to countries that wanted them for a large profit.

Today, just south of the U.S. border, Mexican drug trafficking networks—sometimes referred to as 'cartels'—terrorize the local population. They function more like gangs, using kidnapping, extortion, and murder to achieve their objectives. Their bloody tactics continue to make regular headlines. In May 2010, 55 bodies were discovered in an abandoned mine just south of Mexico City. In July, 51 corpses were found near a trash dump outside of Monterrey. In August, Mexican marines discovered an unprecedented 72 bodies in San Fernando, Mexico—just 100 miles south of Texas.[1] Over 30,000 people have been killed in drug-gang violence in Mexico alone since the turf battle began between the Mexican Zetas and Gulf "cartels" in 2006.[2] Narcotics and narcotics-related corruption continue to be endemic problems worldwide, and pose significant barriers to progress in their respective regions.

The literature on networks is largely "stovepiped," meaning it is focused on one issue or threat at the expense of the broader picture. The terrorism literature, for instance, focuses on terrorist networks at the expense of other illicit networks that pose potentially equal, albeit less visible, threats to the United States. Columbian drug networks are alive and well, and Mexican drug gangs are increasingly prominent just south of the U.S. border. Procurement networks make use of front companies and the liberal import/export laws that facilitate international commerce to transport and transship dual-use materials that could be used for the production of weapons of mass destruction (WMD). To complicate matters, networks can engage in multiple illicit activities, making it difficult to draw clear lines between them. For example, there is speculation that terror, proliferation, and drug networks may overlap to provide global jihadists, such as Al Qaeda, with weapons of mass destruction.

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[1] Associated Press, "72 Bodies Found in Northern Mexico," *New York Times*, August 25, 2010,http://www.nytimes.com/aponline/2010/08/25/world/AP-LT-Drug-War-Mexico.html?_r=1 (accessed August 25, 2010).

[2] Ibid.

Current U.S. government efforts to counter these activities are similarly "stovepiped," The term "cylinders of excellence" has been used to describe organizations such as the National Counterterrorism Center and the National Counterproliferation Center, which focus on their individual specialty, but pay insufficient attention to the overlap between hostile entities to the United States. Additionally, bureaucratic rivalries have prevented different organizations from sharing information that would be helpful to combat these illicit networks. There is a need, therefore, in the U.S. government to both examine more closely the structures and motivations of these networks and to use that information to tailor its counter-network activity.

C. RESEARCH QUESTION

This thesis offers a comparative analysis of three main types of illicit networks: terrorist, proliferation and narcotics networks. Using social and criminal network analysis as a framework, it examines their typologies, motivations, structures, characteristics and financing. For each type of network, I examine one particular case study and ask the following questions: What is its motivation? How is it structured? What are its sources and patterns of funding? Does it overlap with similar types of networks (e.g., terrorist groups with other terrorist groups)? Does it overlap with dissimilar networks (e.g., narcotics networks with terrorist networks)? Where there is overlap, what is the nature of this collaboration? Finally, how can this information be used to tailor U.S. counter-network activity?

D. LITERATURE REVIEW

There is a lack of consensus in the literature about what exactly constitutes a network, especially in international relations. The term "network" is often used ubiquitously to describe any organization that does not fit into the typical hierarchy or market configuration. It can describe anything from one's business associates or Facebook friends to Al Qaeda and the global Salafi jihad. So far, there has been very little recognition in the literature about the degree of variation among network structures, which this thesis seeks to remedy.

Network analysis looks for patterns in the relationships between nodes, which can be hubs, cliques, or brokers. This science assumes network relations are inherently dynamic. Social network analysis (SNA) emerged out of sociology in an effort to explain the behavioral elements of network actors. A "social network" is comprised of a finite set or sets of actors with relations among them.[3] This method attempts to identify patterns of interactions, which can then be used to predict behavior. It uses the language of network analysis to explain relations between individuals, groups, and organizations, and can help prescribe courses of action that will potentially influence behavior.

While there has been research dedicated to understanding the nature of illicit networks, network analysis is not yet adequate to explain them. Network analysis tools were first employed in international relations in the late 1960s and early 1970s by academics like Savage and Deutsch, Brams, Sjelsbaek and Christopherson, who sought to examine the emergent structures in an increasingly globalized world.[4] Their research focused on licit enterprises, like intergovernmental organizations (IGOs) and even the states themselves. As Hafner-Burton et al. point out in "Network Analysis for International Relations," networks are typically viewed in international relations as "a mode of organization that facilitates collective action and cooperation, exercises influence, or serves as a means of international governance." Until recently, this discipline has not treated networks as structures that can enable or constrain individual agents and influence international outcomes.[5]

It was not until the 1990s that researchers began to apply network analysis tools to the "core problems of international relations," which included terrorist and other "dark" organizations.[6] In 1991, Malcolm Sparrow attempted to identify opportunities for the application of SNA to the problems of criminal intelligence analysis. In particular, he focused on the identification of key vulnerabilities in different types of criminal

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[3] Stanley Wasserman and Katherine Faust, *Social Network Analysis: Methods and Applications* In *Structural Analysis in the Social Sciences* (Cambridge: Cambridge University Press, 1994), 20.

[4] Emilie M. Hafner-Burton, Miles Kahler, and Alexander H. Montgomery, "Network Analysis for International Relations," *International Organizations* 63, no. 3 (Summer 2009).

[5] Ibid., 4.

[6] Ibid., 7.

organizations, from terrorist groups to narcotics supply networks.[7] Researchers applied SNA techniques to the analysis of criminal networks with the hope that the emerging information could be used to tailor law enforcement efforts. Valdis Krebs describes this as the third generation of criminal network analysis and visualizations, following manual link charts and graphic-based computer net charts.[8] Ideally, this tool set would enhance an analyst's predictive capability and improve counter-network efforts.[9]

While there have been significant improvements in network mapping technology, much still remains to be explored about the applicability of these tools to covert or clandestine networks. The study of organizations that thrive on secrecy invites incomplete or unreliable information, which make them very difficult to map and interpret. Jennifer Xu and Hsinchun Chen identify potential challenges in their article in "Criminal Network Analysis and Visualization," in which they argue that SNA routinely fails to address the problems of incomplete, incorrect and inconsistent data. Also, it often fails to take into account data transformation, ambiguous boundaries, and changing network dynamics.[10] SNA, therefore, is insufficient to explain "dark" networks as a tool in and of itself. This is where an analyst's experience and intuition could help pull together the pieces of the puzzle where other types of modeling are lacking.

Confusion in the literature over convergent views on networks in general is compounded by the confusion over divergent views on the nature of individual networks. While some researchers treat the network model as ubiquitous, others argue over the structures of specific networks. Marc Sageman is both famous and infamous for his analysis of the global Salafi jihad, which he argues has moved away from its pre-9/11

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[7] Malcolm K. Sparrow, "The Application of Network Analysis to Criminal Intelligence: An Assessment of the Prospects," *Social Networks* 13, no. 3 (1991): 251–274.

[8] Valdis E. Krebs, "Mapping Networks of Terrorist Cells," *Connections* 24, no. 3 (2001): 43–52.

[9] Steven Aftergood, "Secrecy News: Social Network Analysis and Intelligence," *Federation of American Scientists Project on Government Secrecy* no. 15 (2004), http://www.fas.org/sgp/news/secrecy/2004/02/020904.html (accessed October 12, 2010).

[10] Jennifer Xu and Hsinchun Chen, "Criminal Network Analysis and Visualization," *Communications of the ACM* 48 no. 5 (June 2005): 101.

hierarchical structure in favor of a more dispersed "network" structure.[11] Sageman has been widely criticized by Bruce Hoffman and other like-minded terrorism experts who argue that Al Qaeda is not as dispersed as Sageman thinks. They contend that, despite the increase in fledgling "grass roots" Islamist movements that associate themselves with Al Qaeda, the organization still operates with a core leadership and top-down instruction.[12] As such, it is a "hybrid" organization, with both top-down and bottom-up information flows.

Narcotics networks have been of concern since long before the declared "war on drugs," but are especially important to examine today. Increasing violence in Mexico has resulted in nearly 30,000 drug-related deaths—over 7,200 of which occurred in just one year as law enforcement authorities battle territorial cartels.[13] The war in Mexico alone has resulted in more casualties than have occurred in Iraq and Afghanistan combined; furthermore, violence has begun to spill across the border into the United States. With the increase in U.S. troop presence in Afghanistan, it is critical to scrutinize the strong link between insurgency, corruption and opium that continues to plague progress in the region. With the Taliban and high-level Afghan leaders, alike, benefitting from the drug trade, it is difficult to imagine a U.S.-Afghan policy that does not take this nexus into consideration. Like terrorist networks, drug networks engage in violent behavior, often employing gruesome techniques that instill terror in the local population as they battle their turf wars.

Perhaps the best example of the danger of nuclear proliferation networks is that of Dr. Abdul Qadeer Khan. Gordon Corera, whose book *Shopping for Bombs* provides a comprehensive overview of Khan's network and its implications, contends, "A. Q. Khan has had a greater impact on nuclear proliferation than any other individual in the last

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[11] Marc Sageman, *Leaderless Jihad: Terror Networks in the Twenty-First Century* (Philadelphia, PA: University of Pennsylvania Press, 2008).

[12] Bruce Hoffman, "The Myth of Grass-Roots Terrorism: Why Osama bin Laden Still Matters," *Foreign Affairs* (May/June 2008).

[13] Mark Landler, "Clinton Says U.S. Feeds Mexico Drug Trade," *New York Times*, March 26, 2009, http://www.nytimes.com/2009/03/26/world/americas/26mexico.html

three decades."[14] Tasked by the Pakistan government to procure materials for its state nuclear weapons program, Khan had access to nuclear suppliers and supplies of dual-use materials around the globe. An opportunistic businessman with unprecedented access and contacts, he took advantage of his position and exported centrifuge technology (and possibly bomb designs), to North Korea, Iran, and Libya. David Albright explains in detail in his recent book *Peddling Peril* how Dr. Khan acquired his nuclear expertise as a metallurgist working in the Netherlands, how he rose to prominence when President Zulfikar Ali Bhutto pushed to develop a clandestine nuclear weapons program for Pakistan, and then used his contacts and expertise to go into business for himself with relative ease.

Jonathan Tucker examines the illicit procurement networks behind Iraq and Iran's chemical weapons programs in his article *Trafficking Networks for Chemical Weapons Precursors: Lessons from the Iran-Iraq War of the 1980s*. Though these cases are decades old, Tucker rightly emphasizes that their insights are still very relevant because the methods of illicit trafficking have not fundamentally changed.[15] Though they were after different materials, the nature of Frans van Anraat and Peter Walaschek's networks and operations bear distinct similarities to those of A.Q. Khan as well as Viktor Bout—one of the largest international arms traffickers in history, who was recently extradited to the United States. Albright's Institute for Science and International Security (ISIS) has published a wealth of literature on unclassified case studies on procurement networks that have facilitated the transfer of illicit materials worldwide. With its access to satellite imagery, ISIS reports regularly on today's procurement networks facilitating the nuclear programs in Iran, North Korea, and Pakistan, among others.

Both narcotics networks and procurement networks differ from terrorist networks in that they are motivated by profit—not ideology or religion. Given their market structure, they flow easily under the radar, navigating seamlessly between licit and illicit activities. They also involve a whole range of people, from outright criminals to greedy

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[14] Gordon Corera, *Shopping for Bombs* (Oxford: Oxford University Press, 2006), 5.

[15] Jonathan B. Tucker, "Trafficking Networks for Chemical Weapons Precursors: Lessons from the Iran-Iraq War of the 1980s," Occasional Paper no. 13 (Monterey, CA: James Martin Center for Nonproliferation Studies, 2008).

businessmen who are willing to turn a blind eye for a profit. Transnational crime expert Phil Williams writes that "arms smuggling often involves institutions and individuals who are not parts of criminal organizations: national defense ministries, national security agencies, banks, legitimate arms dealers, and a wide variety of groups involved in the internal power struggles within nations."[16] Moisés Naím reiterates this point in *Illicit*, noting that people involved in unlawful activities are often difficult to identify because "they hide in plain sight. They are hard to take out, because their involvement in the trade is just one aspect of their business, lost in the stream of legitimate commerce."[17]

Despite their differences, these networks do overlap, and their activities thrive in unstable political conditions. Glenn Curtis and Tara Karacan argue in their study for the Library of Congress that the same variety of buyers, sellers and middlemen exist among different kinds of smuggling operations.[18] They write that "the globalization of financial, commercial, transportation, and communication networks has enabled buyers and sellers to locate each other, identify points of common interest, and establish terms of cooperation."[19] Curtis and Karacan identify three main types of associations between illicit groups: first, alliances for mutual benefit that do not cross ideological missions; second, the direct involvement of terrorists in organized crime; and third, the replacement of ideology by profit as a motivator for terrorist operations.[20] Western Europe and North America, in particular, have major narcotics markets and wide-open commercial "nodes" that increasingly serve the trafficking needs of both criminal and terrorist networks. Likewise, Southeast Asia is an up-and-coming economic region, with many small islands and wide-open seas that make trafficking of any kind difficult to police. In these and other regions, the infrastructure and circumstance that benefit one type of illicit activity often benefit others. For example, Curtis and Karacan point out that:

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16 Tucker, "Trafficking Networks," 4.

17 Moisés Naím, *Illicit: How Smugglers, Traffickers, and Copycats are Hijacking the Global Economy* (New York: Doubleday, 2005), 65.

18 Glenn Curtis and Tara Karacan, "The Nexus among Terrorists, Narcotics Traffickers, Weapons Proliferators, and Organized Crime Networks in Western Europe," *The Library of Congress* (December 2002), 2.

19 Curtis and Karacan, "The Nexus among Terrorists," 3.

20 Ibid., 22.

> The demand for illegal weapons in Western Europe has supplemented the demand in Africa and Asia that has supported trafficking networks that base their operations on stockpiles in the former Warsaw Pact nations, the former Yugoslavia, and the former Soviet Union. This demand, which is based both in terrorist groups and in organized crime networks, ultimately benefits both corrupt military and civilian operators in source countries such as Bulgaria, Ukraine, Russia, and Romania, and intermediary agents such as Albanian, Croatian, Romanian, and Serbian criminal groups. The ongoing world demand for military-type weapons has slowed efforts by struggling countries such as Bulgaria and Romania to dispose of their military surpluses in less lucrative but more socially beneficial ways.[21]

There is a view in the literature that it takes a network to counter a network. This phrase has been cited repeatedly to describe the challenge illicit networks pose to law enforcement and other hierarchical, state-sponsored institutions. John Arquilla and David Rondfeldt address this specifically in *Networks and Netwars*, in which they examine how modern communications have shaped nontraditional warfare (e.g., the 9/11 attacks), and assess the suitability of government entities to address this new form of "netwar."[22] Researchers like Phil Williams, Arquilla and Ronfeldt contend that law enforcement agencies and government institutions face a difficult challenge because they are constrained by national borders and regulations, whereas illicit networks are not.[23] Other researchers point to the prominence of states in the international system as evidence of their staying power, and make the argument that hierarchies are, in fact, suited to combat illicit networks.

E. HYPOTHESES AND PROBLEMS

I hypothesize that the three main types of illicit networks are distinct. Terrorist networks are unique in that they are ideologically motivated. Networks like Al Qaeda that target the "far enemy" are therefore dangerous not only because of what they are capable of within their own organized structures, but because of their ability to inspire small, like-

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[21] Curtis and Karacan, "The Nexus among Terrorists," 25.

[22] John Arquilla and David Ronfeldt, *Networks and Netwars: The Future of Terror, Crime and Militancy* (Santa Monica, CA: RAND Corporation, 2001).

[23] Phil Williams, "The Nature of Drug-Trafficking Networks," *Current History* (April 1998): 156.

minded groups to take action in the name of their larger movement, or jihad. Terrorist groups, and especially smaller "grass roots" cells, are likely to have strong ties of kinship and trust, which both bind them together and isolate them from the outside world.

In contrast, both narcotics and procurement networks are profit-driven. Drugs and dual-use materials are hot commodities on the black market, leading to the hypothesis that these networks are demand-driven and follow a market structure. However, these networks are different in that the relationships between individuals, or "nodes," in procurement networks, are purely transactional, whereas the links between nodes in narcotics networks are more likely to be based on ethnic or familial ties. Narcotics networks are constantly fighting each other in turf wars, and are willing and able to resort to violence. Individual members of procurement networks, on the other hand, are not armed and are generally unwilling to engage in violence. They are only in it to make a buck.

F. METHODS AND SOURCES

In this thesis, I begin each chapter by framing the problem of terrorism, proliferation and narcotics trafficking in today's context. I then review the prevailing literature on terrorism, proliferation and narcotics networks to offer specific network typologies for each. Typology building involves the categorization of large amounts of information into a single set of terms to make it more manageable for analysis.[24] It is evident from the stovepiped nature of the literature that there is an assumption that illicit networks operate within one main function: terrorism, proliferation, or drug trafficking. The organizations intended to counter them are therefore not designed to accommodate the possibility that there is overlap between different kinds of networks, or that they are multi-purposed. I examine a variety of sources, including academic journals, books and periodicals, to establish generalizations about the motivations, structures, funding, and nature of network overlap for terrorist, proliferation and narcotics networks. I attempt to

[24] Alex P. Schmid and Albert J. Jongman, *Political Terrorism: A New Guide to Actors, Authors, Concepts, Data Bases, Theories, & Literature* (New Brunswick, New Jersey: Transaction Publishers, 2005), 39.

determine whether groups that overlap with different types of networks do so to the extent that it benefits their main objective, or whether they can become multi-purposed, or evolve from their original motivation.

I then test the specific typology for each type of network through the careful examination of a case study. I selected the Jemaah Islamiyah terrorist network, A.Q. Khan's nuclear proliferation enterprise, and the Medellin drug 'cartel' as case studies because they are all well studied and documented in open source literature, in spite of their covert nature. When studying dark networks, it is often difficult to obtain complete and reliable information until after the network has been exposed or disrupted, due to the secret nature of their operations and internal workings. By selecting well-known case studies, I am able to more accurately examine their motivations, structures, sources and patterns of funding, and overlap with other networks, from which I draw lessons to inform U.S. policy and counter-network activity in today's context. Because these case studies vary greatly in terms of their function, location, etc., I ask the same set of questions for each in order to maintain consistency between chapters.

G. THESIS OVERVIEW

Chapter I was an introduction to the topic and literature review of networks and social network analysis in general. Chapter II looks specifically at terrorist networks, using Jemaah Islamiyah as a case study. Chapter III examines proliferation networks, using the A.Q. Khan network as a case study. Chapter IV looks at narcotics networks, using the Medellín 'cartel' as a case study. In each chapter, I begin with a review of the literature to construct a specific typology for terrorist, proliferation and narcotics networks. I then focus on a particular case study, of which I ask the same set of questions: What is its motivation? How is it structured? What are its sources and patterns of funding? Does it overlap with other similar networks? Does it overlap with dissimilar networks? Where there is overlap, what is the nature of that relationship? Each chapter concludes with network-specific observations and recommendations for how this information can be used to tailor counter-network activity. Chapter V summarizes the defining characteristics of each individual network typology, noting the distinct

similarities and differences between them. It then makes overall suggestions for how the conclusions from this thesis are informative for efforts to further understand and counter illicit network activity.

II. TERRORIST NETWORKS: JEMAAH ISLAMIYAH

A. INTRODUCTION

1. Why Terrorist Networks Are Important

The events of September 11, 2001, brought to the forefront of our minds the imminent threat that terrorism and terrorists pose to U.S. and international security interests. The successful attacks against the World Trade Towers and Pentagon highlighted the extent to which non-state actors in particular could inflict damage, and indeed terror, on our way of life. In spite of all the economic growth and progress that followed the end of the Cold War, 9/11 proved that even a superpower was vulnerable to penetration by outsiders with mal-intent. From this point forward, a preoccupation with terrorism reshaped the U.S. foreign policy narrative and landed Osama bin Laden the title of Public Enemy Number One.

Yet the use of terrorism as a tactic is not a new phenomenon, as the post-9/11 hype would suggest. Rather, states and non-state actors alike have has employed it to their advantage for centuries.[25] The definition of terrorism, according to Jeffrey Bale of the Monterey Institute of International Studies is "the use or threat of the use of violence, directed against victims selected for their symbolic or representative value as a means of instilling anxiety in, transmitting one or more messages to, and thereby manipulating the perceptions and behavior of wider target audiences."[26] Accepting this definition, it is evident that the only thing truly new about terrorism in the post-9/11 era is the connotation it now engenders. Today's use of the term is more propagandistic than accurate; it is often overly broad, and focuses on specific actions rather than targeted messages. Furthermore, it is too narrowly associated with anti-government violence,

[25] States have been the biggest perpetrators of terrorism—not groups. In the twentieth century alone, upwards of 150 million people were killed by states, which vastly exceed the number of deaths by insurgents and non-state actors. For specific data sets see: Schmid and Jongman, "Data and Data Bases on State and Non-State Terrorism," *Political Terrorism*, 137–175.

[26] Jeffrey Bale, Introduction to Terrorism seminar (class notes), U.S. Naval Postgraduate School, Monterey, CA, January–March, 2009.

which means that it is frequently—and inaccurately—used interchangeably with words like insurgent, Taliban or guerilla. While this propagandistic use of "terrorism" serves to delegitimize the enemy in a moral way, it also contributes to general confusion over what exactly constitutes a "terrorist" or a "terrorist network," which this thesis attempts to remedy.

While terrorism is not a new phenomenon, 9/11 did make clear that it was not just a problem "over there," as had once been assumed, but rather a transnational problem that spans borders and oceans and requires a multi-national response. The liberal economic policies that followed the end of the Cold War prompted increased movement across previously stringent borders and promoted the expansion of transnational corporations and free trade agreements. Simultaneously, technological advances like the Internet made trade, travel and communication easier, and national borders more porous than ever before. Unfortunately, globalization came with a cost: terrorists and other types of illicit networks exploited the same advantages that states and businesses enjoyed. In essence, globalization empowered the rise of the non-state actor.

Another major unintended consequence of the end of the Cold War was the rise of violent Islamist extremism. While the United States utilized the Afghan mujahedin to push out the Soviets after their invasion of Afghanistan in 1979, they inadvertently created a well-trained cadre of now radicalized jihadists such as Osama bin Laden, who use small arms from the Soviet era, exploit the Internet and other news media, and take advantage of porous state borders and failed or failing states to plan and execute terrorist activity. This is such an important problem that combating violent extremism is the first mission objective in the most recent National Intelligence Strategy, produced by the Office of the Director of National Intelligence in August 2009.[27] This document states clearly that "Violent extremist groups—primarily al-Qa'ida [sic] and its regional affiliates, supporters, and the local terrorist cells it inspires—will continue to pose a grave threat to U.S. persons and interests at home and abroad."[28] As such, the first U.S. mission

[27] Office of the Director of National Intelligence, "The National Intelligence Strategy" (Washington, DC: Office of the Director of National Intelligence, 2009), 6.

[28] Office of the Director of National Intelligence, *National Intelligence Strategy*, 6.

objective is to "understand, monitor, and disrupt violent extremist groups that actively plot to inflict grave damage or harm to the United States, its people, interests, and allies."[29] In order to effectively warn against impending terrorist attacks, disrupt plans already underway, prevent catastrophic WMD terrorism, and counter the proliferation of violent extremism, U.S. civilian and military forces must first understand the nature of the threat, the motivations of those that threaten them, and the structure and tactics they employ to achieve their objectives. This understanding is the foundation for a successful counterterrorism strategy.

2. Why Jemaah Islamiyah Was Chosen as a Case Study

I chose Jemaah Islamiyah (JI) as a case study because it is a well-studied terrorist network with available open source material on its motivations, structure, funding and affiliations. As the very nature of terrorist or shadowy networks makes them difficult to study, it is important to select a case study from which there is accurate information to draw analysis and conclusions. Al Qaeda is perhaps the most well known terrorist network—particularly since 9/11—but Al Qaeda has been studied throughout the last decade at the expense of other dangerous organizations. JI has known affiliations with Al Qaeda and other regional terrorist networks, such as the Moro Islamic Liberation Front (MILF) and the Abu Sayyef Group (ASG). It has been responsible for the most deadly terrorist attack since 9/11—the 2002 Bali bombings—and is believed to have been behind the simultaneous bombings in Jakarta on the Ritz Carlton and Marriott hotels in July 2009. JI has engaged in a wide spectrum of criminal activity across Southeast Asia, and is responsible for producing the region's most wanted terrorist: Noordin Mohammed Top.

3. Roadmap

In this chapter, I examine the prevailing literature on terrorism to offer a brief explanation of the terrorist network typology and to draw conclusions about terrorist networks in general. By focusing on Jemaah Islamiyah as a case study, I will seek to answer the following questions: What is its motivation? How is it structured? What are its

[29] Office of the Director of National Intelligence, *National Intelligence Strategy*, 6.

sources and patterns of funding? Does it overlap with other similar networks (i.e., with other terrorist networks)? Does it overlap with dissimilar networks (e.g., with narcotics networks or other criminal activity)? Where there is network overlap, does that connection influence JI's ideological objective? Finally, I examine the implications of these findings on counterterrorism strategy and activity.

