

Los Zetas and Proprietary Radio Network Development

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Los Zetas and Proprietary Radio Network Development

Abstract

The years from 2006 through 2011 were very active years for a number of Mexican drug trafficking organizations. However, the group that probably saw the most meteoric rise in this period, Los Zetas, had a unique and innovative tool at their disposal. It was during these years that the group constructed and utilized a proprietary encrypted radio network that grew to span from Texas to Guatemala through the Gulf States of Mexico and across much of the rest of the country. This network gave the group an operational edge. It also stood as a symbol of the latitude the group enjoyed across vast areas, as this extensive illicit infrastructure stood, in the face of the government and rival cartels, for six years. This investigation explicates the process by which Los Zetas constructed, concealed and utilized this network and attempts to draw conclusions about the motivations and organizational dynamics that brought the network to be, with attention paid to what this case says about the complex engineering capabilities of non-state entities in general.

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Introduction

“This thing was huge ... It was extensive, and it was interconnected. It was the most sophisticated radio network we’d ever encountered.”¹

In the latter half of 2006, La Compañía—a Mexican drug smuggling cooperative consisting of the Gulf Cartel and their former paramilitary/security wing, Los Zetas—began in earnest an effort to construct a large scale radio communication network throughout the gulf coast states of Mexico. The group’s goal was to establish a proprietary, real-time communications infrastructure throughout their areas of operations for the purposes of operational coordination and intelligence gathering, a goal which was accomplished under the direction of radio specialist Jose Luis Del Toro Estrada (aka El Técnico). Estrada, an agent of La Compañía who owned and operated a seemingly innocent radio equipment shop in McAllen, Texas, along with other specialists in his employ, carried out the research, planning, and much of the physical implementation of the initial system. By the time he was arrested in 2008, Estrada had facilitated La Compañía’s implementation of specialized radio hardware in both urban and rural environments across much of northeastern Mexico and had also seen to the integration of the computer systems and software necessary to securely utilize the network to great effect.² After Estrada’s arrest, the operation and expansion of the radio network continued under the control of La Compañía, and then solely under the control of Los Zetas, following their split from the Gulf Cartel in 2010.³ Prior to Mexican military efforts to dismantle various local hubs of the radio network in 2011, the system as a whole was believed to make use of many hundreds of antennas and signal repeaters, which, under the control of a series of command centers, offered service in vital areas of operation stretching from core Los Zetas territories in Nuevo León and Tamaulipas, into central Mexico and through the gulf states as far south as the border with Guatemala.⁴

¹ Damon Tabor, “Radio Tecnico: How the Zetas Cartel Took Over Mexico with Walkie-Talkies,” *Popular Science*, March 25, 2014, available at: <http://www.popsoci.com/article/technology/radio-tecnico-how-zetas-cartel-took-over-mexico-walkie-talkies>.

² Brian Anderson, “Cartel Radio: Drugs and Kidnappings and Blood on the Air,” *Motherboard*, December 27, 2011, available at: <http://motherboard.vice.com/blog/cartel-radio>.

³ Tabor, “Radio Tecnico.”

⁴ *Ibid.*; “Narcos tienen sofisticados de comunicación,” *Elsalvador.com*, December 29, 2011, available at: http://www.elsalvador.com/mwedh/nota/nota_completa.asp?idCat=47860&idArt=65

Decision

Within La Compañía, Los Zetas was the force responsible for initiating the radio network project and were the entity that made decisions about the radio network throughout its construction and operation.⁵ Los Zetas' interest in taking on this task was likely born from a desire to maximize their control over activities of interest —illicit and legitimate—in their areas of operation and to do this more nimbly in the face of both governmental and criminal adversaries. Holding territory and being able to monitor what went on there more fluidly stood to enhance not only Los Zetas' ability to engage in their own lucrative drug trafficking operations,⁶ but also their ability to tax other trafficking groups for passage⁷ and to effectively run their various other smuggling, extortion, kidnapping, racketeering and bootlegging operations.⁸ As a more multidimensional group than typical cartels, Los Zetas' chief motivation in constructing an extensive radio network can be said to have been to possess the logistical and tactical advantages that would facilitate the emphatic employment of violence that underpinned the group's diversified criminal portfolio. Having its own tailor-made network allowed Los Zetas operatives on the ground to be deployed with a deftness and speed that enabled not only the maintenance, but also the expansion, of the group's various revenue generating enterprises. Additionally, "the network allowed Los Zetas operatives to conduct encrypted conversations without depending on the official cellphone network, which is relatively easy for authorities to tap into, and in many cases does not reach into the Mexican countryside."⁹ The

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⁵ Lisa Campbell, "Los Zetas: Operational Assessment," *Small Wars and Insurgencies* 21:1 (2010): 58-59.

