

FROM RADIO TO CYBER: THE EVOLUTION OF COMUNICATIONS TACTICS
AND EQUIPMENT OF THE TERRORIST GROUP FUERZAS ARMADAS
REVOLUCIONARIAS DE COLOMBIA FROM 1985 TO 2014

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by

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ABSTRACT

FROM RADIO TO CYBER: THE EVOLUTION OF COMMUNICATIONS TACTICS AND EQUIPMENT OF THE TERRORIST GROUP FUERZAS ARMADAS REVOLUCIONARIAS DE COLOMBIA FROM 1985 TO 2014, by MAJ Raul E. Bernal, 89 pages.

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ACRONYMS

DMZ	Demilitarized Zone
ELN	National Liberation Army
EPL	Popular Liberation Army
FARC	Colombian Revolutionary Armed Forces
M19	Movement April 19
PRT	Workers Revolutionary Party of Colombia
UP	Patriotic Union

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CHAPTER 1

INTRODUCTION

Let your plans be dark and impenetrable as night, and when you move, fall like a thunderbolt.

—Sun Tzu, *The Art of War*

Overview

The perception of insurgencies around the world is that they are primitive in their tactics and equipment. This perception is based on their rustic origins and backgrounds. When the Fuerzas Armadas Revolucionarias de Colombia (Colombian Revolutionary Armed Forces or FARC) insurgency began between the decades of the 1960s and 1970s, advanced technology was expensive, exclusively used by state forces, and difficult to obtain clandestinely.

This perception of the technological backwardness of insurgent movements is not completely wrong. Historical examples, such as the insurgents fighting¹ against Commonwealth troops in Malaya in the 1950s, and the Sendero Luminoso² (Shining Path) group attacking the civilian population and the military forces in Peru in 1980, illustrate two different types of insurgencies, in opposite parts of the globe sharing the same rural origin and technological limitations. Therefore, it is common to incorrectly develop a hastily generalization about the insurgencies, confusing the origin of the

¹ Encyclopaedia Britannica, “Maylayan Emergency,” 29 January 2007, accessed 2 February 2016, <http://www.britannica.com/event/Malayan-Emergency/article-history>.

² Encyclopaedia Britannica, “Shining Path: Peruvian Revolutionary Organization,” accessed 2 February 2016, <http://www.britannica.com/topic/Shining-Path>.

insurgencies around the world with their current status after the 9/11 attacks and the technological revolution of the Internet.

There are three main characteristics that allowed the current insurgencies in Latin America to be successful in fighting state forces. First, is their ability to effectively combine armed actions with political actions by key leftist political leaders in order to produce political pressure and decrease the effects of the government's military operations in the field.

A second characteristic is finances. War is an expensive business, and this has generated the need to develop a self-sustaining economic system supported primarily by illegal activities such as kidnappings, extortions, etc. This has resulted in links between insurgents and drugs trafficking organizations and alliances with drug cartels.³

Engagement in transnational crime is one of its most profitable activities for insurgents around the world. In the past, the amount of money received from illegal activities has allowed insurgents to bribe key persons and purchase guns. Usually, this alliance between insurgents and drug traffickers creates dangerous conditions for societies because the income from the illegal drug trafficking is so high that it influences many people. Alliance with drug cartels also tends to increase the level of violence against the civilian population and results in extortion, assassinations, and massacres. In

³ Semana, "El informe de la DEA sobre las FARC y el narcotráfico," 5 November 2015, accessed 5 February 2016, <http://www.semana.com/nacion/articulo/informe-de-la-dea-revela-relacion-entre-las-farc-el-narcotrafico/448753-3>.

addition, Colombian insurgents have sought support and safe havens from countries such as Ecuador⁴ and Venezuela, which have long-standing disputes with Colombia.⁵

The third factor, is a secure, updated communications system that is tactically adapted to the operational environment. There is a direct proportional relationship between the survivability of an insurgency and the level of secrecy of their intentions and actions at the strategic, operational, and tactical levels. This need for secure communications for the insurgents is the focus of this thesis.

It is almost impossible to mention the word insurgencies without thinking about Colombia. Colombia has been submerged in a violent conflict against a terrorist group that initially started as an insurgency back in the 1960s. These insurgents called themselves Fuerzas Armadas Revolucionarias de Colombia. Since then, FARC has been able to survive constant military operations mainly as a result of the aforementioned characteristics, coupled with their ability to adapt existent technology with irregular

⁴ Dana Priest, "Covert Action in Colombia: U.S. Intelligence, GPS Bomb Kits Help Latin American Nation Cripple Rebel Forces," *The Washington Post*, 21 December 2013, accessed 5 February 2016, <http://www.washingtonpost.com/sf/investigative/2013/12/21/covert-action-in-colombia/>.

⁵ The Washington Post, "Colombia Proves Again That Venezuela is Harboring FARC Terrorists," 30 July 2010, accessed 5 February 2016, <http://www.washingtonpost.com/wp-dyn/content/article/2010/07/29/AR2010072905211.html>; Juan Carlos Iragorri, "Venezuela, fértil para narcotráfico, Farc y ETA, dicen Estados Unidos y España," *Semana*, 1 March 2010, accessed 6 February 2016, <http://www.semana.com/mundo/america-latina/articulo/venezuela-fertil-para-narcotrafico-farc-eta-dicen-estados-unidos-espana/113811-3>; *Semana*, "El amigo de Timochenko: Semana revela correos que demuestran la relación que ha existido entre el Nuevo ministro de Defensa de Venezuela y el jefe de las Farc," 14 January 2012, accessed 6 February 2016, <http://www.semana.com/nacion/articulo/el-amigo-timochenko/251886-3>.

tactics. This includes evolving their communications systems from the simple use of radio to the most sophisticated cyber communications systems.

The purpose of the study is to describe FARC's changes in communications tactics from 1985 to 2014. These dates are important because they cover the time from the conclusion of the Seventh FARC Conference in 1982 in which the insurgents first developed their strategic plan for communications to the time where recognized the need for technological growth and security of their communications as the main objective. By 1996, after the effects of globalization, the FARC had transitioned from analog communications system into the digital realm. A secondary purpose of this study is analyze possible ways in which the experience of the Colombian military forces in their fight against the FARC may be applicable to current asymmetrical conflicts around the world.

Primary Research Question

What were the main changes to FARC communications equipment from 1985 to 2014, and when were these changes made?

Secondary Research Questions

1. How has FARC developed the vision to plan their technological changes?
2. Based on their evolution, what can be expected from FARC if they continue terrorist actions after the current peace process?

Assumptions

Since 2014, the Colombian Government has conducted a peace process with FARC in Havana, Cuba. Based on the outcomes of previous peace processes in

Colombia, it is important to assume that FARC will continue to use secure communications systems after the peace treaty is signed, in order to secure message communications from outsiders, including the Colombian armed forces.

The communications systems of the FARC are effective. Therefore other countries, militias, insurgencies, or terrorist groups may use these or similar systems.

This thesis will not solve the problem of deciphering the FARC messages. It will only describe the components of FARC strategies and the tactics they use to survive and conduct a protracted war.

Limitations

The lack of published literature related to FARC communications systems and tactics limits the study to unclassified documents and the experiences of personnel from cyber intelligence units in Colombia. Various aspects of 2015 information related to procedures, operations, and intelligence activities outcomes remain classified, and will not be used in this thesis.

Delimitations

This research focuses on the communications systems and tactics used by FARC from 1985 to 2014. The research will not address the criminal aspects of this terrorist group or their armed procedures and actions during that period. The ability to finance their operations is a key factor for FARC and there is a link between their finances and drug cartels; but this research is limited to their equipment and its usage and does not address the way in which they obtained the resources to acquire them. These delimitations enable the researcher to emphasize the strategic outcomes of analyzing the

conditions present in that time and place that allowed the evolution of FARC communications systems.

Research Assumptions

The time available to conduct the study was the duration of the U.S. Army Command and General Staff College course. The main materials used to provide the answer to the research question are located in books on Colombian history and previous research works on FARC and Colombia found in the Combined Arms Research Library. Written documentation of the experiences of a cyber unit in Colombia that currently leads the strategies to counter attack the evolution, are a main part of this research. The technical information about the different radios and computer programs utilized by FARC were obtained from online manuals, catalogs, and webpages, with specific information about their characteristics.

The author has personal experience fighting FARC since 2000. The author's last assignment before attending the U.S. Army Command and General Staff College was as the chief of operations of cyber intelligence battalion number three in Colombia. In that capacity, the author witnessed how the FARC postured itself with technology to improve communications security and how they plan to continue communicating if they decide to continue their hostile intentions of changing the government of Colombia by force if the current peace process fails.

Significance of Study

This thesis provides a historical overview of FARC and their communications systems as a key component of their command and control system that enhances their

survivability and secrecy. Without an effective and secure way of transmitting messages, it is impossible to coordinate actions, units, and intentions. Therefore, this study summarizes some of the tactical conditions under which FARC has operated, as well as the operational environment which forced them to adapt new technologies in order to continue their protracted insurgent style of warfare. This research will likely improve military practices because, knowing the operational history of the FARC allows one to understand the present and prepare for the future.

The analysis of this research will provide an updated picture of the new way the FARC are utilizing technology. Furthermore, it reveals how they are adapting this technology to their environment. This thesis adds to the body of knowledge regarding insurgencies, by revising paradigms about the erroneous beliefs that insurgencies are necessarily rustic and primitive.

CHAPTER 2

LITERATURE REVIEW

This thesis is the first document that examines and describes the evolution of the communications systems used by FARC in Colombia from 1985 to 2014. Therefore, the literature and information to answer the main question is taken from unclassified documents and PowerPoint presentations made by the cyber intelligence unit in Colombia and the Colombian Army Military Intelligence School based on information gathered from operations over the years.

The secondary questions explore the historical context in Colombia for each year on the timeline and gather the necessary information to build a common understanding of the origin, structure, and planning direction of FARC through the years. This chapter reviews other theses and documents related to the terrorist group and their protracted strategy.

FARC Origin and Development

In 2015, a company specialized in analyzing current transnational threats (IHS Incorporated)⁶ produced an updated document about FARC. From an international perspective, this document helps to support the research on the secondary questions in the thesis. Specifically, it provides information related to the background and current organization of the terrorist group in Colombia, including the role of some of the international players in the region (Venezuela, Mexico, etcetera) and their interaction

⁶ Jane's Information Group, "Fuerzas Armadas Revolucionarias de Colombia (FARC)," *Jane's World Insurgency and Terrorism* (10 April 2015): 10-30.

with FARC. Their explanation of the origin and command structure of the terrorist group through the 1990s and 2000s is accurate and easy to grasp for the common reader. However, the document does not mention topics related to technical equipment or communications systems, this limits its value to answer the primary research question.

In 2009, Colombian Army Colonel German Nicolás Pataquiva García published a paper about the origin and evolution of FARC from 1940 to 1960. This paper focuses on their organization and how the dichotomy between FARC's armed methods and their self-claimed altruist objectives grew. In accordance with the previous historical description, this document provides a short description of the chronological evolution of the strategic planning guidance of FARC (through a description of their planning conferences) and how they adjusted to their experiences and used previous Colombian peace processes to adapt their tactics and techniques for the future.

In 1994, Colombian Navy officer, Juan F. Román, wrote from a broader perspective about the violence in Colombia and its causes. He wrote his thesis while attending the U.S. Naval Postgraduate School in Monterrey, California. His work covers not only FARC, but also the activities of the *Ejército de Liberación Nacional* (National Liberation Army or ELN), and the *Movimiento 19 de Abril* (Movement April 19 or M19). All these armed insurgencies are part of the unique style of regional violence in Colombia which is fueled by social problems and take advantage of the lack of political continuity and will to approach the problem.