B. TERRORIST NETWORK TYPOLOGY

A terrorist network is a network of actors that relies primarily on terrorism as a tactic to achieve its objectives. As Chalmers Johnson noted in 1978, there are "almost as many typologies of terrorism as there are analysts." While there is no single way classify this type of network, which can vary in size, ideology, structure, etc., there are certain similarities across the board that are useful in building a network typology. Most often, terrorist networks are ideologically driven. They are frequently based on close trust ties—linked by family, marriage, shared principles, training and combat experience—and generally only overlap with other terrorist or criminal networks if it serves their ideological objective.

Ideology can be defined as "the beliefs, values, principles, and objectives – however ill-defined or tenuous – by which a group defines its instinctive political identity and aims, and justifies its actions."[30] Ideologies are structured, relatively coherent, and often all-encompassing worldviews that provide a new vision of a better world, and a guide for action.[31] Terrorism today is often associated with extremist ideology. Like "terrorism," the word "extremism" often carries a negative connotation, which inaccurately gives the impression that it is a qualitative assessment rather than a defining term for analysis. The characteristics of extremism, and of extremist ideology, are: Manichaeism, which delineates good vs. evil; monism, meaning anyone who disagrees is evil; authoritarianism/totalitarianism; collectivism, in which the rights of the individual are subordinate to the interests of the group; utopianism, or striving for perfection; and

[30] C.J.M. Drake, *Terrorists' Target Selection* (London: MacMillan Press LTD, 1998), 16.

[31] Bale, Introduction to Terrorism seminar.

the demonization/dehumanization of opponents and enemies.[32] There are five main categories of extremist ideologies that insurgent groups embrace: (1) ethno-nationalist (e.g., the Irish Republican Army, Palestinian Liberation Organization); (2) secular left-wing (e.g., the Revolutionary Armed Forces of Colombia (FARC), Shining Path); (3) secular right-wing (e.g., Secret Army Organization in French Algeria); (4) religious (e.g., Al Qaeda, Jemaah Islamiyah); and (5) single-issue (e.g., animal rights or anti-abortion groups).[33] These major categories are not exclusive: primarily religious groups, like Hamas or Hezbollah, have assumed an ethno-nationalist identity; similarly, primarily ethno-nationalist groups, like the ETA, have adopted religious underpinnings. Because JI is primarily motivated by a religious extremist ideology, that will be the focus of this chapter.

Religions of all kinds are founded on a core belief in the existence of supernatural or spiritual beings. Of the three main categories of religion—pantheistic, polytheistic and monotheistic—monotheistic religions are the most prone to extremism. Pantheistic religions, like Daoism, ascribe supernatural agency to natural phenomena; they do not tend to manifest extremism. Polytheistic religions, like Hinduism or ancient Greek and Roman, believe in multiple gods, but are typically inclusive of different cultures and deities. This creates less room for conflict with other belief systems and makes them less prone to extremism.[34] Monotheistic religions, like Judaism, Christianity and Islam, believe in one transcendent god. These are the most prone to extremism because they tend to be exclusionary; by definition, they are more likely to create conflict with other belief systems. Terrorist networks that are founded on religion typically seek to smite evildoers and purported enemies of god. They often want to impose strict religious tenets on society, forcibly insert religion into the political sphere, and bring about an Armageddon, or other apocalyptic scenario.[35]

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[32] Bale, Introduction to Terrorism seminar.

[33] Ibid.

[34] There are many examples of Hindu terrorism, for example, although this thesis contends that terrorism based on polytheistic religious extremism is not generally the norm.

[35] Bale, Introduction to Terrorism seminar.

The proportion of groups that rely on religious terrorism is growing—now nearly 70 percent of all terrorist networks.[36] David Rapoport calls this the "most arresting and unexpected development" in recent years.[37] There are important qualitative differences between religious and secular violence. As Charles Selengut argues in *Sacred Fury*, religious faith is different from other forms of leadership because it is entirely outside of the normal rules and interactions.[38] The faithful are required to conform to religious law, which can trump manmade law.[39] Most importantly, religion enables those who follow it to invoke "holy terrorism." In a cosmic war, the belief in one's divine duty can legitimize indiscriminate violence.[40] This invites martyrdom—the acceptance of death for a cause—because the promise of eternal life motivates warriors and breaks what would otherwise be constraints on self-destructive behavior.[41] While terrorist targets can be selected for their symbolic, functional, logistical or expressive value, religious terrorism is most often exclusively symbolic.[42]

Islamism is a political ideology—not a religion. It is a radical anti-secular, anti-Western political ideology with both revolutionary and revivalist elements based on a strict, puritanical interpretation of Islam.[43] It is a type of activist fundamentalist movement in which participants take action to reverse the corruption of the external world. All Islamists are fundamentalists, but not all fundamentalists are Islamists. Fundamentalism is a reaction against what is perceived as the corruption of religious interpretation. It is an attempt by religious movements to return to what they regard as the

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[36] Bruce Hoffman, "Old Madness, New Methods: Revival of Religious Terrorism Begs for Broader U.S. Policy," (Santa Monica, CA: RAND Publications, 1998), http://www.rand.org/publications/randreview/issues/rr.winter98.9/methods.

[37] David C. Rapoport, "Sacred Terror: A Contemporary Example from Islam," in *Origins of Terrorism: Psychologies, Ideologies, Theologies, States of Mind,* ed. Walter Reich (Washington, DC: Woodrow Wilson Center Press, 1998), 103.

[38] Charles Selengut, *Sacred Fury: Understanding Religious Violence* (Lanham, MD: AltaMira Press, 2004).

[39] Ibid.

[40] Mark Jurgensmeyer, *Terror in the Mind of God: The Global Rise of Religious Violence* (Berkeley, CA: University of California Press, 2001).

[41] Jurgensmeyer, *Terror in the Mind of God*.

[42] Drake, *Terrorists' Target Selection*, 9; Jurgensmeyer, *Terror in the Mind of God*, 220.

[43] Bale, Introduction to Terrorism seminar.

pure, uncorrupted foundations of their religion. In practice, this also generally involves a strict, puritanical interpretation of sacred religious texts, and a meticulous adherence to behavioral norms derived from that interpretation. Islamism is a reaction to growing Western dominance in the nineteenth and twentieth centuries that is based on a radical rejection of Western secular values; resistance to infidel political, social, economic and cultural influences over the Muslim world; extreme hostility toward less committed and militant Muslims (often labeled *takfirs*, or non-Muslims); and the demand for the creation of an Islamic state governed by a strict puritanical interpretation of *sharia* law.[44] Islamists can be gradualists, which seek to transform the consciousness of Muslims over time (e.g., Muslim Brotherhood), or violent jihadist groups, which used armed struggle to achieve their objectives (e.g., Al Qaeda). Violent Islamist groups can be focused on the "near enemy," which are local/national non-Muslim or apostate regimes, or the "far enemy," which are global enemies. Groups like Al Qaeda that are focused on the "far enemy" tend to have a world-transformative agenda.

C. J. M. Drake argues in *Terrorists' Target Selection* that all terrorists typically go through the same set of stages, whether they are conscious of them or not: they set up a logistical support network; select potential targets; conduct reconnaissance and gather information on those targets; plan the operation; insert weapons and operators into the area of operations; execute the operation; extract the operational team; and finally issue communiqués explaining their objectives.[45] Terrorist networks employ a number of organizational structures that can be adapted based on circumstance. The structure of a terrorist network must always strike a delicate balance between command and control (C2) and operational security (OPSEC). Three basic structures strike this balance in different ways. The first type includes a leadership directorate that gives instructions and orders to various cells. This type has the highest level of C2 but the lowest level of OPSEC. The second type is more of a clique, with no leadership but many links between cells. This type strikes the most even balance between C2 and OPSEC. The third type is

[44] *Sharia* is Islamic law. It literally means "the way, the path." Bale, Introduction to Terrorism seminar.

[45] Drake, *Terrorists' Target Selection*, 54.

what has been referred to as "leaderless resistance" by the American right. In it, members of individual cells all share the same worldview and therefore operate independently without any coordination between them. There is no connection between cells, which offers the lowest amount of C2 but the highest amount of OPSEC.[46]

The organizational structure, weapons and tactics of a terrorist network—what Rapoport refers to as the *means*—are constantly modified to accommodate changing circumstances (e.g., the U.S. invasion of Afghanistan).[47] This makes terrorist networks flexible and adaptable in a way that government bureaucracies are often not. Marc Sageman addresses this topic in *Leaderless Jihad*, in which he argues that that the global Salafi jihad has moved away from its pre-9/11 hierarchical structure (like the first type) in favor of a more dispersed "network" structure (like the third type).[48] Sageman has been widely criticized by Bruce Hoffman and other like-minded terrorism experts who argue that Al Qaeda is not as dispersed as Sageman thinks. Hoffman argues that despite the increase in fledgling "grass roots" Islamist movements that associate themselves with Al Qaeda, the organization still operates with a core leadership and top-down instruction, which makes it a "hybrid" organization, with both top-down and bottom-up information flows.[49] Either way, these and other researchers agree that Al Qaeda is adaptable and has been able to transform itself in response to current events to survive as an organization.[50]

In order to truly understand and visualize the organizational structure of a terrorist network, academics began to employ social network analysis (SNA). "Connecting the dots" in this way is a difficult task, given that accurate information on network leadership and affiliations is generally not available in open source literature. The first attempt to substantively apply SNA to a terrorist organization was Valdis Krebs' analysis of the

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[46] Bale, Introduction to Terrorism seminar.

[47] Rapoport, *Sacred Fury*, 107.

[48] Sageman, *Leaderless Jihad.*

[49] Bruce Hoffman, "The Myth of Grass-Roots Terrorism: Why Osama bin Laden Still Matters," *Foreign Affairs* (May/June 2008).

[50] See also Rohan Gunaratna, "Understanding Al Qaeda and its Network in Southeast Asia," in *After Bali: The Threat of Terrorism in Southeast Asia*, eds. Kumar Ramakrishna and See Seng Tan (Singapore: Institute of Defence and Strategic Studies, 2001), 119.

9/11 Al Qaeda cell, which he compiled using newspaper articles and other open source material.[51] Researchers such as Philip Vos Fellman and Roxana Wright, and later J.D. Farley, have since validated Krebs' approach.[52] Still, there have been few attempts at the substantive application of SNA to a terrorist network. Stuart Koschade examines this subject in "A Social Network Analysis of Jemaah Islamiyah," in which he argues, "Despite the potentially profound significance of sociogramatical and social network analysis to terrorism studies, there are only a small handful of substantive studies that employ such analysis." Kathleen Carley et al. did one such study, and Carley is known for coming up with a new, yet related field: dynamic network analysis.[53] Koschade applies SNA to the JI cell that was responsible for the 2002 Bali bombings, and introduces a potential framework for the intelligence analysis of terrorist cells to assist in understanding terrorist cell communication and structure, and predicting behavior.[54]

Southeast Asia is an up-and-coming economic region, with many small islands and open seas that make trafficking and trading of any kind difficult to police. It has a long history of hosting a variety of transnational criminal networks, due in large part to the region's "tourist-friendly policies and minimal visa requirements, generally lax financial oversights, well-established informal remittance systems for overseas workers, porous borders, often weak central government control, endemic government corruption,

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[51] Valdis E. Krebs, "Mapping Networks of Terrorist Cells," *Connections 24*, 3 (2001): 43–52. See also: Valdis E. Krebs, "Connecting the Dots: Social Network Analysis of 9/11 Terror Network," http://www.orgnet.com/prevent.html, 2008.

[52] See Philip Vos Fellman and Roxana Wright. "Modeling Terrorist Networks: Complex Systems at Mid-Range" (paper prepared for the Joint Complexity Conference, London School of Economics, September 16-18, 2003), http://www.psych.lse.ac.uk/complexity/Conference/FellmanWright.pdf. Also J. Farley. "Breaking al-Qaeda Cells: A Mathematical Analysis of Counterterrorism Operations (A Guide for Risk Assessment and Decision Making)," *Studies in Conflict & Terrorism* 26, no. 2 (2003), 399–411.

[53] Kathleen M. Carley at al, "Destabilizing Dynamic Covert Networks" (paper prepared for *Proceedings of the 8th International Command and Control Research and Technology Symposium*, National Defense War College, Washington, DC, 2003), and Kathleen M. Carley. *Dynamic Network Analysis for Counter-Terrorism* (Pittsburgh: Carnegie Mellon University, 2005). Also, most recently: Kathleen M. Carley, forthcoming, "Dynamic Network Analysis" in the Summary of the NRC workshop on Social Network Modeling and Analysis, Ron Breiger and Kathleen M. Carley (Eds.), National Research Council.

[54] Stuart Koschade, "A Social Network Analysis of Jemaah Islamiyah: The Applications to Counterterrorism and Intelligence," *Studies in Conflict & Terrorism* 29 (2006): 559–575.

and a vast supply of illicit arms."[55] The lax infrastructure that facilitates drug, weapons, and human trafficking also makes Southeast Asia conducive to terrorist activity. Furthermore, the existing underground banking systems (UBS), also known as *hawala* networks, that have long facilitated transnational crime, are also beneficial for terrorist groups that launder money in support of their operations.[56] UBS are highly personalized, family-based networks of trading companies, gold shops, money exchanges, etc., that maintain minimal records and rely on a high degree of trust between brokers. The low-level communication techniques that UBS networks employ virtually guarantee security and anonymity, which make them an attractive medium through which financial transactions can be made in support of terrorist and criminal activity. It allows those who use them to move large amounts of money undetected.[57] The price for breaking that trust is severe—often ostracism or even death.

C. CASE STUDY: JEMAAH ISLAMIYAH

1. Background/History

Jemaah Islamiyah's origins extend back as early as the 1960s, when Abu Bakar Baasyir and Abdullah Sungkar first began advocating *sharia* law. It emerged out of the Darul Islam movement, which was a separatist movement in the 1950s with the goal of establishing an Islamic state in Indonesia.[58] Darul Islam employed guerilla tactics against both imperial Dutch troops and Sukarno's secularist Indonesian forces, causing several uprisings throughout the 1950s and 60s.[59] After it was forced underground during the 1960s, it inspired several militant organizations to begin to form, one of which was JI.

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[55] Zachary Abuza, "Tentacles of Terror: Al Qaeda's Southeast Asian Network," *Contemporary Southeast Asia* 24, no. 3 (December 2002): 429.

[56] Alan Dupont, "Transnational Violence in the Asia-Pacific: An Overview of Current Trends" in *Terrorism and Violence in Southeast Asia: Transnational Challenges to States and Regional Stability*, ed. Paul J. Smith (Armonk, NH: M.E. Sharpe, 2005), 10.

[57] Ibid., 10. See also "Money Laundering (UBS)," *Burma Debate* (February–March 1995): 30–32.

[58] Alex P. Schmid and Albert J. Jongman, *Political Terrorism: A New Guide to Actors, Authors, Concepts, Data Bases, Theories, & Literature* (New Brunswick: Transaction Publishers, 2008), 574.

[59] Sukarno was Indonesia's founding President, who ruled from 1950 to 1965. See Australia Department of Foreign Affairs and Trade, *Transnational Terrorism: The Threat to Australia* (Canberra: National Capital Printing, 2004).

Jemaah Islamiyah's co-founders, Abu Bakar Baasyir and Abdullah Sungkar, are the ideological heirs of the Darul Islam movement. In the 1970s, they established a Muslim boarding school in Solo—the main island of Java in Indonesia—from which many JI operatives have graduated. Al Mukmin preaches the strict, puritanical Wahhabi interpretation of Islam that was founded and propagated from Saudi Arabia.[60] In 1985, Baasyir and Sungkar were forced to flee from Solo to Malaysia, where they set up a base of operations to train Indonesians and Malaysians to go to Afghanistan, initially to fight the Soviets, but later to train in Al Qaeda camps."[61] JI recruits trained in Afghanistan from 1985 until the Soviet withdrawal in 1991, where they were schooled in weapons, tactics, explosives, and *salafist* indoctrination.[62]

Jemaah Islamiyah was officially formed in either 1993 or 1994, when it began to evolve into a sophisticated organizational structure that actively recruited and planned terrorist activity in Southeast Asia. Also during the 1990s, JI began formally coordinating with Al Qaeda. After the fall of the Suharto regime in Indonesia in 1998, Jemaah Islamiyah was able to operate with near impunity. When Baasyir and Sungkar returned to Solo from Malaysia, they were able to preach their interpretation of Islam very openly. When tensions heated in 1999 and 2000 between Muslims and Christians in Indonesia's outer islands, JI took advantage of the opportunity to train, recruit, and fund local mujahedin fighters in the sectarian conflict, who later became active JI members.[63]

2. Motivation

Jemaah Islamiyah is motivated by ideology. Its mission is to establish *sharia* law in Indonesia. According to the International Crisis Group (ICG), JI has the "unambiguous goal" of establishing a pan-Islamic state in Southeast Asia.[64] It threatens the status quo by

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60 Vaughn et al., "Terrorism in Southeast Asia," *CRS Report for Congress*, October 16, 2009, www.fas.org/sgp/crs/terror/RL34194.pdf, (accessed October 20, 2009), 5.

61 Ibid.

62 Koschade, "A Social Network Analysis of Jemaah Islamiyah," 562. See also "Jemaah Islamiyah in South East Asia: Damaged but Still Dangerous," International Crisis Group 63 (August 23, 2003), 1–6.

63 Vaughn et al., "Terrorism in Southeast Asia," 5.

64 "Indonesia Backgrounder: How the Jemaah Islamiyah Terrorist Network Operates," International Crisis Group (2002), 3.

seeking to overthrow the existing secular governments in Indonesia, Malaysia, the southern Philippines and southern Thailand. While JI's use of terrorism as a tactic has been in support of this objective, today their motivation appears more ambiguous.

In recent years, JI's most visible terrorist activities—the simultaneous bombings on the Ritz Carlton and Marriott hotels in Jakarta in July 2009, and the 2002 and 2005 Bali bombings—have been focused on Western targets, which seems to contradict their mission statement. A recent CRS report on "Terrorism in Southeast Asia" notes that Southeast Asian terrorist and militant groups vary across a wide spectrum, from those with relatively narrow goals, like the separatist Muslims in southern Thailand and the southern Philippines, all the way to those with a global, anti-Western agenda, like Al Qaeda. JI falls somewhere in between that spectrum, and appears to be having an internal debate over to what extent their emphasis is on achieving an Islamist agenda within individual Southeast Asian states versus fighting directly against Western targets.[65] Given their known affiliation with Al Qaeda, many question whether their focus on Western targets is a result of Al Qaeda's growing influence or part of JI's shifting internal agenda. It is also possible that there is a schism among JI members about what exactly their objectives are.

3. Organizational Structure

In 1993, Abu Bakar Bashir and Abdullah Sungkar instructed Hambali—a long-time Al Qaeda operative in Southeast Asia—to establish a network of militant cells in the region. Based out of Indonesia, JI is believed to have anywhere from 200 to 2,000 members, led by a central command structure. It is thought to be structured much like Al Qaeda, with a central command, a hard core of dedicated jihadists, and a wider associate base that draws from established militant organizations and radical groups in the region.[66] Hambali was the first chairman of JI's five-member Regional Advisory Council (RAC), or *shurah*. Hambali appointed several lieutenants below the RAC to establish cells in

[65] Vaughn et al., "Terrorism in Southeast Asia," 2.

[66] Peter Chalk, "Militant Islamic Extremism," *Terrorism and Violence in Southeast Asia: Transnational Challenges to States and Regional Stability*, ed. Paul J. Smith (Armonk, NH: M.E. Sharpe, 2005), 28.

their respective countries: the Philippines, Singapore, Malaysia, and Indonesia. Each cell then has several of its own sub-cells, or *fiah*. JI was deliberately set up as a military organization, and is divided into *mantiqis* and *wakalas*, which are actually territorial command structures of brigades, battalions, companies, platoons and squads.[67] These cells are relatively independent of one another, serving different functions because they exploit their individual demographics, socioeconomic, socio-political and geographical attributes. Mantiqi 1 covers Singapore, Malaysia (except Sabeh), and southern Thailand. Mantiqi 2 covers Indonesia (except Sulawesi and Kalimantan). Mantiqi 3 covers Sabah, Sulawesi, Kalimantan, and the southern Philippines. Mantiqi 4 covers Australia and Papua New Guinea.[68]

The Malaysian cell has an estimated 200 members—the largest of the JI network. It has approximately five discernible functions. First, it has been a liaison between JI and the Kumpulan Militan Malaysia (KMM), with which there is considerable overlap in membership, and as a conduit between JI and Al Qaeda in Afghanistan. It was the logistical hub for dispatching JI operatives to Afghanistan for training (approximately 1,000 JI operatives from Southeast Asia were sent to Afghanistan for this purpose).[69] Second, it was responsible for establishing front companies that could be used to channel Al Qaeda funds and to procure weapons and bomb-making material. Third, the Malaysian cell was the center of the Maluku jihad activities, procuring automatic weapons from the Philippines and southern Thailand. Fourth, it was responsible for procuring large quantities of ammonium nitrate—a chemical fertilizer used in bombs that is readily available in Malaysia. Finally, it ran a camp in southern Malaysia to be used by both the Malaysian and Singapore cells for training new recruits.[70]

The Philippine cell is a major logistics cell for the JI network, responsible for the procurement of guns, explosives and other equipment. The Philippine cell also has

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[67] ICG, "Jemaah Islamiyah in South East Asia."

[68] *White Paper: The Jemaah Islamiyah Arrests and the Threat of Terrorism* (Singapore: Ministry of Home Affairs, January 2003), 10. See also Richard Evans, "Singapore Reports on Jemaah Islamiyah," *Jane's Intelligence Review* (February 2003).

[69] Abuza, "Tentacles of Terror," 453–454.

[70] Ibid.

connections to Al Qaeda because it was led by Fathur Rohman al-Ghozi (alias Mike), who was recruited by a member of the RAC (Faiz bin Abu Bakar Bafana) into Al Qaeda after studying in a Pakistani *madrasah* from 1990 to 1995.[71] While training in Afghanistan between 1993 and 1994, al-Ghozi was introduced to several members of the MILF. He was then sent to the Philippines to establish contacts with them from 1995 to 1996 and to set up a JI cell. The Philippine cell may have also served as a conduit for financial transfers to JI. It was instrumental in arranging the training of JI and KMM members in MILF camps, and as a conduit for JI contributions to the MILF.[72]

The Indonesian cell is the most mysterious of the JI mantiqis. It is connected to Abu Bakar Bashir's MMI, which is the key liaison between Bashir and the JI regional network.[73] Bashir was the spiritual leader of JI, or *amir*. Below the *amir* is the secretary (Fikri Sugundo)—a close lieutenant and master of the elementary school of the Al Mikmin *pesantren*. Experts believe that Irfan Suryahardy Awwas was the most likely leader of the Indonesian cell until his arrest after the Marriott Hotel bombing in 2003.[74] Awwas was the director of the MMI and is in regular contact with radicals in the organization. Also the chairman of Hiddyatullah Press and Wihdah press—two MMI-owned publishing houses that produce radical Islamic texts and anti-American and anti-Zionist propaganda.[75] The Indonesian cell has been the most important cell since the Malaysian and Singapore governments arrested JI cell members in their countries, forcing many of their remaining members to flee to Indonesia where the JI network has consolidated and expanded.

The Singapore cell was the JI network's major operational unit in Southeast Asia, responsible for planning and coordinating attacks. Ibrahim Maidin established the

[71] Abuza, "Tentacles of Terror," 453–454.

[72] Ibid.

[73] Both Bashir and Indonesian police intelligence officials deny that MMI is the key liaison, and Bashir completely denies the existence of JI. Abuza, "Tentacles of Terror," 455.

[74] He was released in 2006, and now publishes books and articles on Islam and the Islamic state with a more moderate leaning.

[75] Abuza, "Tentacles of Terror," 455–456.

Singapore cell after he took an oath of allegiance to Bashir.76 Maidin had no formal religious training but was schooled by Bashir, Hambali, Sungkar and Abu Jibril. Trained in Afghanistan in 1993, he recruited most of the members of the Singapore cell through a religious class that he taught at private residences.[77] The Singapore cell was small—around 80 members—and extremely secretive.[78] It was not discovered until late 2001, and over the course of that next year, nearly half of its members were arrested, severely constraining its operational ability. Importantly, the Singapore JI members were mostly educated, middle-class men with no prior radical Islamic leanings. The Singapore cell had five functional units: operations, security, missionary work, fund-raising, and communications. Below, there were three sub-cells, each of which was responsible for surveilling different targets: Fiah Ayub, Fiah Musa and Fiah Ismail. Almost all of the plans for the Singapore cell's attacks were at an operational stage just before the cell was disbanded.[79]

[76] Clive M.G. Williams, "The Question of 'Links' Between Al Qaeda and Southeast Asia," in *After Bali: The Threat of Terrorism in Southeast Asia* (Nanyang, Singapore: Institute of Defence and Strategic Studies, 2003), 92.

[77] Abuza, "Tentacles of Terror," 456.

[78] Che Moin bin Umar, National Security Division, Prime Minister's Department "Terrorism in Asia-Pacific: Malaysian Experience," December 2000.

[79] Abuza, "Tentacles of Terror," 457–458.

