



Teniente Aguilar, 2nd FA BN Fire Direction Officer, demonstrates how he calculates the quadrant elevation using a Graphical Firing Table.

How a Field Artillery Advisor Team builds a Partner Force in Honduras

By CPT Joseph Dang, SFC Quentrell Nelson, SSG Lemuel Blue, SGT Seth Wilbourne

Big Picture

Honduras along with its western neighbors, El Salvador and Guatemala, form a geographic region commonly referred to as the Northern Triangle. Decades-enduring struggles with violence, under-governed geographic regions, and corruption permeating department and national layers of government sap the country's resilience and impedes its ability to make measurable progress in elevating the population's standard of living beyond belabored and uncertain survival.¹ Exacerbating these stressors, the devastation wrought by Hurricanes Eta and Iota in 2020, compounded by the crushing economic blow of the Covid-19 Pandemic have placed Honduras at a tipping point -where assistance efforts must produce lasting results in addressing its root causes of instability.

Contained within the Integrated Country Strategy for Honduras, enhancing the existing security apparatus within the region becomes an absolute necessity. The 1st Security Force Assistance Brigade, out of Fort Benning, Georgia, regionally aligned with U.S. Southern Command, providing this partner-building capability through its advisor teams which partner with host-nation forces. As part of this larger picture, Field Artillery Advisors build a partnership with the Honduran Artillery Forces; expanding their function to scale into the framework of Large-Scale Combat Operations (LSCO). Advisory efforts of this nature equip Honduran Commanders to develop reliable options in the contingency that the spectrum of competition edges towards conflict while also professionalizing the force structure at large. As part of this layered advisor effort, Field Artillery Advisor Team (FAAT) 1412 formed partnerships with the truly unique personalities of Honduras' three Field Artillery Battalions during their employment in Honduras from March through September 2021.

Introduction

The Battalion Commander welcomes us to the Officer's Mess where we join him for a Honduran breakfast. His staff awaits us around the dining table,

and we take our places behind our seats. Praying in Spanish over our meal, the Commander thanks God for our arrival – that it was part of His ordained plan. Four U.S. advisors, three Honduran Field Artillery Battalions; our story is one of relationships formed over Arroz con Frijoles, tortillas, games of volleyball, and training in Honduras' 108-degree heat. The purpose of this article in the recounting of our six-month advisor employment; is to convey what building a Partner Force looks like from the advisor's perspective.

Problem Set

Honduras' Field Artillery Battalions augment the countries' already challenged police apparatus. Disciplined and largely trusted by the population, soldiers conduct and supervise the transportation of inmates, manage military checkpoints, traffic stops, and conduct patrols along the country's *Frontera*. As artillery units are not leading the current fight against the country's immediate transcontinental criminal organization threat-set, their warfighting proficiency takes second priority to pomp and circumstance. Honduran Armed Forces Day is punctuated by the artillery Battalions' live-Fire; where 105 mm and 155 mm Howitzer shells and 160 mm mortar rounds fly over a reviewing party, and hammer into Zambrano's impact area. Honduras' President, his cabinet, and all military chiefs of staff attend this display; which is purposed to highlight the discipline and power of the nation's armed forces. Although Honduran artillery units maintain a position of national importance; their competing mission requirements, rapid personnel turnover, and limited training time available present a challenge in maintaining their war-fighting edge.

Enter the U.S. advisor

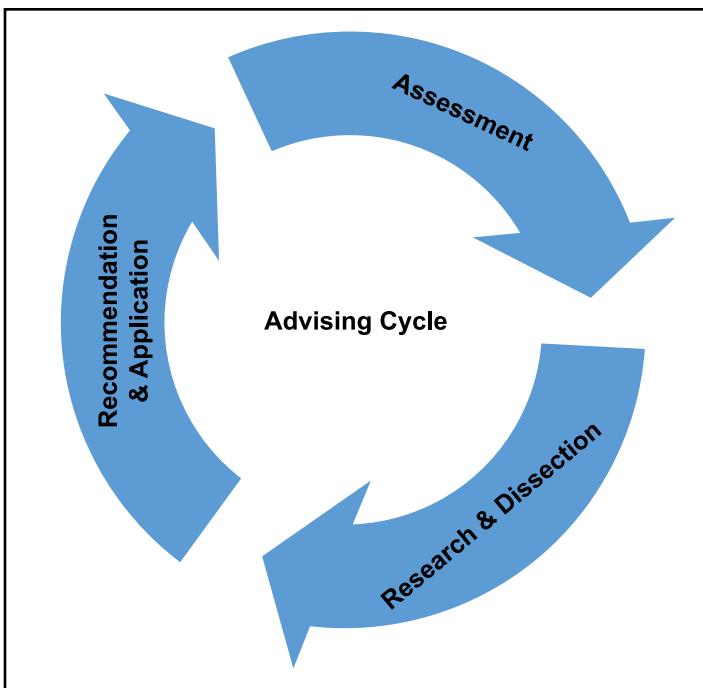
As we established relationships with the Field Artillery Battalions, we saw equipment held together by sheer Honduran ingenuity and willpower.² Enhancing artillery capability as a deterrent to the USSR aligned Sandinista regime in Nicaragua in the late '70s through '80s brought the U.S. M102 and M198 Howitzer systems into the country.³ Fielding these weapons along with U.S. advisors, bolstered Honduran Field Artillery