Nature of the Threat in Colombia and Government Responses

Peace in Colombia has always been an important and interesting topic for politicians, analysts, and economists around the globe. The geographic location of

Colombia in the Americas and the amount of natural resources it possesses mark the country as one of the ideal places for mid- and long-term investment potential.

Unfortunately, insurgent groups have always threatened the peace and stability of Colombia, including the physical security of the population and the stability of key economic infrastructure. In 2009, a non-profit, non-governmental organization with some 130 staff members in over five continents worked through field-based analysis to produce a thirty-eight page document. This document, by the International Crisis Group, “Ending Colombia’s FARC Conflict: Dealing the Right Card,”⁷ analyzed the Colombian Government’s response to dealing with terrorist groups as a strategy for bringing peace to the region. This insight focused on two key events. The first event was the strong leadership of former President Álvaro Uribe Velez (2002-2010). The second event was the death of FARC’s founder Pedro Marín (a.k.a. “Manuel Marulanda Velez” or “Tiro Fijo”)⁸ and four experienced field commanders as a result of precision raids in 2008.⁹ These two events show the positive effects of a continued strong military campaign against FARC, and provide some clues for the secondary research question about

⁷ International Crisis Group, “Ending Colombia’s FARC Conflict: Dealing the Right Card” (Latin America Report no. 30, International Crisis Group, New York, NY, 26 March 2009).

⁸ The government says he died at a time when it was bombing heavily close to his hideouts in western Meta department. *Semana*, “Tirofijo está muerto,” 25 May 2008, accessed 6 February 2016, <http://www.semana.com/nacion/articulo/tirofijo-esta-muerto/92894-3>, 22-25.

⁹ “J.J.,” leader of the Manuel Cepeda Vargas urban front in Cali and Buenaventura, on 6 June 2007; “Cristóbal,” commander of the Bogotá structures of the clandestine communist party (PCCC or PC3), on 15 July 2007; “Negro Acacio,” leader of the 16th front in Vichada, on 1 October 2007; and “Martin Caballero,” leader of the 37th front, in the Montes de María ranges south of Cartagena, on 24 October 2007.

FARC's tendencies for the future if they continue their terrorist actions after the current peace process.

Primary Research Question

As stated before, this is the first study that collects information specifically pertaining to the evolution of the communications systems used by FARC as a key priority of their leaders to ensure their survivability. Intelligence units in Colombia were witnesses of this progression and changes; however, different technical and human causes have made it challenging to collect information and present it on a single timeline. One of the human limiting factors to bringing together all the information about the evolution of communications systems of FARC are the retirements of key players in the Colombian Army which played leading roles decrypting and monitoring the electromagnetic spectrum. Technically, the main difficulty lies in the decentralized technological transition of the Army from handwritten documents to typewritten papers and to a completely different way of storing data with computers and cyber technologies.

The Colombian Army Intelligence Academy ("Escuela de Inteligencia y Contrainteligencia BG "Ricardo Charry Solano," ESICI) and the cyber intelligence unit in Colombia have provided essential information for this thesis. The application of the principle of continuity in personnel and strong document archival procedures have allowed the gathering of vital pieces of the puzzle to solve the primary research question on the evolution of the communications systems of FARC. In addition, the testimony of two of the founders of the technical intelligence brigade in Colombia has provided critical information to help answer the primary research question.

CHAPTER 3

RESEARCH METHODOLOGY

The Spanish-American philosopher, George Santayana, stated, “Those who cannot remember the past are condemned to repeat it.”¹⁰ This means that the real value of history is not to recall the facts by themselves, rather, through the analysis of those facts through a multidisciplinary perspective it is possible to learn lessons that could help to prepare for similar situations in the future. One would say that historical analysis is the first line of defense for intelligence. Consequently, this thesis will use this methodology to provide an answer to the primary and secondary research questions. The goal is to anticipate potential problems in the future and attempt to identify future threats.

Methodology “describes the rationale for the application of specific procedures or techniques used to identify, select, and analyze information applied to understanding the research problem.”¹¹ Based on the primary research question for this thesis (What were the main changes to the communication equipment of FARC from 1985 to 2014, and when did these changes occur?), a historical analysis will provide a better understanding and interpretation of several historical events and documents that paved the way for those technological changes in FARC communications. A key factor to enhance the research

¹⁰ Norman V. Henfrey, “George Santayana: Spanish-American Philosopher,” *Encyclopaedia Britannica*, accessed March 15, 2016, <http://www.britannica.com/biography/George-Santayana>.

¹¹ University of Southern California, “Organizing Your Social Sciences Research Paper: 6. The Methodology,” accessed 15 March 2016, <http://libguides.usc.edu/writingguide/methodology>, 1229-1232.

methodology is to understand and describe events as a competing interpretative narrative between innovation by the FARC and countermeasures by the Colombian military.¹²

Research for this thesis was developed in three major stages. First, it was necessary to gather the almost not-existent historical, operational, and unclassified documentation related to the communications systems of FARC. Second, the tactical and technical changes in FARC battlefield procedures were analyzed in order to determine how these changes were influenced by the political changes in the country, the military strategy of the armed forces, and FARC's strategic planning guidance as expressed in their planning conferences.

The purpose of this research about the evolution of the communications systems by FARC in Colombia, is to provide the intelligence community (and to all armed forces around the world) insights into the adaptability that this terrorist group showed in their communications technology and its use. The thesis describes how they incorporated and developed new technology in their tactics and procedures so that they could survive and conduct armed offensive campaigns.

¹² Wesleyan University, "Historical Analysis," 31 January 2011, accessed 15 March 2016, <http://govthesis.site.wesleyan.edu/research/methods-and-analysis/analyzing-qualitative-data/historical-analysis/>.

CHAPTER 4

ANALYSIS

In order to understand the dimensions and terminology describing the evolution of FARC's communications systems, the secondary questions must be answered first. Therefore, the present chapter will start with a brief description of FARC and its origin in order to provide the reader with an insight of the true nature of this group before the proceeding to describe their communications tactics. A timeline with key dates describing the changes in the FARC's communication equipment based on the content of strategic documents from FARC (such as their general conference and *plenos*) and the Colombian Army's countermeasures facilitates a better understanding of the evolution of FARC communications systems and tactics. Conferences are used by FARC leaders to develop and issue planning guidance where the members of the secretariat state future intentions for both armed struggle and political action. These documents have guided FARC actions since its origins in the 1960s and are still in use to this day.

The final section of this chapter will be divided into two main parts. Initially, a historical timeline for the period 1985 to 2014 will provide a graphical answer to the primary research question. This timeline will include the evolution of the communications systems, the tactical employment and the reasoning behind the motivation for change. The dates on the timeline also include some of the key aspects on the political and military environment of the country that influenced that evolution. The final chapter, based on the events shown on the timeline, will summarize the technological and tactical evolution of FARC group and what the Colombian Armed Forces can expect in the future from them.

What is FARC?

Before discussing the historical timeline, it is imperative to understand the origin and true nature of FARC. This adaptive group has survived Colombian state offensives by mixing political demagoguery¹³ with the ruthless terrorism of surprisingly capable military apparatus well-financed by money obtained through drug trafficking, extortion, and illegal mining activities, among others. Therefore, their strategic vision is the use of politics to minimize the military response of the state while developing a selective terrorist agenda, threatening the civilian population and increasing the perception of insecurity in order to gain power.

In 2014, *Forbes* magazine published an article about “the top 10 richest terrorist organizations in the world”¹⁴ and FARC was third on the list with more than \$600 million in yearly income, behind only the Islamic State of Iraq and the Levant, and Hamas. This economic condition has generated two effects on their modus operandi.¹⁵ First, the process of obtaining an agreement between the government and FARC is more difficult because FARC commanders will not agree to change their illegal and more profitable activities for less lucrative but legal jobs. Second, with the significantly large

¹³ A demagogue is a leader who makes use of popular prejudices and false claims and promises in order to gain power. Merriam-Webster, “Demagogue,” accessed 15 March 2016, <http://www.merriam-webster.com/dictionary/demagogue>.

¹⁴ Forbes, “The World’s 10 Richest Terrorist Organizations,” accessed 20 March 2016, <http://www.forbes.com/pictures/eedh45fkej/3-farc-annual-turnover/>.

¹⁵ Modus Operandi is a method of procedure; especially: a distinct pattern or method of operation that indicates or suggests the work of a single criminal in more than one crime. Merriam-Webster, “Modus Operandi,” accessed 20 March 2016, <http://www.merriam-webster.com/dictionary/modus%20operandi>.

yearly sum of \$600 million, FARC has the potential to acquire sophisticated weapons systems and improved communications systems that allow them to continue and escalate the armed conflict.

FARC is a terrorist group that tries to justify its armed actions with political speech alleging that they fight for the rights of poor people, but their actions affect them directly in a negative way causing displaced populations and fear. This description is not far from the principles that the Islamic State of Iraq and the Levant uses to validate their suicidal attacks against the western world. Terror is FARC's main weapon and they use it to consolidate territorial power. Historically, they have tried to cover up their nature under the false name of insurgents fighting for democracy in a democratic country. However, their violent and indiscriminate actions against the civilian population differ from this noble ideal. Two main examples serve to illustrate how they use fear and intimidation to further their goals: these are the "Bojaya Massacre,"¹⁶ and the kidnapping and assassination of eleven political deputies representing the Valley Region.

The first event, the Bojaya Massacre, occurred in 2002. Using explosive gas cylinders, FARC killed 119 civilians in a direct attack against a church used as shelter for civilians trying to escape both FARC and the right-wing militia group *Auto-Defensas Unidas de Colombia* who were fighting to gain control of territory. The second event started in 2002 with the kidnapping of twelve politicians in the city of Cali. FARC used Colombian Army uniforms to simulate an evacuation drill from an official building while

¹⁶ Semana, "FARC piden perdón en Bojayá por la massacre del 2002," 6 December 2015, accessed 23 March 2016, <http://www.semana.com/nacion/articulo/farc-piden-perdon-en-bojaya-por-la-masacre-de-2002/452601-3>.

abducting the deputies, driving away in vehicles, and keeping them away from their families for more than five years. In 2007, FARC assassinated them in cold blood with more than ninety-five shots from AK-47 rifles.¹⁷

Based on this consistent criminal conduct and tendencies, and the indiscriminate use of landmines,¹⁸ important members of the international community such as Canada, the European Union, and the United States designate FARC as a terrorist organization. On its website, the U.S Department of State posts a list of foreign terrorist organizations and FARC has been there since 1997.¹⁹ These circumstances have generated discontent between some leftist politicians in Colombia, mainly due to the heavy political burden of being placed in the same category with those who attacked the Twin Towers on 9/11 and Charlie Hebdo in France. However, beyond the ugliness of having an unpopular label such as terrorist, there are three more significant and tangible consequences for FARC. First is the impossibility of functioning as a successful political party under such a stigma. Second are the limitations that FARC members have to travel freely on behalf of their organization to spread their ideology. Third is the lack of legitimacy to conduct legal business transactions under that name with large amounts of money. Therefore, it is

¹⁷ Semana, “Los diputados del Valle fueron asesinados con 95 disparos de fusil AK-47, el arma usada por las Farc,” 28 November 2007, accessed 26 March 2016, <http://www.semana.com/on-line/articulo/los-diputados-del-valle-fueron-asesinados-95-disparos-fusil-ak-47-arma-usada-farc/89763-3>.