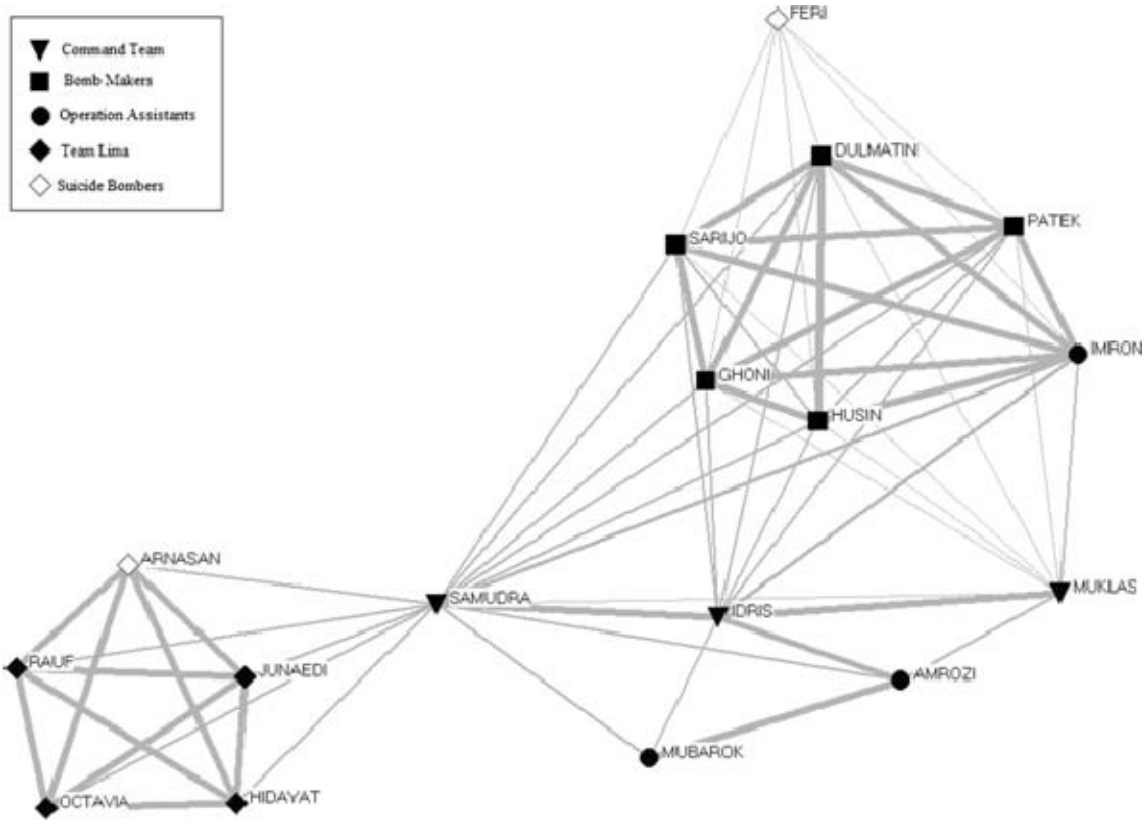

Figure 1. Jemaah Islamiyah Graph—Depiction of Group Involved with Bali Operation, 6–11 October 2002[80]

In SNA terms, JI is a small-world, random network. Above is a sociograph of the JI group that carried out the Bali operation in Indonesia based on Stuart Koschade's analysis using UCInet Version 6.85 software. A sociograph is a visual representation of a network developed through graph theory, in which the actors are represented by nodes, and their relationships are represented by links, or lines. It is clear from this image that Samudra was the key link, or broker, in the JI network. In SNA, a "broker" makes a connection where there would not otherwise be one. Koschade verified this by carefully calculating the network's size, density, degree of connexion, centrality, closeness, betweenness and clusters using SNA algorithms. He determined that Samudra and Idris were the most important individuals in the cell, specifically because of their high

[80] Koschade, "A Social Network Analysis of Jemaah Islamiyah," 567.

centrality scores.[81] He also determined that because of this cell's high density and degree of connection, its structural focus put more emphasis on efficiency and was less covert (more C2 and less OPSEC, as discussed above).[82] This kind of analysis can help inform intelligence analysts, law enforcement and policymakers because of its predictive application. Still, important information cannot be coded for. For instance, members of this operation communicated using code words and Balinese aliases. Also of interest is that the main form of communication between each section and Samudra was via text messaging, or SMS.[83] This kind of information is an important supplement to SNA that helps provide a more complete picture of the network.

4. Sources and Patterns of Funding

JI is funded from multiple sources, although funding from Al Qaeda has received the most attention. JI collects contributions from both internal members and outside supporters, much of which is brought into the country in cash. Before it was disbanded, the Singapore cell collected a set percentage of member salaries each year (an estimated 2 to 5 percent), of which about a quarter was transferred to the Malaysian cell and another quarter to the Indonesian cell—all carried on hand by individuals.[84] JI skims funds from Islamic charities and launders money through corporate entities, some legitimate businesses and some dedicated front companies for terrorist activities. The Malaysian cell established front companies to channel Al Qaeda funds, four of which are known to have been run by Al Qaeda in Malaysia: Konsojaya, Green Laboratory Medicine, Infocus Techology and Secure Valley.[85] JI profits from gold and gem smuggling, petty crime,

[81] Koschade, "A Social Network Analysis of Jemaah Islamiyah," 571.

[82] Ibid.

[83] Sally Neighbour, *In the Shadow of Swords* (Sydney: Harper Collins Publishers, 2004), 226. SMS = short message service.

[84] Estimates are from Singapore investigators. Abuza, "Tentacles of Terror," 458.

[85] Abuza, "Tentacles of Terror," 454.

racketeering, extortion, gun running and kidnapping.[86] It receives funds from *hawala* shops and through Al Qaeda investments and accounts, particularly those in the Islamic banking system.

In 2001, the U.S. State Department's *Patterns of Global Terrorism* estimated that JI was primarily self-financed, with some support from Al Qaeda.[87] Hambali's arrest in 2003 shed more light on this relationship, as he was the critical link between JI and Al Qaeda. After his arrest, Indonesian investigators learned that Al Qaeda's financial and logistical support of JI had been growing, although it is not clear whether that is indicative of greater ideological collaboration between the groups. Southeast Asia is an important financial center for Al Qaeda, which relied on this region to set up front companies, fundraise, recruit, forge documents, and purchase weapons prior to JI's creation.[88] Southeast Asia's business-friendly trade laws, network of Islamic charities, and poorly regulated Islamic banks made it an ideal location to establish business.

5. Network Overlap

a. Overlap With Other Terrorist Networks

Traditionally, linkages between indigenous Islamic militant groups in Southeast Asia focused mainly on domestic issues like promoting *sharia* law or independence from central government control. JI is known to have links to other terrorist networks—Al Qaeda in particular. The relationship between Al Qaeda and JI is believed to date back to the mid-1990s, and has been a subject of much debate since 9/11. JI has been referred to as Al Qaeda's regional affiliate. Zachary Abuza argues that "JI is a perfect example of how Al Qaeda has penetrated the region." Though JI has a regional agenda, it is "an important cog in the Al Qaeda network," and was probably being

[86] Zachary Abuza, "Funding Terrorism in Southeast Asia: The Financial Network of Al Qaeda and Jemaah Islamiyah," *NBR Analysis* 14, no. 5 (December 2003): 9.

[87] *Patterns of Global Terrorism* used to be published annually to inform policymakers of international terrorist activities until the Bush Administration halted publication in 2004. It has since replaced by *Country Reports on Terrorism* (also State Department) and the National Counterterrorism Center's chronology of international terrorism.

[88] Abuza, "Funding Terrorism in Southeast Asia," 9.

enlarged and strengthened before 9/11.[89] Recent reports, including leaked interrogations from captured JI and Al Qaeda operatives, have demonstrated that JI and Al Qaeda are discreet organizations with agendas that differ, but overlap.[90] Al Qaeda has funded the activities of JI spiritual leaders; provided training for JI operatives in Afghanistan, Pakistan and elsewhere; provided trainers and experts at the local level; financed regional operational activities; and provided logistical support, including weapons and explosives. Al Qaeda has also allegedly requested JI conduct regional operations on its behalf.[91] There are a number of other bonds that tie JI to Al Qaeda, including shared combat, religious and training experiences in Afghanistan, Pakistan or Mindanao; the provision of sanctuary for wanted individuals; meetings between activists to exchange views; regional groups' support for Al Qaeda operations.[92]

Beginning in mid-1999, Al Qaeda financier Omar Al-Farouq, also known as Mahmoud bin Ahmad Assegaf, organized a series of joint JI-Al Qaeda bombings that were carried out in Indonesia, culminating in the Christmas 2000 bombings.[93] After 9/11, he planned a series of attacks on U.S. targets across Southeast Asia, including a seaborne suicide attack on U.S. naval vessels that were in Surabaya in May 2002 for joint training operations. He allegedly recruited a Somali Al Qaeda operative to lead the attack, but was unable to recruit enough personnel to carry it out. He was also allegedly instructed by two senior Al Qaeda officials to carry out a series of truck bombings on U.S. embassies in Southeast Asia on or around the anniversary of 9/11, but he was arrested and turned over to the Americans before he could carry them out.[94]

JI also has discernible ties to the Moro Islamic Liberation Front (MILF) in the Southern Philippines. Philippine cell leader Fathur Rohman al-Ghozi was responsible for liaising with the MILF. JI had its own training camp in Camp Abu Bakar, the MILF's

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[89] Abuza, "Tentacles of Terror," 450.

[90] Vaughn et al., "Terrorism in Southeast Asia."

[91] Williams, "The Question of 'Links' Between Al Qaeda and Southeast Asia," 83–85.

[92] Ibid.

[93] Abuza, "Tentacles of Terror," 449.

[94] Ibid.

headquarters joint training ground for MILF and JI personnel in bomb making.[95] The Philippine cell was an instrumental conduit for financial transfers from JI to the MILF.[96] The MILF has categorically denied that it ever forged tactical alliances with JI, Abu Sayyaf or Al Qaeda.[97] However, there is evidence that certain MILF factions have maintained links with JI, which have allegedly carried out operations and provided refuge and training for JI operatives.[98]

Noordin Mohammed Top drew from the JI network to create his own radical splinter group, which he grandly referred to as the Al Qaeda of the Maylay Archipelago. Noordin's network is a deviant offshoot of JI, but JI members comprised the core of his following. Implicated in the Marriott Hotel bombing in Jakarta in August 2003, the Australian Embassy bombing in September 2004, the 2005 bombings in Bali, and the simultaneous bombings on Jakarta's Marriott and Ritz Carlton hotels in July 2009, Noordin earned himself the title of South Asia's most wanted terrorist until he was killed by authorities in September 2009.[99] Despite the clear overlap in membership and association between JI and Noordin's group, it is evident that Noordin was personally motivated and that JI, as an organization, did not support his activities.[100]

b. Overlap With Dissimilar Networks

JI is funded, in large part, by its overlap with regional criminal networks. It engages in petty crime, smuggling, money laundering, racketeering, etc., in support of

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[95] Williams, "The Question of 'Links' Between Al Qaeda and Southeast Asia," 93.

[96] Abuza, "Tentacles of Terror," 455–458.

[97] Andrew Tan, "The Indigenous Roots of Conflict in Southeast Asia: The Case of Mindanao," in *After Bali: The Threat of Terrorism in Southeast Asia* (107), eds. Kumar Ramakrishna and See Sent Tan. See also *Mindanao Times Interactive News*, 2002.

[98] "Her Other Problem: A Confession by a Filipino Terrorist Could Deal a Blow to Arroyo's Negotiations with Islamic Rebels," *Time* (August 4, 2003): 39–40.

[99] Seth Mydans, "A Terrorist Mastermind Whose Luck Ran Out," *New York Times*, September 17, 2009, http://www.nytimes.com/2009/09/18/world/asia/18noordin.html (accessed September 17, 2009)

"Obituary: Noordin Mohamed Top," *BBC News*, September 17, 2009, http://news.bbc.co.uk/2/hi/4302368

[100] For a detailed account of Noordin's network and the individuals he recruited, see "Terrorism in Indonesia: Noordin's Networks," International Crisis Group, Asia Report no. 114, May 5, 2006.

its terrorist operations. As Tamara Makarenko argues in "Terrorism and Transnational Crime," in unstable regions like Southeast Asia, it is in the interest of terrorist and criminal groups to form alliances that secure an environment conducive to their mutual needs.[101] She writes, "Although terrorist groups engaging in criminal activities in the other regions of the world have a tendency to focus on highly sophisticated and thus lucrative smuggling operations, many Southeast Asian groups tend to focus on crimes that are generally classified as low to medium in sophistication."[102] For instance, JI has been implicated in bank and jewelry shop robberies. While JI makes use of regional criminal networks, and piggybacks off of Al Qaeda's front companies and money laundering schemes, it does so to the extent that it benefits its terrorist activities, and not because it is morphing into a more profitable, sophisticated criminal organization.

c. Nature of Network Overlap

While there are clear links between JI, Al Qaeda, and other regional terrorist networks, these links differ in their nature and intensity.[103] The connection between Al Qaeda and JI may be more for Al Qaeda's benefit than for JI's. From Al Qaeda's perspective, this link helps extend their global reach throughout Southeast Asia and to the Muslim community—particularly important in Indonesia, the largest Muslim nation and fourth most populous nation in the world. From JI's perspective, this link provides financial support, which benefits their motivations and terrorist activities. It is not clear that JI has adopted Al Qaeda's global worldview, but it is probably fair to say that when JI is successful in its local agenda—for instance, the bombings in Bali and Jakarta—its efforts fit broadly into Al Qaeda's global agenda. This makes the alliance mutually beneficial.

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[101] Tamara Makarenko, "Terrorism and Transnational Crime," in *Terrorism and Violence in Southeast Asia: Transnational Challenges to States and Regional Stability*, ed. Paul J. Smith (Armonk, NH: M.E. Sharpe, 2005).

[102] Ibid., 180.

[103] Ramakrishna, Kumar and See Seng Tan. "Is Southeast Asia a 'Terrorist Haven'?" *After Bali: The Threat of Terrorism in Southeast Asia* (1–35) (Nanyang, Singapore: Institute of Defence and Strategic Studies, 2003), 12.

It is likely that certain individuals in JI have been co-opted by Al Qaeda's worldview, but unlikely that JI's motivation as an organization has fundamentally changed. Abu Bakar Bashir and Hambali, for instance, appear to have been personally motivated to interact with Al Qaeda beyond what benefitted JI as an organization. After the Bali bombings in 2002, Al Qaeda apparently rewarded Hambali directly with approximately $100,000 to use at his own discretion for future attacks.[104] Noordin Mohammed Top is another outlier. While his JI connections are strong, Noordin's admiration of Al Qaeda and personal desire to carry out attacks against Western targets were largely outside of JI's regional objectives. His attacks may have actually been detrimental to JI as an organization because they resulted in the arrest of nearly 300 network members, severely constraining JI's operational ability. Still, even Hambali—the main link between JI and Al Qaeda, who allegedly had personal access to Mohamed Atef—never achieved any formal status with Al Qaeda, which has been described as xenophobic, with no non-Arabs in its central leadership.[105]

Clive Williams contends that Al Qaeda-linked Islamic extremist groups and individuals can be affiliated, associated, empathetic, or representative. "Affiliated" groups are generally recognized as part of the Al Qaeda network. "Associated" groups and individuals receive support from Al Qaeda, but are basically free actors (e.g., Ramzi Yousef). "Empathetic" groups are driven by local issues and have only marginal association with Al Qaeda (e.g., Gerakan Aceh Merdeka in Indonesia). "Representatives" are regionally-based Al Qaeda ambassadors, cell members and sleepers (e.g., Omar Al-Faruq).[106] JI is most likely an associated network of Al Qaeda but, as Kumar Ramakrishna writes, "JI is an autonomous network with its own agenda that is well capable of executing its own operations without reference to Osama bin Laden."[107] In other words, while JI is linked to Al Qaeda through some joint membership, financial support, and expertise, it still has its own agenda and is not subordinate to Al Qaeda.

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[104] Abuza, "Funding of Terrorism in Southeast Asia," 12.

[105] Williams, "The Question of 'Links' Between Al Qaeda and Southeast Asia," 94.

[106] Ibid., 84.

[107] Ramakrishna and Seng, "Is Southeast Asia a 'Terrorist Haven?'" 12.

D. CONCLUSION

A major problem in U.S. counterterrorism policy is that it is often focused too heavily on decapitation. U.S. and regional security officials often believe that the kill/capture of top leaders in a terrorist network will degrade organizations like JI or Al Qaeda to the point of collapse. There is sound logic behind the targeting of the most important, or central, network members (which SNA is useful for identifying), but analysts must also take into consideration the fact that these networks have proven adept at replacing their leadership and developing new C2 structures when circumstances require it. After raids across Southeast Asia began to arrest JI operatives in December 2001, JI's operational capability was damaged but still quite effective at prosecuting significant terrorist attacks, like the 2002 and 2005 Bali bombings and the 2009 Jakarta hotel bombings. Additionally, policymakers and counterterrorism analysts must not focus on a particular well-known terrorist network (e.g., Al Qaeda) at the exclusion of other groups. Other regional and international terrorist groups, like JI and the MILF, are critically important to prosecuting a global counterterrorism campaign. Furthermore, analysts must consider the possibility of sprouting splinter groups, for instance that of Noordin Top, which was responsible for carrying out several recent large-scale attacks that were (perhaps falsely) attributed more broadly to JI. As Matthew Levitt argues, "Failure to understand the crossover and cooperation between international terrorist groups has already undermined efforts to prosecute the war on terror.[108]

Disrupting a terrorist network requires getting at what Abuza refers to as the "institutions of terror," which include their infrastructure, funding, and the safe-havens from which they plan, train and execute attacks. Terrorist financing is the key to counter-network activity. Shutting down front companies and charities will go a long way toward curtailing logistical support and stemming the flow of funds to and among terrorist groups.[109] Money laundering has posed an increasingly difficult challenge since after 9/11, when the Organization for Economic Cooperation and Development (OECD) began

[108] Levitt, Matthew, "Untangling the Terror Web: Identifying and Counteracting the Phenomenon of Crossover between Terrorist Groups," *SAIS Review* 24, no. 1 (Winter–Spring 2004), 44.

[109] Levitt, "Untangling the Terror Web," 34.

using its Financial Action Task Force (FATF) to track down terrorist financing. Since then, the FATF has put Burma, Indonesia and the Philippines on its blacklist for money-laundering states.[110] No matter how many bank accounts the international community freezes, or how many front companies are shut down, terrorist groups will always find other sources of funding, because they are clever, flexible and adaptable. While we cannot defeat terrorism, in the words of Matthew Levitt, "Bringing the phenomenon of terrorism back down to tolerable levels is a very attainable goal."[111]

The key to countering global terrorist networks is in a global response. Coordinated, international responses are especially difficult in regions like Southeast Asia where multinational institutions and cooperation are weak. One prevailing challenge in combating global extremism today is the rise of anti-American sentiment in the post-9/11 era. Propelled by the U.S.-led invasions of Iraq and Afghanistan, as well as the perception among many Muslims of the U.S. stance on the Israeli-Palestinian conflict, it difficult for governments of primarily Islamic states to justify "an overt U.S. role in their internal security."[112] Southeast Asian states—and other friendly nations that host terrorist activity—must balance their counterterrorism efforts with careful domestic political considerations. The challenge for U.S. counterterrorism efforts, over the coming years, will be to find a way to confront terrorist elements within these nations but without turning them into heroes or martyrs in the broader Islamic community, and to garner support from their governments in such a manner that it does not compromise their power or influence domestically.

[110] Abuza, "Funding of Terrorism in Southeast Asia," 10.

[111] Levitt, "Untangling the Terror Web," 34.

[112] Vaughn et al., "Terrorism in Southeast Asia," 1.

III. PROLIFERATION NETWORKS: A.Q. KHAN

A. INTRODUCTION

1. Why Proliferation Networks Are Important

Proliferation networks are developed to procure and/or sell sensitive materials and technologies for any covert weapons program. Though the Nuclear Non-Proliferation Treaty (NPT) only officially recognizes five nuclear weapons states—the United States, United Kingdom, France, Russia and China—Israel, Pakistan, India and now North Korea are all non-signatory members of the nuclear club that had to look outside the international security regime for their weapons procurement.[113] The short list of nuclear weapons states is an apparent success in light of President Kennedy's grave prediction in 1963 that, by 1990, over 20 nations around the world would have nuclear weapons. Still, the proliferation of nuclear technology to even a few states has had a ripple effect of repercussions. A major consequence of Pakistan's uranium program was the creation of the A.Q. Khan network, which leveraged the contacts and expertise used to establish Pakistan's program into a profitable export business. Khan sold nuclear materials, technologies and possibly bomb designs to Iran, North Korea, and Libya, which dismantled its program after the Khan network was disrupted in 2003.

In spite of the Libya success story, Iran and North Korea continue to pursue covert nuclear weapons programs in violation of their responsibilities to the NPT and IAEA statutes, among other things. North Korea is alleged to have assisted Syria and possibly Myanmar in their nuclear aspirations—perhaps even to the extent of A.Q. Khan.[114] Furthermore, there is growing concern that non-state actors also desire nuclear

[113] Israel does not publicly confirm its nuclear weapons status the way that India and Pakistan do.

[114] David Albright, *Peddling Peril: How the Secret Nuclear Trade Arms America's Enemies* (New York: Free Press, 2010). See also Joe Vaccarello, "U.N. Report Alleges North Korea Exported Nuclear Technology," *CNN News*, November 12, 2010, http://edition.cnn.com/2010/WORLD/asiapcf/11/11/un.north.korea/index.html?eref=mrss_igoogle_cnn

technology, for which they would be expected to rely on covert procurement methods to achieve. Osama bin Laden, for instance, has explicitly referred to the acquisition of nuclear weapons as a "religious duty" for Al Qaeda.

Preventing the proliferation of weapons of mass destruction (WMD), therefore, is a top U.S. national security objective. The WMD Commission Report recommended the establishment of the National Counterproliferation Center (NCPC) to address this specific challenge in 2005.[115] The most recent National Intelligence Strategy (NIS)—put out by the Office of the Director of National Intelligence—ranks it as the second most important mission objective for the intelligence community (IC), right after combating violent extremism. The NIS dedicates the IC to countering WMD proliferation and their means of delivery by state and non-state actors, and prioritizes five policy objectives for doing so: to dissuade, prevent, roll back, deter, and manage consequences nuclear proliferation.[116] The Department of Defense's 2010 Quadrennial Defense Review (QDR) focuses its assessment, in large part, on preventing proliferation and countering WMD.[117] DoD also publishes the Nuclear Posture Review (NPR), which is a roadmap for reducing nuclear risks to the United States, its allies and partners, and the international community.[118] The NPT Review conference that took place in New York City this year renewed discussion over an updated Strategic Arms Reduction Treaty (START) to reduce U.S. and Russian nuclear stockpiles. These developments, particularly within the context of growing concern over covert programs in Iran and North Korea, demonstrate that nuclear nonproliferation and counterproliferation are foremost in the minds of policymakers, military leadership, and the intelligence community alike. Deeper understanding of proliferation networks supports U.S. efforts in each category.

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[115] Full title: The Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction, http://www.fas.org/irp/offdocs/wmdcomm.

[116] Office of the Director of National Intelligence, *National Intelligence Strategy*, 6.

[117] "2010 Quadrennial Defense Review (QDR) Fact Sheet," U.S. Department of Defense, February 1, 2010, http://www.defense.gov/qdr/QDR_FACT_SHEET_Feb_2010.pdf

[118] Department of Defense, *Nuclear Posture Review Report* (Washington, DC: Department of Defense, 2010).

2. Why the A. Q. Khan Network Was Chosen as a Case Study

There is perhaps no better modern-day example of a proliferation network than Abdul Qadeer Khan's nuclear enterprise. Originally tasked by the Pakistan government to procure materials for its state nuclear weapons program, Khan used his access to nuclear suppliers and dual-use materials around the globe to create a profitable export business, providing information, technology, and expertise to countries that wanted it in exchange for a high profit. When U.S. and British agents finally brought down his notorious proliferation network, Khan and his gang had already spread centrifuge technology (and bomb designs) to Iran, North Korea, Libya, and perhaps others. Mohammed El-Baradei, former head of the International Atomic Energy Agency (IAEA), described the A.Q. Khan network as a virtual *Walmart* of private sector proliferation—a reference to the "one-stop shopping" service Khan provided nuclear-aspirant nations.[119] Gordon Corera, who wrote an extensive account of Khan's nefarious activities, concluded, "A.Q. Khan has had a greater impact on nuclear proliferation than any other individual in the last three decades."[120] Former Director of the Central Intelligence Agency (CIA), George Tenet, described Khan as "at least as dangerous as Osama bin Laden."[121]

3. Roadmap

This chapter begins with a brief explanation of the proliferation network typology, examining the prevailing literature on proliferation to draw conclusions about proliferation networks in general. I then examine the A.Q. Khan network as a case study. I ask the same questions of the Khan network that I did of Jemaah Islamiyah in the previous chapter, focusing on its motivation, structure, sources and patterns of funding, overlap with other procurement networks, overlap with different types of criminal

[119] Mark Landler and David E. Sanger, "Pakistan Chief Said It Appears Scientists Sold Nuclear Data," *The New York Times*, January 24, 2004, See also Corera, *Shopping for Bombs.*

[120] Corera, *Shopping for Bombs*, 5.