⁶ Max Manwaring, "A New Dynamic in the Western Hemisphere Security Environment: The Mexican Zetas and Other Private Armies," *Strategic Studies Institute*, September, 2009: 22, available at:

<http://www.strategicstudiesinstitute.army.mil/pdffiles/pub940.pdf>.

"The Zetas' first priority is to operate a successful business enterprise, with more than adequate self-protection and self-promotion. This private military organization encourages diversification of activities, diffusion of risk, and the flexibility to make quick adjustments, correct mistakes, and exploit developing opportunities."

⁷ Samuel Logan, "A Profile of Los Zetas: Mexico's Second Most Powerful Drug Cartel," *Combating Terrorism Center*, February 16, 2012, available at:

<https://www.ctc.usma.edu/posts/a-profile-of-los-zetas-mexicos-second-most-powerful-drug-cartel>

⁸ Scott Stewart, "Mexican Cartels: Los Zetas," *Stratfor*, March 4, 2014, available at:

<https://www.stratfor.com/video/mexican-cartels-los-zetas>

⁹ Michael Weissenstein, "Mexico's cartels build own national radio system," *Associated Press*, December 27, 2011, available at: <http://news.yahoo.com/mexicos-cartels-build-own-national-radio-system-200251816.html>; and Author "Mexico Security Memo: Zetas Communications Network Dismantled," *Stratfor Global Intelligence*, September 13, 2011, available at: <https://www.stratfor.com/analysis/mexico-security-memo-zetas-communications-network-dismantled>.

military background of the group's leadership surely also played a unique part in spurring on the creation of the network. Retired colonel Bob Killebrew said the following about Los Zetas:

“[T]hey have a paramilitary mindset...a chain of command, an appreciation of what technology can do to enhance paramilitary capabilities. If you're a military guy who started such a group, one of your first concerns is communications. You can build communication networks at a relatively low expense if you have the expertise. So, it's quite possible to build, say, a network for a low-level handheld radio carried by a taxi driver that can be picked up, re-transmitted, boosted up, and sent anywhere you want to send it, and even encrypted after it's transmitted.”¹⁰

Taking into account its persistence in maintaining and expanding the network, it is clear that Los Zetas considered the advantages of the system to have been of great value, well worth the estimated tens of millions of dollars spent on it.¹¹ At the height of the radio network, were estimated by the Department of Justice to have been worth in total between 18 and 39 billion dollars annually.¹² Compared to the scale of the Los Zetas operation as a whole, some have pointed out that the network was, “relatively speaking, cheap” and that it might have “paid for itself with the delivery of one large cocaine shipment into the U.S.”¹³ This is not to forget that Los Zetas also profited in no small way from their endeavors in piracy, extortion, and other illicit enterprises. One group of Los Zetas is alleged to have stolen \$46 million worth of oil from Pemex (the Mexican state owned oil concern) over the course of the two years before its members were arrested in April 2009.¹⁴ All indications are that the radio network was not a nominal expense, but was comfortably within the financial means of Los Zetas and regarded by the leadership to be of considerable value to the organization's field operations. Though the intelligence and tactical benefits of the radio network surely had strategic implications for Los Zetas as well, there is no evidence that the

¹⁰ Sam Clements, “Los Zetas Drug Cartel Has Their Own Radio Network,” VICE, January 2, 2013, available at: <http://www.vice.com/read/the-los-zetas-drug-cartel-have-their-own-radio-network>.

¹¹ Tabor, “Radio Tecnico.”

¹² Patrick Radden Keefe, “Cocaine Incorporated,” *The New York Times*, June 15, 2012, available at: <http://www.nytimes.com/2012/06/17/magazine/how-a-mexican-drug-cartel-makes-its-billions.html>.

¹³ Tabor, “Radio Tecnico.”