¹⁸ The Economist, “Landmines in Colombia: Cheap and lethal-The FARC flouts the Ottawa treaty,” 27 August 2009, accessed 27 March 2016, <http://www.economist.com/node/14313743>.

¹⁹ U.S. Department of State, “Foreign Terrorist Organizations,” accessed 27 March 2016, <http://www.state.gov/j/ct/rls/other/des/123085.htm>.

imperative to understand that even if it started as an insurgency, FARC has mutated into a rich terrorist group linked with drug cartels, with no respect for life, and with a political agenda which is used mainly as cover to continue their profitable actions against the civilian population and the economic infrastructure of the state.

The Origin of FARC

The ideology of FARC was born during a period of Colombian history known as “La Violencia”²⁰ which occurred from 1948 to 1966. This period in Colombia witnessed a strong and violent confrontation between two main political parties, liberal and conservative. In 1948, after the assassination of the key influential political leader Jorge Eliécer Gaitán²¹ (well known as the champion of Colombian people), the political parties started to blame each other for the homicide. This generated violent riots and protests around the country, especially in Bogotá, which culminated in an historical event called “El Bogotazo.”²² Images of the assassinated political leader and some of the violence in the capital are depicted in figure 1.

²⁰ Global Security, “La Violencia (1948-66),” last updated 7 November 2011, accessed 30 March 2016, <http://www.globalsecurity.org/military/world/war/la-violencia.htm>.

²¹ Encyclopaedia Britannica, “Jorge Eliécer Gaitán: Colombian Politician,” accessed 30 March 2016, <http://www.britannica.com/biography/Jorge-Eliecer-Gaitan>.

²² Jack Davis, “The Bogotazo,” Central Intelligence Agency, 2 July 1996, accessed 29 March 2016, https://www.cia.gov/library/center-for-the-study-of-intelligence/kent-csi/vol13no4/html/v13i4a07p_0001.htm.



Figure 1. El Bogotazo

Source. Escuela de Inteligencia y Contrainteligencia, “Conocimiento de la Amenaza: FARC” (PowerPoint Presentation, Escuela de Inteligencia y Contrainteligencia, Bogotá, Colombia, February 2013), slide 12.

The assassination of this leader enhanced the lack of trust in the government at that time, and set the perfect conditions for the Colombian Communist Party to organize the masses and lead them in armed resistance against the government.²³ Rural areas such as Tolima, the Eastern Llanos, and Caquetá, all of them with agrarian traditions, had seen much fighting in the 1920s and were the center of self-defense groups organized to stand against political violence and protest against the government. In 1949, President Ospina

²³ Carlos A. Padilla, “The FARC and Hugo Chaviz: Is Contemporary Venezuela a Threat to Colombia?” (Thesis, Naval Postgraduate School, Monterey, CA, December 2010).

Perez²⁴ (1946-1950) declared a state of siege in Colombia in order to reestablish control over these armed groups that had been competing against each other and measured their claim to power based on the level of violence and number of killings they perpetrated. At the same time, the Liberal Party decided not to participate in the presidential election but rather support a national strike against the government.

In 1953, after four years of violence, the politicians in power decided to hand over the government to Lieutenant General Gustavo Rojas Pinilla.²⁵ Rojas, a distinguished Army officer, faced the challenge of returning stability to the country. During his first year as president, he decided to grant amnesty to armed insurgents in order to set up the basis for peace. However, the rebels took advantage of this initiative by accepting the legal benefits of its regime, but not surrendering their weapons to the government. Instead, they settled in their original geographic areas with the intention of extending their control and consolidating territory.

In 1957, due to pressure from the population, General Rojas Pinilla handed over the presidency to a military board of five general officers who formed a transitional government.²⁶ During that period, and under the influence of the Cuban revolution in 1959, the remains of the insurgent groups in Colombia declared themselves a self-defense movement with the purpose of consolidating territory and establishing “Independent

²⁴ Javier Ocampo López, “Mariono Ospina Pérez: Fiche Bibliográfica,” Banco de la República Actividad Cultural, accessed 29 March 2016, <http://www.banrepcultural.org/blaavirtual/biografias/ospimari.htm>.

²⁵ López, “Gustavo Rojas Pinilla.”

²⁶ Padilla.

Republics,” this term was used in 1962 by Colombian Senator Álvaro Gómez Hurtado, to refer to those territories dominated by the remnants of communist guerrillas.²⁷ The following map provides the geographic location of one of the most important independent republics that FARC tried to seize by force against the government, the “Republic of Marquetalia.”²⁸



Figure 2. Marquetalia, 1964

Source. Escuela de Inteligencia y Contrainteligencia, “Conocimiento de la Amenaza: FARC” (PowerPoint Presentation, Escuela de Inteligencia y Contrainteligencia, Bogotá, Colombia, February 2013), slide 18.

²⁷ Semana, “Marquetalia 35 Años Despues: Lo que parecía una exitosa operación military derive en la conformación de la guerrilla más
 ponderosa del país,” 28 June 1996, accessed 28 March 2016, <http://www.semana.com/especiales/articulo/marquetalia-35-aos-despues/39734-3>.

²⁸ Ibid.

The leftist consolidation of Marquetalia was the result of a land invasion process initiated by leftist dissident armed groups under the cover of agrarian movements assisted by an armed component. Based on their armed tactics, political projections, and foreign economic support, the government perceived this group as a strategic threat. Therefore, in 1964, the Colombian Government decided to recover the territory using force in the “Marquetalia Operation.”²⁹ Lasting only four days, this military operation allowed the Army to quickly recover and control the territory. However, the government failed to consolidate the region by not investing in social projects or improving their basic infrastructure. As a result, armed rebel groups remained in that area clandestinely. They gathered and reorganized in order to fight against the government. They learned from their mistakes. From that moment, they avoided seizing territory, and transformed into a highly mobile guerrilla force capable of conducting random attacks while gaining the support of workers and students in a combined political-military strategy. Nonetheless, the Marquetalia Operation was considered a national success, and was recognized by the local media (see figure 3).

²⁹ Semana, “Marquetalia 35 Anos Despues.”



Figure 3. Army Occupy Marquetalia

Source: El Espectador, “La toma de la region de Marquetalia por el Ejército,” posted 28 May 1964, accessed 23 March 2016, <http://www.elespectador.com/noticias/nacional/toma-de-region-de-marquetalia-el-Ejército-articulo-495067>. This was originally published in June 1964.

At the end of 1964, the remaining dissident leftist groups gathered and held their first conference³⁰ in order to reorganize the armed fight against the government and consolidate political objectives. This First Conference established the creation of the

³⁰ FARC’s highest level of decision making. It is comprised by the Secretariat, the Central General Staff and by a representation from all guerrilla structures and its conclusions relate to strategic projections, goals, objectives, procedures and ideology. Escuela de Inteligencia y Contrainteligencia, “Conocimiento de la Amenaza: FARC” (PowerPoint Presentation, Escuela de Inteligencia y Contrainteligencia, Bogotá, Colombia, February 2013).

South block located in five specific places: Marquetalia, El Pato, Guayabero, Río Chiquito, and south of Tolima County. Their political objective was to seek a new land redistribution from the government. This plan was called the Agrarian Reform Plan.

In 1966, Pedro Antonio Marín³¹ (a.k.a. Manuel Marulanda-Tirofijo), one of the guerrilla leaders that avoided confrontation with the Army and got away from the Marquetalia Operation, was selected as leader of FARC during the deliberations of the Second Conference. This conference took place in the El Duda region, and resulted in seven key goals:

1. Adopting the name of Fuerzas Armadas Revolucionarias de Colombia (Armed Revolutionary Forces of Colombia or FARC).
2. Creating the Estado Mayor (Strategic Staff), in order to form a structural organization and a command hierarchy.
3. Appointing Manuel Marulanda Commander of FARC.
4. Establishing of the use of ambushes, assaults, sabotages, etcetera as tactics
5. Creating a new block beside the south one, in order to expand their circle.
6. Conducting political work to organize the masses and working class to support a revolution.
7. Establishing the need for internal regulations.

During the following years, FARC conducted six more conferences in which they constantly adapted their tactics and organization and planned Army military offensives.

³¹ Biblioteca Virtual, “Manuel Marulanda Vélez: Ficha Bibliográfica,” Banco de la República Actividad Cultural, accessed 23 March 2016, <http://www.banrep cultural.org/blaavirtual/biografias/marulanda-manuel.htm>.

Since then, FARC has acted as a chameleonic organization mixing politics with drug trafficking activities, social agitation, and terrorist actions. FARC constantly adapts, but it has never changed their original objective—seizing power in Colombia.

Development and Continuation of Strategic Plans to Maintain and Upgrade Technology

FARC developed the system of conference and the *plenos* as two strategic events to unify the organizational structure and/or re-orient strategic objectives. The conference is the highest decision making body within FARC. It evaluates results, implements changes, extends orders, and amplifies plans or redirects previous aspects approved in the last conference. The *pleno* is a secondary event with the purpose of evaluating, implementing, and amplifying the strategic plans approved in the conferences.³² The results of these deliberations are recorded in documents. These two types of documents constitute the major directive orders in which FARC develops tactical changes and executes actions related to armed procedures, weapons usage and acquisitions, and finances. However, it was only after the Seventh Conference in 1982 that they included the development and improvement of technological equipment as a top priority in order to secure their communications and continue offensive actions and plans against the state. Figure 4 depicts how FARC structured the organization in order to accomplish the objectives established in their conferences.

³² Escuela de Inteligencia y Contrainteligencia, “Conocimiento de la Amenaza: FARC” (PowerPoint Presentation, Escuela de Inteligencia y Contrainteligencia, Bogotá, Colombia, February 2013).

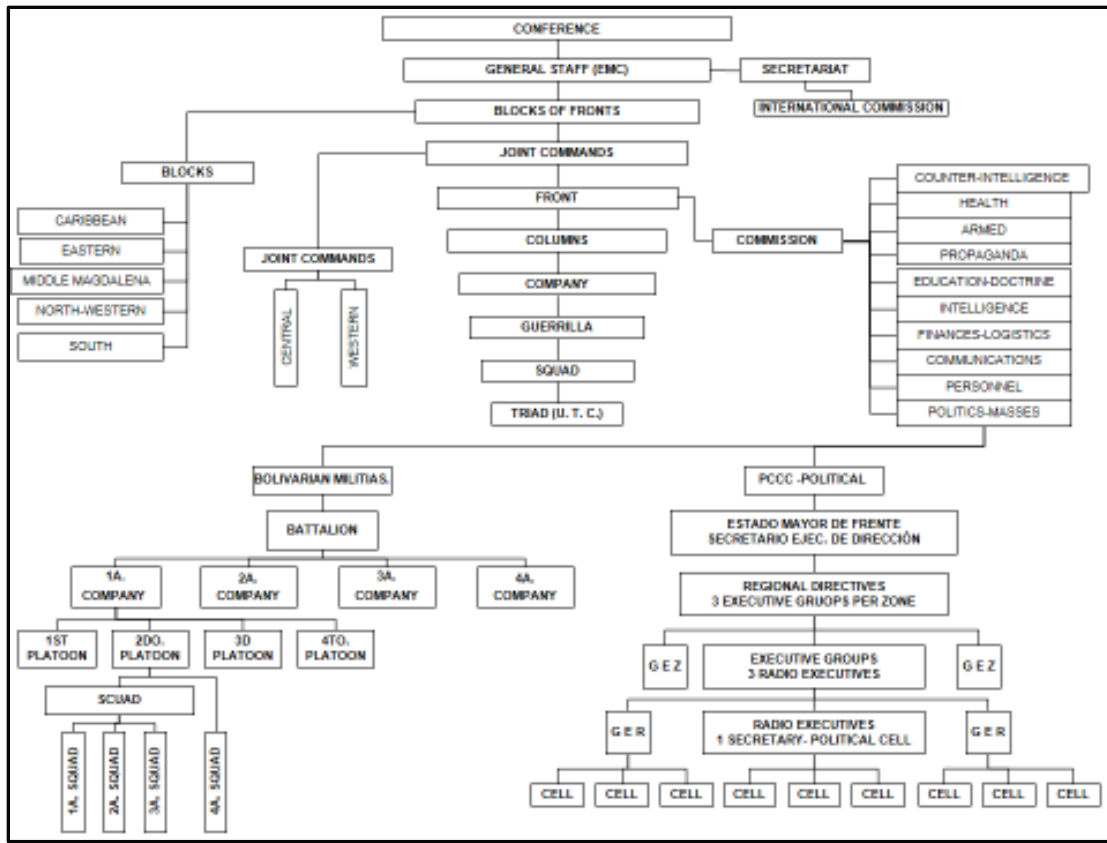


Figure 4. FARC Structure

Source: Escuela de Inteligencia y Contrainteligencia, ESICI, “FARC Structure” (PowerPoint slide, FARC course, Escuela de Inteligencia y Contrainteligencia, Bogotá, Colombia, 2016).