[121] Gordon Corera, "Breaking the Khan Network," *BCC News*, December 22, 2004, http://news.bbc.co.uk/2/hi/south_asia/4118939.stm

activity, and what the nature of that overlap was in each case. I conclude by offering recommendations for how the implications of these findings can inform ongoing counterproliferation efforts.

B. PROLIFERATION NETWORK TYPOLOGY

Procurement networks are designed to procure sensitive materials and technology for any covert weapons program. Network activities can be either overt or covert, and often blur the line between. The prevalence of dual-use commodities in chemical, biological, radiological and nuclear (CBRN) weapons programs make WMD procurement networks unique from other types of trafficking networks. The nature of the materials and technologies required are inherently difficult to regulate because they have both civilian and military applications. Many items do not require export control licensing, and those that do can be acquired under numerous false pretenses. For example, two of the main items trafficked by the Khan network were valves and vacuum pumps—required for uranium enrichment plants but also used in the oil industry. The combination of front companies, middlemen, transshipment points, and well-falsified end-user certificates makes it exceedingly difficult to determine which application the items in any given shipment are intended for. Furthermore, profit and global supply-chain pressures (for instance, "just in time" inventory practices) give exporters a strong financial incentive to minimize delays through customs, and directs them toward ports and hubs where this kind of enforcement is more lax (e.g., Dubai).

The ultimate goal of a nuclear procurement network is to acquire the ingredients for a nuclear weapons program on behalf of an end user who desires the power and international prestige associated with WMD. Actors in a procurement network are generally businessmen and are therefore motivated by profit. They are almost always unarmed—not dedicated to anything but their own profit, and therefore unwilling to engage in violence in support of their activities. These actors can be either witting or unwitting: some purposefully engaged for money, ideology or prestige; some willing to turn a blind eye for a profit; and some taken advantage of without knowing their products are going toward nefarious activities. Asher Karni is an example of a witting participant, purely motivated by profit, and uninterested in the social or political implications of

Pakistan's nuclear aspirations. Karni, an Israeli citizen living in South Africa, was arrested in 2004 for re-exporting U.S.-made trigger spark gaps and oscilloscopes from South Africa to Pakistan.[122] He was the owner and sales director of Top-Cape Technology in Cape Town, South Africa, which advertised on its website its ability to acquire "civilian and military electronic goods."[123] The U.S. Government's Sentencing Memorandum against Karni noted that, in addition to Pakistan, he also procured items for entities affiliated with India, Russia, China and Israel's nuclear weapons and missile programs.[124]

The literature on the structure of procurement networks characterizes them as stars, cliques, and rings. It breaks them down into primary and secondary proliferators, and addresses the differences between supply networks, demand networks, and the middlemen in between. For years, proliferation experts have described covert nuclear procurement as a black market activity. Former nonproliferation official, Mark Fitzpatrick, defines this as "the trade in nuclear-related technologies, components, or materials that is pursued for non-peaceful purposes and most often by secretive means."[125] Conventional wisdom today is that proliferation networks exist primarily within the "gray" market, dabbling in legitimate and illegitimate enterprises alike, as much of the commodities they trade are dual-use. The relationships between actors are transactional, and successful networks, such as that of A.Q. Khan, rely on relationships of trust built over time. There is no one-size-fits-all typology for proliferation networks.

Alexander Montgomery applies the three main simple network structures to procurement networks, noting that the "star" is and will continue to be the most common structure in proliferation networks. In a "ring" network, connections between nodes form

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[122] Jacob Blackford, "Asher Karni Case Shows Weakness in Nuclear Export Controls," *ISIS Online*, September 8, 2004, http://www.isis-online.org/publications/southafrica/asherkarni.html (accessed February 6, 2010). See also: "Nuclear Black Markets: Pakistan, A.Q. Khan and the Rise of Proliferation Networks, A Net Assessment," *The International Institute for Strategic Studies [IISS Strategic Dossier]* (London: Arundel House, 2007), 31.

[123] Albright, *Peddling Peril.*

[124] United States District Court for the District of Columbia, Government's Sentencing Memorandum, *United States of America v. Asher Karni*, Case Number 04-396 (RMU), Filed August 5, 2005.

[125] Mark Fitzpatrick, "Understanding Clandestine Nuclear Procurement Networks" (lecture given at the International Atomic Energy Agency 2007 Scientific Forum, Session 4: Safeguards and Nuclear Verification, Vienna, September 19, 2007).

a circle. A "clique" is a dense network, in which each node is connected to every other node. The "star," or "hub-and-spoke" network is most commonly associated with procurement networks. In this structure, every node is connected through a central "hub" (see Figure 2).

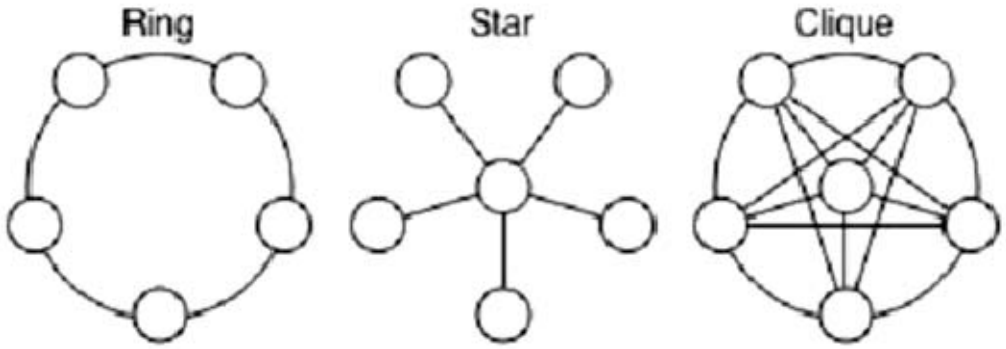

Figure 2. Simple Network Structures[126]

This has important implications for counter-network activity, which would wisely attempt to isolate the central node in order to bring down or counter the effectiveness of the network. The problem with these three simple structures is that proliferation networks are not simple. There are supply and demand-oriented networks to consider, each with different motivations. There are both state and non-state actors. There are witting and unwitting contributors, and there are many actors in between.

Chaim Braun and Christopher Chyba's article "Proliferation Rings" presents three interrelated challenges to the nuclear nonproliferation regime: latent proliferation, first-tier proliferation, and second-tier proliferation.[127] Latent proliferation is when a country appears to adhere to its formal obligations under the NPT in its civil nuclear program, while covertly developing the capabilities for a nuclear weapons program. Iran's illicit weapons program is a good case study for latent proliferation. First-tier proliferation is

[126] Alexander Montgomery, "Proliferation Networks in Theory and Practice," *Strategic Insights* V, no. 6 (July 2006), http://www.nps.edu/Academics/centers/ccc/publications/OnlineJournal/2006/Jul/montgomeryJul06.html

[127] Chaim Braun and Christopher F. Chyba, "Proliferation Rings: New Challenges to the Nuclear Nonproliferation Regime," *International Security* 29, no. 2 (Fall 2004): 5–49.

when technology or material that is sold or stolen from private companies or state programs assists non-nuclear weapons states in illicitly developing nuclear weapons and delivery systems. North Korea is now thought to be engaging in first-tier proliferation, allegedly assisting Syria and possibly Myanmar in their nuclear weapons aspirations.[128] Second-tier proliferation occurs when states trade among themselves to boost one another's nuclear weapons programs.[129] Second-tier proliferation, centered on Pakistan's uranium enrichment program, is believed to have exacerbated the threat of latent proliferation in North Korea, Iran, Libya and possibly others.[130] Braun and Chyba coined the term "proliferation rings" in reference to the networks of second-tier proliferators that are able to develop clandestine programs because of the ready exchange of nuclear weapons-related and missile technologies among developing nations.[131] Increased interaction enables opportunities for illicit exchanges between network participants, as was the case with North Korea's missile-for-enrichment deal with Pakistan. "Ring" members interact either directly (at the state-to-state level) or indirectly (through once-removed private sector supplier networks).[132] Proliferation rings can be further broken down to supply and demand—supply being the "push" and demand the "pull" for a nuclear weapons program.

Demand networks are generally traditional star networks, in which the central node is the state or non-state actor that desires (has a "demand" for) nuclear weapons. While this thesis focuses on nuclear weapons procurement, it is important to note that other WMD procurement networks are similarly shaped—both nuclear and non-nuclear. Jonathan Tucker examines the procurement networks of Iran and Iraq during the Iran-Iraq war, when both countries acquired chemical weapons (CW) precursors for their programs. Frans van Anraat of the Netherlands and Peter Walaschek of Germany acted as

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[128] See David Albright and Paul Brannan, "Syria Update III: New Information about Al Kibar Reactor Site," *Institute for Science and International Security* (April 24, 2008) and David Albright et al., "Smugglers Assist North Korea-Detected Illicit Trade to Myanmar," *Institute for Science and International Security* (July 14, 2009).

[129] Braun and Chyba, "Proliferation Rings," 5–6.

[130] Ibid., 6.

[131] Ibid., 6.

[132] Ibid., 7.

the central "hubs" for Iraq and Iran's programs, respectively.[133] While these cases are over two decades old, they provide important insights for procurement networks today, because the methods have not fundamentally changed. While there are (some) more export controls today than in the 1980s, globalization and the liberalization of the international marketplace have also broadened opportunities for offshore accounting, transshipment, false end-users, middlemen and front companies. Similarly, CBRN weapons, alike, require dual-use commodities, which have proven difficult for states—caught between competing profit and nonproliferation interests—to regulate.

As in Pakistan's nuclear weapons program, the procurement networks for Iran and Iraq's CW programs attempted to disguise the true purpose and destination of their dual-use items. They made use of greedy businessmen, front companies, banks, and third-country brokers. They falsified end-user certificates, financed transactions with forged Letters of Credit, and took advantage of bank secrecy laws.[134] They transshipped goods coming from the United States and other places through third, fourth and fifth countries to conceal their final destination.[135] They weaved through the holes in export controls, and suffered limited penalties, if any, when implicated in the illicit transfer of dual-use materials and technologies. Iraq and Iran were willing to pay top dollar for their materials, offering commissions much higher than what was normal at the time.[136] Each intermediary required payment or commission, so everybody profited. Those involved were motivated by greed: Van Anraat rationalized his involvement in Iraq's procurement program by arguing that if the weapons were to be bought from somewhere, why should he not profit from it?[137] Though successful, they were also flawed by design—destined to foil because, blinded by greed, the hubris and audacity on which they were based could

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[133] Tucker, "Trafficking Networks," 1.

[134] A letter of credit is a financial instrument in international trade that involves a commitment by the importer's bank to transfer payment to the exporter's bank after the goods have been delivered as specified in the contract. While this method of payment leaves a paper trail, and is therefore not considered ideal for illicit transactions, it was likely used in order to guarantee prompt payment (see Tucker, "Trafficking Networks," 7).

[135] In these cases, goods were transshipped through European ports. Tucker, "Trafficking Networks," 9.

[136] Ibid., 6.

[137] Ibid., 25.

not pan out in the long term. But with large profits and light penalties, what is to deter a future proliferator from following a similar model—or worse, expanding on it?

Every nuclear weapons state established its program through procurement networks. All members of the nuclear club, and even countries with dismantled programs, such as Libya and South Africa, procured nuclear materials and technology for their state weapons programs using varying degrees of gray market activity. Bruno Grussell, the author of "Proliferation Networks and Financing," argues that while state demand has primarily been the driving force behind proliferation, the structure of the networks designed to satisfy this demand is new, and changing.[138] He contends that network structures are made possible by three factors: (1) increased trade flow and lax import/export laws, which allow networks to conceal themselves in ways that are difficult to monitor; (2) the prevalence of dual-use commodities, which makes it easier for networks to hide their true intent; and (3) the appearance of suppliers that are capable and willing to transfer materials and technologies.[139]

Today, export controls and international agreements such as the NPT make it difficult for nuclear aspirant nations to establish their state programs. Increasingly, they rely on gray market transfers and private sector transactions to procure individual parts, like valves and vacuum pumps, rather than whole units. The networks that supply these programs consist of other states, businesses, and individuals that have dual-use commodities or nuclear expertise. They often involve the same actors as a demand network, and include a wide range of "nodes" in places like the UAE, Malaysia, China, South Africa, Germany, the United States and other industrialized countries. Professor James Russell of the Naval Postgraduate School posits that the distinctions between the supply and demand aspects of nuclear weapons proliferation will become increasingly

[138] Bruno Gruselle, "Proliferation Networks and Financing," *Paris: Fondation pour la Recherche Stratégique*, 2007, http://www.frstrategie.org/barreFRS/publications/rd/RD-20070303-eng.pdf

[139] Gruselle, "Proliferation Networks and Financing."

blurred in future proliferation networks—as was the case with A.Q. Khan.[140] The international community, therefore, has an increasingly daunting task in countering illicit WMD procurement networks.

C. CASE STUDY: THE A.Q. KHAN PROLIFERATION NETWORK

The A.Q. Khan network utilized the private sector for Pakistan's state nuclear weapons program. The genius of the Khan network was not simply that he was able to procure nuclear weapons for Pakistan, which many believed lacked the resources and technical know-how to do so. The Khan network was unique in that it challenged the traditional state-centric procurement model because it was both supply *and* demand-oriented. It was the first network to demonstrate that it could transform itself from procurement to proliferation. The Khan network operated independently—essentially as a non-state actor. It was, for all intents and purposes, an autonomous corporation that offered one-stop shopping for nuclear materials, technology and expertise. It established a new business model that helped Iran, North Korea and Libya develop the expertise and infrastructure to produce weapons-grade nuclear materials—piece by piece, one step at a time. North Korea appears to be replicating this new model, which is cause for concern on every continent and demands immediate attention on national and international levels.

Sometimes referred to as the *Walmart* of nuclear proliferation, Khan's network demonstrated to the world that states no longer had a monopoly on nuclear weapons programs. Because this kind of procurement inevitably deals in the gray zone of dual-use commodities that have both civilian and military applications, the acquisition of a nuclear weapons program could be broken down into disparate parts, where valves, vacuum pumps, and all of the other materials could be purchased one piece at a time for seemingly legitimate purposes. Khan's success proved that a non-state actor—and in particular a trained metallurgist, with no specific expertise in nuclear physics—could

[140] James A. Russell, "Peering into the Abyss: Non-State Actors and the 2016 Proliferation Environment," *Nonproliferation Review* 13, no. 3 (2006): 645–657. See also: Jack Boureston and James A. Russell, "Illicit Nuclear Procurement Networks and Nuclear Proliferation: Challenges for Intelligence, Detection, and Interdiction," *STAIR* 4, no. 2 (2009): 26–17.

buy, sell, and trade materials and technologies on the international marketplace just as easily, if not easier, than the state itself. It confirmed that when profit trumps nonproliferation concerns, everything is for sale.

1. Background/History

Khan got his start in the Netherlands at the Physical Dynamics Research Laboratory (FDO) in 1972, just one year after he received his PhD in metallurgy in Louvain, Belgium. FDO was a subcontractor of Ultra Centrifuge Nederland (UCN), which was the Dutch wing of URENCO. Established in 1971, URENCO was the international consortium consisting of the United Kingdom, Germany, and the Netherlands at the forefront of Europe's attempts to develop advanced centrifuge technology. Its goal was to generate its own supply of nuclear power through enriched uranium that would make them independent from the United States.[141] Though this technology was intended for civilian nuclear energy purposes, it could easily be used for a military weapons program.

Khan started at exactly the time when FDO was beginning to introduce the "latest, most advanced nuclear technology."[142] Because they were competing with their British and German counterparts, FDO's demand for qualified engineers and scientists overshadowed concerns over latent proliferation at the time. Khan was able to obtain a security clearance for his job in the Netherlands, which allowed him easy access to sensitive information that he later funneled into his covert nuclear site in Kahuta, Pakistan. Along with the blueprints for producing centrifuges, Khan acquired names and developed relationships with the European suppliers involved in the multinational uranium enrichment program. This list formed the basis for his original network. Over the next few years, Khan stole the URENCO technology and transplanted it to Pakistan, where he promised its leader, Zulfikar Ali Bhutto, that he would produce highly enriched uranium suitable for weapons before the scientists of Pakistan's Atomic Energy

[141] Douglas Frantz and Catherine Collins, *The Man from Pakistan: The True Story of the World's Most Dangerous Nuclear Smuggler* (New York: Twelve, 2007), 11.

[142] Corera, *Shopping for Bombs*, 5.

Commission (PAEC) could succeed in producing a bomb through the alternative route, using plutonium. KRL's intense rivalry with PAEC meant that Pakistan's networks experienced a period of rapid expansion through the 1970s and early 1980s.

Khan and his associates became masters at manipulating the "gray" market, which exists between licit and illicit enterprises. Rather than attempting to purchase a "turnkey" enrichment program, he utilized his contacts from URENCO and his knowledge of the companies that supplied centrifuge parts and bought them directly. He created or used front companies in Pakistan, Dubai, Europe and elsewhere that would make the purchase and/or act as a false end-user, and through which he could transship commodities to Pakistan when export laws prevented the companies from directly sending it. Procuring sensitive technologies through middlemen had two major benefits: first, with more players involved, it was more difficult to trace the transactions, and second, profit-driven suppliers were unlikely to be concerned over where their dual-use commodities would end up.

2. Motivation

Pakistan's motivations for acquiring nuclear weapons capabilities were fairly straightforward: its neighbor and rival, India, was already equipped with nuclear weapons. Zulfikar Ali Bhutto vowed, after India's nuclear test in May 1974, that Pakistan would "eat grass" if it had to in order to meet India's nuclear threat. Khan's personal motivations for establishing his elaborate network are less clear. There is speculation about whether he was ideologically motivated—determined to claim the Islamic bomb for his home country in Pakistan—or perhaps just a greedy businessman who happened into a very lucrative enterprise as a metallurgist at exactly the right time. It is evident that his patriotism was fueled by a desire for fame and fortune. Khan is well known for making a spectacle of his progress, frequently talking to the media about his efforts in Pakistan before his network came apart in 2004. He boasted of his success, "A country, which could not make sewing needles, good bicycles or even ordinary durable metalled

roads was embarking on one of the latest and most difficult technologies."[143] However, the fact that his export business supplied nuclear technologies and expertise to unlikely allies for enormous profit appears to demonstrate that Khan's personal greed ultimately trumped his patriotism. When it came undone, his network resembled a profit-driven corporation rather than a nationalist state procurement program. Furthermore, the actors in his network were businessmen from around the world with no real stake in Pakistan's procurement, aside from the high commissions they made from it. In any case, Khan's personal motivations and the motivations of his "board of directors" kept him active over a period of decades, building an extensive global network that eventually became a private sector bazaar for nuclear weapons proliferation.[144]

Khan's close associates—explained in greater detail below—were purely financially motivated. Gerhard Wisser, for instance, is described by his former colleagues to have enjoyed the "money and adrenaline" of his dealings in covert uranium enrichment, first for South Africa and then for Khan's network.[145] The Tinners—profitable engineers turned moles—are believed to have received as much as $10 million for the information they provided to Western intelligence on Khan's activities.[146] Without this propensity for profit, Khan could not have built his business. The possibility of enormous wealth made it worth it for network members to engage in risky behavior, particularly since, historically, the consequences were light penalties, at worst.[147]

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[143] Peter Edidin, "Pakistan's Hero: Dr. Khan Got What He Wanted, and He Explains How," *New York Times*, February 14, 2004, http://www.nytimes.com/2004/02/15/weekinreview/word-for-word-pakistan-s-hero-dr-khan-got-what-he-wanted-and-he-explains-how.html (accessed April 18, 2010). Also Thomas C. Reed and Danny B. Stillman, *The Nuclear Express: A Political History of the Bomb and Its Proliferation* (Minneapolis: Zenith Press, 2009), 320.

[144] Retired Brigadier General Feroz Khan of the Pakistan Army refers to Khan's inner circle of trusted confidants as the network's "board of directors" in his forthcoming book, *Eating Grass*, which will be published by Stanford University Press in 2011.

[145] Albright, *Peddling Peril*, 101.

[146] William J. Broad and David E. Sanger, "In Nuclear Net's Undoing, a Web of Shadowy Deals," *New York Times*, August 25, 2008, http://www.nytimes.com/2008/08/25/world/25nuke.html (accessed May 15, 2010).

[147] See Tucker, "Trafficking Networks."

3. Organizational Structure

a. Star Turned Corporation

The Khan procurement network resembled what network analysts now describe as a star structure, with A.Q. Khan as the central node. The other nodes were a variety of businesses, front companies, government officials, and individuals who helped—wittingly or unwittingly—procure and transfer sensitive materials and technologies for Pakistan's nuclear weapons program. This increasingly elaborate web of interconnected nodes made it possible for Khan and his associates to eventually transfer everything they had acquired for the Pakistani program—nuclear weapons designs, materials and technology—around the world by identifying false end users and cleverly manipulating import/export laws.

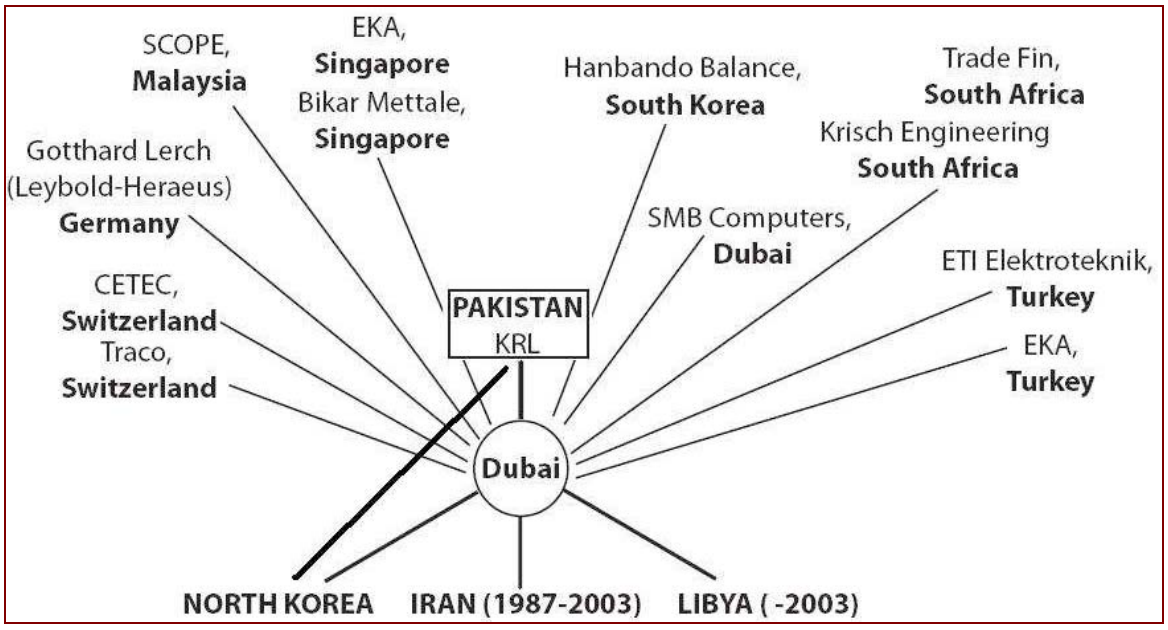

Figure 3. Structure of the A.Q. Khan Procurement Network[148]

Khan's export network was a business, even if not legally incorporated as one. It operated more like a corporation than a state. Rather than using KRL as a base of

[148] Gruselle, "Proliferation Networks and Financing."

operations for his exporting business, Dubai acted as the main office; with its Jebel Ali Free Trade Zone, Dubai was an ideal place to do business. Khan functioned as the chief executive officer and relied heavily on his inner circle—a group of trusted contacts he assembled throughout his years in the business—as a "board of directors" of sorts, each with his own area of expertise. These were the same contacts Khan made during his time in Europe who helped him establish a uranium enrichment program for Pakistan. Sri Lankan businessman Mohamed Farooq, a close associate of Khan's, acted as the network's chief operating officer—a role his "nephew," Seyed Abu Tahir Bin Bukhary (B.S.A. Tahir, also known as "Junior") eventually filled. Farooq worked out of Bin Belailah Enterprises (BBE) in Dubai, which was used to receive consignments of nuclear equipment designed for Pakistan's centrifuge program.[149] B.S.A. Tahir began working at BBE in 1982. Tasked at first with mundane jobs, such as getting tea for participants, he gradually worked his way up and took over Khan's Dubai operations in the 1990s.[150] He has since been referred to as the Khan network's "chief financial officer and money launderer."[151]

Khan's "board of directors" included the following key individuals: Henk Slebos, Gotthard Lerch, Heinz Mebus, Gerhard Wisser, Daniel Geiges, Abdus Salam, Peter Griffin, Ernest Piffl, Friedrich, Urs and Marcos Tinner, and Günes Cire. Dutchman and metallurgist Henk Slebos first met Khan at Delf Technical University in 1963, and later worked with him at UCN in the early 1970s. Slebos considers himself to be Khan's "best friend," and was a key supplier of the Khan network.[152] German businessman, Gotthard Lerch, was equally if not more critical; without his influence as a senior

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[149] Extract from the statement of "Sayed Abu Tahir Bin Bukhary, Managing Director of SMB Group of Companies, Kuala Lumpur, Malaysia," June 7, 2006, 5.