¹⁴ Jesse Bogan, “Mexican Drug Gangs Diversify Into Oil,” *Forbes*, August 8, 2009, available at: <http://www.forbes.com/2009/08/11/mexico-oil-theft-business-energy-drugs.html>.

network was ever used to convey strategic level communications (i.e. communications involving the organizational leaders). Instead “contacts among the highest-ranking Los Zetas operatives tended to take place in highly encrypted communications over the internet.”¹⁵

In 2006, when the effort to construct the radio network was initiated, strategic decision making for La Compañía was handled by a trio of top bosses: Antonio Ezequiel Cardenas-Guillen, Jorge Eduardo Costilla-Sanchez, and Heriberto Lazcano-Lazcano.¹⁶ However, a 2010 analysis of Los Zetas’ organizational structure indicated that ‘communications experts,’ even while Los Zetas was in league with the Gulf Cartel, reported directly and solely to Lazcano-Lazcano (a.k.a. Z-3) and ‘Los Zetas principal leadership.’¹⁷ This strongly suggests that Heriberto Lazcano-Lazcano, leader of Los Zetas from late 2004 until his death in October 2012, would have been the person with the single most influence over decisions regarding the network’s creation and expansion. Some ambiguity is introduced, however, by the fact that Lazcano-Lazcano did, for a time, “[go] underground, successfully hiding and apparently ‘off the grid’.”¹⁸ The major decisions regarding the radio network were likely made between a few La Compañía top leaders in the early phases, before shifting more singularly toward Lazcano-Lazcano as time went on and Los Zetas became a standalone organization. There is no evidence of dissent or debate in the process of deciding to build the network, as might be expected due to the more than adequate resources of the organization and the obvious utility the radio network would have had within the Zetas operational philosophy. One account suggests that Estrada oversaw the creation of a local radio network for Los Zetas in the Mexican border town of Matamoros as early as 2004;¹⁹ it is possible that this project served as proof of concept before the larger subsequent effort was undertaken.

¹⁵ Weissenstein, “Mexico’s cartels build own national radio system.”

¹⁶ United States v. Del Toro Estrada: Plea Agreement, United States District Court Southern District of Texas Houston Division, (2009): 1, 8-9, available at: <http://docslide.us/documents/jose-luis-del-toro-estrada-plea-agreement.html>.

¹⁷ Campbell, “Los Zetas: Operational Assessment.”

¹⁸ Gary J. Hale, “Mexico’s Government Begins to Retake Northeastern Mexico,” *James A Baker III Institute for Public Policy*, December 9, 2011: 7, available at: <http://bakerinstitute.org/research/mexicos-government-begins-to-retake-northeastern-mexico/>.

¹⁹ Tabor, “Radio Tecnico.”