¹ Danielle Renwick and Rocio Cara Labrador. Central America's Turbulent Northern Triangle. Council on Foreign Relations. <https://www.cfr.org/backgrounder/central-americas-turbulent-northern-triangle>. July 1, 2021.

² FAAT 1412. *Findings and Rec_Honduran Field Artillery Equipment*. May 15, 2021.

³ Nicaragua Army. Global Security. <https://www.globalsecurity.org/military/world/centam/ni-army.htm>. 29 July 2021.

capability to present a credible deterrent to any threat actor attempting to gain unwelcome access through the most likely avenue of approach, the Choluteca gap on the border with Nicaragua. After more than 40 years of elapsed time, Honduran Field Artillery units once again meet US advisors.



Beginning with Assessment, advisors enable their partner force's leadership to see themselves and assist through the Research step which informs their Recommendation and Application.

Assessment

Beginning with Assessment, advisors draw out the Partner Force's capabilities, limitations, challenge-sets, and their leadership's vision. This process forms the entry-point and can range from a sit-down engagement with a leader to a full-scale Battalion capabilities demonstration. As a function of personality, our team discovered that we were more inclined to hands-on learning. Observing and exchanging Tactics, Techniques and Procedures (TTPs) in action, our team often used Subject Matter Exchanges to gain a more complete assessment of our Partner Force units.

Relating back to our vignette with the 4th Field Artillery Battalion (FA BN), we conducted our unit assessments in Choluteca's 108-degree heat blanket; observing the Tropas and Sargentos emplace and employ their 160 mm mortar in a dry-fire exercise. The crews execute their battle drills with skill, discipline, and enthusiasm. The Battalion Commander directs us to his Fire Direction Center (FDC) - Central de Tiero. A

Sargento demonstrates how he calculates Deflection and Quadrant for the Israeli-made 160 mm mortar. When asked what method he uses to account for Angle of Site, the vertical displacement between the mortar and the target, as the technique he is using appears unfamiliar. The Commander explains his Battalion's processes and asks what method we would use for this calculation. The advisor explains the method from FM 6-40 as it applies to an M777A2 firing high angle. Meanwhile, the other teammates are similarly engaged with the mortar crews on their laying procedures, explaining how they ensure their pieces are correctly laid on the Azimuth of Fire.



The Advising Cycle revolves around not only the partner force's systems and processes, but equally around personality and relationships between advisors and partner force commanders.

Research and Dissection

After the day's expiration, we make the four-hour drive back; physically exhausted by the heat, but more so mentally by questions occupying the problem-solving capacity of our team's 30 years of collective artillery experience. What we found as the Research and Dissection Phase of the Advising

Cycle is the most consuming. However, we have discovered that this phase is where advisors make the greatest gains by analyzing unit TTPs for efficiencies and vulnerabilities. This phase regularly extends beyond 72 hours. As a team, we deep-dive into the techniques observed and compare them to existing doctrine (the primary doctrine used by Honduran Artillery Forces is a Central American release of *FM 6-30, 6-40 and 6-50* dated 1998 from the Security Cooperation Office).⁴

Our team's research conducted in this manner illuminated vulnerabilities in two out of three Battalion FDC's Fire Mission Processing. A lack of procedural secondary-independent checks within the FDC and emplacement of the gun-line introduced an elevated risk for unmitigated and potentially disastrous error. We understood through this method of analysis, that the Honduran Field Artillery Battalions would need to train additional leaders to conduct checks, specifically at the crew and platoon level to ensure accurate transmission of data (Accurate Computational Procedures: 5th Requirement for Accurate Fires).