[150] Albright, *Peddling Peril*, 45, 121. BSA Tahir married a Malaysian woman, which is how A.Q. Khan began his relationship with Scomi Precision Engineering, where Urs Tinner watched over the production of machinery for uranium enrichment. Broad et al., "A Tale of Nuclear Proliferation: How Pakistani Built His Network," *New York Times*, February 12, 2004, http://www.nytimes.com/2004/02/12/world/a-tale-of-nuclear-proliferation-how-pakistani-built-his-networl.html (accessed May 15, 2010).

[151] President Bush referred to BSA Tahir as this in his speech on February 11, 2004 about the A.Q. Khan Network. See: Broad et al., "A Tale of Nuclear Proliferation." Also Albright, *Peddling Peril*, 45.

[152] Frank Slijper. "Project Butter Factory: Henk Slebos and the A.Q. Khan Network," briefing January 2007, Transnational Institute in association with *Campagne tegen Wapenhandel*, September 2007, 11.

salesman at Leybold-Heraeus—a world leader in vacuum technology and, formerly, one of the most egregious export control violators—Khan would almost certainly not have been successful.[153] Lerch was also a long-time colleague of Farooq and Tahir.[154] Heinz Mebus, another old university friend of Khan's, ran an engineering bureau in Germany and became a middleman for Khan's centrifuge effort in the 1970s.[155] With his boss, Mebus supplied a complete plant to make uranium hexafluoride at Dera Ghazi Khan in Pakistan in the late 1970s.[156] British Muslim, Abdus Salam, was an old friend of Khan's, and one of his first recruits. He helped set up trading companies and acted as a third-party hub from which Khan could recruit specialists for his program.[157] Salam did business with British engineer, Peter Griffin, who was later based at Gulf Technical Industries (GTI) in Dubai. Griffin first met Khan in 1980, and eventually supplied workshop machines for Libya to produce centrifuge components, known as the "Machine Shop."[158] Ernest Piffl was a German company official at Team Industries, which supplied centrifuge frequency converters.[159] Initially recruited by Slebos, Günes Cire was a steady supplier of frequency converters from Turkey until he was arrested in 2004.[160]

Lerch subcontracted German engineer, Gerhard Wisser, for the Libya deal.[161] Lerch ordered Wisser to purchase equipment directly from Leybold from his base

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[153] Interestingly, Leybold is now the global leader in a nonproliferation-centric business model (rather than a profit-over-nonproliferation business model) known as the "Leybold Charter" because of its experiences with the Khan network. Albright's *Peddling Peril*, 39, 110.

[154] Albright, *Peddling Peril*, 102.

[155] Ibid., 47.

[156] Simon Henderson and Egmont Koch, "Taking the Low Road to Atomic Power," *Der Stern* (April 30, 1986): 152–156.

[157] Albright, *Peddling Peril*, 36.

[158] Extract from the statement of "Sayed Abu Tahir Bin Bukhary, Managing Director of SMB Group of Companies, Kuala Lumpur, Malaysia," 7.

[159] Albright, *Peddling Peril*, 38.

[160] Ibid. Slebos owned a stake in Cires' Istanbul-based company, ETI, and Cire was a member of the board of directors at Slebos' engineering office (see Jaco Alberts and Karel Knip, "About an Engineer from Alkmaar and the Pakistani Bomb—Dutch Government Monitored Activities of Trader in Nuclear Know-How for More than 30 Years," *NRC Handelsblad*).

[161] Extract from the statement of "Sayed Abu Tahir Bin Bukhary, Managing Director of SMB Group of Companies, Kuala Lumpur, Malaysia," 6.

in South Africa.[162] Swiss national, Daniel Geiges, joined Wisser at Krisch Engineering—a major supplier to South Africa's nuclear program—in 1978.[163] He was also connected to Lerch from the early 1970s, when he obtained Leybold-Heraeus equipment for South Africa's uranium enrichment program.[164] Swiss engineer, Freidrich Tinner—and later his sons Urs and Marco Tinner—produced centrifuge components out of the UAE, Turkey and Malaysia.[165] The Tinners were close business associates with Günes Cire in Istanbul. Unfortunately for Khan, they are widely believed to have been the moles that provided information to the CIA and MI6 that ultimately let to the network's unraveling.[166] For several decades, the combined expertise and resources of this "board of directors," along with their mutual greed for profit, made the procurement and proliferation networks possible. Their close personal relationships also ensured a high-level of trust that bolstered their business relationships, making it easier to engage in risky behavior without fear of being turned in by an associate.

4. Sources and Patterns of Funding

A.Q. Khan financed his network in a number of ways, and used similar tactics for his procurement and proliferation activities. Initially, Pakistan relied on direct assistance from Muslim nations, most notably Libya and Saudi Arabia, who were supportive of its efforts to procure the first "Islamic bomb." He was able to pay above-market prices without scrutiny, both because it was viewed as a justifiable expense for a nuclear weapons program, and, at times, because those who may otherwise have stopped him received kickbacks from the exchange. In 1999, Khan admitted to having purchased key items through front companies in Japan and Singapore at a 15 to 25 percent markup. He

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[162] High Court of South Africa, Summary of Substantial Facts, The State vs. Daniel Geiges, Gerhard Wisser, and Geiges and Wisser, Directores of Krisch Engineering Co., undated.

[163] Albright, *Peddling Peril*, 101.

[164] Steve Coll, "The Atomic Emporium," *The New Yorker*, August 7 and 15, 2006, 58. See also High Court of South Africa, Summary of Substantial Facts.

[165] Albright, *Peddling Peril*, 118.

[166] The Tinners are widely credited with helping Western intelligence agencies to bring down the Khan network. Though there has yet to be official confirmation, they allegedly turned spies for the CIA/MI6. Albright, *Peddling Peril*, 208.

sometimes ordered more than what was necessary of a particular item, which he would then sell at a profit. When Pakistan updated its technology from the P-1 to the P-2 centrifuge, Khan sold the older, used technology. The biggest difference between the financing of Khan's procurement network and his proliferation enterprise was that Khan had Pakistan's direct support in his efforts to establish an indigenous uranium enrichment program. He most likely enjoyed tacit support for his proliferation activities in the sense that the state did not stop him, but this relationship is less clear.

a. Manipulation of the "Gray" Market and Export Controls

Khan made use of secret banking systems and front companies to move money and hide the true intent of the transactions. He established offshore agents and purchasing companies, through which he funneled parts and capital. He utilized clandestine funding methods, making payments in letters of credit, bank transfers, and money laundering through companies or unscrupulous financial institutions like the Bank of Credit and Commerce International (BCCI). Banks funded the shipment and transshipment of sensitive items through Dubai, Europe, Singapore and Hong Kong using false end-user certificates that concealed their final destination. He used multiple intermediaries to transship and re-export items to Pakistan from the UAE, Turkey, South Africa and Malaysia, among others. He protected his transactions by using multiple agents or front companies to purchase the same product, just in case. He hid dual-use items among long lists of useless material when listing shipment components to comply with export controls, rightly thinking that this "needle in a haystack" approach would not draw attention to the item.[167] He purchased individual components rather than whole units. Where Pakistan was blocked from buying parts, it began to manufacture its own. His employees reverse-engineered products from other countries to develop indigenous production capability. He bought into established manufacturing companies and recruited technical experts through bribery and/or deception.

Khan always stayed one step ahead of export controls. It is difficult to plug holes quickly in the existing export framework—particularly so when commercial

167 *IISS Strategic Dossier*, 28.

interests supersede the nonproliferation agenda. In a profit-driven market, there is incentive to utilize free-trade zones, which are essentially able to circumvent most export-control regulations.[168] The UAE, for instance, did not have an export control law until 2007. Many of the goods intended for Pakistan's nuclear weapons program (as with Libya and Iran) went through Dubai. Malaysia, which was critical in providing parts for Libya's covert nuclear weapons program, did not have export control laws until April 2010, and was not a member of the Nuclear Suppliers Group (NSG). Germany, which was the main supplier of components to Pakistan, had more lenient export controls on dual-use commodities because it was not a nuclear power. South Africa, which had just dismantled its nuclear weapons program, was no longer considered a threat to global proliferation, although it maintained an extensive nuclear infrastructure. It was just the unsuspecting partner that Khan needed to conduct his business. Switzerland's Chur Valley was also known as "Vacuum Valley" for its centrifuge equipment production. Custom-made gas and solidification units, which convert solid uranium hexafluoride (UF6) into a gas to feed the centrifuge and then back into a solid after enrichment, were not even on the "trigger" list of banned nuclear-sensitive items,[169] nor were the vacuum tubes or valves that were used in centrifuges and sold by Vakuum Apparat Technik (VAT), of which Freidrich Tinner was the export manager.[170]

Because of the holes in international export controls, Khan's regional partners prided themselves in the presumed lawfulness of their transactions. Peter Griffin boasted that his shipments "conformed to whatever export controls were in place at the time."[171] It is estimated that approximately two thirds of Griffin's business was "legitimate" in the sense that it did not break a law.[172] A U.S. General Accounting Office report stated that between 1988 and 1992, over 80 percent (650 of 808) of export

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[168] Wisconsin Project on Nuclear Arms Control, "United Arab Emirates Transshipment Milestones, 1971–2005," *The Risk Report* 11, no. 4 (July/August 2005).

[169] *IISS Strategic Dossier*, 24. See also Khan, *Eating Grass*, 2011 (Chapter 8), 9.

[170] Corera, *Shopping for Bombs*, 78, 161, 246–247, 249.

[171] *IISS Strategic Dossier*, 28.

[172] Corera, *Shopping for Bombs*, 118.

applications for nuclear-related equipment to Pakistan were approved.[173] *Stern*, a German magazine, reported that about 70 German firms conducted nuclear-related business with Pakistani-associated enterprises throughout the 1980s.[174] CORA Engineering in Switzerland was able to fill a large supply order for a customized gas and solidification plant, which it delivered on three specially chartered C-130 planes to Pakistan.[175] Members of the Khan network brought together components that were designed in one country, manufactured in a second, shipped through a third, assembled in a fourth, and put to use in a fifth. In doing so, they skillfully avoided detection for many years.

Starting in 1996, Dutch export control authorities tried to undermine Slebos' export business with a so-called "catch-all" clause, which allowed them to impose *ad hoc* export licenses to unregulated dual-use commodities that were suspected of being destined for WMD-related programs.[176] In the absence of clear regulations, the catch-all clause enabled the Dutch government to legally prevent Slebos from exporting anything that had a potential military purpose. Of the catch-alls invoked by the Dutch government between 1996 and 2004, approximately two-thirds can be attributed to Slebos. Slebos was able to get around this by creating new business channels abroad, which made Dutch intervention difficult.[177] Ultimately, he was never convicted, and continued to supply the Khan network until its unraveling in 2004. Similarly, Friedrich Tinner was able to avoid conviction. In 1996, Swiss authorities questioned Tinner about a shipment of specialized valves the IAEA discovered in Jordan on its way to Iraq before the Gulf War. Tinner claimed to have no idea how the valves arrived in Jordan, and said that they had been shipped legally to Singapore. In his words, it was not his responsibility where they had gone after that.[178] The Swiss statute of limitations on export violations had, at that point, expired, so authorities did not press the matter with Tinner.

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[173] *IISS Strategic Dossier*, 30.

[174] Ibid., 29.

[175] Corera, *Shopping for Bombs*, 23.

[176] Slijper, "Project Butter Factory," 24.

[177] Ibid.

[178] Frantz and Collins, *The Man From Pakistan*, 247.

b. Bank of Credit and Commerce International

Pakistani businessman Agha Hasan Abedi established BCCI in 1972 as the first multinational bank of the Third World. Financed by capital from members of the ruling families of various Gulf states (the UAE in particular), BCCI had criminal leanings from the beginning. For decades, it successfully evaded government regulation and control through the use of shell organizations, kickbacks, bribes and bank confidentiality in places like Luxembourg and the Cayman Islands. When journalists or other witnesses threatened its exposure, it intimidated them out of sharing information.[179] It had upwards of 400 offices in over 78 countries, and benefitted from the support of well-placed individuals such as former Secretary of Defense, Clark Clifford, who lobbied on its behalf. According to the 1992 report to the Senate Committee on Foreign Relations by Senators John Kerry and Hank Brown, BCCI was involved in billions of dollars in fraud; money laundering; bribing officials on nearly every continent; support of terrorism, arms trafficking, and the sale of nuclear technologies; prostitution; income tax evasion; smuggling; illegal immigration; illicit purchases of banks and real estate; and "a panoply of financial crimes limited only by the imagination of its officers and customers."[180]

The extent of BCCI's involvement in financing Pakistan's nuclear weapons program is still not well understood, and is the first item listed under the Kerry report's "Matters for Further Investigation."[181] Pakistan is believed to have received funding for its nuclear program through the BCCI Foundation in Pakistan and through BCCI-Canada, as in case of Archie Pervez, a Pakistani-born Canadian businessman. Additionally, several Gulf states—most notably Saudi Arabia—are suspected of passing secret financial assistance through BCCI. The BCCI Foundation was a means through which the Pakistan government was able to shelter profits from taxation. Pakistan's

[179] See Jonathan Beaty and S.C. Gwynne, *The Outlaw Bank: A Wild Ride into the Secret Heart of BCCI* (Frederick, MD: Beard Books, 2004).

[180] "The BCCI Affair," A Report to the Committee on Foreign Relations, United States Senate by Senator John Kerry and Senator Hank Brown, 102d Congress 2d Session Senate Print 102–140, December 1992, Executive Summary. http://www.fas.org/irp/congress/1992_rpt/bcci/ (accessed February 6, 2010).

[181] The BCCI Affair, "Matters for Further Investigation," http://www.fas.org/irp/congress/1992_rpt/bcci/24appendic.htm (accessed February 6, 2010).

former Minister of Finance, Ishaq Khan, granted the Foundation tax-free status in 1981 in exchange for its pledge to use profits from Pakistani operations to finance projects the government could not pay for itself. In the late 1980s, it "donated" over $10 million in grants for a private science and technology institute led by A.Q. Khan. Bank officials also purchased nuclear technologies on behalf of the government, paid for by Pakistani front companies through BCCI-Canada.[182] BCCI-Canada was instrumental in financing the now infamous purchase by Arshad "Archie" Pervez of a highly specialized maraging steel used in the nuclear industry at gas centrifuge plants. Destined for the P-2, it was an upgrade to the aluminum rotors used in Pakistan's P-1 design that were prone to shattering.[183] At the time, it only was made by seven companies in the United States.[184]

The relationship between BCCI and the Pakistan government is somewhat better understood. Abedi befriended President Zulfikar Ali Bhutto after Pakistan's civil war, to whom he made payoffs during the elections.[185] Abedi later showed allegiance to General Zia ul Haq after the 1978 coup that installed him, even though Zia had Bhutto executed for financial crimes in which Abedi was involved.[186] Despite this apparent conflict of interest, Zia's relationship with Abedi was the most helpful for BCCI. He helped Abedi usher important Arab visitors and bank clients through (or around) immigration and customs requirements in Pakistan, while BCCI helped Zia evade international monetary controls.[187] Zia's sudden death in a 1988 plane crash was a blow

[182] S. Hrg. 102–350 (Pt. 3), 599, from The BCCI Affair, Foreign Governments.

[183] "United States of America v. Arshad Z. Pervez Appellant," No. 88–1109, United States Court of Appeals, Third Circuit. Argued Oct. 19, 1988, Decided March 6, 1989. 871 P2d 310 United States v. Z Parvez. *Open Jurist*, http://openjurist.org/871/f2d/310/united-states-v-z-pervez. See also Hendrick Smith's "A Bomb Ticks in Pakistan," *New York Times*, March 6, 1988, http://www.nytimes.com/1988/03/06/magazine/a-bomb-ticks-in-pakistan.html?pagewanted=all (accessed February 6, 2010)

[184] Corera, *Shopping for Bombs*, 33.

[185] White Paper on the General Elections, Government of Pakistan, July 1978, S. Hrg. 102–350 (Pt. 3), 314–317.

[186] The BCCI Affair, BCCI'S Relationship with Foreign Governments, Central Banks, and International Organizations.

[187] Ibid.

to Abedi's relationship with the Pakistan government, although he found an immediate friend in Ishaq Khan—Zia's successor—who had served as chairman of the BCCI Foundation through the 1980s.[188]

c. B.S.A. Tahir and the Libya Deal

Particularly after BCCI was shut down in 1991, Khan relied heavily on the financial expertise of B.S.A. Tahir, who was heavily involved in Khan's last and most daring transaction: the Libya deal. He recalled in his 2006 deposition of its financing:

> In some cases the Libyans made payments directly to the contractors. The contractors had opened bank accounts in various names. I recall E-Projects and JOVITE as being two of the accounts. I requested two of my friends, namely, Syed Fareed Al Habshi and Shah Hakim to allow the Libyans to deposit money into their off-shore accounts and to then transfer the money into the contractors, accounts.[189]

According to Tahir, Syed Fareed Al Habshi operated the following companies: Aisha Investments and Al-Hayat Investments in Malaysia, Perfect International and City Investment Off-Shore in Hong Kong, and Oryx Trading in Dubai. Shah Hakim operated Shorthill Capital in Malaysia, Shahzenin in Singapore, and Zen Resources. The Libyans also made use of banks in London. Tahir attested to having been shown Credit Suisse bank deposits, which show payments into the account by Hussain Mohammed Musaddi, Al Hayat Investment LTD, City Investment Offshore LTD, Shorthill Capital Limited, and National for Industrial Safety Libya.[190]

5. Network Overlap

Khan had significant advantages from his relationship with Pakistan, which wanted a nuclear bomb at any cost. But he was also a shrewd businessman who knew how to manipulate the system to get what he wanted. Perhaps most significant was his

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[188] The BCCI Affair, BCCI'S Relationship with Foreign Governments, Central Banks, and International Organizations.

[189] Extract from the statement of "Sayed Abu Tahir Bin Bukhary, Managing Director of SMB Group of Companies, Kuala Lumpur, Malaysia," June 7, 2006, 7.

[190] Ibid., 8–9.

ability to make extensive use of his personal connections, which were the basis of his network. These techniques enabled the network's success and longevity, and we can expect other networks to replicate them in future nuclear procurement pursuits.

a. How Pakistan Enabled A. Q. Khan

Pakistan's effort to build a nuclear weapons program involved competition between two separate entities that were tasked with the same objective: obtain technology and materials for a nuclear weapons program. The Khan Research Laboratory (KRL), named after A. Q. Khan when he became its leader, was able to operate with near impunity, although the extent to which the Pakistan government was aware of Khan's activities and expenditures is subject to debate. Government authorities provided him with a remarkable degree of authority and autonomy from the outset—partly because he demanded it, and partly because of the incredibly sensitive nature of his work. Initially, Bhutto personally handled the nuclear weapons program, which meant that Khan operated largely outside of the government's bureaucracy. Zia further compartmentalized Khan's nuclear activities, affording him more autonomy. The Pakistan military provided security at the Kahuta nuclear site, which involved protecting facilities and scientists from external threats more than checking up on Khan's activities.[191] Pakistan's Inter-Services Intelligence (ISI) was kept largely out of procurement, although it apparently began reporting around 1988–89 that KRL was conducting activities outside of the scope of Pakistan's nuclear program.[192] Because of the urgent demand to develop a deterrent to neighboring India, Pakistan was more concerned with the results of the KRL's procurement than the possibility, or rather likelihood, of nefarious activity. So long as he delivered results, Khan was left alone.

The resources, support, authority and autonomy that Khan received from Pakistan were critical to his network operation. They provided him advantages that enabled him to be successful, not only in his procurement for Pakistan, but later in his export business. Because Pakistan had a get-it-at-any-cost mentality, he was able to pay

[191] Corera, *Shopping for Bombs*, 95.

[192] Khan, *Eating Grass*.

above market premium for products—often up to 50 percent higher than market price—which made doing business with him lucrative for potential suppliers. Also with the support of the government, Khan was able to utilize Pakistan's embassies abroad—particularly in Europe—using their diplomatic pouches to send material home.[193] When Pakistan transferred from the earlier P-1 centrifuge model to the P-2 for uranium enrichment, Khan was able to sell unwanted P-1 parts to Libya and others. He took that one step further and often purposefully ordered extra parts for Pakistan's program—sometimes double the required amount—which he later exported for his own profit. Khan also had the advantage of support from Pakistani-born foreign nationals who, either motivated by financial or ideological reasons, helped collect information and procure spare parts.

b. Overlap With Other Proliferation Networks

Khan's overlap with other proliferation networks was the basis for his export business. He specifically targeted states whose desire for nuclear technology and expertise aligned with Khan's desire for profit. Iran, North Korea and Libya all had a demand for his product, and they were willing to pay. Khan began his dealings with Iran as early as 1987, when three Iranian officials reportedly met with members of the Khan network in Dubai (Mebus, Mohammed Farouq and B.S.A. Tahir). At this meeting, they offered Iran the following things: a disassembled sample machine (including specifications, drawings and descriptions); specifications, drawings and calculations for a complete plant of 2,000 machines; auxiliary vacuum and electric equipment; and uranium reconversion and casting capabilities.[194] Phase I lasted from 1987–1992, during which time Khan approached Iran with a so-called "shopping list" of P-1 centrifuge designs. Iran did not buy everything on Khan's list, preferring instead to use it as a 'buyer's guide' while procuring some of the items on its own.[195] Because the P-1 centrifuges had

[193] *IISS Strategic Dossier*, 27.

[194] Corera, *Shopping for Bombs*, 60.

[195] Dafna Linzer, "Iran Was Offered Nuclear Parts," *Washington Post*, February 27, 2005.

previously been used in Pakistan's own program, they had traces of HEU particles, which proved false Iran's statement to the IAEA that it had produced the centrifuges domestically.[196]

Phase II of the Iran deal lasted from 1994–1999, and involved duplicate P-1 centrifuge designs, components for 500 P-1 centrifuges, P-2 centrifuge designs, and technical consulting. Iran has admitted to meeting with network intermediaries 13 times between 1994 and 1999.[197] It is still unknown whether Khan transferred nuclear bomb designs to Iran, and why there was a gap in 1994–5 between the P-2 design and Iran's reported start of work in 2002. In spite of the fact that the old P-1 centrifuges were, in many cases, faulty and damaged, the samples and accompanying detailed specifications and drawings allowed Iran to skip ahead in its research and make thousands of centrifuges on its own, ordering parts individually from the Khan network.[198]

Missile cooperation with North Korea took place from 1993 to 2001. North Korea was known for its ballistic missile production, which Pakistan needed to match India's Agni and Prithvi ballistic missile programs. Its medium-range *No-dong* missile appeared perfect for Pakistan's requirements, and Pakistan reportedly struck a deal for 15–25 *No-dong* missiles and at least one launcher—most of which were delivered by the spring of 1996.[199] North Korea had already sold missiles to Iran, Egypt, Iraq, Syria, Libya and Yemen by the time Khan approached it. North Korea had certain conventional weapons, like artillery and anti-aircraft guns that Pakistan armed forces needed, and had a reputation for exporting military supplies at a low rate because it needed the money.[200] These factors made the Pakistan-DPRK relationship an alliance for mutual benefit. North Korea was pursuing the plutonium route to nuclear weapons,

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[196] *IISS Strategic Dossier*, 6.

[197] IAEA Board of Governors, "Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran," GOV/2004/83 (para 34), November 14, 2004, http://www.iaea.org/Publications/Documents/Board/2004/gov2004-83.pdf15 November 2004, (accessed June 2010).

[198] *IISS Strategic Dossier*, 7.

[199] Joseph Bermudez, "A History of Ballistic Missile Development in the DPRK" (Monterey, CA: Center for Nonproliferation Studies, Monterey Institute of International Studies, 1999), 28.

[200] *IISS Strategic Dossier*, 11.

whereas Pakistan was rapidly advancing through the uranium enrichment route. The DPRK was interested in HEU, and therefore A.Q. Khan was able to provide North Korea with approximately twelve old centrifuges, drawings, sketches and technical data, depleted UF6, and a shopping list of what it could buy. It was much easier for Khan to ship nuclear components to North Korea than to Iran because trade in sensitive military equipment with Pyongyang had already been authorized.[201]

Taking place between 1997 and 2003, the Libya deal was by far the riskiest, most important venture of Khan's career. It involved large-scale collaboration with individuals and companies all around the world. The Libya deal differed from the Iran and North Korea deals in three main ways: First, it took place after Khan was removed from KRL. Second, it was the first time the network managed to produce the entire array of materials, tools and technologies required to fabricate gas centrifuges for uranium enrichment in a single country outside of Pakistan. Third, it differed in scale because—while Iran and North Korea already had a fair degree of technology and expertise—with Libya, Khan had to start from scratch.[202] Libya contracted A.Q. Khan to manufacture centrifuge components and assemble them offsite, after which they were installed and operated at a location outside of Tripoli. Khan suggested that the Libyans build sheds for the centrifuges that look like goat or camel farms in order to camouflage them. The offsite construction maximized profits for Khan and his associates, and kept the Libyan program dependent on them for advice in the long-term.[203]

The Libya deal involved 20 complete L-1 centrifuges, and components for an additional 200; two sample L-1 centrifuges; UF6 (which is speculated to have come from North Korea); a machine shop to produce and repair centrifuges and train Libyan technicians; and nuclear bomb designs and instructions. GTI in Dubai placed the orders for dual-use machinery, which Scomi Precision Engineering (SCOPE) in Malaysia was established to machine. SCOPE then shipped relabeled equipment via various ships and ports to GTI in Dubai, from where they were transshipped and bound for Libya. Libya

[201] *IISS Strategic Dossier*, 14.