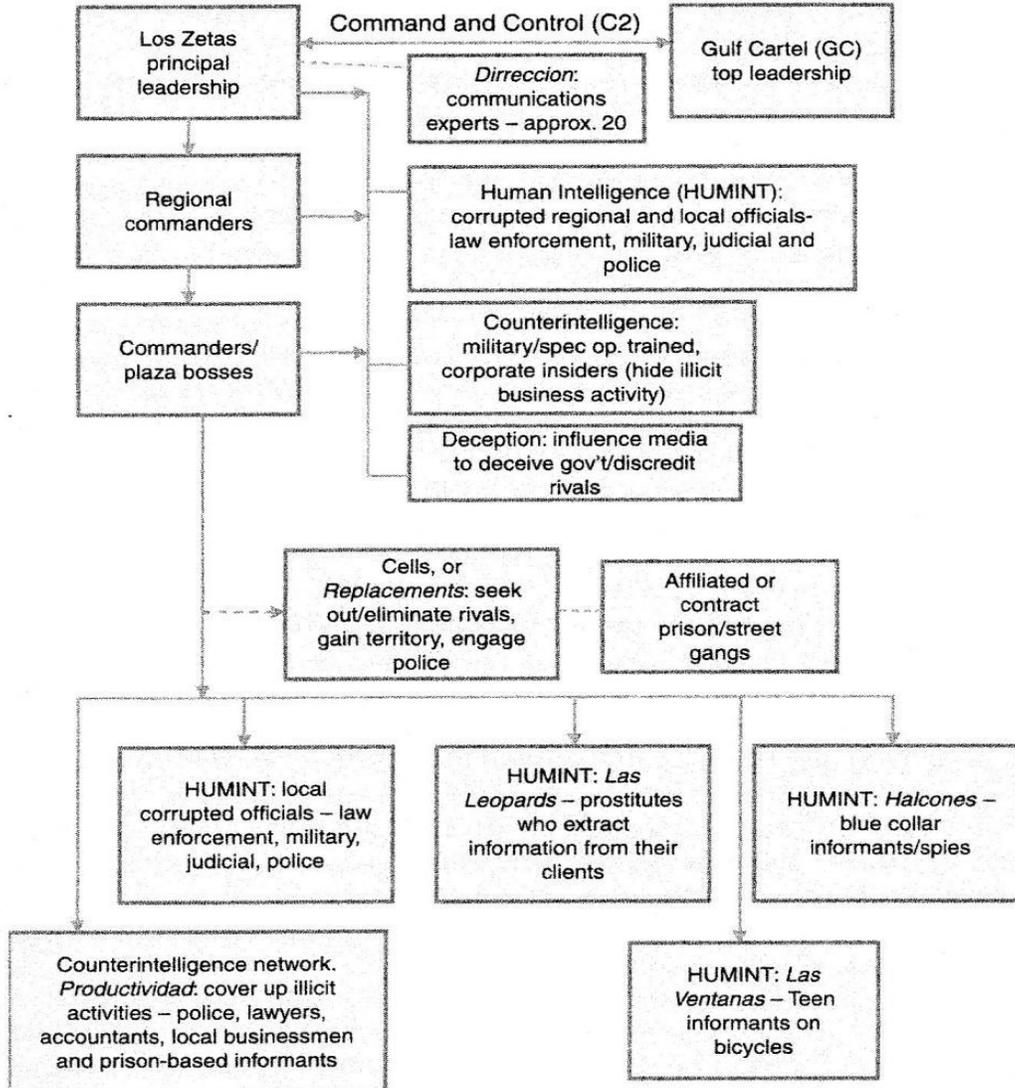


Figure 1: Los Zetas Intelligence Hierarchy²⁰

Court documents from Estrada’s 2008 indictment lend some insight into how decisions were made and orders given once the effort to construct the network was underway. Confessional accounts indicate that once Estrada and his technical team had conferred with the principal Zetas leadership as to what was needed to establish the network in given areas of Zeta operation, the principal leadership would send orders to local “plaza” bosses, leaving it up to them to find ways to acquire the necessary equipment and implement the network in their area of responsibility—likely with assistance from some

²⁰ Lisa J. Campbell, “Los Zetas: operational assessment,” in Robert J. Bunker (ed.), *Narcos Over the Border* (London, UK: Routledge, 2011), 59.

contingent of Estrada's technical team.²¹ These plaza bosses who oversaw specific drug trafficking corridors were reportedly not only responsible for purchasing everything from antenna towers to handheld radios for their local portion of the network, but were also expected to replace whatever parts of the local radio infrastructure might be destroyed by security forces.²²

From the outset of building the radio network, through the years of its operation and expansion, Los Zetas has certainly had a very high tolerance for risk. Given the risk inherent to all of the group's activities, the size and survivability of the group, its efficiency and its vast capital resources, there is no reason to believe that the effort to build and operate the radio network involved much in the way of self-imposed limitations or instances of the group stopping short of its goal because of concerns about the operation or personnel.

Given the scale of the operation, its persistence, the benefits it afforded, and its relative inexpensiveness, there is no reason to believe that any physical or temporal limits were ever conceived of for the network. Rather, the intention of Los Zetas was probably to keep pushing the size and capability of the network as long as those expansions continued to enhance the organization's ability to conduct lucrative operations. According to Bob Killebrew:

“If the taxi driver is calling up to warn someone about the Mexican army leaving town, he only needs to tell the people in his immediate geographical area. So they build a network that will go that far—call it the local network. But there can be a second network—a state network, say—and there can be a national network as well. As long as they've got the terrain to put the repeaters (signal boosters) down and they've got the access to the materials and the technicians to do it, there's nothing to stop them from going global, as I'm sure they already are.”²³

Implementation

Expertise, unlike the infrastructure itself, was one aspect of the operation that was not always thought of as being open ended. When the Los Zetas needed

²¹ “United States v. Del Toro Estrada” (2009) “Wire calls show that each Company plaza boss was required to purchase tower, repeaters, and radios in the system and to share the cost.”

²² Spencer Ackerman, “Radio Zeta: How Mexico's Drug Cartels Stay Networked,” *Wired*, December 27, 2011, available at: <http://www.wired.com/2011/12/cartel-radio-mexico/>.