Based the information obtained from FARC conferences, these are some of the characteristics of their structure and strategy:

1. The amount of weapons or men are not predictable for each structure. There are guerrilla's fronts and blocks with more than one hundred guerrillas, such as the South Block. At the same time, there are others with less than thirty, such as the Policarpa Salavarrieta front. Therefore, their structure does not

always adhere to a specific number to allow correlation to other armed regular forces.

2. The political and armed components are tied in actions and purpose.
3. Even though it is a decentralized organization, their actions are directed by one general directive body (the secretariat). Therefore, they are responsible for every action conducted by the fronts.

Changes in FARC Communication from 1985 to 2014

The historical timeline for the present study starts with FARC's Seventh Conference in 1982. In this document, FARC described their main intention of integrating their armed actions with political lines of operation to seize power by force. The intention involved two main platforms. First was an eight-year plan called the Strategic Plan in which FARC established six main objectives.

1. Grow its ranks to 32,000 members and increase the numbers of fronts to seize the eastern Colombian mountain range in the Andean ridges (Cordillera Oriental), in order to consolidate mobility corridors for the final stage of the revolution which would consist of occupying the capital city and paralyzing the state.
2. Increase their finances to support the projected military growth. This objective required the control of coca growing regions in the southern and eastern part

of the country.³³ They would also increase the number of kidnappings, extortions, and robberies.

3. Make it a priority to secure their communications systems and messages in order to guarantee secrecy and survivability.
4. Create a new political party, the Patriotic Union (UP).
5. Conduct militarily and politically coordinated attacks.
6. Improve and increase their knowledge of explosives.

FARC moved from a concept of defensive guerrilla operations in to an offensive one.

The second element of the strategy projected during the Seventh Conference was a political platform with the ideological principles of the PCC under the name of a “Bolivarian Campaign for a New Colombia.”³⁴ This campaign is an active part of the revolution. Through this plan, FARC seeks to infiltrate local and regional governments in order to prepare the masses for the moment of total insurrection during the final stage. However, even though they had always acted in accordance with plans and objectives, it is imperative to understand that time factor does not constrain FARC to achieve their goals. They take the long view. The continuity of their leadership, and the concept of protracted warfare copied from Mao Zedong, provides them with a sense of continuity and coherence and allows ample time for the organization’s to achieve their goals.

³³ Major Patricia D. Hoffman, *Seeking Shadows In the Sky: The Strategy of Air Guerrilla Warfare* (Honolulu, HI: University Press of the Pacific, 10 September 2004).

³⁴ Juan David Laverde Palma, “Las Farc: 50 años de conflicto armado,” *El Espectador*, 23 May 2014, accessed 23 March 2016, <http://www.elespectador.com/noticias/paz/farc-50-anos-de-conflicto-armado-articulo-494175>.

Therefore, their intentions as written during the Seventh Conference in 1982 did not start to take shape until 1985, and were then reoriented in 1993 after the Eighth Conference.

Key Aspects to Understanding FARC's Nature

1. Time pressures do not keep FARC from achieving their objectives.
2. Continuity in their leadership provides coherence and endurance to their intentions.
3. The combination of armed actions with political efforts affects the Army's strategy, usually restraining the scope and force of the Colombian government's military campaigns.
4. A well-financed organization guarantees existence, support, and evolution by acquiring new equipment and technology.
5. Secure communications guarantee the needed secrecy to conduct guerrilla warfare at strategic, operational, and tactical levels.

Timeline

Figure 5 depicts the timeline during which FARC has changed their communications equipment. These changes were made for three main reasons: (1) as a countermeasure to respond to the armed forces' technology and tactical strategy; (2) to follow the initial directives established during the conferences; and (3) because of foreign influence—particularly in the development of new technologies.

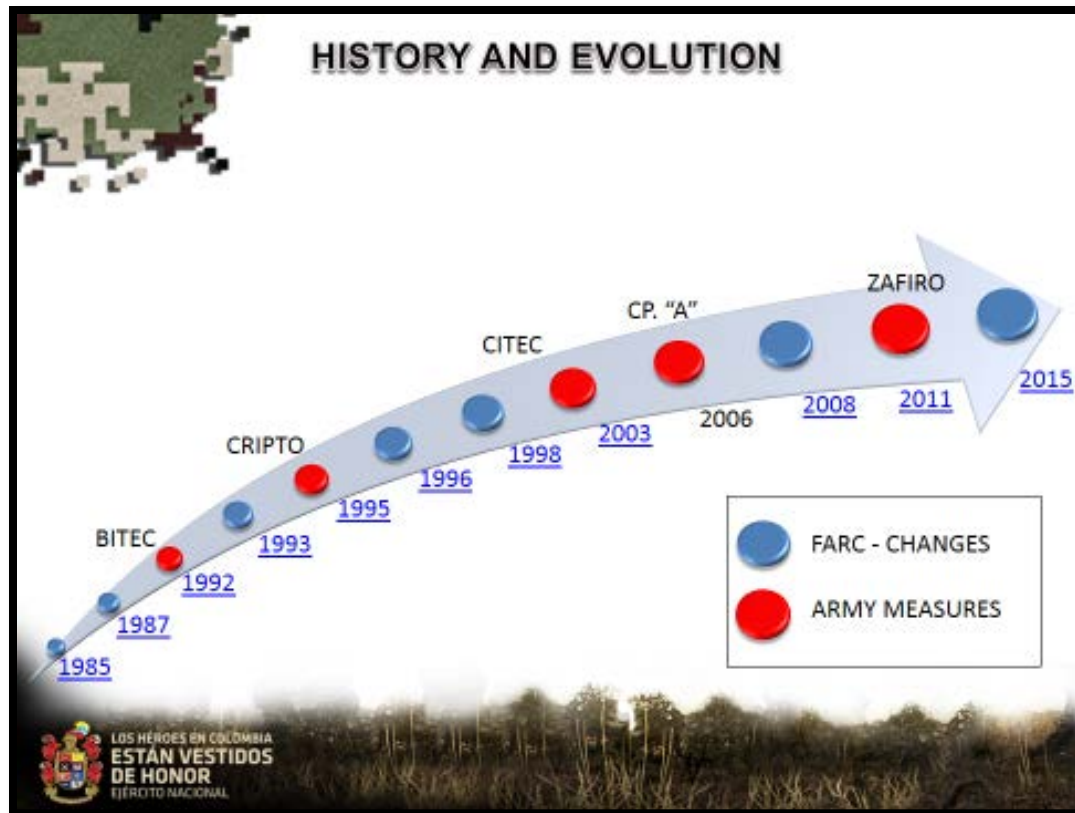


Figure 5. Timeline

Source: First Sergeant Juan Pablo Ramirez, Colombian Army, “Evolucion de las Comunicaciones de las FARC” (PowerPoint Presentation, Central de Inteligencia Técnica, Facatativa, Columbia, 2014).

1985

In 1985, Colombia was torn by the phenomenon of insurgency. In addition to FARC, more than four different leftist movements, such as the Ejército de Liberación Popular (Popular Liberation Army or EPL), ELN, National Liberation Army (Workers Revolutionary Party of Colombia or PRT), and M-19, used the lack of presence of government institutions across the country to generate instability and protest against the government in charge. From this time until 1987, Colombian President Belisario

Betancur, offered amnesty to those insurgent groups that wanted to participate in a peace agreement known as “La Uribe.”³⁵ The center of gravity of this negotiation was that the insurgencies wanted a new constitution with social and agrarian changes. However, other political and economic sectors denied support to this initiative generating division and a lack of the requisite trust needed to conduct sincere negotiations.

Tactically, FARC was focused on doubling the number of their fronts and consolidating territory. In order to achieve this objective, the fronts had to articulate in a coordinated manner other front messages. Thus, it was necessary for FARC to use radios to transmit and coordinate armed actions. The main radio used by FARC at the time was the Yaesu FT-857 GXII-I.



Figure 6. Yaesu FT-857 GXII-I

Source: First Sergeant Juan Pablo Ramirez, Colombian Army, “Evolucion de las Comunicaciones de las FARC” (PowerPoint Presentation, Central de Inteligencia Técnica, Facatativa, Columbia, 2014).

³⁵ Marco Javier Guerrero and Jhonatan Herrera, “Cronología: conozca los intentos de paz en medio siglo de Guerra,” *El Pais*, 2 September 2012, accessed 31 March 2016, <http://www.elpais.com.co/elpais/multimedia/graficos/cronologia-conozca-intentos-paz-gobierno-medio-siglo-guerra>.

This radio had two considerable limitations. The first, was the considerable weight (4.5 pounds) of this equipment in a jungle and mountain environment. The second was the high level of energy/electricity consumed by this radio.³⁶ The combination of these constraints, directly affected the mobility of the fronts and squads. It was too heavy to be carried constantly. It consumed more than twenty watts of power and had to be powered by a vehicle battery. In addition, after twenty minutes of use, it got hot. Tactically, the FARC were using Spanish to communicate between the fronts and squads. To transmit a message, they only used common well-known words that had a different assigned coded meaning. For example, Rubber Feet would mean Vehicles; Pens would mean Rifles; Colleague would mean Guerrilla Men.

At the same time, the Colombian Army was working in several different geographic areas in order to defeat the insurgencies threatening the security of the various regions and protecting the civilian population. During these operations, the Army communications system was the PRC-77 as is shown in the records of the Center of Technical Intelligence in Colombia.

³⁶ Sergeant Major Luis Javier Hernández Bonilla, Colombian Army, “La historia de la organización terrorista de las Farc” (Lecture, Central de Inteligencia Técnica, Facatativa, Colombia, January 2014).



Figure 7. PRC-77

Source: Brook Clark, “PRC-77 Black Pack Squad Radio,” accessed 1 April 2016, <http://www.prc68.com/I/PRC77.shtml>.

The 1980s was the first time that the Colombian Army could obtain a message from the EPL, another leftist group in the Uraba region. This particular message transmitted the orders to conduct an armed terrorist attack against the troops in that area. Fortunately, this attack was foiled and the leadership of the Army augmented the effort to obtain more information about enemy communications in order to stop them before they could conduct their actions. To lead this effort, the Army created a specialized technical unit physically located in Bogotá, but with national level jurisdiction. This unit initially was supported with technical equipment donated by other countries.