[202] Ibid., 18–19.

[203] Musharraf, *In the Line of Fire: A Memoir* (New York: Free Press, 2006), 295–296.

ultimately ordered components for 10,000 L-2 centrifuges and a UF6 piping system, which was manufactured but not delivered. The centrifuge equipment included ring magnets, aluminum and maraging steel, flow forming and balancing equipment, vacuum pumps, non-corrosive pipes and valves, end caps and baffles and power supply inverters. Supplying 10,000 centrifuges—each of which has 96 parts—meant that the supplier would have to procure or manufacture over a million components and ship them all to Libya—an enormous and dangerous task.[204] To meet this challenge, Khan's network increased the capacity of existing front companies and established factories in non-traditional supplier companies to procure, assemble, and manufacture the components for the enrichment process.[205]

Khan also overlapped with states that had established nuclear weapons programs in support of Pakistan's nuclear procurement, and China in particular. China and Pakistan had a mutual interest in keeping nuclear-armed neighbor India at bay, and commended "peaceful" nuclear cooperation in 1976. China provided essential expertise, support and technical assistance for Pakistan's efforts early on, and is sometimes referred to as the "silent partner" in Pakistan's nuclear weapons program.[206] While the relationship between China and Pakistan was officially state-to-state, according to Richard Barlow, a CIA counterproliferation expert involved in uncovering the network, "Khan was the guy with the contacts." He allegedly made many visits to China during the 1980s, including two trips for training in weapons design.[207] Khan exploited his expertise and the weakness in China's own nuclear weapons program, creating an alliance for mutual benefit. China had a relatively weak centrifuge enrichment program in which Khan was able to assist with the designs and technology from his time at URENCO. China assisted Khan with its reactors and gave him enough nuclear material to test his

[204] Victoria Burnett and Stephen Fidler, "Animal Lover, Egoist, and National Hero," *Financial Times*, April 7, 2004.

[205] Christopher Clary, "The A.Q. Khan Network: Causes and Implications" (master's thesis, Naval Postgraduate School, 2005), 77.

[206] Corera, *Shopping for Bombs*, 13.

[207] Ibid. 45.

designs at early stages.[208] China reportedly provided Pakistan with blueprints for building a nuclear weapon—most likely the Chic-4, which was first tested as a missile warhead in 1966.[209] In 1981, Khan sent his agents detailed drawings of weapons components based on this blueprint, ordering them to buy these components from European companies, including that of Henk Slebos.[210] Khan would often buy equipment from China, and then reverse engineer it so that he could build it indigenously.[211]

c. Overlap With Dissimilar Networks

There is little evidence of overlap between the Khan network and other illicit networks—including drug or terrorist networks—outside of financial linkages. One could make the argument that BCCI operated as a "network" of sorts, and therefore the Khan-BCCI connection is further evidence of financial overlap. But these were alliances for mutual benefit. Khan was not interested in drug trafficking or terrorist activities—he was interested in profit and expanding his business empire.

d. Nature of Network Overlap

Initially, the interests of A.Q. Khan and the Pakistan government were aligned: obtain a nuclear weapons program for Pakistan through uranium enrichment. Khan was therefore given the leverage and latitude to accomplish those objectives. It was generally recognized among officials involved in Pakistan's nuclear program that "all sorts of improvisation" were required in order to circumvent export controls and other nonproliferation constraints.[212] The Pakistan government was willing to enlist the help of friendly countries like Libya, China and Saudi Arabia, for its benefit—financial, technical, and otherwise. After Israel attacked Iraq's Osirak nuclear reactor in 1981, Pakistan was understandably nervous about a similar interference in its uranium

[208] Albright, *Peddling Peril*, 9, 46–49,

[209] Ibid., 47.

[210] "Pakistan's Procurement for Its Nuclear Programs—Examples of Materials and Equipment," U.S. Non-Paper, undated, delivered to the Dutch government in 1984.

[211] Corera, *Shopping for Bombs*, 42.

[212] Khan, *Eating Grass*, Chapter 4.

enrichment program. It feared the threat of an attack from Israel, the United States, or India, and therefore, had an even more immediate need to bolster its program in order to obtain a nuclear deterrent. Pakistan—and more specifically A.Q. Khan—looked outside of KRL and PAEC in order to procure materials and technical know-how at a faster rate, for instance Libya, which helped procure uranium from Niger.[213] The Pakistan government likely made a strategic calculation to turn a blind eye to Khan's export activities in spite of the fact that these outside relationships did not directly support Pakistan's interests. The countries Khan targeted—Iran, North Korea and Libya—were all pariah states, which makes it unlikely that he was acting on behalf of the Pakistan government and more likely that these relationships benefitted him personally.

A.Q. Khan and Pakistan's relationship with China is still subject to speculation. As Albright writes, "China's deal with Pakistan was so dramatic that there was little consensus among U.S. government officials over what ultimate agenda it served."[214] It may have been an effort, in part, to counter the efforts in Moscow to "intensify pressure on Pakistan" because of its help in sustaining the Afghan resistance.[215] It may also have been motivated because China's assistance with Pakistan's program allowed it access to Khan's Rolodex of European contacts and technology to bolster its own nuclear program. Still, China's cooperation had its limits; it was unwilling to supply ready-made components related to the nuclear core, which could have been a factor that influenced Khan's increased interaction with European suppliers.[216]

We still do not know exactly how Khan managed to turn missile cooperation with North Korea into nuclear cooperation between 1997 and 2001, or how Khan was able to transfer nuclear bomb designs. There is also much speculation over the level of involvement—if any—of the Pakistan government and military in the North Korea deal. Pakistan had a history of missile cooperation with the DPRK, which began

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[213] *IISS Strategic Dossier*, 27.

[214] Albright, *Peddling Peril*, 48.

[215] Central Intelligence Agency, "Soviet Short-Term Options in South Asia," Special National Intelligence Estimate, TOP SECRET, January 5, 1982, Declassified 1994, 2.

[216] Albright, *Peddling Peril*, 50.

under Zulfikar Ali Bhutto in the 1970s. It is unlikely that Pakistan's armed forces were unaware of the acquisition of the *No-dong* missile system, which had serious implications for Pakistan's force posture. It is also unlikely that Pakistan's policymakers would have been unaware of the nuclear cooperation at the time. Still, the transfer of nuclear technology to North Korea would have severe consequences for Pakistan's foreign policy and international reputation, making it unlikely that they stood behind Khan's nuclear transfers, even if they did not directly stand in his way.[217]

D. CONCLUSION

Ultimately, it was the categorical avarice, tremendous hubris, and sheer audacity on which the Khan network was based that led to its demise. A.Q. Khan was a go-getter, a people-pleaser and a hero. He was a master at kickbacks and bribes, which kept scrutiny away from his activities, at least temporarily. Many of those who observed his malpractices were beneficiaries of the system. While successful for several decades, Khan and his gang made several serious missteps that could not be sustained. First and foremost, their greed and success deluded them into thinking they could not be caught, which led them to engage in risky behavior when they should have been more cautious. Second, they operated without regard for geopolitics, targeting pariah countries and failing to adjust business practices to important changes in the international system. From 1997 to 2003, his biggest, riskiest business venture—the Libya deal—went forward as national and international scrutiny sharpened. It continued past the 1998 nuclear tests in both India and Pakistan. It continued through the creation of Pakistan's SPD in 1999, a nascent command and control (C2) apparatus designed to control and provide accountability for its nuclear weapons program. It continued after Khan was ousted from his position as Chairman of KRL in March of 2001, and after the attacks on 9/11, when international security was tighter than ever before. It even continued beyond the discovery of Iran's nuclear site at Natanz in 2002. Khan should have known that any and all of these events would draw attention to illicit activities. Finally, Western intelligence had a significant inroad into Khan's network; the information the Tinners provided was

[217] *IISS Strategic Dossier*, 15.

ultimately significant to help the CIA and MI6 unfold Khan's activities and catch him at his own game. In 2003, spy satellites tracked the shipment of five cargo canisters full of specialized centrifuge parts from Scomi Precision Engineering in Malaysia through Dubai, where they were transferred to the German-owned BBC China that was bound for Libya.[218]

There is no clear winner in this case. President George W. Bush called the unraveling of the Khan network an intelligence coup—particularly important for the United States in light of harsh criticism over failed intelligence leading up to the 2003 invasion of Iraq. While Libya dismantled its nuclear program in 2003, North Korea now has nuclear weapons, and Iran may not be far behind. Furthermore, North Korea is believed to be pursuing the uranium enrichment route to nuclear weapons in addition to the plutonium route. It is alleged to have its own export enterprise, selling nuclear technology and expertise to countries like Syria and Myanmar for a profit—much like Khan.

Under U.S. pressure, Pakistan President Pervez Musharraf had A.Q. Khan arrested, but he lived comfortably under house arrest, shielded from interrogation by the United States and other interested countries. Still hailed by many as a hero in Pakistan, he was released from house arrest by current President Asif Ali Zardari in February 2009, in spite of his 2004 confession to running an illicit nuclear network.[219] The Tinners have also been relatively protected, particularly because of the information they provided to the CIA. In May of 2008, President Pascal Couchepin of Switzerland acknowledged that the Swiss government had destroyed a large trove of computer files and other material documenting the business dealings of the Tinners and their smuggling activities with Libya and Iran.[220] Urs Tinner was freed from jail on December 22, 2008.[221] His brother

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[218] Broad et al., "A Tale of Nuclear Proliferation: How Pakistani Built His Network."

[219] Salman Masood and David E. Sanger, "Pakistan Frees Nuclear Dealer in Snub to U.S.," *New York Times*, February 6, 2009, http://www.nytimes.com/2009/02/07/world/asia/07/khan.html

[220] Broad and Sanger, "In Nuclear Net's Undoing, a Web of Shadowy Deals."

[221] William J. Broad, "After 4 Years, Switzerland Frees Man Suspected of Smuggling Nuclear Technology," *New York Times*, December 30, 2008, http://www.nytimes.com/2008/12/30/world/europe/30nuke.html

Marco remains incarcerated over fear that he had access to nuclear weapons secrets. In June 2008, Malaysia released B.S.A. Tahir from prison, saying that he was no longer a national security threat.[222] Gerhard Wisser pled guilty to participating in Khan's network in September 2007 and agreed to cooperate fully with the investigation.[223] Even though the Dutch government was suspicious of Henk Slebos' activities, he was able to avoid conviction and, miraculously, continue supplying the Khan network until its unraveling in 2004.

Tighter export controls on dual-use commodities, both nationally and internationally, are essential to stopping the proliferation of WMD. This can be approached at multiple levels, from the nation state to regional forums like ASEAN to the United Nations. The spread of nuclear materials and technology is not solely a problem in states with established nuclear infrastructure; any state is capable of producing and exporting items with both civilian and military applications, and therefore every state should be concerned with where those items end up after they leave their borders. Additionally, harsher penalties for export control violators would make an example out of certain individuals and potentially deter follow-on behavior. There will always be a demand for nuclear weapons among some states and non-state actors, but it should be the responsibility of the international community to make the acquisition of a nuclear weapons program as difficult and risky as possible. A global nuclear fuel bank is a good start, which would allow non-nuclear states access to nuclear fuel for their home energy programs without developing a latent nuclear weapons capability. States like Iran that invoke their sovereign right under the NPT to build an indigenous civil nuclear capacity will likely choose to forgo participation in an international fuel bank, but it is a start.

[222] Broad and Sanger, "In Nuclear Net's Undoing, a Web of Shadowy Deals."

[223] Deutsche Presse Agentur, "German Engineer Pleads Guilty in South Africa to Nuclear Smuggling," September 4, 2007.

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IV. NARCOTICS NETWORKS: THE MEDELLÍN 'CARTEL'

A. INTRODUCTION

1. Why Narcotics Networks Are Important

Four decades after President Nixon declared a "war on drugs," drug use and trafficking are some of the most significant and dangerous challenges we face today. Narcotics are by far the most highly trafficked and widespread illicit substances on the market. Revenues from global drug trafficking are estimated at over $400 billion per year.[224] The networks involved in their production, transfer and distribution are often violent and territorial, functioning more like gangs than pure trafficking networks. They terrorize the local population using kidnapping, extortion and murder to achieve their objectives. Their bloody tactics continue to make regular headlines. In May 2010, 55 bodies were discovered in an abandoned mine just south of Mexico City. In July, 51 corpses were found near a trash dump outside of Monterrey. In August, Mexican marines discovered an unprecedented 72 bodies in San Fernando, Mexico—just 100 miles south of Texas.[225] Over 30,000 people have been killed in drug-gang violence in Mexico alone, since the turf battle began between the Mexican Zetas and Gulf 'cartels' four years ago.

The Latin America drug trade became a major challenge facing the United States beginning in the late twentieth century. Fueled by increasing demand from North America, the cocaine industry first boomed in the 1970s, and became even more problematic during the 1980s, when Colombia's dominant Medellín cartel increased production to meet demand.[226] Coca, marijuana, and opium poppies[227] are three major

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[224] Robert Mazur, "Follow the Dirty Money," *New York Times*, September 12, 2010, http://www.nytimes.com/2010/09/13/opinion/13mazur.html (accessed September 13, 2010). Mazur's aim is to expose the major banks that have been able to move and conceal large sums of money for criminal organizations in violation of international sanctions.

[225] Associated Press, "72 Bodies Found in Northern Mexico."

[226] Scott B. MacDonald, *Mountain High, White Avalanche: Cocaine and Power in the Andean States and Panama* (New York: Praeger, 1989), 6.

[227] Vanda Felbab-Brown, *Shooting Up: Counterinsurgency and the War on Drugs* (Washington DC: Brooking Institute Press, 2009), 69.

components of the illicit narcotics industry, primarily located in the Andean nations of Colombia, Peru and Bolivia.[228] Cocaine, which is produced from the coca plant, is by far the biggest part of the Andean drug industry. Colombia produces 80 percent of the world's cocaine and 90 percent of the cocaine consumed in the United States. It is also the Western Hemisphere's largest producer of heroin, supplying 50 percent of the heroin consumed in the United States.[229] The power associated with the cocaine trade has spread methodically to other Andean states and beyond—Chile, Ecuador, Venezuela, Panama, Guatemala, and alarmingly, Mexico. To highlight the volatility of this industry, narcotics analysts estimated that the value of Latin America's cocaine trade was between $80 and $150 billion as far back as 1986.[230] The ability for narcotics trafficking syndicates to penetrate state institutions (i.e., Panama, Colombia) and outsource violent activities to established terrorist organizations remains a serious threat to regional stability throughout South and Central America, and poses an increasingly serious risk for the U.S.-Mexico frontier.[231]

It is difficult to overemphasize the extent to which the drug trade is deeply entrenched in the global and local economies. Narcotics networks are market-driven, and therefore, will exist as long as there is demand. Thanks, in large part, to the thriving demand economies of the West, there will always be a supply network with lucrative profit opportunities. The United States is by far the largest consumer of illicit substances globally, although drug distribution knows no geographical boundaries. China, Canada, Brazil, and the United Kingdom are just a few of the other nations actively battling the rise of drug use within their borders. Economic involvement in the narcotics industry is also problematic, which former federal agent Robert Mazur highlights in his recent *New*

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[228] Ninety-nine percent of the world's supply of cocaine comes from this region (Colombia, Peru and Bolivia), but Colombia dominates the international cocaine export market. Patrick L. Clawson and Rensselaer W. Lee III, *The Andean Cocaine Industry* (New York: St. Martin's Pres, 1996), iix.

[229] Felbab-Brown, *Shooting Up*, 69.

[230] Organization of American States, "Socio-Economic Studies for the Inter-American Specialized Conference on Traffic in Narcotics Drugs" (Washington D.C.: Organization of American States, April 22, 1986), 1.

[231] Colombian drug baron Pablo Escobar, for instance, succeeded in winning a seat in the Colombian Congress in 1982.

York Times op-ed on international "dirty money" laundering.[232] In recent years, American Express Bank International, Credit Suisse Group, Union Bank of California, BankAtlantic and Wachovia have all been involved—and caught—moving large sums of drug money.[233] Mazur writes, "Wachovia alone moved more than $400 billion for account holders to Mexico, $14 billion of which was bulk currency and had been driven in armored cars or flown to the United States."[234] Bankers often escape prosecution because law enforcement fails to expose evidence of their involvement in money laundering. These cases frequently end in deals rather than prosecution.[235] And as entrenched as the drug trade is in local and international economies, so too is it entrenched in local and international government. Narcotics and narcotics-related corruption continue to be endemic problems in Mexico, South America and Afghanistan, among other places, and are significant barriers to political and economic progress.[236]

2. Why the Medellín Cartel Was Chosen as a Case Study

In this chapter, I focus on the Medellín 'cartel'—an extraordinary example of illicit entrepreneurialism that blurs the lines between political and criminal activities. Based out of Colombia's second largest city, the Medellín cartel dominated the Colombian cocaine industry during the 1980s, creating new practices to meet growing demand that other drug trafficking networks employ today. This organization not only defined international perception of what a Colombian drug cartel looked like in the 1980s, but is an excellent example of how a drug trafficking network interacts with government, the economy, and insurgent/terrorist groups. The Revolutionary Armed Forces of Colombia (FARC)—a Marxist-Leninist guerilla revolutionary movement in Colombia, for instance, is known to employ terrorism as a tactic. Since Pablo Escobar

[232] Mazur, "Follow the Dirty Money."

[233] Ibid.

[234] Ibid.

[235] Ibid.

[236] In Afghanistan, for instance, President Hamid Karzai's brother, Ahmed Wali Karzai, is known to be involved in the drug trade at the highest level. This kind of narcotics-related corruption has the effect of delegitimizing the government, undermining U.S. and international efforts to prop up a functioning democracy.

was shot and killed by U.S. Special Operations Forces—or, officially, the Colombian National Police—in December 1993, information about the Medellín cartel has become more widely available. There is a variety of open source material on its motivations, structure, funding and affiliations. This historical case study bears important lessons that can be applied to the ongoing analysis of drug gangs and trafficking networks in Colombia, Mexico and Afghanistan today.

3. Roadmap

In this chapter, I begin with a brief explanation of the narcotics network typology. I examine the prevailing literature on narcotics trafficking to draw conclusions about narcotics networks in general. The rest of this chapter will focus on the Medellín cartel as a case study. As in the previous two chapters, I examine this case study's motivations, structure, sources and patterns of funding, overlap with other narcotics networks, overlap with different types of terrorist and criminal activity, and in each case what the nature of that interaction was. I conclude with recommendations for how this information can inform ongoing counternarcotics activity.

B. NARCOTICS NETWORK TYPOLOGY

The predominant conception of what constitutes a drug network—and especially a cocaine trafficking network—is a large, hierarchical, vertically integrated cartel that dominates the market.[237] Traditionally, a 'cartel' is a group of independent producers who agree to maintain cocaine wholesale prices.[238] Today, the definition of a cartel has evolved. Experts often prefer the term drug trafficking organization, or even drug gangs—particularly in reference to Mexico. Howard Campbell expands on this controversy in *Drug War Zones*, in which he argues that the excessive use of the word 'cartel' may sustain a number of incorrect assumptions about drug-trafficking organizations. For instance:

[237] Williams, "The Nature of Drug-Trafficking Networks," 154–159.

[238] Clawson and Lee, *The Andean Cocaine Industry*, 38.

> That they are all enormous, unified, permanent, and tightly organized from top to bottom; they are isomorphic… such that each region, route, or drug market has one and only one cartel… they are absolutely vertical in structure; they are removed from the larger society and strictly separate from the other equally seamless, coherent cartels that are their rivals.[239]

Because of this traditional view of a cartel, U.S. and international counternarcotics efforts have typically been targeted against drug "kingpins," which has had a very limited impact on the flow of drugs to the United States.[240] In drug trafficking networks, these so-called "kingpins," are just the tip of the iceberg. Some of the most important members can be lower-level individuals who are involved in transportation, communications, or security. This suggests that a decapitation strategy is not nearly as effective as a network-based strategy.

Today, drug trafficking organizations are increasingly dispersed. Their patterns of interactions resemble an interconnected network—or networks—rather than a collection of monolithic 'cartels' that dominate production and set prices. Transnational crime expert, Phil Williams, writes that there is a tendency in law enforcement and academia "to treat centralized hierarchies as synonymous with organized crime and to treat networks as disorganized crime."[241] This, of course, is a mistake. A network is not disorganized, but rather a complex compilation of actors with multiple layers of interaction and varying degrees of involvement. Different groups, or sub-networks, perform specific tasks and are connected by brokers. This allows the coca producers in Peru to communicate with the refiners and distributors in Colombia, who will export the cocaine that will eventually enter the United States through Mexico—most likely after several detours along the way. It is within these sub-networks that we often see a common geographic, ethnic or familial identity. Individuals are also connected and recruited by friendship or professional ties. The loosely organized network form allows participants to compartmentalize and specialize activities, and enables decentralized

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[239] Howard Campbell, *Drug War Zone: Frontline Dispatches from the Streets of El Paso and Juárez* (Austin: University of Texas Press, 2009).

[240] Williams, "The Nature of Drug-Trafficking Networks," 154.

[241] Ibid.

decision-making authority.[242] Decentralized decision-making reduces the importance of "nonredundant nodes,"[243] thereby mitigating the risk of vulnerability to what Ronald Burt calls "structural holes." Structural holes, when targeted, are difficult to replace.[244]

Networks are conducive to clandestine activity and cross-border transactions. They are flexible and adaptable in a way that a centralized hierarchy is not. Campbell suggests that cartels be should viewed today as "shifting, contingent, temporal alliances of traffickers whose territories and memberships evolve and change because of conflicts, imprisonment, deaths, changing political circumstances, etc., and whose fortunes and strengths wax and wane or die out overtime."[245] In Michael Kenny's words, "*narcos* learn," which means they are able to build skills and alter practices simply and effectively—and often faster than the organizations that target them.[246] The fall of the Medellín cartel in Colombia in the 1990s, for instance, gave rise to its competitor, the Cali cartel, which essentially plugged the gap in the market after the death of Pablo Escobar. Where roadblocks occur, narcotics networks develop increasingly innovative ways to get around them, and thus the dance between traffickers and law enforcement continues.

There are certain network features and structures that are more germane to the drug trade than others. Michael Kenny identifies two main Colombian trafficking network structures in *From Pablo to Osama*: wheel networks (also called hub-and-spoke, or star networks) and chain networks.[247] The wheel networks contain a core and a periphery, which emerges from the core in the shape of a star. A drug network of any

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[242] Michael Kenny, *From Pablo to Osama: Trafficking and Terrorist Networks, Government Bureaucracies, and Competitive Adaptation* (University Park, PA: The Pennsylvania State University Press, 2007), 27.

[243] Kenny, *From Pablo to Osama*, 30.

[244] Ronald S. Burt, *Structural Holes: The Social Structure of Competition* (Cambridge, MA: Harvard University Press, 1992).

[245] Campbell, *Drug War Zone*, 19.

[246] Kenny, *From Pablo to Osama*, 3, 6.

[247] Ibid., 29, 34. These networks are also germane to proliferation networks, explored in greater detail in Chapter III.

substantial size will take on this form.[248] The "core" generally consists of a dense network of individuals or small organizations that are the "steering mechanism" behind the network. These core members will have "bonding mechanisms" that enable a high degree of trust and cohesion, for instance through common ethnicity, friendship, tribal connections, family, or experience.[249] The "periphery" is likely to be less dense, marked by looser relationships in which the bonding mechanism is not quite as strong.[250] This illustrates what Mark Granovetter terms "the strength of weak ties," because these peripheral actors allow the network to operate more extensively and with greater impact.[251] The core is much more difficult for law enforcement to target than the periphery, both because entry is dependent on a high level of trust, and also because there are nodes—called brokers, or intermediaries—that act as insulators between them.[252] Rather than forming a horizontal chain of interactions, drug trafficking organizations engage in open competition in a manner that looks more like an interconnected network than a one-way directional flow.[253] They are market-oriented. The largest networks function and appear structurally more like a multinational corporation than what one might assume of a trafficking cartel.[254] They are, by any account, business enterprises.

The second main type of narcotics network structure is the chain network, which consists of a decentralized series of independent nodes that form specific tasks and interact without oversight from the core group.[255] Transactions are horizontal rather than vertical and often coordinate their activities on an ad hoc basis. Because of their flat structure, chain networks are not marked by the presence of highly connected "nodes" that would be vulnerable to structural holes, and are therefore generally immune to

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[248] Williams, "The Nature of Drug-Trafficking Networks," 155.

[249] Common experience could be through prison time, youth gangs, etc. Williams, "The Nature of Drug-Trafficking Networks," 155.

[250] Williams, "The Nature of Drug-Trafficking Networks," 155.