Research, utilizing the faculties and problem-solving of every Field Artillery MOS (13B, 13F, 13J, 13A, etc.) proved to be instrumental when dissecting and researching the TTPs that our Partner Force uses. Although adapted from U.S. doctrine, Honduran TTPs have evolved based on their unit's limitations in training and manning as well as the use of non-U.S. equipment. An example of a modified TTP is the method that the 4th FA BN uses to compensate for the vertical interval (VI); vertical displacement between the firing unit and target elevation. As Honduras' geography is more than 80% mountainous there is always a vertical displacement between the firing unit and the target. In order to compensate for this, 4th FA BN adapted their own two methods to adjust the quadrant elevation and account for VI (*See Figure 2*).⁵ By understanding the Honduran methods for Computational Procedures, we developed an appreciation and respect for their ingenuity. Since their weapon system is Israeli-made and ballistically dissimilar to the U.S.'s largest caliber mortar, there is no established method for certain Computational Procedures.

SUBJECT MATTER EXCHANGE ITINERARY

5th Battalion, 1st Security Force Assistance Brigade
Task Force Ready
Field Artillery Advisor Team 1412 & 4th Field Artillery Battalion

Fire Direction Center (Central De Tierra)

4th FA BN FDC computes mortar fire direction using a map, plotting board, range deflection protractor and the M66 mortar firing table (non-US). FAAT 1412 and 4th FA BN leadership discussed methods for calculating Site (Site) for the mortar. As the mortar is high angle weapon system ballistics dissimilar than any US equivalent, 4th FA BN has developed two methods to compensate for vertical interval between the BIA (Battery Altitude) and TGT (Target Altitude).

METHOD 1] $\frac{Vf}{2} + (\text{Range})\text{Alcance} = \text{Adjusted (Range)}\text{Alcance}$ (compensated for vertical interval)

Fire Direction Officer (Jefe De Tierra) calculates a new Quadrant Elevation based off an adjusted range. This adjusted range is produced by taking the chart range and adding/subtracting the $\frac{Vf}{2}$. In the demonstrated exercise the original range (Chart Range) was 7950 meters. However, as the BIA altitude was 250 and the TGT altitude was 400; the Vertical Interval (VI) resulted in an +150. Since the TGT altitude was above the BIA altitude, the $\frac{Vf}{2} (+75)$ was added to the Chart Range (7950) resulting in an Adjusted Range of 8025. As the mortar (mortero) is a high angle weapon, the resulting QE is lower than original based off of chart range. Achieving the effect depicted below.

METHOD 2] $QE + or - \frac{Vf}{Range in 1000m}$

This method was developed by COL Velasquez himself based off 32 years of Artillery Experience. Fire Direction Officer (Jefe De Tierra) calculates a modifying factor $\frac{Vf}{Range in 1000m}$ and applies it to the QE from the Chart Range. This method can modify the resultant QE; however, the Vertical Control Operator (VCO) must remember to apply a (-) factor to the QE to compensate for TGT altitude above the BIA altitude. If the TGT altitude is below the BIA altitude, the VCO must apply a (+) factor to the QE. As these methods both account for Vertical Interval (VI); there may be situations where either method is more suitable or appropriate. Additionally, the terrain in and around Honduras is 80% mountainous, a firing unit will always have to account for Vertical Interval. Both methods must be tested to ensure suitability for the operational environment.

Figure 2: an example of the results of the team's research gathered from observation in the field.

Recommendations and Applications

Honduran Commanders have derived their own solutions – drawing from experience and their studied knowledge. This provides advisors a truly unique opportunity to employ problem-solving alongside the Partner Force Leadership and come up with recommendations to reduce vulnerabilities.

In our partnership with 4th FA BN, we understood that the greatest introduction of vulnerabilities were not the processes themselves, but the shortage of leaders within the formation who truly understood the steps of the process. During our observations, we studied how many leaders in the formation understood the Computational Procedures that they were responsible for. We discovered limitations in the number of FDC leaders that knew both of the Battalion's methods for calculation of site. Similarly, we discovered a limitation in the number of gun-line leaders that knew what checks to perform to ensure their

⁴ Central American Field Artillery Doctrine (22 JUNE 2021). 1st FA BN #10_22JUN21.
⁵ FAAT 1412. FAAT 1412 and 4th FA BN_SME_09-10JUN21. Jun 10, 2021.

weapons were correctly laid on the Azimuth of Fire. We found that the formations often had one leader who performed the function; limiting depth and the ability to correct error. This discovery informed our application and recommendation to the Honduran Battalion Commander. Focusing on the fundamentals, we understood that for every Soldier that we were able to train to use a map and compass, we provided the Battalion an additional set of eyes to ensure that weapons were correctly laid on azimuth. For every crew we trained to understand the plan and the Commander's intent, we alleviated the Commander to plan the next operation concurrent to ongoing operations. Working together with the Honduran Battalion Commanders, we developed a module of instruction that incorporated map training and terrain navigation at entry-level and built into a Fire Support planning exercise for Combined Arms Offensive and Defensive Operations.