Under this military and political dynamic, President Belisario Betancur (1982-1986) decided to sign a peace treaty between the government, FARC, the M-19 and the EPL. As a result of this accord, a new political party was established under the name of UP. However, some of the key representatives of this leftist movement were assassinated.

In 1985, the M-19 attacked the palace of justice³⁷ in front of the presidential house, incinerating documents, files, and property records of the nation. These event derailed the peace process during that presidential term and increased violence in the country.

1987 to 1991

In 1987, the new Colombian president, Virgilio Barco Vargas³⁸ (1987-1990), renewed the dialogue with leftist guerrillas. The president agreed to new dialogue, but without agreeing to a ceasefire. This created a division in popular opinion, polarizing the country between those who supported the peace dialogues and those who wanted to use military force. Both sides argued on the basis of historical events, such as the killing of members of the UP, and the victims of the armed actions of guerrillas in the country. These discussions heightened the already strong mistrust among the rebels and the government. In addition, a new actor got into the scene without an invitation, the drug cartels. The activities of the drug cartels combined to increase the effectiveness of the guerrillas in the country. The cartels took advantage of the presence of insurgent armed groups in certain areas to buy products from them and neutralize military actions against them, at the same time, insurgent groups received large amounts of money from drug lords, allowing them to obtain and improve expensive equipment and technologyor their fight against the government.

³⁷ El Espectador, “Intentos de paz en Colombia,” 25 March 2012, accessed 1 April 2016, <http://www.elespectador.com/publicaciones/especial/intentos-de-paz-colombia-articulo-334224>.

³⁸ Encyclopaedia Britannica, “Virgilio Barco Vargas: President of Colombia,” accessed 1 April 2016, <http://www.britannica.com/biography/Virgilio-Barco-Vargas>.

Tactically, during this year, the FARC were still using the same radio and communications systems as before. However, in September, the leaders of insurgent groups gathered (FARC, ELN, M-19, EPL, PRT, and Quintín Lame) creating the Coordinadora Nacional Guerrillera Simon Bolívar, a coordinated movement involving all the insurgencies in Colombia with the idea of unifying efforts to fight against the government. This new movement ended in the 1990s, after several peace talks with the Colombian Government in Mexico and Venezuela.³⁹ Four of the six groups decided to accept the peace process with the government, and participate in the creation of a new constitution for Colombia.⁴⁰ Only FARC and ELN decided not to continue in the process. However, during national meetings, the guerrilla groups shared their operational experiences. This included an exchange of tactics and communications technology. These exchanges set the basis for the future advances in FARC on communications.

³⁹ Semana, “El factor Álvaro Leyva: La historia de cómo Álvaro Leyva se metió por los laditos en el proceso de paz y terminó jugando un papel clave en el último acuerdo,” 3 October 2015, accessed 2 April 2016, <http://www.semana.com/nacion/articulo/dialogos-el-papel-clave-de-alvaro-leyva/444786-3>.

⁴⁰ Semana, “Anécdota histórica,” 25 May 2013, accessed 2 April 2016, <http://www.semana.com/confidenciales/articulo/anecdota-historica/344378-3>.



Figure 8. Coordinadora Guerrillera Simon Bolivar

Source. Central de Inteligencia Técnica, “Conocimiento de la Amenaza: FARC” (PowerPoint Presentation, Escuela de Inteligencia y Contrainteligencia, Bogotá, Colombia, February 2013).

From 1987 to 1991, the insurgent group continued using the Yaesu FT 857 GX I and GX II to communicate between the fronts, and began the inclusion of the Yaesu FT-80 and Kenwood TS.⁴¹ This new radio brought advantages from the GX used previously; the FT-80 was 2k lighter in weight. The new radio also included a metallic arm to transmit with Morse code, and required a smaller battery. In addition, this radio was the first one to have a liquid crystal screen. This allowed it to store more frequencies, thus modernizing the system. This radio provided more than 40 minutes of transmission time before overheated, 20 more minutes than the previous one.

⁴¹ Bonilla.



Figure 9. Yaesu FT-80

Source: Juan Fiasque, “Yaesu ft 80,” YouTube, published 19 April 2013, accessed 2 April 2016, <https://www.youtube.com/watch?v=pODbULP-mvI>.

1992

Prior to 1992, the Colombian Army only had companies that were specialized in monitoring and jamming enemy communications. However, as the result of several military operations, and after the analysis of the communications equipment seized from FARC, Army leaders decided to gather those companies into one single battalion named “Batallón de Inteligencia Técnica” or “Technical Intelligence Battalion,”⁴² in order to organize the efforts to neutralize the enemy warfighting function of command and control.⁴³

⁴² Bonilla.

⁴³ Ibid.



Figure 10. Technical Intelligence Battalion Founders

Source: First Seargent Juan Pablo Ramirez, Colombian Army, “Evolucion de las Comunicaciones de las FARC” (PowerPoint Presentation, Central de Inteligencia Técnica, Facatativa, Columbia, 2014).

1993 to 1995

During the months of March and April, FARC conducted their Eighth Conference. The purpose of this conference was to review the strategic plan established in 1982, including the experiences of the peace treaties during 1985 and 1991. Consequently, FARC reaffirmed the purpose of obtaining power in Colombia. They added four new initiatives. The first initiative was the creation of a new political movement in order to avoid linkages with the historical burden of the UP and the Colombian Communist Party. Second was bringing the fight to the cities by enhancing the perception of insecurity throughout the country. Third was the creation of a new political platform with economic and social changes. Fourth was the creation of an international commission to spread their political program. These objectives were only achievable through the use of armed actions. Therefore, just as their political ambitions increased, their terrorist actions and cruelty also increased. After this year, FARC

increased the number of secretariat members, improved their chain of command and control between the structures at the national level, and improved the communications tactics and systems.⁴⁴

Operationally, FARC started to change the way they transmitted their messages from Spanish to encrypted messages. Eventually, they stopped using words completely. They created their own codes by replacing the letters and words with numbers or a combination thereof. In addition, the radio operators developed different charts (lists of numbers and letters) in order to alternate them periodically to avoid decoding. This process included mathematical operations.⁴⁵

⁴⁴ International Crisis Group, “Ending Colombia’s FARC Conflict: Dealing the Right Card.”

⁴⁵ Bonilla.



Figure 11. Notebooks with Communications Codes Seized during Military Operations against the 25 Fronts of FARC

Source: First Sergeant Juan Pablo Ramirez, Colombian Army, “Evolucion de las Comunicaciones de las FARC” (PowerPoint Presentation, Central de Inteligencia Técnica, Facatativa, Columbia, 2014). Note: 45872 is Camarada (comrade); 53179 is Buenos (Good); 25163 is Dias (Morning).

The Colombian Army and the new Intelligence Battalion started training specialized personnel dedicated only to decoding messages, and increasing the use of the ICR 7000 and the ICR 9000 to monitor the electronic spectrum.



Figure 12. Personnel Decoding Messages

Source: First Seargent Juan Pablo Ramirez, Colombian Army, “Evolucion de las Comunicaciones de las FARC” (PowerPoint Presentation, Central de Inteligencia Técnica, Facatativa, Columbia, 2014).

During those years, the secretariat of FARC, communicated with the ELN commanders by radio in a broadcast known as the “Teléfono Azul” or “Blue Phone.”⁴⁶ This name was used by FARC to refer to strategic communications with structures outside their own.



Figure 13. ICR-7000 (left) and ICR-9000 (right)

Source: First Seargent Juan Pablo Ramirez, Colombian Army, “Evolucion de las Comunicaciones de las FARC” (PowerPoint Presentation, Central de Inteligencia Técnica, Facatativa, Columbia, 2014).

⁴⁶ First Sergeant Juan Pablo Ramirez Vanegas, “Evolución de las comunicaciones de la amenaza” (Lecture, Central de Inteligencia Técnica, Facatativa, Colombia, January 2014).

1996 to 1998

The conflict was renewed with more vigor after the Seventh Conference and the failed attempts of Colombia to seek peace through dialogue. FARC became more offensive by bringing their armed actions to the cities, attacking police stations there, and increasing the number of kidnappings while receiving money from the drug cartels in Colombia. Tactically, three events affected the communications systems of the insurgents. The first event was the appearance of the first computers that enabled the heads of armed fronts and the secretariat to transmit messages. Second, was the arrival of the new technology represented by mobile and satellite phones. Third, was the beginning of a FARC presence in the World Wide Web.

With globalization taking place around the world, technology was still expensive but no longer exclusive to countries or regular forces. FARC started to integrate computers into their communications systems with the creation of programs to enhance the security of their messages. The first program was called CIF, a short name for the Spanish word “Cifrado” (Encrypted).⁴⁷ This program was developed by FARC in order to automate the process of replacing the words with numbers. Figure 14 portrays the CIF program in 1996, and how the messages were encrypted after the program was run.

⁴⁷ Bonilla.



Figure 14. CIF Program and Encrypted Message

Source: Sergeant Major Luis Javier Hernández Bonilla, Colombian Army, “La historia de la organización terrorista de las Farc” (Lecture, Central de Inteligencia Técnica, Facatativa, Colombia, January 2014).

During this period, one of the heads of the fronts of FARC, Henry Castellanos Garzon (a.k.a. Romana), was using a Motorola mobile phone to communicate with other FARC leaders. This technology, known as time-division multiplexing,⁴⁸ was new and easy to use. However, the programs and technical equipment required to neutralize this type of communications were available to the armed forces. Therefore, the heads of FARC sought a more secure way to communicate. In addition, the network coverage available for time-division multiplexing phones was not enough to guarantee

⁴⁸ TDM is a method of transmitting and receiving independent signals over a common signal path by means of synchronized switches at each end of the transmission line so that each signal appears on the line only a fraction of time in an alternating pattern. It is used when the data rate of the transmission medium exceeds that of the signal to be transmitted. This form of signal was developed in telecommunications for telegraphy systems in the late 19th century, but the most common application was found in digital telephony in the second half of the 20th century.

communications throughout the entire country, especially in those rural areas where the guerrillas usually set up their bases.

To further enhance their capabilities, FARC started to procure satellite phones. These phones worked as regular cellphones, but with a different and more complex technology. In Colombia, Motorola designed a platform called IRIDIUM,⁴⁹ a network of more than sixty communications satellites in order to support national coverage and secure communications through cellphone (voice and data). However, that system presented technical difficulties and the cost per minute was unsustainable.⁵⁰ That same year, other companies developed efficient satellite systems such as INMARSAT, and Global-Star. They were competing for the global market of satellite communications, and the FARC were using them all, especially to coordinate with structures related to drug traffic and drug cartels. Figure 15 was retrieved from the Mobal website which was set up to provide reviews for costumers or potential customers of the satellite services by comparing the differences between the three satellite systems.

⁴⁹ The Iridium satellite constellation is a satellite constellation providing voice and data coverage to satellite phones, pagers and integrated transceivers over the Earth's entire surface.

⁵⁰ Craig Mellow, "The Fall and Rise of Iridium," *Air and Space Magazine*, September 2004, accessed 3 April 2016, <http://www.airspacemag.com/space/the-rise-and-fall-and-rise-of-iridium-5615034/?no-ist>.