[251] Mark Granovetter, "The Strength of Weak Ties," *American Journal of Sociology* 78 (1973).

[252] Williams, "The Nature of Drug-Trafficking Networks," 155.

[253] Campbell, *Drug War Zone*, 19; Luis Astorga, "El Siglo de las Drogas: el Narcotrafico, del Porfiriato al Nuevo Milenio" (Mexico: Random House, 2005), 154.

[254] Campbell, *Drug War Zone*, 18.

[255] Kenny, *From Pablo to Osama*, 31.

decapitation efforts. In addition to lacking a "core" coordinating body, chain networks lack mechanisms for sharing risk, which makes them more vulnerable to penetration by government, law enforcement or theft.[256] Still, chain networks bear certain similarities to wheel networks—in particular, the presence of close interpersonal relationships and government corruption. Furthermore, these different structures of networks interact at various intermediary nodes, which adds to the overall complexity of the international drug trade.

As mentioned above, narcotics networks are often divided along geographic, ethnic, and familial lines. Mexican drug gangs, for instance, have close family ties and are very territorial, often engaging in turf wars. Nigerians occupy a significant portion of the trafficking network that brings heroin from places like Afghanistan and Myanmar to the United States—through Chicago in particular.[257] Close ethnic ties ensure trust and efficiency, and they allow different sectors of the drug trade to exploit their competitive advantage: location, language, local knowledge and the "ability to melt into the crowd."[258] They also facilitate recruitment and communication among networks. High-risk transactions often rely on the "trust and mutual recognition that a common ethnic background implies," although this is not always an option.[259] As Moises Naím writes in *Illicit*, given the growing demand and high-value nature of their product, "a great many drug transactions are simply that—transactions."[260] This points back to the market model: while drug trafficking networks are often family-run and can function much like gangs or organized crime rings, they are ultimately market-driven. Violence—or the threat of violence—occurs where trust does not. This is the link that connects cocaine producers in South America to the distributors in the United States, or those that

[256] Kenny, *From Pablo to Osama*, 31.

[257] Naím, *Illicit*, 73.

[258] Ibid.

[259] Kenny, *From Pablo to Osama*, 28.

[260] Naím, *Illicit*, 73.

reprocess opium from Afghanistan to those who transport it to Western Europe. It exemplifies the underlying motivation of the drug industry: profit—enforced by trust and/or fear.

Drug trafficking is a form of economic activity that is integrated, interconnected, promoted, and often protected by various state sectors.[261] Government involvement in the drug trade often favors one cartel over another, which allows some of the largest drug trafficking groups to take on a quasi-monopolistic structure.[262] Campbell refers to the intersection between drug organizations and government institutions (law enforcement, political, military, etc.) as *la plaza*.[263] The penetration of government by drug traffickers makes counter-network activity increasingly difficult. When an individual in government becomes an essential node in the trafficking network, that network often receives a certain degree of protection from law enforcement activities.[264] The nexus between organized crime and government is an incredible impediment to political and economic progress in countries such as Afghanistan, Mexico, Colombia and Nigeria.

The drug-insurgency nexus is often referred to as "narcoterrorism," which Jordan Paust defines as the politically motivated terrorist activities (i.e., kidnapping, assassinations, bombings, or the threats of these activities) entangled in the drug trade. Once most prominent in the Andean region in South America, so-called "narcoterrorism" is frequently targeted against those who oppose or threaten to expose the drug trade. Attacks against journalists have grown increasingly prominent in Mexico in recent months. There are many reasons for the overlap between terrorists and transnational criminal organizations, and especially narcotics trafficking syndicates. For one thing, they share similar characteristics, and often borrow techniques and tactics from one another; they operate in areas with limited government control, weak law enforcement and open borders; they use similar communication technologies; employ money-laundering techniques; use violence and intimidation to achieve their ends; and, of

[261] Astorga, "El Siglo de las Drogas," 124–125.

[262] Ibid.

[263] Campbell, *Drug War Zone*, 20.

[264] Williams, "The Nature of Drug-Trafficking Networks," 156.

course, require money to finance their activities.[265] Terrorist and criminal networks clearly have mutual interests, in spite of their obvious differences. Most importantly, as Nathan Minami points out, criminal networks support terrorist networks because "terrorist networks undermine state security, making it easier for criminal networks to operate. In turn, terrorist networks back criminal organizations because criminal organizations generate revenue streams that terrorist networks can draw financing from."[266]

Rollins et al. note that there are three primary ways in which criminal groups and terrorists overlap: (1) through shared tactics and methods; (2) transforming from one group into another over time; and (3) through short-term or long-term "transaction-based service-for-hire activities between groups."[267] The financial, or service-for-hire, link is the most obvious (and would look much like a horizontal transaction in a chain link). Still, this relationship is not always as symbiotic as a market-oriented look would indicate. Vanda Felbab-Brown argues that the standard "narco-guerilla" approach focuses on the financial gains of this nexus at the expense of other key dynamics, including political legitimacy and direct military benefits—namely in the form of expanded strategic and tactical options and improved relations with the local populations.[268] There is also a high degree of competition between these groups, which is sometimes overlooked. Still, although contentiously debated at the time, there are clear examples of tactical overlap between Colombian drug cartels and established regional terrorist networks. A primary example was yielded by the joint Colombian military and DEA raid

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[265] See: Donato Masciandaro, *Global Financial Crime: Terrorism, Money Laundering, and Off Shore Centers* (Burlington, VT: Ashgate Publishing, 2004).

[266] Nathan A. Minami, "Defeating the International Criminal-Terrorist Network." Forthcoming, *Culture & Conflict Studies*, http://www.nps.edu/programs/ccs/WebJournal (hard copy accessed September 15, 2010) 1. See also Svant E. Cornell, "The Narcotics Threat in Greater Central Asia: From Crime-Terror Nexus to State Infiltration," *China and Eurasia Forum Quarterly* 4, no. 1 (2006): 37–67; Louise Shelly, "The Nexus of Organized International Criminals and Terrorism," *International Annals of Criminology* 20, no. 1/2 (2002): 85–92; and Alex P. Schmid. "The Links between Transnational Organized Crime and Terrorist Crimes," *Transnational Organized Crime* 2, no. 4 (1996): 40–82.

[267] John Rollins et al., "International Terrorism and Transnational Crime: Security Threats, U.S. Policy, and Considerations for Congress" (Washington, DC: Congressional Research Service, 2010), 1.

[268] Vanda Felbab-Brown, "The Coca Connection: Conflict and Drugs in Colombia and Peru," September 4, 2009, http://www.lib.unb.ca/Texts/JCS/Winter05/felbabbrown.html (accessed September 12, 2010).

against a "cocaine super-lab" on March 10, 1984. Owned by Medellín "kingpin" Pablo Escobar, and located deep in the FARC-controlled Yari plains, this raid exposed deep ties between narcotraffickers and leftist guerillas and terrorists, namely the FARC and the M-19 movement.[269]

C. CASE STUDY: THE MEDELLÍN CARTEL

1. Background/History

Pablo Escobar Gaviria personified the international narcotics market during the 1980s as the leader of the Medellín cartel in Colombia. Although *coca* was first cultivated in Colombia in pre-Spanish times by the Amerindian population, it was the criminal entrepreneurs from pre-Castro Cuba, like Escobar, who established market control of Colombia's burgeoning coca industry and subsequently brought Colombia into the multi-billion dollar cocaine trade.[270] The Cuban mafia thrived during the dictatorship of Fulgencio Batista (1952–1959) and helped import small amounts of cocaine from South America. Following Fidel Castro's takeover in 1959, the Cuban mafia fled the island and resettled in Cuban neighborhoods in Florida. The market connections and drug trafficking networks remained intact, and the Cuban mafia continued to play a major role in the trafficking of cocaine into the United States throughout the 1960s.

Before long, the financial benefits of the cocaine industry helped entice a new breed of criminal enterprise to rise up and eliminate Cuban domination on the cocaine industry: Colombia's Medellín cartel. Historians usually associate 1981 with the birth of the Medellín cartel, but counternarcotics experts posit its origins extend back as early as the late 1960s, when "the Colombians began bypassing the Cuban connection, moving directly into almost all facets of the industry, horizontally and vertically."[271] The Colombians began to fight for control of both the wholesale and retail aspects of the

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[269] James Adams, *The Financing of Terror: How the Groups That are Terrorizing the World get the Money to do it* (New York: Simon and Schuster, 1986), 215–237; *War on Drugs in Colombia*, Latin America Report No. 11 (Washington, DC: International Crisis Group, 2005), 8.

[270] MacDonald, *Mountain High, White Avalanche*, 18.

[271] Ibid., 20.

cocaine distribution industry; by the end of 1978, they successfully uprooted their Cuban rivals, gaining control of the wholesale distribution of cannabis inside the United States.[272] At the height of its power, the Medellín cartel succeeded in controlling the distribution of an estimated 80 percent of all cocaine entering the United States, and established trafficking networks in Panama, Central America, Mexico, Suriname, Cuba and the Bahamas.[273]

Medellín traffickers imported coca paste from Peru and Bolivia to Colombia, where it was refined it into a powder and then exported through these routes to the United States, among other places, where local affiliates would distribute the product. Medellín drug capos were involved in all aspects of the trade, from the purchase of raw materials to cocaine production, transportation, distribution and sale.[274] What started out as a small-scale trafficking organization that brought cocaine shipments from Colombia to the United States through the use of human "mules" carrying a suitcase (often combined with marijuana shipments), emerged into a sophisticated large-scale international operation. As early as the mid-1970s, cocaine could be processed in Colombian jungle labs for $1,500 per kilo and then sold on the streets in the United States for $50,000 per kilo. Profits grew with rising demand from the West, which could then be reinvested to develop more sophisticated and innovative techniques to refine and export cocaine while avoiding detection. They began to contract with pilots to fly bulk shipments, and even hired engineering experts from the United States and Russia to design a submarine to smuggle cocaine to the United States.[275] According to Luis Cañon, as of the 1980s there

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[272] For further insight, see Howard Abadinsky, *Organized Crime* (Chicago: Nelson Hall Publishers, 1997), and Elaine Shannon, *Desparados: Latin Drug Lords, U.S. Lawmen, and the War America Can't Win* (New York: Viking Press, 1988).

[273] Scott B. MacDonald, "Colombia," in *The International Handbook on Drug Control* (158–159), ed. Scott B. MacDonald and Bruce Zargarias, (Westport, CT: Greenwood Press, 1992). The 80–90 percent figure is an estimation based on Pablo Escobar's claim, and is widely cited in the literature—particularly during the 1980s and 90s. While it may not be exact, due to unreliable reporting, it is clear that the Medellín cartel dominated cocaine exports during this time.

[274] Thomas Ricks, "Indictment of 9 Alleged Gang Members Portrays How Cocaine Industry Works," *Wall Street Journal*, 19 November 1986 (found in Lee, *The White Labyrinth*, 99).

[275] "Drug Wars: The Colombian Cartels," *Frontline, Public Broadcasting Station*, http://www.pbs.org/wgbh/pages/frontline/shows/drugs/business/inside/colombian.html (accessed October 8, 2010).

were at least 10 organizations involved in the Medellín-based cocaine industry, each of which had its own pilots, cocaine packers, shipping routes and representatives abroad, and all of which "revolved around Escobar."[276]

2. Motivation

Drug smugglers are conservative, profit-oriented, and motivated to preserve the political status quo (as it benefits their business). They are territorial, and employ violence as a tactic to support their objectives. The Medellín cartel was ultimately motivated by profit. With hundreds of billions available each year in generated revenues, it is easy to understand why one may be tempted to get involved.[277] Pablo Escobar, Jorge Ochoa and José Gonzalo Rodríguez Gacha all made *Forbes* Magazine's July 1988 list of the top 125 non-U.S. billionaires.[278] In his heyday, Escobar alone is believed to have amassed a personal fortune of $3 billion in drug profits.[279] When the Colombian government finally began to confiscate assets, they found "at least $125 million of drug trafficking assets—including 1,800 buildings and country estates, 470 planes, and 600 vehicles," most of which belonged to the leaders of the Medellín cartel and their associates.[280] For some, it was a living; for others, it was a fringe benefit. Those involved in the transportation industry, for instance, could make many times their normal salary by including narcotics in their regular cargo every once in a while. Similarly, bankers would "assist" in moving money or establishing offshore accounts if they could skim a bit off the top.[281] With increasingly innovative techniques to avoid being caught—and, of

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[276] Luis M. Cañon, *El Patrón: Vida y Muerte de Pablo Escobar* (Bogotá: Planeta, 1994), 20, 129. Also see Clawson and Lee, *The Andean Cocaine Industry*, 47.

[277] Estimates from the 1980s and 90s put this figure at anywhere between $150 and $300 billion. Clawson and Lee, *The Andean Cocaine Industry*, 62.

[278] Lee, *The White Labyrinth*, 9.

[279] Ibid., 104.

[280] Clawson and Lee, *The Andean Cocaine Industry*, 99; Mary Cooper, *The Business of Drugs* (Washington, DC: Congressional Quarterly 1990), 18 and Mary Cooper, "Problems with Seized Property Outlined," *El Espectador*, February 16, 1991, 11A.

[281] See Kenny, *From Pablo to Osama*, 40–41 for descriptions of this kind of involvement based on interviews with lower-level *narcotraficantes*.

course, the ability to bribe Colombian law enforcement if they were—the risks were low and (for many) well worth the potential gains.

The Medellín cartel is an interesting case study because its leadership became more entrenched in government than a typical narcotics organization. Unlike terrorist groups, drug trafficking networks do not necessarily have ideological motivations, although certain individuals may have personal motivations that extend beyond profit. As Rensselaer W. Lee III writes in *The White Labyrinth*, the leaders of the Colombian drug trade during the 1980s posed "as defenders of national values, as civic leaders, and as fighters for progress." The so-called Medellín mafia had two main political objectives: (1) the defeat of the U.S.-Colombian extradition treaty, which allowed Colombia to send traffickers to the United States for trial and sentencing, and (2) the initiation of peace negotiations with the Colombian government.[282] Some *capos* worked within the system, using bribes and financial contributions to influence political leaders and ensure protection from the law for their activities; others sought to change the system. Carlos Lehder and Pablo Escobar, for instance, both grew to be political personalities. They desired influence in politics, not just for the gain of their trafficking enterprise, but for their individual political agendas—a practice not typical in drug trafficking organizations, and one that ultimately backfired.

3. Organizational Structure

The Colombian cocaine industry of the 1980s was more hierarchical than it is today, but it still resembled a dispersed network. Originally described as a pyramid with the major Medellín and Cali *capos* at the top, it is increasingly viewed as a series of interconnected nodes. Literature from the 1980s and 1990s generally describes Colombian drug networks as 'cartels' – a reference to their hierarchical nature. In 1989, Lee explained that the top tier of Colombian cocaine elite was made up of about 100 people from "coalitions of crime families" from Medellín and Cali—the apex of which

[282] Clawson and Lee, *The Andean Cocaine Industry*, 53–54.

included five Medellín and two Cali drug lords.[283] In 1994, former CIA analyst, Sidney Zabludoff, published a structural diagram in which he broke the Colombian cocaine trafficking industry down into five-tier pyramid. The bottom consisted of coca growers, agricultural workers and small base producers; next were semi-professional and unskilled part-time workers (guards, surveillance teams, radio and heavy equipment operators, and couriers); the middle level was made up of skilled freelancers (pilots, chemists, financial advisors, brokers, assassins, lawyers, accountants, and paramilitary operators); second to the top were specialized organizations (money laundering, transportation, enforcement, and laboratory operations); and at the apex of the pyramid were the "core" organizations and workers, including Pablo Escobar.[284] In 1996, Patrick Clawson and Rensselaer Lee referred to Escobar as the Medellín "kingpin," who not only exercised vast sway over trafficking operations, but whose "mantle of leadership, his access to the means of violence, and his ruthless domination of smaller exporters held the coalition together and established its identity."[285]

As mentioned above, serious discussion about what exactly constitutes a 'cartel' emerged over the last few years, and with it came a change in perception about the structure of the Medellín cartel. In 2007, Michael Kenny argued that the Colombian drug trade, during the time of Pablo Escobar, was comprised of a large web of hundreds of intergroup networks.[286] The views of Zabludoff and Clawson and Lee during the 80s and 90s are not necessarily mutually exclusive with the views of Kenny and others today. In reality, the Medellín cartel was both vertically and horizontally integrated. Clearly this network benefitted certain individuals more than others—an indication of vertical organization. Escobar's involvement with the local population, his foray into politics,

[283] Most of the top 100 were on the U.S. government's list of "extraditables." The five Medellín capos include: Jorge Ochoa Vazquez and his brothers, Fabio and Juan David; Pablo Escobar Gaviria; and José Gonzalo Rodríguez Gacha. The two Cali capos include: Gilberto Rodríguez Orejuela and José Santa Cruz Londoño. Lee, *The White Labyrinth*, 9 and 109.

[284] Sidney Zabludoff, "Colombian Narcotics Organizations as Business Enterprises," in U.S. Department of State, Bureau of Research and Intelligence and the Central Intelligence Agency, *Economics of the Narcotics Industry Conference Report* (Washington, DC: State Department and CIA, 1994). Clawson and Lee also describe Zabludoff's work in *The Andean Cocaine Industry*, 19–21.

[285] Clawson and Lee, *The Andean Cocaine Industry*, 47.

[286] Kenny, *From Pablo to Osama*, 23.

personal connections, and public gestures and statements did, in fact, personify the Medellín cartel, and they empowered his influence over trafficking operations. He was, for all intents and purposes, a drug kingpin—benefitting more politically and financially than the everyday trafficker—although that is not to say the industry would not have functioned without him. Horizontal organization in the Medellín drug industry allowed decentralized decision-making authority and took advantage of individual specialties (such as the ones Zabludoff identified) in order to streamline large-scale processing and exporting to meet increasing international demand. It also enabled collaboration between trafficking and criminal groups. Thus, it is accurate to say that the Medellín cartel was vertically *and* horizontally organized, with both a core and a periphery. It had all the elements of a multinational corporation, but managed to avoid being held accountable as one.

The "core" of the Medellin cartel, according to Phil Williams' framework, consisted of six Medellín-based drug lords, called *capos* or *narco-jefes*: Pablo Escobar Gaviria, the Ochoa family (Jorge Luis Ochoa and his brothers Fabio and Juan David), José Gonzalo Rodríguez Gacha, and Carlos Lehder Rivas. They were what Bruce Bagley refers to as the *noveau riche*, or "those people who have used drugs as an avenue of upward social mobility, and who, in seeking political protection, have sought to buy political power and social status."[287] Pablo Escobar started his career as a car thief, gradually working his way up through the ranks as a "mule," or transporter, before becoming a Medellín kingpin.[288] Jorge Ochoa was initially based out of Miami, where he sold cocaine in the Dadeland Twin Theatres parking lot in the late 1970s.[289] The "periphery" consisted of a complicated system of contracts and subcontracts, each with

[287] Bruce Bagley, "The Colombian Connection: The Impact of Drug Traffic on Colombia," in *Coca and Cocaine: Effects on People and Policy in Latin America*, eds. Deborah Pacini and Christine Franquemont (Petersborough, NH: Transcript Publishing Company, 1986), 99.

[288] James Mills, *The Underground Empire: Where Crime and Governments Embrace* (New York City: Dell, 1987); See also Guy Gugliotta and Jeff Leen. *Kings of Cocaine: An Astonishing True Story of Murder, Money, and* Corruption (New York: HarperCollins, 1990), 27.

[289] Peter Dale Scott and Jonathan Marshall, *Cocaine Politics: Drugs, Armies and the CIA in Central America* (Berkeley: University of California Press, 1991), 94.

different functions and levels of responsibility.[290] They occupied the industries in Zabludoff's pyramid below the "core" organizations. Bagley describes this second group of *narcotraficantes* as "one that has kept a much lower profile and is far more intertwined with the existing political and social system within the country."[291]

4. Sources and Patterns of Funding

The Medellin cartel was financed from a variety of sources and was innovative in its efforts to secure funding. Now standard in the drug industry, Pablo Escobar pioneered the insurance system, through which he and other drug kingpins made extraordinary profits. Assuming the chance of seizure was about 10 percent, Escobar demanded a 10 percent premium on the U.S. wholesale price of cocaine from the supplier in order to insure against the possibility of a shipment being lost. If a shipment were lost, he would replace it—at the purchase price of cocaine in Colombia.[292] Not only did he profit from charging insurance on the U.S. wholesale price—much higher than the purchase price in Colombia—but he profited enormously from the transaction as well. Starting around 1990, Escobar began to levy "war taxes" on Medellín cocaine traffickers, which ranged from $100,000 to $200,000 per organization, per month.[293] He also charged an export tax on cocaine traffickers, which bought them the right to traffic in what he considered—perhaps rightfully—to be *his* industry. And, just like any other profitable business, the Medellín drug industry attracted wealthy outside investors. Businessmen with clean records could purchase a stake in cocaine shipments, called *apuntada*, which offered an exceptionally high return at a low risk, especially because they were insured.[294] Members of the most prominent Medellín families participated in the *apuntada* system.[295]

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[290] Clawson and Lee, *The Andean Cocaine Industry*, 18.

[291] Bagley, "The Colombian Connection," 90.

[292] Clawson and Lee, *The Andean Cocaine Industry*, 38.

[293] Ibid., 47.

[294] Ibid., 39.

[295] Maria Duzan, *Death Beat* (New York: HarperCollins, 1994), 198.

Not surprisingly, the Medellín cartel made use of money laundering. Robert Mazur spent his career as a federal agent in the 1990s working to gather evidence against Colombian drug networks, including the Medellín cartel.[296] After establishing a credible undercover identity as a money launderer, he gained first-hand access to the tools of the trade. He describes offshore accounts and corporations in Panama, Hong Kong, the British Islands and Gibraltar; safety deposit boxes in Abu Dhabi and Dubai, where large cash deposits were not recorded; repatriation of money to the United States in the form of an "offshore loan;" and secret meetings to avoid any paper trail of these activities.[297] Money laundering employed the use of not just the banking industry, but transportation and other industries as well. As Mazur writes, "The desire to have a share in this business has led the private client divisions of many international banks to develop sophisticated skills to avoid scrutiny from regulators."[298] And, overwhelmingly, they were successful in this endeavor.

The Medellín cartel used violence as a tactic in order to ensure compliance with its financial demands. As Clawson and Lee write, "Threats of reprisals from Escobar's hired assassins and enforcers ensured broad compliance with the trafficker's financial demands as well as acceptance of his overall leadership of the cartel."[299] Furthermore, Escobar and the other capos yielded their drug money as a political tool, using bribes and financial contributions to essentially buy off individuals in government and law enforcement that may otherwise work against them. Importantly, during the days of the Medellín cartel, drug traffickers were not the only ones motivated by profit.

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[296] The evidence that Mazur gathered in the early 1990s led, in part, to the demise of the Bank of Credit and Commerce International (BCCI), which was involved in money laundering across the globe, including with the AQ Khan network (see Chapter III for further explanation).

[297] Robert Mazur, *The Infiltrator: My Secret Life inside the Dirty Banks behind Pablo Escobar's Medellín Cartel* (London: Little, Brown and Company, 2009).

[298] Mazur, "Follow the Dirty Money."

[299] Clawson and Lee, *The Andean Cocaine Industry*, 47.

5. Network Overlap

As demonstrated in the literature above, drug trafficking networks overlap with other criminal and trafficking networks, government, law enforcement, guerilla and terrorist organizations as a regular function of their business. These relationships cover a wide spectrum, "from spot sales at the lowest level to joint ventures and strategic alliances at the highest."[300] In large part, the Medellin cartel overlapped with other drug trafficking and illicit networks as an organizational reaction to the needs of Colombia's high-volume cocaine smuggling, which demanded greater interaction and "export collaboration" among different trafficking groups.[301] For instance, its ties to the Italian mafia were motivated by: (1) the rapid development of the European market; (2) an effort to create market entry strategies that minimized the risk of loss, seizures, and arrests; and (3) to assist with the logistical challenges of handling large volumes of cash from drug transactions, which could then be laundered through Europe or transported back to Colombia.[302]

a. Overlap With Other Narcotics Networks

Export collaboration yielded overlap between the Medellín cartel and other drug networks, for instance the rival Cali cartel, which allowed traffickers to maximize export volumes while reducing the risk to the individual supplier.[303] Despite their differences, intra-city cooperation was "the norm" among Colombian drug organizations: they pooled information, developed joint marketing enterprises, sent composite shipments, and borrowed raw materials to meet delivery obligations, among other ventures.[304] Still, the Medellín and Cali cartels were competitive—sometimes allied and sometimes at war.[305] Medellín members attempted to intrude on Cali sales territory

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[300] Williams, "The Nature of Drug-Trafficking Networks," 159.

[301] Clawson and Lee, *The Andean Cocaine Industry*, 38.

[302] Ibid., 63–64.

[303] Ibid., 38.

[304] Lee, *The White Labyrinth*, 110,112.