²³ Clements, “Los Zetas Drug Cartel Has Their Own Radio Network.”

technical expertise, the group either bought it or took it by force. In later phases, Los Zetas resorted to kidnapping technical experts and treating these experts as disposable assets.²⁴

The individuals most instrumental in the initial implementation and expansion of Los Zetas' radio network were Jose Luis Del Toro Estrada (aka El Técnico) and his technical team. "His team included an expert who specialized in installing radio towers and antennas, and another who researched new technology,"²⁵ along with a number of others who are believed to have had similarly specialized responsibilities.²⁶ Exactly how Estrada came to be affiliated with Los Zetas and La Compañía is not known, nor is it known how he recruited his team or how he came to possess the technical acumen necessary to oversee the creation of the network.²⁷ It is all but sure that the promise of considerable monetary compensation played a significant part in both Estrada and his team members coming to work on the network. Estrada's team was estimated to include about twenty individuals,²⁸ but it is not known if any evaded apprehension and continued to work for Los Zetas after Estrada's arrest.

Following Operation Reckoning, the mass DEA crackdown that caught Estrada, Los Zetas' in-house communications expertise was severely undermined, if not destroyed completely. It seems that it was this development that spurred Los Zetas to shift tactics. Although there are reports of cartels recruiting students from technical schools and creating front

²⁴ "Techies Forced into Slave Labour," *The Times of India*, November 12, 2012, posted by Nick Carraway and available at:

<http://www.freerepublic.com/focus/chat/2961036/posts>.

²⁵ Dane Schiller and Susan Carroll, "Former Gulf Cartel Insider Spills His High-tech Secrets." *The Houston Chronicle*, August 25, 2009, available at:

<http://www.chron.com/news/houston-texas/article/Former-Gulf-Cartel-insider-spills-his-high-tech-1725590.php>.

²⁶ "United States v. Del Toro Estrada," (2009) "Estrada employed various communications specialists to assist him in running and maintaining the system. Two of those specialists are Omar Alejandro Macias Rodriguez and Marko Gutierrez. Rodriguez installs towers and antennas as well as programs and maintains repeaters and the radios. Zuniga researches new technology, installs towers, as well as programs and maintains repeaters and the radios. Zuniga also installs the hidden cameras used by the Company."

²⁷ Tabor "Radio Tecnico." "Many details about Del Toro Estrada's involvement with The Company remain opaque. It's unclear whether he was recruited in McAllen or placed there as an operative. Also unclear is whether he was a formally trained engineer or some kind of criminal autodidact who spent years steeping himself in the finer points of radio broadcast engineering. Either way, he did not match the profile of a typical cartel member. 'He wasn't an assassin. He was a geek, a technician,' says a former federal counter-narcotics official who now runs an intelligence consulting firm in Arlington, Virginia."

²⁸ Campbell, "Los Zetas: operational assessment."

companies to pay them,²⁹ Los Zetas—after Estrada’s arrest—preferred the disposable approach, kidnapping engineers and forcing them into slave labor for as long as they were useful.³⁰ In these kidnappings, Los Zetas tended to pursue engineers and technicians in Zeta-controlled territory who had experience installing telecommunications equipment. In one known case, and probably in others, Los Zetas had ties to its victim’s employer and coworkers.³¹ At least thirty-six telecommunications professionals who went missing between 2009 and 2012 are thought to have been taken by Los Zetas.³² At this time, no reports have been found of any captured technicians being returned, a sad indication that they were not spared Los Zetas’ brutal pragmatism and were likely killed at the point that they were no longer useful, in order to maintain operational security. There were no known instances of anything that would qualify as collaboration with other non-state entities in the process of creating the radio network, unless one were to consider Los Zetas and the Gulf Cartel to be collaborators during the period that they were technically operating as the single organization.

Little is known about how the equipment used to construct the network was acquired or how Los Zetas members went about putting it into place, though it is hard to imagine, in an organization so steeped in violence, that safety was ever a pronounced concern. In terms of operational security (OPSEC), Los Zetas is known to employ various forms of OPSEC tradecraft in keeping with its military origins. It is probable that the kind of OPSEC the group would practice by default was sufficient for most communications network-oriented operations.³³ With concern for the security of the system’s equipment after implementation, Los Zetas operatives are known to have painted many of their rural antennas to camouflage them among the surrounding brush and to have generally placed antennas and signal repeaters in remote, difficult to reach areas.³⁴ Furthermore, as the network came online, it may have contributed to the operational security of its own expansion and maintenance,

²⁹ Doris Gómora, “Plagia narco a técnicos en comunicación,” *El Universal*, December 13, 2011, available at: <http://archivo.eluniversal.com.mx/primer/38356.html>.

³⁰ “Techies Forced into Slave Labour.” *The Times of India*.

³¹ Paris Martinez, “How Mexico's Zetas Enslave Engineers,” *InSight Crime*, October 25, 2012, available at: <http://www.insightcrime.org/categories/zetas-enslave-engineers-in-mexico>.