	IRIDIUM	INMARSAT	GLOBALSTAR
	Complete worldwide coverage makes this service an ideal choice for hikers, adventurers and explorers. The equipment is robust, waterproof and perfect for use in any emergency.	Inmarsat gives you the best signal strength and lowest chance of dropped calls. It's the ideal portable satellite phone for marine and leisure sailors. Great on land as long as you are not too far north or south.	Great for those who live or travel regularly to remote areas of North America with its FREE, unlimited, top-quality calls and US phone number.
Global Coverage ▾	✓	✗	✗
North American Coverage ▾	✓	✓	✓
Best For Call Reliability ▾	✗	✓	✗
Best For Call Quality ▾	✗	✗	✓
Lowest Price Equipment ▾	✗	✗	✓
US Phone Number ▾	✗	✗	✓
SMS Text Messaging	✓	✓	✗
Voicemail	✓	✓	✓
Postpaid Plans Available	✓	✓	✓
Prepaid Plans Available	✓	✓	✗
Unlimited Calling Plan	✗	✗	✓
Available for Rental	✓	✗	✗
	View Iridium Products	View Inmarsat Products	View Globalstar Products
Mobal Satellite Phone Customers Include:   			

Figure 15. Immarsat vs. Globalstar

Source: Stephen Clough, “Inmarsat vs. Globalstar-Which Satellite Phone Service is best for you?” Mobal, accessed 3 April 2016, <https://www.mobal.com/buy-satellite-phone/expert/>.

The arrival and growth of the internet in society, made FARC set up websites to share their version of the situation in Colombia. In doing this, they attempted to search for supporters across the globe in order to accomplish the objective established during the Eight Conference of amplifying international coverage of their activities and support for their goals. The main FARC-influenced websites are Rebelión and ANNCOL.⁵¹

During the month of June in 1996, the technical intelligence units acquired information that FARC was using new technologies. They started to transmit messages using sounds of different tones, similar to those produced by fax machines when they are receiving information. These sounds were used to encode cypher messages and data.

⁵¹ Bonilla.

Members of the Colombian Army started to report a sound after each regular radio broadcasts between FARC fronts. This sound was low and short, and therefore was not susceptible to being manually deciphered by operators. This event represented one of the biggest changes in the history of FARC communications systems.

Until this point, the technical way for FARC to transmit information was through analog communications technology. Analog technology translates information into electric pulses of varying amplitude⁵² that reproduces the human voice. However, the usage of new technology materialized with a new sound different than the human voice; it was a tone or a beep. This change represented the progress into the digital world with the electronic transmission of digitally-encoded messages which could be stored and processed by using computers.⁵³ Some of the differences between these two systems are depicted in table 1.

⁵² Diffen, “Analog vs. Digital,” accessed 5 April 2016, http://www.diffen.com/difference/Analog_vs_Digital.

⁵³ Vocabulary.com, “Digital Communication,” accessed 6 April 2016, <https://www.vocabulary.com/dictionary/digital%20communication>.

Table 1. Analog vs. Digital

	Analog	Digital
Signal	Analog signal is a continuous signal which represents physical measurements.	Digital signals are discrete time signals generated by digital modulation.
Data Transmissions	Subjected to deterioration by noise during transmission and write/read cycle.	Can be noise-immune without deterioration during transmission and write/read cycle
Representation	Uses continuous range of values to represent information	Uses discrete or discontinuous values to represent information
Example	Human voice in air, analog electronic devices.	Computers, CDs, DVDs, and other digital electronic devices.

Source: Created by author using information from Diffen, “Analog vs. Digital,” accessed 5 April 2016, http://www.diffen.com/difference/Analog_vs_Digital.

In order to mitigate the effects of this new system, the Technical Intelligence Battalion looked for support from specialized personnel such as systems and electronic engineers. These specialists identified the elements of this new technique in more detail, providing a compact disc with forty-two different kinds of digital sounds related to this type of communication.⁵⁴ Once the system was analyzed, and after having carefully listened to the compact disc with forth-two kinds of tones, a team well-trained non-commissioned officers started to identify the FARC broadcasts, by comparing the sounds on the CD with the messages transmitted on the electromagnetic spectrum. FARC used an element called Packet Radio 300⁵⁵ to transmit this digital data via radio or wireless

⁵⁴ Vanegas.

⁵⁵ Ibid.

communication links.⁵⁶ Tactically, the Army started to obtain these transmissions using a universal decoder. Since these messages were cypher, sporadic, and not used between all the FARC fronts, it was assumed that only heads of FARC at the secretariat level used this system.

1998 to 2002

By this time, FARC had achieved three major objectives established at their conferences and strategic plans. First, they increased their finances, especially with the profits obtained from drug trafficking, kidnappings, and extortions. Second, they increased their political support at the international level. Third, and most importantly, they increased the number of fronts in strategic areas and consolidated mobility corridors in the eastern Andean Ridge with more than 12.000 armed men allowing them to increase the armed actions against the armed forces in an unprecedented way.⁵⁷

In 1996, FARC attacked an Army base located in “Las Delicias” in the State of Putumayo, and after 17 hours, the outpost surrendered. Because of this action, more than thirty soldiers were assassinated, seventeen injured, and sixty kidnapped by the FARC.⁵⁸

In 1997, FARC group attacked 34 soldiers guarding an Army communications relay station post,⁵⁹ with more than three hundred guerrillas in Patascoy in the State of Nariño.

⁵⁶ Wikipedia, “Packet Radio,” accessed 6 April 2013, https://en.wikipedia.org/wiki/Packet_radio.

⁵⁷ FARC Conference – Co. Pataquiva.

⁵⁸ Semana, “Golpes de Pecho,” 12 September 1983, accessed 8 April 2016, http://www.semana.com/wf_InfoArticulo.aspx?IdArt=35493.

⁵⁹ El Tiempo, “Sangriento ataque de FARC a Patascoy,” 22 December 1997, accessed 6 April 2016, <http://www.eltiempo.com/archivo/documento/MAM-717465>.

In 1998, more than four hundred guerrillas attacked a counter-guerrilla battalion comprised of 152 soldiers in El Billar, in the State of Caquetá. They killed 65 soldiers and kidnapped 43.⁶⁰

In 1998, more than five-hundred men attacked an Army Company and a National Police Counter-Narcotics Detachment (totaling 200 men) in Miraflores, in the State of Guaviare. After more than 30 hours of combat, the FARC killed 30 soldiers/policemen and kidnapped around 100.⁶¹

After these events, Colombian President Andres Pastrana Arango⁶² (1998-2002), decided to start a peace process with FARC. The condition demanded by FARC to initiate the peace process was to demilitarize an area in order to conduct these dialogues without the pressure of the Armed forces. Therefore, the Colombian government approved and demilitarized a zone (DMZ) of 42,000 square kilometers as a starting point to reach a peace agreement with this group. Figure 16 depicts the location of the DMZ in Colombia in 1998.

⁶⁰ Luis Alberto Miño, Alirio Fernando Bustos, and María Luisa Murillo, “El Destacamento atacado preparaba golpe a Jojoy,” *El Tiempo*, 6 March 1998, accessed 6 April 2016, <http://www.eltiempo.com/archivo/documento/MAM-751456>.

⁶¹ El Tiempo, “Miraflores, eje de las FARC,” 6 August 1998, accessed 7 April 2016, <http://www.eltiempo.com/archivo/documento/MAM-816762>.

⁶² Andrés Pastrana Arango, (born August 17, 1954, Bogotá, Colombia), Colombian journalist and politician who served as president of Colombia (1998–2002). Encyclopaedia Britannica, “Andrés Pastrana Arango,” accessed 7 April 2016. <http://www.britannica.com/biography/Andres-Pastrana-Arango>.

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Figure 16. DMZ in Colombia, 1998

Source: BBC Mundo, “Colombia: ejército ya está en la zona,” 22 February 2002, accessed 9 April 2016, http://news.bbc.co.uk/hi/spanish/latin_america/newsid_1835000/1835523.stm.

In broad terms, Colombia and FARC agreed to the peace process for different reasons. At the beginning, the government agreed to a DMZ to start the dialogues. However, FARC and the government had different agendas and ideas about the topics that would be discussed during the process. Consequently, the discussion focused on what they wanted and needed to discuss rather than on matters of substance. This generated an uneasy peace between the FARC and the government. The FARC used this truce to improve its organization and refine such tactics as the use of explosives, better communications systems, and to implement standardized its procedures among the

fronts.⁶³ FARC also used the DMZ as a base to hide drugs and the victims of kidnappings.⁶⁴

During the truce, FARC also acquired weapons and provided communications equipment to all their units including such radios as the high frequency Kenwood TS-50, Icom IC-78. For very high frequency communications, they used Yaesu 411, Kenwood, and Icom 100, among others.⁶⁵



Figure 17. Kenwood TS-50 (left) and Icom-Ic-78 (right)

Source: Universal Radio Inc., “HF Base Transceivers,” 2015, accessed 9 April 2016, <http://www.universal-radio.com/catalog/hamhf/1664.html>.

These radios continued the use of analog systems by FARC. However, the process of encrypting the messages with numbers was standardized. This indicates a pattern of technical evolution in the terrorist group. In 1999, Army specialists noted that FARC tried to use communications equipment with a security of voice on high frequency, a technological feature present in the Army radio TADIRAN 2100. This equipment was

⁶³ Padilla.

⁶⁴ Ibid.

⁶⁵ Vanegas.

stolen from the Army in 1996, 1997, and 1998 during FARC armed actions against the troops. FARC re-programed the radios at the DMZ to use them securely for their own communications. FARC used their new communications systems to coordinate armed actions across the country. However, the Army was able to neutralize these actions, preventing them with a combination of technical intelligence, human intelligence, and well-equipped maneuver units. After several operations, FARC lost more than 200 guerrillas and decided not to use this communication equipment anymore⁶⁶ because it was considered insecure.

By 2000, FARC boosted their digital communications system by allowing more of its cells to use it. An example of this was the Northeastern Block under the direction of Ivan Ríos. This block usually communicated with an analog system using voice and manual encryption, but suddenly, the communications intercepted from this block were tones which were produced by a packet radio system to cypher information. Figure 18 depicts one of the members of the secretariat, Raul Reyes,⁶⁷ using this equipment to transmit digital messages in 1998.⁶⁸

⁶⁶ Vanegas.

⁶⁷ Reyes, 59, also known as Luis Edgar Devia, is the first member of FARC's ruling secretariat to be killed in combat in the group's 44-year history. BBC News, "Top FARC leader killed by troops," 1 March 2008, accessed 9 April 2016, <http://news.bbc.co.uk/2/hi/7272832.stm>.

⁶⁸ Bonilla.

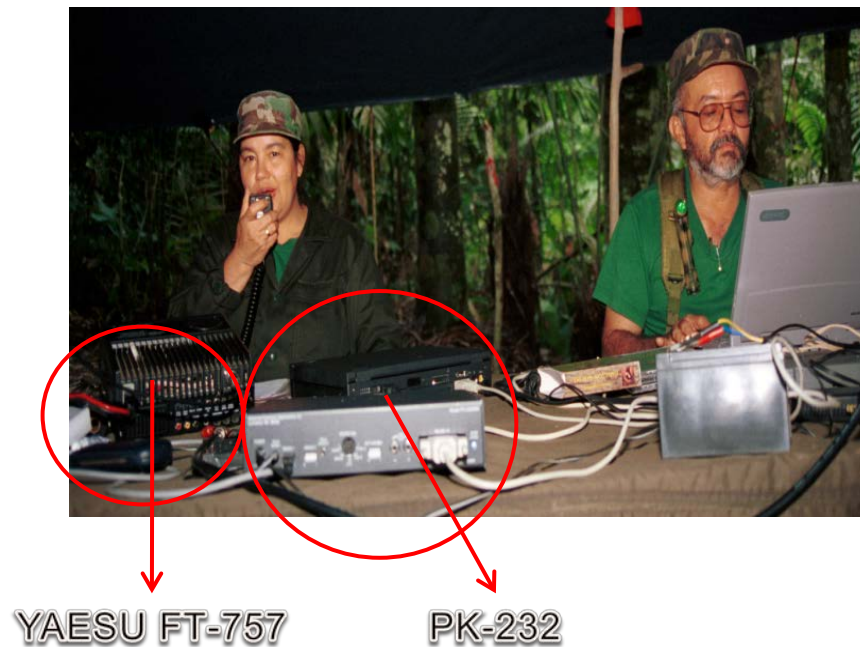


Figure 18. Raul Reyes Using Equipment to Transmit Digital Messages, 1998

Source: First Sergeant Juan Pablo Ramírez, Colombian Army, “Evolución de las Comunicaciones de las FARC” (PowerPoint Presentation, Central de Inteligencia Técnica, Facatativa, Columbia, 2014).