[305] Scott and Marshall, *Cocaine Politics*, 79.

in New York City—a major point of contention between the two groups.[306] Additionally, some believe that individuals from Cali provided information that led to the arrest of Jorge Ochoa in 1987, and that they may have been behind the bombing of Escobar's lavish "Monaco" residence in Medellín in 1988.[307] There were major differences between the groups: Medellín leaders regularly used violence as a tactic to promote their political and social objectives, whereas the Cali leadership was much less confrontational. Still, assassination attempts abounded on both sides, and were responsible for the death of at least 150 people from various bombings, murders and shootouts in 1988 alone.[308]

The DEA began to see associations between Cali and Medellín traffickers starting in the early1980s. A major example was the 114-pound cocaine shipment seized by U.S. Customs in Van Nuys, California in 1983, which was linked to Mexican drug lord Juan Ramón Matta Ballesteros, a close Cali associate, and Jorge Ochoa of Medellín.[309] Matta began as the head of SETCO Air, which the FDN and State Department used from 1983 to 1985 to transport supplies and personnel for the Contras in Honduras—also a major transit point for narcotics en route to the United States. Matta teamed up with Mexican drug king Alberto Sicilia Falcón's successor, Miguel Félix Gallardo, eventually becoming a cocaine kingpin himself. According to a 1983 Customs report, Matta was a "Class I DEA violator," whose involvement in the drug industry earned him approximately $2 billion.[310] Matta dealt directly with Cali drug leadership, from whom he bought cocaine to transport and distribute in the United States. He developed a relationship with Medellín leadership as well, and was eventually identified

[306] Lee, *The White Labyrinth*, 111.

[307] Ibid., 112.

[308] Ibid.

[309] Scott and Marshall, *Cocaine Politics*, 94.

[310] Ibid., 10, 15, 41.

in the media as a "former hired gun closely allied with [the] Medellín cartel." Similarly, Matta's personal money launderer, Isaac Kattan—a Cali resident—became known as "Isaac Kattan, Medellín."[311]

b. Overlap With Dissimilar Networks

There is also clear evidence of overlap between the Medellín cartel and dissimilar networks, for instance the FARC and M-19. As with internetwork overlap, intra-network overlap occurs where it is mutually beneficial. Linkages between Colombian drug and revolutionary organizations did not necessarily create alliances and there are notable differences between them. Narcotics traffickers seek to buy into, manipulate, and coerce the political system but not to change it in a fundamental way as revolutionaries do. In general, Colombian leftist insurgency movements and radical terrorist groups seek the violent overthrow of an emplaced government structure to transform their respective societies, usually based on Marxist-Leninist ideology. They were (and are) politically motivated, whereas the Medellín cartel was profit-motivated.[312] While both groups made use of violence as a tactic to achieve their objectives, Medellín drug lords sought to preserve the political status quo and create a secure environment for their business operations, whereas revolutionaries wanted to upset it. Hostility existed over territorial control, relationships with the local coca-growing peasantry, and the economic benefits of the drug trade.[313] Overlap occurred where it was mutually beneficial. In many cases, that link was purely financial. Where they have territorial control, for instance, insurgent groups would tax the cocaine industry at the cultivation and low-level processing phase.

The relationship between the Medellín-based drug trade and the FARC, in the 1980s, was the first to really emphasize the international link between organized

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[311] Senate Committee on Foreign Relations, Subcommittee on Terrorism, Narcotics and International Operations, report, *Drugs, Law Enforcement and Foreign Policy* (aka Kerry report) (Washington, DC: U.S. Government Printing Office, 1989), 287. See also Gugliotta and Leen, *Kings of Cocaine*, 68.

[312] While the Medellín 'cartel' is no longer operating, the FARC still thrives in Colombia, and is still integrated with the drug trade.

[313] Lee, *The White Labyrinth*, 157–158.

crime and terrorism, which has been growing ever since.[314] The FARC used its profits from the drug trade to finance terrorist operations, which are believed today to be somewhere between $60 and $100 million annually—about 50 percent of its overall income.[315] Guerilla groups like the FARC extracted enormous protection rents from Medellín narcotraffickers, estimated anywhere between $200 and $600 million each year.[316] The AUC—the United Self-Defense Forces of Colombia, a right-wing paramilitary group—is believed to receive around $75 million a year from the drug trade—approximately 70 to 80 percent of their annual income.[317] The ELN (National Liberation Army, or Ejercito de Liberacion Nacional)—a "national liberation" movement inspired by the Cuban revolution that draws on Christian Liberation theory—gets about 20 percent of its overall income from drug profits.[318] These groups are able to use drug money to procure better weapons, refine their logistics, and generally improve their military campaigns. Where cocaine is grown indigenously, insurgent groups protected the production and distribution of coca and heroin, which allowed the poor rural population a stable and comfortable livelihood and guarantees them a cut of the profit. Still, most of the raw coca used in Colombia's refining industry was not cultivated indigenously, but rather imported from Peru and Bolivia. Similarly, most of the Medellín processing facilities were located outside of guerilla control.[319] Where they did not have direct territorial control, guerilla and paramilitary groups often functioned as security providers, ensuring law and order where the government failed.[320] From the guerilla's perspective, involvement in the drug trade benefits their political motivations. From the drug traffickers' perspective, it benefits their financial motivations.

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[314] Minami, "Defeating the International Criminal-Terrorist Network."

[315] Nahiz Richani, *Systems of Violence* (Albany, NY: State University of New York Press, 2002), 49. See also Felbab-Brown, "The Coca Connection," 3.

[316] Richani, *Systems of Violence*, 75.

[317] Felbab-Brown, "The Coca Connection," 3. Felbab-Brown got this from a Colombian TV interview, in which AUC leader Carlos Castana stated that 70 percent of the AUC's income came from drugs.

[318] Ibid., 3.

[319] Lee, *The White Labyrinth*, 158.

[320] Felbab-Brown, "The Coca Connection," 5.

As mentioned above, there is evidence of tactical overlap between the Medellín cartel and the FARC, but the nature of that overlap has been hotly debated. In March of 1984, a joint DEA-Colombian raid on the Tranquilandia cocaine processing lab in the Yari plains of the Colombian jungle yielded documents that linked the lab to Pablo Escobar, Fabio Ochoa and his son, Jorge, Carlos Lehder, and Gonzalo Rodríguez Gacha—all members of the Medellín "core."[321] Max Mermelstein, a former top DEA informant, reported that the planning for this lab (which he attended) took place in Cali, and that Cali kingpin, Gilberto Rodríguez Orejuela, was involved, although this was not evident in U.S. reporting.[322] Colombian police reported that FARC snipers fired upon them during the raid, and that the camp was used by FARC guerillas, although others claimed that there were six such labs in the Yari region, all of which were reportedly known to the Colombian military.[323] Reporting indicates that the FARC actually raided one of them in 1983, when they seized 18 people, four planes, and demanded a ransom of $425,000.[324]

The overlap between the Medellín cartel and Colombian government is also important to note. Medellín leaders employed both the carrot and the stick in their interactions with the Colombian government, offering money to buy influence while at the same time using violence, or the threat of violence, as a means of intimidation to get what they wanted. In Colombia, cocaine traffickers were power brokers. Without regulations on political campaign contributions, drug money was used to prop up candidates that could be beneficial for drug trafficking operations. Much like lobbyists, drug traffickers used their money to gain political sway. In the late 1980s and early

[321] Scott and Marshall, *Cocaine Politics*, 94.

[322] Paul Eddy, *The Cocaine Wars* (New York: W. W. Norton & Company, 1988), 298; Guy Gugliotta and Jeff Leen, *Kings of Cocaine: An Astonishing True Story of Murder, Money and Corruption* (New York: Harpercollins, 1990), 211; Elaine Shannon, *Desperados: Tie-In Edition* (Essex: Signet, 1992), 143.

[323] Scott and Marshall, *Cocaine Politics*, 97–98.

[324] Lee, *The White Labyrinth*, 172 and 218. Also Scott and Marshall, *Cocaine Politics*, 98.

1990s, the cartel employed bombing campaigns, assassinations and kidnappings in order to protect their narrow economic interests and keep themselves and their families protected from the law.[325]

As a multi-billionaire, Pablo Escobar had plenty of capital to throw at the problem. For instance, he donated money to both candidates in the 1982 Colombian presidential campaign. However, Escobar's political aspirations extended beyond the protection of his economic interests, or the desire to keep himself and his associates out of jail. He wanted notoriety. Like some insurgent groups, Escobar funneled drug money into public works projects and social services in order to gain favor with the local population. He funded sewer repair, educational facilities, clinics, sports plazas, and reportedly built more public housing in Medellín than the Colombian government.[326] The political impact of these gestures was tremendous. Escobar sought to influence Colombian politics, not just through monetary contributions, but by active political participation. He successfully ran for office in 1982, which earned him a position as an alternate deputy for Jairo Ortega's seat in the Colombian House of Representatives.

Carlos Lehder also had personal ambitions that extended beyond the Medellín trafficking enterprise. In 1981, U.S. Attorney General Robert Merkle called him a revolutionary whose motive was to use cocaine to destroy the United States (Merkle also indicted and convicted Lehder in Tampa in 1981).[327] Avidly anti-American, Lehder founded a new political party to oppose the U.S.-Colombian extradition treaty in 1983 to "defend the fatherland against the imperialists and the Communists."[328] He is believed to have had Marxist leanings and to have supported the Colombian revolutionary group M-19, although his apparent anti-communism calls this connection into question. The DEA's assessment in the 1980s was that Lehder was more interested in his own agenda

[325] Kenny, *From Pablo to Osama*, 9.

[326] Lee, *The White Labyrinth*, 5, 11.

[327] Eddy, *The Cocaine Wars*, 189.

[328] Ibid., 187; Gugliotta and Leen, *Kings of Cocaine*, 114.

than he was with supporting that of another group. As Rensselaer Lee argues, while Lehder's revolutionary politics set him apart from his capo contemporaries, there is "no credible" evidence that Lehder supported M-19."[329]

c. Nature of Network Overlap

In 1981, the Reagan Administration became eager to prosecute left-wing narcoterrorism, alleging links between the Medellín cartel, Colombian guerilla groups, the Cubans and Sandanistas that did not necessarily fit with the facts at hand. The objectivity of the DEA was ultimately compromised by this ideological agenda, particularly in 1983 when Vice President Bush merged DEA and CIA resources into the National Narcotics Border Interdiction System (NNBIS) to coordinate efforts for President Reagan's declared "War on Drugs."[330] In general, the narco-guerilla stereotype perpetuated during the Reagan Administration, and afterward, is misleading. Rather, the relationship between drug traffickers and guerillas is, as Rensselaer Lee argues, "low-level, opportunistic, and intermittent," and does not constitute a pattern of strategic cooperation. Lee argues that this focus on a narco-terrorist linkage "obscures a more fundamental and insidious reality: the increasing penetration by South American cocaine traffickers into established economic and political institutions."[331]

In general, the linkages between the Medellín cartel and the Colombian government were financially motivated, and were alliances for mutual benefit. Pablo Escobar, Jorge Ochoa, and Carlos Lehder's foray into Colombian politics made them outliers—exceptions to the rule. They all had personal ambitions that exceeded their financial motivations in different ways. Escobar appeared to desire an empire, and enjoyed being seen as a drug baron of sorts, which led him to get involved in Medellín social programs and establish himself as a local benefactor. Carlos Lehder had revolutionary leanings, which extended beyond his opposition to the U.S. extradition

[329] Lee, *The White Labyrinth*, 158.

[330] Scott and Marshall, *Cocaine Politics*, 95.

[331] Lee, *The White Labyrinth*, 158.

treaty. Though there is confusion over whether he was an avid anti-Communist, or a revolutionary with Marxist leanings, Lehder clearly played the political sphere to his own advantage beyond what would benefit him financially.

D. CONCLUSION

Globalization and a mutual interest in overcoming increasing international pressure after 9/11 have enhanced the linkage between terrorism and organized crime—particularly the drug industry. Terrorist groups engage in criminal activity to finance their terrorist operations, and often find a home in profitable enterprises like drug trafficking, kidnapping, cigarette smuggling, arms trafficking, robbery, extortion, etc. Furthermore, the drug trade is, and always has been, a demand-driven industry. Without addressing rising consumption in the United States and Western Europe in particular, it is difficult to imagine a scenario in which the drug trade goes out of business, in Colombia or elsewhere. During the 1980s, approximately 70 percent of federal funding went to law enforcement interdiction efforts, which attack the drug supply rather than the demand at home in the United States.[332] More attention and resources must be devoted to addressing the demand before real changes can be made in the international drug trade.

In order to more effectively counter entrenched drug traffickers and networks, the United States and international community must employ a flexible, adaptable approach that allows law enforcement to act, unimpeded by rigid bureaucracies and supported by reliable intelligence. This approach needs to be multipronged—not simply aimed at decapitating the individual or individuals who make the best headlines, or appear to be the "kingpin" of an organization—but one that treats the problem as the decentralized challenge that it is. One cannot develop a counternarcotics strategy without addressing the demand side of the issue because supply will always meet demand where there is lucrative profit opportunity. It must also address the problem of government corruption and involvement in the drug trade. Finally, it must be specific to the government involved. While the Medellín cartel provides important lessons, U.S. counternarcotics policy cannot apply the same mold it used in Colombia to Mexico or Afghanistan. Each

[332] Scott and Marshall, *Cocaine Politics*, 192.

country is different, with a different set of circumstances, a unique set of challenges, and different potential solutions to at least mitigate the threat of violence and spillover effect at home.

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V. CONCLUSION

A. INTRODUCTION

1. Roadmap

In this thesis, I first explained the importance of illicit networks and the tools analysts currently employ to understand them. I then examined three main types of illicit networks individually: terrorist, proliferation and narcotics. Using Jemaah Islamiyah, A.Q. Khan, and the Medellín "cartel" as case studies, I asked the following questions: What are their motivations? How are they structured? What are their sources and patterns of funding? Do they overlap with other similar networks? Do they overlap with other types of illicit activity? If so, what is the nature of this overlap? I then offered conclusions and recommendations for how this information could be used to tailor U.S. government counter-network activity.

B. SUMMARY OF FINDINGS

There is a view in the literature that it takes a network to counter a network. This phrase has been cited repeatedly to describe the challenge illicit networks pose to law enforcement and other hierarchical state-sponsored counter-network activity. Phil Williams, for example, argues that the transnational character of these new illicit networks makes them difficult to combat because law enforcement agencies are constrained by borders, but criminal networks are not.[333] Others argue that hierarchies are well suited to combat illicit networks, citing the prominence of states in the international system as evidence of their staying power. After reviewing the literature and historical case studies particular to terrorist, proliferation and narcotics network, I contend that counter-network activity must employ a whole-of-government approach that incorporates SNA, the analysis of network leadership and personalities, and requires inter-agency and multi-national cooperation and support. While non-state networks are

[333] Williams, "The Nature of Drug-Trafficking Networks," 156.

inherently more flexible and adaptable than government and international bureaucracies, it is the responsibility of international states and transnational institutions to make illicit activity as difficult and costly as possible for those that may be motivated to engage in it.

1. Terrorist Network Typology

Terrorist networks, in general, are ideologically motivated. The actors that comprise a terrorist network have close trust ties, engendered either by family, education, or similar combat experiences (e.g., the Afghan war). They frequently interact with other types of illicit networks, for instance those that engage in narcotics and other types of trafficking. Terrorist networks also overlap with other types of terrorist networks that may share similar ideological leanings. However, the nature of these interactions is most often mutually beneficial. Jemaah Islamiyah overlaps significantly with Al Qaeda, although this linkage is not ideological, as some may suspect. Rather, it is a financial link that serves a purpose both for JI and for Al Qaeda. From JI's perspective, Al Qaeda provides support that allows JI to pursue its ideological mission, and from Al Qaeda's perspective, JI's terrorist activity fits into Al Qaeda's broader global jihad. Terrorist networks overlap with trafficking networks, but this linkage is mainly financial, as well. Drugs, diamonds, and other natural resources are a solid source of revenue with which to support terrorist activities. And, while Osama bin Laden, in particular, has expressed interest in pursuing WMD, clear linkages between terrorist and proliferation networks are not yet evident.

2. Proliferation Network Typology

Proliferation networks are motivated by profit. The actors that engage in proliferation networks are, for the most part, businessmen. Their relationships are transactional, which does not necessitate close trust ties, but successful proliferation businesses, as was the case with A.Q. Khan, are based on close trust ties fostered over years of professional and personal interaction. Actors engage in risky behavior because the consequences have proven to be minimal—if any—and are reasonably calculated to be worth the risk given the benefits involved. Trade in dual-use commodities is highly

profitable. Given the multiple applications of dual-use items, it is difficult, if not impossible, to tell whether any given item is headed toward civilian or military purposes. States, individuals, and businesses are therefore able to navigate through the international "gray" market that exists between licit and illicit enterprise, and often blurs the lines between. Interaction between proliferation networks and other types of illicit activity is generally done only if it is profitable—for example, the relationship between the A.Q. Khan network and Iran, North Korea and Libya's proliferation personnel. Those engaged in proliferation networks can either be witting or unwitting; some are willing to engage in risky behavior for the profit opportunities, some are taken advantage of without their knowledge. Actors are generally unarmed, and unwilling to physically defend their product or interests. They can likely be frightened out of illicit activity either financially or through the threat of disruption to their lives in one way or another. As the case of Urs, Marco and Franco Tinner demonstrates, actors in a proliferation network can be coerced to turn on their colleagues—for a profit.

3. Narcotics Network Typology

Narcotics networks are most often motivated by profit. Actors that engage in narcotics networks are linked by close trust ties, either family, ethnic, or by shared experiences. They interact with other types of illicit activity as it benefits their trafficking enterprise; generally, the linkages are purely financial, although we do see examples (e.g., the FARC) in which a particular network can be dual-purposed. Drug networks develop an indigenous capacity to carry out operations that may otherwise engender suspicion, for instance, by hiring private pilots to transport their commodity. Narcotics networks are territorial and frequently engage in violence to defend their turf and to terrorize those who might challenge them into submission. Of particular importance, recently, have been the multiple targeted killings in Mexico against journalists who might otherwise publish negative information about the so-called 'cartels.' Mexican drug networks engage in gruesome violent tactics, like beheadings, which by definition could be classified as terrorism because they are meant to cause fear in and send a message to a wider target audience. Still, their orientation is primarily profit-driven. The defense of

their “turf,” however gruesome, is often to protect their financial land route—especially along the U.S.-Mexico border, which is a highly profitable way to traffic drugs into the United States. Furthermore, their targeted violence against journalists serves to preserve the status quo and protect their financial interests.

4. Network Similarities

While the three types of transnational networks are different, they do bear distinct similarities. Each network is opportunistic. They exploit holes in the existing national and international framework undeterred by borders, boundaries or laws. They have the benefit of competitive adaptation, which means they can adjust to changing circumstances in a way that rigid hierarchies cannot. These networks are increasingly decentralized. Although often characterized by a leadership persona, more and more they rely on lower-level individuals to carry out basic tasks, independent of any theoretical central “leadership.” Where there is a leader, he or she is typically charismatic, displays excessive hubris, takes audacious challenges, and often gets people on his side by doing public works projects. These networks are frequently marked by close trust ties, even when network actors are driven purely by profit. Even A.Q. Khan’s proliferation network would not have functioned without his close inner circle.

Importantly, the apparent outliers in each of these different types of networks have very similar characteristics. Hambali and Noordin Mohammed Top in Jemaah Islamiyah, A.Q. Khan in his network, and Pablo Escobar and Carlos Lehder of the Medellín cartel all had personal ambitions that exceeded what was required to stay in business. Their personal actions went above and beyond what was necessary to serve the motivation of their network—in the case of A.Q. Khan, by conversing with the media and establishing social programs to “give back” to the community. Pablo Escobar ran for office in the Colombian government and, like Khan, practiced social benevolence, setting up more public works projects in his hometown of Medellín than the Colombian government could provide, which engendered trust and admiration among locals. Carlos Lehder also had strong political leanings, and arguably used his position within the Medellín cartel to further his personal ideological motivations. Each of these men had

larger-than-life personalities, liked to be recognized for their achievements, and funneled their money into visible projects that engendered admiration for them and their activities. People knew who they were, unlike other network actors who were able to fly more seamlessly under the radar. These types of personalities cannot be coded for—they are not easily broken down into mathematical quantifications, as SNA would attempt to do. They require steady observation and analysis and are excellent examples of what SNA tools are yet not equipped to address. The study of these individuals requires the careful eye and intuition of an intelligence analyst who can more accurately assess their "importance" in a network than any mathematical algorithm. While taking out one of these leaders may not decapitate a network, it certainly may do a lot to prevent the spread of ideas, or a positive social association of what an illicit network is capable of. It may also set an example for the consequence of engaging in this type of activity, as was the case with Pablo Escobar's killing.

Most importantly, the conditions that foster one type of illicit transnational network will also more than likely facilitate another. Trafficking routes are often not just good for narcotics, but for humans, small arms, and an unlimited variety of other contraband and counterfeit items. Globalization's unintended consequence has been to provide an open platform from which these networks can conduct their day-to-day activities. With the vast volume of international commerce, it is often difficult to detect the needle in a haystack. Traffickers are experts at hiding their goods, and often accept the discovery of a small amount of their goods as a cost of doing business. The profits are too high to be deterred by the threat of being caught, and there will always be individuals out there willing to take the risk.

5. Network Differences

Clearly, there are different motivations behind each of the three types of networks discussed in this thesis. These differences are what make them unique. While proliferation and narcotics networks are both motivated by profit, their products different significantly. A dual-use commodity is inherently distinct from a natural resource because of its multiple applications and its ability to exist in the international gray

market. Natural resources, like drugs, diamonds, timber, etc., bear certain similarities because the networks that traffic them are much more territorial and willing to resort to violence than the networks that traffic dual-use commodities. One might even characterize nuclear proliferation and the trafficking of dual-use items as a white-collar trafficking enterprise because those that are involved, even the so-called "foot soldiers," are generally wealthy, and profit enormously from their transactions. Conversely, the "foot soldiers" involved in the trafficking of drugs, diamonds, and other natural resources do not tend to profit much, if at all, from the transaction. Low-level poppy farmers in Afghanistan, for instance, see none of the revenues from the drug trade that the Taliban or higher-level government officials enjoy. Similarly, coca farmers in Peru and Bolivia did not benefit from drug revenues the way Pablo Escobar and his contemporaries did. Terrorism does not involve a commodity, and its ideological motivation, therefore, differentiates it from trafficking networks. Terrorist networks interact and overlap with trafficking enterprises, but only to the extent that it benefits their ideological objectives.

6. Network Overlap

Despite widespread concern over the potential for nuclear terrorism, there is not much evidence of the overlap between terrorist and proliferation networks. There is distinct overlap between terrorism and narcotics trafficking, which we see in the news regularly with respect to the Taliban in Afghanistan, but it is important to understand the nature of this relationship and the motivations behind it. According to Curtis and Karacan, who wrote a report on network overlap in Western Europe for the Library of Congress, network overlap can come in three forms: (1) alliances for mutual benefit; (2) direct involvement of terrorists in organized crime, and (3) replacement of ideology by profit.[334] In general, the case studies I examined in this thesis display alliances for mutual benefit, with specific outliers that have personal motivations.

[334] Curtis and Karacan, "The Nexus among Terrorists," 22.

C. CONCLUSIONS AND RECOMMENDATIONS

In addition to creating a more cohesive, whole-of-government approach to catching these criminals from multiple angles, there is one important lesson to draw from this analysis of all three networks: follow the money. Money is the key that makes each network tick, whether it is financially motivated or not. In each case, these networks could not operate without a steady cash flow. They utilize remarkably similar techniques to conceal and move their capital. If the U.S. government were able to synchronize efforts on just one platform, I recommend it be in tracking and prosecuting illicit finance. Bankers are largely able to avoid prosecution because law enforcement fails to expose evidence of their involvement in dirty money.[335] As former federal agent, Robert Mazur, writes in his recent *New York Times* op-ed, the U.S. government needs an elite multi-agency task force to identify institutions and businesses that facilitate illicit finance around the globe.[336] Because banks and front companies often engage in multiple illicit activities, a detailed database for all types of unlawful financial transactions could help identify important linkages that might otherwise be overlooked by network-specific bureaucracies. Stemming the flow of dirty would restrict the stream of illegal commodities and severely hinder the operations of organizations and individuals that threaten national and international security.

It is clear that a strategy based exclusively on decapitation is not effective in any of the three networks—terrorist, proliferation or narcotics. While targeting a drug kingpin or terrorist figurehead may appear to be the clear course, this "leadership interdiction" is not sustainable in a complex adaptive system that is able to adjust to changing circumstances.[337] Targeted kill/capture missions are an important part of an overall strategy, but SNA is not an adequate tool in and of itself to prosecute them. SNA is an extremely useful instrument—a way to visualize the actors in any given network—but cannot adequately explain the motivations of individual actors or how their personalities

[335] Mazur, "Follow the Dirty Money."

[336] Ibid.

[337] Kenny, *From Pablo to Osama*, 8.

affect the overall organization. Algorithms that attempt to identify the most “important” network members based on different quantifications do not sufficiently describe the extent to which these individuals affect network operations. I recommend that analysts pay serious attention to network leadership and personalities, even if their involvement in the appears purely charismatic. Their ability to inspire, influence, manipulate and enable others for their personal gains can be significant, and, in some cases, targeted “leadership interdiction” may be the most effective way to stop them.

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