³² “Narcos mexicanos esclavizan a ingenieros para usarlos en sus proyectos,” *RT*, November 2, 2012, available at: <https://actualidad.rt.com/sociedad/view/57585-narcos-mexicanos-esclavizan-ingenieros-usarlos-proyectos>.

³³ Campbell, “Los Zetas: Operational Assessment,” 72-73. “The Zetas also employ counterintelligence cells that monitor law enforcement activity and rival cartel operations. Information gathered via surveillance activities is used by the Zetas to plan their own timing of operations and routes for smuggling attempts.”

³⁴ Anderson, “Cartel Radio: Drugs and Kidnappings and Blood on the Air.”

as it allowed for more secure communication and communication in certain remote areas that were otherwise “off the grid.”³⁵ Conversely, there are also accounts of cases where the operational security of the network seems to have been intentionally compromised to send a message to authorities. For example, the network was used at times to issue threats across Mexican military frequencies and, in one case, “Del Toro Estrada installed a repeater on the roof of a Mexican police station, either as a brazen display of the cartel’s impunity or as a signal of the department’s corruption.”³⁶

The effort to build the network began in earnest in 2006, with Estrada in place, leading the effort for Los Zetas and La Compañía. It is not known exactly where the effort began or at what rate it proceeded, but it is likely that the first pieces of the network were implemented in Nuevo Laredo, the area seen as the hometown of Los Zetas and a place where it operated with near total impunity. Early implementation in areas tightly controlled by Los Zetas may be the closest thing the construction of the network had to a trial run. In Nuevo Laredo, antennas were said to “sprout from rooftops and empty lots” and to be “swiftly replaced” if ever dismantled.³⁷

As the network expanded, the effort took different forms in urban and rural areas. In urban areas, the first thing Estrada and his team would have done was to identify unused frequencies to avoid interference from the likes of taxi and truck drivers’ radio chatter.³⁸ With the local spectrum of frequencies mapped, implementation of the network’s physical components could begin. In urban areas equipment was typically installed on the tops of existing structures, in some cases even piggybacking on the capacity of existing radio equipment. It was allegedly not uncommon for Estrada to make use of existing radio towers and to “[hijack] radio repeaters—devices that receive and boost radio signals—from companies like Nextel and [reprogram] the equipment to use the cartel’s preselected, low-volume frequencies.”³⁹

In isolated rural areas, the network was designed to relay radio signals over long distances. Los Zetas agents would often erect towers and take advantage of local topography to ensure that antennas and repeaters were best situated to send signals long distances over trees and mountains. To accomplish this Los Zetas would erect towers on the highest ground it could access and affix

³⁵ Weissenstein, “Mexico’s cartels build own national radio system.”

³⁶ Tabor, “Radio Tecnico.”

³⁷ Weissenstein, “Mexico’s cartels build own national radio system.”

³⁸ Tabor, “Radio Tecnico.”

³⁹ Ibid.

antennas and signal repeaters atop these towers. In one case Los Zetas operatives are known to have gone as far as to install one of these towers at the summit of a volcano.⁴⁰

“In Veracruz, a string of about a dozen tower installations provided a 100-mile radius of communications capability—meaning the Zetas could track anything that moved, whether encroaching Sinaloa cartel gunmen or military convoys, in at least 10 towns and cities.”⁴¹

“This was a rural based system meant to be hard to detect (camouflaged) and self-contained, relying upon solar panel cells to cut down on battery/power maintenance requirements.”⁴²

As the network got to be very large and complex, Los Zetas also maintained sophisticated command and control centers where it established computer systems to manage the radio communications on the network. One such central hub, after being raided, was found to house sophisticated computer systems for managing the network and specialized radio equipment used for ground to air radio communication.⁴³ This particular hub, located in the urban area of Torreón and known to Los Zetas as “The Central,” was estimated to have contained \$350,000 worth of equipment. Its purpose was to provide regional command and control as well as counter-intelligence, primarily in the form of military communications scanning.⁴⁴

“As of late 2011, the computer systems that controlled the network were sophisticated enough to allow the cartel to direct specific communications to specific radios, bypassing others.”⁴⁵

The precise rate at which the network was constructed is not known. However, “[by] 2008, Del Toro Estrada’s infrastructure was operational in most states in Mexico (and likely in the U.S. borderlands as well).”⁴⁶ By 2011,

⁴⁰ Ibid.

⁴¹ Ibid.