FARC considers security and mobility key aspects of their tactics. Therefore, they acquired the Yaesu FT 817, a versatile radio that could be employed with AA batteries, a vehicle battery, or a solar panel. By 2004, these radios had been fielded to almost all FARC units.⁶⁹ At the same time, the Colombian Armed Forces initiated a process of change and modernization, using new equipment funded by the United States as part of Plan Colombia. This plan included the employment of Army aviation and equipment to fight against drug traffickers.

⁶⁹ Bonilla.

In 2002, after four years of using the DMZ as a sanctuary and base of operations, FARC showed a lack of commitment to the peace process. They did not allow international supervision of the DMZ. Instead, they continued their armed actions using it as a safe base or sanctuary. Two main terrorist actions determined the next step for the government. First, the hijacking of a commercial airplane with a senator onboard; and second, the kidnapping of presidential candidate Ingrid Betancourt.⁷⁰ After these intolerable events, the president of Colombia ordered the armed forces to regain control of the DMZ. This decision produced a general feeling of disappointment in the country. However, the civilian population and the international community understood that the FARC were truly a terrorist organization and their actions were very different from their populist ideology.

Turning Point

This period was key for the implementation and development of FARC technology in communications. During these four years, their sanctuary at the DMZ allowed them to grow and improve their techniques and tactics. Therefore, it is imperative to understand the different components and elements that integrate the communications systems of FARC and how it was used in order to achieve the strategic objective of securing their messages.

⁷⁰ Padilla.

Differences between Analog and Digital Communications

Both, analog and digital transmissions are signals used by FARC to transmit information, usually through electronic signals. The key differences between these modes of communications are:

Analog: The signal conducts the voice with a message.

Digital: Information digitally cyphered by an automatic process using applications (apps). Information is transmitted in a binary format (zero or one), materialized in tones, not the human voice.

Differences between Communications Technology and Information Equipment

A clear understanding of the differences between communications technology and information equipment is key to understand the concepts and modularity that FARC use to develop their equipment and software in order to secure their messages.

Information technology is related to the message itself. It includes the storage, security, and manipulation of the data, usually within the hardware and software of a computer.⁷¹

Communications technology deals with how computers and equipment communicate with each other, including the transfer of data from one machine to another.

As a result, when FARC evolves their communications systems, they do it in a modular way. They acquire the best high frequency radio to transmit, buy or develop

⁷¹ Nate Lee, "How to Distinguish Between Information Technology and Communications Technology," *Chron*, accessed 9 April 2016, <http://work.chron.com/distinguish-between-information-technology-communications-technology-28796.html>.

programs to cypher messages; and, based on those two, they buy or develop a modem to allow the process to occur in a secure and effective way. Therefore, when describing radios, one is referring to the communications technology; and, when describing programs, applications, or computers, one is referring to the security of the message.

Table 2. How Technologies are Applied by FARC and What Equipment is Used at Each Stage

Signal	Communications	Information	Comments
Analog	Use high frequency and very high frequency radios to transmit. Changing the frequencies constantly. (Yaesu ft-857 gx I-II, Yaesu ft 80, Kenwood ts-50, Icom IC-78, Yaesu 411, icom ic-100, Yaesu 817, Icom icr -8, etcetera)	Cyphered replacing letters with numbers, creating different boards. (manual process).	Use radios to transmit messages encrypted in a manual form.
Digital	- Use the spectrum of the high frequency radios to transmit data. (same radios used in analog) - Use a computer with protocol and programs to cypher/decipher the message. <u>Protocols:</u> Packet-Pactor <u>Programs:</u> PGP, GPG, CIF, PASS 6, WinRar, Excel. - Use a modem to transmit, receive, and storage the digitally cyphered message. Modems: PK-232 C-PAKRATT	Applications created by FARC or bought commercially in order to secure the information in the message by cyphering the message and/or protecting the file to be open.	Need three machines to complete the process of transmit and receive information: 1. High Frequency Radio. 2. Modem. 3. Computer.

Source: Created by author.

2003 to 2007

At the end of 2002, and after the elimination of the DMZ, Colombia elected President Álvaro Uribe Velez. He proposed a new national policy called “Democratic Security and Defense Policy,”⁷² that was based on the rule of law to protect Colombians. After this event, the dynamic changed for FARC. The Army received better equipment and more training, especially with the integration of military aviation as a close support combat asset. This condition balanced the military equation in favor of the Army’s strategy and helped to reduce the threat.

Tactically, FARC returned to the mountains and they no longer could not execute armed actions with more than one hundred guerrillas as before. Their mobility corridors were interdicted by strategically located Army units, denying sanctuary to FARC armed elements. During 2003, the Technical Intelligence Battalion was expanded to a brigade and became the Center for Technical Intelligence. It included a high mobility unit, equipped with airplanes and specialized equipment to perform technical intelligence missions.

FARC was trying to resist the new government strategy by using indiscriminate terrorist actions. To do this, they needed to make their communications more secure. In 2002, they began to use digital communication between the radio and the computer.

⁷² International Crisis Group, “Colombia: President Uribe’s Democratic Security Policy” (Latin America Report no. 6, International Crisis Group, New York, NY, 13 November 2003), accessed 5 April 2016, <http://www.crisisgroup.org/en/regions/latin-america-caribbean/andes/colombia/006-president-uribes-democratic-security-policy.aspx>.

Radio Transmit the tone through the speaker.	The receiver records the transmitted tone, and through another speaker, puts the sound into the computer's microphone. Therefore, it was a long process, and sometimes part of the message was lost.
Personal Computer Cyphered the message	

Figure 19. Digital Communications Process, 2002

Source: Created by author.

After the FARC experiences with communications, and with the contacts developed during the cease fire, they hired an engineer in Medellín who taught them to use a program called MIX W which allowed them to send data in a faster way. In addition, FARC paid the engineer to design and manufacture a modem with the purpose of facilitating the reception of the tone directly into the computer, saving time and guaranteeing the security of their messages. This modem also had the purpose of helping them to interact with other programs to encrypt and/or cypher messages such as PGP⁷³ or GPG.⁷⁴

⁷³ Pretty Good Privacy (PGP) is a data encryption and decryption computer program that provides cryptographic privacy and authentication for data communication.

⁷⁴ A free encryption software standard.



Figure 20. Image of the Modem MixW

Source: Luis Javier Hernández Bonilla, Sergeant Major, Colombian Army, “La historia de la organización terrorista de las Farc” (Lecture, Central de Inteligencia Técnica, Facatativa, Colombia, January 2014).

2008 to 2014

Throughout this period, the FARC started to utilize available commercial technology to develop their own applications or software. FARC considers that commercial applications always have a backdoor and their security could be compromised. Therefore, utilizing reverse engineering, they started to create their own applications. As was described, in 1996 they created their first program called CIF. They improved that version creating one called PASS-6. This application received the message in plain text and applied a key which could be one or several multimedia bit images. Therefore, in order to decipher the document you had know which image, song, or video would open it. In addition, using the Excel program from Microsoft Office as a base, they developed NACAR. FARC utilized the codes in the macros of the Excel spreadsheet, creating digital dictionaries to cypher messages only decipherable if you have the same dictionary. As a standard procedure, they change their dictionary every month.

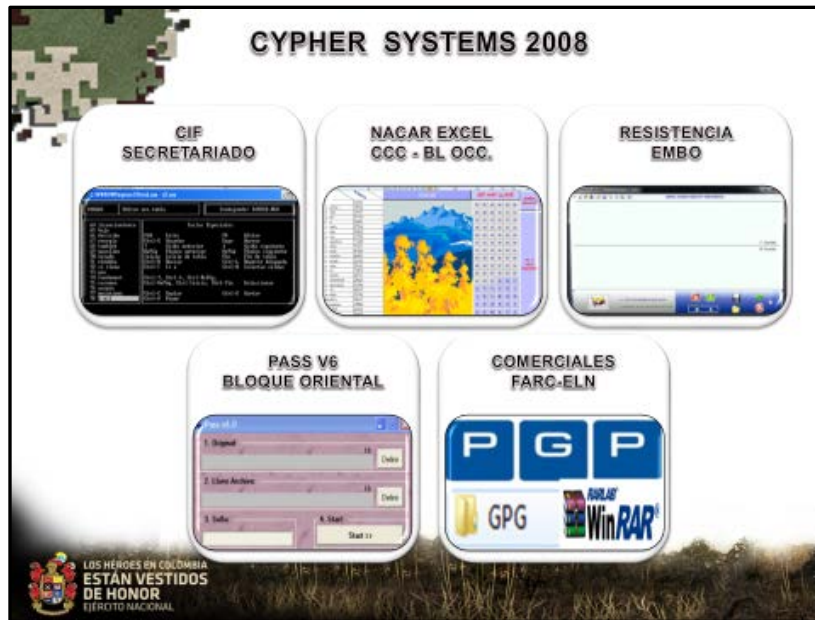


Figure 21. Cypher Systems, 2008

Source: Luis Javier Hernández Bonilla, Sergeant Major, Colombian Army, “La historia de la organización terrorista de las Farc” (Lecture, Central de Inteligencia Técnica, Facatativa, Colombia, January 2014).

To transmit of the message, FARC mainly used three systems: Packet, Pactor, and/or Mix W. The three systems are easy to operate, cheap, and agile which enhanced security. Finding the combination of the system and the cypher are challenges for the Army. Technical intelligence units can obtain the signal, but the process to decipher the message takes time. In 2008, there was irrefutable evidence that FARC was using the web and e-mail to coordinate actions and send strategic messages between cells, other countries, and influential political persons in Colombia.