Conclusion

As advisors, we are by default, problem solvers and by application, relationship builders. Our goal focuses on equipping our Partner Force's leadership with an outside perspective on what

direction they can take their formation and employing feasible solutions to address finite capability gaps and vulnerabilities. We gain this perspective by taking in a detailed assessment of their unit's capabilities and practices, and by conducting vigorous research involving the full faculties of each team member's skillsets and experiences. This is what enables the advisor team to speak into the partner-force Commander's decision-making. Over time, this sustained engagement builds trust between the advisor and the Partner Force leadership. In our employment, we grew to know our Honduran partners as they grew to know us; our names becoming familiar personalities within their formations.

Upon the early return of one of the members of our team, one of the Battalion Commanders asked, "Donde esta Sargento Azul?"

We explained that SSG Lemuel Blue had returned to the states to attend a Senior Leader Course, a professional development requirement for non-commissioned officers and would not be returning. A twinge of sadness colored his response as we both remembered SSG Blue's enthusiastic and inviting presence. Our advisors and the Partner Force leaders



The advisor team engages across the partner force formation to provide recommendations to address finite capability gaps and vulnerabilities; but the advisor forms the human link to the partner force, its processes, its capabilities and its leadership.

share in each other's challenges, victories, losses, and in reluctant goodbyes. During the engagement which functioned as our team's parting with the Battalion, the Commander shared, "It has been an honor training with your team. You showed that you really cared about training our soldiers, sub-officials and officials well. It has been a blessing."

In the months we worked with the Honduran Field Artillery Battalions, we found ourselves completely immersed in brainstorming solutions and recommendations for our next engagements. Late into evening and weekends, we would find ourselves in our office space, researching how to improve and refine our instruction methods; reiteratively bouncing ideas off of one another. We honed our advisor approach to a razor's edge; even as we sought to reduce vulnerabilities within the Honduran formations. Initially, we set out to build capability. Through the advising cycle, what we ended up building was a partnership.

Team Leader CPT Dang has served in the Army for nine years on both towed and rocket artillery systems. Prior to advising, CPT Dang served as a Battery Commander for an M270A1 Multiple Launch Rocket System Battery in South Korea. His battery maintained a deterrent and flexible response option to maintain armistice conditions on the peninsula and provide immediate and scalable

Fires in the event of contingency operations. CPT Dang's advisor focus remains on engagement with Partner Force leadership to expand their playbook to incorporate options for the full spectrum of contingency operations.

Assistant Team Leader SFC Quentrell Nelson has served in the Army for 10 years on M119A2 and M777A2 Howitzer systems. Prior to advising, SFC Nelson served as a Senior Drill Sergeant at Fort Benning, Georgia. Earning Drill Sergeant of Cycle, SFC Nelson demonstrated incredible aptitude in developing and molding Soldiers. SFC Nelson's advisor focus is the establishment and enhancement of systems within the Partner Force.

SSG Lemuel Blue has served in the Army for nine years on the M119A3, M777A2 and M109A6 Howitzer systems. SSG Blue has advised Partner Force Commanders in Tunisia in the establishment of the Air to Ground Integration Schoolhouse enhancing joint Fires interoperability. Advising at the national level, he provided input to the Tunisian Artillery Commandant on how his formations could more reliably meet the Five Requirements of Accurate Fire, focusing on Accurate Target Location. His advisor focus engages and equips the trainers within each Battalion to incorporate the fundamentals of reconnaissance, planning, and resourcing.

SGT Seth Wilbourne has served in the Army for four years as a Forward Observer in 1-503rd Infantry Battalion (Airborne), out of Vicenza, Italy. SGT Wilbourne honed both his skills and versatility as a Fire Supporter through employments and exercises working with a myriad of Partner Forces in the European Theatre. SGT Wilbourne's advisor focus is to build the Partner Force's ability to gain an understanding of the terrain and the enemy and to achieve effects through Fires.



Advisors greet 4th Field Artillery Battalion on the first day of a three-week Subject Matter Exchange. Pictured from left to right; LT Romero (4th FA BN S1), LTC Velasquez (4th FA BN CDR), Carlos Sierra (FAAT 1412 Linguist), CPT Joseph Dang, SFC Quentrell Nelson, SSG Lemuel Blue and SGT Seth Wilbourne.