⁴² Robert J. Bunker, “Mexican Cartel Operational Note No. 1,” *Small Wars Journal*, December 17, 2011, available at: <http://smallwarsjournal.com/blog/mexican-cartel-operational-note-no-1>.

⁴³ “Zetas’s High Tech Narco-Communications Central Seized (VIDEO),” *Hispanically Speaking News*, November 21, 2011, available at: <http://www.hispanicallyspeakingnews.com/latino-daily-news/details/zetass-high-tech-narco-communications-central-seized-video/11910/>.

⁴⁴ Bunker, “Mexican Cartel Operational Note No. 1.”

⁴⁵ Weissenstein, “Mexico’s cartels build own national radio system.”

⁴⁶ Tabor, “Radio Tecnico.”

the network had grown even larger and more sophisticated. The best indication of its scope and complexity can be gleaned from the accounts of what was uncovered in the Mexican military's late 2011 crackdown. For example, an operation conducted by the Mexican marines in September of 2011 across Veracruz State reported the seizure of thirteen large antennae, seven signal amplifiers, seven truck trailers used as base stations, and a variety of other radio and computer equipment.⁴⁷ Some three months later, on December 4, the Mexican Army announced the total findings of operations in the states of Veracruz, Nuevo Leon, Coahuila, San Luis Potosi and Tamaulipas. This announcement revealed that they had uncovered at least 167 large antennas, 155 signal repeaters, 166 power sources, 71 components of computerized systems and 1,446 radios.⁴⁸

Considering that the figures above represent only the fraction of the network that was discovered in a handful of raids in late 2011, it is left to the imagination to fathom the extent of what Los Zetas created and to wonder about how it was able to accomplish this feat. The questions of how the group was able to secure the necessary materials, expertise, and labor, all appear to have the same simple answer: spending power. Beyond these basic resource hurdles, it appears to have been the logistics of implementing the network, ensuring security of communications, and being able to transmit over the Mexican landscape emerged as the most prominent obstacles. The issue of communications security was resolved continually as the network became more sophisticated and was being managed from computerized control centers, from which frequencies could be managed and encryption measures introduced. The terrain issues in the backcountry were remedied by very determined—and certainly well-funded—efforts, as Los Zetas operatives installed towers, antennas, and signal amplifying repeaters on the highest terrain. In urban settings, the solution was plain audacity, as existing infrastructure was hijacked in facilitation of the network's function. The final obstacle of note faced by Los Zetas in the creation and operation of the network was the Mexican authorities' continual efforts to dismantle it. In the group's heyday it seemed content to continually replace whatever the police

⁴⁷ Bunker, "Mexican Cartel Operational Note No. 1." "The total announced seizure consisted of: Mobile Radio Transmitters, High Frequency Repeaters/UHF, Computers, Cables/Wiring, Two-Way Radios, Cell Phones (Burner), Batteries/Power Supplies/Solar Cells, Encryption Devices, Radio Scanners, 13 Large Antennae (some Pool Cue to 20ft/Tree Concealment), 7 Radio Amplifiers, 7 Trailer Trucks (Base Stations with Food/Clothing), 80 Personnel (Including 6 Police Officers)."

⁴⁸ Weissenstein, "Mexico's cartels build own national radio system.;" and "Desarticulan en 4 estados red de comunicación de Zetas," *El Universal*, December 1, 2011, available at: <http://archivo.eluniversal.com.mx/notas/812933.html>.

took down. However, after the death of Los Zetas leader Heriberto Lazcano-Lazcano, the group seemed to have lost some cohesion and operational momentum.⁴⁹ This state of affairs, wherein Los Zetas leaders fell in relatively quick succession, may have rendered the group unable to maintain the network's operation with the same ease exhibited in the period from the project's initiation in 2006 until Lazcano-Lazcano's death in late 2012, ultimately leading to the network's decline.

Analysis

Los Zetas' decision to construct a large radio network was primarily driven by its desire for a communications system that would enhance their operations, but which was also more secure than commercial systems and which could be made to service its more remote areas of operation. A secondary motivation for creating the network was the message it would send to adversaries. The network, once implemented, projected power and prestige by way of the operational advantage it gave Los Zetas over other cartels, as well as via the blatant affront it was to the state security forces tasked with keeping it in check.