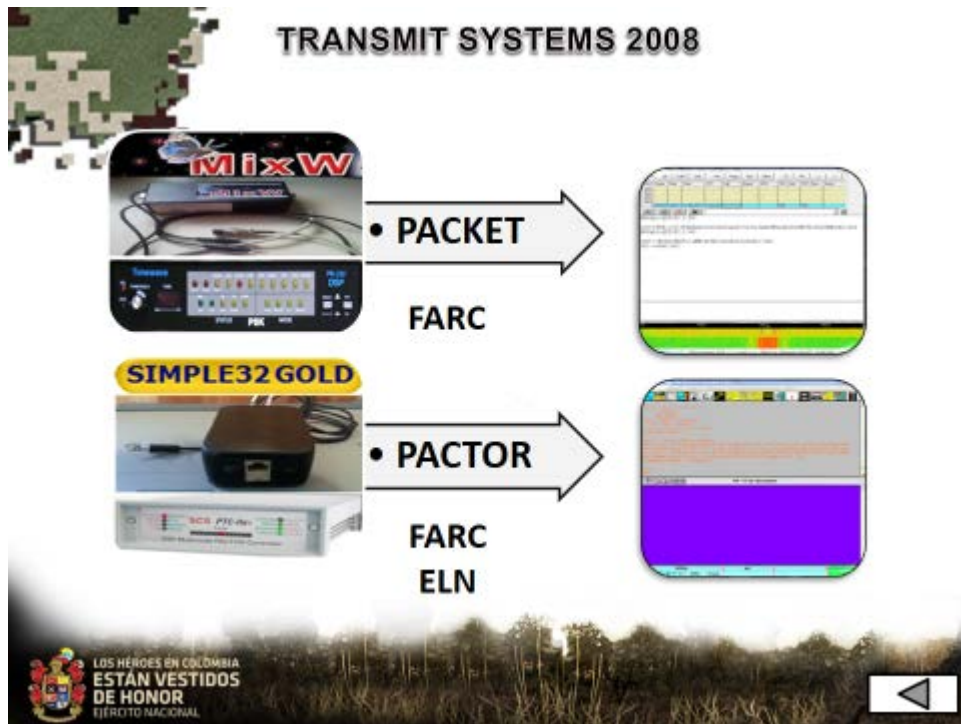


Figure 22. Transmit Systems, 2008

Source: Luis Javier Hernández Bonilla, Sergeant Major, Colombian Army, “La historia de la organización terrorista de las Farc” (Lecture, Central de Inteligencia Técnica, Facatativa, Colombia, January 2014).

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Our journey through the historical evolution of FARC and their changes in communications tactics from 1985 to 2014 reveals three key aspects of this terrorist group. First, the continuity of the FARC strategy, as shown in the directives produced at their conferences by the secretariat, facilitated the achievements of their strategic objectives—in particular, improving the security of their communications systems and messages. The second key aspect is the flexibility FARC has shown in adapting existing communication technology, such as radios, and information technology, such as software applications, to rustic tactical procedures. This allowed them to generate a strong level of internal security which poses a challenge to the Colombian Armed Forces. Third, the current *modus operandi* of FARC in the world of cyber warfare seeks to restrain the Colombian Armed Forces's cyber response by asserting their rights to privacy. This takes advantage of the claim that they are no longer unarmed combatants in order to continue the war by political means.

Chapter 4 of this thesis describes the beginning of FARC as an insurgency with political objectives established in their strategic plans as stated in their conferences. These goals were only achievable with three conditions: (1) enhancing the secrecy of their plans to conduct armed actions and to coordinate all their structures; (2) maintaining a combined strategy between the military actions and political arms of their organization; and 3) gaining the popular support of the masses. However, as previously described, their social and political platform failed when their words were not reflected in their actions. Their attacks on the civilian population and the use of intimidation as a preferred weapon

to achieve a sense of control created the opposite of their desired effect in the country, earning the labels of both, a terrorist, and a drug trafficking organization. After the execution of different terrorist actions against farm workers—such as the destruction of economic infrastructure including communication and electrical power poles which served towns and cities, and the use of kidnapping as a tool to increase their finances—popular support eroded, making their objective of seizing power in Colombia purely by force impossible.

The Colombian Government has tried to resolve the conflict through peace processes. Unfortunately, FARC has been reluctant to accept conditions other than their own in order to obtain control of the Colombian Government. This, in addition to other external factors—such as globalization, the terrorist attacks on the United States on 9/11, and the revolution of the Internet—have increased and prolonged the Colombian conflict. Therefore, even though this conflict has the same players, the nature of the current conflict is not the same as the initial one in 1966.

This research focused on how FARC has evolved their communications systems by following their strategic plan and how they have responded to the Army's strategic efforts to neutralize their command and control structure. To summarize this particular tactical and technical evolution and understand how the process developed during the communication process among the FARC structures, these concepts must be clear:

1. Communications involve the emitter, the receiver, and the message. In this case, the transmitter and the emitter will be the person and/or the equipment used to transmit the message. For that reason, the equipment to transmit and receive the message was treated as communications technology—the machine

transmitting data, such as radios, computers, etcetera. While the message was addressed as the information technology—related to the storage, security, and manipulation such as encryption, cyphering, etcetera.

a. Communications technology used by FARC: Yaesu ft-857 GX I-II, Yaesu ft-80, Kenwood ts-50, Icom IC-78, Yaesu 411, icom ic-100, Yaesu 817, Icom icr -8.

b. Information technology used and developed by FARC:

(1) Initially used the Spanish language transmitted by voice.

(2) Changed to a numeric encryption of the words using manual procedures and pre-established codes while still using voice to transmit the message.

(3) The signal used to transmit voice messages is known as analog.

c. After 1996, FARC evolved the signal to transmit messages from analog to digital. The digital signal differs from analog in that the security of the message is an automatic process made by a software or application, generally in a binary format where each impulse is a zero or one. The sound used to transmit is no longer a human voice; it is an electronic sound. The digital signal uses tones such as those used by fax machines to receive information. This change in the signal, mainly affected information technology.

(1) Communications technology: remained the same as before, with small changes such as the inclusion of a modem in order to

facilitate the link between the radio and portable computer.

PK-232—C-PAKRATT.

- (2) Information technology: FARC initially created CIF as an application to cypher written messages. Successively, they started to acquire and use commercial products such as PGP, GPG, and WinRAR. However, the fear of information leaks and the possibility of unsecure backdoors for those programs made them develop their own such as PASS 6 (a new version of CIF), and Excel tables.

- d. After 1998 and until 2014, FARC has used this digital system with small changes such as making the modem smaller, enhancing the security of the applications to store the information etc. At the same time, this period saw the beginning of the entry of FARC into the cyber world. FARC has created and administrated webpages, in order influence society and the international community with their political messages.

The previously described evolutionary communications systems depicted a constant process of change for FARC as a terrorist organization and for the Colombian Armed Forces as a capable, flexible, and effective military structure always ready to neutralize FARC hostile actions. The effects of this dynamic in the Army are described utilizing the abbreviation DOTMLPF⁷⁵ (Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities). This concept gathers all the aspects

⁷⁵ Army Capabilities Integration Center, “What is DOTMLPF?” accessed 11 April 2016, <http://www.arcic.army.mil/AboutARCIC/dotmlpf.aspx>.

involved with change and modernization in all military structures beyond the simple material solution.

The combination of armed actions with political/legal actions of FARC against the armed forces, made doctrine a key consideration for the Army while conducting operations against FARC communications, especially in cyber space—the Internet. Colombian doctrine is prescriptive, meaning that it must be followed as is. If prescribed steps are not followed, a tactical risk is assumed with the possibility of an investigation. Therefore, in January of 2014, two top secret, classified manuals were approved to support the effort of the military intelligence to neutralize FARC in cyber space.

As shown, in 1985 and 1992, the Army changed its organization, thereby creating new units with specific missions with specialized personnel in order to neutralize FARC actions in the cyber domain and the electromagnetic spectrum. This change involved improvements in training, especially with other countries and partnerships, and updating communications and information technology according to the new requirements. Finally, with the education of the new breed of leaders from the military and intelligence academy, substantial knowledge about FARC's process prepared them to develop special critical thinking skills in the search for new solutions and protect Colombia from FARC hostile intentions.

In conclusion, FARC has been reinventing themselves under the same line of command and following a strategy of constant adaptation and improvement in their communications. The tactical changes within their communications systems allowed them to act against the Army military strategy and take advantage of the political situation. Technically, FARC adapted new technology, such as software programs,

modems, and radios, to more rustic procedures, with the objective of making communications and messages more secure. The Internet is the future. Even though FARC is currently in a peace process with the government of Colombia, based on the research and the history of FARC, it is possible that FARC's does not intend to abandon their original and main objective of seizing power in Colombia but will instead begin to use the Internet to conduct attacks on the government.

GLOSSARY

Analog. Relating to a device or process in which data is represented by physical quantities that change continuously.⁷⁶

Cyber. Relating to, or involving computers or computer networks (as the Internet).⁷⁷

Demagogue. A leader who makes use of popular prejudices and false claims and promises in order to gain power.⁷⁸

Digital. Characterized by computer technology. Relating to, or being data in the form of especially binary digits digital images; especially: of, relating to, or employing digital communications signals a digital broadcast.⁷⁹

El Bogotazo. On the afternoon of 9 April 1948, angry mobs suddenly and swiftly reduced the main streets of Bogotá to a smoking ruin. Radio broadcasts, at times with unmistakable Communist content, called for the overthrow of the Colombian government and of “Yankee Imperialism.”⁸⁰

Encryption. To change (information) from one form to another especially to hide its meaning.⁸¹

FARC Conference. Planning guidance where the members of the secretariat (FARC directives) state futuristic intentions in armed and political fields.⁸²

⁷⁶ Merriam-Webster, “Analog,” accessed 20 November 2015, <http://www.merriam-webster.com/dictionary/insurgency>.

⁷⁷ Merriam-Webster, “Demagogue.”

⁷⁸ Encyclopaedia Britannica, “Jorge-Eliecer-Gaitan.”

⁷⁹ Merriam-Webster, “Digital,” accessed 20 November 2015, <http://www.merriam-webster.com/dictionary/digital>.

⁸⁰ Davis.

⁸¹ Merriam-Webster, “Encryption,” accessed 20 November 2015, <http://www.merriam-webster.com/dictionary/encryption>.

⁸² Escuela de Inteligencia y Contrainteligencia, “Conocimiento de la Amenaza: FARC” (PowerPoint Presentation, Escuela de Inteligencia y Contrainteligencia, Bogota, Colombia, February 2013).

Insurgency. A usually violent attempt to take control of a government: a rebellion or uprising. The quality or state of being insurgent; specifically: a condition of revolt against a government that is less than an organized revolution and that is not recognized as belligerency.⁸³

Jorge Eliécer Gaitán (born 26 January 1902, Bogotá-died 9 April 1948, Bogotá). Political leader who was considered a champion of the Colombian people and was revered as a martyr after his assassination.

La Violencia. The period known as “La Violencia” (The Violence), in which an estimated 200,000 to 400,000 partisans and others died, lasted for over a decade. Various authorities provide a variety of dates for this conflict, with civil strife starting in 1946 and 1947, and continuing until 1958, 1960, or 1966.⁸⁴

Modus Operandi. A method of procedure; especially: a distinct pattern or method of operation that indicates or suggests the work of a single criminal in more than one crime.⁸⁵

Romance Language. The words, their pronunciation, and the methods of combining them used and understood by a community. a systematic means of communicating ideas or feelings by the use of conventionalized signs, sounds, gestures, or marks having understood meanings.⁸⁶

State. Politically organized body of people usually occupying a definite territory; especially: one that is sovereign.⁸⁷

Terrorism. The unlawful use or threat of violence esp. against the state or the public as a politically motivated means of attack or coercion.⁸⁸

⁸³ Merriam-Webster, “Insurgency,” accessed 20 November 2015, <http://www.merriam-webster.com/dictionary/insurgency>.

⁸⁴ Global Security, “La Violencia (1948-66).”

⁸⁵ Merriam-Webster, “Modus Operandi.”

⁸⁶ Merriam-Webster, “Romance Language,” accessed 20 November 2015, <http://www.merriam-webster.com/dictionary/romancelanguage>.

⁸⁷ Merriam-Webster, “State,” accessed 20 November 2015, <http://www.merriam-webster.com/dictionary/state>.

⁸⁸ Merriam-Webster, “Terrorism,” accessed 20 November 2015, <http://www.merriam-webster.com/dictionary/terrorism>.

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