However, these motivators alone do not account for how readily Los Zetas embraced this technology relative to other, equally wealthy cartels. What set Los Zetas ahead of the curve in this respect was the military background of its original and most influential members. At the time that the initial decisions were made to pursue this technology, the most influential members were veterans of Grupo Aeromóvil de Fuerzas Especiales (GAFFE), Mexico's elite counter-narcotics airborne special forces, and of Kaibiles, Guatemalan Special Forces. These leaders in the emergent years were also careful to ensure that the martial characteristics and practices of the group would remain central, leading them to recruit heavily from the more than 100,000 men who deserted the Mexican army between 2000 and 2009 and to restrict elevated roles in the group to those with military backgrounds.⁵⁰ The men making decisions for the group then were certainly attracted to methods and tools that would complement their paramilitary mode of operation, something the radio network certainly did. Even before the network was in place, Los Zetas was operationally well suited, as far as non-state organizations go, to incorporate and take advantage of proprietary radio communication. More so

⁴⁹ Tabor, "Radio Tecnico."

⁵⁰ Hal Brands, "Los Zetas and Mexico's Transnational Drug War," *World Politics Review*, December 25, 2009, available at: <http://www.worldpoliticsreview.com/articles/4866/los-zetas-and-mexicos-transnational-drug-war>

than any analogous group, Los Zetas in its prime seemed to have prided itself on efficiency and precision. The premium it put on these qualities and the military-like means by which it embodied them made the construction of a robust radio communication network an option with glaringly obvious appeal to Los Zetas leadership, once presented.

Operation of Los Zetas' radio network may be ongoing, though almost certainly in a greatly reduced capacity since its heyday and particularly since Alejandro "Omar" Treviño Morales "Z-42," the last undisputed successor to the group's top position, was arrested in early March 2015.⁵¹ No matter the current state or the eventual fate of the network, this particular innovative enterprise is not the kind of complex engineering task that necessarily had a point of culminating success or failure. Ultimately, the Zetas' radio network can be viewed as a general, if not ongoing, success in that it is thought to have markedly enhanced Los Zetas' ability to operate as a complex criminal organization. This determination is evidenced by the fact that the initial tests of the system prompted such dramatic expansion and that this expansion was continued to the point that the network offered Los Zetas at least some encrypted radio communication capability in locales stretching from the U.S. border to Guatemala, and across the majority of Mexico's 31 states.⁵²

The factors that led the group to such success in this engineering endeavor were organizational and twofold. First, the vast reserves of money the group had at its disposal plainly afforded it the ability to act ambitiously and prospectively without risking ruin, should any number of attempts fail. The second major factor contributing to the success of the radio network was Los Zetas' ruthless efficiency and *esprit de corps*. In the period that the network was erected, Los Zetas operated with a unique military discipline and cohesion that was also unimpeded by moral considerations. This allowed its members to employ violence to great effect in clearing the obstacles to any given end, and then conduct whatever business that violence facilitated with similar directness. This ability, coupled with very deep coffers, enabled Los Zetas to build a highly complex, nearly-national radio network at an astounding pace and with very few serious impediments. Given the lack of detail in open sources, it remains difficult to analyze the level of innovation that the project entailed. A certain degree is unquestionably on display in

⁵¹ Harriet Alexander, "Los Zetas drugs cartel leader 'Z-42' arrested in Mexico," *The Telegraph*, March 4, 2015, available at: <http://www.telegraph.co.uk/news/worldnews/centralamericaandthecaribbean/mexico/11449744/Los-Zetas-drugs-cartel-leader-Z-42-arrested-in-Mexico.html>.

⁵² Anderson, "Cartel Radio: Drugs and Kidnappings and Blood on the Air."

features of the network like purpose-built solar panel and battery riggings to run remote signal repeating systems and the various methods of concealment and subterfuge employed to allow for such an extensive system to operate for years in the face of government counter operations.

That said, the forces that combined to drive the project to success seem to have simply plowed through many of the obstacles such a complex project might be expected to face before any great innovation was needed to circumvent them. While the network may never have gotten off the ground without the clever work of the initial consenting contingent of technical experts, the later stages of the network's operation stand as a striking demonstration of how effectively a subnational organization can accomplish a complex engineering task through a combination of cash and ruthlessness. Although the Los Zetas' power has waned after the loss of several successive leaders and the progressive loss of group cohesion and paramilitary character has left the status of the radio network, even in Los Zetas' core northeast Mexican territory, very much in question, some analysts have pointed out that other cartels are currently undergoing "zetanization" as they attempt to emulate some of the operational capacities enjoyed by Los Zetas at its operational peak.⁵³ With the Los Zetas having already demonstrated how such a communications network can be built, it may not be long before another cartel or some other type of sophisticated criminal group, not only replicates, but expands upon the concept.

⁵³ Tabor, "Radio Tecnico."